

ELTAKO.COM

THE HOME OF INNOVATION.

MAIN CATALOGUE 2021

The logo consists of a dark blue square with the word "Eltako" written in a white, italicized, sans-serif font.

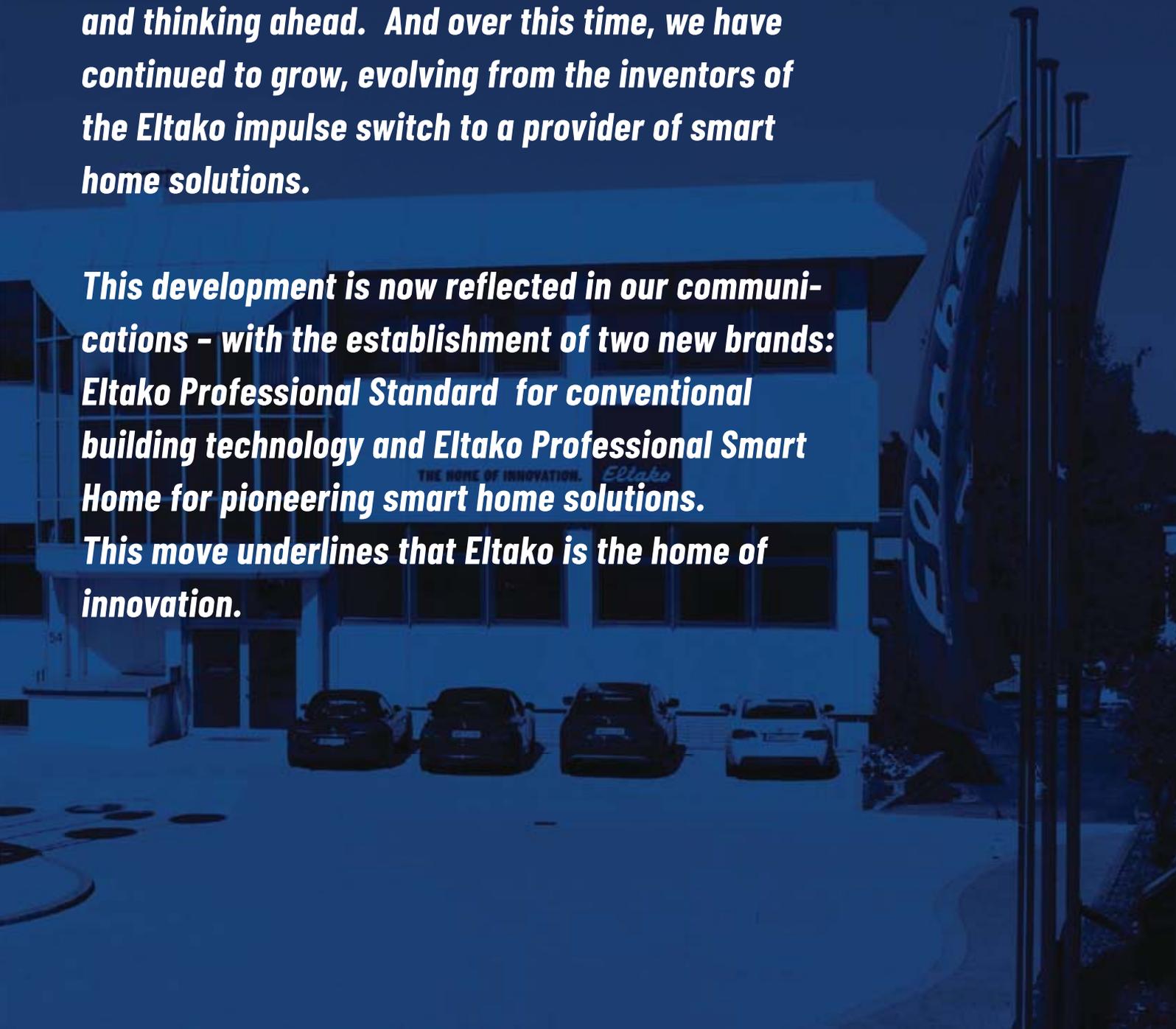
Eltako

INNOVATIVE FROM DAY ONE.

Innovation is not just part of our philosophy. It is part of our DNA. We have been putting it into action for more than 70 years, by thinking outside the box and thinking ahead. And over this time, we have continued to grow, evolving from the inventors of the Eltako impulse switch to a provider of smart home solutions.

This development is now reflected in our communications – with the establishment of two new brands: Eltako Professional Standard for conventional building technology and Eltako Professional Smart Home for pioneering smart home solutions.

This move underlines that Eltako is the home of innovation.





THE HOME OF INNOVATION.



Complete answers to your needs, not stand-alone, piecemeal products. We offer flexible, end-to-end solutions that can truly transform any building into a smart home. Based on EnOcean technologies, our systems are future-proof and easily extensible. Genuine professional-standard quality - at a good price. That's Eltako Professional Smart Home.

YOUR ONE-STOP SOURCE OF INNOVATIVE SOLUTIONS.

We offer an end-to-end portfolio of both smart home and conventional building technologies, designed for ease of installation and backed by reliable manufacturer support. Our smart home products are versatile, intelligent and future-ready - delivering greater comfort, convenience, safety, security and energy efficiency. Discover what Eltako can do for you and your customers.

01 REMOTE SWITCHES

The foundation stone of our quality products was the development of the impulse switch. Nowadays, the classics among our switching devices have become standard components in building installation systems - impulse switches and installation relays, either electro-mechanical or electronic.

02 REMOTE SWITCH SYSTEM

A cable-bound installation that has the potential to convert into a BUS system. The pushbutton input module FTS14EM is capable of sending control commands from conventional pushbuttons in order to utilise the full scope of our BUS actuators.

03 CENTRALISED WIRELESS

In the centralised Wireless Building system, wireless actuators of Series 14 are fitted centrally in the switch cabinet to control individual functions from there. This is based on the RS485-BUS.

04 DECENTRALISED WIRELESS

Decentralised actuators are mainly fitted in flush-mounted boxes. The consumer is directly connected - an ideal feature when renovating. It is also no problem to expand existing installations to include additional switching points.

05 ROLLER SHUTTER AND SHADING SYSTEMS CONTROL

A shading systems control adapted to weather and light conditions is easy to install and also saves energy. Perfect coordination of smart sensors and easy operation increases convenience and security.



CONTROL

Anywhere, anytime control of your smart home. Open the blinds via voice activation from the comfort of your couch. Monitor your house via app while on vacation. Or turn on the living-room heating when you leave work. Our innovative control and visualization capabilities make it possible.



COMFORT AND CONVENIENCE

Relax, and let your home do the hard work. The many central, time and automation functions available from Eltako allow entire houses to be configured and controlled in line with personal preferences.

SAFETY AND SECURITY

Smart is safe and secure. Eltako offers a variety of solutions that protect homes, including smoke detectors, camera surveillance systems, motion detectors, window and door monitoring devices and presence simulation.

LIGHTING

Whatever the mood you want, we provide the light to match. Activate, deactivate or dim interior, exterior or garden lights to produce exactly the effect you want - and to create your own personal feel-good ambience



ENHANCED EFFICIENCY

Energy-efficient temperature control, automatic activation and deactivation of devices, and an energy-saving absence mode ensure a marked reduction in consumption. And smart metering delivers total visibility.

06 VISUALISATION AND CONTROL SOFTWARE

The Safe and MiniSafe Professional Smart Home controllers are the core of the network. They communicate with system components whether they are cable bound or not. Secure encrypted remote access to the building is provided by app.

07 ENERGY METERS

The simplest way to sharpen your awareness about how much energy you consume is to observe your power consumption. Our modern meters are easy to fit and supply all the important information.

08 POWERLINE

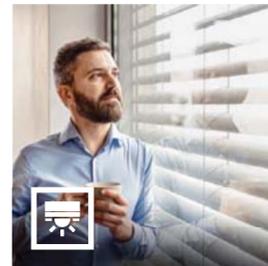
The Eltako Powerline BUS offers the option to use existing power cables as a BUS system. Sensor data are sent in telegrams over existing electricity wiring to the actuators.

09 PASSIVE AND ACTIVE SENSORS

Wireless pushbuttons, sensors with no batteries and smart wireless sensors can be fitted wherever they are required: to walls, ceilings, on glass or furniture without having to route additional wiring.

10 MULTIMEDIA

Easy and convenient to operate - by smartphone or tablet, by voice command or using wall-mounted or desk-top touch panels combined with touch buttons for rapid access to frequently used functions or scenes.



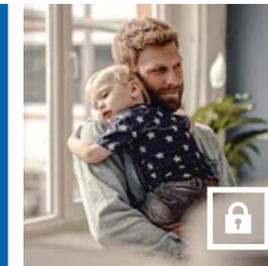
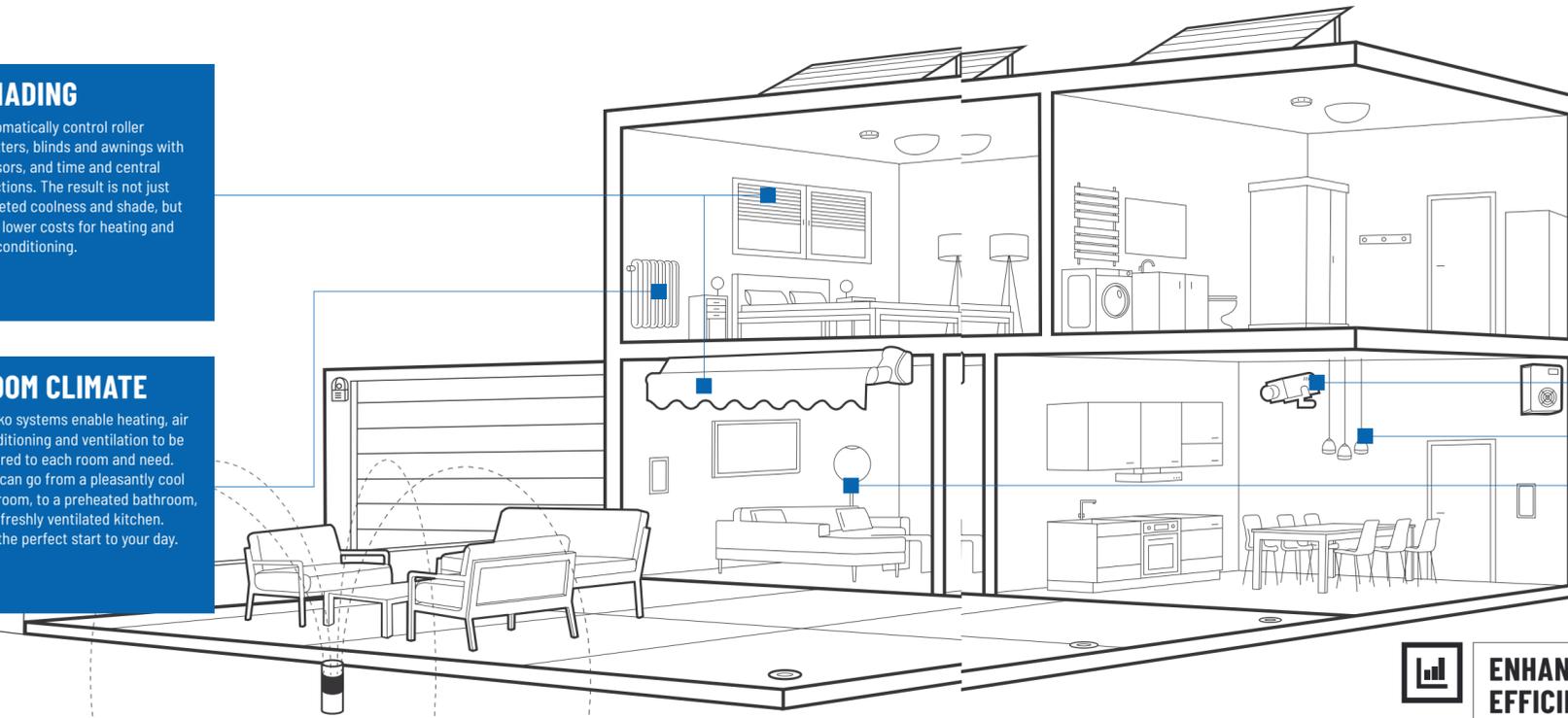
SHADING

Automatically control roller shutters, blinds and awnings with sensors, and time and central functions. The result is not just targeted coolness and shade, but also lower costs for heating and air-conditioning.



ROOM CLIMATE

Eltako systems enable heating, air conditioning and ventilation to be tailored to each room and need. You can go from a pleasantly cool bedroom, to a preheated bathroom, to a freshly ventilated kitchen. For the perfect start to your day.





As a market and technology leader for building technologies, we know what our customers need – because we have more than 70 years’ experience and, above all, because we are a reliable, fair and supportive partner. And we can meet any need, with the world’s broadest product portfolio. Eltako delivers consistently excellent quality, ease of installation and great value for money – for genuine professionals.

NEW

**FET55E-
FNS55EB-
DSS55E+
USBA+C**

CHAPTER 7

**Hygienic, partly contact-
less switching with the
wireless elbow switch and
our wireless proximity
sensors.**

**German socket (Type F)
with USB-A and USB-C
charging ports.**



IF YOU HAVE ANY QUESTIONS, JUST ASK US!

**OUR SUPPORT TEAM IS GLAD TO ASSIST YOU WITH
INSTALLATION AND INFORM YOU ABOUT NEW PRODUCTS.**

Just as professional as our products: Professional support from Eltako.

Technical support:

+49 711 943 500 25

technical-support@eltako.de

Commercial support:

+49 711 943 500 00

export@eltako.de

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S

PROFESSIONAL STANDARD

ALL SERVICES QUICKLY IN VIEW.

The performance of our devices has become so complex that we have devised pictograms to depict technical features of particular importance.



MINIMIZED STANDBY LOSS

of electronic devices supports international efforts to reduce energy consumption. 98% of the devices produced by ELTAKO have a standby loss of less than 0.8 watt.



BISTABLE SWITCHING RELAYS

help electronic switchgear to reduce heating and current consumption. This prolongs lifetime and reduces or avoids standby loss. After installation the short automatic synchronization in the Off position is carried out, partly at initial operation.



IMPULSE SWITCHES FOR CENTRAL CONTROL

offer important basic functions, even if they are not used for central control. In order to reduce the type variety we offer them partially only completely equipped with additional control inputs central on/off.



BIDIRECTIONAL WIRELESS

expands the functions of the wireless actuators by another dimension: every change in state and incoming central control telegrams are confirmed by wireless telegram. This wireless telegram can be taught-in in other actuators, the GFVS Software and in universal displays. In addition, a repeater function can partially be enabled in these actuators to reach other actuators that are located far away from the wireless source.



WITHOUT STAND-BY LOSS

Electromechanical switchgear and electronic switching devices with a special Eltako technology as well as numerous pushbuttons, sensors and transmitter modules work **without stand-by loss**.



THE UNIVERSAL CONTROL VOLTAGE 8 TO 253 V, AC 50-60 HZ AND 10 TO 230 V DC,

covers the commonly used control voltage range with one device only. We use the international abbreviation UC (universal current).



GLOW LAMPS FOR ILLUMINATION OF PUSH-BUTTONS

in parallel to pushbutton contacts can make life difficult for switchgear. A glow lamp current up to 150 mA is permitted for particular device.



THE ELTAKO RS485 BUS

connects the wireless antenna modules FAM14, FEM and/or pushbutton input modules FTS14EM with the RS485 bus actuators in the switchboard or distribution box. It is an often used and very safe 2-wire bus.



ZERO PASSAGE SWITCHING

of the mains voltage sinusoidal wave prolongs contact lifetime. This provides very high switching capacities and the shallow current flow curve protects the connected consumers.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230V AC 50Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to the contact input terminal (L). This gives an additional standby consumption of only 0.1 Watt.



SOLID STATE RELAYS

operate noiseless, switch in zero passage and are very durable, even at high switching frequency.



UNIVERSAL DIMMER

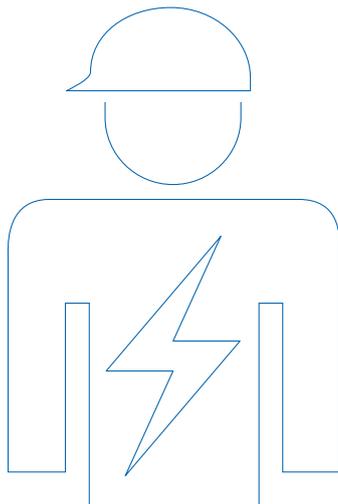
for R, L and C loads. Our universal dimmer switches recognize automatically the connected load and adjust their dimmer function accordingly. Other dimmers have to be replaced when luminaires with different kind of loads will be used later on.

Only universal dimmer switches with the added ESL marking and added LED marking have the associated comfort settings.



ENCRYPTED WIRELESS SYSTEM

The internet transmissions of the GFVS software to smartphones and M2M communications are generally highly encrypted. Many wireless pushbuttons can be taught-in encrypted in actuators of the Series 61 and 71 as well as the FAM14.



Only a trained electrician may install our devices with mains voltage connection, otherwise there is a risk of fire or electric shock.

It is therefore prohibited to sell to other customers for this reason otherwise the risk passes to the seller.

Special models and non-standard control voltages are only supplied ex works. Any return is excluded.

Subject to change! The product descriptions on the internet are valid only for newly manufactured devices at that time.

Also this print-catalogue is only a snap-shot. Older and newer devices might differ from them. Therefore, only the operation instructions enclosed with the devices are binding. Terms of delivery see page S-4.

All articles are available with Declarations of Conformity that document compliance of the devices with the Low-Voltage Directive 2014/35/EU and/or the EMC Directive 2014/30/EU.

The **CE** mark is affixed to the devices and the packaging. All articles comply with EU Directives 2011/65/EU (RoHS) and 1907/2006/EC (REACH) and contain no substances that are on the candidate list.

ENTER THE SMART HOME WORLD.

DISCOVER OUR INTELLIGENT TECHNOLOGIES!

No matter what system you wish to install, and in what kind of building – Eltako Professional Smart Home makes it possible. We offer intelligent, end-to-end, made-to-measure packages, not stand-alone solutions. Discover our impressive armory of products of exceptional high quality and extensibility. They offer great value for money and make any home into a smart home – and will turn you into your customers' very own knight in shining armor





**TOGETHER,
WE CAN GO
FURTHER.**

**HAND-IN-HAND WITH OUR PROFESSIONALS,
YOU'LL MAKE EVERY PROJECT A SUCCESS.**

Eltako Professional Standard simplifies system installation by means of a unique product portfolio, consistently high quality and outstanding value for money. We offer professional, practical support, enabling you to rapidly overcome any challenge. Working as a team, we'll get more done. And better.



**FAM14
FSR14-
FUD14
FSU14**



**SERIES 14 – A NEW CHAPTER IN THE
CENTRALISED INSTALLATION OF WIRELESS
ACTUATORS.**

Series 14 – RS485-Bus rail-mounted devices for the centralised Wireless Building installation

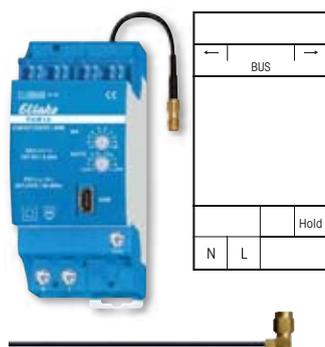
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The Eltako wireless system works with the reliable and worldwide standardized EnOcean wireless technology in 868 MHz.

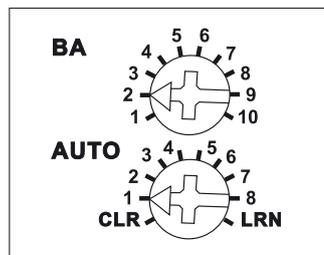
It transmits ultra short and interference-proof signals with a range of up to 100 meters in halls.

Eltako wireless pushbuttons reduce the electrosmog load since they emit high-frequency waves that are 100 times weaker than conventional light switches. There is also a significant reduction in low-frequency alternating fields since fewer power cables need to be installed in the building.



The enclosed small antenna can be replaced with a wireless antenna FA250 or if need be FA200 with magnetic base and cable.

Function rotary switches



Standard setting ex works.

Housing for operating instructions GBA14 page 1-44.



FAM14



Wireless antenna module for the Eltako RS485 bus with exchangeable antenna. With integrated power supply unit 12 V DC/8 W. Bidirectional. Encrypted wireless. Only 1 watt standby loss. If required, a wireless antenna FA250 or FA200 can be connected.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 module = 36 mm wide, 58 mm deep. Supply voltage 230 V.

The delivery includes 1 Spacer DS14, 2 terminators with printing Ω, 1/2 module, 3 jumpers 1 module (including 1 spare), 1 jumper 1,5 TE, 2 jumpers 1/2 module (including 1 spare) and 1 jumper installation tool SMW14.

The wireless antenna module FAM14 receives and tests all signals from wireless transmitters and repeaters within the receiving range. These are transmitted via an RS485 interface to RS485 bus switching actuators connected in series:

Up to 126 channels can be connected to the Eltako RS485 bus. Bus cross wiring and power supply with jumper.

The attached second terminator has to be plugged to the last actuator.

You can teach in up to 128 encrypted sensors.

Mini USB to connect to a PC, to create an equipment list, to configure the actuators using the PC tool PCT14 and for data backup. A legalisation code to download the PCT14 from the Eltako website www.eltako.com is supplied with the FAM14.

Gateways FGW14 and FGW14-USB will be connected to the terminal Hold when they connect a PC with a RS232 bus and/or up to 3 wireless receiver modules FEM with a sub-bus RS485.

FTS14EM, FTS14TG and FWG14MS will be also connected to terminal Hold.

The lower rotary switch is required to teach in encrypted sensors and can be turned to AUTO 1 in operation. Unencrypted sensors need not be taught-in in the FAM14.

With the upper rotary switch BA 10 different operating modes can be set as described in the operating instructions.

The upper LED displays all perceived wireless commands in the reception area by short flickering.

The bottom LED lights up green if a connection from the PC tool PCT14 to the FAM14 was created. When reading or writing date the LED flashes green. The green LED goes out if the connection from the PC tool PCT14 to the FAM14 was terminated.

At a load of more than 50% of the rated capacity of 8W a ventilation clearance of 1/2 module must be maintained with the spacer DS14 on the left side.

FAM14	Wireless antenna module	EAN 4010312313695	103,90 €/pc.
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FA250 AND FA200

Wireless antennas with magnetic base

The small enclosed wireless antenna of the wireless antenna modules FAM14 can be replaced by a larger antenna to feed wireless signals into metallic switching cabinets. It is mounted on the magnetic base externally and the cable is routed inside the cabinet to the FAM14.

Height of the FA250 only 10 cm, height of the FA200 59 cm.

FA250	Wireless antenna with 250 cm cable, black	EAN 4010312300244	23,90 €/pc.
FA250-gw	Wireless antenna with 250 cm cable, grey white	EAN 4010312317051	23,90 €/pc.
FA200	High-performance receive antenna with 200 cm cable	EAN 4010312303306	72,70 €/pc.

WIRELESS RECEIVER ANTENNA MODULE FEM

1-4



FEM



Wireless receiver antenna module for the RS485 sub-bus. Only 0.5 watt standby loss.

SMA socket for small enclosed antenna. The reception range can be increased by placing a larger wireless antenna FA250* or FA200* in the optimised position.

Housing dimensions L x W x H: 78 x 40 x 22 mm.

Up to three wireless receiver modules in a separate mini-housing can be installed at any point in the building in addition to an FAM14 and connected via a Gateway FGW14 to the main bus by a 4-wire screened sub-bus line (e.g. telephone line).

Therefore connect the terminals RSA/RSB of the FEM with the terminals RSA2/RSB2 of the FGW14.

Also connect the terminals +12 V/GND of the FEM with the terminals +12 V/GND of the FGW14.

Wiring of several FEM should take place with a line in the form of a chain, as prescribed in RS485 bus systems.

A radial wiring with one line per FEM is not allowed.

In each of the three wireless receiver modules, the jumper must be plugged into a different position.

For this purpose, carefully open the housing on the narrow side with a screwdriver at the side provided.

Blade width 6.5 mm, max. 1.5 mm thick.

* see chapter Z
WEEE registration number DE 30298319

FEM	Wireless receiver antenna module	EAN 4010312313848	81,20 €/pc.
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FEM65-wg



Wireless receiver antenna module for the RS485 sub-bus. In the housing for surface mounting 84 x 84 x 30 mm or mounting into the E-Design65 switching system. Only 0.5 watt standby loss.

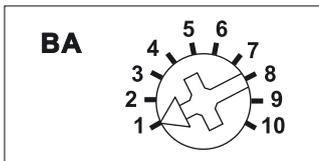
We recommend stainless-steel countersunk screws 2.9 x 25 mm, DIN 7982 C for screw fixing on 55 mm switch boxes. Set of 2 stainless-steel countersunk screws 2.9 x 25 mm and plugs 5 x 25 mm are enclosed.

Up to three wireless receiver modules FEM and/or FEM65 can be installed at any point in the building in addition to a FAM14 and connected via a gateway FGW14 to the main bus by a 4-wire screened sub-bus line (e.g. telephone line).

FEM65-wg	Wireless receiver antenna module, pure white glossy	EAN 4010312315934	85,90 €/pc.
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Mode switch



Standard setting ex works.

Housing for operating instructions GBA14 page 1-40.

FGW14



Multiple Gateway. Bidirectional. Only 0.5 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18mm wide, 58mm deep. The gateway is only 1 module wide but has multiple uses: For coupling of up to three FEM, for direct connection via the RS232 interface with the PC, for connection to the bus components of the older Series 12 or as a bus connector of two RS485 buses of Series 14.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Operation in conjunction with FAM14 or FTS14KS.

The Hold terminal is connected to the FAM14 or the FTS14KS. Wireless receiver modules FEM are connected in parallel to the sub-bus terminals RSA2 and RSB2 as well as the power supply terminals GND and +12V.

Up to 10 pushbutton input modules FTS12EM can be connected in series to the sub-bus terminals RSA2 and RSB2. If necessary in series with wireless receiver modules FEM.

The PC connection is via connection to the terminals Tx and Rx.

Series 12 actuators are connected to the sub-bus terminals RSA2 and RSB2. There is no Hold connection in this case.

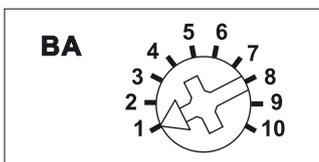
A second series 14 bus is fed into the terminals RSA2/RSB2.

The settings of the **operating mode rotary switch BA** are carried out as described in the operating instructions.

FGW14	Multiple gateway	EAN 4010312313855	58,30 €/pc.
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Operating mode rotary switch



Standard setting ex works.

Housing for operating instructions GBA14 page 1-40.

FGW14-USB



Gateway with USB-A connection. Bidirectional. Only 0.3 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. The gateway is only 1 module wide but has multiple uses: To connect a Smart Home central unit SafeIV or PC via a USB interface, to couple up to three FEM devices, for connection to the bus components of the older Series 12 or as a bus connector of two RS485 buses of Series 14.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper. Operation in conjunction with FAM14 or FTS14KS.

The Hold terminal is connected to the FAM14 or the FTS14KS. The PC is connected via a USB interface running at 9600 baud or 58 kbaud. Wireless receiver modules FEM are connected in parallel to the sub-bus terminals RSA2 and RSB2 as well as the power supply terminals GND and +12 V.

Up to 10 pushbutton input modules FTS12EM can be connected in series to the sub-bus terminals RSA2 and RSB2. If necessary in series with wireless receiver modules FEM.

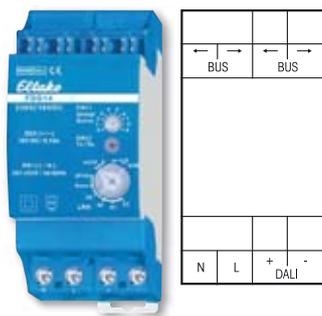
The SafeIV or PC connection is via connection to the terminals Tx and Rx.

Series 12 actuators are connected to the sub-bus terminals RSA2 and RSB2. There is no Hold connection in this case.

A second series 14 bus is fed into the terminals RSA2/RSB2.

The settings of the **operating mode rotary switch BA** are carried out as described in the operating instructions.

FGW14-USB	Gateway with USB connection	EAN 4010312316054	58,30 €/pc.
USB-Kabel	2 m long, Type A, ST/BU	EAN 4010312907702	11,70 €/pc.



FDG14



DALI gateway, bidirectional. Only 1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Operation in conjunction with FAM14.

Power supply 230 V at terminals N and L.

16 V DC/130 mA can be connected to the DALI terminals +/- for up to 64 DALI devices.

The gateway FDG14 controls DALI devices with EnOcean wireless transmitters via the FAM14.

As of production week 14/16 **Groups 0-15** can be controlled and the **broadcast command** can be sent. In addition **DALI scenes 0-15** can be recalled.

DALI installations, which are to be fully controlled with the FDG14, must be configured in groups 0-15.

The FDG14 internally saves the dimming value for each of the groups 0-15 and supplies this value as feedback. The same feedback telegrams are generated as for an FUD14. The FDG14 occupies 16 BR14 device addresses. The feedbacks of the device addresses correspond to the dimming values of the DALI groups 0-15 in ascending order. Feedbacks can be converted by the PCT14 for each individual group of dimming value telegrams (%) to pushbutton telegrams (ON/OFF). Feedbacks can then control BR14 actuators. The FDG14 fulfils the function of the DALI master and the DALI power supply. The rotary switches can only teach in pushbuttons for groups 0-8 and DALI scenes 0-9. Activation telegrams for groups 9-15 and scenes 10-15 are only possible by entries in PCT14.

As of Production Week 30/19, the FDG14 can be used as a single-channel device '**FDG14-Broadcast**'. This is defined when the device address is issued.

Important: Wireless pushbuttons always need to be double-clicked when they are taught-in manually in the FDG14. CLR only needs a single click.

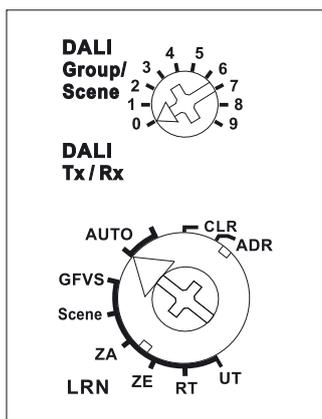
A direction pushbutton or universal pushbutton with identical ID and identical pushbutton can be taught in several times in different groups. The group last selected is always valid. Therefore, a pushbutton can either switch only one group or broadcast to all groups.

One FBH per group can also be taught in. With a manual teach-in this always acts dependent on brightness.

With PCT14 you can also set the brightness threshold.

The delay time for switch-off after no motion is detected can be set together in minutes (1 ... 60) for the FBH devices of all groups. The default is 3 minutes.

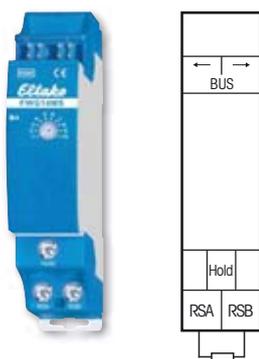
Function rotary switches



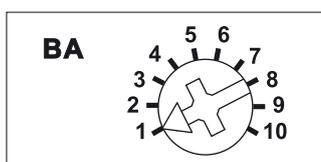
Standard setting ex works.

Housing for operating instructions GBA14 page 1-40.

FDG14	DALI gateway	EAN 4010312316085	90,10 €/pc.
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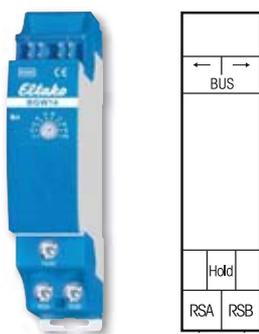
Operating mode rotary switch



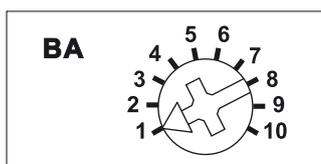
Standard setting ex works

Further settings can be made using the PC Tool PCT14.

Housing for operating instructions GBA14 page 1-40.



Mode switch



Standard setting ex works.

Housing for operating instructions GBA14 page 1-40.

FWG14MS



Weather data gateway for multi sensor MS. Bidirectional. Only 0.3 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 modul = 18 mm wide, 58 mm deep.

A multisensor MS at the gateway is connected to terminals RSA and RSB. The information is received once per second and converted into bus telegrams.

However, several FWG14MS can be connected to a multisensor MS e.g. to control several Eltako RS485 buses with only one MS multisensor. Only at one FWG14MS must the end resistor connected. At additional FWG14MS, this resistor must be removed.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper. Operation in conjunction with FAM14 or FTS14KS.

The Hold terminal is connected to the FAM14 or the FTS14KS. A maximum of two FWG14MS devices can be operated in one bus. The telegram duplicator FTD14 can also send telegrams over the Wireless Building System after the IDs of the FGW14MS are taught in the FTD14 or entered using the PTC14. Receiving devices can then be FSB14, FSB61NP and FSB71. If the multisensor MS signal is not received, an alarm telegram is sent. Using the PC Tool PCT14, 96 inputs can be AND or OR linked and up to 12 outputs can be output.

The **BA operating mode rotary switch** can be configured according to the operating instructions.

FWG14MS	Weather data gateway	EAN 4010312316887	58,30 €/pc.
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BGW14



RS485 bus gateway. Bidirektional. Bidirectional. Only 0.3 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Operation in conjunction with FAM14 or FTS14KS.

The Hold terminal is connected to the FAM14 or the FTS14KS.

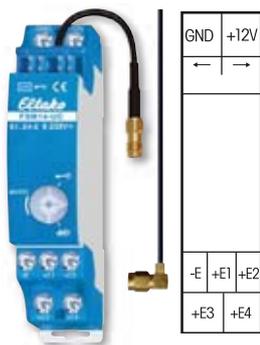
Up to 16 RS485 sensors, e.g. BUTH65D/12V DC, BBH65/12V DC and BTR65H/12V DC can be connected to the RSA/RSB terminals. See chapter 8, page 8-19 and 8-20. Standard telephone wire is sufficient as connecting lead: J-Y (ST) Y 2x2x0,8 mm² or equivalent.

The permitted maximum line length is 1000 m. The second 120 Ω terminal resistor must also be connected to the RSA/RSB terminals of the remotest sensor.

With up to 8 BGW14 devices, the data of up to 128 sensors can be fed to the RS485 bus.

Set the **operating mode rotary switch BA** according to the operating instructions.

BGW14	RS485 bus gateway	EAN 4010312319062	58,30 €/pc.
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FSM14-UC



Wireless 4-fold transmitter module. With exchangeable antenna. If required, a wireless antenna FA250 can be connected. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper. Alternatively, the power supply can be performed with a switching power supply unit 12 V DC at the terminals +12 V/GND.

This wireless transmitter module has four channels and, like a wireless 4-way pushbutton, it can transmit wireless telegrams into the Eltako wireless network. E1 initiates a wireless telegram like 'press rocker above' of a wireless pushbutton with one rocker, E2 like 'press rocker below', E3 like 'press left rocker above' of a wireless pushbutton with double rocker and E4 like 'press left rocker below' of a wireless pushbutton with double rocker.

The telegram on opening the control contacts is identical like 'release wireless pushbutton'.
Several wireless transmitter modules must not be switched at the same time.

The universal control voltage at +En/-E processes control commands from 8 to 253 V AC or 10 to 230 V DC with a length of at least 0.2 seconds. Max. parallel capacitance (approx. length) of control lead at 230 V 0.9 µF. This corresponds to a length of approx. 3000 meters.

If the terminals E1 and E2 are connected with a bridge, the wireless telegram is transmitted from E2, as long as the control voltage is applied, e.g. for central commands with priority.

The rotary switch is required for the activation or deactivation of encryption and is set to AUTO in operation.

Activate encryption: Turn the rotary switch to the right stop (position key) and press once.

Deactivate encryption: Turn the rotary switch to the left stop (position crossed out key) and press once.

Housing for operating instructions GBA14 page 1-40.

FSM14-UC	Wireless 4-fold transmitter module	EAN 4010312316078	60,00 €/pc.
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Further settings can be made using the PC Tool PCT14.

F3Z14D

**Wireless meter concentrator for electricity, gas and water meters.
For 3 S0 interfaces and/or 3 AFZ scanners, only 0.1 watt standby loss.**

Modular device for DIN-EN 60715 TH35 rail mounting. 1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

This meter concentrator concentrates the data of up to three electricity, data and water meters and supplies this data to the RS485 bus. Either for forwarding to an external computer or for sending over the Wireless Building System.

Hook-up is either by connection to the S0 interface of the meters or by use of an AFZ scanner on each Ferraris meter. The scanner is bonded above the rotary disc of the meter and connected by its connecting wire to one of the S01-S03/GND terminals. The F3Z14D detects automatically whether an S0 interface or an AFZ is connected.

The meter reading is entered into the display by two pushbuttons as well as the impulse rate (number of impulses or revolutions per kilowatt hour or cubic meter). The settings can be locked.

Meter readings can be entered and read out using the **PCT14 PC Tool**. In addition, impulse rates can be entered. The default display is selectable and operation of the device is interlocked.

The display is subdivided into 3 fields.

Field 1:

The default display is the unit of the meter reading currently displayed in field 3, either in kilowatt hours kWh or megawatt hours MWh or cubic meter M3 or cubic decametre DM3

Field 2:

Momentary value of active power in watts and kilowatts or flow in centilitres and decilitres.

The arrow on the left in display field 1 indicates automatic switchover from 0-99 W or cl/s to 0.1 to 65 kW or dal/s. The display depends on the number of impulses of the meter.

The displayed minimum load is e.g. 10 watts at 2000 impulses per KWH and 2000 watts at 10 impulses per KWH.

Field 3:

The meter reading is the default display. Every 4 seconds, the display alternates between 3 integer numbers and 1 decimal point (from 0 to 999.9) and an additional 1 or to 3 integer numbers (from 0 to 999).

Select meter in display:

Press MODE and then press MODE again to select the **ANZ function**. Press SET to select the meter number to be displayed as default. Press MODE to confirm.

Issue device address in the bus and send teach-in telegrams as described in the operating instructions.

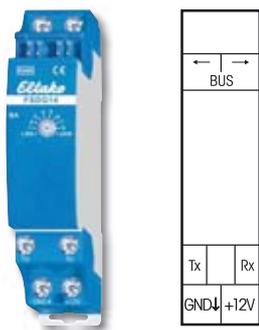
All Eltako energy meters are fitted with an S0 interface and can therefore be connected to the energy meter concentrator F3Z14D. Only devices FWZ14-65A, DSZ14DRS-3x80A and DSZ14WDRS-3x5A are directly connected to the bus.

Housing for operating instructions GBA14
page 1-40

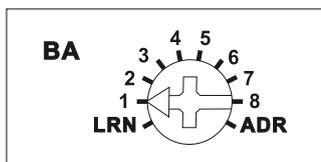
F3Z14D	RS485 bus meter collector	EAN 4010312501528	51,40 €/pc.
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1-10



Function rotary switch



Standard setting ex works.



IR scanner for energy meters

Housing for operating instructions GBA14 page 1-40.

FSDG14



Wireless energy meter data gateway for meters equipped with an IEC 62056-21 IR interface. 2 channels. Only 0.4 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

This energy meter data gateway can provide the data of an electronic domestic supply meter (eHZ-EDL) with IR interface according to IEC 62056-21 and SML protocol version 1 to the RS485 bus. Either for forwarding to an external computer or the GFVS software.

Regular flashing of the **green LED** indicates that the FSDG14 is receiving data from the meter. Active power, up to 4 meter readings and the serial number are transferred. The serial number corresponds to the last 4 bytes (hex) of the server ID printed on the meter. The telegram is sent over the wireless building service by means of the wireless antenna module FAM14. Usage data are transmitted over channel 1 and delivery data over channel 2. It is therefore essential for the FAM14 to issue a device address. If there is a change in active power or a meter reading, the appropriate telegram is sent immediately and all telegrams including the serial number are sent cyclically every 10 minutes.

Also display with FEA65D.

The PCT14 PC tool can also read out the FSDG14.

Turn the rotary switch to select the following operating modes (OBIS codes according to IEC 62056-61):

- 1: Usage meter (1.8.0) and usage power on channel 1, delivery meter (2.8.0) and delivery power on Channel 2.
- 2: Usage tariff 1 (1.8.1) and tariff 2 (1.8.2) and usage power on channel 1, delivery tariff 1 (2.8.1) and tariff 2 (2.8.2) and delivery power on channel 2.
- 3: Usage tariff 1 (1.8.1) and tariff 2 (1.8.2) and usage power on channel 1, delivery meter (2.8.0) and delivery power on Channel 2.
- 4: Usage meter (1.8.0) and usage power on channel 1, delivery tariff 1 (2.8.1) and tariff 2 (2.8.2) and delivery power on channel 2.

The link is made by using an AIR IR scanner. The scanner is attached by its fixing magnets to the IR output of the meter and is connected by its connecting cable to terminals Rx, GND and +12 V.

FSDG14	RS485 bus energy meter data gateway	EAN 4010312316146	46,50 €/pc.
AIR	IR scanner for energy meters	EAN 4010312316153	99,80 €/pc.



PCT14

The PC tool for Series 14 and 71

PCT14 is a PC-installed service program (PC Tool) to acquire, edit, save and reimport the settings of Eltako Series 14 and 71 actuators.

It belongs to the scope of supply of the FTS14KS as well as the FAM14 and must be downloaded from the download page of the Eltako website at www.eltako.com.

Quick Start Guide for Series 14 and 71; after installing PCT14:

1. Establish connection between PC and FAM14, FTS14KS or DAT71.

Connect the PC and the mini-USB port with a USB cable.

It may happen that the first connection automatically installs a driver.

If the connection is successful, the status bar displays the used COM.

2. Create device list; after installing the actuators

Right-click in the left window section to display the context menu.

Select the command 'Update device list and read device memory' from the context menu.

After the query for the RS485 bus, all the available devices are displayed.

Other actions can be carried out by executing context menu commands. Right-click to display the context menu. The status line is located at the lower border of the program window and contains information on the context menu commands.

Click on 'Help' for more information.

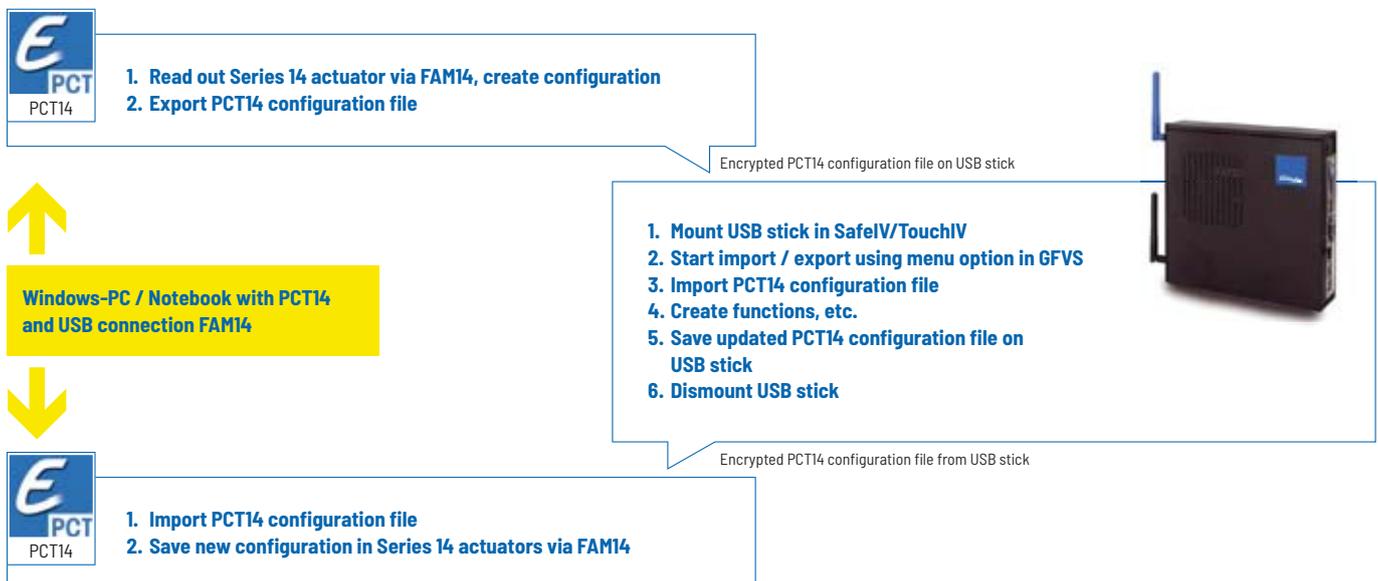
PCT14 PC Tool with export and import functions

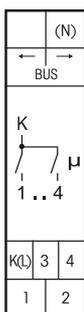
PCT14 is capable of reading all sensor-actuator set-ups from Series 14 and Series 71 actuators fully automatically and exporting the data to the GFVS. The virtual pushbutton is generated here for GFVS and is then re-imported to Series 14 actuators.

Saved designations are also transferred. Overlaying the GFVS on a fully set-up Series-14 Wireless Building System is then a simple task for an electrician. For data exchange a Windows-PC/Notebook is needed.

PCT14	PC tool for Series 14 and 71	Included in the scope of supply of the FAM14 and FTS14KS
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PROCESS OF PCT14 – GFVS DATA EXCHANGE TOOL IMPORT / EXPORT FOR PCT14 AND GFVS 4.0





FSR14-4x



4-channel impulse switch with integrated relay function, 1 NO contact per channel 4 A/250 V AC, incandescent lamps 1000 watts, potential free from the power supply, with DX technology. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper. Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to K(L). This results in an additional standby consumption of only 0.1 watt.

When all 4 relays of the FSR14-4x are switched on, a power of 0.7 watts is required.

If supply voltage fails, the device is switched off in defined mode.

The channels can be taught-in as ES and/or ER channel separately from each other.

Scene control:

Several channels of one or several FSR14-4x devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene pushbutton.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS. To do this, teach-in one or several FSR14-4x devices.

Use the rotary switches to teach-in the pushbuttons and test the 4 channels as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, separated for each channel, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating instructions.

When wireless brightness sensors are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0lux in position 0 to approx. 50lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off.

An additionally set RV time is not taken into account.

Only one FBH (Master) or FAH can be taught-in per channel. However a FBH (Master) or FAH can be taught-in into several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK.

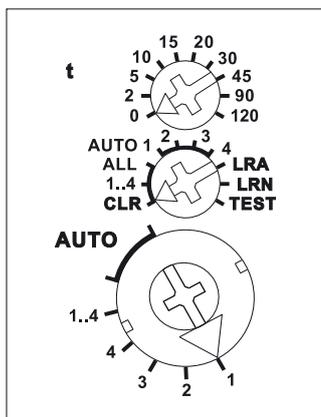
After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

Function with **wireless smoke alarm detectors FRW** or **water sensors** according to the operating instructions.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

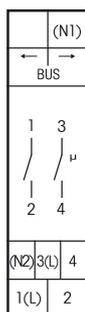


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

FSR14-4x	RS485 bus actuator Impulse switch with integr. relay function	EAN 4010312313701	53,50 €/pc.
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FSR14-2x



2-channel impulse switch with integrated relay function, 1+1 NO contacts potential free 16 A/250 V AC, incandescent lamps 2000 watts, with DX technology. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N1) and L to 1(L) and/or N to (N2) and L to 3(L). This results in an additional standby consumption of only 0.1 watt.

If supply voltage fails, the switching state is retained.

When power is restored, the device is switched off in defined mode.

The channels can be taught-in as ES and/or ER channel separately from each other.

Scene control:

Several channels of one or several FSR14-2x devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene pushbutton.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS. To do this, teach-in one or several FSR14-2x devices.

Use the rotary switches to teach-in the pushbuttons and test the 2 channels as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, separated for each channel, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating instructions.

When wireless brightness sensors are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0lux in position 0 to approx. 50 lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off. An additionally set RV time is not taken into account. Only one FBH (Master) or FAH can be taught-in per channel. However a FBH (Master) or FAH can be taught-in into several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK.

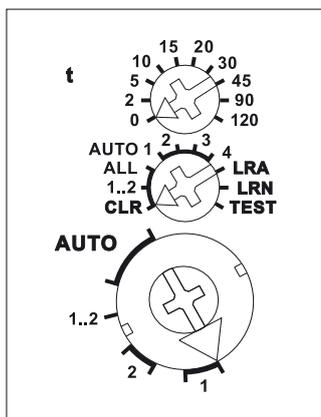
After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

Function with **wireless smoke alarm detectors FRW** or **water sensors** according to the operating instructions.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

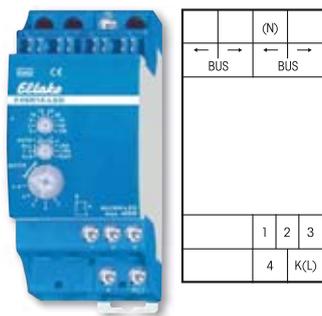


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

FSR14-2x	RS485 bus actuator Impulse switch with integr. relay function	EAN 4010312313718	55,10 €/pc.
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F4SR14-LED



4-channel impulse switch with integrated relay function, 1 NO contact per channel up to 400 W 230 V LED, incandescent lamps 1800 watts, potential free from the power supply, with DX technology. Bi-directional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

230 V LED lamps can be switched up to 400 W and up to a maximum inrush current of 25 A/100 ms per NO contact.

Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to K(L). This results in an additional standby consumption of only 0.1 watt.

When all 4 relays of the F4SR14-LED are switched on, a power of 1 watt is required.

If supply voltage fails, the device is switched off in defined mode.

The channels can be taught-in as ES and/or ER channel separately from each other.

Scene control:

Several channels of one or several F4SR14-LED devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene pushbutton.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS.

To do this, teach-in one or several F4SR14-LED devices.

Use the rotary switches to teach-in the pushbuttons and test the 4 channels as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, separated for each channel, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating manual.

When wireless brightness sensors are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0 lux in position 0 to approx. 50 lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off. An additionally set RV time is not taken into account. Only one FBH (Master) or FAH can be taught-in per channel. However a FBH (Master) or FAH can be taught-in into several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

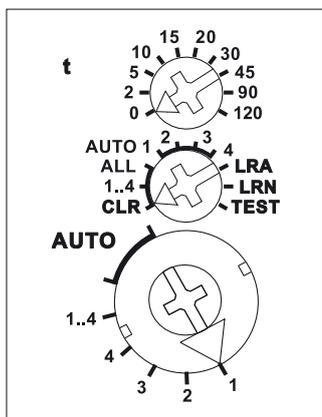
One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK. After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

Function with **wireless smoke alarm detectors FRW** or **water sensors** according to the operating instructions.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

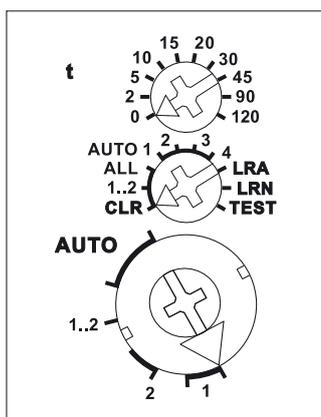
Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

F4SR14-LED	RS485 bus actuator Impulse switch with integr. relay function	EAN 4010312317006	68,50 €/pc.
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Function rotary switches



Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

FSR14SSR



1-15

Noiseless 2-channel impulse switch with integrated relay function, 400 W.
2 solid state relays not potential free. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

If both relays of the FSR14 are switched on, a power of 0.4 watts is required.

The rated switching capacity of 400 W is applied for one contact and also for the sum of the two contacts. The parallel connection of multiple devices to increase power is allowed.

From manufacturing date 12/17 with automatic overtemperature shutdown.

With a load < 1W a GLE must be switched parallel to the load.

If supply voltage fails, the device is switched off in defined mode.

The channels can be taught-in as ES and/or ER channel separately from each other.

Scene control:

Several channels of one or several FSR14SSR devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene pushbutton.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS.

To do this, teach-in one or several FSR14SSR devices.

Use the rotary switches to teach-in the pushbuttons and test the 2 channels as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, separated for each channel, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating instructions.

When wireless brightness sensors are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0 lux in position 0 to approx. 50 lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off. An additionally set RV time is not taken into account. Only one FBH (Master) or FAH can be taught-in per channel. However a FBH (Master) or FAH can be taught-in into several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK.

After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

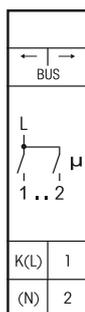
Function with **wireless smoke alarm detectors FRW** or **water sensors** according to the operating instructions.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

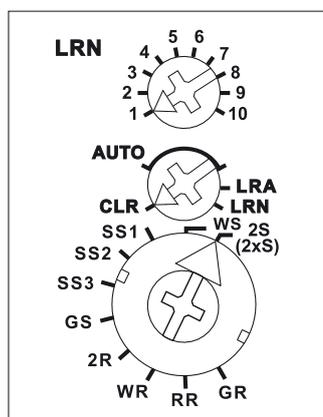
FSR14SSR	RS485 bus actuator Noiseless 2-channel impulse switch	EAN 4010312313893	59,20 €/pc.
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RS485 BUS ACTUATOR MULTIFUNCTION IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION FMS14

1-16



Function rotary switches



Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
Technical data, see page 1-44.
Housing for operating instructions GBA14 page 1-40.

FMS14



Multifunction impulse switch with integrated relay function, 1+1 NO potential free 16 A/250 V AC, incandescent lamps 2000 W, with DX technology. Bidirectional. Only 0.1-0.6 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to K(L). This results in an additional standby consumption of only 0.1 watt.

Maximum current over both contacts 16 A for 230 V.

If supply voltage fails, the device is switched off in defined mode.

When both relays of the FMS14 are switched on, 0.6 watt are required.

The upper and the middle rotary switches are for teaching-in the sensors. In normal mode, the middle rotary switch is then set to AUTO and the bottom rotary switch to the required function:

2S = Impulse switch with 2 NO contacts

(2xS) = 2-way impulse switch each with one NO relay

WS = Impulse switch with 1 NO contact and 1 NC contact (0.3 watt standby loss)

SS1 = Impulse multi circuit switch 1+1 NO contacts for switching sequence 1

SS2 = Impulse multi circuit switch 1+1 NO contacts for switching sequence 2

SS3 = Impulse multi circuit switch 1+1 NO contacts for switching sequence 3

GS = Impulse group switch 1+1 NO contacts

2R = Switching relay with 2 NO contacts

WR = Switching relay with 1 NO contact and 1 NC contact (0.3 watt standby loss)

RR = Switching relay (closed-circuit current relay) with 2 NC contacts (0.5 watt standby loss)

GR = Group relay 1+1 NO contacts

Switching sequence SS1: 0 - contact 1(K-1) - contact 2(K-2) - contact 1 + 2

Switching sequence SS2: 0 - contact 1 - contact 1 + 2 - contact 2

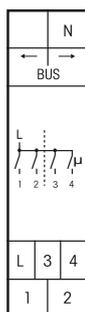
Switching sequence SS3: 0 - contact 1 - contact 1 + 2

Switching sequence GS: 0 - contact 1 - 0 - contact 2

GR: Relay with alternating closing contacts.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

FMS14	RS485 bus actuator - Multifunction impulse switch with integrated relay function	EAN 4010312313725	43,80 €/pc.
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FSB14



Switch actuator for shading elements and roller shutters with 2 channels for two 230 V motors. 2+2 NO contact 4 A/250 V AC, potential free from power supply 12 V. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Zero passage switching to protect contacts and motors.

A motor is connected to 1, 2 and N; a second motor may be connected to 3, 4 and N.

If both relays of the FSB14 are switched on, a power of 0.4 watts is required.

If supply voltage fails, the device is switched off in defined mode.

The pushbuttons can be taught-in either as direction switches or universal switches:

Local control with universal pushbuttons: Each impulse causes the FSB14 to change its position in the UP-Stop-DOWN-Stop sequence.

Local control with direction pushbutton: A top impulse by pushbutton directly activates the 'UP' switch position. A bottom impulse by pushbutton directly activates the 'DOWN' switch position.

A further impulse from one of the two pushbuttons stops the sequence immediately.

Central control dynamic without priority: A control signal from a pushbutton which was taught-in as a central control pushbutton without priority directly activates the switch position 'Up' with a scanning pulse up and the switch position 'Down' with a scanning pulse down. Without priority because this function can be overridden by other control signals.

Central control dynamic with priority: A control signal of min. 2 seconds from a pushbutton which was taught-in as a central control push-button with priority directly activates the switch position 'Up' (press top) and the switch position 'Down' (press bottom). With priority because these control signals cannot be overridden by other (local) control signals **until** the central control signal is cancelled by pressing again the central control pushbutton 'Up' or 'Down'.

The switch position 'up' or 'down' and the priority are specifically activated with a control signal, e.g. from a FSM61 taught-in with priority as a central pushbutton. With priority because these control signals cannot be overridden by other control signals **until** the central command is cancelled by the termination of the control signal.

Shading scene control: With a control signal of a pushbutton with double rocker taught-in as a scene pushbutton or automatically by an additional taught-in wireless-outdoor-brightness sensor, up to 4 previously filed elapse times can be accessed.

With control via GFVS software, operating commands for up and down with the exact travel time information can be started. As the actuator reports the exact elapsed time after each activity, even when driving was triggered by a pushbutton, the position of the shading is always displayed correctly in the GFVS software. Upon reaching the end positions above and below the position is automatically synchronized.

Function rotary switch below

AUTO 1 = In this position, the **local advanced automatic reversing system for Venetian blinds** is activated. When a universal pushbutton or a direction pushbutton are used for control a double impulse activates a slow rotation in the opposite direction, which can be stopped with a further impulse. **AUTO 2**

= In this position, the local advanced automatic reversing system for Venetian blinds is completely switched off. **AUTO 3** = In this position, the local pushbuttons act static at first, thus, allow **reversal of Venetian blinds** by operating pushbuttons. They only switch to dynamic after 0.7 seconds continuous operation. **AUTO 4** = In this position, the local pushbuttons act only static (ER function). The time delay RV (wiping time) of the upper rotary switch is active. Central control is not possible.

▲▼ = ▲ (UP) and ▼ (DOWN) of the lower rotary switch are the positions for manual control. Manual control has priority over all other control commands.

WA = Automatic reversal for Venetian blinds and awnings is controlled by the middle rotary switch. 0 = OFF, otherwise from 0.3 to 5 seconds ON with the selected reversal time. In this case, it is only for DOWN that the direction is reversed on time-out of the time lag selected by the top rotary switch, e.g. to extend awnings or set Venetian blinds to a defined position. A LED is located behind the RV-rotary switch to show the reversal time.

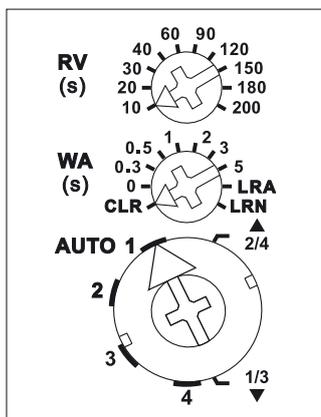
RV = The time delay (delay time RV) is set by the top rotary switch. If the FSB14 is in the UP or DOWN position the selected delay time runs (elapses); at time-out the device changes automatically to STOP. Therefore, the time delay must be chosen at least as long as the shading element or roller shutter will need to move from one limit position to the other.

The LED indication for the delay time RV is located behind the rotary switch RV.

When one or several wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, a lock-out protection is set up while the door is open and disables a Central Down command.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

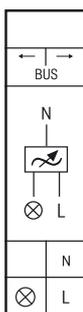


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

FSB14	RS485 bus actuator for shading elements and roller shutters	EAN 4010312313732	54,80 €/pc.
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FUD14



Universal dimmer switch, Power MOSFET up to 400 W. Automatic lamp detection. Bidirectional. Only 0.3 watt standby loss. With adjustable minimum brightness or maximum brightness and dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Also with light scene control and constant light regulation.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. The delivery includes a spacer DS14, 1 short jumper 1 module (up to 200 W load) and 1 long jumper 1.5 modules (from 200 W load with DS14 on the left side).

Universal dimmer switch for lamps up to 400 W, depending on ventilation conditions, dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

Switching voltage 230 V. No minimum load.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

The upper rotary switch LA/LRN is first required for teach-in and defines in operation whether automatic lamp detection should be activated or special comfort positions:

AUTO allows all lamp types to be dimmed.

EC1 is a comfort position for energy saving lamps which must be switched on at high voltage due to their design so that they can be dimmed down and switched back on safely when cold.

EC2 is a comfort position for energy saving lamps which cannot be switched back on in dimmed-down position due to their design. Therefore the memory is switched off in this position.

LC1 is a comfort position for LED lamps which cannot be dimmed down far enough in AUTO (phase cut-off) due to their design.

LC2 and **LC3** are comfort positions for LED lamps like LC1 but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3, no inductive (wound) transformers may be used. In addition the maximum number of dimmable LED lamps may be lower than in AUTO position due to their design.

LC4, LC5 and **LC6** are comfort positions for LED lamps such as AUTO but with different dimming curves.

PCT is a position for special functions which are set up using the PC tool PCT14.

The minimum brightness (fully dimmed down) is adjustable **with the middle % rotary switch.**

The dimming speed is adjustable using the bottom dimming speed rotary switch.

The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons:

When installed as a direction pushbutton, one side is then 'switch on and dim up' and the other side is 'switch off and dim down'. A double-click on the switch-on side activates automatic dim-up to full brightness at dim speed. A double click on the switch-off side activates the snooze function. The children's room function is implemented on the switch-on side. **As a universal pushbutton**, change the direction by briefly releasing the pushbutton.

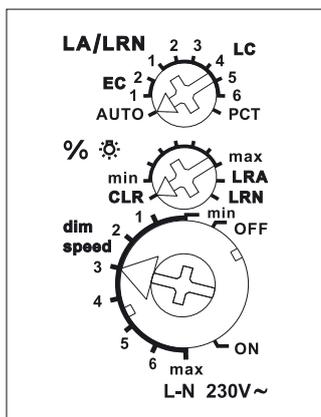
For light scene control, constant light regulation, light alarm circuit, children's room circuit and sleep timer, refer to the operating instructions.

When the pushbutton is taught in as a staircase pushbutton, it is possible to retrieve a resettable staircase time switch function with RV = 2 minutes. Individual light scene pushbuttons can be used to retrieve brightness settings carried out during teach-in. A taught-in FAH can be used to implement a twilight switch. Switch-on can take place using up to 4 FBHs depending on motion and brightness.

The LED performs during the teach-in process according to the operating instructions.

It shows control commands by short flickering during operation.

Function rotary switches

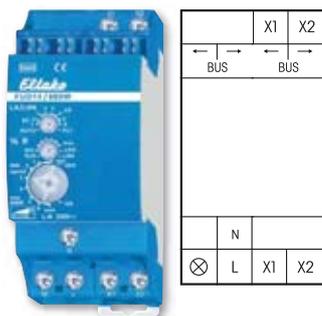


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

FUD14	RS485 bus universal dimmer switch	EAN 4010312313749	62,80 €/pc.
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FUD14/800W



Universal dimmer switch, Power MOSFET up to 800 W. Automatic lamp detection. Only 0.3 watt standby loss. With adjustable minimum brightness or maximum brightness and dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Also with light scene control and constant light regulation.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep. The delivery includes a spacer DS14, 2 short jumpers 1 module (up to 400 W load) and 1 long jumper 1.5 modules (from 400 W load with DS14 on the left side).

Universal dimmer switch for lamps up to 800 W, depending on ventilation conditions, dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics.

Up to 3600 W with capacity enhancers FLUD14 at terminals X1 and X2.

Zero passage switching with soft ON and soft OFF to protect lamps.

Switching voltage 230 V. No minimum load.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

The upper rotary switch LA/LRN is first required for teach-in and defines in operation whether automatic lamp detection should be activated or special comfort positions:

AUTO allows all lamp types to be dimmed.

EC1 is a comfort position for energy saving lamps which must be switched on at high voltage due to their design so that they can be dimmed down and switched back on safely when cold.

EC2 is a comfort position for energy saving lamps which cannot be switched back on in dimmed-down position due to their design. Therefore the memory is switched off in this position.

LC1 is a comfort position for LED lamps which cannot be dimmed down far enough in AUTO (phase cut-off) due to their design.

LC2 and **LC3** are comfort positions for LED lamps like LC1 but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3, no inductive (wound) transformers may be used. In addition the maximum number of dimmable LED lamps may be lower than in AUTO position due to their design.

LC4, LC5 and **LC6** are comfort positions for LED lamps such as AUTO but with different dimming curves.

PCT is a position for special functions which are set up using the PC tool PCT14.

The minimum brightness (fully dimmed down) is adjustable **with the middle % rotary switch.**

The dimming speed is adjustable using the **bottom dimming speed rotary switch.**

The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons:

When installed as a direction pushbutton, one side is then 'switch on and dim up' and the other side is 'switch off and dim down'. A double-click on the switch-on side activates automatic dim-up to full brightness at dim speed. A double click on the switch-off side activates the snooze function. The children's room function is implemented on the switch-on side.

As a universal pushbutton, change the direction by briefly releasing the pushbutton.

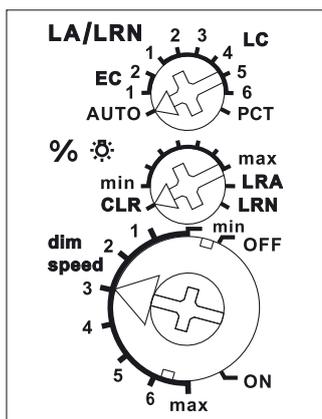
For light scene control, constant light regulation, light alarm circuit, children's room circuit and sleep timer, refer to the operating instructions.

When the pushbutton is taught in as a staircase pushbutton, it is possible to retrieve a resettable staircase time switch function with RV = 2 minutes. Individual light scene pushbuttons can be used to retrieve brightness settings carried out during teach-in. A taught-in FAH can be used to implement a twilight switch. Switch-on can take place using up to 4 FBHs depending on motion and brightness.

The LED performs during the teach-in process according to the operating instructions.

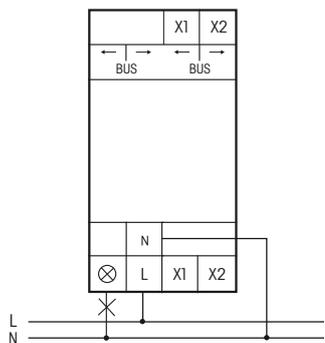
It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Typical connection



Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

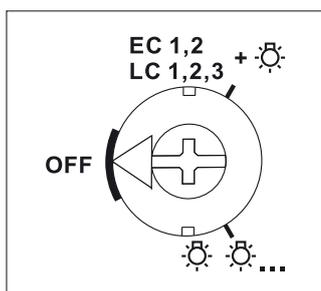
FUD14/800W	RS485 bus universal dimmer switch	EAN 4010312313756	90,10 €/pc.
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CAPACITY ENHANCER FLUD14 FOR UNIVERSAL DIMMER SWITCH FUD14/800W

1-20



Function rotary switch



Standard setting ex factory.

The switching mode **"one lamp"** (☼) or **"additional lamps"** (☼☼) is set with a rotary switch on the front.

This setting must be same as the actual installation, otherwise there is a risk of destruction of the electronics.

Housing for operating instructions GBA14 page 1-40.

FLUD14



Capacity enhancer for universal dimmer switch FUD14/800 W, Power MOSFET up to 400 W. Standby loss 0.1 watt only.

Modular device for DIN EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Capacity enhancers FLUD14 can be connected to the universal dimming actuator FUD14/800W. By this the switching capacity **for one lamp** will be increased up to 200 W or alternatively **for additional lamps** up to 400 W per each capacity enhancer.

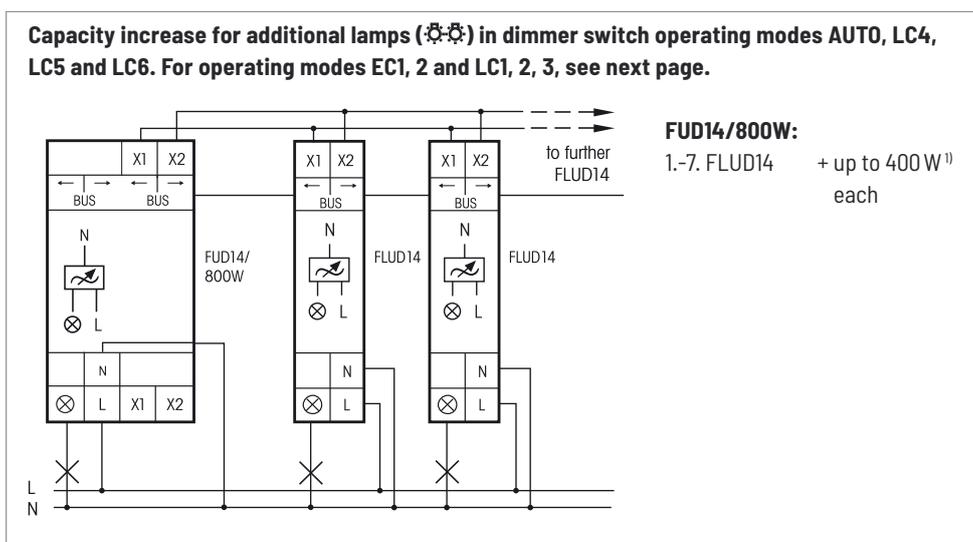
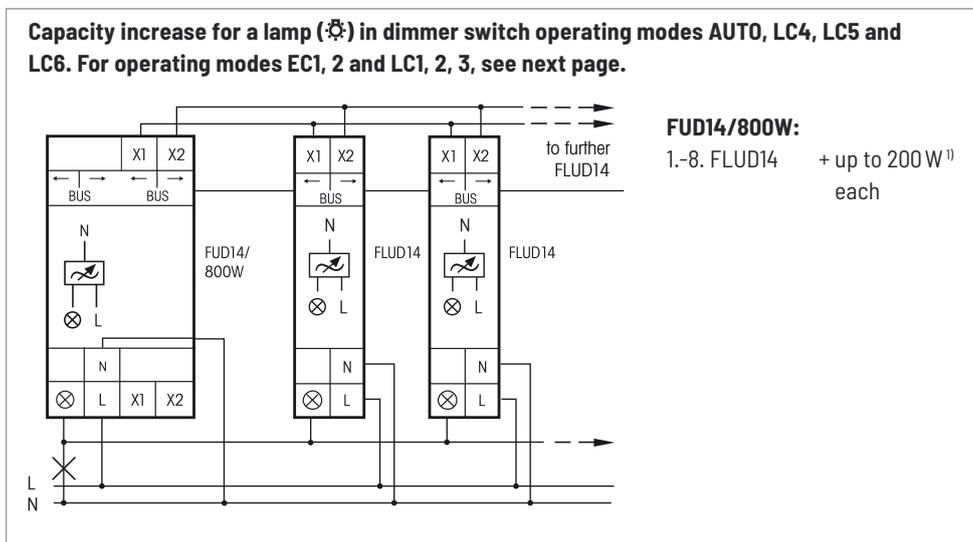
The two circuits to increase capacity can be created at the same time using several FLUD14s.

Supply voltage 230 V. No minimum load.

Automatic electronic overload protection and over-temperature switch-off.

The lamp type of a capacity enhancer FLUD14 in the 'Capacity increase with additional lamps' may deviate from the lamp type of the universal dimmer switch FUD14/800W.

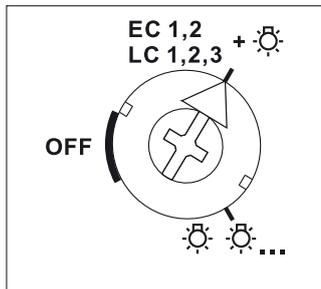
It is therefore possible to mix capacitive and inductive loads.



¹⁾ Ventilation clearance of 1/2 module to adjacent devices must be maintained.

FLUD14	Capacity enhancer	EAN 4010312313763	64,10 € /pc.
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Function rotary switch



Standard setting ex factory.

Capacity increase with capacity enhancers FLUD14 for dimmable energy saving lamps ESL and dimmable 230 V LED lamps in comfort settings EC1, EC2, LC1, LC2 and LC3.

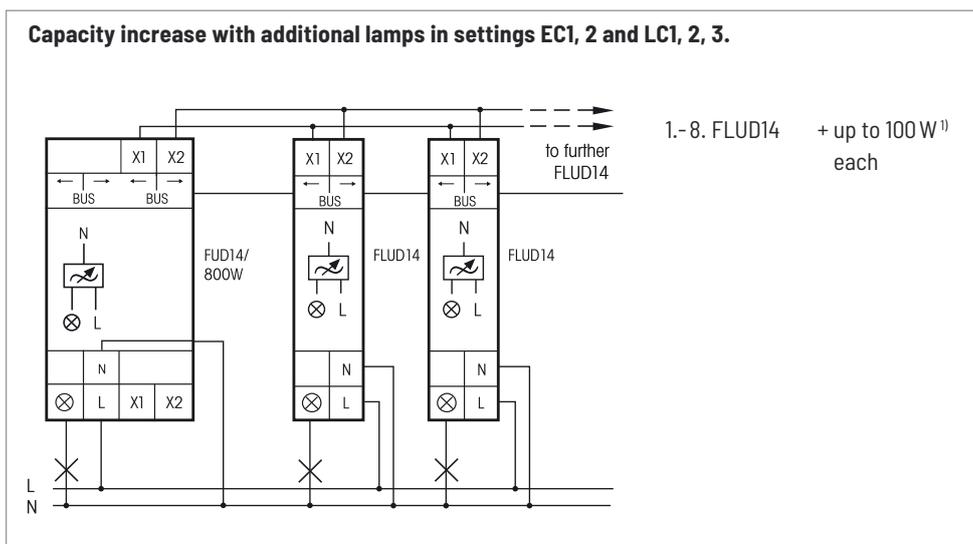
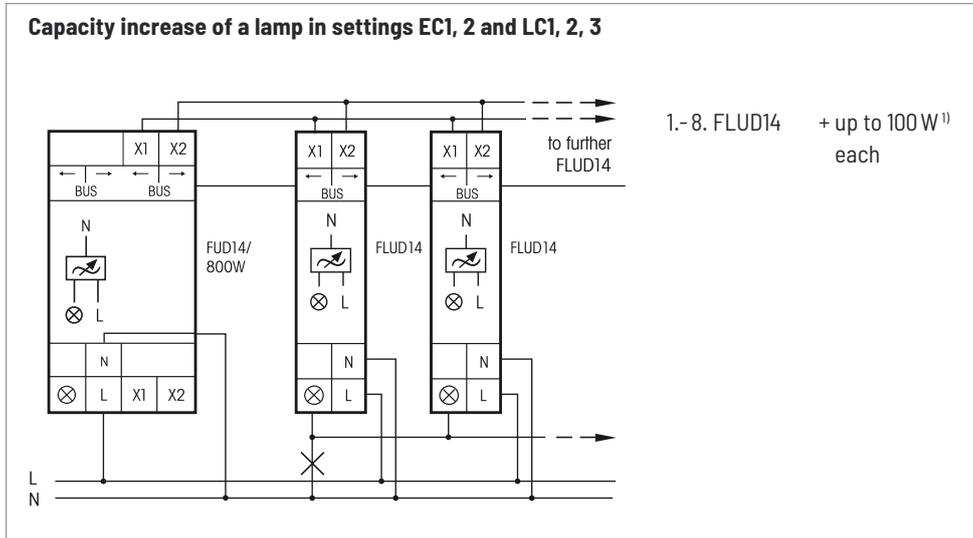
Also for capacity increase with additional lamps.

Otherwise there is a risk of destruction of the electronics.

Housing for operating instructions GBA14 page 1-40.

FLUD14

This setting must be made on the front panel for ESL and 230 V LED lamps if the FUD14/800W is operated in comfort settings EC1, EC2, LC1, LC2 or LC3.

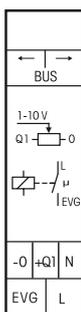


¹⁾ Ventilation clearance of 1/2 module to adjacent devices must be maintained.

FLUD14	Capacity enhancer	EAN 4010312313763	64,10 € /pc.
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RS485 BUS ACTUATOR DIMMER SWITCH CONTROLLER FSG14 FOR ELECTRONIC BALLAST 1-10 V

1-22



FSG14/1-10V

Dimmer switch controller for electronic ballast 1-10 V, 1 NO contact not potential free 600 VA and 1-10 V control output 40 mA. Bidirectional. Only 0.9 watt standby loss. With adjustable minimum brightness and dimming speed. With light scene control and constant light regulation.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 modul = 18 mm wide, 58 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control.

Zero passage switching to protect contacts.

The power consumption of the 12 V DC power supply is only 0.1 W.

Also adapted for LED driver with 1-10 V passive interface, without voltage source up to 0.6 mA, above this value an additional voltage source is necessary.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

The minimum brightness (fully dimmed) is adjustable with the % rotary switch.

The dimming speed is adjustable using the dimming speed rotary switch.

The load is switched on and off by a bistable relay at output EVG. Switching capacity for fluorescent lamps or LV halogen lamps with EGV 600 VA.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons:

As a direction pushbutton, press up is brighter and press down is darker respectively above short pressing means switch ON and below short pressing switch OFF. A double click above activates automatic updimming until full brightness with dim speed. A double click below activates snooze function. The children's room function will be realized with the upper switch.

As a universal pushbutton, change the direction by briefly releasing the pushbutton.

With switching operation for children's rooms and snooze function.

Switching for light alarm clocks: A wireless signal of a time clock which was taught-in accordingly starts the wake up function by switching on the light at the lowest brightness level and dims up slowly until the maximum level is reached. The dimming process is stopped by tapping briefly (e.g. on a hand-held transmitter).

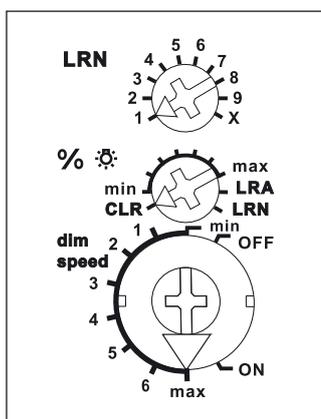
Switching operation for children's rooms: If the light is switched on by holding down the pushbutton (universal pushbutton or direction pushbutton above), it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down. The last saved brightness level is not modified.

Snooze function (universal pushbutton or direction pushbutton below): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off.

The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down.

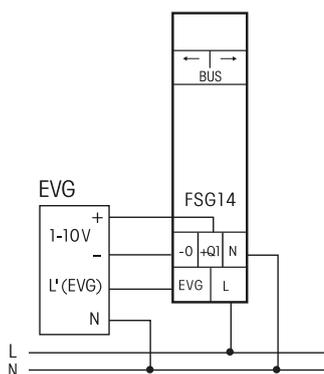
The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

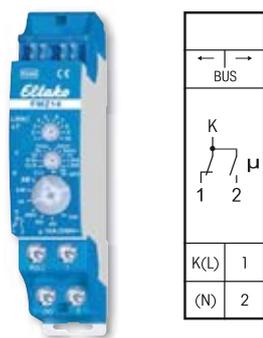
Typical connection



Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
Technical data, see page 1-44.
Housing for operating instructions GBA14 page 1-40.

FSG14/1-10V	RS485 bus dimmer switch controller	EAN 4010312313770	59,50 €/pc.
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FMZ14



Multifunction time relay with 10 functions, 1 CO contact potential free 10 A/250 V AC, incandescent lamps 2000 watts*, with DX technology. Bidirectional. Only 0.4 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Wireless window contacts (FTK) at opened windows with the function NO or NC can be taught-in. If a direction switch is taught-in, a function (e.g. TI) can be started using the top switch (START) and stopped with the bottom switch (STOP).

Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to K(L). This results in an additional standby consumption of only 0.1 watt.

If supply voltage fails, the two contacts switch off. When power is restored, contact 1 closes.

Time setting between 0.5 second and 10 hours.

Teach-in takes place **using the top and middle rotary switches** and then the time is set.

T is the time base and xT the multiplier.

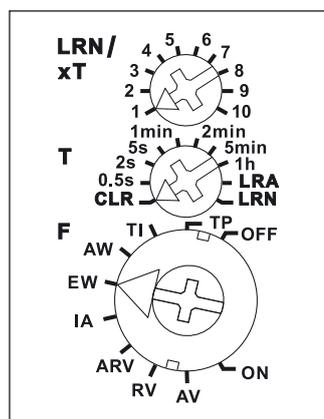
The function is selected **using the bottom rotary switch**:

- RV** = off delay
- AV** = operate delay
- TI** = clock generator starting with impulse
- TP** = clock generator starting with pause
- IA** = impulse controlled operate delay (e.g. automatic door opener)
- EW** = fleeting NO contact
- AW** = fleeting NC contact
- ARV** = operate and release delay
- ON** = Permanent ON
- OFF** = Permanent OFF

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

* The maximum load can be used starting at a delay time or clock cycle of 5 minutes.
The maximum load will be reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%.

Function rotary switches

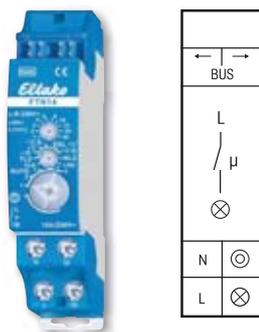


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
Technical data, see page 1-44.
Housing for operating instructions GBA14 page 1-40.

FMZ14	RS485 bus actuator Multifunction time relay	EAN 4010312313787	42,20 €/pc.
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FTN14



Staircase off-delay timer, 1 NO contact not potential free 16 A/250 V AC, incandescent lamps up to 2000 watts, switch-off early warning and switchable pushbutton permanent light. Also for energy saving lamps ESL up to 200 Watt. Bidirectional. Only 0.2 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Switching voltage 230 V.

Zero passage switching to protect contacts and consumers.

If a power failure occurs, the switching state is retained. The time lapse to switch off starts when the power supply is restored.

In addition to the bus control input, this staircase off-delay timer can also be controlled locally by a conventional 230 V control switch. Glow lamp current up to 5 mA, dependent on the ignition voltage of the glow lamps.

The upper rotary switch LRN is required for teach-in. Then the off-delay 1 to 30 minutes can be set. Wireless pushbuttons and/or wireless motion-brightness sensors FBH will be taught-in **with the middle rotary switch** in the setting LRN, of which one or more are central control pushbuttons. The required function of this staircase off-delay timer can then be selected:

NLZ = off-delay timer with adjustable operate delay

TLZ = staircase time switch

ESL = staircase time switch for energy saving lamps ESL

+ = with pushbutton permanent light (only TLZ)

+ = with switch-off early warning (TLZ + ESL)

+ = with pushbutton permanent light and switch-off early warning (TLZ + ESL)

If the permanent light function is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 60 minutes or by pressing the pushbutton for longer than 2 seconds.

If the switch-off early warning is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If both switch-off early warning and pushbutton permanent light are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

A response delay (AV delay) can be set **with the lower rotary switch** at setting NLZ or when controlled with a switch. Setting AUTO1 = 1s, AUTO2 = 30s, AUTO3 = 60s, AUTO4 = 90s and AUTO5 = 120s (clockwise). Also permanent light function can be set manually.

But if you activate by pressing a button at NLZ, the device switches on when pressed once and the time lapse to switch-off starts when pressed twice.

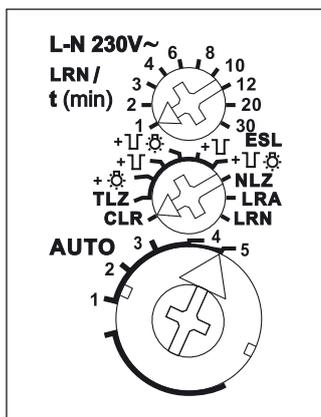
When teaching-in **wireless motion/brightness sensors FBH**, the switching threshold is defined on the last FBH taught-in to switch the light on/off depending on the brightness – provided motion is detected. The off delay set on the FTN14 is prolonged by a setting of 1 minute fixed in the FBH.

When teaching-in **window/door contacts FTK**, a NC or NO can be taught-in as required. Accordingly, the timing period starts when opening or closing the window or the door.

If **switches for permanent operation** are taught-in, for example wireless transmitter modules or FTS14EM, it is switched on when pressing and the time will be started when releasing.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

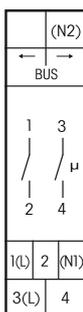


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
Technical data, see page 1-44.
Housing for operating instructions GBA14 page 1-40.

FTN14	RS485 bus actuator Staircase off-delay timer	EAN 4010312313794	45,40 €/pc.
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FHK14



Heating/cooling relay, 1+1 NO contacts potential free 4 A/250 V AC, with DX technology. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper. Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N1) and L to 1(L) and/or N to (N2) and L to 3(L). This results in an additional standby consumption of only 0.1 watt.

When both relays of the FHK14 are switched on, 0.4 watts are required.
If supply voltage fails, the device is switched off in defined mode.
This heating/cooling relay assesses information about wireless temperature controllers or sensors. Possibly supplemented by window/door contacts, motion detectors, window handle sensor FFG7B-rw and wireless pushbuttons.

As an alternative to a wireless temperature controller, the temperature information on the set and actual values can be obtained from the GFVS software.

It is also possible to specify the set temperature via GFVS software and thus limiting the setting range of the wireless temperature controller.

Top rotary switch for adjustable hysteresis:
Left stop: lowest hysteresis 0.5°. **Middle position:** hysteresis 2.5°. **Right stop:** largest hysteresis 4.5°. Inbetween, divisions in steps of 0.5°.

Middle rotary switch for regulation types:
AUTO 1: With PWM control at T = 4 minutes. (PWM = pulse width modulation).
(suitable for valves with thermoelectric valve drive)
AUTO 2: With PWM control at T = 15 minutes.
(suitable for valves with motor-driven valve drive)

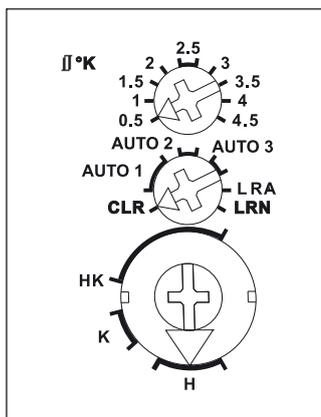
AUTO 3: With 2-point control.
Bottom rotary switch for operating modes:
H: heating mode (Contact 1-2 and Contact 3-4); **K:** cooling mode (Contact 1-2 and Contact 3-4);
HK: heating mode (Contact 3-4) and cooling mode (Contact 1-2);

In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.
If one or several windows are open, the output remains off **provided the window/door contacts FTK or window handle sensors FFG7B-rw** are taught-in. In heating mode, however, the frost protection remains enabled.

As long as all taught-in **motion detectors FBH** detect no motion, the device is switched to setback mode. In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.
When a wireless **pushbutton FT4** is taught-in, the assignment of the 4 keys is assigned with the following fixed functions: Top right: Normal mode (can also be enabled by timer). Bottom right: Night setback mode by 4°; in cooling mode, raised by 4° (can also be enabled by timer). Top left: Setback mode by 2°, in cooling mode, raised by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off). If the motion detector and wireless pushbutton are taught-in at the same time, the last telegram received is always the one that is valid. A motion detector therefore switches off a setback mode selected by wireless pushbutton when a movement is detected.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

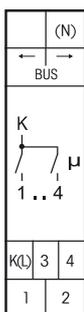


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
Technical data, see page 1-44.
Housing for operating instructions GBA14 page 1-40.

FHK14	RS485 bus actuator Heating/cooling relay	EAN 4010312313824	45,10 €/pc.
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F4HK14



Heating/cooling relay with 4 channels, 1 NO contact per channel 4 A/250 V AC, potential free from the power supply, with DX technology. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to K(L). This results in an additional standby consumption of only 0.1 watt.

When all 4 relays are switched on, a power of 0.7 watts is required.

If supply voltage fails, the device is switched off in defined mode.

This heating/cooling relay assesses information about wireless temperature controllers or sensors.

Possibly supplemented by window/door contacts, motion detectors, window handle sensor FFG7B-rw and wireless pushbuttons.

As an alternative to a wireless temperature controller, the temperature information on the set and actual values can be obtained from the GFVS software.

It is also possible to specify the set temperature via GFVS software and thus limiting the setting range of the wireless temperature controller.

Top rotary switch for adjustable hysteresis:

Left stop: lowest hysteresis 0.5°. **Middle position:** hysteresis 2.5°.

Right stop: largest hysteresis 4.5°. Inbetween, divisions in steps of 0.5°.

Middle rotary switch for regulation types:

AUTO 1: With PWM control at T = 4 minutes. (PWM = pulse width modulation).

(suitable for valves with thermoelectric valve drive)

AUTO 2: With PWM control at T = 15 minutes.

(suitable for valves with motor-driven valve drive)

AUTO 3: With 2-point control.

Bottom rotary switch for operating modes:

H: heating mode (Contacts 1 to 4); **K:** cooling mode (Contacts 1 to 4);

HK: heating mode (Contact 3 and 4) and cooling mode (Contact 1 and 2);

In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.

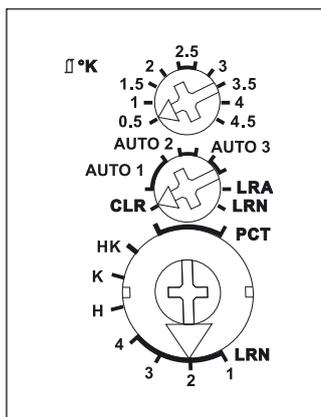
If one or several windows are open, the output remains off **provided the window/door contacts FTK or window handle sensors FFG7B-rw** are taught-in. In heating mode, however, the frost protection remains enabled.

As long as all taught-in **motion detectors FBH** detect no motion, the device is switched to setback mode. In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When a **wireless pushbutton FT4** is taught-in, the assignment of the 4 keys is assigned with the following fixed functions: Top right: Normal mode (can also be enabled by timer). Bottom right: Night setback mode by 4°; in cooling mode, raised by 4° (can also be enabled by timer). Top left: Setback mode by 2°, in cooling mode, raised by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off). If the motion detector and wireless pushbutton are taught-in at the same time, the last telegram received is always the one that is valid. A motion detector therefore switches off a setback mode selected by wireless pushbutton when a movement is detected.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

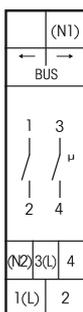


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Connection example page 1-42.
 Technical data, see page 1-44.
 Housing for operating instructions GBA14 page 1-40.

F4HK14	RS485 bus actuator Heating/cooling relay	EAN 4010312314982	53,50 €/pc.
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F2L14



1-27

2-speed fan relay, 1+1 NO contacts potential free 16 A/250 V AC, with DX technology. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 modul = 18 mm wide, 58 mm deep.
Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.
Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N1) and L to 1(L) and/or N to (N2) and L to 3(L). This results in an additional standby consumption of only 0.1 watt.

If supply voltage fails, the switching state is retained. When supply voltage is restored, the device is switched off in defined mode.

This fan relay evaluates the information of up to 23 passive sensors, e.g. wireless pushbuttons, window/door contacts, window handle sensors FFG7B-rw or wireless transmitter modules. Active sensors for CO₂, humidity and temperature are also evaluated.

Several active sensors can be linked by the PCT14 PC Tool.

When the two contacts are switched in parallel, the 2-speed actuator for 2 fan speeds becomes an actuator for one fan.

The middle rotary switch must be set to position LRN for teach-in. Set the required operating mode when the fan actuator is in operation.

During the teach-in process, adjust **the upper rotary switch** to set the sensor type. A wireless pushbutton (**exclusive**) with double rocker is taught-in in rotary switch position 1. Double rockers are assigned automatically: top left stage 1 (only contact 1-2 closed), top right stage 2 (only contact 3-4 closed). Bottom left and bottom right OFF: both contacts open.

A wireless pushbutton (adding) with double rocker is taught-in in rotary switch position 2. Double rockers are assigned automatically: top left stage 1 (contact 1-2 closed), top right Stage 2 (contacts 1-2 and 3-4 closed). Bottom left and bottom right OFF: both contacts open.

If you switch the two contacts in parallel, one wireless pushbutton and 1 rocker are sufficient. In this case, top is ON and bottom is OFF

In rotary switch position 3, teach in ON/OFF switch with double rocker (all rockers are assigned automatically) and wireless transmitter modules. When you teach in an FTK device, window handle sensor FFG7B-rw or active sensor, there is no need to take the teach-in position into account.

When operated with an active sensor, set the switch-in threshold on **the lower rotary switch**. When the threshold is reached, Stage 1 (Contact 1-2) is switched on. At **the upper rotary switch**, set the addition value at which Stage 2 (Contact 3-4). Turn **the middle rotary switch** to set one of the operating modes AUTO1 to AUTO7.

AUTO1: for manual mode of a 2-stage fan by means of a double rocker wireless pushbutton. Each contact is closed separately (exclusive) or contact 3-4 cuts in to switch stage 2 (accumulative). This is determined when teaching-in. Passive sensors, such as wireless pushbuttons and transmitter modules, which are taught-in as a off-switches, cause opening of both contacts. As long as the control voltage is applied to transmitter modules or a window monitored by an FTK or window handle sensor FFG7B-rw is open, the contacts are open and can not be switched on manually. **AUTO2:** Activating with wireless CO₂ sensor. The switch-on thresholds are set by the lower and upper rotary switches. The contacts close 'exclusively'.

AUTO3: Activating with wireless CO₂ sensor. The switch-on thresholds are set by the lower and upper rotary switches. The contacts close 'exclusively'. **AUTO4:** Same as AUTO2, but activated by the wireless temperature sensor. **AUTO5:** Same as AUTO2, but the contacts close 'adding'. **AUTO6:** Same as AUTO3, but the contacts close 'adding'. **AUTO7:** Same as AUTO4, but the contacts close 'adding'.

Overview of switch-on thresholds (lower rotary switch):

CO₂ (ppm): 1 = 700 ppm; 2 = 800 ppm; 3 = 900 ppm; 4 = 1000 ppm; 5 = 1200 ppm; 6 = 1400 ppm; 7 = 1600 ppm; 8 = 1800 ppm, 9 = 2000 ppm und 10 = 2200 ppm.

Humidity (%): 1 = 10%, 2 = 20%, ... 10 = 100%.

Temperature (°C): 1 = 20°C, 2 = 22°C, 3 = 24°C, ... 10 = 38°C.

Overview of addition values (upper rotary switch):

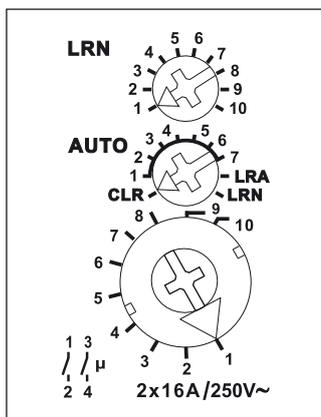
CO₂ difference: 1 = 50 ppm, 2 = 100 ppm, 3 = 150 ppm, ... 10 = 500 ppm. Fixed hysteresis: 50 ppm.

Humidity difference: 1 = 5%, 2 = 10%, 3 = 15%, ... 10 = 50%. Fixed hysteresis: 5%.

Temperature difference (K): 1 = 1K, 2 = 2K, 3 = 3K, ... 10 = 10 K. Fixed hysteresis: 1K.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

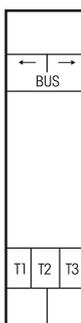


Standard setting ex works.

Further settings can be made using the PC Tool PCT14.

Housing for operating instructions GBA14 page 1-40.

F2L14	RS485 bus actuator Impulse switch with integr. relay function	EAN 4010312316160	56,50 €/pc.
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FSU14



Display timer with 8 channels for the Eltako RS485 bus. With "astro" function. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

For the function of the timer FSU14 it is necessary that the wireless antenna module FAM14 assigns a device address, please see the operating instructions.

The switching commands of the channels can be taught-in into bus actuators and wireless actuators.

Up to 60 timer memory locations are freely assigned to the channels. With date and automatic summer/winter time changeover. Ca. 20 days power reserve without battery.

Each memory location can either be used with astro function (automatic turn on after sunrise or sunset) or the time function. The astro switch-on and -off time can be shifted ± 2 hours and in addition, an influence of the solstices time lag of up to ± 2 hours can be entered.

The timer is set using the MODE and SET buttons and the settings can be interlocked.

Set language: Every time the power supply is applied, press SET within 10 seconds to set the language and press MODE to confirm. D = German, GB = English, F = French, IT = Italian and ES = Spanish. The normal display then appears: weekday, time, day and month.

Rapid scroll: In the following settings, the numerals scroll rapidly when you press and hold down Enter. Release then press and hold down to change the scroll direction.

Set clock: Press MODE and search for the **function CLK** with SET and select with MODE. Press MODE to set. In H, press SET to select the hour and press MODE to confirm. In M proceed in the same way to set the minute.

Set date: Press MODE and search for the **function DAT** with SET and select with MODE. Press MODE to select. At Y, press SET to select the year and press MODE to confirm. Proceed in the same way at M to set the month and at D to set the day. The last setting in the sequence is MO (weekday) blinking. Press SET to set it. From production week 08/17 the emission every minute from a **timer telegram** (hour and minute) and the day of the week can be activated.

Wireless pushbuttons for central ON/OFF, automatic off and random mode on can be taught-in.

Set position coordinates (if the astro function is required): Press MODE and search for the **function POS** with SET and select with MODE. For LAT press SET to select the latitude and press MODE to confirm. Repeat this procedure for LON to select the longitude and press MODE to confirm. Select the time zone at GMT with SET and confirm with MODE. If desired, a time lag of up to ± 2 hours for all channels can now be entered at WS (winter solstice) and SS (summer solstice).

Summer/winter time changeover: Press MODE and search for the **function SWT** with SET and select with MODE. Now press SET to switch between ON and OFF. If you select ON, changeover is automatic.

Switch random mode on/off: Press MODE and search for the **function RND** with SET and select with MODE. Press SET to set to ON (RND+) or OFF (RND) and press MODE to confirm. When random mode is switched on, all switch-on time points of all channels are shifted at random by up to 15 minutes. Switch-on times are switched earlier and switch-off times are switched later.

Lock settings: Briefly press MODE and SET together and at LCK, press SET to lock. This is displayed by an arrow next to the lock symbol.

Unlock settings: Press MODE and SET together for 2 seconds and at UNL press SET to unlock.

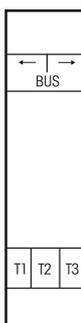
Wired central control: At the terminals T1/T2 and T3/T2 switches can be connected for central control.

Set operating mode: Press MODE, search the **function INT** with SET and select with MODE. Select the channel with SET at CH and confirm with MODE. You can switch between CIA (automatic with central control), AUT (automatic), ON (with priority) or OFF (with priority) with SET. If you confirm ON or OFF with MODE, the correspondent telegram will be sent immediately. If the switching state should automatically change if a time program will be active, the channel must be set to CIA or AUT again. If MODE is pressed longer than 2 seconds, the normal display appears.

Teach-in channels in wireless actuators: Press MODE and search for the **function LRN** with SET and select with MODE. Select the channel at CH with SET and confirm with MODE. It can be switched between ON and OFF with SET. If ON is confirmed with MODE, LRN+ flashes and the function ON will be taught-in in the learning actuator with SET. Likewise it will be taught-in at OFF. See the operating instructions for more information.

Enter switching programs: press MODE and select one of the 60 memory locations from P01 to P60 with MODE and SET at the **function PRG**. See the operating instructions for more information. When **random mode** is switched on, all switching times of all channels are shifted incidentally by up to 15 minutes. Power-on times to previous and power-off times to future. For more information please see operating manual.

FSU14	Display timer	EAN 4010312313831	57,40 €/pc.
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FMSR14



Multifunction sensor relay with display and 5 channels (brightness, twilight, wind, rain and frost) for the Eltako RS485 bus. Only 0.1 watt standby loss.

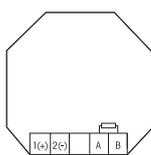
Modular device for DIN-EN 60715 TH35 rail mounting.
1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

This multifunction sensor relay evaluates the wireless telegrams of the **wireless weather data transmitter module FWS61** and, dependent on the setting, issues switching commands directly to the RS485 bus and also to the wireless network in the display by means of the MODE and SET buttons. This also allows control over wireless actuators installed at decentralised positions. If only centrally installed actuators need to be addressed to control shading elements from the FWS61, it is sufficient to teach-in the FSB14s in these actuators using the PC Tool PCT14. An FMSR14 is then not required.

For the function of the sensor relay FMSR14 it is necessary that a device address is assigned from the wireless antenna module FAM14, according to the manual.

FMSR14	Multifunction sensor relay	EAN 4010312314111	57,40 €/pc.
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FWS61-24V DC



Wireless weather data transmitter module for the seven weather items sent by the multisensor MS. With internal antenna. Only 0.3 watt standby loss.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

Power (24V DC) is supplied by the switch mode power supply unit SNT61-230V/24V DC-0,25A (33 mm deep, 45mm long, 45mm wide). This switching power supply unit simultaneously supplies the multisensor MS including the heating of the rain sensor.

It is possible to use a deep UP box for the two devices.

This weather data transmitter module receives the seven momentary readings of the weather items: brightness (from three cardinal points), twilight, wind, rain and ambient temperature by cable J-Y (ST) Y 2x2x0,8 from the multisensor MS attached to the outside of the building. The readings are sent in the form of wireless telegrams over the Eltako wireless network with the priorities listed below. Only one MS multisensor can be connected to a wireless weather data transmitter module FWS61. However, several FWS61 can be connected to a multisensor MS. The external terminating resistor has to be present on only one FWS61. If there are other FWS61, it must be removed. The evaluation is made with the wireless building visualization and control software GFVS, the wireless multifunction sensor relay FMSR14, or the actuators FSB14 and FSB71.

When the supply voltage is applied, a teach-in telegram is sent immediately and two status telegrams containing the momentary values are sent approx. 60 seconds later. At least every 10 minutes, but also:

Brightness values West, South and East each from 0 to 99 kLux if a change of minimum 10% occurs.

Twilight values from 0 to 999 Lux if a change of minimum 10% occurs.

Wind speeds from 0 to 70m/s. From 4m/s to 16m/s, the momentary values are sent immediately 3 times at intervals of 1 second. After that, further value increases are sent within 20 seconds. Dropping wind speeds are sent progressively delayed by 20 seconds.

Rain values at the start are sent immediately 3 times. After the rain stops, a telegram is sent within 20 seconds.

Temperature values from -40.0°C to +80.0°C are sent every 10 minutes together with all the other values in a status telegram.

Monitoring multisensor function and line break. If the weather data message from multisensor MS is not sent for 5 seconds, the FWS61 immediately sends an alarm telegram which is repeated every 30 seconds.

The alarm telegram can be taught-in as a switch telegram in an actuator to initiate further action as required. In addition, the two status telegrams containing the values brightness 0 Lux, twilight 0 Lux, temperature -40°C (frost), wind 70 m/s and rain are sent.

When a message is again detected from the multisensor MS, the alarm stops automatically.

FWS61-24V DC	Wireless weather data transmitter module	EAN 4010312301937	67,10 €/pc.
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1-30



MS

Multisensor MS

The MS multi sensor sends the current weather details, including brightness (from three points of the compass), wind, rain and frost, to the weather data transmitter module FWS61 connected in series once per second. A standard telephone wire is sufficient as connecting lead: J-Y(ST)Y 2x2x0.8 or equivalent. 100 m line length is permitted. Solid plastic housing, LxWxH = 118x96x77 mm. Degree of protection IP44. Temperature at mounting location -30°C to +50°C. A power supply unit SNT61-230V/24V DC-0,25A is required for the power supply, including heating of the rain sensor. This simultaneously supplies the wireless weather data transmitter module FWS61-24V DC.

MS	Multisensor	EAN 4010312901731	251,50 €/pc.
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FWZ14-65A



Wireless single-phase energy meter transmitter module, maximum current 65 A. Only 0.5 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Accuracy class B (1%). With RS485 interface.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

The meter reading, the current power and the serial number will be handed over to the bus – eg for forwarding to an external computer, the software GFVS 4.0 or GFVS-Energy – and also to the wireless network via FAM14. For this it is necessary that a device address is assigned from the wireless antenna module FAM14, according to the manual.

Also display with FEA65D.

It measures active energy by means of the current between input and output. The internal power consumption of 0.5 watt active power is not metered.

Like all meters without declaration of conformity (e.g. MID), this meter is not permitted for billing.

1 phase conductor with a max. current up to 65 A can be connected.

The inrush current is 40 mA. In operation the rotary switch must be set to AUTO.

Power consumption is indicated using a LED.

If the L input and the L output were interchanged when hooked up, a normal rate (HT)/off-peak (NT) switchover telegram is transmitted to indicate the hook-up error.

If the anticipated load exceeds 50%, maintain an air gap of ½ pitch unit to the devices mounted adjacently. Thereto included are 2 spacers DS14, a short jumper and two long jumpers.

Further settings can be made using the PC Tool PCT14.

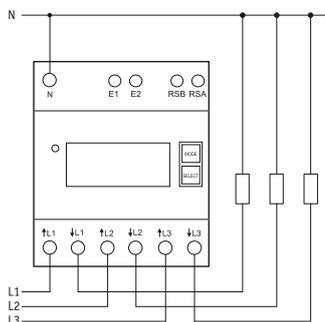
Housing for operating instructions GBA14 page 1-40.

FWZ14-65A	Wireless single-phase energy meter transmitter module 65 A	EAN 4010312501511	63,80 €/pc.
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Typical connection

4-wire-connection 3x230/400 V



Housing for operating instructions GBA14 page 1-40.

DSZ14DRS-3X80A MID

RS485 bus wireless three-phase energy meter. Maximum current 3 x 80 A. Standby loss 0.8 W at L1 and only 0.5 W at L2 and L3 each.

Modular device for DIN-EN 60715 TH35 rail mounting in distribution cabinets with IP51 protection class. 4 modules = 70 mm wide and 58 mm deep. Accuracy class B (1%). With RS485 interface.

It measures active energy by means of the current between input and output. The internal power consumption of 0.8 W or 0.5 W active power per path is neither metered nor indicated.

1, 2 or 3 phase conductors with max. currents up to 80 A can be connected.

The inrush current is 40 mA.

The terminals I1 and N must always be connected.

Connection to the Eltako RS485 bus via a FBA14 by means of a 2-wire screened bus line (e.g. telephone line). The meter reading and the momentary capacity are transferred to the bus – e.g. for transfer to an external computer of the GFVS 4.0 Software – and is also transferred to the wireless network via the FAM14. For this it is necessary that a device address is assigned from the wireless antenna module FAM14, according to the operating instructions.

Also display with FEA65D.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

The power consumption is displayed with a LED flashing 1000 times per kWh next to the display.

Designed as standard for using as double-tariff meter: Switch over to a second tariff by applying 230 V to terminals E1/E2.

On the right next to the display are the keys MODE and SELECT. Press them to scroll through the menu according to the operation manual. First the **background lighting** switches on. The display then shows the total active energy per tariff, the active energy per resettable memory RS1 or RS2, and the instantaneous values of consumption, voltage and current per phase.

Error message (false)

When the phase conductor is missing or the current direction is wrong 'false' and the corresponding phase conductor are indicated on the display.

DSZ14DRS-3x80A	RS485 bus wireless three-phase energy meter, MID approval	EAN 4010312501733	165,00 €/pc.
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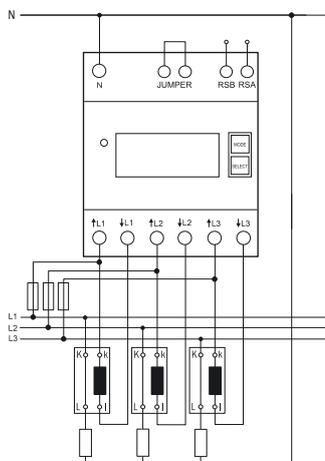
**RS485 BUS WIRELESS THREE-PHASE ENERGY METER, MID APPROVAL
DSZ14WDRS-3X5A MID**

1-32



Typical connection

4-wire-connection 3x230/400 V



Housing for operating instructions GBA14 page 1-40.

DSZ14WDRS-3X5A MID

RS485 bus wireless three-phase energy meter with settable CT ratio and MID. Maximum current 3x5 A. Standby loss 0.8 W at L1 and only 0.5 W at L2 and L3 each.

Modular device for DIN-EN 60715 TH35 rail mounting in distribution cabinets with IP51 protection class. 4 modules = 70 mm wide and 58 mm deep.

Accuracy class B (1%). With RS485 interface.

This three-phase energy meter measures active energy by means of the current between input and output. The internal power consumption of 0.8 W or 0.5 W active power per path is neither metered nor indicated.

1, 2 or 3 phase conductors with max. currents up to 5 A can be connected.

The inrush current is 10 mA.

The terminals #L1 and N must always be connected.

Connection to the Eltako RS485 bus via a FBA14 by means of a 2-wire screened bus line (e.g. telephone line). The meter reading and the momentary capacity are transferred to the bus – e.g. for transfer to an external computer of the GFVS 4.0 Software – and is also transferred to the wireless network via the FAM14. For this it is necessary that a device address is assigned from the wireless antenna module FAM14, according to the operating instructions.

Also display with FEA65D.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

The power consumption is displayed with a LED flashing 10 times per kWh next to the display.

On the right next to the display are the keys MODE and SELECT. Press them to scroll through the menu.

First the **background lighting** switches on. The display then shows the total active energy, the active energy of the resettable memory as well as the instantaneous values of consumption, voltage and current per phase

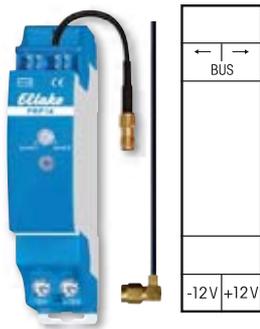
The CT ratio can also be set. It is set to 5:5 at the factory and blocked with a bridge over the terminals which are marked with 'JUMPER'. To adjust the CT ratio to the installed transformer remove the bridge and reset the energy meter according to the operation manual. Then block it again with the bridge. Adjustable current transformer ratios: 5:5, 50:5, 100:5, 150:5, 200:5, 250:5, 300:5, 400:5, 500:5, 600:5, 750:5, 1000:5, 1250:5 and 1500:5.

Error message (false)

When the phase conductor is missing or the current direction is wrong 'false' and the corresponding phase conductor are indicated on the display.

Important! Before working on the current transformers disconnect the voltage paths of the energy meters.

DSZ14WDRS-3x5A	RS485 bus wireless three-phase energy meter, MID approval	EAN 4010312501450	172,00 €/pc.
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FRP14



1 and 2 level wireless repeater with small antenna. Only 0.6 watt standby loss. If required, a wireless antenna FA250 can be connected.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 modul = 18 mm wide, 58 mm deep.

This repeater is only needed if the building conditions prevent undisturbed reception or the distance between the wireless pushbutton and receiver is too great.

Antenna FA250 with a 250 cm cable can be connected instead of the enclosed small antenna. When positioned in the optimal location, it can increase range considerably.

The 1-level mode is activated ex works. Only the signals from sensors and actuators are received, tested and retransmitted at full transmit power. Wireless signals from other repeaters are ignored to reduce the data volume.

In de-energized state it can be switched to 2-level mode with a rotary switch. After switching on the supply voltage, the wireless signals of another 1-level repeater are now being processed.

A signal can then be received and amplified maximum 2 times.

Wireless repeaters need not be taught-in. They receive and amplify signals from all wireless sensors within their reception area.

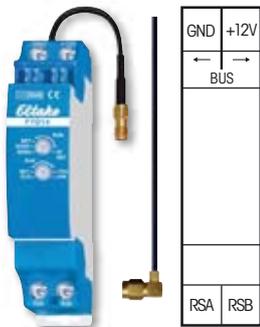
The LEDs under the rotary switch indicate all the wireless signals detected by briefly flashing.

The wireless repeater FRP14 can be installed either as a single device in a subdistributor panel.

It then requires a 12V power supply from a switch mode power supply unit SNT12-230V/12V DC-1A. Or it is installed together with remote Series 14 wireless actuators and cross-wiring requires a jumper. There is no connection to the bus. It is only looped through.

Housing for operating instructions GBA14 page 1-40.

FRP14	Wireless repeater	EAN 4010312313879	85,60 €/pc.
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FTD14



Telegram duplicator for the Eltako RS485 bus with exchangeable antenna. Only 0.5 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper. Operation in conjunction with FAM14 or FTS14KS.

The telegrams of taught-in IDs are duplicated and directly sent into the Eltako wireless network with a new output ID. These wireless telegrams can be specifically taught-in in decentralized actuators.

A total of 120 memory locations are available.

The upper rotary switch is used to selectively transmitting a wireless telegram. In normal operation, it is set to RUN.

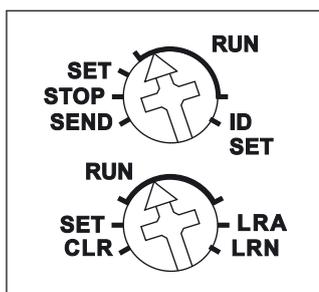
The bottom rotary switch is used for teaching-in and deleting IDs. In normal operation, it is set to RUN.

The red LED below the upper rotary switch performs during the teaching-in process.

The green LED below the lower rotary switch lights up briefly when a wireless telegram is transmitted.

The enclosed small antenna can be replaced with a wireless antenna FA250 with magnetic base and cable.

Function rotary switches



Further settings can be made using the PC Tool PCT14.

Housing for operating instructions GBA14 page 1-40.

FTD14	RS485 telegram duplicator	EAN 4010312315705	87,30 €/pc.
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WIRELESS ACTUATORS IN HEATING CIRCUIT DISTRIBUTORS WITH WIRELESS ROOM TEMPERATURE CONTROLLERS

Wireless room temperature controllers transmit wireless telegrams containing setpoints and actual values to a wireless antenna module in the heating circuit distributor. The distributor passes on the received data via an internal RS485 bus to actuators to control the device motors.

The modular design means that only the hardware actually needed is installed. This saves the cost of unnecessary actuators.

The usual term 'single room control' does not mean that only one room is controlled. In fact, zones are controlled. Every zone (e.g. every room) may have a separate room temperature controller and several zones in a room may have a common controller.

The power supply unit integrated in the antenna module can power up to 25 actuators and each actuator can control 1 or 2 heat zones. 2 actuators per zone can be directly connected.

If several actuators are required per zone, additional actuators are simply assigned to one zone.

The smallest unit comprises a 2 pitch unit (PU) wide antenna module FAM14 and 1 PU wide 2 zone actuator FAE14. One PU is only 1.8 cm wide.

The total width of the smallest unit with 2 zones is therefore only 3 PU = 5.4 cm. With 6 zones, the module width adds up to only 11 cm and with 12 zones, the total width is only 18 cm.

The actuators are powered by electronic solid state relays for 230 V actuators which have a practically unlimited service life, type FAE14SSR. In addition with conventional PCB relays for 24 V actuators, type FAE14LPR.

Modules are quickly cross-connected to the upper information side (bus and internal power supply) by means of jumpers.

With 230 V actuators and with 3 actuators and more (6 zones), it is recommended to fit 1 PU wide power supply unit STE14 snapped on the right with a preterminated busbar SAS. Otherwise they are connected by wire jumpers.

24 V DC actuators are powered by 12 W, 24 W or 48 W by a switch mode power supply unit SNT14-24V DC snapped on the right hand side. For 3 actuators or more, it can be connected using the pre-terminated busbar SAS.

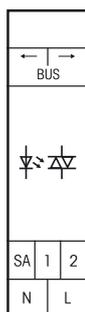


FAM14 | FAE14SSR



FAE14LPR | STE14 | SNT14 | TSA02NC

RS485 BUS ACTUATOR SINGLE ROOM CONTROL, HEATING/COOLING FOR 2 ZONES WITH SOLID STATE RELAY FAE14SSR



FAE14SSR



1-35

Noiseless 2-channel single room control, 400 W. 2 solid state relays not potential free. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

If both relays are switched on, a power of 0.4 watts is required.

The rated switching capacity of 400 W is applied for one contact and also for the sum of the two contacts.

From production week 35/16 with automatic electronic over temperature shutdown.

With a load < 1W a GLE must be switched parallel to the load.

First teach in the sensors **using the rotary switches.**

The channels can be taught-in together at the same time. Use the lower rotary switch in positions 1+2.

Alternatively, they can be taught-in separately in position 1 or 2.

Then set the operating mode using the middle rotary switch:

PWM 1 for valves with thermoelectric actuator, T = 4 minutes.

PWM 2 for valves with motor-driven actuator, T = 15 minutes.

2-Pt for 2-point control.

PWM control mode: The upper rotary switch sets the required temperature difference at which the device is switched on at 100%.

When the actual temperature \geq reference temperature, the device is switched off.

When the actual temperature \leq (reference temperature - hysteresis), the device is switched on at 100%.

When the actual temperature is between (reference temperature - hysteresis) and the reference temperature, the device is switched on and off by a PWM in steps of 10% depending on the temperature difference. The lower the temperature difference, the shorter the switch-on time. As a result of the settability of the 100% value, the PWM can be adapted to the radiator size and inertia. The signs are the opposite in cooling mode.

In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.

Two-point control mode: The upper rotary switch sets the required difference between the switch-on and switch-off temperatures.

When the actual temperature \geq reference temperature, the device is switched off.

When the actual temperature \leq (reference temperature - hysteresis), the device is switched on.

The signs are the opposite in cooling mode.

The type of connected actuators will be selected with **the lower rotary switch. SA NC** for actuator NC (normally closed) or **SA NO** for actuator NO (normally open).

When **wireless window/door contacts FTK or window handle sensors FFG7B-rw** are taught-in, they are OR linked. If one or more windows are open, the output remains off. In heating mode, however, the frost protection remains enabled.

When **motion detectors FBH** are taught-in, they are AND linked. If all FBHs signal 'No motion', the device switches to standby setback mode: In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When the **FBHs and wireless pushbuttons** are taught-in, the last telegram received is always the one that is valid. An FBH therefore switches off a setback mode selected by means of the wireless pushbutton when motion is detected.

When a **wireless pushbutton** is taught-in, the 4 keys are assigned the following functions:

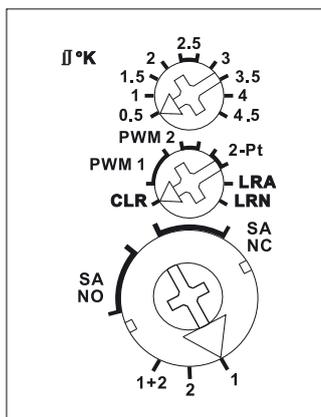
Top right: Normal mode (can also be enabled by timer with the function 'ON'). Bottom right: Night setback mode by 4°; in cooling mode: increase by 4° (can also be enabled by timer with the function 'OFF'). Top left: Standby setback mode by 2°, in cooling mode, increase by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off).

Malfunction mode: If no wireless telegram will be received from a temperature sensor for more than 1 hour, the LED lights up and it will be switched to **fault mode:** in heating mode it will be switched on for 1.2 minutes and switched off for 2.8 minutes at PWM 1. At PWM 2 and 2-Pt the times are 4,5 minutes 'on' and 10.5 minutes 'off'.

The device is switched off in cooling mode. When a wireless telegram is again received, the LED goes out and the device switches back to normal mode.

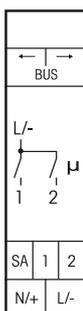
The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches

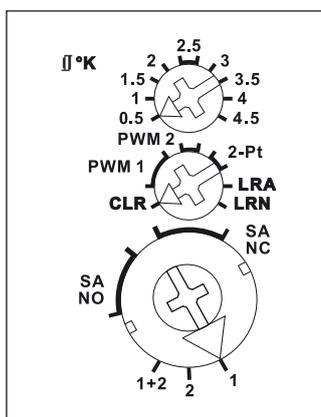


Further settings can be made using the PC Tool PCT14.

FAE14SSR	RS485 bus actuator with solid state relay	EAN 4010312314173	61,00 €/pc.
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Function rotary switches



Standard setting ex works.

FAE14LPR



2-channel single room control, 4 A/250 V, potential free. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

If both relays are switched on, a power of 0.4 watts is required.

The channels can be taught-in together at the same time. Use the lower rotary switch in positions 1+2. Alternatively, they can be taught-in separately in position 1 or 2.

First teach in the sensors **using the rotary switches**. In normal mode, set the operating mode using the middle rotary switch.

PWM 1 for valves with thermoelectric actuator, T = 4 minutes.

PWM 2 for valves with motor-driven actuator, T = 15 minutes.

2-Pt for 2-point control.

PWM control mode: The upper rotary switch sets the required temperature difference at which the device is switched on at 100%.

When the actual temperature \geq reference temperature, the device is switched off.

When the actual temperature \leq (reference temperature - hysteresis), the device is switched on at 100%.

When the actual temperature is between (reference temperature - hysteresis) and the reference temperature, the device is switched on and off by a PWM in steps of 10% depending on the temperature difference.

The lower the temperature difference, the shorter the switch-on time. As a result of the settability of the 100% value, the PWM can be adapted to the radiator size and inertia.

The signs are the opposite in cooling mode.

In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.

Two-point control mode: The upper rotary switch sets the required difference between the switch-on and switch-off temperatures.

When the actual temperature \geq reference temperature, the device is switched off.

When the actual temperature \leq (reference temperature - hysteresis), the device is switched on.

The signs are the opposite in cooling mode.

The type of connected actuators will be selected **with the lower rotary switch**. **SA NC** for actuator NC (normally closed) or **SA NO** for actuator NO (normally open).

When **wireless window/door contacts FTK** or **window handle sensors FFG7B-rw** are taught-in, they are OR linked. If one or more windows are open, the output remains off. In heating mode, however, the frost protection remains enabled.

When **motion detectors FBH** are taught-in, they are AND linked. If all FBHs signal 'No motion', the device switches to standby setback mode: In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When the **FBHs and wireless pushbuttons** are taught-in, the last telegram received is always the one that is valid. An FBH therefore switches off a setback mode selected by means of the wireless pushbutton when motion is detected.

When a **wireless pushbutton** is taught-in, the 4 keys are assigned the following functions:

Top right: Normal mode (can also be enabled by timer with the function 'ON'). Bottom right: Night setback mode by 4°; in cooling mode: increase by 4° (can also be enabled by timer with the function 'OFF'). Top left: Standby setback mode by 2°, in cooling mode, increase by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off).

Malfunction mode: If no wireless telegram will be received from a temperature sensor for more than 1 hour, the LED lights up and it will be switched to fault mode: in heating mode it will be switched on for 1.2 minutes and switched off for 2.8 minutes at PWM 1. At PWM 2 and 2-Pt the times are 4.5 minutes 'on' and 10.5 minutes 'off'. The device is switched off in cooling mode. When a wireless telegram is again received, the LED goes out and the device switches back to normal mode.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

FAE14LPR	RS485 bus actuator	EAN 4010312314234	53,50 €/pc.
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TSA02NC-230 V

Thermal actuator AFRISO-230 V/2 W, normally closed contact (NC).
Electrical control of hot water valves.

Actuators convert the electrical signal of room or clock thermostats in one valve stroke and control the set temperature. Connected directly to the valve or distributor top part by connecting cable and union nut.

IP54. Power supply 230 V \pm 10%.

I max 200 mA, -5/+60°C.

Stroke > 3 mm in 3-6 minutes. F \sim 90 N.

TSA02NC-230V	Actuator NC, 230 V	EAN 4010312314425	26,50 €/pc.
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TSA02NC-24V

Thermal actuator AFRISO-24 V/2 W, normally closed contact (NC).
Electrical control of hot water valves.

Actuators convert the electrical signal of room or clock thermostats in a valve stroke and control the set temperature. Connected directly to the valve or distributor top part by connecting cable and union nut.

IP54. Power supply 24 V \pm 10%.

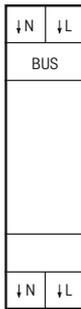
I max 230 mA, -5/+60°C.

Stroke > 3 mm in 3-6 minutes. F \sim 90 N.

TSA02NC-24 V	Actuator NC, 24 V	EAN 4010312314432	26,50 €/pc.
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POWER INPUT STE14 AND BUS BARS SAS-

1-38



Housing for operating instructions GBA14
page 1-40.



STE14



Power input for 230 V actuators.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Cross wiring bus and power supply via jumper.

The power input STE14 is connected to the 230 V power supply for the actuators on the upper input side. A busbar SAS- is plugged and screwed to the lower output side. The number of pitch units results from the sum of 1 PU for each STE14 and FAE14 device plus 2 PUs for the FAM14. The STE14 can be mounted left, right or between the actuators.

With 24 V actuators, an STE14 is not required since the busbar here connects the 24 V output of the switch mode power supply unit to the power supply for the actuators.

A connection with the bus and the 12 V power supply does not take place. They will only be looped with the jumper.

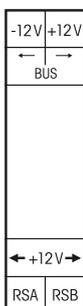
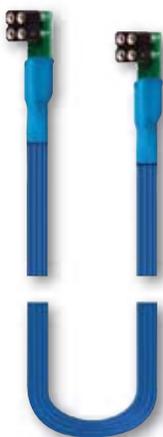
STE14	Power input	EAN 4010312314029	19,20 €/pc.
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SAS-



Bus bars for cross-connecting power input STE14 or switch mode power supply unit FSNT14 to actuators FAE14SSR and FAE14LPR.

SAS-6TE	Bus bars 6 PU	EAN 4010312314050	12,30 €/pc.
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Housing for operating instructions GBA14 page 1-40.

BBV14



Bus jumper connector for wired connections of the bus and power supply jumpers Series 14, length of 45 cm. 4-core wire with soldered plugs on both sides.

The bus jumper connector BBV14 can connect bus parts on different rails. To connect DIN-Rail devices of Series 14 with cross-wiring and bus power supply with jumpers on different rails in a cabinet or distributor with minimum space, bus jumper connectors can be plugged at the end and the beginning of the next device series. If longer connections are required, FBA14 bus coupler should be used.

BBV14	Bus jumper connector	EAN 4010312315248	22,40 €/pc.
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FBA14



Bus coupler for wire connections of bus and power supply jumpers Series 14.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Bus cross wiring and power supply with jumper.

Bus coupler FBA14 can connect various bus parts as well as feed power supplies. Bus parts on different DIN rails or in other distributors or switch cabinets are each connected to an FBA14 and a 4-wire screened bus line, e.g. a telephone line. The total length of all connecting lines should not exceed 100 m. A 9 mm wide second terminating resistor (supplied with the FAM14 respectively FTS14KS) must be plugged into the last actuator.

The bus coupler may be positioned at any point in a Series 14 device row. The 4 wires of the bus line are connected to the -12 V, +12 V, RSA and RSB terminals of the two FBA14s.

The jumper plugged in ex works to the lower terminal block must remain fitted to ← +12 V →.

This jumper also remains fitted if a switch mode power supply unit FSNT12-12V/12W is connected to the +12 V and -12 V terminals to produce power supply redundancy.

If the power supply of the switch mode power supply unit in the FAM14 or FTS14KS is insufficient to power the entire RS485 bus, a switch mode power supply unit SNT12-230V/12V DC-1A can be connected to the -12 V and +12 V terminals of the bus coupler to increase capacity. In this case the jumper must be removed. Actuators to the left of the bus coupler are powered by the FAM14 or FTS14KS, actuators to the right are powered by the switch mode power supply unit.

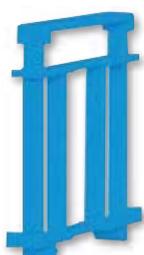
FBA14	Bus coupler	EAN 4010312313862	24,00 €/pc.
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1-40



Disconnecting link TB14

Housing for operating instructions GBA14 page 1-40.



FSNT14-12V/12W



Switching power supply unit rated capacity 12 W. Standby loss 0.2 watt only.

Modular devices for DIN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.
If the total power demand of a Series 14 bus system is higher than 8 W, other switching power supply units FSNT14-12V/12W are required. These are each supplying a group of actuators, which are separated with a disconnecting link on the FSNT14.

The scope of delivery includes 1 disconnecting link TB14 1 module, 1 jumper 1.5 modules and a spacer DS14. At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units and dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS14.

Therefore, this and a long jumper are included to the dimmers.

Input voltage 230 V (-20% bis +10%). Efficiency 83%.

Stabilised output voltage ±1%, low residual ripple. Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

This switching power supply unit can also be used for producing a redundancy. Therefore only 1 FSNT14 should be plugged in parallel to the integrated power supply units into the FAM14 and FTS14KS and connected to a normal jumper. For an optimal load distribution, the FSNT14 should be placed as close as possible next to the last bus actuator.

FSNT14-12V/12W	Power supply unit Series 14	EAN 4010312315095	48,30 €/pc.
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DS14

Spacer

1/2 module wide = 9 mm, to produce and maintain a ventilation clearance for modular devices dissipating much heat, e.g. dimmers and switching power supply units.

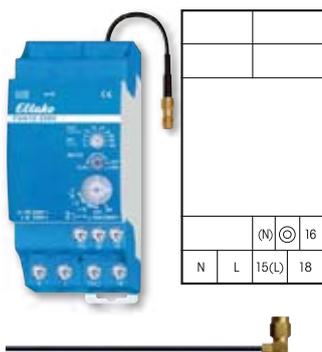
DS14	Spacer	EAN 4010312907016	1,30 €/pc.
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GBA14

Housing for operating instructions

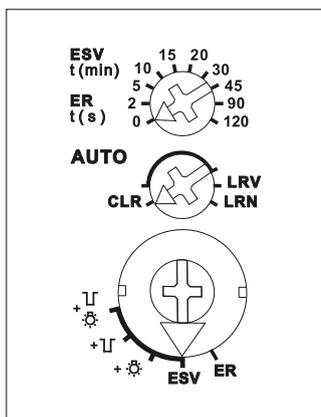
Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 55 mm deep.
Housing without front panel to insert operating instructions.

GBA14	Housing for operating instr., white-blue	EAN 4010312906422	2,30 €/pc.
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The enclosed small antenna can be replaced with a wireless antenna FA250 or if need be FA200 with magnetic base and cable. Accessories chapter Z.

Function rotary switches



Standard setting ex works.

FUA12-230V



Wireless universal actuator with exchangeable antenna. Impulse switch with integrated relay function with 1 change over contact potential free 10 A/250 V AC, incandescent lamps up to 2000 W, with DX technology. Bidirectional. Encrypted wireless. Only 0.9 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep. Supply voltage 230 V.

The wireless universal actuator combines the functions of a wireless antenna module and an actuator as a 1-channel impulse switching relay with DX technology.

If supply voltage fails, the switching state is retained. When supply voltage is restored, the device is switched off in defined mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to 15(L). This results in an additional standby consumption of only 0.1 watt.

It is also possible to control the device via the wired pushbutton terminal ⊙. In this case the N wire must be connected on the terminal (N). Glow lamp current is not permitted.

230 V control pushbutton: control current: 0,4 mA, max. parallel capacitance 0.3 μF (approx. length) of (1000 m) local control lead.

You can switch on **bidirectional wireless** and/or a **repeater** function. Every status change and incoming central control telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

The function of the actuator is set **with the lower rotary switch**.

- ER** = switching relay
- ESV** = impulse switch. Possibly with off delay
- + ☀ = ESV with pushbutton permanent light
- + ⏏ = ESV with switch-off early warning
- + ☀ + ⏏ = ESV with pushbutton permanent light and switch-off early warning

If the permanent light function is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton.

If the switch-off early warning is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

The function **ESV on the upper rotary switch** sets the off delay from 2 to 120 minutes. In setting 0 normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

In setting ER = switching relay of the lower rotary switch, this rotary switch fulfils a safety and power saving function in the settings except 0: If the opening command cannot be detected, for example, because of a jammed or too hastily operated pushbutton, contact 18 opens automatically after expiry of the set time between 2 and 120 seconds. When a FTK is taught-in, this time function is turned off.

Universal pushbuttons can be taught-in as **NC contacts**.

FTK wireless window/door contact and window handle sensors FFG7B-rw: ER function position: Several FTK devices and (or) window handle sensors FFG7B-rw are interlinked; NO contact: When a window is opened, contact 18 closes. All windows must be closed before contact 18 opens (e.g. controller for cooker extraction hoods). NC contact: All windows must be closed before contact 18 closes. When a window is opened, contact 18 opens (e.g. for climate control systems).

Twilight pushbutton with taught-in FAH wireless outdoor brightness sensor in function position ESV. In time setting 120, contact 18 opens with a time delay of 4 minutes when brightness reaches high enough levels. In time setting 0, the contact opens immediately. Pushbutton activation also remains available.

Motion detection with taught-in **FBH (slave)** wireless motion detector and in ER function position. The device switches on when motion is detected. If no more motion is detected, contact 18 opens after expiry of the set time between 0 and 120 seconds. When an **FBH (master)** wireless detector and brightness detector is taught-in, use the upper rotary switch to define the switching threshold at which the lighting is switched on or off depending on the brightness (in addition to motion). An FAH wireless outdoor brightness sensor or an FBH (master) wireless motion detector and brightness sensor can be used in ER function position together with FBH (slave) motion detector so that motion is only evaluated in darkness. If FAH or FBH (master) detects brightness, contact 18 opens immediately.

When teaching-in, the switching threshold is also taught-in: between break of twilight and complete darkness.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

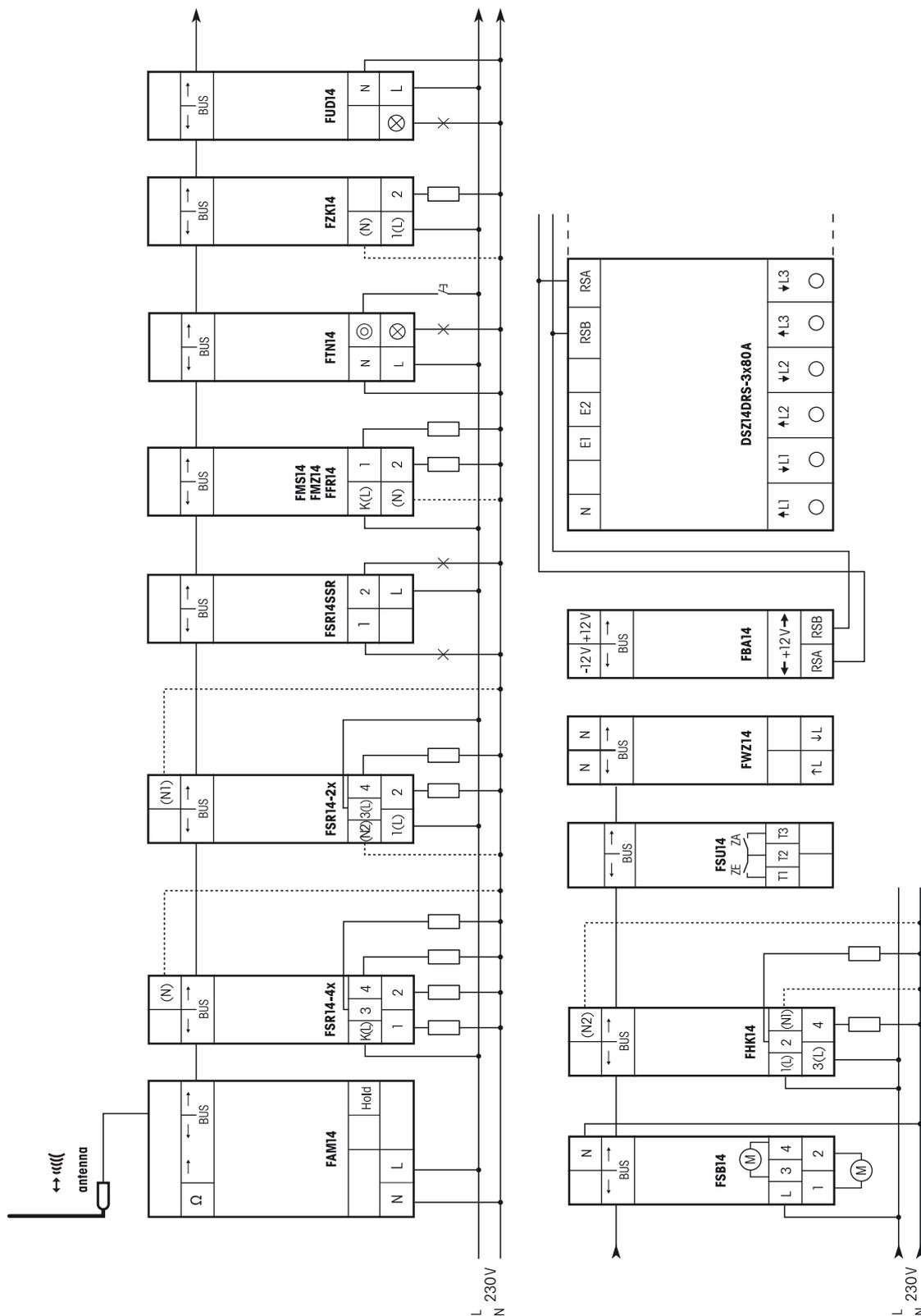
FUA12-230V	Wireless universal actuator	EAN 4010312316955	114,90 €/pc.
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MAXIMUM CONFIGURATION OF THE SERIES 14 RS485 BUS WITH 3 GATEWAYS AND 3 WIRELESS RECEIVER MODULES



* Three-phase energy meters DSZ14 must be connected to the end of a bus line. The enclosed second terminating resistor has to be plugged to the last actuator of the FAM14 or the terminating resistor can be clamped under the terminals RSB/RSA of the last energy meter (120 Ω, not included).

CONNECTION EXAMPLE WIRELESS ANTENNA MODULE WITH DOWNSTREAM ACTUATORS AND METERS



The enclosed second terminating resistor has to be plugged to the last actuator of the FAM14 or the terminating resistor can be clamped under the terminals RSB/RSA of the last energy meter (120 Ω, not included).

TECHNICAL DATA – SWITCHING ACTUATORS AND DIMMING ACTUATORS FOR THE ELTAKO RS485 BUS

1-44

Type	F4HK14 FHK14 FSB14 FSR14-4x	FUD14 FUD14/800W ⁷⁾	FSG14/1-10V ^{b)}	F2L14 ^{b)} F4SR14- LED, FMS14 FMZ14, FSR14-2x ^{b)} FTN14 ^{b)}	FSR14SSR
Contacts					
Contact material/contact gap	AgSnO ₂ /0.5 mm	Power MOSFET	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	Opto-Triac
Test voltage control connections/contact	-	-	-	2000 V	4000 V
Rated switching capacity each contact	4 A/250 V AC	-	600 VA ⁵⁾	16 A/250 V AC; FMZ14: 10 A/250 V AC up to 400 W ⁶⁾ F4SR14: 8 A/250 V AC	-
incandescent lamps and halogen lamp load 230 V ²⁾	1000 W I _{on} ≤ 10 A/10 ms	up to 400 W; FUD14/800 W: up to 800 W ¹⁾³⁾⁴⁾	-	2000 W F4SR14: 1800 W I _{on} ≤ 70 A/10 ms	up to 400 W ⁶⁾
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	500 VA	-	-	1000 VA	-
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	250 VA, I _{on} ≤ 10 A/10 ms	-	600 VA ⁵⁾	500 VA	up to 400 VA ⁶⁾
Compact fluorescent lamps with EVG* and energy saving lamps ESL	up to 200 W ⁹⁾	up to 400 W ⁹⁾¹⁾	-	up to 400 W ⁹⁾	up to 400 W ⁶⁾⁹⁾
Inductive load cos φ = 0,6/230 V AC inrush current ≤ 35 A	650 W ⁸⁾	-	-	650 W ⁸⁾	-
230 V LED lamps	up to 200 W ⁹⁾	up to 400 W ⁹⁾¹⁾	-	up to 400 W ⁹⁾	up to 400 W ⁶⁾⁹⁾
Max. switching current DC1: 12 V/24 V DC	4 A	-	-	8 A (not FTN14)	-
Life at rated load, cos φ = 1 or for incandescent lamps 500 W at 100/h	>10 ⁵	-	>10 ⁵	>10 ⁵	∞
Service life at rated load, cos φ = 0,6 at 100/h	>4x10 ⁴	-	>4x10 ⁴	>4x10 ⁴	∞
Max. operating cycles	10 ³ /h	-	10 ³ /h	10 ³ /h	10 ³ /h
Maximum conductor cross-section (3-fold terminal)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ²
Two conductors of same cross-section (3-fold terminal)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/cross- head, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20
Electronics					
Time on	100%	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (active power)	0.1 W	0.3 W	0.9 W	0.05-0.5 W	0.1 W
Local control current at 230 V control input	-	-	-	5 mA	-
Max. parallel capacitance (approx. length) of local control lead at 230 V AC	-	-	-	FTN14: 0.3 μF (1000 m)	-

* EVG = electronic ballast units; KVG = conventional ballast units

¹⁾ Bistable relay as relay contact. After installation, wait for short automatic synchronisation before teaching-in the wireless pushbuttons.

²⁾ If the load exceeds 200 W, a ventilation clearance of 1/2 pitch unit to adjacent devices must be maintained.

³⁾ Applies to lamps of max. 150 W.

⁴⁾ Per dimmer or capacity enhancer it is only allowed to use max. 2 inductive (wound) transformers of the same type, furthermore no-load operation on the secondary part is not permitted. The dimmer might be destroyed. Therefore do not permit load breaking on the secondary part. Operation in parallel of inductive (wound) and capacitive (electronic) transformers is not permitted!

⁵⁾ When calculating the load a loss of 20% for inductive (wound) transformers and a loss of 5% for capacitive (electronic) transformers must be considered in addition to the lamp load.

⁶⁾ Fluorescent lamps or LV halogen lamps with electronic ballast.

⁷⁾ Applies to one contact and the sum of both contacts.

⁸⁾ Capacity increase for all dimmable lamp types with Capacity Enhancer FLUD14.

⁹⁾ All actuators with 2 contacts: Inductive load cos φ = 0.6 as sum of both contacts 1000 W max.

¹⁰⁾ Generally applies to energy saving lamps (ESL) and 230 V LED lamps. Due to different lamp electronics, switch on/off problems and a restriction in the maximum number of lamps, however, the dimming ranges may be limited depending on the manufacturer; in particular when the connected load is very low (e.g. with 5 W LEDs). The dimmer switch comfort settings EC1, EC2, LC1, LC2 and LC3 optimise the dimming range, however, the maximum power is then only up to 100 W. In these comfort settings, no inductive (wound) transformers may be dimmed.

The second terminating resistor has to be plugged to the last actuator included in the FAM14 respectively FSNT14 scope of supply.

Eltako Wireless is based on the EnOcean wireless standard for 868 MHz, frequency 868.3 MHz, data rate 125 kbps, modulation mode ASK, max. transmit power 7 dBm (<10 mW).

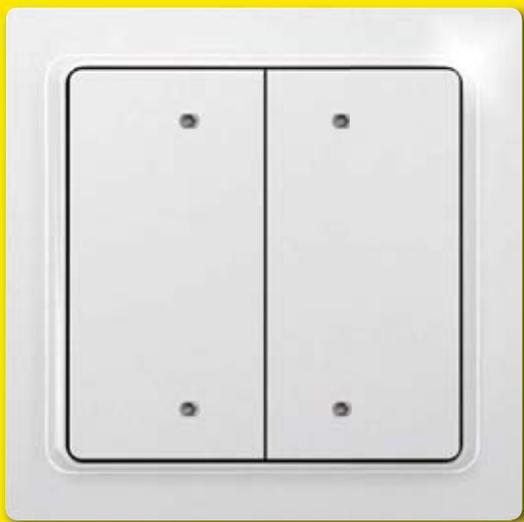
POWER REQUIREMENT OF THE 12 V DC POWER SUPPLY OF SERIES 14

The switching power supply unit in the FAM14 resp. FTS14KS provides 12 V DC/8 W*. The maximum power consumption of each connected device must be added to calculate the total power consumption of the 12 V DC power supply.

Device	Maximum power requirement (existing relay energized)
BGW14	0.30 W
F2L14	0.14 W
F3Z14D	0.10 W
F4HK14	0.70 W
F4SR14-LED	1.00 W
FAE14LPR	0.42 W
FAE14SSR	0.40 W
FBA14	-
FDG14	0.40 W
FFR14	0.63 W
FGSM14	0.20 W
FGW14	0.50 W
FGW14-USB	0.30 W
FHK14	0.42 W
FLUD14	-
FMS14	0.63 W
FMSR14	0.10 W
FMZ14	0.40 W
FPLG14	0.40 W
FPLT14	0.40 W
FRP14	0.50 W
FSB14	0.42 W
FSDG14	0.40 W
FSG14/1-10V	0.20 W
FSM14	0.10 W
FSR14-2x	0.14 W
FSR14-4x	0.70 W
FSR14SSR	0.40 W
FSU14	0.14 W
FTD14	0.53 W
FTN14	0.14 W
FTS14EM	0.13 W
FTS14FA	0,50 W
FTS14GBZ	0,10 W
FTS14TG	0.42 W
FUD14	0.20 W
FUD14/800W	0.20 W
FWG14MS	0.30 W
FWZ14-65A	0.10 W
FZK14	0.14 W
STE14	-

* If the power requirement is greater, a switching power supply unit FSNT14-12V/12W should be used for each 12 watts of more power. Furthermore a disconnecting link TB14 has to be attached instead of a normal jumper to separate the additionally powered group.

**FTS61BTK
B4T65
FTS14KS**



**2 THE REMOTE SWITCH SYSTEM FTS14 –
COMBINING DEVICES AND FUNCTIONS FLEXIBLY.
TAKE ADVANTAGE OF THE NEW POSSIBILITIES
OF SERIES 14.**

The remote switch system FTS14 - Modular RS485 bus

The remote switch system FTS14 - modular RS485 bus of the next generation	2-2
Input module FTS14EM	2-4
FTS14 communication interface FTS14KS	2-5
Optional: Pushbutton gateway FTS14TG and bus pushbutton B4T65 and B4FT65	2-6
Bus pushbutton coupler FTS61BTK and bus pushbutton coupler FTS61BTKL	2-7
Optional: Wireless output module FTS14FA	2-8
The input module FTS14EM with Series 14 actuators	2-9
The input module FTS14EM with actuators in combination with FAM14 to expand the Wireless Building	2-10
The wireless output module FTS14FA with FTS14TG , FTS14EM and actuators	2-11
The pushbutton gateway FTS14TG with bus pushbutton coupler FTS61BTK and bus pushbuttons B4T65 or B4FT65	2-12
All possible combinations FTS14KS , FAM14 , FTS14TG , FTS14EM and FTS14FA and actuators	2-13

THE REMOTE SENSING SYSTEM FTS14 USES THE NEW FEATURES OF OUR SERIES 14

The bus and power supply connections on the input module FTS14EM, communication interface FTS14KS and actuators as DIN rail mounted devices are very simply cross-wired by means of jumpers. A customary screened 4-wire telephone line acts as bus line to connect several distributors together.

The FTS14 bus and the input module FTS14EM use exactly the same telegram structure as the Wireless Building DIN rail mounted devices of the Series 14 and are therefore directly combinable with actuators and other components in the Series 14. All the necessary functions of current production are then immediately available.

The power supply in the FTS14KS decouples the electronics of all connected devices from the 230 V power supply grid. As a result, the devices are not exposed to voltage peaks and other faults which are becoming increasingly frequent on mains power supplies. This protection significantly increases the expected service life of the devices.

Every FTS14EM with only two pitches width has 10 inputs for either conventional pushbuttons, window/door-contacts or motion sensors. Thanks to the electrically isolated universal control voltage from 8 to 230V UC, the inputs can be controlled either directly with the mains voltage or with low voltage. A separate switch mode power supply unit, e.g. the SNT12 which is only one pitch unit wide, must then be used for 12 V or 24 V. Control power requirement is only 0.05 or 0.2 watts per pushbutton when a pushbutton is operated. All input terminals (E1 to E10) are arranged in the lower terminal blocks and a terminal for the common pushbutton reference potential (-E) is located on the upper terminal block.

The FTS14EM can be configured by 2 rotary switches in such a way that **max. 50 FTS14EM devices** can be connected to **max. 500 pushbuttons in a bus installation**. In addition the pushbutton inputs of each FTS14EM are set by rotary switch either as universal pushbuttons or in pairs as direction pushbuttons. The telegram of each pushbutton input in the entire bus is available over the bus system simultaneously for all actuators connected. It is therefore possible to install central and group pushbuttons rapidly and using few wires. The related pushbuttons are simply taught-in in the required actuators on the bus.

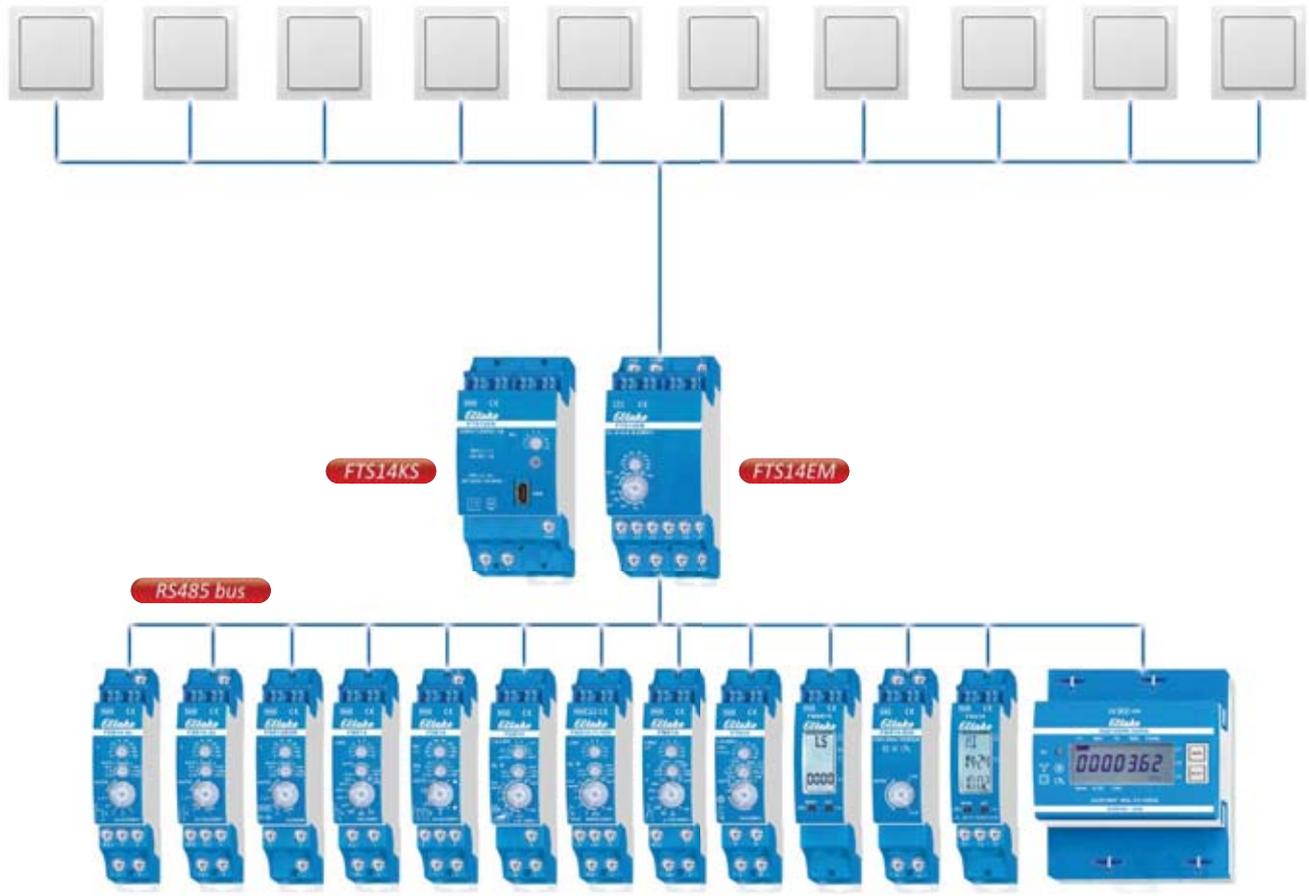
The connected actuators can also be configured with the PC tool PCT14 via communication interface of the FTS14KS.

→ **Optional:** Instead of the FTS14KS a **wireless antenna module FAM14** (from the Wireless Building System), which is only two pitch units wide, can also be installed. Actuators can then be activated via the FTS14EM by wireless pushbuttons, hand-held transmitters and wireless sensors as well as conventional pushbuttons. The bidirectional FAM14 also permits a Smart Home central unit SafeIV to evaluate feedback messages from the actuators transferred by wireless. Each actuator status is then displayed and can also be changed. Connecting the HOLD terminals of all devices regulates bus access and prevents collisions.

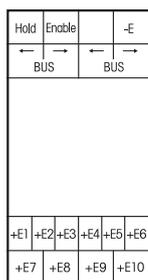
→ **Optional:** The **pushbutton gateway FTS14TG**, which is only two pitch units wide, can feed telegrams from the **4-way bus pushbuttons B4T65, B4FT65** and **pushbutton coupler FTS61BTK** connected by 2-wire pushbutton bus to conventional pushbuttons connected to the bus. Data transfer and power supply take place simultaneously over 2 wires only. This avoids many single pushbutton control lines. This avoids many single pushbutton control lines. An FTS14EM device is then not required.

→ **Optional:** Pushbutton telegrams on the bus can be sent directly to the Wireless Building system with a **wireless output module FTS14FA**, e.g. to control decentral actuators.

→ **Optional:** The **multiple gateway FGW14**, which is only one pitch unit wide, can set up connections to the Smart Home central unit SafeIV, bus components of the previous Series 12 and an RS232 interface. In addition to this, two RS485 buses from Series 14 can be connected.



All optional possibilities can be combined as required: FTS14EM with actuators, the wireless antenna module FAM14, the pushbutton wireless output module FTS14FA and the pushbutton gateway FTS14TG for connection to pushbutton couplers FTS61BTK.



FTS14EM



Input module for the Eltako RS485 bus, 10 control inputs for universal control voltage. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 railmounting.
2 modules = 36 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Operation in conjunction with FTS14KS or FAM14.

10 control inputs +E1 to +E10/-E electrically isolated from the supply voltage.

Control voltage: 8..230 V UC.

The control inputs can be either activated for pushbuttons (delivery state), window-door contacts or motion detectors.

From the production week 21/19 the signals of the control inputs can be inverted.

Control inputs for pushbuttons: telegrams of pushbuttons will be generated (e.g. 0x70).

Each FTS14EM can be set to UT (= universal pushbutton) or RT (= direction pushbutton) on the lower rotary switch.

Control inputs for window-door contacts: telegrams of the window-door contact FTK are generated (EEP D5-00-01). If the input is driven by the contact with the control voltage to be applied externally, the telegram 'window open' is generated. If the contact is opened, the telegram 'window open' is generated. As with the wireless sensor FTK, the status telegram is repeated every 15 minutes.

Control inputs for motion detectors: telegrams of the wireless motion/brightness sensor FBH are generated (EEP A5-08-01), wherein the brightness value is always 0. If the input is driven by the contact with the control voltage to be applied externally, the telegram 'motion' is generated. If the contact is opened, the telegram 'no motion' will be generated. As with the wireless sensors FBH, the status telegram is repeated every 15 minutes.

Each telegram of a contact input has to be taught-in with an identification number (ID) into one or more actuators according to the operating instructions.

The lower rotary switch defines the group to which an FTS14EM belongs. A total of 5 groups are available (1, 101, 201, 301 and 401) each with 100 IDs.

The upper rotary switch (0 to 90) sets the ID within a group. The ID range within a group results from the combination of upper and lower rotary switches and must be set differently on each FTS14EM.

Maximum ten FTS14EMs form a group. Therefore, a total of 50 FTS14EMs comprising 500 pushbuttons or contacts are possible in one RS485 bus.

To generate the necessary **teach-in telegrams** for teaching-in into the actuators, the requested group has to be selected on the upper and lower rotary switch. For pushbuttons in the range UT or RT or for window-door contacts and motion sensors in the range RT. Then confirm the required control input.

In operation, the same group should be selected for window-door contacts and motion sensors in the range UT or RT for pushbutton or UT.

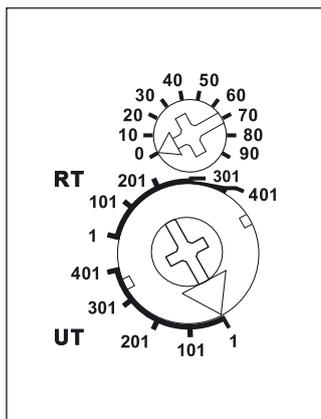
The LED below the upper rotary switch flashes briefly, when a connected contact is closed.

Optional: An **FAM14 wireless antenna module** (from Wireless Building System) which is only two modules wide can also be installed. Actuators can then be activated via the FTS14EM by wireless pushbuttons and Kontakten, hand-held transmitters and wireless sensors in addition to conventional buttons. As the FAM14 has an integrated switch mode power supply unit, the FTS14KS is no longer required for power supply in this configuration.

The bidirectional FAM14 also permits a Smart Home central unit SafeIV to evaluate feedback messages from the actuators transferred by wireless. Each actuator status is then displayed and can also be changed. Connecting the HOLD terminals of all devices regulates bus access and prevents collisions.

The telegrams of the FTS14EM can also be sent to the Eltako Wireless Building **with the optional wireless output module FTS14FA.**

Function rotary switches



Standard setting ex works.

Housing for operating instructions GBA14 page 1-44.

FTS14EM	Input module	EAN 4010312315071	58,10 €/pc.
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FTS14KS



FTS14 communication interface for the Eltako RS485 bus with integrated power supply unit 12V DC/8 W. Only 0.6 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

2 module = 36 mm wide, 58 mm deep.

Supply voltage 230 V.

The delivery includes 2 terminators with printing Ω , 1/2 module, 3 jumpers 1 module (including 1 spare), 2 jumpers 1/2 module (including 1 spare) and 1 jumper installation tool SMW14.

Bus cross wiring and power supply with jumper.

The attached second terminator should be plugged **to the last actuator.**

Mini USB to connect to a PC, to create an equipment list, to configurate the actuators using the PC tool PCT14 and for data backup. A legalization code to download the PCT14 from the Eltako homepage www.eltako.com is included in the FTS14KS.

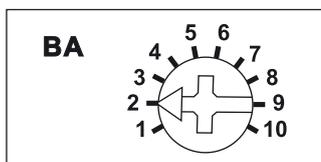
All FTS14EM and if needed gateways FGW14 will be connected to the terminal Hold when they connect a PC with a RS232 bus.

According to the operating manual 10 different operating modes can be set with the operating mode rotary switch BA.

The bottom LED lights up green if a connection from the PC tool PCT14 was created. When reading or writing date the LED flashes green. The green LED goes out if the connection from the PC tool PCT14 was terminated.

At a load of more than 50% of the rated capacity of 8 W a ventilation clearance of 1/2 module must be maintained with the spacer DS14 on the left side.

Function rotary switch



Standard setting ex works.

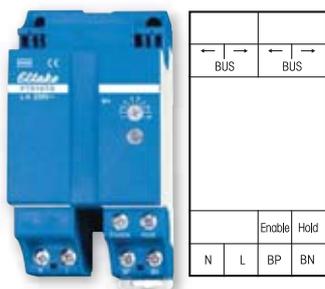
Housing for operating instructions GBA14 page 1-44.

2-5

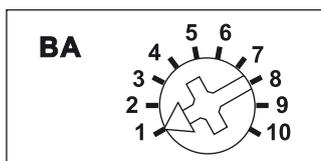
FTS14KS	FTS14 communication interface	EAN 4010312315651	77,10 €/pc.
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OPTIONAL: PUSHBUTTON GATEWAY FTS14TG AND BUS PUSHBUTTON B4T65, B4FT65

2-6



Function rotary switch



Standard setting ex works.

Description FTS61BTK and FTS61BTKL on page 2-7.



Bus pushbutton with double rocker



Bus pushbutton with rocker

Typical connections on page 2-12 and 2-13.

FTS14TG



Optional: Pushbutton gateway for FTS14 systems. Only 1.3 watt standby loss.

Modular device for DIN-EN 60715 TH35 railmounting. 2,5 modules = 45 mm wide, 58 mm deep. To improve heat dissipation, provide a ventilation gap $\frac{1}{2}$ a pitch unit wide on the left-hand side. Use the enclosed spacer DS14 for this purpose. Power supply 230 V.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper. Operation in conjunction with FAM14 or FTS14KS.

Using up to **3 pushbutton gateways FTS14TG**, you can feed the telegrams of up to 90 **4-way bus switches B4T65 and B4FT65** or **pushbutton bus couplers FTS61BTK and FTS61BTKL** connected over a 2-wire bus with conventional pushbuttons connected to them. Data transfer and power supply take place simultaneously over 2 wires only. This avoids a mass of single pushbutton control lines. An FTS14EM device is then not required.

Up to 30 B4T65, B4FT65, FTS61BTK and FTS61BTKL devices can be connected to an FTS14TG pushbutton gateway.

A voltage of 29 V DC is supplied to the connected devices over a 2-wire bus which is also used for data transfer.

Please use only conventional bus or telephone lines.

The 2-wire bus is electrically isolated from the Eltako RS485 bus.

The permitted maximum line length is 200 m. The RLC device enclosed with the FTS14TG must also be connected to the terminals BP and BN on the bus switch or pushbutton bus coupler furthest away.

Pushbutton telegrams from the connected devices are transmitted by an FTS14FA device over the Eltako RS485 bus and over the Eltako building wireless system.

RLC element	Range extension for FTS14TG	EAN 4010312907092	4,00 €/pc.
FTS14TG	Pushbutton gateway	EAN 4010312315088	79,10 €/pc.

B4T65 AND B4FT65



Bus switch 84 x 84 mm external for connection to FTS14TG pushbutton gateway by 2-wire pushbutton bus. Pure white, glossy. Only 0.2 watt standby loss. B4FT65 bus 4-way flat pushbutton in E-design, only 11mm high. B4T65 bus 4-way pushbutton in E-Design, only 16 mm high.

The scope of supply comprises the R1E resp. RF1E frame including snapped-on electronics, a flat rocker and a flat double rocker (all the same colour).

The double rocker permits entry of 4 evaluable signals, but the rocker allows only 2 signals.

At the rear, a 20 cm long red/black by pushbutton bus line is routed externally. Red terminal to BP, black to BN of a pushbutton gateway FTS14TG.

Up to 30 bus switches and/or FTS61BTK pushbutton bus couplers can be connected to terminals BP and BN of an FTS14TG pushbutton gateway.

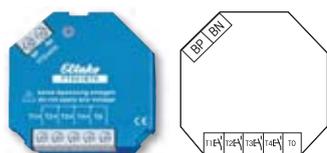
The permitted maximum line length is 200 m. The RLC device enclosed with the FTS14TG must also be connected to the terminals BP and BN on the bus switch or pushbutton bus coupler furthest away.

A voltage of 29 V DC is supplied to the connected B4 over a 2-wire pushbutton bus which is also used for data transfer.

Please use only conventional bus or telephone lines.

Confirmation telegrams from actuators are displayed by 4 resp. 2 yellow LEDs when the actuator IDs are entered by the PCT14 in the ID table of the FTS14TG.

B4FT65-wg	Bus flat pushbutton	EAN 4010312315682	43,40 €/pc.
B4T65-wg	Bus pushbutton in E-Design	EAN 4010312315675	42,10 €/pc.
RLC element	Range extension for B4T65/B4FT65	EAN 4010312907092	4,00 €/pc.



FTS61BTK



Bus pushbutton coupler FTS61BTK for 4 conventional pushbuttons for connection to FTS14TG pushbutton gateways by 2-wire pushbutton bus. Only 0.2 watt standby loss.

For installation. 45 mm long, 45 mm wide, 18 mm deep.
Up to 30 bus pushbuttons and/or bus pushbutton couplers FTS61BTK devices can be connected to the BP and BN terminals of a pushbutton gateway FTS14TG. The permitted total line length is 200 m. The RLC device enclosed with the FTS14TG must also be connected to the terminals BP and BN on the bus switch or pushbutton bus coupler furthest away.

A voltage of 29 V DC is supplied to the connected FTS61BTK over a 2-wire pushbutton bus which is also used for data transfer.

Please use only conventional bus or telephone lines.

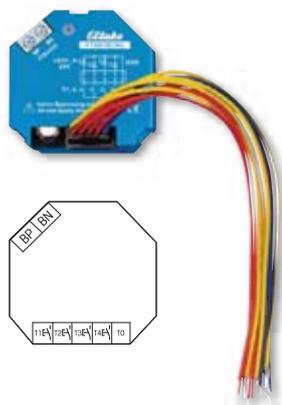
Up to four conventional pushbuttons can be connected to T1, T2, T3 and T4 by a maximum line length of 2 metres. Connect the opposite pole to the T0 terminal in each case.

Caution: Do not apply any voltage.

The pairs T1/T3 and T2/T4 can be defined as direction pushbuttons.

Connect the bus to BP and BN. Make sure the polarity is correct.

Typical connections on page 2-12 and 2-13.



FTS61BTKL



Bus pushbutton coupler FTS61BTKL for 4 conventional pushbuttons with integrated 24 V LEDs for connection to FTS14TG pushbutton gateways by 2-wire pushbutton bus. Only 0.2 watt standby loss.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

Up to 30 bus pushbuttons and/or bus pushbutton couplers FTS61BTKL devices can be connected to the BP and BN terminals of a pushbutton gateway FTS14TG. The permitted total line length is 200 m. The RLC device enclosed with the FTS14TG must also be connected to the terminals BP and BN on the bus switch or pushbutton bus coupler furthest away.

A voltage of 29 V DC is supplied to the connected FTS61BTKL over a 2-wire pushbutton bus which is also used for data transfer.

Please use only conventional bus or telephone lines.

Up to four conventional pushbuttons T1-T4 can be connected to the 15 cm long connecting cables. Each opposite pole is T0. The connecting cables can be extended up to 2 m. With the 24 V LEDs integrated in the pushbuttons, confirmation telegrams of actuators are displayed if the IDs of the actuators were registered into the ID table of the FTS14TG with PCT14.

Caution: Do not apply any voltage.

The pairs T1/T3 and T2/T4 can be defined as direction pushbuttons.

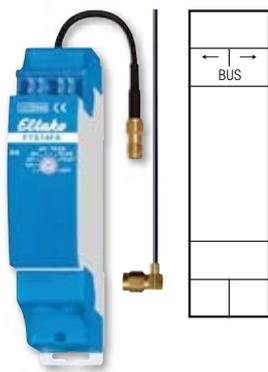
Connect the bus to BP and BN. Make sure the polarity is correct.

FTS61BTK	Bus pushbutton coupler	EAN 4010312315668	43,90 €/pc.
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FTS61BTKL	Bus pushbutton coupler for feedback LED	EAN 4010312316801	49,90 €/pc.
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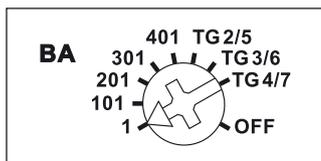
OPTIONAL: WIRELESS OUTPUT MODULE FTS14FA

2-8



The enclosed small antenna can be replaced with a wireless antenna FA250 or if need be FA200 with magnetic base and cable.

Mode switch



Standard setting ex works.

Housing for operating instructions GBA14 page 1-44.

FTS14FA



Optional: Wireless output module pushbutton telegrams for FTS14 systems with FTS14EM and/or FTS14TG. Only 0.5 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Operation in conjunction with FTS14KS with or without FAM14.

A rotary switch defines the FTS14EM or FTS14TG group to which an FTS14FA belongs. Therefore a maximum of 8 FTS14FAs can be connected to a bus. Every pushbutton telegram from an FTS14EM or FTS14TG is sent with its own ID to the Eltako building wireless system.

Rotary switch on the FTS14FA set to position 1: Sends telegrams of all FTS14EMs set to 1.

Rotary switch on the FTS14FA set to position 101: Sends telegrams of all FTS14EMs set to 101.

Rotary switch on the FTS14FA set to position 201: Sends telegrams of all FTS14EMs set to 201.

Rotary switch on the FTS14FA set to position 301: Sends telegrams of all FTS14EMs set to 301.

Rotary switch on the FTS14FA set to position 401: Sends telegrams of all FTS14EMs set to 401.

Rotary switch on the FTS14FA set to position TG2/5: Sends telegrams of all FTS14TG set to 2 or 5.

Rotary switch on the FTS14FA set to position TG3/6: Sends telegrams of all FTS14TG set to 3 or 6.

Rotary switch on the FTS14FA set to position TG4/7: Sends telegrams of all FTS14TG set to 4 or 7.

Rotary switch on the FTS14FA set to position OFF: The FTS14FA is switched off.

The green LED under the rotary switch will flash shortly when a wireless telegram is sent.

Telegrams from an FAM14 are not sent by the FTS14FA.

FTS14FA	Wireless output module	EAN 4010312315101	89,90 €/pc.
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**FD62NPN-
FSR71
FSR61NP-**



**FLUSH MOUNTING SWITCHING AND
DIMMING ACTUATORS FOR DECENTRALISED
INSTALLATION.**

Wireless actuators for the decentralised Wireless Building installation

Wireless relay actuator FR62-230V and FR62NP-230V	3-3
Wireless light actuator FL62-230V and FL62NP-230V	3-4
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Wireless shading element and roller shutter actuator FJ62/12-36V DC	3-6
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Wireless repeater FRP62-230V	3-8
Wireless actuator for extractor hoods control with window/door contact FDH62NP-230V+FTKB-wg	3-9
Wireless actuator impulse switch with integr. relay function FSR61NP-230V	3-10
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Wireless actuator impulse switch with integr. relay function noiseless FSR61G-230V	3-13
Wireless actuator impulse switch with integr. relay function FSR61LN-230V for bipolar switching of L and N	3-14
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Wireless actuator universal dimmer switch without N FUD61NP-230V	3-17
Wireless actuator universal dimmer switch FUD61NPN-230V	3-18
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NEW Wireless alarm controller with display FAC65D/230V-wg and wireless alarm controller with display FAC65D/12-24V UC-wg	3 - 52
NEW Wireless indoor UP signal generator FIUS55E-wg and wireless signal generator adapter FSSG-230V	3 - 53
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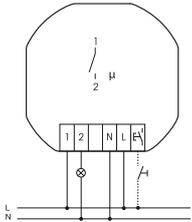
The Eltako wireless system works with the reliable and worldwide standardized EnOcean wireless technology in 868 MHz.

It transmits ultra short and interference-proof signals with a range of up to 100 meters in halls.

Eltako wireless pushbuttons reduce the electrosmog load since they emit high-frequency waves that are 100 times weaker than conventional light switches. There is also a significant reduction in low-frequency alternating fields since fewer power cables need to be installed in the building.



Typical connection



FR62-230V



Wireless relay actuator 10 A/250 V AC. 1 NO contact or NC contact, potential free. Standby loss only 0.4 watt.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

Up to 32 wireless pushbuttons and wireless window contacts can be taught in using easy tap technology. Bidirectional wireless switchable.

Distance between control terminals/contact 6 mm.

Supply voltage, switching voltage and control voltage local 230 V.

If supply voltage fails, the device is switched off in defined mode. When the supply voltage is restored, the device is switched off in a defined process. After installation, wait until the short automatic synchronisation takes place before the switched user is connected to the network.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch if fitted previously.

Glow lamp current is not permitted.

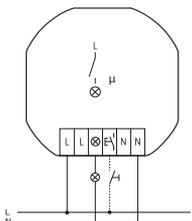
During teach-in, the function of the contact in quiescent position is defined as NO or NC. Closes the contact with at least one open window; it can then activate extraction hoods etc. or generate an alarm. Opens the contact with at least one open window: it can then switch off heaters or air conditioners.

Several wireless window contacts are linked together. The function is determined by the last wireless window contact which is taught in.

FR62-230V	Wireless relay actuator	EAN 4010312320327	52,60 €/pc.
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Typical connection



FR62NP-230V



Wireless relay actuator 10 A/250 V AC. 1 NO contact or NC contact, not potential free. Standby loss only 0.4 watt.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

Up to 32 wireless pushbuttons and wireless window contacts can be taught in using easy tap technology. Bidirectional wireless switchable.

Zero passage switching.

Supply voltage, switching voltage and control voltage local 230 V.

If supply voltage fails, the device is switched off in defined mode. When the supply voltage is restored, the device is switched off in a defined process. After installation, wait until the short automatic synchronisation takes place before the switched user is connected to the network.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch if fitted previously.

Glow lamp current is not permitted.

During teach-in, the function of the contact in quiescent position is defined as NO or NC.

Closes the contact with at least one open window; it can then activate extraction hoods etc. or generate an alarm.

Opens the contact with at least one open window: it can then switch off heaters or air conditioners.

Several wireless window contacts are linked together. The function is determined by the last wireless window contact which is taught in.

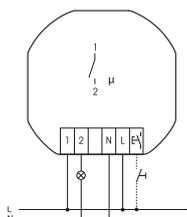
FR62NP-230V	Wireless relay actuator	EAN 4010312320464	52,60 €/pc.
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WIRELESS LIGHT ACTUATOR FL62-230V AND FL62NP-230V

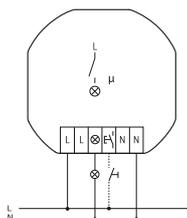


3-4

Typical connection



Typical connection



FL62-230V



Wireless light actuator 10 A/250 V AC. Impulse switch with NO contact, potential free. 230 V incandescent lamps and halogen lamps 1000 W, ESL and 230 V LED lamps up to 200 W. Standby loss only 0.4 watt.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

The convenient tap technology permits the teach-in of up to 32 wireless universal pushbuttons, wireless direction pushbuttons, wireless central control pushbuttons and motion sensors.

Bidirectional wireless switchable.

Distance between control terminals and contact 6 mm.

Supply voltage, switching voltage and control voltage local 230 V.

If supply voltage fails, the device is switched off in defined mode. When the supply voltage is restored, the device is switched off in a defined process. After installation, wait for the short automatic synchronisation before connecting the switched user to the network.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch if fitted previously.

Glow lamp current is not permitted.

FL62-230V	Wireless light actuator	EAN 4010312319383	52,60 €/pc.
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FL62NP-230V



Wireless light actuator 10 A/250 V AC. Impulse switch with NO contact, not potential free. 230 V incandescent lamps and halogen lamps 1000 W, ESL and 230 V LED lamps up to 200 W. Standby loss only 0.4 watt.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

The convenient tap technology permits the teach-in of up to 32 wireless universal pushbuttons, wireless direction pushbuttons, wireless central control pushbuttons and motion sensors.

Bidirectional wireless switchable.

Zero passage switching.

Supply voltage, switching voltage and control voltage local 230 V.

If supply voltage fails, the device is switched off in defined mode. When the supply voltage is restored, the device is switched off in a defined process. After installation, wait for the short automatic synchronisation before connecting the switched user to the network.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch if fitted previously.

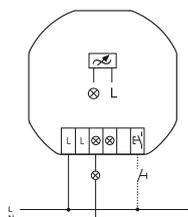
Glow lamp current is not permitted.

FL62NP-230V	Wireless light actuator	EAN 4010312319109	52,60 €/pc.
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WIRELESS UNIVERSAL DIMMING ACTUATOR WITHOUT N TERMINAL FD62NP-230V AND WIRELESS UNIVERSAL DIMMING ACTUATOR FD62NPN-230V



Typical connection



FD62NP-230V



Wireless universal dimming actuator, without N terminal. With power MOSFET. 230 V incandescent lamps and halogen lamps up to 200 W depending on ventilation conditions. Dimmable LED lamps in 'phase cut-out' mode up to 200 W or in 'phase control' mode up to 40 W depending on ventilation conditions. Minimum load for 'phase cut-out' 20 W, or for 'phase control' 8 W. No inductive (wound) transformers. With children's rooms and snooze function. No minimum load. Only 0.6 watt standby loss.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

Up to 32 wireless universal pushbuttons, wireless direction pushbuttons, wireless central control push-buttons and motion sensors can be taught in using easy tap technology.

Bidirectional wireless switchable.

Zero passage switching with soft ON and soft OFF to protect lamps.

Supply voltage, switching voltage and control voltage local 230 V.

The brightness level is stored on switch-off (memory).

If supply voltage fails, the device is switched off in defined mode.

Automatic electronic overload protection and overtemperature switch-off.

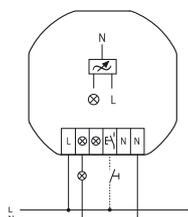
In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch if fitted previously.

Glow lamp current is not permitted.

FD62NP-230V	Wireless universal dimming actuator without N terminal	EAN 4010312319468	64,40 €/pc.
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Typical connection



FD62NPN-230V



Wireless universal dimming actuator. With power MOSFET. 230 V incandescent lamps and halogen lamps up to 300 W depending on ventilation conditions. Dimmable LED lamps in 'phase cut-off' mode up to 300 W or in 'phase control' mode up to 100 W depending on ventilation conditions. No inductive (wound) transformers. With children's rooms and snooze function. No minimum load. Only 0.5 watt standby loss.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

Up to 32 wireless universal pushbuttons, wireless direction pushbuttons, wireless central control push-buttons and motion sensors can be taught in using easy tap technology.

Bidirectional wireless switchable.

Zero passage switching with soft ON and soft OFF to protect lamps.

Supply voltage, switching voltage and control voltage local 230 V.

The brightness level is stored on switch-off (memory).

If supply voltage fails, the device is switched off in defined mode.

Automatic electronic overload protection and overtemperature switch-off.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch if fitted previously.

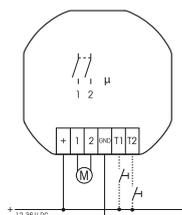
Glow lamp current is not permitted.

FD62NPN-230V	Wireless universal dimming actuator	EAN 4010312319086	64,40 €/pc.
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3-6

Typical connection



FJ62/12-36V DC



Wireless shading element and roller shutter actuator 1+1 NO contact, 4 A/36 V DC, not potential free, for a shading element motor 12-36 V DC. Standby loss only 0,3-0,5 watt.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

The convenient tap technology permits the teach-in of up to 32 wireless universal pushbuttons, wireless direction pushbuttons and wireless central control pushbuttons.

Bidirectional wireless switchable.

Supply voltage, switching voltage and control voltage local 12-36 V DC.

If supply voltage fails, the device is switched off in defined mode.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional control switch if fitted previously.

Control is either by separate local control inputs for Up and Down as direction pushbuttons or these two inputs are bridged and controlled by single pushbuttons as universal pushbuttons. A change in direction then takes place by interrupting activation.

An incandescent lamp current is not permitted.

Wireless pushbuttons can be taught in with either the functions 'Up-Stop-Down-Stop' as universal pushbuttons or as local pushbuttons as well as a wireless pushbutton or roller shutter double pushbuttons can be taught in as direction pushbuttons with press top for 'Up' and bottom for 'Down'. Press briefly to stop the movement. In addition the central control pushbuttons can be taught in without priority.

The tap reverse function can be activated: universal pushbuttons, direction pushbuttons and wired pushbuttons are initially in static mode so that the position of the blind can be adjusted.

Switched to dynamic only after activation > 1 second.

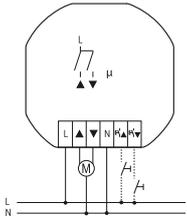
With control via GFVS software, operating commands for up and down with the exact travel time information can be started. As the actuator reports the exact elapsed time after each activity, even when driving was triggered by a pushbutton, the position of the shading is always displayed correctly in the GFVS software. Upon reaching the end positions above and below the position is automatically synchronized.

When a wireless window contact is taught in, a lockout protection is set up for open windows or doors to disable the Central Down and GFVS Down commands.

FJ62/12-36VDC	Wireless shading element and roller shutter actuator	EAN 4010312319406	61,60 €/pc.
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Typical connection



FJ62NP-230V



Wireless shading element and roller shutter actuator 1+1 NO contact, 4 A/250 V AC, not potential free, for a shading element motor 230 V AC. Standby loss only 0.6 watt.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

The convenient tap technology permits the teach-in of up to 32 wireless universal pushbuttons, wireless direction pushbuttons and wireless central control pushbuttons.

Zero passage switching.

Bidirectional wireless switchable.

Supply voltage, switching voltage and control voltage local 230 V.

If supply voltage fails, the device is switched off in defined mode.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional control switch if fitted previously.

Control is either by separate local control inputs for Up and Down as direction pushbuttons or these two inputs are bridged and controlled by single pushbuttons as universal pushbuttons. A change in direction then takes place by interrupting activation.

An incandescent lamp current is not permitted.

Wireless pushbuttons can be taught in with either the functions 'Up-Stop-Down-Stop' as universal pushbuttons or as local pushbuttons as well as a wireless pushbutton or roller shutter double pushbuttons can be taught in as direction pushbuttons with press top for 'Up' and bottom for 'Down'. Press briefly to stop the movement. In addition the central control pushbuttons can be taught in without priority.

The tap reverse function can be activated: universal pushbuttons, direction pushbuttons and wired pushbuttons are initially in static mode so that the position of the blind can be adjusted.

Switched to dynamic only after activation > 1 second.

With control via GFVS software, operating commands for 'up' and 'down' with the exact travel time information can be started. As the actuator reports the exact elapsed time after each activity, even when driving was triggered by a pushbutton, the position of the shading is always displayed correctly in the GFVS software. Upon reaching the end positions above and below the position is automatically synchronized.

When a wireless window contact is taught in, a lockout protection is set up for open windows or doors to disable the Central Down and GFVS Down commands.

3-7

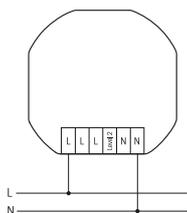
FJ62NP-230V	Wireless shading element and roller shutter actuator	EAN 4010312319390	56,40 €/pc.
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WIRELESS REPEATER FRP62-230V

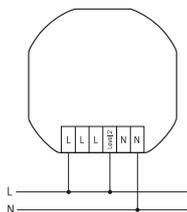


3-8

Typical connection Level 1



Typical connection Level 2



FRP62-230V

1 and 2 level wireless repeaters. Only 0.7 watt standby loss.

For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0.2 mm² to 2.5 mm².

Supply voltage 230 V.

This repeater is only needed if the building conditions prevent undisturbed reception or the distance between the wireless pushbutton and receiver is too great.

If the supply voltage is only connected to terminals L and N, Level 1 mode is active.

Only wireless signals from sensors are received, tested and forwarded at full transmit power.

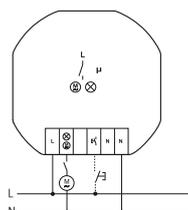
If phase is connected to the Level 2 terminal in addition to the supply voltage, Level 2 mode is active. In addition to wireless signals from sensors, the wireless signals of Level 1 repeaters are processed. A wireless signal can then be received and amplified a maximum of two times.

Wireless repeaters need not be taught in. They receive and amplify signals from all wireless sensors within their reception area.

FRP62-230V	Wireless repeater	EAN 4010312320310	50,90 €/pc.
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Typical connection



FDH62NP-230V+FTKB



Wireless extractor hoods control. 1 NO contact not potential free 10 A/250 V AC. Only 0,4 watt standby loss. For installation. 49 x 51 mm wide, 20 mm deep.

The terminals are plug-in terminals for conductor cross-sections of 0,2 mm² to 2,5 mm².

Using easy tap technology, up to 32 wireless universal pushbuttons and wireless window contacts can be taught in.

Only sensors are allowed which report that the window is actually open or tilted. Otherwise there is a risk of poisoning!

Bidirectional wireless switchable. Supply voltage, switching voltage and control voltage local 230 V.

Zero passage switching. By using a bistable relay coil power loss and heating is avoided even in the on mode. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains. If a power failure occurs, the switching state is retained.

If supply voltage fails, the device is switched off in defined mode.

The extractor hood motor can only be switched on when the window is open.

If the window is closed, the relay switches the motor off. However, if the motor is switched off before the window is closed, any in-built lights that are switched on remain on and can be switched on and off using the switch on the extractor hood. If the motor is switched on in addition to the lights with the window closed, the relay switches off.

The in-built lights can be switched on by a wireless pushbutton or a local conventional 230 V control push-button (a glow lamp current is not permitted) even if the window is closed and the relay is switched off

FTKB-wg

Wireless window/door contact with solar cell and battery 75 x 25 x 12 mm, pure white glossy.

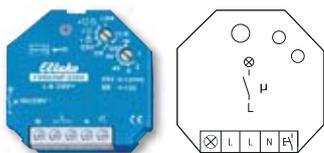
Starting at 100 Lux daylight the window/door contact FTKB powers itself from a solar cell, otherwise several years with a button cell CR2032.

On opening and closing, the related telegram is send twice in short succession. The current status telegram is sent cyclically every approx. 8 minutes.

Adhesive foil mounting.

Window/door contact dimensions l x w x h: 75 x 25 x 12 mm; magnet dimensions l x w x h: 37 x 10 x 6 mm.

FDH62NP-230V+FTKB	Wireless actuator for extractor hoods control with window/door contact	EAN 4010312319826	101,80 €/pc.
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FSR61NP-230V



1 NO contact not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bi-directional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch if fitted previously. Glow lamp current is not permitted.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

Scene control: several FSR61s can be switched on or off in a scene by one of the four control signals of a double-rocker pushbutton taught-in as scene pushbutton.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central control pushbuttons. In addition wireless window/door contacts with the function N/O contact or N/C contact while the window is open, wireless outdoor brightness sensors FAH and wireless motion/brightness sensors FBH. The required function of the impulse switch with integrated relay function can then be selected:

ER = switching relay

ESV = impulse switch. Possibly with off delay, then:

+ ☀ = ESV with pushbutton permanent light

+ ⏏ = ESV with switch-off early warning

+ ⏏☀ = ESV with pushbutton permanent light and switch-off early warning

If the permanent light function ☀ is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton.

If the switch-off early warning ⏏ is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If both switch-off early warning and pushbutton permanent light ⏏☀ are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

The function **ESV on the bottom rotary switch** sets the off delay from 2 to 120 minutes.

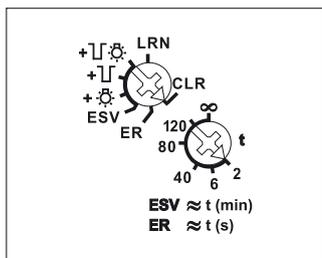
In setting ∞ normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

In setting ER = switching relay of the other rotary switch, this 2nd rotary switch fulfils a safety and power saving function in the settings except ∞. If the switch-off command is not recognised, e.g. since the pushbutton is jammed or it was pressed too quickly, the relay switches off automatically on expiry of a time adjustable between 2 and 120 seconds. When a FTK is taught-in, this time function is turned off.

For **twilight switch** with taught-in wireless outdoor brightness sensor FAH and **motion detection** with taught-in wireless motion detector FBH see the operating instructions.

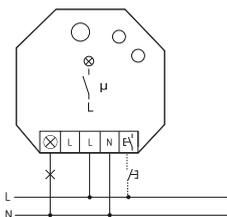
The LED performs during the teach-in process according to the operation instructions. It shows wireless control commands by short flickering during operation.

Function rotary switches



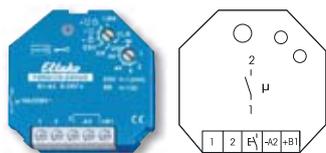
Standard setting ex works.

Typical connection

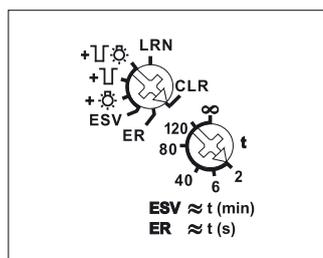


Technical data page T-3.

FSR61NP-230V	Wireless actuator Impulse switch with integr. relay function	EAN 4010312300190	82,80 €/pc.
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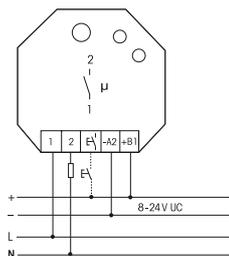


Function rotary switches



Standard setting ex works.

Typical connection



Technical data page T-3.

FSR61/8-24V UC



1 NO contact potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.3-0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage and control voltage locally 8 to 24 V UC.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional control switch if fitted previously. Glow lamp current is not permitted.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram.

This wireless telegram can be taught-in in other actuators like the FSR61NP-230V, in the GFVS software and in universal displays.

Scene control: several FSR61s can be switched on or off in a scene by one of the four control signals of a double-rocker pushbutton taught-in as scene pushbutton.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central control pushbuttons. In addition wireless window/door contacts with the function N/O contact or N/C contact while the window is open, wireless outdoor brightness sensors FAH and wireless motion/brightness sensors FBH. The required function of the impulse switch with integrated relay function can then be selected:

ER = switching relay

ESV = impulse switch. Possibly with off delay, then:

+ ☀ = ESV with pushbutton permanent light

+ ⏏ = ESV with switch-off early warning

+ ⏏☀ = ESV with pushbutton permanent light and switch-off early warning

If the permanent light function ☀ is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton.

If the switch-off early warning ⏏ is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If both switch-off early warning and pushbutton permanent light ⏏☀ are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

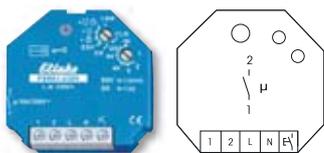
The function **ESV on the bottom rotary switch** sets the off delay from 2 to 120 minutes. In setting ∞ normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

In setting ER = switching relay of the other rotary switch, this 2nd rotary switch fulfils a safety and power saving function in the settings except ∞. If the switch-off command is not recognised, e.g. since the pushbutton is jammed or it was pressed too quickly, the relay switches off automatically on expiry of a time adjustable between 2 and 120 seconds. When a FTK is taught-in, this time function is turned off.

For **twilight switch** with taught-in wireless outdoor brightness sensor FAH and **motion detection** with taught-in wireless motion detector FBH see the operating instructions.

The LED performs during the teach-in process according to the operation instructions. It shows wireless control commands by short flickering during operation.

FSR61/8-24V UC	Wireless actuator Impulse switch with integr. relay function	EAN 4010312301357	79,30 € /pc.
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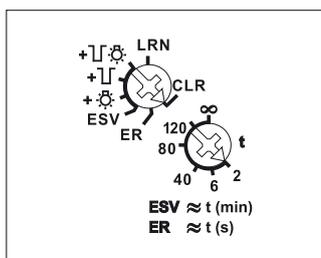


FSR61-230V



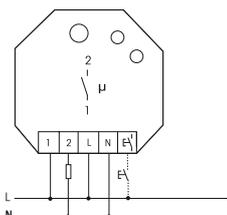
1 NO contact potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bi-directional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage and control voltage locally 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this universal impulse switching relay can also be controlled locally by a conventional control switch if fitted previously. Glow lamp current is not permitted.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

Scene control: several FSR61s can be switched on or off in a scene by one of the four control signals of a double-rocker pushbutton taught-in as scene pushbutton.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central control pushbuttons. In addition wireless window/door contacts with the function N/O contact or N/C contact while the window is open, wireless outdoor brightness sensors FAH and wireless motion/brightness sensors FBH. The required function of the impulse switch with integrated relay function can then be selected:

ER = switching relay

ESV = impulse switch. Possibly with off delay, then:

+ = ESV with pushbutton permanent light

+ = ESV with switch-off early warning

+ = ESV with pushbutton permanent light and switch-off early warning

If the permanent light function is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton.

If the switch-off early warning is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If both switch-off early warning and pushbutton permanent light are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

The function ESV **on the bottom rotary switch** sets the off delay from 2 to 120 minutes. In setting ∞ normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

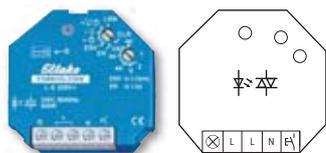
In setting ER = switching relay of the other rotary switch, this 2nd rotary switch fulfils a safety and power saving function in the settings except ∞. If the switch-off command is not recognised, e.g. since the pushbutton is jammed or it was pressed too quickly, the relay switches off automatically on expiry of a time adjustable between 2 and 120 seconds. When a FTK is taught-in, this time function is turned off.

For **twilight switch** with taught-in wireless outdoor brightness sensor FAH and **motion detection** with taught-in wireless motion detector FBH see the operating instructions.

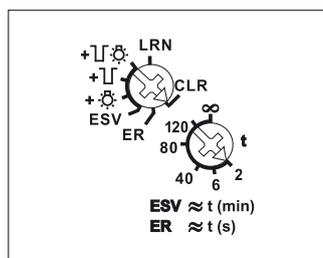
The LED performs during the teach-in process according to the operation instructions. It shows wireless control commands by short flickering during operation.

Technical data page T-3.

FSR61-230V	Wireless actuator Impulse switch with integr. relay function	EAN 4010312301531	80,80 €/pc.
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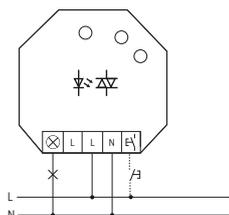


Function rotary switches



Standard setting ex works.

Typical connection



Technical data page T-3.

FSR61G-230V



Noiseless solid-state relay not potential-free, 400 Watt, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

From production week 35/16 with automatic electronic over temperature shutdown.

At a load of < 1W a GLE has to be switched parallelly to the load.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control pushbutton mounted upstream.

Glow lamp current is not approved.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators like the FSR61NP-230V, in the GFVS software and in universal displays.

Scene control: several FSR61s can be switched on or off in a scene by one of the four control signals of a double-rocker pushbutton taught-in as scene pushbutton.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned therefrom one ore more central control pushbuttons. In addition wireless window/door contacts with the function N/O contact or N/C contact while the window is open, wireless outdoor brightness sensors FAH and wireless motion/brightness sensors FBH. The required function of the impulse switch with integrated relay function can then be selected:

ER = switching relay

ESV = impulse switch. Possibly with off delay, then:

+ =ESV with pushbutton permanent light

+ =ESV with switch-off early warning

+ =ESV with pushbutton permanent light and switch-off early warning

If the permanent light function is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton.

If the switch-off early warning is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If both switch-off early warning and pushbutton permanent light are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

The function **ESV on the bottom rotary switch** sets the off delay from 2 to 120 minutes.

In setting ∞ normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

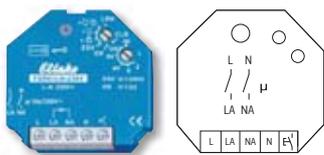
In setting ER = switching relay of the other rotary switch, this 2nd rotary switch fulfils a safety and power saving function in the settings except ∞. If the switch-off command is not recognised, e.g. since the pushbutton is jammed or it was pressed too quickly, the relay switches off automatically on expiry of a time adjustable between 2 and 120 seconds. When a FTK is taught-in, this time function is turned off.

For **twilight switch** with taught-in wireless outdoor brightness sensor FAH and **motion detection** with taught-in wireless motion detector FBH see the operating instructions.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

FSR61G-230V	Wireless actuator Impulse switch with integrated relay function	EAN 4010312313886	84,30 €/pc.
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WIRELESS ACTUATOR IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION FSR61LN-230V FOR BIPOLAR SWITCHING OF L AND N



FSR61LN-230V



2 NO contacts for bipolar switching of L and N 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this universal impulse switching relay can also be controlled locally by a conventional control switch if fitted previously. Glow lamp current is not permitted.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators like the FSR61NP-230V, in the GFVS software and in universal displays.

Scene control: several FSR61LNs can be switched on or off in a scene by one of the four control signals of a double-rocker pushbutton taught-in as scene pushbutton.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central control pushbuttons. In addition wireless window/door contacts with the function N/O contact or N/C contact while the window is open. The required function of the impulse switch with integrated relay function can then be selected:

ER = switching relay

ESV = impulse switch. Possibly with off delay, then:

+ = ESV with pushbutton permanent light

+ = ESV with switch-off early warning

+ = ESV with pushbutton permanent light and switch-off early warning

If the permanent light function is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton.

If the switch-off early warning is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If both switch-off early warning and pushbutton permanent light are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

The function **ESV on the bottom rotary switch** sets the off delay from 2 to 120 minutes. In setting ∞ normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

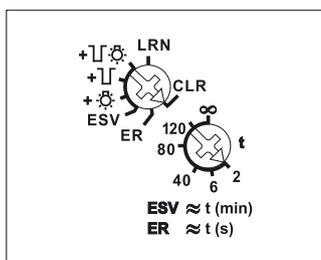
In setting ER = switching relay of the other rotary switch, this 2nd rotary switch fulfils a safety and power saving function in the settings except ∞ . If the switch-off command is not recognised, e.g. since the pushbutton is jammed or it was pressed too quickly, the relay switches off automatically on expiry of a time adjustable between 2 and 120 seconds. When a FTK is taught-in, this time function is turned off.

For **twilight switch** with taught-in wireless outdoor brightness sensor FAH and **motion detection** with taught-in wireless motion detector FBH see the operating instructions.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

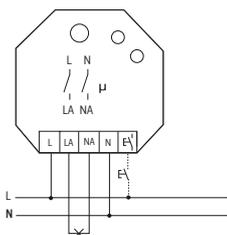
3-14

Function rotary switches



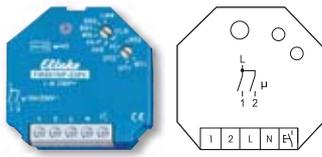
Standard setting ex works.

Typical connection



Technical data page T-3.

FSR61LN-230V	Wireless actuator Impulse switch with integr. relay function	EAN 4010312313190	82,80 €/pc.
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FMS61NP-230V



1+1 NO contacts not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

This wireless actuator is a multifunction impulse switch and features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics and two bistable relays with zero passage switching.

By using a bistable relay coil power loss and heating is avoided even in the on mode. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this multifunction impulse switch can also be controlled locally by a conventional 230 V control switch previously mounted (in the 2xS function only contact 1).

Maximum current as the sum of both contacts 16 A at 230 V.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state and incoming central command telegrams are confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central control pushbuttons. The required function of this multifunction impulse switch can then be selected. Switching will be visualised by flashing of the LED.

2xS = 2fold impulse switch each with 1 NO contact

2S = impulse switch with 2 NO contacts

WS = impulse switch with 1 NO contact and 1 NC contact

SS1 = impulse multicircuit switch 1 + 1 NO contact with switching sequence 1

SS2 = impulse multicircuit switch 1 + 1 NO contact with switching sequence 2

Switching sequence SS1: 0 - contact 1 - contact 2 - contacts 1+2

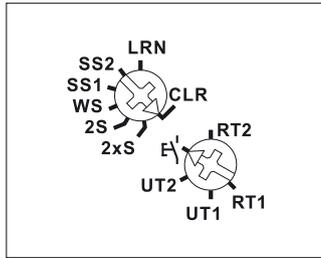
Switching sequence SS2: 0 - contact 1 - contacts 1+2 - contact 2

The bottom rotary switch is only required to teach-in the transmitters.

From production week 08/2013 universal pushbuttons and direction pushbuttons can be taught in.

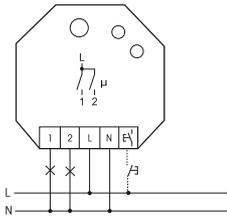
The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

Function rotary switches



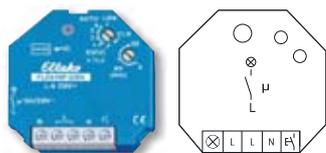
Standard setting ex works.

Typical connection



Technical data page T-3.

FMS61NP-230V	Wireless actuator Multifunction impulse switch	EAN 4010312300268	84,90 €/pc.
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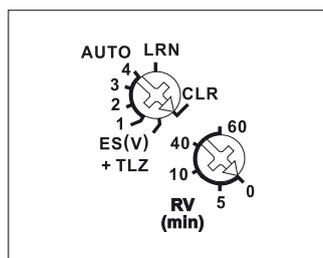
FLC61NP-230V



1 NO contact not potential free 10 A/250 V AC, incandescent lamps 2000 watts, 5 selectable operating modes. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

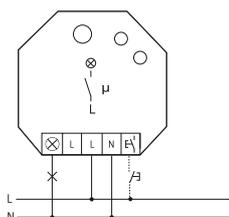
3-16

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230V control pushbutton mounted upstream. Glow lamp current is not approved. You can teach in an operating mode pushbutton.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned therefrom one or more central control pushbuttons. In addition, wireless motion and brightness sensors. Then select **the required operating mode:**

ES(V)+TLZ: In this mode, the normal impulse switch function with buttons is active. Use the lower rotary switch RV to set a time delay between 0 and 60 minutes for the ES(V) function. Press the universal push-buttons and direction pushbuttons to switch on and off. The staircase time switch function TLZ results from the Central ON pushbuttons and a time delay set using the rotary switch RV.

AUTO1: In AUTO1 mode, (semi automatic motion: only switch off motion controlled), switch on/off takes place by means of universal pushbuttons, direction pushbuttons or central control pushbuttons. Switch-off takes place by means of one or several wireless motion sensors in case of no motion on expiry of the time delay set between 0 and 60 minutes using the lower rotary switch RV.

AUTO2: In AUTO2 mode (semi automatic motion and brightness: only switch off, motion and brightness controlled), switch on/off takes place by means of the universal pushbuttons, direction pushbuttons or central control pushbuttons. Switch-off takes place by means of one or several wireless motion/brightness sensors in case of no motion or insufficient brightness on expiry of the time delay set between 0 and 60 minutes using the lower rotary switch RV.

AUTO3: In AUTO3 mode, (fully automatic motion: switch on and off, motion controlled), switch-on takes place in case of brightness threshold undershoot by means of one or several wireless motion/brightness sensors and switch-off takes place in case of no motion on expiry of time delay set between 0 and 60 minutes using lower rotary switch RV. In addition, switch on/off takes place by means of universal push-buttons, direction pushbuttons or central control pushbuttons.

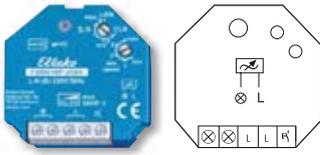
AUTO4: In AUTO4 mode (fully automatic motion and brightness: switch on and off, motion and brightness controlled), switch-on takes place in case of brightness threshold undershoot by means of one or several wireless motion/brightness sensors and switch-off takes place in case of no motion or sufficient brightness on expiry of time delay set between 0 and 60 minutes using lower rotary switch RV. In addition, switch on/off takes place by means of universal pushbuttons, direction pushbuttons or central control pushbuttons.

Once you have taught in an **operating mode pushbutton**, the 4 switches are configured with the following functions: top left **AUTO**, function according to the rotary switch position. Top right **ON** with priority. Bottom left and right **OFF** with priority. When you select **AUTO** mode, the lamp lights up briefly and then goes out.

One FBH in the room is sufficient to measure brightness when the lighting comprises fluorescent lamps, energy saving lamps or LED lamps. If lighting consists of electric light bulbs or halogen lamps, an outdoor brightness sensor must be taught-in as Master for operating modes AUTO2 and AUTO4. If several sensors are taught-in, switch-off only takes place when all sensors report no motion or sufficient brightness.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

FLC61NP-230V	Wireless actuator - Light controller	EAN 4010312312032	84,30 €/pc.
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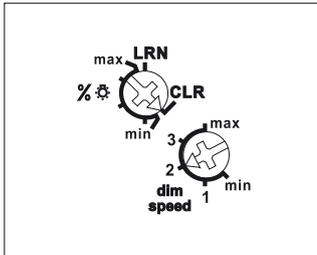


FUD61NP-230V



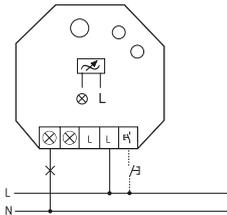
Without N connection, power MOSFET up to 300 W. Only 0.7 watt standby loss. With adjustable minimum brightness and dimming speed. With switching operation for children's rooms and snooze function. Light scenes can be taught-in. Encrypted wireless, bidirectional wireless and repeater function are switchable.

Function rotary switches



Standard setting ex works.

Typical connection



Technical data page T-3.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Universal dimmer switch for R, L and C loads up to 300 watts, depending on ventilation conditions. Automatic detection of load R+L or R+C.

Without N connection, therefore it is suitable for mounting directly behind the pushbutton light switch, even if there is no N wire.

Not compatible with energy saving lamps and 230 V LED, please use this dimmer with N connection: FUD61NPN.

Supply voltage, switching voltage and control voltage local 230 V. Minimum load only 40 W.

Zero passage switching with soft ON and soft OFF to protect lamps.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position is stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

The minimum brightness (fully dimmed) is adjustable **with the % rotary switch.**

In the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central pushbuttons.

The dimming speed is adjustable using the **dimming speed rotary switch**. At the same time, the soft ON and soft OFF periods are changed.

In addition to the wireless control input via an internal antenna, this universal dimmer switch can also be controlled locally by a conventional 230 V control switch if fitted previously.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators like the FSR61NP-230V, in the GFVS software and in universal displays. The current dimming value is also displayed in % in the GFVS software.

The wireless pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons:

When installed as a direction pushbutton, one side is then 'switch on and dim up' and the other side is 'switch off and dim down'. A double-click on the switch-on side activates automatic dim-up to full brightness at dim speed. A double click on the switch-off side activates the snooze function. The children's room function is implemented on the switch-on side.

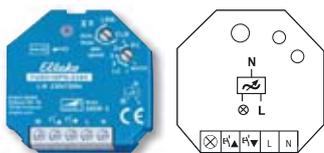
As a universal pushbutton, change the direction by briefly releasing the pushbutton.

Short control commands switch on/off.

For light scene control, children's room circuit and sleep timer, refer to the operating instructions.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

FUD61NP-230V	Wireless actuator Universal dimmer switch without N	EAN 4010312300183	99,00 €/pc.
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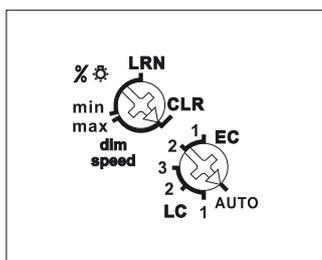


FUD61NPN-230V



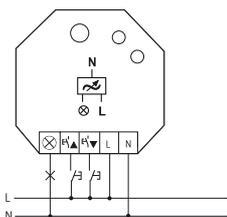
Universal dimmer switch, 300 W power MOSFET. Automatic lamp detection. Only 0.7 watt standby loss. With adjustable minimum brightness or dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Additionally with light scene control. Encrypted wireless, bidirectional wireless and repeater function are switchable.

Function rotary switches

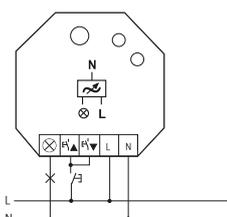


Standard setting ex works.

Typical connections



with direction pushbutton



with universal pushbutton

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Universal dimmer switch for lamps up to 300 W, dependent on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V-LED lamps, additionally dependent on the lamps electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

Supply voltage, switching voltage and control voltage local 230 V. No minimum load.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught into other actuators like the FSR61NP-230V, universal displays and the GFVS software. The current dimming value is also displayed in % in the GFVS software.

The minimum brightness (fully dimmed) or the dimming speed is adjustable **with the upper %/dimming speed rotary switch.**

The lower rotary switch determines the operation, whether the automatic lamp detection or special comfort positions should act:

AUTO allows the dimming of all light species.

EC1 is a comfort position for energy saving lamps which must be switched on with increased power dependent on the construction, so they will also switch on again safely in cold condition when dimmed down.

EC2 is a comfort position for energy saving lamps which will not be switched on again when dimmed down dependent on the construction. Memory is switched off in this position.

LC1 is a comfort position for LED lamps which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1, but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 no inductive (wound) transformers should be used. In addition, the maximum number of dimmable LED lamps can be lower than in the AUTO position dependent on the construction.

The pushbuttons can be either taught-in as direction pushbuttons or universal pushbuttons: As

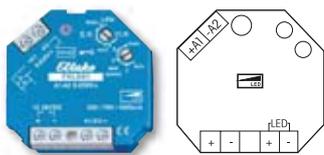
direction pushbutton 'switch on and dim up' is on one side and 'switch off and dim down' on the other side. A double-click on the switch on side triggers the automatic dimming up to full brightness with dim speed time. A double-click on the switch off side triggers the snooze function. The children's room function is triggered on the switch on side. **As a universal pushbutton** the direction change is made by briefly releasing the pushbutton.

For light scene control, light alarm circuit, children's room circuit and sleep timer, refer to the operator manual.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

Technical data page T-3.

FUD61NPN-230V	Wireless actuator Universal dimmer switch	EAN 4010312300299	102,90 €/pc.
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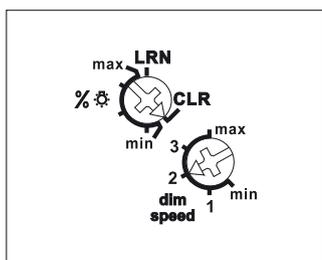


FKLD61



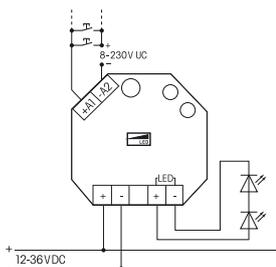
DC constant current source for LEDs up to 1000 mA or 30 watts. Only 0.3 watt standby loss. With adjustable minimum brightness and dimming speed. With switching operation for children's rooms and snooze function. Also with light scene control by PC or wireless pushbuttons. Encrypted wireless and repeater function are switchable.

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 33 mm deep.
The nominal output current can be set with a jumper on the circuit board:
no connection: 350 mA; flush right (Pin 2-3 connected): 700 mA; flush left (Pin 1-2 connected): 1000 mA.
Factory settings 700 mA. The input voltage ranges from 12 V DC to 36 V DC maximum. The input voltage must be selected to the sum of the LED at the output voltage, so that the current control can operate. This deviation must be at least 6 volts. The total power output current x output voltage should not exceed 30 watts.

A pulse resistant DC power supply unit is required, which provides the necessary voltage and required current of the LED light(s).

Universal control voltage input 8 to 230 V UC, electrically isolated from the 230 V supply voltage and switching voltage.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

Starting in production week 11/14, you can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function.

The minimum brightness (fully dimmed) is adjustable **with the upper %** rotary switch.

In the setting LRN up to 35 pushbuttons can be assigned, of which one or more central pushbuttons.

The dimming speed can be adjusted **with the lower dimming speed rotary switch.**

In addition to the wireless control input via an internal antenna, this universal dimmer switch can also be controlled locally by a conventional 230 V control switch if fitted previously. A short interruption of control changes the direction of dimming. Short control commands switch on/off.

The pushbuttons can be either taught-in as direction pushbuttons or universal pushbuttons: As direction pushbutton 'switch on and dim up' is on one side and 'switch off and dim down' on the other side. A double-click on the switch on side triggers the automatic dimming up to full brightness with dim speed time. A double-click on the switch off side triggers the snooze function. The children's room function is triggered on the switch on side. **As a universal pushbutton** the direction change is made by briefly releasing the pushbutton. With switching operation for children's rooms and snooze function.

Central pushbutton 'on' switches on with memory value. **Central pushbutton 'off'** switches off.

Switching operation for children's rooms (universal pushbutton or direction pushbutton on the switch-on side): If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function (universal pushbutton or direction pushbutton on the switch-off side): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down.

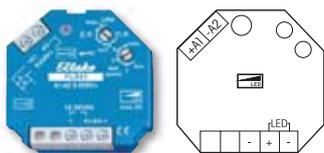
Light scenes on the PC are set and retrieved using the Wireless Building Visualisation and Control Software GFVS. A description of the GFVS is in chapter 5. One or several FKLD61 devices must be taught in on the PC as dimming switches with percentage brightness values.

Lights scenes with wireless pushbuttons are taught in on the FKLD61 device. Up to four brightness values which can be taught-in in light scene pushbuttons with double rocker.

A **FBH** can either be taught-in as a movement detector with/without twilight switch or a **FAH** as a twilight switch according to the operating instructions.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

FKLD61	Wireless actuator Constant current LED dimmer switch	EAN 4010312314357	103,00 €/pc.
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FLD61



PWM LED dimmer switch for LEDs 12-36 V DC, up to 4 A. Only 0.2-0.4 watt standby loss. With adjustable minimum brightness and dimming speed. With switching operation for children's rooms and snooze function. Also with light scene control by PC or wireless pushbuttons. Encrypted wireless, bidirectional wireless and repeater function are switchable.

For installation. 45 mm long, 45 mm wide, 33 mm deep.
 Supply voltage 12 to 36 V DC, depending on the connected LED lighting.
 Output voltage PWM (puls width modulation).
 Maximum output voltage 4 A.
 A pulse resistant DC power supply unit is required, which provides the necessary voltage and required current of the LED light(s).
Universal control voltage input 8 to 230 V UC, electrically isolated from the 230 V supply voltage and switching voltage.

The brightness level is stored on switch-off (memory).
 In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.
You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. The minimum brightness (fully dimmed) is adjustable **with the upper % rotary switch**. In the setting LRN up to 35 pushbuttons can be assigned, of which one or more central pushbuttons.
 The dimming speed can be adjusted **with the lower dimming speed rotary switch**.

In addition to the wireless control input via an internal antenna, this universal dimmer switch can also be controlled locally by a conventional 230 V control switch if fitted previously. A short interruption of control changes the direction of dimming. Short control commands switch on/off.

The pushbuttons can be either taught-in as direction pushbuttons or universal pushbuttons: As **direction pushbutton** 'switch on and dim up' is on one side and 'switch off and dim down' on the other side. A double-click on the switch on side triggers the automatic dimming up to full brightness with dim speed time. A double-click on the switch off side triggers the snooze function. The children's room function is triggered on the switch on side. **As a universal pushbutton** the direction change is made by briefly releasing the pushbutton.

Central pushbutton 'on' switches on with memory value. **Central pushbutton 'off'** switches off.
Switching operation for children's rooms (universal pushbutton or direction pushbutton on the switch-on side): If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function (universal pushbutton or direction pushbutton on the switch-off side): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down.

Light scenes on the PC are set and retrieved using the Wireless Building Visualisation and Control Software GFVS. A description of the GFVS is in chapter 5. One or several FLD61 devices must be taught in on the PC as dimming switches with percentage brightness values.

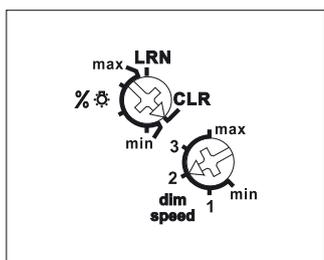
Lights scenes with wireless pushbuttons are taught in on the FLD61 device. Up to four brightness values which can be taught-in in light scene pushbuttons with double rocker.

A **FBH** can either be taught-in as a movement detector with/without twilight switch or a **FAH** as a twilight switch according to the operating instructions.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

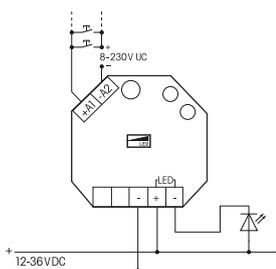
3-20

Function rotary switches



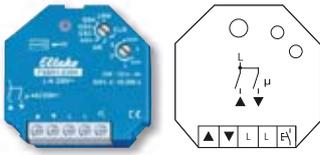
Standard setting ex works.

Typical connection



Technical data page T-3.

FLD61	Wireless actuator PWM LED dimmer switch	EAN 4010312315255	97,20 €/pc.
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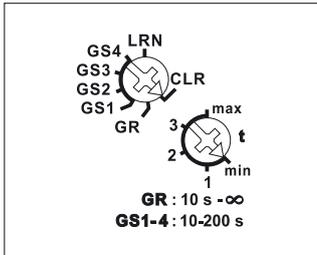


FSB61-230V



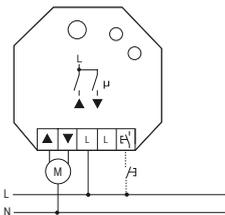
Without N connection, 1+1 NO contact not potential free 4 A/250 V AC, for roller blinds and shading systems. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

Without N connection, not suitable for all motors.

If a power failure occurs, the device is switched off in a defined sequence.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch previously mounted.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central pushbuttons. The required function of this impulse group switch can then be selected:

GS1 = Group switch with pushbutton control and off delay in seconds. Both a wireless pushbutton with the function 'Up-Hold-Down-Hold' as well as the local pushbutton can be taught-in or a wireless pushbutton like a roller Venetian blind double pushbutton with pressing above 'Up' and pressing below 'Down'. Tap briefly to interrupt the movement immediately. However, a pulse in the opposite direction stops and then switches over to the opposite direction after a pause of 500 ms.

Dynamic central control with and without priority can be implemented.

GS2 = Group switch same as GS1, central switch always without priority.

GS3 = Group switch same as GS2, **in addition with double-click reverse function** for the local pushbutton and a wireless pushbutton as universal switch taught-in appropriately: After double-clicking, the Venetian blind moves in the opposite direction until it is stopped by a brief tap.

GS4 = Group switch same as GS2, **in addition with tip reverse function:** The control pushbutton is initially in static mode. The relay is energised as long as the pushbutton is tapped so that the Venetian blind can be reversed in the opposite direction by short impulses.

GR = Group relay. As long as the wireless pushbutton is closed, a contact is closed. Then it reopens. On reception of the next wireless signal the other contact closes, etc.

Shading scene control: Up to 4 saved 'Down' running times are retrievable using the control signal of a pushbutton and double rocker taught-in as a scene pushbutton.

With control via GFVS software, operating commands for up and down with the exact travel time information can be started. As the actuator reports the exact elapsed time after each activity, even when driving was triggered by a pushbutton, the position of the shading is always displayed correctly in the GFVS software. Upon reaching the end positions above and below the position is automatically synchronized. If a **wireless outdoor brightness sensor** is also taught-in in addition to a scene pushbutton, the taught-in scenes 1, 2 and 4 are executed automatically depending on the outdoor brightness.

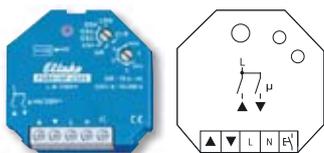
Use the bottom rotary switch to set the time delay to the position 'Halt' in seconds. Select a delay time that is at least as long as the shading element or roller shutter needs to move from its end position to the other position.

When you teach in an FTK wireless window/door contact or a window handle sensor FFG7B-rw, a lock out protection is set when doors are opened to prevent Central Down and Scene Down.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

Technical data page T-3.

FSB61-230V	Wireless actuator without N-connection for shading elements and roller shutters	EAN 4010312317235	89,40 €/pc.
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FSB61NP-230V



1+1 NO contact not potential free 4 A/250 V AC, for roller blinds and shading systems. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.9 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

If a power failure occurs, the device is switched off in a defined sequence.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch previously mounted.

From production week 36/19, a direction pushbutton for 'down' can be connected via the diode RTD (any polarity). Another direction pushbutton for 'up' is connected directly to A1. On the first control pulse 'down', EGS61Z switches over the control input A1 to 'direction pushbutton'. To switch the control input back to 'universal pushbutton', briefly switch off the power supply and switch back on.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central pushbuttons. The required function of this impulse group switch can then be selected:

GS1 = Group switch with pushbutton control and off delay in seconds. Both a wireless pushbutton with the function 'Up-Hold-Down-Hold' can be taught-in or a wireless pushbutton like a roller Venetian blind double pushbutton with pressing above 'Up' and pressing below 'Down'. Tap briefly to interrupt the movement immediately.

Dynamic central control with and without priority can be implemented.

GS2 = Group switch same as GS1, central switch always without priority.

GS3 = Group switch same as GS2, **in addition with double-click reverse function** for the local pushbutton and a wireless pushbutton as universal switch taught-in appropriately: After double-clicking, the Venetian blind moves in the opposite direction until it is stopped by a brief tap.

GS4 = Group switch same as GS2, **in addition with tip reverse function:** The control pushbutton is initially in static mode. The relay is energised as long as the pushbutton is tapped so that the Venetian blind can be reversed in the opposite direction by short impulses.

GR = Group relay. As long as the wireless pushbutton is closed, a contact is closed. Then it reopens. On reception of the next wireless signal the other contact closes, etc.

Shading scene control: Up to 4 saved 'Down' running times are retrievable using the control signal of a pushbutton and double rocker taught-in as a scene pushbutton.

With control via GFVS software, operating commands for up and down with the exact travel time information can be started. As the actuator reports the exact elapsed time after each activity, even when driving was triggered by a pushbutton, the position of the shading is always displayed correctly in the GFVS software. Upon reaching the end positions above and below the position is automatically synchronized.

If a **wireless outdoor brightness sensor** is also taught-in in addition to a scene pushbutton, the taught-in scenes 1, 2 and 4 are executed automatically depending on the outdoor brightness.

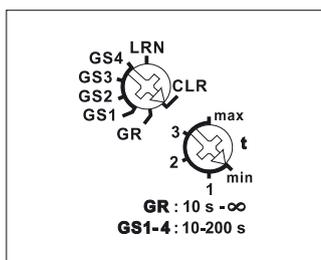
Use the bottom rotary switch to set the time delay to the position 'Halt' in seconds. Select a delay time that is at least as long as the shading element or roller shutter needs to move from its end position to the other position.

When you teach in an FTK wireless window/door contact or a window handle sensor FFG7B-rw, a lock out protection is set when doors are opened to prevent Central Down and Scene Down.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

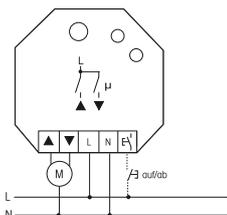
3-22

Function rotary switches

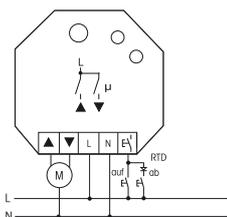


Standard setting ex works.

Typical connection UT

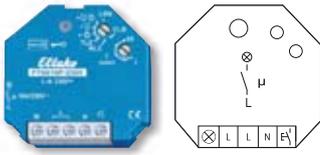


Typical connection RT



Technical data page T-3.

FSB61NP-230V	Wireless actuator for shading elements and roller shutters	EAN 4010312300213	89,40 € /pc.
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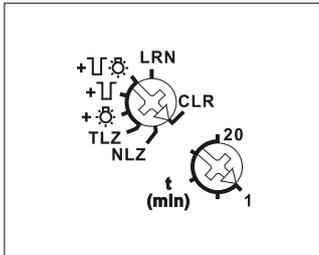


FTN61NP-230V



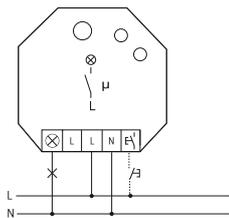
1 NO contact not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Function rotary switches



Standard setting ex works.

Typical connection



Technical data page T-3.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

Zero passage switching to protect contacts and consumers.

This wireless actuator is a staircase off-delay timer and features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics and a bistable relay with zero passage switching.

By using a bistable relay coil power loss and heating is avoided even in the on mode. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this staircase off-delay timer can also be controlled locally by a conventional 230 V control switch previously mounted.

Glow lamp current up to 5 mA, dependent on the ignition voltage of the glow lamps.

The lighting is switched on again after a power failure provided the set time has not yet elapsed.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state and incoming central command telegrams are confirmed by a wireless telegram.

This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons and/or wireless motion/brightness sensors FBH can be assigned, of which one or more central pushbuttons. The required function of this staircase off-delay timer can then be selected.

The flashing of the LED as soon as a new setting range has been reached when turning the rotary switch helps to find the desired position reliably.

NLZ = off-delay timer

TLZ = staircase time switch

+ = TLZ with pushbutton permanent light

+ = TLZ with switch-off early warning

+ = TLZ with pushbutton permanent light and switch-off early warning

If the permanent light function is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 60 minutes or by pressing the pushbutton for longer than 2 seconds.

If the switch-off early warning is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If both switch-off early warning and pushbutton permanent light are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

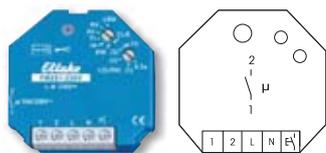
With the bottom rotary switch, the off delay is adjusted from 1 to 20 minutes.

When **motion/brightness sensors FBH** are taught-in, use the last FBH that was taught-in to define the switching threshold at which the lighting is switched on or off depending on the brightness or motion detected. The off delay set on the FTN61NP is prolonged by a setting of 1 minute fixed in the FBH.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

FTN61NP-230V	Wireless actuator Staircase off-delay timer	EAN 4010312300206	83,20 €/pc.
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WIRELESS ACTUATOR MULTIFUNCTION TIME RELAY FMZ61



FMZ61-230V



1 NO contact potential free 10 A/250 V AC, incandescent lamps up to 2000 watts.* Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.
Supply voltage and if necessary control voltage locally 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

This wireless actuator features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics with a bistable relay.

By using a bistable relay coil power loss and heating is avoided even in the on mode.
After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional control switch if fitted previously.

Glow lamp current is not permitted.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

With the top rotary switch in the setting LRN up to 35 wireless pushbuttons can be assigned, of which one or more central control pushbuttons. In addition, wireless window/door contacts (FTK) may have a NO or NC function when the window is open. If a direction pushbutton is taught-in, a function (e.g. TI) can be started using the top key (START) and stopped with the bottom key (STOP). The required function can then be selected. Switching will be visualised by flashing of the LED.

RV = off delay

AV = operating delay

TI = clock generator starting with impulse

IA = impulse-controlled operating delay

EW = fleeting NO contact

The bottom rotary switch sets the time from 0.5 seconds to 60 minutes.

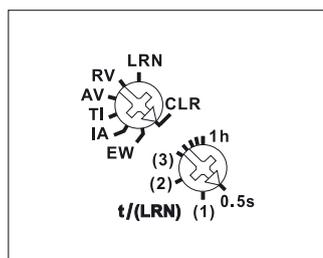
The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

* The maximum load can be used from a delay time or clock cycle of 5 minutes. The maximum load is reduced for shorter times as follows: up to 2 minutes 30%, up to 5 minutes 60%.

FMZ61-230V	Wireless actuator Multifunction time relay	EAN 4010312302293	80,00 €/pc.
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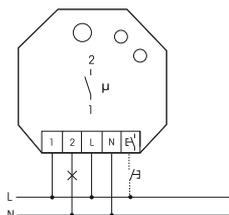
3-24

Function rotary switches

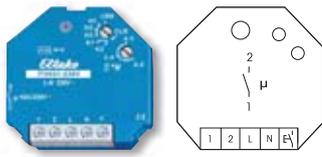


Standard setting ex works.

Typical connection



Technical data page T-3.

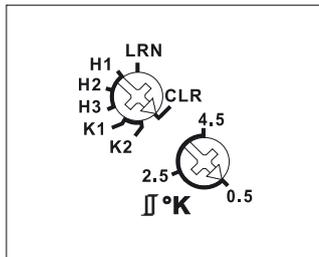


FHK61-230V



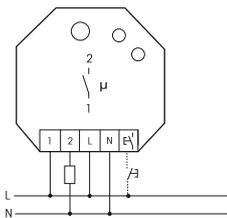
1 NO contact potential free 10 A/250 V AC. Only 0.8 watt standby loss.
Encrypted wireless, bidirectional wireless and repeater function are switchable.

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 33 mm deep.
 Supply voltage 230 V.

If a power failure occurs, the switching state is retained.

If a power failure occurs repeatedly, the device is switched off in a defined sequence.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

This heating/cooling relay evaluates the information from wireless temperature controllers or sensors. Possibly supplemented by window/door contacts, motion detector, window handle sensor FFG7B-rw and wireless pushbuttons.

Valves will be controlled with the potential-free contact.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function.

Each function change by a wireless temperature controller (normal mode, setback, off) is confirmed by a wireless telegram. This wireless telegram can be taught-in into the GFVS software.

Upper rotary switch for operating modes:

H1: Heating operation with PWM control at T = 4 minutes (PWM = pulse width modulation).

(suitable for valves with thermoelectric valve drive)

H2: Heating operation with PWM control at T = 15 minutes.

(suitable for valves with motor-driven valve drive)

H3: Operating mode with 2-point control.

K1: Cooling operation with PWM control at T = 15 minutes.

K2: Cooling mode with 2-point control.

Switchover is visualised by LEDs flashing.

Lower rotary switch for adjustable hysteresis and PWM influence:

Left stop: lowest hysteresis 0.5°. **Middle position:** hysteresis 2.5°. **Right stop:** largest hysteresis 4.5°.

Inbetween, divisions in steps of 0.5° visualised by LEDs flashing.

Two-point control mode: The hysteresis rotary switch sets the required difference between the switch-on and switch-off temperatures.

When the 'actual temperature \geq reference temperature', the device is switched off.

When the 'actual temperature \leq (reference temperature - hysteresis)', the device is switched on.

The signs are the opposite in cooling mode.

PWM control mode: The hysteresis rotary switch set the required temperature difference at which the device is switched on at 100%. When the 'actual temperature \geq reference temperature', the device is switched off. When the 'actual temperature \leq (reference temperature - hysteresis)', the device is switched on at 100%. If the 'actual temperature' lies between the 'reference temperature - hysteresis' and the 'reference temperature', the device is switched on and off with a PWM in steps of 10% depending on the temperature difference. The lower the temperature difference, the shorter the switch-on time. As a result of the settability of the 100% value, the PWM can be adapted to the heater size and inertia. The signs are the opposite in cooling mode.

In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.

If one or several windows are open, the output remains off **provided the window/door contacts FTK or window handle sensors FFG7B-rw** are taught-in. In heating mode, however, the frost protection remains enabled.

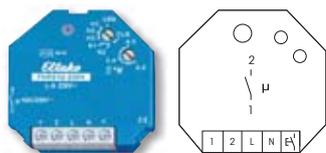
As long as all taught-in **motion detectors FBH** detect no motion, the device is switched to setback mode. In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When a **wireless pushbutton FT4** is taught-in, the assignment of the 4 keys is assigned with the following fixed functions:

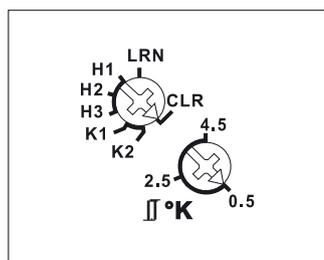
Top right: Normal mode (can also be enabled by timer). Bottom right: Night setback mode by 4°; in cooling mode, raised by 4° (can also be enabled by timer). Top left: Setback mode by 2°, in cooling mode, raised by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off). If the motion detector and wireless pushbutton are taught-in at the same time, the last telegram received is always the one that is valid. A motion detector therefore switches off a setback mode selected by wireless pushbutton when a movement is detected.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

FHK61-230V	Wireless actuator Heating/cooling relay	EAN 4010312302309	84,60 €/pc.
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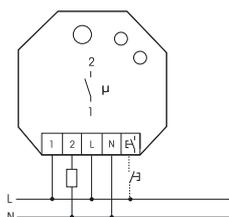


Function rotary switches



Standard setting ex works.

Typical connection



FHK61U-230V



1 NO contact potential free 10 A/250 V AC. Only 0.8 watt standby loss.
Encrypted wireless, bidirectional wireless and repeater function are switchable.

For installation. 45 mm long, 45 mm wide, 33 mm deep.
 Supply voltage 230 V.
 If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

By using a bistable relay coil power loss and heating is avoided even in the on mode. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

This heating/cooling relay evaluates the information from wireless temperature controllers or sensors. Possibly supplemented by window/door contacts, motion detector, window handle sensor FFG7B-rw and wireless pushbuttons.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state of the contact is confirmed by a wireless telegram. This wireless telegram can be taught-in into other actuators and the GFVS software. Especially into a FSR61 to synchronously switch a heat circulating pump with the valves.

Upper rotary switch for operating modes:

H1: Heating operation with PWM control at T = 4 minutes (PWM = pulse width modulation).

(suitable for valves with thermoelectric valve drive)

H2: Heating operation with PWM control at T = 15 minutes.

(suitable for valves with motor-driven valve drive)

H3: Operating mode with 2-point control.

K1: Cooling operation with PWM control at T = 15 minutes.

K2: Cooling mode with 2-point control.

Switchover is visualised by LEDs flashing.

Lower rotary switch for adjustable hysteresis and PWM influence:

Left stop: lowest hysteresis 0.5°. **Middle position:** hysteresis 2.5°. **Right stop:** largest hysteresis 4.5°.

Inbetween, divisions in steps of 0.5° visualised by LEDs flashing.

Two-point control mode: The hysteresis rotary switch sets the required difference between the switch-on and switch-off temperatures.

When the 'actual temperature >= reference temperature', the device is switched off.

When the 'actual temperature <= (reference temperature - hysteresis)', the device is switched on.

The signs are the opposite in cooling mode.

PWM control mode: The hysteresis rotary switch set the required temperature difference at which the device is switched on at 100%. When the 'actual temperature >= reference temperature', the device is switched off. When the 'actual temperature <= (reference temperature - hysteresis)', the device is switched on at 100%. If the 'actual temperature' lies between the 'reference temperature - hysteresis' and the 'reference temperature', the device is switched on and off with a PWM in steps of 10% depending on the temperature difference. The lower the temperature difference, the shorter the switch-on time. As a result of the settability of the 100% value, the PWM can be adapted to the heater size and inertia. The signs are the opposite in cooling mode.

In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.

If one or several windows are open, the output remains off **provided the window/door contacts FTK or window handle sensors FFG7B-rw** are taught-in. In heating mode, however, the frost protection remains enabled.

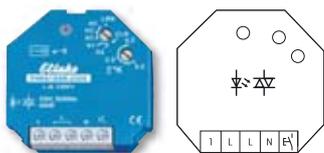
As long as all taught-in **motion detectors FBH** detect no motion, the device is switched to setback mode. In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When a **wireless pushbutton FT4** is taught-in, the assignment of the 4 keys is assigned with the following fixed functions:

Top right: Normal mode (can also be enabled by timer). Bottom right: Night setback mode by 4°; in cooling mode, raised by 4° (can also be enabled by timer). Top left: Setback mode by 2°, in cooling mode, raised by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off). If the motion detector and wireless pushbutton are taught-in at the same time, the last telegram received is always the one that is valid. A motion detector therefore switches off a setback mode selected by wireless pushbutton when a movement is detected.

The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

FHK61U-230V	Wireless actuator Heating/cooling relay	EAN 4010312315118	84,30 €/pc.
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FHK61SSR-230V



Noiseless single room control, 400 W. Solid state relay not potential free. Only 0.8 watt standby loss. Encrypted wireless, bidirectional wireless and repeater function are switchable.

For installation. 45 mm long, 45 mm wide, 33 mm deep.
Supply voltage, switching voltage and control voltage local 230 V.
With a load < 1W a GLE must be switched parallel to the load.

This heating/cooling relay evaluates the information from wireless temperature controllers or sensors. As required, supplemented by window/door contacts, motion detectors, window handle sensor FFG7B-rw and wireless pushbuttons.

You can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater** function. Each function change (normal mode, decrease mode, off) is confirmed by a wireless telegram. This wireless telegram can be taught-in in the GFVS software.

Upper rotary switch for operating modes:

H1: Heating operation with PWM control at T = 4 minutes. (suitable for valves with thermoelectric valve drive)

H2: Heating operation with PWM control at T = 15 minutes. (suitable for valves with motor-driven valve drive)

H3: Heating operation with 2-point control.

K1: Cooling operation with PWM control at T = 15 minutes.

K2: Cooling mode with 2-point control.

Switchover is visualised by LEDs flashing.

Lower rotary switch for adjustable hysteresis and PWM influence:

Left stop: lowest hysteresis 0.5°. **Middle position:** hysteresis 2.5°. **Right stop:** largest hysteresis 4.5°.

Inbetween, divisions in steps of 0.5° visualised by LEDs flashing.

Two-point control mode: The hysteresis rotary switch sets the required difference between the switch-on and switch-off temperatures. When the 'actual temperature >= reference temperature', the device is switched off. When the 'actual temperature <= (reference temperature - hysteresis)', the device is switched on. The signs are the opposite in cooling mode.

PWM control mode: The hysteresis rotary switch set the required temperature difference at which the device is switched on at 100%. When the 'actual temperature >= reference temperature', the device is switched off.

When the 'actual temperature <= (reference temperature - hysteresis)', the device is switched on at 100%. If the 'actual temperature' lies between the 'reference temperature - hysteresis' and the 'reference temperature', the device is switched on and off with a PWM in steps of 10% depending on the temperature difference.

The lower the temperature difference, the shorter the switch-on time. As a result of the settability of the 100% value, the PWM can be adapted to the heater size and inertia. The signs are the opposite in cooling mode. In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.

If one or several windows are open, the output remains off **provided the window/door contacts FTK or window handle sensors FFG7B-rw are taught-in.** In heating mode, however, the frost protection remains enabled.

As long as all taught-in **motion detectors FBH** detect no motion, the device is switched to setback mode. In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When a **wireless pushbutton** is taught-in, the assignment of the 4 keys is assigned with the following fixed functions: Top right: Normal mode (can also be enabled by timer). Bottom right: Night setback mode by 4°; in cooling mode, raised by 4° (can also be enabled by timer). Top left: Setback mode by 2°, in cooling mode, raised by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off). If the motion detector and wireless pushbutton are taught-in at the same time, the last telegram received is always the one that is valid. A motion detector therefore switches off a setback mode selected by wireless pushbutton when a movement is detected.

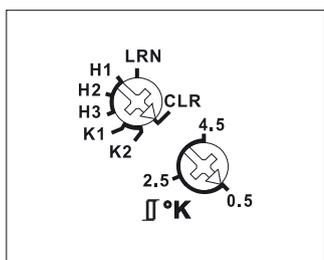
When bidirectional wireless is switched on, the FHK61 sends a confirmation telegram containing its own ID and current operating mode to the Eltako wireless network.

PWM setpoint function: When a PWM data telegram is taught-in, the control function selected at the rotary switch is switched off. Only PWM commands are executed. When bidirectional wireless is switched on, the FHK61 sends a received PWM data telegram as confirmation telegram containing its own ID to the Eltako wireless network.

The 230 V control input acts as a dew signalling input. When a voltage of 230 V is applied, the solid state relay is switched off. Every change in state of the control input is immediately sent as a button telegram cyclically every 15 minutes.

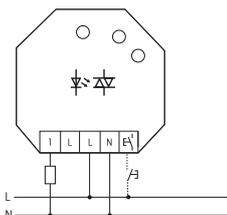
The LED performs during the teach-in process according to the operating instructions. It shows wireless control commands by short flickering during operation.

Function rotary switches



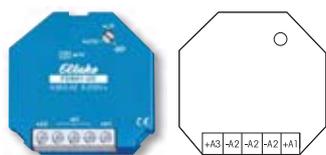
Standard setting ex works.

Typical connection



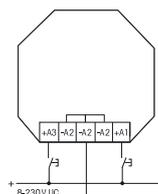
FHK61SSR-230V	Wireless actuator Heating/cooling relay	EAN 4010312314906	88,10 €/pc.
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WIRELESS TRANSMITTER MODULE FSM61-UC AND WIRELESS 4-WAY UNIVERSAL TRANSMITTER MODULE F4USM61B

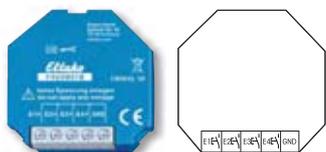


3-28

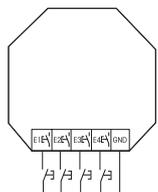
Typical connection



Technical data page T-3.



Typical connection



Caution!
Do not connect to a power supply.

FSM61-UC



Wireless 2-fold transmitter module. With internal antenna. No standby loss.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

The wireless transmitter module FSM61-UC has two channels and can transmit wireless pushbutton telegrams to the Eltako building wireless system. A1 initiates a wireless telegram, such as 'Press top rocker' for a wireless pushbutton with one rocker and A3 such as 'Press bottom rocker'. The telegram on opening the two control contacts is identical to 'Release wireless pushbutton'.

Several wireless transmitter modules must not be switched at the same time.

The universal control voltage at +An/-A2 processes control commands of 8 to 253 V AC or 10 to 230 V DC with periods lasting min. 0.2 seconds. Max. parallel capacitance (approx. length) of control lead at 230 V 5 nF. This correspond to a length of approx. 20 meters.

If the terminals A1 and A3 are connected with a bridge, the wireless telegram is transmitted once per minute by A3, provided the control voltage is applied, e.g. for central commands with priority.

No permanent power supply required, therefore no standby losses.

The rotary switch is required for the activation or deactivation of encryption and is set to AUTO in operation.

Activate encryption:

Turn the rotary switch to the right stop (position key) and press once.

Deactivate encryption:

Turn the rotary switch to the left stop (position crossed out key) and press once.

FSM61-UC	Wireless transmitter module	EAN 4010312300152	57,70 €/pc.
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F4USM61B



**Wireless 4-way universal transmitter module. With internal antenna.
With battery (lifetime 5-8 years).**

For installation. 45 mm long, 45 mm wide, 18 mm deep.

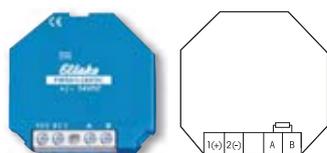
This transmitter module has four channels to transmit wireless telegrams to the Eltako Wireless Building system like a 4-channel wireless pushbutton. E1 initiates a wireless telegram such as 'Press top rocker' of a wireless pushbutton with a rocker; E2 initiates 'Press bottom rocker' (or 'right rocker' of a wireless pushbutton with double rocker in each case); E3 initiates like 'Press left top rocker' of a wireless pushbutton with a double rocker; and E4 initiates like 'Press left bottom rocker' of a wireless pushbutton with a double rocker. When the control contacts are opened, the telegram is the same as 'Release wireless pushbutton'.

The control inputs can be activated by internally placed jumpers either for pushbuttons (as-delivered state), window/door contacts or motion detectors.

With a cable length up to 10 metres, conventional pushbuttons, window/door contacts or floating motion detector contacts can be connected to terminals E1, E2, E3 and E4. The opposite pole in each case is GND. The electronics is powered by an internal button cell CR2032.

To replace the battery or **activate battery supply**, open the housing and remove an insulation strip. The housing must also be opened to select the modes. To open the housing, use a screwdriver to release the tabs on the lid and then remove the lid.

F4USM61B	Wireless 4-way universal transmitter module	EAN 4010312321386	61,40 €/pc.
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FWS61-24V DC



Wireless weather data transmitter module for the seven weather items sent by the multisensor MS. With internal antenna. Only 0.3 watt standby loss.

For installation. 45 mm long, 45 mm wide, 18 mm deep. Power (24V DC) is supplied by the switch mode power supply unit SNT61-230V/24V DC-0,25A (33 mm deep, 45mm long, 45mm wide). This switching power supply unit simultaneously supplies the multisensor MS including the heating of the rain sensor. It is possible to use a deep UP box for the two devices. This weather data transmitter module receives the seven momentary readings of the weather items: brightness (from three cardinal points), twilight, wind, rain and ambient temperature by cable J-Y (ST) Y 2x2x0,8 from the multisensor MS attached to the outside of the building. The readings are sent in the form of wireless telegrams over the Eltako wireless network with the priorities listed below. Only one MS multisensor can be connected to a wireless weather data transmitter module FWS61. However, several FWS61 can be connected to a multisensor MS. The external terminating resistor has to be present on only one FWS61. If there are other FWS61, it must be removed. The evaluation is made with the wireless building visualization and control software GFVS, the wireless multifunction sensor relay FMSR14, or the actuators FSB14 and FSB71. When the supply voltage is applied, a teach-in telegram is sent immediately and two status telegrams containing the momentary values are sent approx. 60 seconds later. At least every 10 minutes, but also: **Brightness values** West, South and East each from 0 to 99 kLux if a change of minimum 10% occurs. **Twilight values** from 0 to 999 Lux if a change of minimum 10% occurs. **Wind speeds** from 0 to 70m/s. From 4m/s to 16m/s, the momentary values are sent immediately 3 times at intervals of 1 second. After that, further value increases are sent within 20 seconds. Dropping wind speeds are sent progressively delayed by 20 seconds. **Rain** values at the start are sent immediately 3 times. After the rain stops, a telegram is sent within 20 seconds. **Temperature values** from -40.0°C to +80.0°C are sent every 10 minutes together with all the other values in a status telegram. **Monitoring multisensor function and line break.** If the weather data message from multisensor MS is not sent for 5 seconds, the FWS61 immediately sends an alarm telegram which is repeated every 30 seconds. The alarm telegram can be taught-in as a switch telegram in an actuator to initiate further action as required. In addition, the two status telegrams containing the values brightness 0 Lux, twilight 0 Lux, temperature -40°C (frost), wind 70 m/s and rain are sent. When a message is again detected from the multisensor MS, the alarm stops automatically.

3-29

FWS61-24V DC	Wireless weather data transmitter module	EAN 4010312301937	67,10 € /pc.
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MS

Multi sensor MS

The MS multi sensor sends the current weather details, including brightness (from three points of the compass), wind, rain and frost, to the weather data transmitter module FWS61 connected in series once per second. A standard telephone wire is sufficient as connecting lead: J-Y(ST)Y 2x2x0,8 or equivalent. 100 m line length is permitted. Solid plastic housing, LxWxH = 118x96x77mm. Degree of protection IP44. Temperature at mounting location -30°C to +50°C. A power supply unit SNT61-230V/24V DC-0,25A is required for the power supply, including heating of the rain sensor. This simultaneously supplies the wireless weather data transmitter module FWS61-24V DC.

MS	Multi sensor	EAN 4010312901731	251,50 € /pc.
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SNT61-230V/24V DC-0,25A



Rated capacity 6W. Standby loss 0.1 watt only.

Built-in device for installation. 45 mm long, 45 mm wide, 33 mm deep. Input voltage 230 V (-20% up to +10%). Efficiency 82%. Stabilised output voltage ±1%, low residual ripple. Short-circuit proof. Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

Only required for the weather data transmitter module FWS61

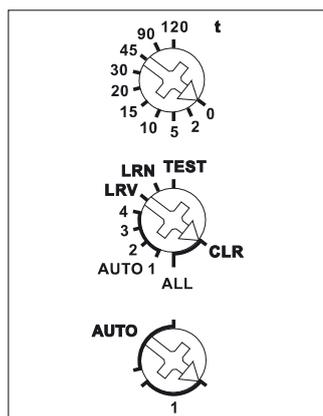
SNT61-230V/24V DC-0,25A	Power supply unit	EAN 4010312301326	49,60 € /pc.
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WIRELESS ACTUATOR IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION FSR71NP-230V

3-30



Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technical data page T-3.

FSR71NP-230V



Impulse switch with integrated relay function, 1 NO contact not potential free 16 A/250 V AC, incandescent lamps 2000 watts. With light scene control by PC or wireless pushbuttons. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Mounting in the 230 V power supply cord, e.g. in false ceilings and lamps.
166 mm long, 46 mm wide and 31 mm high. With cable fixation.

If supply voltage fails, the switching state is retained. When supply voltage is restored, the device is switched off in defined mode.

Scene control:

Several FSR71NP devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene pushbutton.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS. To do this, teach-in one or several FSR71NP devices.

Use the rotary switches to teach-in the pushbuttons and test the device as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating manual.

When wireless brightness sensors are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0 lux in position 0 to approx. 50 lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off.

An additionally set RV time is not taken into account.

Only one FBH (Master) or FAH is taught-in per channel. However, one FBH or FAH can be taught-in in several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK. After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

When **water probes** are taught-in, a variety of functions can be set using the middle rotary switch in positions AUTO 1 to AUTO 4.

AUTO 1 = 'no water', then NO contact closed.

AUTO 2 = 'water', then NO contact closed.

In Positions AUTO 3 and AUTO 4 the water probes taught-in to a single channel are interlinked automatically. With AUTO 3, all water probes must signal 'no water' before the NO contact closes. The NO contact opens when a water probe signals 'water'. With AUTO 4, the NO contact closes when a water probe signals 'water'. Only when all water probes signal 'no water' does the NO contact open. An additionally set RV time is ignored.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

FSR71NP-230V	Wireless actuator Impulse switch with integr. relay function	EAN 4010312316221	85,70 €/pc.
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FSR71NP-2x-230V



2-channel impulse switch with integrated relay function, 1 NO contact each not potential free 16 A/250 V AC, incandescent lamps 2000 watts. With light scene control by PC or wireless push-buttons. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Mounting in the 230 V power supply cord, e.g. in false ceilings and lamps.

166 mm long, 46 mm wide and 31 mm high. With cable fixation.

Maximum current as the sum of both contacts 16 A.

If supply voltage fails, the switching state is retained. When supply voltage is restored, the device is switched off in defined mode.

The channels can be taught-in as ES and/or ER channel separately from each other.

Scene control:

Several channels of one or several FSR71NP-2x devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene button.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS. To do this, teach-in one or several FSR71NP-2x devices.

Use the rotary switches to teach-in the pushbuttons and test the 2 channels as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, separated for each channel, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating instructions.

When **wireless brightness sensors** are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0 lux in position 0 to approx. 50 lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off. An additionally set RV time is not taken into account.

Only one FBH or FAH is taught-in per channel. However, one FBH or FAH can be taught-in in several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK. After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

When **water probes** are taught-in, a variety of functions can be set using the middle rotary switch in positions AUTO 1 to AUTO 4.

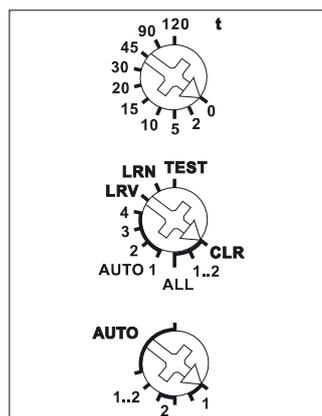
AUTO 1 = 'no water', then NO contact closed.

AUTO 2 = 'water', then NO contact closed.

In Positions AUTO 3 and AUTO 4 the water probes taught-in to a single channel are interlinked automatically. With AUTO 3, all water probes must signal 'no water' before the NO contact closes. The NO contact opens when a water probe signals 'water'. With AUTO 4, the NO contact closes when a water probe signals 'water'. Only when all water probes signal 'no water' does the NO contact open. An additionally set RV time is ignored.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

FSR71NP-2x-230V	2 channel wireless actuator Impulse switch with integr. relay function	EAN 4010312316245	116,80 € /pc.
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WIRELESS ACTUATOR 2-CHANNEL IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION

FSR71-2x-230V

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FSR71-2x-230V



2-channel impulse switch with integrated relay function, 1 NO contact each potential free 16 A/250 V AC, incandescent lamps 2000 watts. With light scene control by PC or wireless pushbuttons. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Mounting in the 230 V power supply cord, e.g. in false ceilings and lamps.
166 mm long, 46 mm wide and 31 mm high. With cable fixation.

If supply voltage fails, the switching state is retained. When supply voltage is restored, the device is switched off in defined mode.

The channels can be taught-in as ES and/or ER channel separately from each other.

Scene control:

Several channels of one or several FSR71-2x devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene button.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS. To do this, teach-in one or several FSR71-2x devices.

Use the rotary switches to teach-in the pushbuttons and test the 2 channels as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, separated for each channel, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating instructions.

When **wireless brightness sensors** are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0 lux in position 0 to approx. 50 lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off.

An additionally set RV time is not taken into account.

Only one FBH or FAH is taught-in per channel. However, one FBH or FAH can be taught-in in several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK. After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

When **water probes** are taught-in, a variety of functions can be set using the middle rotary switch in positions AUTO 1 to AUTO 4.

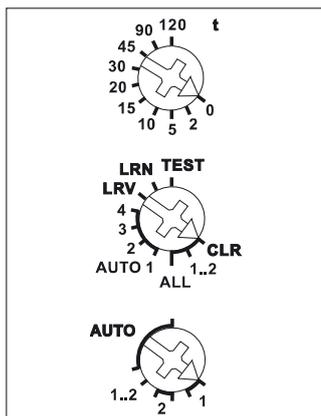
AUTO 1 = 'no water', then NO contact closed.

AUTO 2 = 'water', then NO contact closed.

In Positions AUTO 3 and AUTO 4 the water probes taught-in to a single channel are interlinked automatically. With AUTO 3, all water probes must signal 'no water' before the NO contact closes. The NO contact opens when a water probe signals 'water'. With AUTO 4, the NO contact closes when a water probe signals 'water'. Only when all water probes signal 'no water' does the NO contact open. An additionally set RV time is ignored.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technical data page T-3.

FSR71-2x-230V	2 channel wireless actuator Impulse switch with integr. relay function	EAN 4010312316252	115,40 € / pc.
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FSR71NP-4x-230V



4-channel impulse switch with integrated relay function, 1 NO contact each not potential free 4 A/250 V AC. With light scene control by PC or wireless pushbuttons. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Mounting in the 230 V power supply cord, e.g. in false ceilings and lamps.
 166 mm long, 46 mm wide and 31 mm high. With cable fixation.

If supply voltage fails, the switching state is retained.

The channels can be taught-in as ES and/or ER channel separately from each other.

Scene control:

Several channels of one or several FSR71NP-4x devices can be switched on or off in a scene by one of the four signals of a pushbutton with double rocker taught-in as a scene button.

Central commands on PC are sent using the Wireless Building Visualisation and Control Software GFVS. To do this, teach-in one or several FSR71NP-4x devices.

Use the rotary switches to teach-in the pushbuttons and test the 4 channels as required. For normal mode, the middle and lower rotary switches are then set to AUTO. With the upper rotary switch the EW time (0-120 seconds) is directly set for relays or the RV time (0-120 minutes) for impulse switches for all channels if necessary.

If **wireless motion/brightness sensors FBH (Master) and/or FBH (slave)** are taught-in, the switching threshold will be set with the upper rotary switch, separated for each channel, at which the lighting will be switched on or off. Settings of the upper rotary switch in accordance with operating instructions.

When **wireless brightness sensors** are taught-in, define the switching threshold separately for each channel using the top rotary switch. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0 lux in position 0 to approx. 50 lux in position 120). A hysteresis of approx. 300 lux is permanently set for switch on/off.

An additionally set RV time is not taken into account.

Only one FBH or FAH is taught-in per channel. However, one FBH or FAH can be taught-in in several channels.

When wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, different functions can be set with the middle rotary switch in position AUTO 1 to AUTO 4 and linked to maximum 116 FTKs:

AUTO 1 = window closed then output active.

AUTO 2 = window open then output active.

In settings AUTO 3 and AUTO 4 the FTKs taught-in to a single channel are linked automatically. With AUTO 3 all FTKs must be closed so that the N/O contact closes (e.g. for climate control). With AUTO 4 one open FTK is sufficient to close the N/O contact (e.g. for an alarm signal or to switch on the power supply for an extractor hood).

One or several FTKs can be taught-in in several channels to allow several simultaneous functions in each FTK. After a power failure the link is restored by a new signal to the FTK and a signal on the next status message 15 minutes later.

An additionally set RV time is not taken into account.

When **water probes** are taught-in, a variety of functions can be set using the middle rotary switch in positions AUTO 1 to AUTO 4.

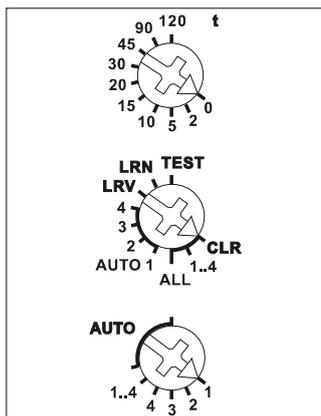
AUTO 1 = 'no water', then NO contact closed.

AUTO 2 = 'water', then NO contact closed.

In Positions AUTO 3 and AUTO 4 the water probes taught-in to a single channel are interlinked automatically. With AUTO 3, all water probes must signal 'no water' before the NO contact closes. The NO contact opens when a water probe signals 'water'. With AUTO 4, the NO contact closes when a water probe signals 'water'. Only when all water probes signal 'no water' does the NO contact open. An additionally set RV time is ignored.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technical data page T-3.

FSR71NP-4x-230V	4 channel wireless actuator Impulse switch with integr. relay function	EAN 4010312316269	115,40 € /pc.
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FSB71-230V



Switch actuator for shading elements and roller shutters for one 230V motor. 1+1 NO contact 4 A/250V AC, not potential free. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Mounting in the 230V power supply cord, e.g. in false ceilings. 166 mm long, 46 mm wide and 31 mm high. With cable fixation. **Zero passage switching to protect contacts and motors.** The motor is connected to 1, 2 and N. If supply voltage fails, the device is switched off in defined mode. **The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons: Local control with universal pushbuttons:** With each impulse the switch position changes in the sequence 'Up, stop, Down, Stop'. **Local control with direction pushbutton:** A top impulse by pushbutton directly activates the 'UP' switch position. A bottom impulse by pushbutton directly activates the 'DOWN' switch position. A further impulse from one of the two pushbuttons stops the sequence immediately.

Central control dynamic without priority: A control signal from a pushbutton which was taught-in as a central control pushbutton without priority directly activates the switch position 'Up' with a scanning pulse up and the switch position 'Down' with a scanning pulse down. Without priority because this function can be overridden by other control signals.

Central control dynamic with priority: A control signal of min. 2 seconds from a pushbutton which was taught-in as a central control pushbutton with priority directly activates the switch position 'Up' (press top) and the switch position 'Down' (press bottom). With priority because these control signals cannot be overridden by other (local) control signals **until** the central control signal is cancelled by pressing again the central control pushbutton 'Up' or 'Down'.

The switch position 'up' or 'down' and the priority are specifically activated with a control signal, e.g. from a FSM61 taught-in with priority as a central pushbutton. With priority because these control signals cannot be overridden by other control signals **until** the central command is cancelled by the termination of the control signal.

Shading scene control: Up to 4 already stored 'Down' runtimes can be called using the control signal of a pushbutton with double rocker taught-in as a scene pushbutton or automatically using an additional taught-in wireless exterior brightness sensor.

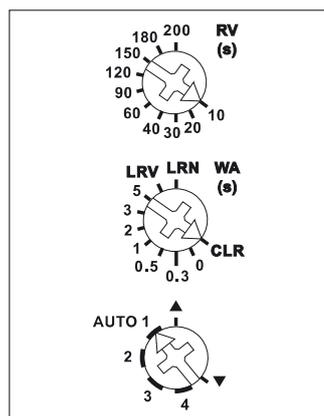
When controlled via the GFVS software, Up and Down move commands can be started at the precise move time specified. Since the actuator reports back the precise time moved after each action, even when the movement is triggered by pushbutton, the position of the sunshading is always correctly displayed in the GFVS software. When the top or bottom end position is reached, the position is automatically synchronised.

Function rotary switch below: AUTO 1 = In this position, the local advanced automatic reversing system for Venetian blinds is activated. When a universal pushbutton or a direction pushbutton are used for control a double impulse activates a slow rotation in the opposite direction, which can be stopped with a further impulse. **AUTO 2** = In this position, the local advanced automatic reversing system for Venetian blinds is completely switched off. **AUTO 3** = In this position, the local pushbuttons act static at first, thus, allow **reversal of Venetian blinds** by operating pushbuttons. They only switch to dynamic after 0.7 seconds continuous operation. **AUTO 4** = In this position, the local pushbuttons act only static (ER function). The time delay RV (wiping time) of the upper rotary switch is active. Central control is not possible.

▲▼ = ▲ (UP) and ▼ (DOWN) of the lower rotary switch are the positions for **manual control**. Manual control has priority over all other control commands. **WA = Automatic reversal** for Venetian blinds and awnings is controlled by the middle rotary switch. 0 = OFF, otherwise from 0.3 to 5 seconds ON with the selected reversal time. In this case, it is only for DOWN that the direction is reversed on time-out of the time lag selected by the top rotary switch, e.g. to extend awnings or set Venetian blinds to a defined position. A LED is located behind the RV-rotary switch to show the reversal time. **RV** = The **time delay** (delay time RV) is set by the top rotary switch. If the FSB is in the UP or DOWN position the selected delay time runs (elapses); at time-out the device changes automatically to STOP. Therefore, the time delay must be chosen at least as long as the shading element or roller shutter will need to move from one limit position to the other. The LED indication for the delay time RV is located behind the rotary switch RV.

When one or several wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, a lock-out protection is set up while the door is open which prevents Central down and Scene down. **The LED** below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

FSB71-230V	Wireless actuator for shading elements and roller shutters, 230 V	EAN 4010312316306	92,70 € /pc.
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FSB71-2x-230V



Switch actuator for shading elements and roller shutters with 2 channels for two 230 V motors. 2+2 NO contact 4 A/250 V AC, not potential free. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Mounting in the 230 V power supply cord, e.g. in false ceilings. 166 mm long, 46 mm wide and 31 mm high. With cable fixation.

Zero passage switching to protect contacts and motors.

A motor is connected to 1, 2 and N; a second motor may be connected to 3, 4 and N.

If supply voltage fails, the device is switched off in defined mode.

The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons: **Local control with universal pushbuttons:** With each impulse the switch position changes in the sequence 'Up, stop, Down, Stop'. **Local control with direction pushbutton:** A top impulse by pushbutton directly activates the 'UP' switch position. A bottom impulse by pushbutton directly activates the 'DOWN' switch position. A further impulse from one of the two pushbuttons stops the sequence immediately.

Central control dynamic without priority: A control signal from a pushbutton which was taught-in as a central control pushbutton without priority directly activates the switch position 'Up' with a scanning pulse up and the switch position 'Down' with a scanning pulse down. Without priority because this function can be overridden by other control signals. **Central control dynamic with priority:** A control signal of min. 2 seconds from a pushbutton which was taught-in as a central control pushbutton with priority directly activates the switch position 'Up' (press top) and the switch position 'Down' (press bottom). With priority because these control signals cannot be overridden by other (local) control signals **until** the central control signal is cancelled by pressing again the central control pushbutton 'Up' or 'Down'.

The switch position 'up' or 'down' and the priority are specifically activated with a control signal, e.g. from a FSM61 taught-in with priority as a central pushbutton. With priority because these control signals cannot be overridden by other control signals **until** the central command is cancelled by the termination of the control signal.

Shading scene control: Up to 4 already stored 'Down' runtimes can be called using the control signal of a pushbutton with double rocker taught-in as a scene pushbutton or automatically using an additional taught-in wireless exterior brightness sensor.

Shading scene control: Up to 4 already stored 'Down' runtimes can be called using the control signal of a pushbutton with double rocker taught-in as a scene pushbutton or automatically using an additional taught-in FAH60 wireless exterior brightness sensor.

When controlled via the GFVS software, Up and Down move commands can be started at the precise move time specified. Since the actuator reports back the precise time moved after each action, even when the movement is triggered by pushbutton, the position of the sunshading is always correctly displayed in the GFVS software. When the top or bottom end position is reached, the position is automatically synchronised.

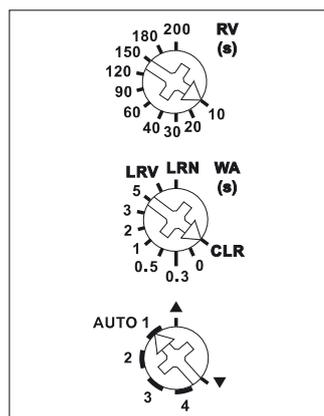
Function rotary switch below: AUTO 1 = In this position, the local **advanced automatic reversing system for Venetian blinds** is activated. When a universal pushbutton or a direction pushbutton are used for control a double impulse activates a slow rotation in the opposite direction, which can be stopped with a further impulse. **AUTO 2 =** In this position, the local advanced automatic reversing system for Venetian blinds is completely switched off. **AUTO 3 =** In this position, the local pushbuttons act static at first, thus, allow reversal of Venetian blinds by operating pushbuttons. They only switch to dynamic after 0.7 seconds continuous operation. **AUTO 4 =** In this position, the local pushbuttons act only static (ER function). The time delay RV (wiping time) of the upper rotary switch is active. Central control is not possible. ▲▼ = ▲ (UP) and ▼ (DOWN) of the lower rotary switch are the positions for manual control. Manual control has priority over all other control commands.

WA = Automatic reversal for Venetian blinds and awnings is controlled by the middle rotary switch. 0 = OFF, otherwise from 0.3 to 5 seconds ON with the selected reversal time. In this case, it is only for DOWN that the direction is reversed on time-out of the time lag selected by the top rotary switch, e.g. to extend awnings or set Venetian blinds to a defined position. A LED is located behind the RV-rotary switch to show the reversal time.

RV = The time delay (delay time RV) is set by the top rotary switch. If the FSB is in the UP or DOWN position the selected delay time runs (elapses); at time-out the device changes automatically to STOP. Therefore, the time delay must be chosen at least as long as the shading element or roller shutter will need to move from one limit position to the other. The LED indication for the delay time RV is located behind the rotary switch RV.

When one or several wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, a lock-out protection is set up while the door is open which prevents Central down and Scene down. **The LED** below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

FSB71-2x-230V	Wireless actuator for shading elements and roller shutters	EAN 4010312316290	116,10 €/pc.
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FSB71-24V DC



Switch actuator for shading elements and roller shutters for one 24 V DC motor. 1+1 NO contact 4 A/24 V DC, not potential free. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.9 watt standby loss.

Mounting e.g. in false ceilings. 166 mm long, 46 mm wide and 31 mm high. With cable fixation.

The motor is connected to 1 and 2.

If supply voltage fails, the device is switched off in defined mode.

The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons:

Local control with universal pushbuttons: With each impulse the switch position changes in the sequence 'Up, stop, Down, Stop'.

Local control with direction pushbutton: A top impulse by pushbutton directly activates the 'UP' switch position. A bottom impulse by pushbutton directly activates the 'DOWN' switch position. A further impulse from one of the two pushbuttons stops the sequence immediately.

Central control dynamic without priority: A control signal from a pushbutton which was taught-in as a central control pushbutton without priority directly activates the switch position 'Up' with a scanning pulse up and the switch position 'Down' with a scanning pulse down. Without priority because this function can be overridden by other control signals.

Central control dynamic with priority: A control signal of min. 2 seconds from a pushbutton which was taught-in as a central control pushbutton with priority directly activates the switch position 'Up' (press top) and the switch position 'Down' (press bottom). With priority because these control signals cannot be overridden by other (local) control signals until the central control signal is cancelled by pressing again the central control pushbutton 'Up' or 'Down'.

The switch position 'up' or 'down' and the priority are specifically activated with a control signal, e.g. from a FSM61 taught-in with priority as a central pushbutton. With priority because these control signals cannot be overridden by other control signals until the central command is cancelled by the termination of the control signal.

Shading scene control: Up to 4 already stored 'Down' runtimes can be called using the control signal of a pushbutton with double rocker taught-in as a scene pushbutton or automatically using an additional taught-in wireless exterior brightness sensor.

When controlled via the GFVS software, Up and Down move commands can be started at the precise move time specified. Since the actuator reports back the precise time moved after each action, even when the movement is triggered by pushbutton, the position of the sunshading is always correctly displayed in the GFVS software. When the top or bottom end position is reached, the position is automatically synchronised.

Function rotary switch below: AUTO 1 = In this position, the local advanced **automatic reversing system for Venetian blinds** is activated. When a universal pushbutton or a direction pushbutton are used for control a double impulse activates a slow rotation in the opposite direction, which can be stopped with a further impulse.

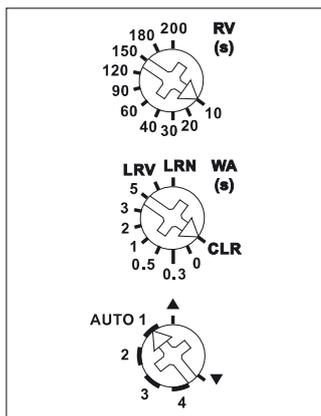
AUTO 2 = In this position, the local advanced automatic reversing system for Venetian blinds is completely switched off. **AUTO 3** = In this position, the local pushbuttons act static at first, thus, allow **reversal of Venetian blinds** by operating pushbuttons. They only switch to dynamic after 0.7 seconds continuous operation. **AUTO 4** = In this position, the local pushbuttons act only static (ER function). The time delay RV (wiping time) of the upper rotary switch is active. Central control is not possible. ▲▼ = ▲ (UP) and ▼ (DOWN) of the lower rotary switch are the positions for manual control. Manual control has priority over all other control commands.

WA = Automatic reversal for Venetian blinds and awnings is controlled by the middle rotary switch. 0 = OFF, otherwise from 0.3 to 5 seconds ON with the selected reversal time. In this case, it is only for DOWN that the direction is reversed on time-out of the time lag selected by the top rotary switch, e.g. to extend awnings or set Venetian blinds to a defined position. A LED is located behind the RV-rotary switch to show the reversal time. **RV** = The **time delay** (delay time RV) is set by the top rotary switch. If the FSB is in the UP or DOWN position the selected delay time runs (elapses); at time-out the device changes automatically to STOP. Therefore, the time delay must be chosen at least as long as the shading element or roller shutter will need to move from one limit position to the other. The LED indication for the delay time RV is located behind the rotary switch RV.

When one or several wireless window/door contacts FTK or window handle sensors FFG7B-rw are taught-in, a lock-out protection is set up while the door is open which prevents Central down and Scene down.

The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

FSB71-24VDC	Wireless actuator for shading elements and roller shutters, 24V DC	EAN 4010312316962	118,10 € /pc.
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FUD71-230V



Universal dimmer switch, power MOSFET up to 400 W. Automatic lamp detection. With adjustable minimum brightness and dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function as well as constant light regulation and master-slave mode. Also with light scene control by PC or wireless pushbuttons. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.7 watt standby loss.

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Mounting in the 230 V power supply cord, e.g. in false ceilings and lamps.
166 mm long, 46 mm wide und 31 mm high. With cable fixation.

Universal dimmer switch for lamps up to 400 W, depending on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V LED lamps, additionally depending on the lamps electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

Encrypted sensors can be taught in.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are confirmed by a wireless telegram.

This wireless telegram can be taught-in in other actuators and in the GFVS software. The current dimming value is also displayed in % in the GFVS-Software.

The upper rotary switch determines the operation, whether automatic lamp detection or special comfort positions should work:

AUTO allows the dimming of all lamp types.

EC1 is a comfort position for energy saving lamps, which which by design must be turned on with an increased voltage so that they switch on again in cold state when dimmed down.

EC2 is a comfort position for energy saving lamps, which by design won't switch on again when dimmed down. Therefore Memory is switched off in this position.

LC1 is a comfort position for LED lamps, which by design won't be dimmed down enough in the AUTO position (trailing phase angle) and therefore has to be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1 but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 inductive (wound) transformers may not be used. In addition, the maximum number of dimmable LED lamps may be lower by design than in the AUTO position.

LC4, LC5 and **LC6** are comfort positions for LED lamps like AUTO but with different dimming curves.

PCT is a position for special functions which were set up using the PCT14 PC Tool. The PCT14 link is hooked up using the data transformer DAT71.

The minimum brightness (fully dimmed down) is adjustable **with the middle %** rotary switch.

The dimming speed is adjustable **using the lower dimming speed rotary switch.**

The pushbuttons can be either taught-in as direction pushbuttons or universal pushbuttons: As direction pushbutton 'switch on and dim up' is on one side and 'switch off and dim down' on the other side.

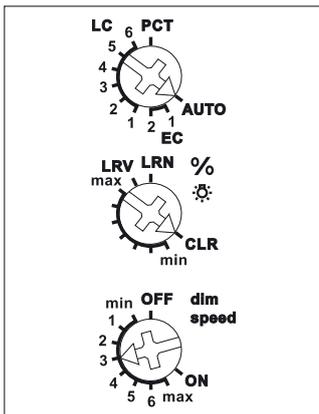
A double-click on the switch on side triggers the automatic dimming up to full brightness with dim speed time. A double-click on the switch off side triggers the snooze function. The children's room function is triggered on the switch on side. **As a universal pushbutton** the direction change is made by briefly releasing the pushbutton.

For light scene control, constant light regulation, master-slave mode, light alarm clocks, children's rooms and snooze function see operating instructions.

A resettable staircase time switch function with RV = 2 minutes can be called by a pushbutton taught-in as a staircase pushbutton. Brightness level settings can be called during teach-in with single light scene pushbuttons. A twilight pushbutton can be implemented using a taught-in FAH. Switch-on can be performed dependent on motion and brightness with up to 4 FBH devices.

The LED accompanies the teach-in process and indicates control commands in operation by flashing briefly.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technical data page T-3.

FUD71-230V	Wireless actuator Universal dimmer switch	EAN 4010312316207	117,30 € /pc.
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FUD71L/1200W-230V



Universal dimmer switch, power MOSFET up to 1200 W. Automatic lamp detection. With adjustable minimum brightness and dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function as well as constant light regulation and master-slave mode. Also with light scene control by PC or wireless pushbuttons. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.7 watt standby loss.

Mounting in the 230 V power supply cord, e.g. in false ceilings and lamps.

252 mm long, 46 mm wide and 31 mm high. With cable fixation.

Universal dimmer switch for lamps up to 1200 W, depending on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V LED lamps, additionally depending on the lamps electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

The upper rotary switch determines the operation, whether automatic lamp detection or special comfort positions should work:

AUTO allows the dimming of all lamp types.

EC1 is a comfort position for energy saving lamps, which which by design must be turned on with an increased voltage so that they switch on again in cold state when dimmed down.

EC2 is a comfort position for energy saving lamps, which by design won't switch on again when dimmed down. Therefore Memory is switched off in this position.

LC1 is a comfort position for LED lamps, which by design won't be dimmed down enough in the AUTO position (trailing phase angle) and therefore has to be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1 but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 inductive (wound) transformers may not be used. In addition, the maximum number of dimmable LED lamps may be lower by design than in the AUTO position.

LC4, LC5 and **LC6** are comfort positions for LED lamps like AUTO but with different dimming curves.

PCT is a position for special functions which were set up using the PCT14 PC Tool. The PCT14 link is hooked up using the data transformer DAT71.

The minimum brightness (fully dimmed down) is adjustable **with the middle % rotary switch.**

The dimming speed is adjustable **using the lower dimming speed rotary switch.**

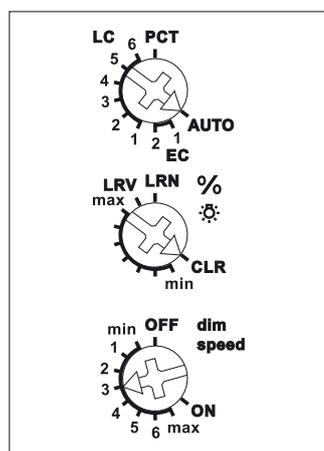
The pushbuttons can be either taught-in as direction pushbuttons or universal pushbuttons: As direction pushbutton 'switch on and dim up' is on one side and 'switch off and dim down' on the other side. A double-click on the switch on side triggers the automatic dimming up to full brightness with dim speed time. A double-click on the switch off side triggers the snooze function. The children's room function is triggered on the switch on side. **As a universal pushbutton** the direction change is made by briefly releasing the pushbutton.

For light scene control, constant light regulation, master-slave mode, light alarm clocks, children's rooms and snooze function see operating instructions.

A resettable staircase time switch function with RV = 2 minutes can be called by a pushbutton taught-in as a staircase pushbutton. Brightness level settings can be called during teach-in with single light scene pushbuttons. A twilight pushbutton can be implemented using a taught-in FAH. Switch-on can be performed dependent on motion and brightness with up to 4 FBH devices.

The LED accompanies the teach-in process and indicates control commands in operation by flashing briefly.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technische Daten Seite T-3.

FUD71L/1200W-230V	Wireless actuator Universal dimmer switch	EAN 4010312316412	147,80 €/pc.
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FSG71/1-10V



Dimmer switch controller for electronic ballast units 1-10 V, 1 NO contact not potentialfree 600 VA and 1-10 V control output 40 mA. With adjustable minimum brightness and dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function as well as constant light regulation and master-slave mode. Also with light scene control by PC or wireless pushbuttons. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 1.4 watt standby loss.

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Mounting in the 230 V power supply cord, e.g. in false ceilings and lamps.
166 mm long, 46 mm wide and 31 mm high. With cable fixation.

Zero passage switching with soft ON and soft OFF to protect lamps.

Also adapted for LED driver with 1-10 V passive interface, without voltage source up to 0.6 mA, above this value an additional voltage source is necessary.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

The minimum brightness (fully dimmed) is adjustable **with the % rotary switch.**

The dimming speed is adjustable **using the dimming speed rotary switch.**

The load is switched on and off by a bistable relay at output EVG. Switching capacity for fluorescent lamps or LV halogen lamps with EVG 600 VA.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons: As a direction pushbutton, press up is brighter and press down is darker respectively above short pressing means switch ON and below short pressing switch OFF. A double click above activates automatic updimming until full brightness with dim speed. A double click below activates snooze function. The children's room function will be realized with the upper switch.

As a universal pushbutton, change the direction by briefly releasing the pushbutton. With switching operation for children's rooms and snooze function.

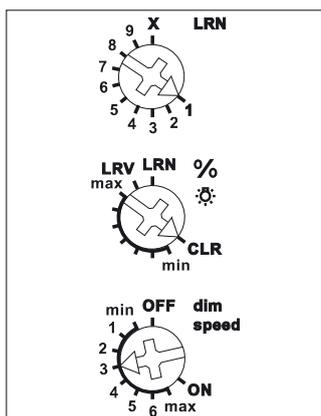
Light alarm circuit: An appropriately taught-in timer wireless signal starts the wake-up function by switching on the lighting at lowest brightness and slowly dimming up to maximum brightness over a period of 30 minutes. Briefly tip the pushbutton (e.g. a hand-held wireless transmitter) to stop dim-up. Light alarm circuit is not possible in EC positions.

Switching operation for children's rooms, if activated: If the light is switched on by holding down the pushbutton (universal pushbutton or direction pushbutton above), it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down. The last saved brightness level is not modified.

Snooze function, if activated: (universal pushbutton or direction pushbutton below): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 30 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down.

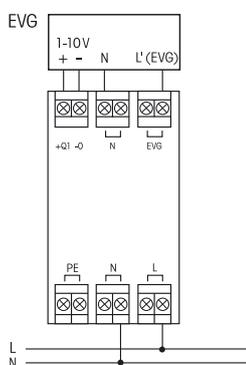
The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Function rotary switches



Standard setting ex works.

Typical connection



Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

FSG71/1-10V	Wireless actuator Dimmer switch controller	EAN 4010312316283	108,70 €/pc.
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FDG71L-230V



Wireless DALI gateway, bidirectional. 2 watt standby loss.

Installation for example in suspended ceilings and lamps.
252 mm long, 46 mm wide and 31 mm high. With cable fixation.
Power supply 230 V at terminals N and L.

16 V DC/130 mA can be connected to the DALI terminals +/- for up to 64 DALI devices.
The gateway FDG71L controls DALI devices with EnOcean wireless transmitters.

Groups 0-15 can be controlled and the **broadcast command** can be sent. In addition **DALI scenes 0-15** can be recalled.

DALI installations, which are to be fully controlled with the FDG71L, must be configured in groups 0-15. The FDG71L internally saves the dimming value for each of the groups 0-15 and supplies this value as feedback. The same feedback telegrams are generated as for an FUD71.

The feedbacks of the device addresses correspond to the dimming values of the DALI groups 0-15 in ascending order.

Feedbacks can be converted by the PCT14 for each individual group of dimming value telegrams (%) to pushbutton telegrams (ON/OFF). Feedbacks can then control actuators.

The FDG71L fulfils the functions of the DALI master and the DALI power supply.

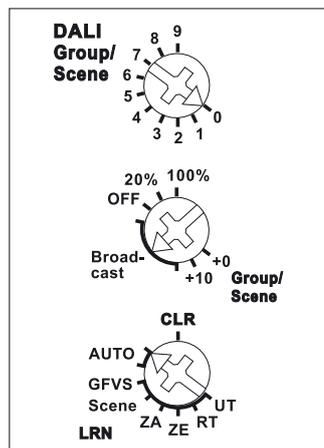
Important: Wireless pushbuttons always need to be double-clicked when they are taught-in manually in the FDG71L. CLR only needs a single click.

A direction pushbutton or universal pushbutton with identical ID and identical pushbutton can be taught in several times in different groups. The group last selected is always valid. Therefore, a pushbutton can either switch only one group or broadcast to all groups.

One FBH per group can also be taught in. With a manual teach-in this always acts dependent on brightness. With PCT14 you can also set the brightness threshold.

The delay time for switch-off after no motion is detected can be set together in minutes (1 ... 60) for the FBH devices of all groups. The default is 3 minutes.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technical data page T-3.

FDG71L-230V	Wireless DALI gateway	EAN 4010312317556	132,50 €/pc.
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FRGBW71L



PWM dimmer switch with 4 channels for LED 12-36 V DC, each up to 2 A. Adjustable minimum brightness and dimming speed. With snooze function and light alarm circuit. Additionally with light scene control via PC or with wireless pushbuttons. Activation for encrypted wireless, bidirectional wireless and repeater function. Standby loss only 0.3-0.5 watt.

Installation for example in suspended ceilings and lamps.

252 mm long, 46 mm wide and 31 mm high. With cable fixation.

The set brightness level remains stored when switched off (memory).

In case of a power failure, the switch position and brightness level are saved and switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature shutdown.

Encrypted sensors can be taught-in.

Bidirectional wireless and/or a **repeater function** can be switched on.

Every change in state and incoming central control telegrams are then confirmed by a wireless telegram.

The wireless telegram can be taught in other actuators and the GFVS software. In addition the current dimming value is displayed in % in the GFVS software.

The upper rotary switch is only required for teach-in.

Use the middle % rotary switch to set the minimum brightness (fully dimmed).

Use the lower dimming speed rotary switch to set the dimming speed.

The pushbuttons can either be taught in as direction pushbuttons or universal pushbuttons: as direction pushbutton, one side is 'switch on and dim up'; the other side is 'switch off and dim down'. Double-click on the switch-on side to trigger automatic dim up to full brightness at dimming speed. Double-click on the switch-off side to trigger the snooze function.

As universal pushbutton, change the direction by briefly releasing the pushbutton.

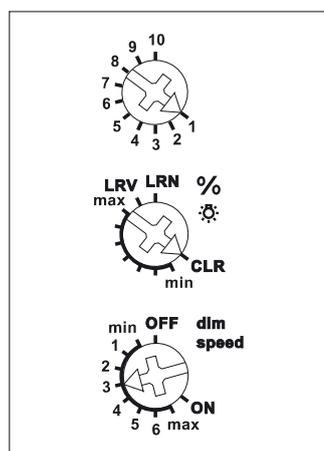
FHB wireless motion/brightness sensors can be taught in as master or slave.

FAH wireless brightness sensors can be taught in for switch-off dependent on brightness or as a twilight switch.

Light scene control, light alarm circuit and snooze function as described in the operating instructions.

The LED accompanies the teach-in process as described in the operating instructions and indicates control commands by briefly flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technical data page T-3.

FRGBW71L	Wireless actuator PWM Dimmer Switch for LED	EAN 4010312316450	108,00 €/pc.
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FWWKW71L



PWM dimmer switch with 2 channels for LED 12-36 V DC, each up to 4 A. Input: two terminals each for + and -. Output: one terminal for +, two terminal each for channel 1 (warm white) and channel 2 (cold white). Adjustable minimum brightness and dimming speed. With snooze function and light alarm circuit. Additionally with light scene control via PC or with wireless pushbuttons. Activation for encrypted wireless, bidirectional wireless and repeater function. Standby loss only 0.3-0.5 watt.

Installation for example in suspended ceilings and lamps. 252 mm long, 46 mm wide and 31 mm deep. With cable fixation.

The set brightness level remains stored when switched off (memory).

In case of a power failure, the switch position and brightness level are saved and switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature shutdown.

Encrypted sensors can be taught-in.

Bidirectional wireless and/or a **repeater function** can be switched on.

Every change in state and incoming central control telegrams are then confirmed by a wireless telegram.

The wireless telegram can be taught in other actuators and the GFVS software. In addition the current dimming value is displayed in % in the GFVS software.

The upper rotary switch is only required for teach-in.

Use the middle %  rotary switch to set the minimum brightness (fully dimmed).

Use the lower dimming speed rotary switch to set the dimming speed.

The pushbuttons can either be taught in as direction pushbuttons or universal pushbuttons: as direction pushbutton, one side is 'switch on and dim up'; the other side is 'switch off and dim down'. Double-click on the switch-on side to trigger automatic dim up to full brightness at dimming speed. Double-click on the switch-off side to trigger the snooze function. **As universal pushbutton**, change the direction by briefly releasing the pushbutton.

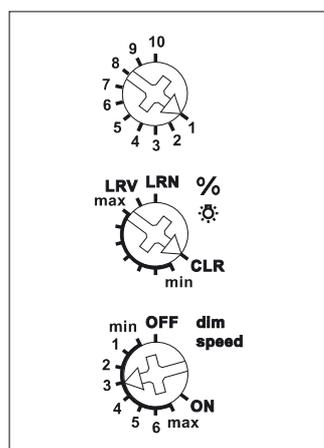
FHB wireless motion/brightness sensors can be taught in as master or slave.

FAH wireless brightness sensors can be taught in for switch-off dependent on brightness or as a twilight switch.

Light scene control, light wake-up circuit and sleep circuit as described in the operating instructions.

The LED lights up during teach-in according to the operating instructions. Wireless control commands are indicated by short flickering during operation.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

Technical data page T-3.

FWWKW71L	Wireless actuator PWM dimmer switch for LED	EAN 4010312318928	102,90 €/pc.
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DAT71



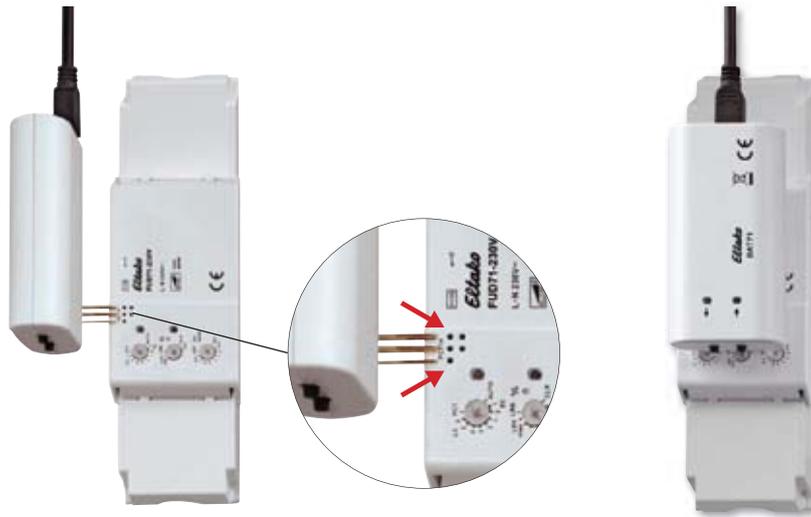
Data transformer to configure Series 71 actuators using the PCT14 PC tool.

The DAT71 can be used to link an actuator to the PC. Using PCT14, data can be transferred to or from the actuator. In addition the DAT71 can be used as a mobile data storage.

The DAT71 must then be plugged into the actuator and connected to the PC by USB cable (not included in the scope of supply).

After starting the PCT14, configure the actuator.

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Plugging the data transformer DAT71 to a Series 71 actuator.

Technical data page T-3.

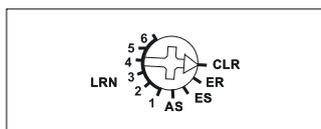
DAT71	Data transformer for Series 71	EAN 4010312316351	70,80 €/pc.
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**WIRELESS ACTUATOR IMPULSE SWITCH WITH INTEGR. RELAY FUNCTION FSR70S-230V
AS CORD SWITCH**

3-44



**Function rotary switch
on the side**



Standard setting ex works.

Technical data page T-3.

FSR70S-230V



1 NO contact not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, energy saving lamps ESL up to 200 W. Only 0.8 watt standby loss.

Installation in the 230 V power supply cord of standard lamps and bedside lights.
100 mm long, 50 mm wide and 31 mm high.

This wireless actuator is an impulse switch with integrated relay function and features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics and a bistable relay with zero passage switching.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

With the rotary switch on the side in the settings LRN up to 35 wireless pushbuttons can be assigned, of which one or more central control pushbuttons. In addition, wireless motion/brightness sensor FBH and/or a wireless outside brightness sensor FAH for a presence simulation. The required function of the impulse switch with integrated relay function can then be selected:

ES = Impulse switch:

After the FBH is taught-in, the device switches on when movement is detected and, after an additional FAH is taught-in, at twilight and when movement is detected.

If no movement is detected, the contact opens after a 4 minute delay. A wireless switch can only be taught-in additionally to activate or deactivate presence simulation.

ER = Switching relay

When FAH is taught-in, the device switches on at twilight.

The contact opens after a 4 minute delay when brightness is detected.

AS = Presence simulation

The AS starts with a random pause time of 20 to 40 minutes followed by a random switch-on time of 30 to 120 minutes.

When the rotary switch is turned to AS or when the line voltage is switched on in AS position, the light switches on for 5 seconds after 1 second.

When the FAH is taught-in, the AS only starts when twilight commences.

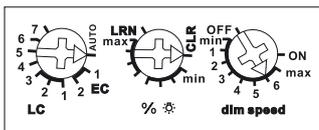
After the FAH detects brightness, the AS ends after 4 minutes.

The LED on the side below the left rotary switch accompanies the teach-in process as described in the operation manual. It indicates control commands by short flickering during operation.

FSR70S-230V-rw	Impulse switch with integr. relay function pure white	EAN 4010312301487	86,90 €/pc.
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Function rotary switches on the side



Standard setting ex works.

Technical data page T-3.

FUD70S-230V



Universal dimmer switch, Power MOSFET 400 W. Automatic lamp detection. Only 0.6 watt standby loss. With adjustable minimum or maximum brightness and dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Also with light scene control by PC or wireless pushbuttons. Bidirectional wireless and with repeater function. Only 0.6 watt standby loss.

Mounting in the 230 V power supply cord, e.g. in false ceilings.
100 mm long, 50 mm wide and 31mm high.

With **bidirectional wireless**; in addition, a **repeater** function can be switched in. Every change in state and incoming central command telegrams are confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators and in the GFVS software.

Universal dimmer switch for lamps up to 400 W, depending on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V LED lamps, additionally depending on the lamps electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

The left rotary switch determines the operation, whether automatic lamp detection or special comfort positions should work:

AUTO allows the dimming of all lamp types.

EC1 is a comfort position for energy saving lamps, which which by design must be turned on with an increased voltage so that they switch on again in cold state when dimmed down.

EC2 is a comfort position for energy saving lamps, which by design won't switch on again when dimmed down. Therefore Memory is switched off in this position.

LC1 is a comfort position for LED lamps, which by design won't be dimmed down enough in the AUTO position (trailing phase angle) and therefore has to be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1 but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 inductive (wound) transformers may not be used. In addition, the maximum number of dimmable LED lamps may be lower by design than in the AUTO position.

The minimum brightness (fully dimmed down) or maximum brightness (fully dimmed up) is adjustable **with the middle % rotary switch** on the side. In the setting LRN up to 30 pushbuttons can be assigned, of which one or more central pushbuttons.

The dimming speed is adjustable using the **right dimming speed rotary switch** on the side.

At the same time, the soft ON and soft OFF periods are changed.

The wireless pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons:

When installed as a direction pushbutton, one side is then 'switch on and dim up' and the other side is 'switch off and dim down'. A double-click on the switch-on side activates automatic dim-up to full brightness at dim speed. A double click on the switch-off side activates the snooze function. The children's room function is implemented on the switch-on side.

As a universal pushbutton, change the direction by briefly releasing the pushbutton.

Light scene control, light wake-up switching, switching operation for children's rooms and snooze function according to the operating instruction.

The LED on the side below the left rotary switch accompanies the teach-in process as described in the operation manual. It indicates control commands by short flickering during operation.

FUD70S-230V-rw	Universal dimmer switch pure white	EAN 4010312301395	105,90 €/pc.
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3-46



FSSA-230V



1 NO contact not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, ESL and LED up to 400 W. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Adapter for German Socket (Typ F). With increased shock protection.

Supply and switching voltage 230 V.

In case of failure of the supply voltage, the switching state is maintained. The recurrent supply voltage is disconnected in a definite sequence. After plugging wait for short automatic synchronization before the switched consumer is plugged.

This wireless actuator features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics and a bistable relay.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught into other actuators, the software GFVS 4.0, and universal displays.

Up to 35 wireless pushbuttons are assigned **with the left button LRN**, either as a universal pushbutton, direction pushbutton or central pushbutton. For the control of extractor hoods or similar items up to 35 wireless window door contacts FTK or wireless window handle sensors FFG7B-rw can be taught-in.

Several FTK or wireless window handle sensors FFG7B-rw are linked together.

If a FTK or wireless window handle sensor FFG7B-rw is taught-in, control commands of eventually taught-in pushbuttons are no longer running.

It can be switched on and off manually **with the right button**.

The LED performs during the teach-in process according to the operation manual. It shows wireless control commands by short flickering during operation.

WEEE registration number DE 30298319

Technical data page T-3.

FSSA-230V	Wireless actuator Socket switching actuator	EAN 4010312314562	102,10 €/pc.
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FSVA-230V-10A



1 NO contact not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, ESL and LED up to 400 W. With integrated current measurement up to 10 A. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Adapter for German Socket (Typ F). With increased shock protection.

Supply and switching voltage 230 V.

In case of failure of the supply voltage, the switching state is maintained. The recurrent supply voltage is disconnected in a definite sequence. After plugging wait for short automatic synchronization before the switched consumer is plugged.

This wireless actuator features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics and a bistable relay.

Apparent power is measured by the integrated current measurement from approx. 10 VA to 2300 VA when the contact is closed. A wireless telegram is transmitted into the Eltako wireless network within 30 seconds after switching on the load or after a change in power by min 5% and cyclically every 10 minutes.

Evaluation on the computer with Eltako Wireless Building Visualisation and Control Software GFVS or with the energy consumption indicator FEA65D.

GFVS-Energy supports up to 100 energy meters and GFVS 4.0 up to 250 energy meters.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught into other actuators, the software GFVS 4.0, and universal displays.

Up to 35 wireless pushbuttons are assigned **with the left button LRN**, either as a universal pushbutton, direction pushbutton or central pushbutton. For the control of extractor hoods or similar items up to 35 wireless window door contacts FTK or wireless window handle sensors FFG7B-rw can be taught-in.

Several FTK or wireless window handle sensors FFG7B-rw are linked together.

If a FTK or wireless window handle sensor FFG7B-rw is taught-in, control commands of eventually taught-in pushbuttons are no longer running.

It can be switched on and off manually **with the right button**.

The LED performs during the teach-in process according to the operation manual. It shows wireless control commands by short flickering during operation.

WEEE registration number DE 30298319

Technical data page T-3.

FSVA-230V-10A	Wireless actuator Socket switching actuator with current measurement	EAN 4010312314555	109,10 €/pc.
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3-48



FSUD-230V



Universal dimmer switch, 300 W power MOSFET. Automatic lamp detection. Only 0.7 watt standby loss. With adjustable minimum brightness. With switching operation for children's rooms and snooze function. Encrypted wireless, bidirectional wireless and repeater function are switchable.

Adapter for German Socket (Typ F). With increased shock protection.

Supply and switching voltage 230 V.

Universal dimmer switch for lamps up to 300 W. Dimmable energy saving lamps ESL and dimmable 230 V-LED lamps, dependent on the lamps electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

No minimum load required.

This dimmer switch is activated by wireless pushbuttons FT and FFT, handheld wireless transmitters FHS and FMH, and remote controls FF8 and UFB.

The set brightness level is stored when switched off (memory), but can be switched off for ESL lamps.

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught into other actuators, the software GFVS 4.0, and universal displays FUA55. The current dimming value is also displayed in % in the software GFVS.

Up to 35 wireless pushbuttons are assigned **with the left button LRN**, either as a universal pushbutton, direction pushbutton or central pushbutton.

It can be switched on and off manually **with the right button**.

The pushbuttons can be either taught-in as direction pushbuttons or universal pushbuttons: As direction button 'switch on and dim up' is on one side and 'switch off and dim down' on the other side. A double-click on the switch on side triggers the automatic dimming up to full brightness. A double-click on the switch off side triggers the snooze function. The children's room function is triggered on the switch on side. **As a universal pushbutton** the direction change is made by briefly releasing the pushbutton.

For children's room circuit and sleep timer, refer to the operating instructions.

The LED performs during the teach-in process according to the operation manual. It shows wireless control commands by short flickering during operation.

WEEE registration number DE 30298319

Technical data page T-3.

FSUD-230V	Wireless actuator Socket universal dimmer switch	EAN 4010312314791	125,80 €/pc.
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FSHA-230V



1 NO contact nor potential free 10 A/250 V AC. Encrypted wireless, bidirectional wireless and repeater function switchable. Only 0.8 watt standby loss.

Adapter for German Socket (Typ F). With increased shock protection.

Supply and switching voltage 230 V. Zero passage switching.

If a power failure occurs, the switching state is retained.

Device is programmed to switch off when the power supply is restored.

The FSHA evaluates the data of wireless temperature controllers or sensors. Can be supplemented by window/door contacts, window handles, motion detectors and wireless pushbuttons.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

Encrypted sensors can be taught in.

Bidirectional wireless and/or a **repeater** function can be switched on.

Every change of state is then confirmed by a wireless telegram.

This wireless telegram can be taught in other actuators and the GFVS.

The FSHA operates as a two-point controller:

Switches off at 'actual temperature \geq set temperature'.

Switches on at 'actual temperature \geq set temperature'.

Hysteresis is defined at 1°.

The **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is regulated to 8°C.

If one or several windows are open, the output remains off **provided the window/door contacts or window handles** are taught-in. However, the frost protection remains enabled.

As long as all taught-in **motion detectors** detect no motion, the device is switched to setback mode and the reference temperature is set back by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When a **wireless pushbutton** is taught-in, the assignment of the 4 keys is assigned with the following fixed functions:

Top right: Normal mode (AUTO), can also be enabled by timer.

Bottom right: Night setback mode by 4°, can also be enabled by timer.

Top left: Setback mode by 2°

Bottom left: Off (frost protection enabled)

If the motion detector and wireless pushbutton are taught-in at the same time, the last telegram received is always the one that is valid. A motion detector therefore switches off a setback mode selected by wireless pushbutton when a movement is detected.

Malfunction mode:

If a temperature sensor fails to receive a wireless telegram for longer than 1 hour, the LED lights up and the device switches to fault mode. The FSHA-230V switches cyclically between 'ON' for 4.5 minutes and 'OFF' for 10.5 minutes. When a wireless telegram is again received, the LED goes out and the device switches back to normal mode.

The LED lights up during teach-in according to the operating instructions. Wireless control commands are indicated by short flickering during operation.

WEEE registration number DE 30298319

Technical data page T-3.

FSHA-230V	Wireless actuator Wireless socket heating actuator	EAN 4010312318997	95,60 €/pc.
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FGM



Wireless module for fitting in the 3xAA battery compartment of gongs or any other plastic housing. Only 0.5 watt standby loss.

52 mm long, 42 mm wide and 16 mm deep.

This wireless module is suitable for all gongs that can be powered with 3 pieces AA batteries or with 8 to 12 V UC transformer connection and activated by one contact.

The gong module FGM also fits in the much larger battery compartment for 3 or 4 pieces baby cells.

The gong module is placed in the battery compartment in accordance with the operating instructions and connected to the gong terminals.

The gong and the wireless module is powered by a switch mode power supply unit SNT61-230V/12V DC-0,5A which is fitted in a flush-mounted wall socket behind the gong and requires a 230 V connection.

Normal switches can also be connected to the appropriate gong terminals.

For teaching-in a rotary switch is located on the board. Then it is set to AUTO (clockwise).

In addition to one or several wireless switches, wireless window/door contacts FTK, motion detector/brightness sensors FBH and window handle sensors FFG7B-rw can be taught in.

The LED performs during the teach-in process according to the operation manual. It shows wireless control commands by short flickering during operation.

Examples of suitable gongs:

Friedland D844

Grothe Croma 100

FGM	Wireless module	EAN 4010312303290	69,00 €/pc.
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FAC55D/230V-wg

Wireless alarm controller pure white glossy for single mounting 80 x 80 x 14 mm or mounting into the E-Design55 switching system. Installation depth 33 mm. Illuminated display. Internal acoustic signal generator for a minimum volume of 80 dB. Supply voltage 230 V. Only 0.5 watt standby loss. Smart Home actuator.

Up to 50 sensors e.g. FTK, FTKB, FTKB-hg, FTKE, FFG7B, FBH, FRW, TF-RWB, FWS, FTR, FTF, FFT60SB, FLGTF65, wireless pushbuttons and the GFVS can be taught in as described in the operating instructions. Additionally, up to 4 wireless outdoor sirens FAS260SA can be taught in.

FAC55D/230V-wg	Wireless alarm controller 55 x 55 mm with display, pure white glossy	EAN 4010312319710	98,10 €/pc.
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FAC55D/12-24V UC-wg

NEW

Wireless alarm controller pure white glossy for single mounting 80 x 80 x 14 mm or mounting into the E-design55 switching system. Installation depth 33 mm. Illuminated display. Internal acoustic signal generator for a minimum volume of 80 dB. Supply voltage 12-24 V UC. Only 0.3 watt standby loss. Smart Home actuator.

Up to 50 sensors e.g. FTK, FTKB, FTKB-hg, FTKE, FFG7B, FBH, FRW, TF-RWB, FWS, FTR, FTF, FFT60SB, FLGTF65, wireless pushbuttons and the GFVS can be taught in as described in the operating instructions. Additionally, up to 4 wireless outdoor sirens FAS260SA can be taught in.

FAC55D/12-24V UC-wg	Wireless alarm controller 55 x 55 mm with display, pure white glossy	EAN 4010312321287	98,10 €/St.
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3-52



FAC65D/230V-wg

Wireless alarm controller pure white glossy for single mounting 84 x 84 x 14 mm or mounting into the E-Design65 switching system. Installation depth 33 mm. Illuminated display. Internal acoustic signal generator for a minimum volume of 80 dB. Supply voltage 230 V. Only 0.5 watt standby loss. Smart Home actuator.

Up to 50 sensors e.g.FTK, FTKB, FTKB-hg, FTKE, FFG7B, FBH, FRW, TF-RWB, FWS, FTR, FTF, FFT60SB, FLGTF65, wireless pushbuttons and the GFVS can be taught in as described in the operating instructions. Additionally, up to 4 wireless outdoor sirens FAS260SA can be taught in.

FAC65D/230V-wg	Wireless alarm controller with display, pure white glossy	EAN 4010312319727	98,10 €/pc.
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FAC65D/12-24V UC-wg

NEW

Wireless alarm controller pure white glossy for single mounting 84 x 84 x 14 mm or mounting into the E-design65 switching system. Installation depth 33 mm. Illuminated display. Internal acoustic signal generator for a minimum volume of 80 dB. Supply voltage 12-24 V UC. Only 0.3 watt standby loss. Smart Home actuator.

Up to 50 sensors e.g.FTK, FTKB, FTKB-hg, FTKE, FFG7B, FBH, FRW, TF-RWB, FWS, FTR, FTF, FFT60SB, FLGTF65, wireless pushbuttons and the GFVS can be taught in as described in the operating instructions. Additionally, up to 4 wireless outdoor sirens FAS260SA can be taught in.

FAC65D/12-24V UC-wg	Wireless alarm controller with display, pure white glossy	EAN 4010312321270	98,10 €/pc.
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WIRELESS INDOOR UP SIGNAL GENERATOR FIUS55E-wg AND WIRELESS SIGNAL GENERATOR ADAPTER FSSG-230V



WEEE registration number DE 30298319

FIUS55E-wg

Wireless signal generator pure white glossy for single mounting 80 x 80 x 17 mm or mounting into the E-Design55 switching system. Internal acoustic signal generator for a minimum volume of 80 dB. Power supply 230 V. Only 0.8 watt standby loss. Smart Home actuator.

Up to 32 wireless pushbuttons, wireless window contacts as well as motion sensors can be taught in.

FIUS55-wg	Wireless indoor UP signal generator, pure white glossy	EAN 4010312320990	69,00 €/pc.
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FSSG-230V

NEW

Wireless signal generator adapter 10 A/250 V AC. 100 x 55 x 45 mm (measurements without plug), pure white glossy. Additional an internal acoustic signal generator with a volume of at least 80 dB will flash a load connected to the plug. 230 V incandescent lamps and halogen lamps 1000 W, ESL and 230 V LED lamps up to 200 W. Standby loss only 0.8 watt. Smart Home actuator.

Adapter for German Socket (Typ F) with increased shock protection.

Using easy tap-technology, up to 24 wireless pushbuttons, wireless window contacts, window handle, smoke alarms, water probes, as well as motion sensors FB65B, FB55B, FBH65SB, and FBH55SB can be taught in.

The acoustic signal generator can be deactivated.

FSSG-230V	Wireless signal generator adapter	EAN 4010312323885	81,50 €/pc.
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**WIRELESS OUTDOOR SIREN FAS260SA AND
OVERVIEW WIRELESS PUSHBUTTON ACTUATORS**



FAS260SA

Wireless outdoor siren white, 260 x 200 x 70 mm, with solar cell and lithium-polymer battery. Protection class IP54. Smart Home actuator.

The purpose of the siren is to generate acoustic and visual alarm signals. The user can choose from 4 different alarm modulations by means of jumpers. The minimum volume is 85 dB. Visual signals are always generated by LEDs flashing under the red cover.

The siren is controlled by the central control units Safe, MiniSafe or the wireless alarm controllers FAC55D and FAC65D.

Sensors that trigger alarms are taught in at the central control units or controllers. Sensor devices include motion sensors, door/window contacts, water and smoke detectors, temperature sensors and wireless transmitter modules.

The user defines which sensors trigger an alarm and in which combination.

This is supported by a cyclical wireless contact between the siren and the central unit.

If this communication is interrupted during the alarm readiness, for example if the central control unit is not powered, the following may take place depending on the position of the jumpers in the siren:

- No reaction
- 2 short acoustic or visual signals at intervals of 10 seconds (as-delivered state)
- Short 1 second acoustic and visual alarm at intervals of 10 seconds
- Alarm triggered immediately

The maximum length of the alarm is adjustable to 1, 3 or 5 minutes by means of jumpers in the siren.

The as-delivered state is adjusted to 1 minute.

Install the siren in a place that is sheltered from the rain and where there is enough sunlight to charge the solar cell on the top of the device.

A daily exposure to normal daylight for a few hours is sufficient to retain the charge in the internal battery.

To protect against theft or manipulation, the mounting panel is fitted with a contact which immediately triggers the alarm if the siren is removed from its mount.

FAS260SA	Wireless outdoor siren, white	EAN 4010312320075	116,60 €/pc.
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FTA55..-wg

Wireless pushbutton actuator dimming, dimming without N connection, shading and light switch. For single mounting 80 x 80 x 15/33 mm or mounting into the E-Design55 switching system. Pure white glossy. With integrated universal/direction pushbutton and terminals for additional wired pushbuttons. Supply voltage 230 V. Smart Home sensor and actuator.

FTA55D-wg	Wireless pushbutton actuator dimming	EAN 4010312319222	74,80 €/pc.
FTA55DL-wg	Wireless pushbutton actuator dimming without N connection	EAN 4010312319239	74,80 €/pc.
FTA55J-wg	Wireless pushbutton actuator shading	EAN 4010312319246	68,20 €/pc.
FTA55L-wg	Wireless pushbutton actuator light switch	EAN 4010312319253	67,50 €/pc.



FRM60M10

NEW

Wireless tubular motor 230 V/115 W for steel shafts SW60, torque 10 Nm, speed 14/min, with adapter set, bearing and whisper mode. The wireless tubular motor has a total length of 466 mm. The motor is fitted with blind protection and a noiseless soft brake.

- Smart force measurement
- Blind protection up/down and free travel (torque shut-off)
- Adjustable release
- End positions can be adjusted through the assembly cable
- Noiseless soft brake
- Protection class IP44
- Long running time of 10 minutes
- Drive technology with well proven track record
- Extremely quiet
- End positions released
- Blind protection function
- Whisper mode (activated by holding button down)
- Slats lowered slowly
- Soft start/soft stop
- Automatic commands in whisper mode
- Long service life (due to less heat generated)
- Soft brake (non-contact, wear-free)

FRM60M10	Wireless tubular motor, torque 10 Nm, speed 14/min, whisper mode 5/min	EAN 4010312321249	223,30 €/pc.
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FRM60M20

NEW

Wireless tubular motor 230 V/184 W for steel shafts SW60, torque 20 Nm, speed 14/min, with adapter set, bearing and whisper mode. The wireless tubular motor has a total length of 526 mm. The motor is fitted with blind protection and a noiseless soft brake.

- Smart force measurement
- Blind protection up/down and free travel (torque shut-off)
- Adjustable release
- End positions can be adjusted through the assembly cable
- Noiseless soft brake
- Protection class IP44
- Long running time of 10 minutes
- Drive technology with well proven track record
- Extremely quiet
- End positions released
- Blind protection function
- Whisper mode (activated by holding button down)
- Slats lowered slowly
- Soft start/soft stop
- Automatic commands in whisper mode
- Long service life (due to less heat generated)
- Soft brake (non-contact, wear-free)

FRM60M20	Wireless tubular motor, torque 20 Nm, speed 14/min, whisper mode 5/min	EAN 4010312321256	269,30 €/pc.
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**FPLG14
PL-SAMDU
DL-1CH-8A-
DC12+**



**ELTAKO POWERLINE – THE IDEAL SUPPLEMENT
TO THE ELTAKO WIRELESS BUILDING SYSTEM
WITH ENOCEAN.**

**THE NEW DALI PRODUCT LINE FROM ELTAKO –
LIGHT CONTROL FOR ALL NEEDS – FROM LED,
TUNABLE WHITE AND RGB DIMMERS THROUGH
TO CONTROL UNITS.**

Eltako Powerline

Wireless Powerline gateway FPLG14 and wireless Powerline tunnel gateway FPLT14	4-2
Powerline pushbutton gateway PL-FTGW	4-3
Decentralised actuator PL-SAMIL with sensor input 230 V and decentralised actuator PL-SAM2L with sensor inputs	4-4
Decentralised Venetian blind actuator PL-SAM2 with sensor inputs	4-5
Decentralised universal dimmer actuator with sensor input 230 V PL-SAMDU and decentralised dimmer actuator PL-AMD10V 1-10 Volt	4-6
Decentralised TLZ actuator PL-SAMILT with sensor input 230 V and decentralised actuator PL-SMIL with sensor input 230 V	4-7
Decentralised 8-channel sensor input PL-SM8 and temperature controller PL-SAMTEMP for heating and cooling	4-8
Coupling element PL-SW-PROF for software SIENNA®-Professional	4-9
Mains filter NF2A	4-11
Wireless Powernet phase coupler FPP12	4-11
Typical connections	4-12
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The electricity wiring in buildings acts as the Eltako Powerline bus. Now you can transmit sensor data and telegrams to actuators over the existing electricity wiring instead of broadcasting wireless telegrams – that is the basic difference between the two technologies.

The new Eltako DALI product line

Gateways zu EnOcean und Baureihe 14

Bus DALI gateway FDG14	4-14
Wireless DALI gateway FDG71L-230V	4-15

1 channel LED dimmer

NEW 1 channel DALI LED dimmer for luminary installation and flush-mounted box DL-1CH-8A-DC12+	4-16
NEW 1 channel DALI LED dimmer for ceiling installation DL-1CH-16A-DC12+	4-17
NEW 1 channel DALI LED dimmer for DIN-EN 60715 TH35 rail mounting DL-1CH-R16A-DC12+	4-18

Tunable White dimmer

NEW DALI LED dimmer 8 A tunable white for luminary installation and flush-mounted box DL-TW-2LT-8A-DC12+	4-19
NEW DALI LED dimmer 16 A tunable white for ceiling installation DL-TW-2LT-16A-DC12+	4-20
NEW DALI LED dimmer 16 A tunable white for DIN-EN 60715 TH35 rail mounting DL-TW-2LT-R16A-DC12+	4-21

RGB dimmer (DT8)

- NEW** DALI LED dimmer 8 A RGB for luminary installation and flush-mounted box [DL-RGB-8A-DC12+](#) 4 - 22
- NEW** DALI LED dimmer 16 A RGB for ceiling installation [DL-RGB-16A-DC12+](#) 4 - 23
- NEW** DALI LED dimmer 16 A RGB for DIN-EN 60715 TH35 rail mounting [DL-RGB-R16A-DC12+](#) 4 - 24

LED multi-channel dimmer (DT6)

- NEW** 3 channels DALI LED dimmer for luminary installation and flush-mounted box [DL-3CH-8A-DC12+](#) 4 - 25
- NEW** 3 channels DALI LED dimmer for ceiling installation [DL-3CH-16A-DC12+](#) 4 - 26
- NEW** 3 channels DALI LED dimmer for DIN-EN 60715 TH35 rail mounting [DL-3CH-R16A-DC12+](#) 4 - 27
- NEW** 4 channels DALI LED dimmer for luminary installation and flush-mounted box [DL-4CH-8A-DC12+](#) 4 - 28
- NEW** 4 channels DALI LED dimmer for ceiling installation [DL-4CH-16A-DC12+](#) 4 - 29
- NEW** 4 channels DALI LED dimmer for DIN-EN 60715 TH35 rail mounting [DL-4CH-R16A-DC12+](#) 4 - 30

Control units

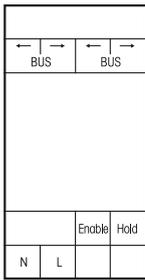
- NEW** DALI control unit for controlling the circadian course of daylight [DL-CTV](#) 4 - 31

USB interfaces and tools

- NEW** DALI-USB interface [DL-USB mini](#) 4 - 32
- NEW** DALI-USB interface for DIN-EN 60715 TH35 rail mounting [DL-Flash-USB](#) 4 - 32
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**WIRELESS POWERLINE GATEWAY FPLG14 AND
WIRELESS POWERLINE TUNNEL GATEWAY FPLT14**

4-3



FPLG14



Wireless Powerline gateway. Bidirectional. Standby loss only 0.4 watt.

Modular device for DIN-EN 60715 TH35 rail mounting.
2 module = 36 mm wide, 58 mm deep.
Supply voltage 230 V.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.
This gateway translates wireless and Powerline telegrams in both directions.

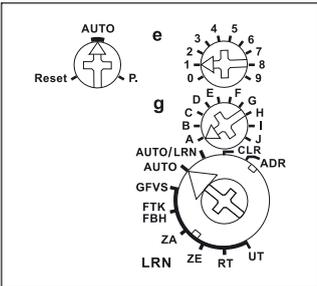
Operation in conjunction with FAM14 or FTS14KS.

GFVS control functions for dimming, heating and shading are also possible.

All Powerline telegrams from the electricity wiring system are automatically translated into RS485 bus telegrams and may also be sent as wireless telegrams by connected FTD14 devices.

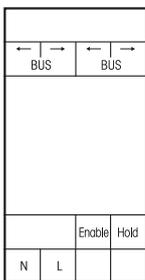
Only wireless and RS485 bus telegrams taught into the FPLG14 are translated into Powerline telegrams and modulated onto the electricity wiring system. Up to 120 different addresses. Teach-in takes place by means of rotary switches on the front of the devices or using the PCT14 as described in the user's manual.

Function rotary switches



Standard setting ex works.

FPLG14	Wireless Powerline gateway	EAN 4010312316771	94,30 €/pc.
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FPLT14



Wireless Powerline tunnel gateway. Uni- and bidirectional. Standby loss only 0.4 watt.

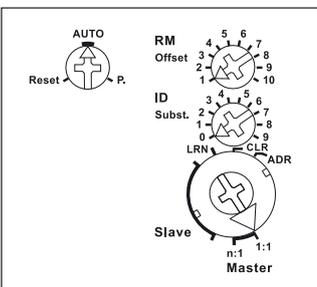
Modular device for DIN-EN 60715 TH35 rail mounting.
2 module = 36 mm wide, 58 mm deep.
Supply voltage 230 V.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.
This gateway transmits RS485 bus telegrams over powerline with large distance over the electrical net. Minimum 2 pcs FPLT14 are required.

Up to 10 FPLT14 can unidirectionally send the bus telegrams of their FAM14 / FTS14KS installation with Powerline to another FAM14 / FTS14KS installation via a local FPLT14.

Two FPLT14 can exchange the bus telegrams bidirectionally from 2 FAM14 / FTS14KS installations with Powerline via the installed wires. Teach-in up to 120 telegram IDs according to the operating instructions, also with PCT14. Because of the transmission delay, short-click evaluations for FUD and FSB actuators are not possible.

Function rotary switches



Standard setting ex works.

FPLT14	Wireless Powerline tunnel gateway	EAN 4010312317723	94,30 €/pc.
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PL-FTGW

Powerline pushbutton gateway. Bidirectional. 53 x 43 mm, 40 mm deep for mounting in 58 mm switch boxes. Standby loss 1.1 watt.

Supply voltage 230 V. Power consumption in operation 1.1 Watt.

Powerline telegrams from the grid taught-in into the gateway are automatically transformed and sent into Eltako-wireless telegrams.

Wireless telegrams taught-in into the gateway are transformed into powerline telegrams and modulated to the power supply grid.

By pressing the reset button, the PL-FTGW will be put into the teaching-in mode. The rotary switch selects, whether wireless or powerline telegrams should be taught-in.

One being taught powerline sensor is automatically assigned by operating in the learning mode, a free radio channel.

A free wireless channel is automatically assigned to a taught-in powerline sensor with confirmation in teaching-in mode.

Up to 80 Powerline sensors or feedbacks can be taught-in. The function as a universal, direction or central pushbutton for a taught-in wireless sensor is assigned via slide switch of the PL-FTGW. The Powerline address is set via rotary switch g and e which should be addressed with the wireless sensor.

In addition to wireless switches also Eltako wireless sensors such as window contacts and motion detectors can be taught-in. GFVS control functions for dimming, heating and shading are also possible. The implementation into practical Powerline telegrams für PL actuators is done automatically. Up to 100 different wireless sensor can be taught-in.

All records and configurations can be accessed via Sienna-Professional software and power supply. Other functions can then be selected which are not available through the direct teaching-in via rotary switch.

In addition, the gateway can be set into the learn and deletion mode, so that a manual teaching-in can be carried out without direct access to the device.

The PL-FTGW also serves as a relay station for communication between the temperature controller PL-SAMTEMP with EnOcean actuators FKS-MD1 and FKS-E. Up to 20 actuators and PL-SAMTEMP are managed here.

4-4

PL-FTGW	Powerline pushbutton gateway	EAN 4010312316986	171,40 €/pc.
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Typical connections on page 4-12.



Typical connections on page 4-12.

PL-SAM1L



Powerline actuator with 1 channel with sensor input. 53 x 43 mm, 25 mm deep, for mounting in 58 mm switch boxes. Used as impulse switch or relay. 1 NO contact not potential free 10 A/250 V AC, incandescent lamps 2000 watts. Sensor input 230 V. Standby loss only 0,5 watt. To control and switch at the same place.

Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch defines the element address e with 16 numerical values from 0 to 15.

Above it is a slide switch which acts **as a configuration switch with positions 0, 1 and 2.**

Position 0: Sensor input functions as pushbutton (impulse switch).

Position 1: Sensor input functions as NO contact (relay).

Position 2: A change-over switch is evaluated as a pushbutton.

To the left of the rotary switches is a red LED which indicates all activities.

Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

PL-SAM1L	Powerline actuator 1 channel with sensor input 230 V	EAN 4010312316665	106,80 €/pc.
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PL-SAM2L



Powerline actuator with 2 channels. 53 x 43 mm, 25 mm deep for mounting in 58 mm switch boxes. Used as impulse switch or relay. 1+1 NO contacts not potential free 5 A/250 V AC, incandescent lamps 1000 watts. 2 sensor inputs with internal low voltage. Standby loss only 0,5 watt. To control and switch at the same place.

Use only potential free switching elements. Internal low voltage applied to the sensor inputs.

Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch defines the element address e with 16 numerical values from 0 to 15.

Above it is a slide switch which acts as a configuration switch with positions 0, 1 and 2.

Position 0: Sensor inputs function as pushbuttons (impulse switches).

Position 1: Sensor input functions as NC contact (relay).

Position 2: A change-over switch is evaluated as a pushbutton.

To the left of the rotary switches is a red LED which indicates all activities.

Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

Next to them are three wires with wire end-sleeves for the two control inputs with internal low voltage.

PL-SAM2L	Powerline actuator 2 channels with 2 sensor inputs	EAN 4010312316672	108,60 €/pc.
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PL-SAM2

Powerline Venetian blind actuator for 1 motor. 53 x 43 mm, 25 mm deep for mounting in 58 mm switch boxes. 1+1 NO contact for motors up to 3 A. 2 sensor inputs with internal low voltage. Standby loss only 0,5 watt. To control and switch at the same place.

Use only potential free switching elements. Internal low voltage applied to the sensor inputs. The control inputs can be used for a Venetian blind pushbutton or a Venetian blind switch. The runtime is preset to 120 seconds. This can be changed using the SIENNA-Professional installation software.

Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch defines the element address e with 16 numerical values from 0 to 15.

Above it is a slide switch which acts **as a configuration switch with positions 0, 1 and 2.**

Position 0: Start and stop by pressing Venetian blind pushbutton. Auto stop at end.

Position 1: Comfort switch for Venetian blind slat adjustment. Tip briefly to adjust slats.

>1 second same as position 0.

Position 2: Tip pushbutton to operate, release to stop. Auto stop at end.

To the left of the rotary switches is a red LED which indicates all activities.

Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

Next to them are three wires with wire end-sleeves for the two control inputs with internal low voltage.

Typical connections on page 4-12.

PL-SAM2	Powerline Venetian blind actuator for 1 motor	EAN 4010312316689	108,60 €/pc.
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PL-SAMDU



Powerline universal dimmer actuator. 53 x 43 mm, 40 mm deep for mounting in 58 mm switch boxes. Power MOSFET up to 300 W. Automatic lamp detection. Sensor input 230 V. Standby loss only 0,6 Watt. To control and dim at the same place.

Universal dimmer switch for lamps up to 300 W, dependent on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V-LED lamps, additionally dependent on the lamps electronics. No minimum load.

Zero passage switching with soft ON and soft OFF to protect lamps.

Short-time control commands switch on/off, permanent control varies the brightness to the maximum level.

A interruption of control changes the direction of dimming.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature switch-off.

Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch defines the element address e with 16 numerical values from 0 to 15.

Above it is a slide switch which acts **as a configuration switch:**

The position AUTO1 allows the dimming of all types of lamps up to 300 watts.

The position LC1 is a comfort position for LED lamps up to 150 watts which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

The position AUTO2 allows the dimming of all types of lamps up to 300 watts.

Increased minimum brightness compared to AUTO1.

In position LC1 no inductive (wound) transformers should be used. In addition, the maximum number of dimmable LED lamps can be lower than in the AUTO position dependent on the construction.

Mixing of L loads (inductive loads, e.g. wound transformers) and C loads (capacitive loads, e.g. electronic transformers) is not permitted. R loads (ohmic loads, e.g. 230V incandescent lamps and halogen lamps) may be added anytime.

To the left of the rotary switches is a red LED which indicates all activities.

Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

Typical connections on page 4-12.

PL-SAMDU	Powerline universal dimmer actuator 1 channel with sensor input 230 V	EAN 4010312316870	123,20 €/pc.
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PL-AMD10V



Powerline dimmer actuator 1-10 V. 53 x 43 mm, 25 mm deep, for mounting in 58 mm switch boxes. To switch and/or dim via a 1-10 V interface. 1 NO non-floating contact 600 VA. Standby loss only 0,5 watt. To activate and dim at different places.

Current sink of max. 30 mA for active and passive electronic ballasts. A Powerline sensor input is required for activation. Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch defines the element address e with 16 numerical values from 0 to 15.

Above it is a slide switch which has no function here.

To the left of the rotary switches is a red LED which indicates all activities. Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

Typical connections on page 4-12.

PL-AMD10V	Powerline dimmer actuator 1-10 V	EAN 4010312316726	108,60 €/pc.
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**DECENTRALISED TLZ ACTUATOR PL-SAMILT WITH SENSOR INPUT 230 V AND
DECENTRALISED ACTUATOR PL-SMIL WITH SENSOR INPUT 230 V**



4-8

Typical connections on page 4-12.



Typical connections on page 4-12.

PL-SAMILT



Powerline TLZ (staircase time switch) actuator with 1 channel. 53 x 43 mm, 25 mm deep for mounting in 58 mm switch boxes. Off delay settable from 1 minute to 120 minutes. Switch-off early warning settable. 1 NO contact not potential free 10 A/250 V AC, incandescent lamps 2000 watts. Sensor input 230 V. Standby loss only 0,5 watt. To control and switch at the same place.

Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch determines the off-delay time.

Above it is a slide switch which acts **as a configuration switch with positions 0, 1 and 2.**

Position 0: Pushbutton at sensor input with subsequent switching.

Position 1: Same as Position 0 but with switch-off early warning.

Position 2: A change-over switch is evaluated as a pushbutton.

To the left of the rotary switches is a red LED which indicates all activities.

Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

PL-SAMILT	Powerline TLZ actuator 1 channel with sensor input 230 V	EAN 4010312316702	108,60 €/pc.
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PL-SMIL



Powerline sensor input with 1 channel. 53 x 43 mm, 25 mm deep for mounting in 58 mm switch boxes. Sensor input 230 V. Standby loss only 0,5 watt. To control and switch at different places.

When pressed, the sensor input acts on all actuators with the same address or as a central pushbutton if element address 0 is used.

Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch defines the element address e with 16 numerical values from 0 to 15.

Above it is a slide switch which acts **as a configuration switch with positions 0, 1 and 2.**

Position 0: Sensor input with reset function as pushbutton.

Position 1: Sensor input functions as NO contact.

Position 2: A change-over switch is evaluated as a pushbutton.

To the left of the rotary switches is a red LED which indicates all activities.

Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

PL-SMIL	Powerline sensor input 230 V	EAN 4010312316740	102,90 €/pc.
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PL-SM8



Powerline sensor input with 8 channels. 53 x 43 mm, 25 mm deep for mounting in 58 mm switch boxes. 8 sensor inputs with internal low voltage. Standby loss only 0,5 watt. To control and switch at different places.

Use only potential free switching elements. Internal low voltage applied to the sensor inputs. Two rotary switches are located on the front for address assignment:

The left rotary switch defines the group address g with 16 alphabetical values from A to P.

The right rotary switch defines the element address e with 16 numerical values from 0 to 15.

Above them is a slide switch which functions **as a configuration switch.**

Position 0: 2 adjacent inputs as direction pushbuttons for UP/DOWN or ON/OFF.

Position 1: All sensor inputs function separately as NO contacts.

Position 2: All sensor inputs function separately as pushbuttons.

To the left of the rotary switches is a red LED which indicates all activities.

Next to it is a reset pushbutton and to the right of that is a service pin. For functions, please refer to the operating instructions.

The terminals located above are plug-in terminals for conductor cross-sections of 0.2 mm² to 1.5 mm².

The addresses of the 8 inputs can also be freely assigned if necessary using the SIENNA-Professional software.

The socket strip located above this has 9 plug-in wires with wire end-sleeves.

8 control inputs with internal low voltage.

Typical connections on page 4-12.

PL-SM8	Powerline sensor inputs, 8 channels, internal low voltage	EAN 4010312316719	108,60 €/pc.
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PL-SAMTEMP



Powerline temperature controller with display, white, 55 x 55 mm, for mounting in switch systems. In addition a floating control contact 3 A/250 V AC for direct connection of heaters and coolers. Standby loss only 0,4 watt.

The scope of supply comprises a frame R1E and an intermediate frame ZR65/55 for the E-Design, the temperature controller upper part and a bottom part for attachment in 55 mm flush-mounted boxes.

The complete display can be removed from the frame for screw mounting.

In normal mode the current room temperature is indicated in the display as well as icons for 'present' or 'absent' and for 'heating on' or 'cooling active'.

Press the pushbuttons  (absent) and  (present) to activate the associated setpoint.

In setup mode as described in the user's manual, press pushbuttons  and  to display the setpoint and actual temperatures and change the setpoints.

Control heating or cooling with Powerline actuators PL-SAM1L or PL-SAM2L.

PL-SAMTEMP	Powerline Temperature controller for heating and cooling	EAN 4010312316733	204,90 €/pc.
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PL-SW-PROF

The coupling element with USB cable and 230V power supply unit is included in the scope of supply. The software for installation and configuration of the powerline devices PL is available for download under eltako.com.

PL-SW-PROF is a Windows-based program for installing and configuring all PL and SIENNA components and is designed for electricians.

Powerline systems can either be installed or configured using a screwdriver or a PC/laptop.

All changes can be made from the PC. Existing installations in a building can also be read and detected.

The bus is coupled using a USB port on the PC. Thanks to Powerline technology, the nearest electric socket becomes a bus coupler.

Download in accordance with the included installation instructions from the homepage

eltako.com/en -> Software -> Powerline. The operating instructions are available for download at the bottom of the page under Operating Instructions/SIENNA Professional.

SYSTEM REQUIREMENTS, LAPTOP / PC	
Processor	Intel® Pentium® III 366 MHz or higher
Operating system	Server 2003, Windows XP, Vista (32 Bit), Windows 7 (32 Bit), Windows 8 (32 Bit and 64 Bit), Windows 10
Programming environment	Microsoft .NET Framework 3.5 SP1 or higher
Hard disc memory	32 MB free space on hard disc
RAM memory	128 MB RAM
Screen resolution	1024 x 768
Interface	USB 1.1, 2.0 or 3.0
TECHNICAL DATA ECHELON COUPLING ELEMENT PL-20	
Technology	Powerline communication on B/C tape (5 Kb/s); acc. to FCC, CENELEC EN50065-1 and LONWORKS® protocol
Bus coupler	Fused safety socket, 230 V~/50 Hz
PC coupler	USB 1.1 or 2.0
Current draw	Mains plug/power supply unit: maximum 250 mA at 18 V DC voltage. USB: maximum 50 mA at 5 V DC voltage
Processor type	Neuron processor integrated in Powerline Smart Transceiver PL 3120
Temperature range	-25°C to +70°C

PL-SW-PROF	Software PL-SW-PROF	EAN 4010312316856	348,40 €/pc.*
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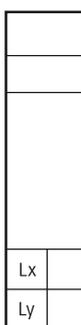
NF2A

The mains filter up to 2 A 230 V/50 Hz is designed as a built-in filter. It attenuates interference signals from the consumer to the actuator and prevents that disturbances from the connected consumers are reaching the house network. Frequency range 110-140 kHz.

For installation mounting. 49 mm long, 32 mm wide, 24 mm deep.

NF2A	Mains filter up to 2 A, 230 V/50 Hz	EAN 4010312737057	28,60 €/pc.
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4-11



FPP12



Wireless Powernet phase coupler to transmit wireless telegrams over the 230 V power mains. Only 0.2 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

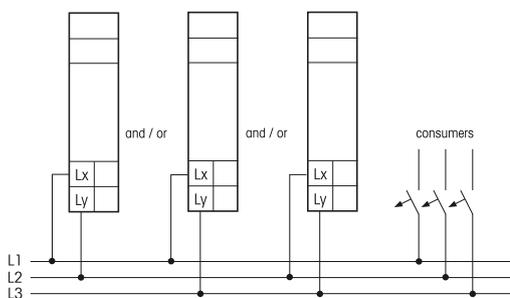
Voltage between the two outer conductors: 400 V/50 Hz.

Frequency range 115-132 kHz.

The phase coupler increases the capacitive coupling between 2 different outer conductors if, for example, the cables within the installation are not laid in parallel at a distance of at least several metres apart (as ribbon cables or jacketed cables).

Caution: The phase coupler may only be connected to the input side of the line circuit-breaker.

Typical connection

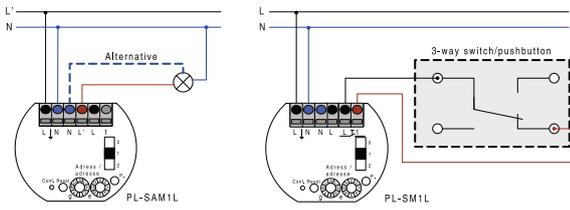


FPP12	Wireless Powernet phase coupler	EAN 4010312311769	27,20 €/pc.
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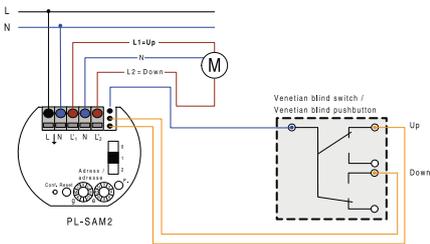
TYPICAL CONNECTIONS

Typical connection PL-SAM1L

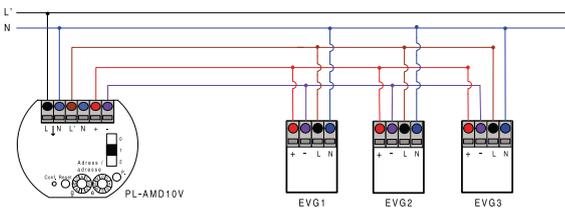
Additional switching point for an existing consumer



Typical connection PL-SAM2

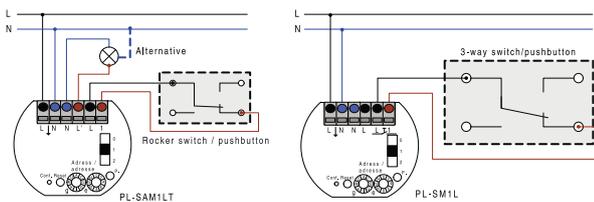


Typical connection PL-AMD10V



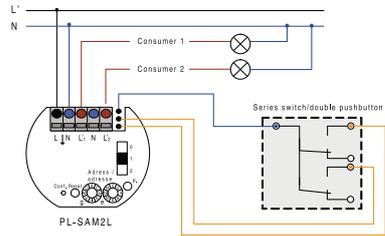
Typical connection PL-SAM1LT

Delayed switch-off



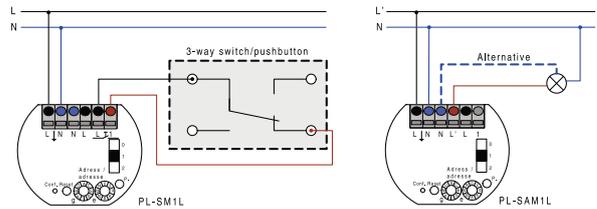
(e.g. staircase time switch or circulation pump)
SAM1LT switches itself and associated actuators off after a preset time.

Typical connection PL-SAM2L



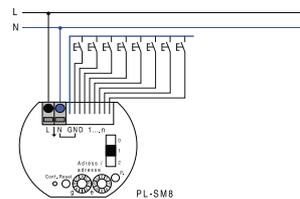
Typical connection PL-SM1

Switch an additional consumer

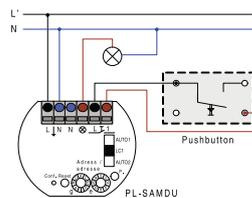


(e.g. mirror light in bathroom, socket in living room, outside light)

Typical connection PL-SM8



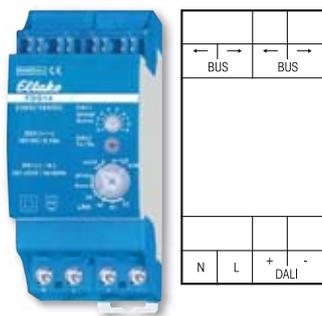
Typical connection PL-SAMDU



Type	PL-SAMDU	PL-AMD10V	PL-SAM1L PL-SAM1LT	PL-SAM2L	PL-SAM2
Contacts					
Contact material/contact gap	Power Mosfet	AgSnO ₂ /0.5 mm			
Spacing of control connections/contact	-	-	3 mm	3 mm	3 mm
Test voltage control connections/contact	-	-	2000 V	2000 V	2000 V
Rated switching capacity each contact	-	600 VA ⁴⁾	10A/250V AC	5A/250V AC	3A/250V AC
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/104-13 ms	up to 300 W ²⁾	-	2000 W	1000 W	-
Inductive load cos φ = 0.6/230 V AC inrush current ≤ 35 A	up to 300 W ⁶⁾	-	650 W	650 W ⁵⁾	650 W ⁵⁾
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	-	-	1000 VA	500 VA	-
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	-	600 VA ⁴⁾	500 VA	250 VA	-
Compact fluorescent lamps with EVG* and energy saving lamps	-	-	up to 400 W	-	-
Dimmable 230 V LED lamps	up to 300W ³⁾	-	up to 400 W	-	-
Service life at rated load, cos φ = 1 or incandescent lamps 500 W at 100/h	-	>10 ⁵	>10 ⁵	>10 ⁵	>10 ⁵
Service life at rated load, cos φ = 0.6 at 100/h	-	>4x10 ⁴	>4x10 ⁴	>4x10 ⁴	>4x10 ⁴
Max. operating cycles	-	10 ³ /h	10 ³ /h	10 ³ /h	10 ³ /h
Connection type	Plug-in terminals	Plug-in terminals	Plug-in terminals	Plug-in terminals	Plug-in terminals
Minimum conductor cross-section	0.2 mm ²	0.2 mm ²	0.2 mm ²	0.2 mm ²	0.2 mm ²
Maximum conductor cross-section	1.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²
Conductor stripping	8-9 mm	8-9 mm	8-9 mm	8-9 mm	8-9 mm
Type of enclosure/terminals	IP30/IP20	IP30/IP20	IP30/IP20	IP30/IP20	IP30/IP20
Electronics					
Time on	100%	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (active power)	0.6 W	0.5 W	0.5 W	0.5 W	0.5 W
Local control current at 230V control input	0.4 mA	-	0.4 mA	0.4 mA	0.4 mA
Max. parallel capacitance (approx. length) of local control lead at 230V AC	3 nF (10 m)	-	3 nF (10 m)	3 nF (10 m)	3 nF (10 m)

¹⁾ Applies to lamps of max. 150 W.
²⁾ Also transformers electronically (C load).
³⁾ Generally applies to 230 V LED lamps. Due to different lamp electronics, switch on/off problems and a restriction in the maximum number of lamps, however, the dimming ranges may be limited depending on the manufacturer; in particular when the connected load is very low (e.g. with 5 W LEDs). The comfort position LC1 at SAMDU optimizes the dimming range, which however results in a maximum capacity of only up to 150 W. In this comfort position, no wound (inductive) transformers should be dimmed.
⁴⁾ Fluorescent lamps or LV halogen lamps with electronic ballast.
⁵⁾ All actuators with 2 contacts: Inductive load cos φ = 0.6 as sum of both contacts 1000 W max.
⁶⁾ A maximum of 2 transformers of the same type.
 * EVG = electronic ballast units; KVG = conventional ballast units

Powerline communication in the B/C-Band (5kb/s) corresponds to FCC, CENELEC EN 50065-1 and LONWORKS protocol



FDG14



DALI gateway, bidirectional. Only 1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Operation in conjunction with FAM14.

Power supply 230 V at terminals N and L.

16 V DC/130 mA can be connected to the DALI terminals +/- for up to 64 DALI devices.

The gateway FDG14 controls DALI devices with EnOcean wireless transmitters via the FAM14.

As of production week 14/16 **Groups 0-15** can be controlled and the **broadcast command** can be sent. In addition **DALI scenes 0-15** can be recalled.

DALI installations, which are to be fully controlled with the FDG14, must be configured in groups 0-15.

FDG14 internally saves the dimming value for each of the groups 0-15 and supplies this value as feedback.

The same feedback telegrams are generated as for an FUD14. The FDG14 occupies 16 BR14 device addresses.

The feedbacks of the device addresses correspond to the dimming values of the DALI groups 0-15 in ascending order. Feedbacks can be converted by the PCT14 for each individual group of dimming value telegrams (%) to pushbutton telegrams (ON/OFF). Feedbacks can then control BR14 actuators. The FDG14 fulfils the function of the DALI master and the DALI power supply. The rotary switches can only teach in pushbuttons for groups 0-8 and DALI scenes 0-9. Activation telegrams for groups 9-15 and scenes 10-15 are only possible by entries in PCT14.

As of Production Week 30/19, the FDG14 can be used as a single-channel device **'FDG14-Broadcast'**. This is defined when the device address is issued.

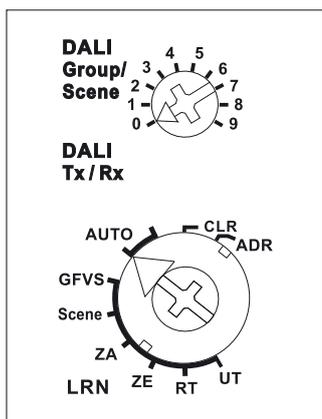
Important: Wireless pushbuttons always need to be double-clicked when they are taught-in manually in the FDG14. CLR only needs a single click.

A direction pushbutton or universal pushbutton with identical ID and identical pushbutton can be taught in several times in different groups. The group last selected is always valid. Therefore, a pushbutton can either switch only one group or broadcast to all groups.

One FBH per group can also be taught in. With a manual teach-in this always acts dependent on brightness. With PCT14 you can also set the brightness threshold.

The delay time for switch-off after no motion is detected can be set together in minutes (1 ... 60) for the FBH devices of all groups. The default is 3 minutes.

Function rotary switches



Standard setting ex works.

FDG14	DALI gateway	EAN 4010312316085	90,10 €/pc.
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FDG71L-230V



Wireless DALI gateway, bidirectional. 2 watt standby loss.

Installation for example in suspended ceilings and lamps.
252 mm long, 46 mm wide and 31 mm high. With cable fixation.
Power supply 230 V at terminals N and L.

16 V DC/130 mA can be connected to the DALI terminals +/- for up to 64 DALI devices.
The gateway FDG71L controls DALI devices with EnOcean wireless transmitters.

Groups 0-15 can be controlled and the **broadcast command** can be sent. In addition **DALI scenes 0-15** can be recalled.

DALI installations, which are to be fully controlled with the FDG71L, must be configured in groups 0-15. The FDG71L internally saves the dimming value for each of the groups 0-15 and supplies this value as feedback. The same feedback telegrams are generated as for an FUD71.

The feedbacks of the device addresses correspond to the dimming values of the DALI groups 0-15 in ascending order.

Feedbacks can be converted by the PCT14 for each individual group of dimming value telegrams (%) to pushbutton telegrams (ON/OFF). Feedbacks can then control actuators.

The FDG71L fulfils the functions of the DALI master and the DALI power supply.

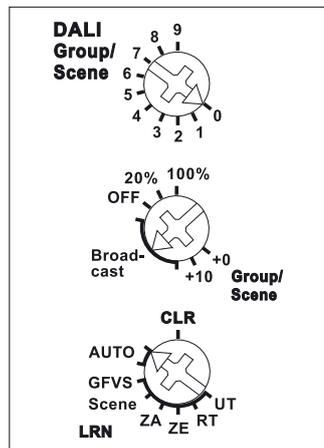
Important: Wireless pushbuttons always need to be double-clicked when they are taught-in manually in the FDG71L. CLR only needs a single click.

A direction pushbutton or universal pushbutton with identical ID and identical pushbutton can be taught in several times in different groups. The group last selected is always valid. Therefore, a pushbutton can either switch only one group or broadcast to all groups.

One FBH per group can also be taught in. With a manual teach-in this always acts dependent on brightness. With PCT14 you can also set the brightness threshold.

The delay time for switch-off after no motion is detected can be set together in minutes (1 ... 60) for the FBH devices of all groups. The default is 3 minutes.

Function rotary switches



Standard setting ex works.

Further settings can be made and actuators configured using the PC Tool PCT14 and the data transformer DAT71.

FDG71L-230V	Wireless DALI gateway	EAN 4010312317556	132,50 €/pc.
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4-15



DL-1CH-8A-DC12+

**1 channel DALI LED dimmer for luminary installation and flush-mounted box. 59x33x15 mm.
Protection class IP20. Only 0.12 watt standby loss.**

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, Sw&Dim or SwitchDim2: Operation via 1 or 2 pushbutton inputs permits brightness control without DALI; alternatively, corridor function for direct activation with a motion detector.

Dimming range 0.1%-100%. Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Supply voltage 12 V to 48 V DC.

Max. connected current 8 A.

High efficiency. Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The output channel is controlled by a DALI address (Device Type 6). Alternatively, operation can also take place by one (Sw&Dim) or two pushbutton inputs (SwitchDim2).

SwD1, Sw&Dim: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

If you press the SwD1 input for 2 minutes, the mode changes to 'Corridor function'. This operating mode remains enabled until the device is disconnected from the power supply (after PowerUp: operation via SwD1/SwD2).

Corridor function:

Mode with integrated staircase time switch (e.g. simple activation of one or several motion detectors by relay contact). When you press the input, the maximum value is switched on. After the input signal decays, the brightness remains at this value for the duration of the hold time before it drops down to the intermediate value. After the hold time for the intermediate value expires, brightness returns to the basic value. The process starts from the beginning when the input is re-activated.

The DALI Cockpit software can configure 1-channel LED dimmers. You can define both group assignment and configure scene values and DALI parameters (the parameters displayed are the as-delivered states).

As-delivered state:

Before the first address is assigned, you can control the device using the group address G0. This preset group assignment is deleted when addresses are assigned. Afterwards, you can define any group assignment in the DALI Cockpit. The values defined in the DALI standard are generated by sending a DALI reset command.

DL-1CH-8A-DC12+	1 channel DALI LED dimmer 8 A	EAN 4010312321515	88,20 €/pc.
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DL-1CH-16A-DC12+



1 channel DALI LED dimmer for ceiling installation. 120x30x22 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, Sw&Dim or SwitchDim2: Operating via 1 or 2 pushbutton inputs permits brightness control without DALI; alternatively, corridor function for direct activation with a motion detector.

Dimming range 0.1%-100%. Selectable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Supply voltage 12 V to 48 V DC.

Max. connected current 16 A.

High efficiency. Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The output channel is controlled by a DALI address (Device Type 6). Alternatively, it can also be operated by one (Sw&Dim) or two pushbutton inputs (SwitchDim2).

SwD1, Sw&Dim: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

If you press the SwD1 input for 2 minutes, the mode changes to 'Corridor function'. This operating mode remains enabled until the device is disconnected from the power supply (after PowerUp: operation via SwD1/SwD2).

Corridor function:

Mode with integrated staircase time switch (e.g. simple activation of one or several motion detectors by relay contact). When you press the input, the maximum value is switched on. After the input signal decays, the brightness remains at this value for the duration of the hold time before it drops down to the intermediate value. After the hold time for the intermediate value expires, brightness returns to the basic value. The process starts from the beginning when the input is re-activated.

The DALI Cockpit software can configure 1-channel LED dimmers. You can define both group assignment and configure scene values and DALI parameters (the parameters displayed are the as-delivered states).

As-delivered state:

Before the first address is assigned, you can control the device using the group address G0. This preset group assignment is deleted when addresses are assigned. Afterwards, you can define any group assignment in the DALI Cockpit. The values defined in the DALI standard are generated by sending a DALI reset command.

DL-1CH-16A-DC12+	1 channel DALI LED dimmer 16 A	EAN 4010312321522	102,90 €/pc.
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DL-1CH-R16A-DC12+

NEW

1 channel DALI LED dimmer for DIN-EN 60715 TH35 rail mounting. 98x17,5x56 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, Sw&Dim or SwitchDim2: Operation via 1 or 2 pushbutton inputs permits brightness control without DALI; alternatively, corridor function for direct activation with a motion detector.

Dimming range 0.1%-100%. Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Supply voltage 12 V to 48 V DC.

Max. connected current 16 A.

High efficiency. Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The output channel is controlled by a DALI address (Device Type 6). Alternatively, it can also be operated by one (Sw&Dim) or two pushbutton inputs (SwitchDim2).

SwD1, Sw&Dim: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

If you press the SwD1 input for 2 minutes, the mode changes to 'Corridor function'. This operating mode remains enabled until the device is disconnected from the power supply (after PowerUp: operation via SwD1/SwD2).

Corridor function:

Mode with integrated staircase time switch (e.g. simple activation of one or several motion detectors by relay contact). When you press the input, the maximum value is switched on. After the input signal decays, the brightness remains at this value for the duration of the hold time before it drops down to the intermediate value. After the hold time for the intermediate value expires, brightness returns to the basic value. The process starts from the beginning when the input is re-activated.

The DALI Cockpit software can configure 1-channel LED dimmers. You can define both group assignment and configure scene values and DALI parameters (the parameters displayed are the as-delivered states).

As-delivered state:

Before the first address is assigned, you can control the device using the group address G0. This preset group assignment is deleted when addresses are assigned. Afterwards, you can define any group assignment in the DALI Cockpit. The values defined in the DALI standard are generated by sending a DALI reset command.

DL-1CH-R16A-DC12+	1 channel DALI LED dimmer 16 A	EAN 4010312321584	102,90 €/pc.
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DL-TW-2LT-8A-DC12+

NEW

DALI LED dimmer for separate control of brightness and colour temperature. For luminary installation and flush-mounted box. 59x33x15 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT8: control brightness and colour temperature by a DALI address (Device Type 8, Colour Type Tc) operating mode Balance&Dim: activated via 2 DALI addresses, one to adjust brightness and one to set channel distribution (e.g. colour temperature).

Operating mode Dim2Warm: one DALI address to dim and to change the colour temperature at the same time. SwitchDim2: operation via 2 pushbutton inputs permits control of brightness and colour temperature without DALI.

Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power supply depending on type from 12 V to 28 V DC or 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 8 A. The maximum connected current can be distributed to any channel.

High efficiency. Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT8 (as-delivered state): in this mode a DALI address (Device Type 8, Colour Type Tc) is used to control brightness and colour temperature. Alternatively, operation can also take place by one or two pushbutton inputs (SwitchDim2).

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Colour temperature.

Balance&Dim: Control is by means of 2 DALI addresses (or SwitchDim2); one address is used for dimming and the other for channel distribution (i.e., e.g.: tunable white or direct/indirect lighting distribution).

The Balance&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-Tc mode.

Operable via DALI or SwitchDim2:

DALI address 1, SwD1: brightness.

DALI address 2, SwD2: Balance.

Dim2Warm: The two output channels are controlled by a DALI address or an SwD input. Channel distribution is permanently coupled to the dimming value. The smaller the dimming value, the warmer the light.

DALI address 1, SwD1: Dim2Warm (Master). Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

DL-TW-2LT-8A-DC12+	DALI LED dimmer 8 A tunable white	EAN 4010312321461	99,20 €/pc.
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DL-TW-2LT-R16A-DC12+

NEW

DALI LED dimmer for separate control of brightness and colour temperature. For DIN-EN 60715 TH35 rail mounting. 98x17,5x56 mm. Protection class IP20. Only 0.12 watt standby loss.

- Device with 2 DALI tunable white LED dimmers.
- Designed to control **constant voltage** LED modules for 12 V bis 48 V.
- 2 DALI addresses (Device Type 8, Colour Type Tc).
- Each DT8-Tc address permits the separate control of brightness and colour temperature.
- Dimming range 1%-100%.
- PWM frequency 488 Hz.
- Power voltage from 12 V to 48 V DC.
- Connected current from 16 A. The maximum connected current can be distributed as required.
- High efficiency >98%.
- Configuration via DALI Cockpit PC software and DALI USB interface.

Settings:

The device includes 2 DALI tunable white LED dimmers. A DALI address is used to control each dimmer. The addresses support DT8 commands (Colour Type Tc) to control brightness and colour temperature separately from each other.

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DL-TW-2LT-R16A-DC12+	DALI LED dimmer 16 A tunable white	EAN 4010312321485	161,70 €/pc.
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RGB DIMMER (DT8)



DL-RGB-8A-DC12+

NEW

DALI LED dimmer with RGB colour control for luminaire installation and flush-mounted box. 59x33x15 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT8: a DALI address to control brightness and colour DALI DT8, Type RGBWAF). Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: Operation via 2 switch inputs permit brightness and colour to be controlled without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power voltage 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 8 A. The maximum connected current can be distributed to the channels as required.

Low stand-by losses.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT8 (as-delivered state): In this operating mode brightness and colour are controlled by a DALI address (Device Type 8). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Colour.

Colour&Dim: This operating mode is used to control RGB luminaries. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2:

DALI address 1, SwD1: brightness.

DALI address 2, SwD2: Colour.

DL-RGB-8A-DC12+	DALI LED dimmer 8 A RGB	EAN 4010312321492	110,30 €/pc.
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DL-RGB-16A-DC12+

NEW

DALI LED dimmer with RGB colour control for ceiling installation. 120x30x22 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT8: a DALI address to control brightness and colour DALI DT8, Type RGBWAF). Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: Operation via 2 switch inputs permit brightness and colour to be controlled without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power voltage 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 16 A. The maximum connected current can be distributed to the channels as required.

Low stand-by losses.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT8 (as-delivered state): In this operating mode brightness and colour are controlled by a DALI address (Device Type 8). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Colour.

Colour&Dim: This operating mode is used to control RGB luminaries. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2:

DALI address 1, SwD1: brightness.

DALI address 2, SwD2: Colour.

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DL-RGB-16A-DC12+	DALI LED dimmer 16 A RGB	EAN 4010312321508	143,30 €/pc.
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DL-RGB-R16A-DC12+

NEW

DALI LED dimmer with RGB colour control for DIN-EN 60715 TH35 rail mounting. 98x17,5x56 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT8: a DALI address to control brightness and colour DALI DT8, Type RGBWAF). Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: Operation via 2 switch inputs permit brightness and colour to be controlled without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power voltage 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 16 A. The maximum connected current can be distributed to the channels as required.

Low stand-by losses.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT8 (as-delivered state): In this operating mode brightness and colour are controlled by a DALI address (Device Type 8). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Colour.

Colour&Dim: This operating mode is used to control RGB luminaries. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2:

DALI address 1, SwD1: brightness.

DALI address 2, SwD2: Colour.

DL-RGB-R16A-DC12+	DALI LED dimmer 16 A RGB	EAN 4010312321591	143,30 €/pc.
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DL-3CH-8A-DC12+

NEW

**3 channels DALI LED dimmer for luminary installation and flush-mounted box. 59x33x15 mm.
Protection class IP20. Only 0.12 watt standby loss.**

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT6: separate control of channels via 3 DALI addresses.

Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: operation via 2 pushbutton inputs permits control of brightness and colour without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power supply from 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 8 A. The maximum connected current can be distributed to any channel.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT6 (as-delivered state): In this operating mode each channel is controlled by a separate DALI address (Device Type 6). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

Colour&Dim: This operating mode is used to control RGB luminaries. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2: DALI address 1, SwD1: brightness. DALI address 2, SwD2: Colour.

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DL-3CH-8A-DC12+	3 channels DALI LED dimmer 8 A	EAN 4010312321546	99,20 €/pc.
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DL-3CH-16A-DC12+

NEW

3 channels DALI LED dimmer for ceiling installation 120x30x22 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to activate **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT6: separate control of channels via 3 DALI addresses.

Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: operation via 2 pushbutton inputs permits control of brightness and colour without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power supply from 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 16 A. The maximum connected current can be distributed to any channel.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT6 (as-delivered state): In this operating mode each channel is controlled by a separate DALI address (Device Type 6). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

Colour&Dim: This operating mode is used to control RGB luminaires. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2: DALI address 1, SwD1: brightness. DALI address 2, SwD2: Colour.

DL-3CH-16A-DC12+	3 channels DALI LED dimmer 16 A	EAN 4010312321539	113,90 €/pc.
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DL-3CH-R16A-DC12+

NEW

3 channels DALI LED dimmer for DIN-EN 60715 TH35 rail mounting. 98x17,5x56 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT6: separate control of channels via 3 DALI addresses.

Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: operation via 2 pushbutton inputs permits control of brightness and colour without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power supply from 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 16 A. The maximum connected current can be distributed to any channel.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT6 (as-delivered state): In this operating mode each channel is controlled by a separate DALI address (Device Type 6). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

Colour&Dim: This operating mode is used to control RGB luminaries. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2: DALI address 1, SwD1: brightness. DALI address 2, SwD2: Colour.

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DL-3CH-R16A-DC12+	3 channels DALI LED dimmer 16 A	EAN 4010312321607	113,90 €/pc.
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LED MULTI-CHANNEL DIMMER (DT6)



DL-4CH-8A-DC12+

NEW

**4 channels DALI LED dimmer for luminary installation and flush-mounted box. 59x33x15 mm.
Protection class IP20. Only 0.12 watt standby loss.**

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT6: separate control of channels via 4 DALI addresses.

Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: operation via 2 pushbutton inputs permits control of brightness and colour without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power supply from 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 8 A. The maximum connected current can be distributed to any channel.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT6 (as-delivered state): In this operating mode each channel is controlled by a separate DALI address (Device Type 6). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

Colour&Dim: This operating mode is used to control RGB luminaries. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2: DALI address 1, SwD1: brightness. DALI address 2, SwD2: Colour.

DL-4CH-8A-DC12+	4 channels DALI LED dimmer 8 A	EAN 4010312321553	110,30 €/pc.
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DL-4CH-16A-DC12+

NEW

4 channels DALI LED dimmer for ceiling installation 120x30x22 mm. Protection class IP20. Only 0.12 watt standby loss.

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT6: separate control of channels via 4 DALI addresses.

Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: operation via 2 pushbutton inputs permits control of brightness and colour without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power supply from 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 16 A. The maximum connected current can be distributed to any channel.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT6 (as-delivered state): In this operating mode each channel is controlled by a separate DALI address (Device Type 6). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly)

Colour&Dim: This operating mode is used to control RGB luminaires. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2: DALI address 1, SwD1: brightness. DALI address 2, SwD2: Colour.

DL-4CH-16A-DC12+	4 channels DALI LED dimmer 16 A	EAN 4010312321560	125,00 €/pc.
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DL-4CH-R16A-DC12+

NEW

**4 channels DALI LED dimmer for DIN-EN 60715 TH35 rail mounting. 98x17,5x56 mm.
Protection class IP20. Only 0.12 watt standby loss.**

Designed to control **constant voltage** LED modules (CV) at operating voltages of 12 V to 48 V, operating mode DT6: separate control of channels via 4 DALI addresses.

Operating mode Colour&Dim: activated by 2 DALI addresses, one to adjust brightness and one to set the colour.

SwitchDim2: operation via 2 pushbutton inputs permits control of brightness and colour without DALI. Dimming range 0.1%-100%.

Switchable PWM frequency (122 Hz/244 Hz/488 Hz/976 Hz).

Power supply from 12 V to 48 V DC (depending on operating voltage of LED modules).

Connected current 16 A. The maximum connected current can be distributed to any channel.

High efficiency.

Configuration via DALI Cockpit PC software and DALI USB interface.

Operating modes:

The device has several operating modes:

DT6 (as-delivered state): In this operating mode each channel is controlled by a separate DALI address (Device Type 6). Alternatively, operation can also take place by two pushbutton inputs (SwitchDim2):

SwD1: brightness. Press pushbutton briefly: On/Off. Press pushbutton long: Dim.

SwD2: Scene switch (press pushbutton briefly).

Colour&Dim: This operating mode is used to control RGB luminaries. Control is by means of 2 DALI addresses; one address affects brightness and the other affects channel distribution (e.g.: colour).

Colour&Dim mode is used to adjust colour temperature without affecting brightness and vice versa.

Adjustment is by means of DALI standard commands such as Dim Up/Down. This permits all customary controls and gateways (e.g. KNX). This control option is an alternative to DT8-RGBWAF mode.

Operable via DALI or SwitchDim2: DALI address 1, SwD1: brightness. DALI address 2, SwD2: Colour.

DL-4CH-R16A-DC12+	4 channels DALI LED dimmer 16 A	EAN 4010312321577	136,00 €/pc.
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DL-CTV

NEW

DALI control unit for controlling the circadian course of daylight of DT8-Tc capable luminaries. For luminary installation and flush-mounted box. 59x33x15 mm. Only 0.12 watt standby loss.

Device to control DALI-DT8 luminaries (Tc mode) with a daylight pattern adapted to biorhythm. DALI real time clock. Settable automatic summer/winter changeover.

Configurable: scene behaviour and brightness curve.

Set clock and simply adapt the required daylight pattern via DALI Cockpit software tool.

The DALI CDC module is powered directly over the DALI bus.

Internal battery for clock (as-delivered state set to local time (GMT+1)).

Function:

The DALI CDC sends the required colour temperature to the controlled area. A single address, a group address or a broadcast can be defined as the controlled area.

The basis for the colour temperature curve is defined by 24 reference points (one for every full hour).

The colour temperature curve is interpolated between the reference points.

The behaviour can be configured for every GOTO SCENE X command. The DALI CDC can switch to active or inactive or ignore the command. Scene behaviour is configurable for the device address, the controlled area and for broadcast control.

A brightness value can be defined for every reference point (as-delivered state: MASK -> no influence on brightness).

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DL-CTV	DALI control unit for controlling the circadian course of daylight	EAN 4010312321430	220,40 €/pc.
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DL-USB MINI



Interface for communication between PC programs and modules in the DALI lighting system. For luminaire installation and flush-mounted box. 59x33x15 mm. Protection class IP20.

Interface module for communication between a DALI system and PC applications. Bidirectional data traffic.

For addressing, configuration, status queries, parameter settings of DALI components.

Support for DALI standard and various extended DALI protocols. Monitoring DALI bus communication.

Galvanic isolation. Powered over the DALI bus and the USB interface.

DALI Cockpit PC software to configure and monitor a DALI system.

Double DALI terminals to loop the DALI bus connection.

DL-USB mini	DALI-USB Interface	EAN 4010312321447	305,00 €/pc.
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DL-FLASH-USB



Interface for communication between PC programs and modules in the DALI lighting system. For DIN-EN 60715 TH35 rail mounting. 98x17,5x56 mm. Protection class IP20.

Interface module for communication between a DALI system and PC applications.

Bidirectional data traffic.

For addressing, configuration, status queries, parameter settings of DALI components. Support for DALI

standard and various extended DALI protocols. Monitoring DALI bus communication.

Galvanic isolation. Powered over the DALI bus and the USB interface.

DALI Cockpit PC software to configure and monitor a DALI system.

Double DALI terminals to loop the DALI bus connection.

DL-Flash-USB	DALI-USB Interface	EAN 4010312321614	290,50 €/pc.
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DALI COCKPIT AND DALI-MONITOR

Software to commission DALI systems and monitor DALI bus communication.

The following functions are supported:

Addressing DALI systems, configuration of DALI components, configuration of standard DALI operating units, definition of groups and scenes, logging bus communication, sending DALI commands and saving/loading the entire system configuration.

The software requires a DALI USB interface module DL-USB mini or SL-Flash- USB.

DALI Cockpit and DALI-Monitor	Software	Download from the Eltako website
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TECHNICAL DATA DALI DEVICES

Type	DL-1CH-8A-DC12+, DL-TW-2LT-8A-DC12+, DL-RGB-8A-DC12+, DL-3CH-8A-DC12+, DL-4CH-8A-DC12+	DL-1CH-16A-DC12+, DL-TW-2LT-16A-DC12+, DL-RGB-16A-DC12+, DL-3CH-16A-DC12+, DL-4CH-16A-DC12+	DL-1CH-R16A-DC12+, DL-TW-2LT-R16A-DC12+, DL-RGB-R16A-DC12+, DL-3CH-R16A-DC12+, DL-4CH-R16A-DC12+	DL-USB-mini, DL-Flash-USB
Power supply	12 V DC-48 V DC	12 V DC-48 V DC	12 V DC-48 V DC	via USB
Connected current	8 A	16 A	16 A	-
DALI current consumption	2 mA	2 mA	2 mA	-
State after network recovery	adjustable via DALI: 0%-100%, final value	adjustable via DALI: 0%-100%, final value	adjustable via DALI: 0%-100%, final value	-
Expected service life (at Tc<=75°C)	>100000 h	>100000 h	>100000 h	-
Protection class	IP20	IP20	IP20	IP20
Max. wire cross section	1.5 mm ²	2.5 mm ² , DALI/Sw&Dim: 1.5 mm ² , DL-TW-2LT-: 1.5 mm ² , power supply (V+, V-): 2.5 mm ²	2.5 mm ² , DALI/Sw&Dim: 1.5 mm ² , DL-TW-2LT-: 1.5 mm ² , power supply (V+, V-): 2.5 mm ²	-
Housing/installation	Luminary installation and flush-mounted box	Ceiling installation	DIN rail DIN-EN 60715 TH35	DL-USB-mini: Flush-mounted box DL-Flash-USB: DIN rail IN-EN 60715 TH35

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**Safe IV
OnWall**



**THE FUTURE OF ELECTRICAL INSTALLATIONS
IN RESIDENTIAL BUILDINGS – THE BLUE
WIRELESS NETWORK IN THE BUILDING.**

The blue wireless network in the building with MiniSafe, MiniSafeREG, Safe IV, PowerSafe IV, Touch IV, wibutler pro and iPad docking stations

Eltako - The Wireless Building. The basis with sensors and actuators	5-2
Eltako - The Wireless Building for all	5-3
The blue wireless network in the building	5-4
The Professional Smart Home controller Safe IV with Wireless Building software GFVS 4.0	5-4
The Professional Smart Home controller and its assistants	5-5
Professional Smart Home controller Safe IV	5-6
Professional Smart Home controller PowerSafe IV	5-7
Wireless Building Visualisation and Control Software GFVS 4.0	5-8
Professional Smart Home controller Touch IV	5-9
Professional Smart Home controller MiniSafe	5-10
Professional Smart Home controller MiniSafe REG and switching power supply unit for MiniSafe REG HDR-30-5	5-11
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The Eltako wireless system works with the reliable and worldwide standardized EnOcean wireless technology in 868 MHz. It transmits ultra short and interference-proof signals with a range of up to 100 meters in halls. Eltako wireless pushbuttons reduce the electrosmog load since they emit high-frequency waves that are 100 times weaker than conventional light switches. There is also a significant reduction in low-frequency alternating fields since fewer power cables need to be installed in the building.

THE ELTAKO WIRELESS BUILDING IS THE WIRELESS NETWORK FOR BUILDINGS OF ANY SIZE.

5-2

The wireless pushbuttons, wireless sensors and wireless actuators from Eltako work perfectly together and control, regulate and switch all areas in the building. GFVS software and hardware for visualisation and control.

- If a GSM module FGSM14 is installed in the house, it can be monitored and controlled with the available free smartphone app as remote control, without a Smart Home controller and an internet connection being required. A data card with flat is included. Easy and reliable application with the **Eltako quickcon® technology**.
- An installed Smart Home controller SafeIV installed with the Wireless Building Visualisation and Control Software GFVS 4.0 provides extra functions and permits modern visualisation and control via tablet or smartphone over an internet connection and integrated wireless antenna module. Remote over smartphone including camera pictures.
- All pushbutton, sensor and actuator functions in the building are retained even if the Smart Home controller is down – e.g. for maintenance purposes.

Without **Eltako sensors and actuators** no information or control commands can be sent over the wireless network. They form the basis for the **Eltako Wireless Building** and of course they operate without a Smart Home controller if there is no requirement for centralised building monitoring, centralised building control or visualisation. Smartphone access is still possible for Series 14 actuators.

Eltako sensors for switch commands, temperature, brightness, motion, humidity and air quality run partly without external power supply.

Batteryless and cordless **Eltako wireless pushbuttons** and hand-held transmitters generate their own power requirements for wireless telegrams when operated. Many **Eltako sensors** generate their power requirements from a solar cell and save excess energy from

daylight to storage capacitors so that there is sufficient energy for troublefree functioning in the dark.

Some of these sensors and solar cells can be made 'winterproof' with additional batteries. Further Eltako sensors have a higher power requirement which they cannot generate themselves and therefore require an external power supply.

Eltako actuators are the backbone of the **Eltako Wireless Building**. They only evaluate directly addressed wireless telegrams in order to switch or control any number of consumers in the building. Many have a **bidirectional function**.

This allows them to send back their switch states to the Smart Home controller or displays or directly initiate other functions via actuators. In addition, these actuators may also function as repeaters. Of course there are specific actuators for either centralised or decentralised installation. If the **Eltako RS485 bus** is installed centrally with rail mounted devices in switch cabinets, a **wireless antenna module FAM14** is used to communicate with the actuators. The RS485 bus can also be used composite or without wireless by means of the **Eltako remote switch system FTS**.

The Eltako Wireless Building uses all Eltako wireless components in an ingenious way and can be installed even in small installations. The components are all downwards-compatible!

All sensors and actuators communicate within the Eltako wireless network by means of telegrams using the world-wide standard of the **EnOcean Alliance**. The batteryless and cordless wireless modules in the Eltako wireless pushbuttons are produced by **EnOcean** in Germany, the wireless microchips in the other sensors and actuators in Europe.

Eltako therefore develops and manufactures **all** the offered sensors and actuators with the Eltako logo. These are of course compatible with all products made by other manufacturers within the enormous international EnOcean family.

A SMALL SELECTION OF OUR WIRELESS SENSORS AND ACTUATORS



F4T65
Wireless push-button without battery or wire



F1FT65
Wireless flat pushbutton



FDT65B
Wireless rotary dimmer switch with batteries



FBH65SB
Motion/brightness sensor



FTR65SB
Temperature controller



FMHIW-wg/rot
Mini hand-held transmitter for calling systems



FFD
Remote control



FSR14-2x
Impulse switch

FUD14
Dimming actuator 400 W



FSR61NP
Switching actuator



FUD61NP
Dimming actuator without N

YOU CAN START SMALL WITH ELTAKO WIRELESS BUILDING.

An actuator with two batteryless and wireless pushbuttons is already a very elegant solution to the problem of missing pushbuttons. The old light switch is replaced by a wireless actuator preceded by a wireless pushbutton. Up to 32 other wireless pushbuttons can be fitted. Then of course, the wireless actuator can also be a wireless dimming actuator.

At the other end of the unlimited and wide spectrum of possibilities with the Eltako Wireless Building, there are networked skyscrapers with hundreds of wireless sensors and wireless actuators, in groups or grouped floor by floor, monitored, controlled and visualised by Smart Home controller Safe IV and installed software GFVS 4.0.

5-3

THE 3 STAGES ON THE ELTAKO WIRELESS BUILDING SUCCESS LADDER.

STAGE 1

A few wireless sensors and wireless actuators to improve or expand an existing installation. Generally with actuators installed decentrally.

STAGE 2

Several wireless sensors and wireless actuators to renovate an existing building or construct a new building but without centralised monitoring, control or visualisation. With actuators installed decentralised and centralised. Smartphone access by app and GSM module.

STAGE 3

Several wireless sensors and wireless actuators in a residential building with centralised monitoring, control or visualisation. With a Smart Home controller Safe IV with integrated wireless antenna module and installed software GFVS 4.0. Actuators mainly installed centrally and supplemented by decentralised installation. With internet access, standard external access to smartphones over the mobile radio network. Visualisation and control from tablet PCs and smartphones.



THE PROFESSIONAL SMART HOME CONTROLLER SAFE IV WITH WIRELESS BUILDING SOFTWARE GFVS 4.0

A building surveillance, control and visualisation system based on a Smart Home controller. Secure data management ²⁾ by means of Safe IV ³⁾ and the factory installed **Wireless Building Visualisation and Control Software GFVS 4.0** ⁴⁾.

Monitors and transmits wireless information independent of the size of the building or number of locations. **Integrated wireless antenna module** for smaller buildings. With internet access, standard access to smartphones over the mobile radio network.

Transmission of **electricity meter parameters** directly from the RS485 interface of the meter to the bus and then to the wireless network, if required.

¹⁾ The blue network. Derived from the Eltako corporate colour blue which is the symbolic colour for environmental protection and sustainability in numerous countries – e.g. in the USA.

²⁾ All data and events are saved to a database for a predefined period. A net storage capacity of up to 80 GB (Safe IV) resp. 200 GB (PowerSafe IV) is available for data. As protection against data loss, data is saved on a hard disc partition. In addition, data can be stored externally, e.g. on a USB stick.

³⁾ The Safe IV is a Smart Home controller of small design in the industry standard, which can be mounted anywhere. On the back of an intended VESA mounting MIS-D monitor with special screws. Otherwise fastening with slots with suspension opening at the rear.

⁴⁾ The Wireless Building Visualisation and Control Software GFVS visualises the switch positions of actuators and the consumption of connected meters for electricity, gas, water and heat. On the other hand, direct hook-ups and controls can be switched using preset software links. For this purpose all it takes is a click of a mouse or a touch on a tablet PC, smartphone or notebook. This hardware is not included, so it can be selected according to the personal needs of the user.

THE PROFESSIONAL SMART HOME CONTROLLER SAFE IV BLACK AND WHITE



VISUALISATION AND CONTROL WITH A TABLET PC AND SMARTPHONE



THE PROFESSIONAL SMART HOME CONTROLLER AND ITS ASSISTANTS

Like a spider in a web the Smart Home controller SafeIV 'feels' all 'vibrations' in the network. It detects every single wireless telegram within the entire building. This function is provided by the integrated **wireless antenna module**. Its range can be extended by installing repeaters or EnOcean access points.

There is more to the Smart Home controller and its assistants than listening, they can also send control commands and information over

the **Eltako wireless network**. For example, to control a building's energy supply, to supply fresh air, control shading elements optimally or switch lighting from a central point.

Reliable calculations show that optimised automatic building control is required to implement the **zero energy building** or even the **+energy building**.

5-5

THE PROFESSIONAL SMART HOME CONTROLLER SAFE IV BLACK AND WHITE



SWITCHING AND DIMMING ACTUATORS SERIES 61 AND 71, DECENTRALISED INSTALLATION



SWITCHING AND DIMMING ACTUATORS SERIES 14, FOR CENTRAL INSTALLATION





Safe IV, black



Safe IV, pure white



Safe IV



Smart Home controller Safe IV, 199 x 180 x 39 mm.

The Safe IV is a Smart Home controller of small design in the industry standard, which can be mounted anywhere. On the back of an intended VESA mounting MIS-D monitor with supplied screws. Otherwise fastening with slots with suspension opening at the rear.

The Linux operating system is installed as well as the Wireless Building Visualisation and Control Software GFVS 4.0. The wireless antenna module is integrated, a power supply is included. The Smart Home controller is locked for other applications. The power consumption is only 11 resp. 13 watts. For power supply a switching power supply unit 230 V/12 V DC is included.

All data and events are saved to a database for a predefined period. There is a net memory capacity of up to 80 GB available for data. As protection against data loss, data is saved on a hard disc partition. In addition, data can be stored externally, e.g. on an USB stick.

The installed Wireless Building Visualisation and Control Software GFVS 4.0 visualises the switch positions of actuators and the consumption of taught-in meters for electricity, gas, water and heat. On the other hand, direct hook-ups and controls can be made using preset software links. For this purpose all it takes is a click of a mouse or a touch on a tablet PC, smartphone or notebook. This hardware is not included, so it can be selected according to the personal needs of the user

TECHNICAL DATA	
CPU	Intel processor
RAM	4 GB
Hard disk	120 GB SSD
Wireless standards / frequencies	EnOcean 868 MHz, WLAN 2.4 GHz 802.11ac
Power supply	Power supply unit 100-240 V AC/12 V DC
Power consumption (max.)	11 Watt
Dimensions (H x W x D)	199 x 180 x 39 mm
Weight	ca. 1.1 kg

Safe IV-rw	Eltako Smart Home controller with software GFVS 4.0, pure white	EAN 4010312318287	1.029,00 €/pc.*
Safe IV-sz	Eltako Smart Home controller controller with software GFVS 4.0, black	EAN 4010312318805	1.029,00 €/pc.*



PowerSafe IV, pure white



PowerSafe IV



Smart Home controller PowerSafe IV, 199 x 180 x 39 mm.

The PowerSafe IV is a Smart Home controller of small design in the industry standard, which can be mounted anywhere. On the back of an intended VESA mounting MIS-D monitor with supplied screws. Otherwise fastening with slots with suspension opening at the rear.

The Linux operating system is installed as well as the Wireless Building Visualisation and Control Software GFVS 4.0. The wireless antenna module is integrated, a power supply is included. The Smart Home controller is locked for other applications.

The power consumption is only 35 resp. 37 watts. For power supply a switching power supply unit 230 V/12 V DC is included.

All data and events are saved to a database for a predefined period. There is a net memory capacity of up to 200 GB available for data. As protection against data loss, data is saved on a hard disc partition. In addition, data can be stored externally, e.g. on an USB stick.

The installed Wireless Building Visualisation and Control Software GFVS 4.0 visualises the switch positions of actuators and the consumption of taught-in meters for electricity, gas, water and heat. On the other hand, direct hook-ups and controls can be made using preset software links. For this purpose all it takes is a click of a mouse or a touch on a tablet PC, smartphone or notebook. This hardware is not included, so it can be selected according to the personal needs of the user.

For external communication, the PowerSafe IV can be equipped with a GSM modem. Recognisable by the third antenna for communication over the GSM mobile network.

Provided an internet access exists, it permits external access by smartphone and/or tablet PC for visualisation and control. This is free of charge on the building side. Very simple and secure registration using Eltako quickcon® technology. If no data card is fitted for the optional GSM modem, the Data Communication Pack GFVS-Comm is required to permit external access.

GSM is the Global System for Mobile Communications which is used for mobile radio (D and E networks in Germany) and to exchange data packets

TECHNICAL DATA	
CPU	Intel Core i7 Prozessor
RAM	8 GB
Hard disk	240 GB SSD
Wireless standards / frequencies	EnOcean 868 MHz, WLAN 2.4 GHz 802.11ac
Power supply	Power supply unit 100-240 V AC/12 V DC
Power consumption (max.)	35 watts without GSM modem, 37 watts with GSM modem
Dimensions (H x W x D)	199 x 180 x 39mm
Weight	ca. 1.1 kg

PowerSafe IV-rw	Smart Home controller with software GFVS 4.0, pure white	EAN 4010312318294	1.999,00 €/pc.*
GSM-Modem	GSM modem upgrade	EAN 4010312318836	154,50 €/pc.*



GFVS 4.0



Wireless Visualisation and Control Software GFVS 4.0. Included in the scope of supply of the Smart Home controller Safe IV, PowerSafe IV and Touch IV.

A wireless receiver for transmitting and receiving the wireless telegrams is already integrated in the Smart Home controllers Safe IV, PowerSafe IV and Touch IV.

For connecting tablets, smartphones or PC, access rights for 5 devices (clients) are included in delivery.

Free download of apps for tablets and smartphones from Google and Apple stores.

- two language system in German and English with simple switchover
- status feedbacks can be integrated from most actuators in Series 14, 61 and 71
- appealing operating apps for smartphone and tablet PC
- 5 clients included in the system scope of supply for direct control by smartphone, tablet and PC
- automatic data backup of the entire system, up to 3 backups can be saved
- recovery mode to restore system backups
- visualisation software with control functions for:
 - control and dim light on/off
 - control roller shutters/blinds/awnings
 - control temperature in individual rooms
 - light scenes
 - time-controlled astro functions
 - register and control by email
 - evaluate electricity meters via the energy cockpit with currency selection
 - surveillance functions with up to 5 cameras
 - hotline free of charge

PERFORMANCE FEATURES	GFVS 4.0
Number of supported sensors and energy meter transmitter modules	unlimited
Number of supported actuators	unlimited
Number of supported clients	5
Number of supported cameras up to a resolution of 1280 x 1024	5
Number of supported timers	unlimited
SQL database in scope of delivery	✓
Sends text messages/e-mails	✓
Voice control	✓
Supports Eitako apps	✓
256 bit encryption	✓



Touch IV, black glossy



Touch IV, pure white glossy

Touch IV



**Smart Home controller.
Switch on, configure and use!**

15.6" monitor PC Touch IV for continuous duty with integrated wireless antenna module and ready installed Wireless Visualisation and Control Software GFVS 4.0 for all the necessary sensors and actuators, 5 clients, 5 cameras and any number of sensors, actuators and timers. Smartphone link over WLAN. With stand for standalone installation or for mounting on the wall. The **VESA mount** for wall mounting can be ordered separately.

This monitor PC has a Linux operating system and is locked for other applications so GFVS 4.0 can work free of faults. Suitable for 24/7 non-stop operation. The scope of supply includes a mains adapter.

All data and events are saved to a database for a predefined period. There is a net memory capacity of up to 80 GB available for data. As protection against data loss, data is saved on a hard disc partition. In addition, data can be stored externally, e.g. on an USB stick.

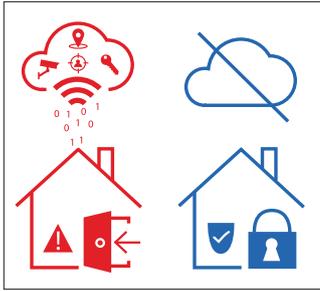
The installed Wireless Building Visualisation and Control Software GFVS 4.0 visualises the switch positions of actuators and the consumption of taught-in meters for electricity, gas, water and heat. On the other hand, direct hook-ups and controls can be made using preset software links. One touch is all that's needed.

Provided an internet access exists, it permits external access by smartphone and/or tablet PC for visualisation and control. This is free of charge on the building side. Very simple and secure registration using Eltako quickcon® technology

TECHNICAL DATA	
CPU	Intel processor
RAM	4 GB
Hard disk	120 GB SSD
Wireless standards / frequencies	EnOcean 868 MHz, WLAN 2,4 GHz 802.11ac
Monitor	39.6 cm (15.6") resistive touch screen
Power supply	Power supply unit 100-240 V AC/19 V DC
Power consumption (max.)	7 watts with monitor off, 12 watts with monitor on
Dimensions (H x W x D)	391 x 327 x 42 mm
Weight	approx. 3.6 kg

Touch IV-wg	Smart Home controller Touch PC with GFVS 4.0, pure white glossy	EAN 4010312318829	1.029,00 €/pc*
Touch IV-sz	Smart Home controller Touch PC with GFVS 4.0, black glossy	EAN 4010312318812	1.029,00 €/pc*
VESA Wandhalterung	For mounting TouchIV on the wall	EAN 4010312312629	35,80 €/pc.

PROFESSIONAL SMART HOME CONTROLLER MINISAFE



No cloud connection needed.
Data is available directly on site at
the Smart Home controller.

MiniSafe



The MiniSafe as Smart Home controller receives EnOcean signals from many Eltako sensors and actuators and permits highly encrypted access, both internally and externally, with the app GFA4 by smartphone or tablet. Smart Home controller.

MiniSafe connected to the local network via Ethernet. The intended use of the MiniSafe is the bidirectional communication with EnOcean wireless signals over Ethernet (TCP/IP).

Recommendation: maximum 30 actuators and sensors for approx. 10 seconds connection time between app and MiniSafe.

Scope of supply: MiniSafe, wall adapter power supply, 1x ethernet cable 2 m RJ45, quick start guide, instruction for downloading the app GFA4.

Specifications: Processor: Intel X1021, memory: 1GB DDR3 RAM + 4 GB eMMC, LAN: 1x 10/100 Mbit ethernet, integrated EnOcean-868 MHz wireless module (TCM310) ESP3, power supply 5 V, plastic housing pure white glossy, dimensions: 165x70x35 mm with slots for wall mounting and feet to put down, weight: 175 grams.

The configuration and control is performed via the app GFA4 from the Android app store or Apple app store.

MiniSafe	Smart Home controller	EAN 4010312319079	305,90 €/pc.*
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No cloud connection needed.
Data is available directly on site at the Smart Home controller.

MiniSafe REG



5-11

The MiniSafe REG as Smart Home controller receives EnOcean signals from many Eltako sensors and actuators and permits highly encrypted access, both internally and externally, with the Eltako Wireless Building app GFA4 by smartphone or tablet. Smart Home controller.

MiniSafe REG connected to the local network via Ethernet. The intended use of the MiniSafe REG is the bidirectional communication with EnOcean wireless signals over Ethernet (TCP/IP).

Recommendation: maximum 30 actuators and sensors for approx. 10 seconds connection time between app and MiniSafe.

Scope of supply: MiniSafe REG, wireless antenna, wall adapter power supply, 1x ethernet cable 2 m RJ45, 2x DIN rail adapters, quick start guide, instruction for downloading the app GFA4.

Specifications: Processor: Intel X1021, memory: 1GB DDR3 RAM + 4 GB eMMC, LAN: 1x 10/100 Mbit ethernet, integrated EnOcean-868 MHz wireless module (TCM310) ESP3, power supply 5 V, plastic housing gray RAL 7035, dimensions: 165 x 70 x 35 mm with slots for wall mounting and feet to put down, weight: 175 grams. The configuration and control is performed via the app GFA4 from the Android app store or Apple app store. The enclosed small antenna can be replaced with a wireless antenna FA250 with magnetic base and cable.

Can be mounted on an DIN rail DIN-EN 60715 TH35 with the DIN Rail adapters for the long holes, 10 pitches wide. Instead of the adapter plug, the DIN-rail power supply HDR-30-5 can be used. The special 5 V connection cable is already mounted.

MiniSafe REG	Smart Home controller	EAN 4010312319017	318,10 €/pc.*
FA250	Wireless antenna with 250 cm cable, black	EAN 4010312300244	23,90 €/pc.
FA250-gw	Wireless antenna with 250 cm cable, grey white	EAN 4010312317051	23,90 €/pc.
HDR-30-5	Power supply unit 5 V/15 W for MiniSafe REG	EAN 4010312318874	44,80 €/pc.

PROFESSIONAL SMART HOME CONTROLLER WIBUTLER PRO



wibutler pro Smart Home controller



wibutler app Eltako Edition

WP

wibutler pro Smart Home controller with app Eltako Edition. The wibutler pro-Home-Server is the Smart Home controller of a cross-trade home automation solution which is capable of connecting several wireless sensors and wireless actuators together. Offline mode is optional via a separate access point without any online connection. Encrypted communications. Smart Home server.

The scope of supply comprises a profile pushbutton F4PT.

The products are easy to start up using an app contained in the scope of supply. Simply download the app from the wibutler.com website for iOS and Android devices.

Technical specifications: Power supply: 12 V DC, 100 V-240 V AC, 50/60 Hz; wireless protocols: EnOcean/868,3 MHz, Z-Wave, ZigBee; WLAN; LAN: 1x Ethernet-RJ 45; hard disk: integrated 8 GB SSD; RAM: 1GB DDR3-RAM; processor: 1GHz CPU ARMADA 370 ARM v7; audio: integrated loudspeaker, 3.5 mm jack connector.

Size (L x W x H): 11.7 x 11.7 x 4.1 cm; colour: white.

WP	wibutler pro Smart Home controller	EAN 4010312317372	476,70 €/pc.*
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THE WIBUTLER CONCEPT

Wibutler is a manufacturer independent smart home solution to simplify people's everyday lives. The solution combines products of various manufacturers and needs only a single app for users to control, combine and automate all products. Using time and automation rules defined especially for this application, wibutler can assume tasks and act according to its owner's wishes.

wibutler pro

The core of the solution is the pro Smart Home controller wibutler. Thanks to multiple wireless standards (EnOcean, ZWave, ZigBee, WLAN), it is extremely compatible and is capable of networking products irrespective of the manufacturer. The Smart Home controller translates wireless standards as required and allows the networking of products of different standards, manufacturers and industries. The wibutler pro is especially safe when used in offline mode. No connection to the Internet is then required.

wibutler app Eltako Edition

It takes only a few clicks to network, automate and control smart products using the wibutler app Eltako Edition. The entire house is networked and controlled by a single app.

This is how it works:

- **Automation rules:** The wibutler organises devices to work in teams. Devices react by means of if/then rules to movements or actions such as the opening or closing of windows, doors or drawers.
- **Time control:** wibutler uses time rules to learn repetitive tasks which must be executed at particular times.
- **Remote control:** using wibutler via your smartphone or tablet when you're away from home to check the state of devices and appliances at home and change them to the state you want.
- **Consumption logs:** wibutler measures consumption and displays where are the greatest saving potential.
- **Profiles:** defined rules are assigned to profiles (e.g. , 'Home Day/ Night', 'Away' and 'Holiday'). With one click of a profile pushbutton you can change the entire house to the mode you require (e.g. 'Away': All OFF, alarm system and presence simulations ON).

EAP165



5-13

Gateway with ETHERNET interface to run with a Smart Home controller Safe or Touch together with the Wireless Building Visualisation and Control Software GFVS.

The EAP165 receives all wireless telegrams from the Eltako Wireless Building system from a building surface area of approx. 200 to 400 m² and forwards them via ETHERNET to the GFVS software. It also sends wireless telegrams from the software to the Eltako Wireless Building.

Scope of supply: EAP165, wall adapter power supply, interchangeable EnOcean antenna, 1x ethernet cable 2 m RJ45, quick start guide.

Specifications: Processor: Intel X1021, memory: 1 GB DDR3 RAM + 4 GB eMMC, LAN: 1x 10/100 Mbit Ethernet, integrated EnOcean-868 MHz wireless module (TCM310) ESP3, power supply 5 V, plastic housing gray RAL 7035, dimensions: 165 x 70 x 35 mm with slots for wall mounting and feet to put down, weight: 175 grams. Configuration is by means of the Eltako IP Configurator which is obtainable from <https://www.eltako.com/de/software.html>

EAP165	IP gateway	EAN 4010312319130	308,80 €/pc.*
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5-14

OnWall

NEW

Universal wall docking station with charging function for permanent horizontal installation of an Apple iPad with lightning connector. Surface mounting over a standard switch box. Aluminum frame. Slidable lightning connector. Smart power management to protect the battery. External power supply 100-240 V AC to USB included. Dimensions: 140,0 x 220,0 x 18,0 mm. If there is no mains voltage available at the installation site, but PoE, then the PoE to USB-A converter is also required.

OnWall	Universal wall docking station for all iPads, with charging function, natural aluminum	EAN 4010312323786	299,00 €/pc.
OnWall	Universal wall docking station for all iPads, with charging function, black anodized aluminum	EAN 4010312323793	299,00 €/pc.

InWall-10

NEW

In-wall docking station with charging function for permanent vertical or horizontal installation (lock: pre-installed) of an Apple iPad 10,2" or 10,5". In-wall installation box. Aluminium frame and glass cover in white or black. Smart power management to protect the battery. External power supply 100-240 V AC to USB included. Dimensions: 226,0 x 315,0 x 78,0 mm, flush-mounted dimensions: 215,0 x 305,0 x 78,0 mm. If there is no mains voltage available at the installation site, but PoE, then the PoE to USB-A converter is also required.

InWall-10	In-wall docking station for iPads 10,2" and 10,5" with charging function, natural aluminum with white glass cover	EAN 4010312323854	299,00 €/pc.
InWall-10	In-wall docking station for iPads 10,2" and 10,5" with charging function, black anodized aluminum with black glass cover	EAN 4010312323809	299,00 €/pc.

PoE to USB-A converter

NEW

Flush-mounted converter which converts PoE 48 V DC according to IEEE standard PoE (802.3af-2003) to USB-A socket with 5 V DC/15 W. Smart power management to protect the battery. If there is no mains voltage available at the installation site, but PoE, then the PoE to USB-A converter is also required.

PoE to USB-A converter	Flush-mounted converter for OnWall and InWall-10	EAN 4010312323861	104,10 €/pc.
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Exchange set lightning on USB-C

NEW

USB-C cable with adapter for exchanging lightning to USB-C.

Exchange set lightning on USB-C	USB-C cable for exchanging lightning on USB-C for OnWall and InWall-10	EAN 4010312323878	38,90 €/pc.
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**FUTH55D-
FBH65SB-
FFTB-**



ACTIVE WIRELESS SENSORS TEST THEIR AMBIENT VALUES CONTINUOUSLY AND SEND WIRELESS TELEGRAMS AUTOMATICALLY.

PASSIVE WIRELESS SENSORS SEND WIRELESS TELEGRAMS WHEN THEY ARE TRIGGERED MANUALLY.

Window contacts, temperature sensors, temperature controllers, motion/brightness sensors and other sensors.

Overview and informations window contacts	6-2
Overview and informations temperature controllers	6-3
Overview and informations temperature sensors	6-4
Overview and informations motion/brightness sensors	6-5
Overview and informations other active sensors	6-6
NEW Wireless multi sensors with STM 550	6-7
Wireless air quality+temperature+humidity sensor and wireless timer with display	6-8

WINDOW CONTACTS

	FFTE-rw BW3	FTKE-rw BW3	FFKB-	FTKB-	FFG7B- SV7x7x14	FTK-	FTKB-hg	FFGB-hg (EIMSIG)
	Wireless window touch contact with energy generator 	Wireless window/door contact with energy generator 	Wireless window/door contact with battery	Wireless window/door contact with solar cell and battery	Wireless window handle sensor with battery Pin extension SV7x7x14	Wireless window/door contact with solar cell 	Wireless window/door contact mTRONIC with battery	Wireless window contact + glass break sensor Eimsig with battery
PRODUCT PICTURE								
EAN	4010312319024 BW3: 4010312907641	4010312315231 BW3: 4010312907641	wg: 4010312321102 am: 4010312323663	wg: 4010313221621 am: 401031322352	rw: 4010312318638 am: 4010312322291 al: 4010312322031 SV7x7x14: 4010312908990	wg: 401031321638 ag: 401031305164 am: 401031321645	4010312318782	4010312322246
ARTICLE NO	30000450 BW3: 30000412	30000400 BW3: 30000412	wg: 30000423 am: 30000425	wg: 30000424 am: 30000474	rw: 30000443 am: 30000468 al: 30000460 SV7x7x14: 30000031	wg: 30000421 ag: 30000407 am: 30000452	30000449	30000473
COLOUR(S)	pure white	pure white	pure white glossy, anthracite mat	pure white glossy, anthracite mat	pure white, anthracite mat, coated/aluminium paint	pure white glossy, anthracite glossy, anthracite mat	light grey	light grey
DIMENSIONS	48x32x11,5 mm	48x32x11,5 mm	75x25x12 mm	75x25x12 mm	120x35x7 mm	75x25x12 mm	135x18x9 mm	135x26x9 mm
BATTERY	no	no	yes	yes	yes	no	yes	yes
SOLAR CELLS	no	no	no	yes	no	yes	no	no
ASSEMBLY	gluing, screwing or with mounting brackets BW3	gluing, screwing or with mounting brackets BW3	gluing	gluing	insert behind the window handle	gluing	screwing (between frame and sash)	screwing (between frame and sash)
LIST PRICE WITHOUT VAT.	54.10 € BW3: 3.40 €	54.10 € BW3: 3.40 €	wg: 58.40 € am: 70.00 €	wg: 60.20 € am: 71.90 €	rw: 65.10 € am: 76.80 € al: 73.10 € SV7x7x14: 12.50 €	wg: 75.00 € ag: 77.10 € am: 87.90 €	93.10 €	153.50 €

	ORG (hex) 0x05 0xF0 = closed 0xE0 = open	ORG (hex) 0x05 0xF0 = closed 0xE0 = open	D5-00-01	D5-00-01	A5-14-09 F6-10-00	D5-00-01	A5-14-0A = burglary alarm	A5-14-01 = open/closed A5-14-09 = open/closed/ tilted A5-14-0A = burglary alarm A5-14-07 = Bolt switch contact front door A5-14-09 = Bolt switch contact front door and burglary alarm
ENOCEAN SENSOR TELEGRAMS (EEP)								
OPEN/CLOSED	✓	✓	✓	✓	✓	✓	✓	✓
OPEN/TILTED/CLOSED	✗	✗	✗	✗	✓	✗	✓	✓
GLASS BREAK	✗	✗	✗	✗	✗	✗	✗	✓
KNX GATEWAY ENO 626 + 636	✓	✓	✓	✓	✓	✓	✓	✓
MINISAFE	✓	✓	✓	✓	✓	✓	✓	✓
SAFE	✓	✓	✓	✓	✓	✓	✓	✓
WIBUTLER	✓	✓	✓	✓	only with EEP F6-10-00	✓	✓	✓
MEDIOLA MV6MINI	✓	✓	✓	✓	✓	✓	✓	✓

6-2

TEMPERATURE CONTROLLERS

	FTR65HB-wg	FTR65SB-wg	FTAF55D/ 230V-wg	FUTH65D/ 230V-wg	FUTH55D/ 12-24V UC-wg	FTR65HS/ 12V DC-wg	FTR86B-ws	FTR65DSB-wg	FTR78S-wg
	Wireless temperature controller with hand wheel and battery	Wireless temperature controller with hand wheel, 2 solar cells and battery	Wireless temperature controller Air+Floor	Wireless thermo clock/hygrostat	Wireless thermo clock/hygrostat	Wireless temperature controller with hand wheel and solar cell	Wireless temperature controller with display and battery	Wireless temperature controller with display and 2 solar cells	Wireless temperature controller with rotary wheel and battery
PRODUCT PICTURE									
EAN	4010312317594	4010312319178	4010312322215	4010312321300	4010312321294	4010312320136	4010312318423	4010312319338	4010312316030
ARTICLE NO	30065480	30065496	30055747	30065742	30000435	30065666	30000439	30065497	30000401
COLOUR(S)	pure white glossy	pure white glossy	pure white glossy	pure white glossy	pure white glossy	pure white glossy	white	pure white glossy	pure white glossy
DIMENSIONS	84x84x27 mm	84x84x27 mm	80x80x14 mm	84x84x14 mm	80x80x14 mm	84x84x36 mm	86x86x35 mm	84x84x22 mm	78x83x13 mm
BATTERY	yes	yes	no	no	no	no	yes	yes	yes
SOLAR CELLS	no	yes	no	no	no	yes	no	yes	yes
EXTERNAL POWER SUPPLY	no	no	yes	yes	yes	yes	no	12 V DC alternative to battery supply	no
ASSEMBLY	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box
LIST PRICE WITHOUT VAT.	70.90 €	76.00 €	82.40 €	85.10 €	85.10 €	94.50 €	95.90 €	97.50 €	130.10 €

6-3

ALTERNATIVE E-DESIGN55	FTR55HB-wg (pure white glossy) FTR55HB-am (anthracite mat) 80x80x27 mm wg: 70.90 € am: 83.90 €	FTR55SB-wg 80x80x27 mm 76.00 €		FUTH55D/230V-wg (pure white glossy) FUTH55D/230V-am (anthracite mat) 80x80x14 mm wg: 84.80 € am: 98.60 €	FUTH55D/12-24V UC-am (anthracite mat) 80x80x14 mm 98.60 €			FTR55DSB-wg 80x80x22 mm 97.50 €	
EAN	4010312317921 4010312322307	4010312321065		4010312318003 4010312322345	4010312322369			4010312319345	
ARTICLE NO	wg: 30000556 am: 30000566	30000558		wg: 30000432 am: 30000476	30000477			30000560	

ENOCEAN SENSOR TELEGRAMS (EEP)	A5-38-08 and A5-10-06	A5-38-08 and A5-10-06	A5-10-06 Plus DATA_BYTE3	A5-10-06 and A5-10-12	A5-10-06 and A5-10-12	A5-10-06 Plus DATA_BYTE3	A5-10-06	A5-38-08 and A5-10-06	A5-10-03
TEMPERATURE	✓	✓	✓	✓	✓	✓	✓	✓	✓
HUMIDITY	✗	✗	✓	✓	✓	✗	✗	✗	✗
OTHER			Air+Floor, temperature sensor for monitoring the floor temperature can be connected	Timer	Timer				

KNX GATEWAY ENO 626 + 636	✓	✓	✓	✓	✓	✓	✓	✓	✓
MINISAFE	✓	✓	✓	✓	✓	✓	✓	✓	✗
SAFE	✓	✓	✓	✓	✓	✓	✓	✓	✓
WIBUTLER	✓	✓	✓	✓	✓	✓	✓	✓	✓
MEDIOLA MV6MINI	✓	✓	✓	✓	✓	✓	✓	✓	✓

TEMPERATURE SENSORS

	FFT65B-wg	FTFB-	FTFSB-	FFT60SB	FC02TF65-wg	FLGTF65-230V-wg	FTF65S/ 12V DC-wg	FBH65TF/ 12V DC-wg
	Wireless humidity temperature sensor with battery	Wireless temperature+ humidity sensor with battery	Wireless temperature+ humidity sensor with solar cell and battery	Wireless humidity temperature sensor in- and outdoors with solar cell and battery	Wireless indoor CO ₂ +temperature+ humidity sensor	Wireless air quality+ temperature+ humidity sensor	Wireless temperature sensor	Wireless sensor motion + brightness + temperature + humidity
PRODUCT PICTURE								
EAN	4010312317587	4010312319147 4010312323670	4010312320853 4010312322406	4010312320945	4010312315880	4010312321041	4010312320129	4010312320112
ARTICLE NO	30065475	wg: 30000559 am: 30000429	wg: 30000563 am: 30000475	30000461	30065277	30065520	30065536	30065986
COLOUR(S)	pure white glossy	pure white glossy, anthracite mat	pure white glossy, anthracite mat	pure white	pure white glossy	pure white glossy	pure white glossy	pure white glossy
DIMENSIONS	84x84x17 mm	75x25x12 mm	75x25x12 mm	60x46x30 mm	84x84x29 mm	84x84x17/33 mm	84x84x30 mm	84x84x39 mm
BATTERY	yes	yes	yes	yes	no	no	no	no
SOLAR CELLS	no	no	yes	yes	no	no	yes	no
EXTERNAL POWER SUPPLY	no	no	no	no	with 12 V DC power supply unit	Supply voltage 230 V	with 12 V DC power supply unit	with 12 V DC power supply unit
ASSEMBLY	Surface mounted or over a wall box	single mounting	single mounting	single mounting	over a wall box	over a wall box	over a wall box	over a wall box
LIST PRICE WITHOUT VAT.	59.90 €	wg: 61.70 € am: 72.90 €	wg: 70.80 € am: 80.00 €	72.00 €	199.90€	84.00 €	92.60 €	109.90 €

ALTERNATIVE E-DESIGN55	FFT55B-wg 80x80x17 mm 59.90 €					FLGTF55-230V-wg 80x80x17/33 mm 84.00 €		
EAN	4010312321010					4010312321058		
ARTICLE NO	30055475					30055520		

	A5-04-02 or A5-04-03	A5-04-02 or A5-04-03	A5-04-02 or A5-04-03	A5-04-02 or A5-04-03	A5-09-04	A5-09-0C und A5-04-02	A5-02-05	A5-08-01 Exceptions by Eltako A5-04-02
ENOCEAN SENSOR TELEGRAMS (EEP)								
TEMPERATURE	✓	✓	✓	✓	✓	✓	✓	✓
HUMIDITY	✓	✓	✓	✓	✓	✓	✗	✓
OTHER					CO ₂	air quality		motion, brightness

KNX GATEWAY ENO 626 + 636	✓	✓	✓	✓	✓	✓	✓	✓
MINISAFE	✓	✓	✓	✓	✗	✓ (without air quality)	✓	✓
SAFE	✓	✓	✓	✓	✓	✓	✓	✓
WIBUTLER	✓	✓	✓	✓	✗	✓	✓	✓
MEDIOLA MV6MINI	✓	✓	✓	✓	in preparation	✓	✓	✓

6-4

MOTION/BRIGHTNESS SENSORS

	FHD60SB	FB65B-wg	FHD65SB-wg	FBH65SB-wg	FBH65/ 12V DC-wg	FABH65S-wg	FBH65TF/ 12V DC-wg	FBH65S/ 12V DC-wg	FABH130/ 230V-rw
	Wireless bright-ness twilight sensor in- and outdoors with solar cells and battery	Wireless motion sensor with battery	Wireless bright-ness sensor for ceiling mounting with 2 solar cells and battery	Wireless motion/ brightness sensor with 2 solar cells and battery	Wireless motion/ brightness sensor	Wireless outdoor motion/bright-ness sensor 	Wireless motion/ brightness sensor with temperature and humidity sensor	Wireless motion/ brightness sensor	Wireless outdoor motion/bright-ness sensor
PRODUCT PICTURE									
EAN	4010312320952	4010312317570	4010312320143	4010312317914	4010312320099	4010312315798	4010312320112	4010312320105	4010312317617
ARTICLE NO	30000462	30065470	30065305	30065856	30065466	30065852	30065986	30065860	30000466
COLOUR(S)	pure white	pure white glossy	pure white glossy	pure white glossy	pure white glossy	pure white glossy	pure white glossy	pure white glossy	pure white
DIMENSIONS	60x46x30 mm	84x84x25 mm	84x84x39 mm	84x84x39 mm	84x84x39 mm	84x84x39 mm	84x84x39 mm	84x84x39 mm	130x85x100 mm
BATTERY	yes	yes	yes	yes	no	no	no	no	no
SOLAR CELLS	yes	no	yes	yes	no	yes	no	yes	no
EXTERNAL POWER SUPPLY	no	no	no	no	yes	no	yes	yes	yes
ASSEMBLY	Surface mounted	Surface mounted or over a wall box	ceiling mounting	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted or over a wall box	Surface mounted
PROTECTION CLASS	IP54					IP54			IP55
LIST PRICE WITHOUT VAT.	66.90 €	75.80 €	86.10 €	90.90 €	96.10 €	102.90 €	109.90 €	113.30 €	127.00 €

6-5

ALTERNATIVE E-DESIGN55		FB55B-wg (pure white glossy), FB55B-am (anthracite mat) 80x80x27 mm wg: 75.80 € am: 81.00 €		FBH55SB-wg 80x80x27 mm 90.90 €					
EAN		4010312321003 4010312322321		4010312318355					
ARTICLE NO		wg: 30055512 am: 30055513		30000514					

ENOCEAN SENSOR TELEGRAMS (EEP)	A5-06-01 or A5-38-08	A5-07-01	A5-06-02 Exceptions by Eltako	A5-07-01 oder A5-08-01	A5-08-01 Exceptions by Eltako	ORG = 0x05 Data_byte3 = 0x70 = motion 0x00 = no motion			
BRIGHTNESS	✓	✗	✓	✓	✓	✓	✓	✓	✓
MOTION	✗	✓	✗	✓	✓	✓	✓	✓	✓

KNX GATEWAY ENO 626 + 636	✓	✓	✓	✓	✓	✓	✓	✓	✓ (as pushbutton)
MINISAFE	✓	✓	✗	✓	✓	✓	✓	✓	✓ (as pushbutton)
SAFE	✓	✓	✓	✓	✓	✓	✓	✓	✓ (as pushbutton)
WIBUTLER	✓	✓	✗	✓	✓	✓	✓	✓	✓ (as pushbutton)
MEDIOLA MV6MINI	✓	✓	✓	✓	✓	✓	✓	✓	✓ (as pushbutton)

Recommended retail prices excluding VAT.

OTHER ACTIVE SENSORS

	AIR	FWS60	FWS81	FRW-ws	FRWB-rw	FHMB-rw	FKS-E	FKS-H	FKS-SV	MS
	IR scanner for energy meters data gateway	Water sensor for connection to the wireless transmitter module FSM60B	Wireless water sensor 	Wireless smoke detector, optical	Wireless smoke detector with battery	Wireless heat detector	Wireless small actuator	SmartDrive MX Wireless small actuator	Wireless small actuator Smart Valve 	Multi sensor
PRODUCT PICTURE										
EAN	4010312316153	4010312316108	4010312316061	4010312312308	4010312321027	4010312321034	4010312316047	4010312321072	4010312319857	4010312901731
ARTICLE NO	30000970	30000463	30000409	30000053	30000054	30000056	30000411	30000073	30000413	20000084
COLOUR(S)	black	pure white	white	white	pure white	pure white	white	white	silber	opaque
DIMENSIONS	Ø32 mm, height 20 mm, length without cable 45 mm, cable length 0.75 m	60x46x30 mm	88x50x30 mm	Ø100x55 mm	Ø86 mm, 48 mm	Ø86 mm, 48 mm	65x65x48 mm		62x63x60 mm	118x96x77 mm
BATTERY	no	no	no	yes, 9 V	yes, 3.6 V	yes, 3.6 V	yes	yes	no	no
SOLAR CELLS	no	no	no	no	yes	yes	no	no	no	no
EXTERNAL POWER SUPPLY	yes, via RS232	yes	no	no	no	no	no	no	no	yes
ASSEMBLY	Magnetic infrared optical head	put down	put down	ceiling	ceiling	ceiling	on radiators	on radiators	on radiators	outdoor IP44
DISPLAY	no	no	no	no	no	no	no	yes	no	no
LIST PRICE WITHOUT VAT.	99.80 €	25.20 €	119.10 €	112.70 €	112.70 €	112.70 €	122.20 €	146.10 €	134.60 €	251.50 €

INFO										
Connection unit between the infrared interface of the meter and the serial input of the FSD014 data gateway (Article no. 30014066, 46.50 €)	an FSM60B transmitter module is also required (Article no. 30000463, 61.40 €)	with swelling discs and energy generator	Detectomat HDv30000S, max. Monitoring area 60 m ² up to 6 m height				Connection: M30x1.5 thread	Connection: M30x1.5 thread	Connection: M30x1.5 thread	In addition, a power supply unit SNT61-230V/24V DC-0.25A (article no. 61000165, 49.60 €) and the weather data transmission module FWS61-24V (article no. 30000305, 67.10 €) are required

ENOCEAN SENSOR TELEGRAMS (EEP)	A5-12-01	from the FSM60B: Operating mode 1 = radio telegrams like 'press double rocker bottom left' of a radio button Operating mode 2 = radio telegrams like 'double rocker press top right and bottom right' of a radio button Operating mode 3 = A5-30-03 Operating mode 4 = A5-30-01	ORG = 0x05 Data_byte3 = 0x11, status 0x30 = water = 0x11, status 0x20 = no water	ORG = 0x05 Data_byte3 = 0x10 = alarm 0x00 = alarm end 0x30 = battery voltage < 7.2 V	A5-30-03	A5-30-03	A5-20-01	A5-20-04	A5-20-01	A5-13-01 and -02

KNX GATEWAY ENO 626 + 636	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MINISAFE	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓
SAFE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WIBUTLER	✓	✗	✓	✓	✗	✓	✗	✓	✗	✓
MEDIOLA MV6MINI	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓

Recommended retail prices excluding VAT.

THE NEW MULTI TALENTS

The wireless multi-sensors combine **temperature, humidity, lighting, acceleration and magnetic contact sensors** in a single device. They send all data to the Eltako wireless building via EnOcean radio. With an unprecedented range of functions, we deliver in our proven designs E-Design65, E-Design55, 55 switch system and even as a wireless mini multi-sensor that can be placed anywhere thanks to its compact size.

The integrated solar cell generates the required energy from the ambient light indoors. This energy is stored internally so that the multisensors can function without light for several days. If necessary, the required energy can also be provided by a battery. They have an NFC interface, with which they can be configured using an NFC reader, smartphone or tablet.



FMMS44SB

NEW

Wireless mini multi sensor pure white glossy 44 x 44 x 16 mm. With integrated solar cell and battery CR1632 (not included in the scope of supply). Smart Home Sensor.

FMMS44SB	Wireless mini multi sensor, pure white glossy	EAN 4010312321676	91,60 €/pc.
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FMS55SB

NEW

Wireless multi sensor pure white glossy for single mounting 80 x 80 x 14 mm or mounting in the 55 mm switch system. With integrated solar cell and battery CR1632 (not included in the scope of supply). Smart Home Sensor.

FMS55SB	Wireless multi sensor, pure white glossy	EAN 4010312320259	101,60 €/pc.
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FMS55ESB

NEW

Wireless multi sensor pure white glossy for single mounting 80 x 80 x 14 mm or mounting into the E-Design55 switching system. With integrated solar cell and battery CR1632 (not included in the scope of supply). Smart Home Sensor.

FMS55ESB	Wireless multi sensor, pure white glossy	EAN 4010312321799	101,60 €/pc.
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FMS65ESB

NEW

Wireless multi sensor pure white glossy for single mounting 84 x 84 x 14 mm or mounting into the E-Design65 switching system. With integrated solar cell and battery CR1632 (not included in the scope of supply). Smart Home Sensor.

FMS65ESB	Wireless multi sensor, pure white glossy	EAN 4010312320761	101,60 €/pc.
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In the delivery state, EEP: D2-14-41 is active for all multi-sensors and contains the data from all sensors. The parameters of the sensors can be changed and individual EEPs selected via the NFC interface: A5-04-03, A5-02-05, A5-06-02, A5-06-03, A5-14-05 or D2-00-01.

WIRELESS AIR QUALITY+TEMPERATURE+HUMIDITY SENSOR AND WIRELESS TIMER WITH DISPLAY



FLGTF55-wg

Wireless air quality+temperature+humidity sensor pure white glossy for single mounting 80x80x17/33 mm or mounting into the E-design55 switching system. With LED display to signal room air quality. With additional alert tone. Power supply 230 V. Stand-by loss only 0.6 watt. Smart Home sensor.

The wireless sensor can be taught in the actuators listed below and in the Wireless Building Visualisation and Control Software: F4HK14, FGM, FHK14, FHK61, FLC61, FSG14, FSG71, FSR14, FSR61, FSR71, FTN14, FTN61, FUD14, FUD61, FUD71, FZK14, FZK61

FLGTF55-wg	Wireless air quality+temperature+humidity, sensor pure white glossy	EAN 401031321058	84,00 €/pc.
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FSU55D/230V-wg

Wireless timer with display and with 8 channels pure white glossy for single mounting 80 x 80 x 14 mm or mounting into the E-design55 switching system. Installation depth 33 mm. With 'astro' function and solstice time changes. Illuminated display. Power supply 230 V. Only 0.5 watt standby loss. Smart Home sensor.

The wireless sensor can be taught in the actuators listed below and in the Wireless Building Visualisation and Control Software: All actuators except FZK14, FZK61 and FUTH65D.

FSU55D/230V-wg	Wireless timer with display, pure white glossy	EAN 4010312318010	79,40 €/pc.
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FSU55D/12-24V UC-wg

Wireless timer with display and with 8 channels pure white glossy for single mounting 80 x 80 x 14 mm or mounting into the E-design55 switching system. Installation depth 33 mm. With 'astro' function and solstice time changes. Illuminated display. Power supply 12-24 V UC. Only 0.3 watt standby loss. Smart Home sensor.

The wireless sensor can be taught in the actuators listed below and in the Wireless Building Visualisation and Control Software: All actuators except FZK14, FZK61 and FUTH65D.

FSU55D/12-24V UC-wg	Wireless timer with display, pure white glossy	EAN 4010312321317	80,10 €/pc.
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FLGTF65-wg

Wireless air quality+temperature+humidity sensor, pure white glossy, for single mounting 84 x 84 x 17/33 mm or installation in the E-Design65 switching system. With LED display to signal room air quality. With additional alert tone. Power supply 230 V. Stand-by loss only 0.6 watt. Smart Home sensor.

The wireless sensor can be taught in the actuators listed below and in the Wireless Building Visualisation and Control Software: F4HK14, FGM, FHK14, FHK61, FLC61, FSG14, FSG71, FSR14, FSR61, FSR71, FTN14, FTN61, FUD14, FUD61, FUD71, FZK14, FZK61

FLGTF65-wg	Wireless air quality+temperature+humidity sensor, pure white glossy	EAN 401031321041	84,00 €/pc.
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FSU65D/230V-wg

Wireless timer with display and 8 channels pure white glossy for single mounting 84 x 84 x 14 mm or mounting into the E-design65 switching system. Installation depth 33 mm. With 'astro' function and solstice time changes. Illuminated display. Power supply 230 V. Only 0.5 watt standby loss. Smart Home sensor.

The wireless sensor can be taught in the actuators listed below and in the Wireless Building Visualisation and Control Software: All actuators except FZK14, FZK61 and FUTH65D

FSU65D/230V-wg	Timer with display, pure white glossy	EAN 4010312317709	79,40 €/pc.
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FSU65D/12-24V UC-wg

Wireless timer with display and 8 channels pure white glossy for single mounting 84 x 84 x 14 mm or mounting into the E-design65 switching system. Installation depth 33 mm. With 'astro' function and solstice time changes. Illuminated display. Power supply 12-24 V UC. Only 0.3 watt standby loss. Smart Home sensor.

The wireless sensor can be taught in the actuators listed below and in the Wireless Building Visualisation and Control Software: All actuators except FZK14, FZK61 and FUTH65D

FSU65D/12-24V UC-wg	Timer with display, pure white glossy	EAN 4010312321324	80,10 €/pc.
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**F1T55E-
F4T65-
DSS55E+
USBA+C**



7 PUSHBUTTONS, FRAMES, GERMAN SOCKETS (TYPE F) AND BLIND COVERS FOR E-DESIGN65, E-DESIGN55 AND 55 MM SWITCH SYSTEM. WIRELESS HAND-HELD TRANSMITTERS AND REMOTE CONTROLS.

The Eltako wireless pushbutton range

Pushbuttons, Frames, German sockets (TypE F) and blind covers for E-Design65, E-Design55 and 55 mm switch system	7-2
Passive wireless sensors E-Design55	7-4
Passive wireless sensors E-Design65	7-8
Passive wireless sensors E-Design65 flat	7-9
Passive wireless sensors 55 mm switch system	7-10
Wireless pushbutton inserts EnOcean and Bluetooth	7-13
Passive wireless sensors others, hand-held transmitters and remote controls	7-13
Frames E-Design55	7-15
Frames E-Design55, E-Design65 and 55 mm switching system	7-16
Frames 55 mm switching system and blind covers	7-17
German sockets (TypE F), covers and desktop base	7-18
Rockers and double rockers laser engraved	7-20
Overview pictograms for laser engravings	7-23

PUSHBUTTONS, FRAMES, GERMAN SOCKETS (TYPE F) AND BLIND COVERS FOR E-DESIGN65, E-DESIGN55 AND 55 MM SWITCH SYSTEM

A complete range of passive wireless sensors from a single source in three attractive designs.

Eltako supplies a modern range in several attractive designs, from battery-free and wireless EnOcean wireless buttons to wireless EnOcean wireless buttons with battery and bus buttons to wired buttons.

It goes without saying that frames are part of this range, along with a wide variety of covers and sockets with matching tops.

The success of the classic style of the 55 mm switch system was followed by its logical continuation – the E-Design65 (84x84 mm) and the development of the E-Design55 (80x80 mm).

7-2

55 mm switch system



Frames 80 x 80 mm
Pushbutton 55 x 55 mm



15 mm high

E-Design65



Frames 84 x 84 mm
Pushbutton 63 x 63 mm



16 mm high



Flat frames 84x84 mm, 11 mm high

E-Design55



Frames 80 x 80 mm
Pushbutton 55 x 55 mm



15 mm high

Colours



-al
coated/aluminium
paint



-ag
anthracite glossy



-am
anthracite mat
sand blasted



-an
anthracite



-gw
glossy white



-wg
pure white glossy



-ws
white



-rw
pure white



-sg
black glossy

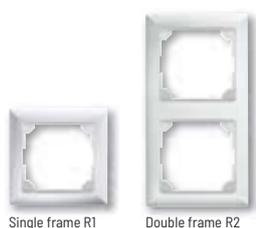
Touching design

Thanks to their wireless technology, Eltako wireless pushbuttons are easy to attach on walls, glass or furniture – wherever you need them. Of course, also over flush-mounted switch boxes.

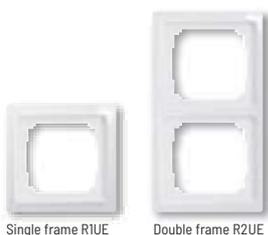
Attractive, functional styles

Universal frames can be fitted vertically or horizontally. A 1-way frame is included in the delivery of the sensors unless otherwise stated.

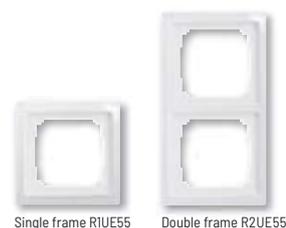
55 mm switch system universal frames



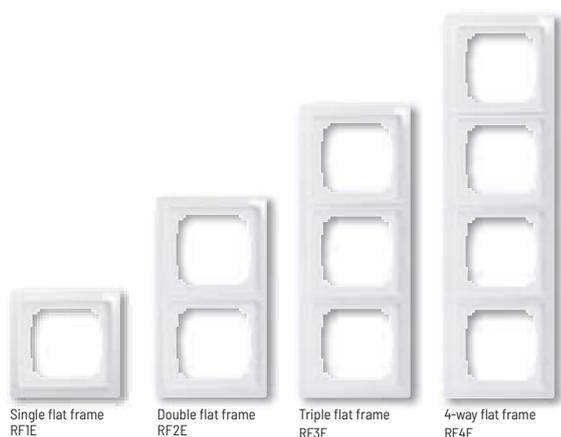
E-Design65 universal frames



E-Design55 universal frames



E-Design65 universal flat frames



PASSIVE WIRELESS SENSORS E-DESIGN55

		NEW	FET55E-wg	Wireless elbow pushbutton without battery or wire, pure white glossy	EAN 4010312322505	70,00 €/pc.
		NEW	FNS55EB-wg	Wireless proximity sensor with battery, pure white glossy	EAN 4010312322192	92,50 €/pc.
		NEW	NFCS55E-wg	NFC sensor, pure white glossy	EAN 4010312322130	18,80 €/pc.
			*FIT55E-ag	Wireless 1-way pushbutton 55 x 55 mm without battery or wire, anthracite glossy	EAN 4010312321201	36,60 €/pc.
			*FIT55E-al	Wireless 1-way pushbutton 55 x 55 mm without battery or wire, coated/aluminium paint	EAN 4010312321195	44,60 €/pc.
		NEW	*FIT55E-am	Wireless 1-way pushbutton 55 x 55 mm without battery or wire, anthracite mat	EAN 4010312323687	49,80 €/pc.
			*FIT55E-wg	Wireless 1-way pushbutton 55 x 55 mm without battery or wire, pure white glossy	EAN 4010312321096	36,60 €/pc.
			*FIT55E-gw	Wireless 1-way pushbutton 55 x 55 mm without battery or wire, glossy white	EAN 4010312321218	36,60 €/pc.
			*FIT55E-sg	Wireless 1-way pushbutton 55 x 55 mm without battery or wire, black glossy	EAN 4010312321225	36,60 €/pc.
			F2T55E-ag	Wireless 2-way pushbutton 55 x 55 mm without battery or wire, anthracite glossy	EAN 4010312319963	41,00 €/pc.
			F2T55E-al	Wireless 2-way pushbutton 55 x 55 mm without battery or wire, coated/aluminium paint	EAN 4010312319932	49,00 €/pc.
		NEW	F2T55E-am	Wireless 2-way pushbutton 55 x 55 mm without battery or wire, anthracite mat	EAN 4010312322048	59,30 €/pc.
			F2T55E-wg	Wireless 2-way pushbutton 55 x 55 mm without battery or wire, pure white glossy	EAN 4010312319918	41,00 €/pc.
		F2T55E-gw	Wireless 2-way pushbutton 55 x 55 mm without battery or wire, glossy white	EAN 4010312319925	41,00 €/pc.	
		F2T55E-sg	Wireless 2-way pushbutton 55 x 55 mm without battery or wire, black glossy	EAN 4010312319956	41,00 €/pc.	



F2T55EB-ag	Wireless 2-way pushbutton 55 x 55 mm without wire, anthracite glossy	EAN 4010312321140	56,50 €/pc.
F2T55EB-al	Wireless 2-way pushbutton 55 x 55 mm without wire, coated/aluminium paint	EAN 4010312321188	64,60 €/pc.
F2T55EB-wg	Wireless 2-way pushbutton 55 x 55 mm without wire, pure white glossy	EAN 4010312321171	56,50 €/pc.
F2T55EB-gw	Wireless 2-way pushbutton 55 x 55 mm without wire, glossy white	EAN 4010312321157	56,50 €/pc.
F2T55EB-sg	Wireless 2-way pushbutton 55 x 55 mm without wire, black glossy	EAN 4010312321164	56,50 €/pc.

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 F2T55E-ag	Wireless 2-way central control pushbutton 55 x 55 mm without battery or wire, anthracite glossy	EAN 4010312320549	47,00 €/pc.
 F2T55E-al	Wireless 2-way central control pushbutton 55 x 55 mm without battery or wire, coated/aluminium paint	EAN 4010312320518	55,00 €/pc.
 F2T55E-wg	Wireless 2-way central control pushbutton 55 x 55 mm without battery or wire, pure white glossy	EAN 4010312319994	47,00 €/pc.
 F2T55E-gw	Wireless 2-way central control pushbutton 55 x 55 mm without battery or wire, glossy white	EAN 4010312320501	47,00 €/pc.
 F2T55E-sg	Wireless 2-way central control pushbutton 55 x 55 mm without battery or wire, black glossy	EAN 4010312320525	47,00 €/pc.



NEW

 F4T55E-ag	Wireless 4-way pushbutton 55 x 55 mm without battery or wire, anthracite glossy	EAN 4010312319895	41,00 €/pc.
 F4T55E-al	Wireless 4-way pushbutton 55 x 55 mm without battery or wire, coated/aluminium paint	EAN 4010312319901	49,00 €/pc.
 F4T55E-am	Wireless 4-way pushbutton 55 x 55 mm without battery or wire, anthracite mat	EAN 4010312322062	59,30 €/pc.
 F4T55E-wg	Wireless 4-way pushbutton 55 x 55 mm without battery or wire, pure white glossy	EAN 4010312319833	41,00 €/pc.
 F4T55E-gw	Wireless 4-way pushbutton 55 x 55 mm without battery or wire, glossy white	EAN 4010312319864	41,00 €/pc.

PASSIVE WIRELESS SENSORS E-DESIGN55



F4T55E-sg	Wireless 4-way pushbutton 55 x 55 mm without battery or wire, black glossy	EAN 4010312319888	41,00 €/pc.
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F4T55EB-ag	Wireless 4-way pushbutton 55 x 55 mm without wire, anthracite glossy	EAN 4010312320587	58,20 €/pc.
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F4T55EB-al	Wireless 4-way pushbutton 55 x 55 mm without wire, coated/aluminium paint	EAN 4010312320563	66,20 €/pc.
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F4T55EB-am	Wireless 4-way pushbutton 55 x 55 mm without wire, anthracite mat	EAN 4010312323816	76,50 €/pc.
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F4T55EB-wg	Wireless 4-way pushbutton 55 x 55 mm without wire, pure white glossy	EAN 4010312320570	58,20 €/pc.
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F4T55EB-gw	Wireless 4-way pushbutton 55 x 55 mm without wire, glossy white	EAN 4010312320556	58,20 €/pc.
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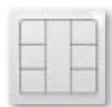
F4T55EB-sg	Wireless 4-way pushbutton 55 x 55 mm without wire, black glossy	EAN 4010312321133	58,20 €/pc.
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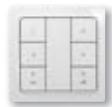
F2T55ER -wg	Wireless 2-way pushbutton 55 x 55 mm without battery or wire, pure white glossy	EAN 4010312322529	41,00 €/pc.
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F4T55ER -wg	Wireless 4-way pushbutton 55 x 55 mm without battery or wire, pure white glossy	EAN 4010312323694	41,00 €/pc.
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F6T55B-wg	Wireless 6-way pushbutton without wire, pure white glossy	EAN 4010312318935	70,50 €/pc.
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F6T55B-Keypad	Wireless 6-way pushbutton without wire as keypad, laser engraved, pure white glossy	EAN 4010312319116	77,10 €/pc.
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FDT55EB-ag	Wireless rotary switch anthracite glossy 55 x 55 mm without wire	EAN 4010312320662	63,60 €/pc.
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FDT55EB-al	Wireless rotary switch coated/aluminium paint 55 x 55 mm without wire	EAN 4010312320655	71,60 €/pc.
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FDT55EB-wg	Wireless rotary switch pure white glossy 55 x 55 mm without wire	EAN 4010312320693	63,60 €/pc.
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FDT55EB-gw	Wireless rotary switch glossy white 55 x 55 mm without wire	EAN 4010312320686	63,60 €/pc.
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		FTA55D-wg	Wireless pushbutton dimming actuator, pure white glossy	EAN 4010312319222	77,00 €/pc.
		FTA55DL-wg	Wireless pushbutton dimming actuator without N connection, pure white glossy	EAN 4010312319239	77,00 €/pc.
		FTA55J-wg	Wireless pushbutton shading actuator, pure white glossy	EAN 4010312319246	70,20 €/pc.
		FTA55L-wg	Wireless pushbutton light switch actuator, pure white glossy	EAN 4010312319253	69,50 €/pc.
		FT55EH-wg	FoH wireless pushbutton E-Design55, pure white glossy	EAN 4010312321690	45,10 €/pc.
		WS55E-wg	Rocker switch, 1 CO contact 10 A/250 V AC, pure white glossy	EAN 4010312322390	12,60 €/pc.
		WT55E-wg	Rocker pushbutton 1 NO contact 10 A/250 V AC, pure white glossy	EAN 4010312322383	12,60 €/pc.
		W2T55E-wg	Rocker pushbutton 2 NO contacts 10 A/250 V AC, pure white glossy	EAN 4010312322376	15,70 €/pc.

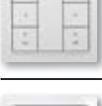
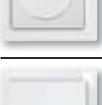
NEW



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PASSIVE WIRELESS SENSORS E-DESIGN65

		*FIT65-wg	Wireless 1-way pushbutton without battery and wire, pure white glossy	EAN 4010312321089	36,60 €/pc.
		F2T65-wg	Wireless 2-way pushbutton without battery and wire, pure white glossy	EAN 4010312319321	41,00 €/pc.
		F2T65B-wg	Wireless 2-way pushbutton without wire, pure white glossy	EAN 4010312321126	56,50 €/pc.
		F4T65-wg	Wireless 4-way pushbutton without battery and wire, pure white glossy	EAN 4010312315965	41,00 €/pc.
		F4T65B-wg	Wireless 4-way pushbutton without wire, pure white glossy	EAN 4010312315972	58,20 €/pc.
		F6T65B-wg	Wireless 6-way pushbutton without wire, pure white glossy	EAN 4010312318584	70,50 €/pc.
		F6T65B-Keypad	Wireless 6-way pushbutton as keypad without wire, pure white glossy	EAN 4010312319123	77,10 €/pc.
		F2ZT65-wg	Wireless 2-way central control pushbutton without battery and wire, pure white glossy	EAN 4010312318751	47,00 €/pc.
		F4PT-wg	4-way profile pushbutton, pure white glossy	EAN 4010312317396	44,20 €/pc.
		FDT65B-wg	Wireless rotary switch without wire, pure white glossy	EAN 4010312317273	63,60 €/pc.
		FKF65-wg	Wireless card switch, pure white glossy	EAN 4010312316115	55,80 €/pc.
		FNS65EB-wg	Wireless proximity sensor, pure white glossy	EAN 4010312322208	98,60 €/pc.
		FZS65-wg	Wireless pull switch, pure white glossy	EAN 4010312316139	70,50 €/pc.
		WS65-wg	Rocker switch 1 CO contact, pure white glossy	EAN 4010312317341	12,60 €/pc.
		WT65-wg	Rocker pushbutton 1 NO contact, pure white glossy	EAN 4010312317334	12,60 €/pc.

		W2T65-wg	Rocker pushbutton 2 NO contacts, pure white glossy	EAN 4010312320594	15,70 €/pc.
	 	FT65EH-wg	FoH wireless pushbutton E-Design65, pure white glossy	EAN 4010312321720	45,10 €/pc.
		NFCS65-wg	NFC sensor, pure white glossy	EAN 4010312322147	18,80 €/pc.

PASSIVE WIRELESS SENSORS E-DESIGN65 FLAT

		*FIFT65-wg	Wireless 1-way flat pushbutton without battery or wire, pure white glossy	EAN 4010312315958	39,00 €/pc.
		F2FT65-wg	Wireless 2-way flat pushbutton without battery or wire, pure white glossy	EAN 4010312319307	41,00 €/pc.
	 	F4FT65-wg	Wireless 4-way flat pushbutton without battery or wire, pure white glossy	EAN 4010312318485	41,00 €/pc.
		F4FT65B-wg	Wireless 4-way flat pushbutton without wire, pure white glossy	EAN 4010312315989	58,20 €/pc.
	 	FT65FEH-wg	FoH wireless flat pushbutton without battery or wire, pure white glossy	EAN 4010312321751	45,10 €/pc.
		NFCS65F-wg	NFC sensor flat without battery or wire, pure white glossy	EAN 4010312322154	18,80 €/pc.

* The FIFT65 pushbutton can only be used in vertically mounted multiple flat frames.

PASSIVE WIRELESS SENSORS 55 MM SWITCH SYSTEM

		FT55-al	Wireless 2- or 4-way pushbutton 55 x 55 mm without battery and wire, coated/aluminium paint	EAN 4010312305829	50,30 €/pc.
		FT55-an	Wireless 2- or 4-way pushbutton 55 x 55 mm without battery and wire, anthracite	EAN 4010312305805	42,20 €/pc.
		FT55-rw	Wireless 2- or 4-way pushbutton 55 x 55 mm without battery and wire, pure white	EAN 4010312305775	42,20 €/pc.
		FT55-sz	Wireless 2- or 4-way pushbutton 55 x 55 mm without battery and wire, black	EAN 4010312305782	42,20 €/pc.
		FT55-wg	Wireless 2- or 4-way pushbutton 55 x 55 mm without battery and wire, pure white glossy	EAN 4010312305799	42,20 €/pc.
		FT55-ws	Wireless 2- or 4-way pushbutton 55 x 55 mm without battery and wire, white	EAN 4010312308936	42,20 €/pc.
		F4T55B-al	Wireless 2- or 4-way pushbutton 55 x 55 mm without wire, coated/aluminium paint	EAN 4010312316467	63,30 €/pc.
		F4T55B-an	Wireless 2- or 4-way pushbutton 55 x 55 mm without wire, anthracite	EAN 4010312316504	55,30 €/pc.
		F4T55B-rw	Wireless 2- or 4-way pushbutton 55 x 55 mm without wire, pure white	EAN 4010312316474	55,30 €/pc.
		F4T55B-wg	Wireless 2- or 4-way pushbutton 55 x 55 mm without wire, pure white glossy	EAN 4010312316498	55,30 €/pc.
		FZT55-wg	Wireless 2-way central control pushbutton 55 x 55 mm without battery and wire, pure white glossy	EAN 4010312318768	47,00 €/pc.
		F4PT55-wg	Wireless 4-way profile pushbutton 55 x 55 mm w/o battery or wire, pure white glossy	EAN 4010312317907	44,20 €/pc.
		FDT55B-wg	Wireless rotary switch 55 x 55 mm without wire, pure white glossy	EAN 4010312318256	63,60 €/pc.
		FNS55B-wg	Wireless proximity sensor 55 x 55 mm, pure white glossy	EAN 4010312322185	92,50 €/pc.
		NFCS55-wg	NFC sensor 55 x 55 mm, pure white glossy	EAN 4010312322123	18,80 €/pc.



WS55-an	Rocker switch 55 x 55 mm, anthracite	EAN 4010312317488	10,50 €/pc.
WS55-rw	Rocker switch 55 x 55 mm, pure white	EAN 4010312317464	10,50 €/pc.
WS55-wg	Rocker switch 55 x 55 mm, pure white glossy	EAN 4010312317433	10,50 €/pc.
WS55-ws	Rocker switch 55 x 55 mm, white	EAN 4010312317440	10,50 €/pc.



WT55-an	Rocker pushbutton 55 x 55 mm, anthracite	EAN 4010312317532	10,50 €/pc.
WT55-rw	Rocker pushbutton 55 x 55 mm, pure white	EAN 4010312317501	10,50 €/pc.
WT55-wg	Rocker pushbutton 55 x 55 mm, pure white glossy	EAN 4010312317518	10,50 €/pc.
WT55-ws	Rocker pushbutton 55 x 55 mm, white	EAN 4010312317495	10,50 €/pc.



W2T55-wg	Rocker pushbutton 55 x 55 mm, pure white glossy	EAN 4010312320389	15,70 €/pc.
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FT4B-cr	Wireless 2- or 4-way pushbutton 45 x 45 mm Belgium, w/o frame, Niko cream, without battery and wire	EAN 4010312312995	47,20 €/pc.
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FT4B-na	Wireless 2- or 4-way pushbutton 45 x 45 mm Belgium, w/o frame, Niko anthracite, without battery and wire	EAN 4010312314180	47,20 €/pc.
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FT4B-nw	Wireless 2- or 4-way pushbutton 45 x 45 mm Belgium, w/o frame, Niko white, without battery and wire	EAN 4010312312902	47,20 €/pc.
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FT4BI-an	Wireless 2- or 4-way pushbutton 45 x 45 mm Bticino, w/o frame, anthracite, without battery and wire	EAN 4010312319758	47,20 €/pc.
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FT4BI-ww	Wireless 2- or 4-way pushbutton 45 x 45 mm Bticino, w/o frame, white, without battery and wire	EAN 4010312319765	47,20 €/pc.
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FT4BL-lw	Wireless 2- or 4-way pushbutton 45 x 45 mm Belgium, w/o frame, Legrand-white, without battery and wire	EAN 4010312314197	47,20 €/pc.
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PASSIVE WIRELESS SENSORS 55 MM SWITCH SYSTEM

			FT4CH-hg	Wireless 2- or 4-way pushbutton without battery and wire, without frame, light grey	EAN 4010312300985	47,20 €/pc.
			FT4CH-sz	Wireless 2- or 4-way pushbutton without battery and wire, without frame, black	EAN 4010312300992	47,20 €/pc.
			FT4CH-w	Wireless 2- or 4-way pushbutton without battery and wire, without frame, white	EAN 4010312300978	47,20 €/pc.
			FT4CH+2P-w	Wireless 2- or 4-way pushbutton without battery and wire, without frame, laser engraved, white	EAN 4010312312001	55,00 €/pc.
			FT4S-ws	Wireless 2- or 4-way pushbutton, without frame, Eljo-white	EAN 4010312303191	47,20 €/pc.
			FT55ES-wg	Wireless 2- or 4-way pushbutton Exxact, without frame, pure white glossy	EAN 4010312314227	47,20 €/pc.
			FT55RS-alpinweiß	Wireless 2- or 4-way pushbutton, without frame, alpine white	EAN 4010312314210	47,20 €/pc.
			FT55EL-ws	Wireless 2- or 4-way pushbutton Finland, without frame, Elko-white	EAN 4010312316658	47,20 €/pc.
			FT55R-weiß	Wireless 2- or 4-way pushbutton, without frame, white	EAN 4010312313985	47,20 €/pc.
			FT55R-alpinweiß	Wireless 2- or 4-way pushbutton, without frame, alpine white	EAN 4010312313992	47,20 €/pc.
			FMT55/2-rw	Wireless 2-way mini pushbutton without battery or wire, with rocker, pure white	EAN 4010312312469	40,60 €/pc.
			FMT55/2-wg	Wireless 2-way mini pushbutton without battery or wire, with rocker, pure white glossy	EAN 4010312312483	40,60 €/pc.
			FMT55/4-rw	Wireless 4-way mini pushbutton without battery or wire, with rocker, pure white	EAN 4010312312544	43,50 €/pc.
			FMT55/4-wg	Wireless 4-way mini pushbutton without battery or wire, with rocker, pure white glossy	EAN 4010312312568	43,50 €/pc.
			FT55H-wg	FoH wireless pushbutton, pure white glossy	EAN 4010312321706	46,40 €/pc.

		FTE215	Wireless pushbutton insert EnOcean, encrypted, with mounting plate and attachment frame	EAN 4010312318539	36,60 €/pc.
		FTE215BLE	Wireless pushbutton insert, Bluetooth, with mounting plate and attachment frame	EAN 4010312318553	39,90 €/pc.

PASSIVE WIRELESS SENSORS OTHERS, HAND-HELD TRANSMITTERS AND REMOTE CONTROLS

		FIW-USB	Wireless infrared converter with USB port for Logitech Harmony Touch (available in specialist shops)	EAN 4010312311158	96,30 €/pc.
		FKD-wg	Wireless and batteryless bell pushbutton, pure white glossy	EAN 4010312319475	50,40 €/pc.
		FKD-am	Wireless and batteryless bell pushbutton, anthracite matt	EAN 4010312324066	53,90 €/pc.
		FSTAP-al/sz	Wireless keyswitch, without wire, aluminium/black	EAN 4010312320907	98,70 €/pc.
		FPE-1	Wireless position switch, blue, without battery and wire	EAN 4010312315552	64,80 €/pc.
		FVST	Wireless encryption plug	EAN 4010312907290	1,10 €/pc.
		FTTB	Wireless pushbutton tracker, without wire	EAN 4010312321119	59,90 €/pc.
		FHS2-al/anso	Wireless 2-way hand-held transmitter w/o battery or wire, with rocker, aluminium/anthracite-soft	EAN 4010312320303	53,20 €/pc.
		FHS4-al/anso	Wireless 4-way hand-held transmitter w/o battery or wire, with rocker, aluminium/anthracite-soft	EAN 4010312320297	55,50 €/pc.
		FMH8-wg	Wireless 8-way mini hand-held transmitter pure white glossy, laser engraved 1+2+3+4+5+6+7+8, without battery and wire	EAN 4010312321348	79,60 €/pc.
		FMH8-ag	Wireless 8-way mini hand-held transmitter anthracite glossy, laser engraved 1+2+3+4+5+6+7+8, without battery and wire	EAN 4010312321331	79,60 €/pc.

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PASSIVE WIRELESS SENSORS OTHERS, HAND-HELD TRANSMITTERS AND REMOTE CONTROLS

		FMH8-al/anso Wireless 8-way mini hand-held transmitter, top painted in aluminum, bottom and pushbuttons have anthracite-soft paint, laser engraved 1+2+3+4+5+6+7+8, without battery and wire	EAN 4010312313282	86,30 €/pc.	
		FFD-al/anso Wireless 50-way remote control with display and rechargeable battery. Painted aluminium top, bottom anthracite-soft paint. With wall holder and charger.	EAN 4010312313541	125,00 €/pc.	
		FF8-al/anso Wireless 8-way remote control with 2 double rockers, painted aluminium top, bottom and rockers anthracite-soft paint, without battery and wire	EAN 4010312303931	109,10 €/pc.	
		FMH2- Wireless 2-way mini hand-held transmitter laser engraved 0+1, without battery and wire -an, -rw, sz, -wg, -ws		42,90 €/pc.	
		FMH2S- Wireless 2-way mini hand-held transmitter for key ring, laser engraved 0+1, without battery and wire an, -rw, sz, -wg, -ws		44,60 €/pc.	
		FMH4- Wireless 4-way mini hand-held transmitter laser engraved 1+2+3+4, without battery and wire -an, -rw, sz, -wg, -ws		44,60 €/pc.	
		FMH4S- Wireless 4-way mini hand-held transmitter for key ring, laser engraved 1+2+3+4, without battery and wire -an, -rw, sz, -wg, -ws		47,00 €/pc.	
			FMHIW-anso Wireless mini hand-held transmitter, waterproof, without battery and wire, anthracite-soft paint	EAN 4010312322178	52,90 €/pc.
			FMHIW-wg/rot Wireless mini hand-held transmitter for calling systems, with carry strap, waterproof, without battery and wire, pure white glossy/red	EAN 4010312323847	53,50 €/pc.

R1UE55-ag	Single universal frame, anthracite glossy	EAN 4010312908488	3,00 €/pc.
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R1UE55-al	Single universal frame, coated/aluminium paint	EAN 4010312908464	4,80 €/pc.
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NEW

R1UE55-am	Single universal frame, anthracite mat	EAN 4010312908747	4,80 €/pc.
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R1UE55-wg	Single universal frame, pure white glossy	EAN 4010312908341	3,00 €/pc.
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R1UE55-gw	Single universal frame, glossy white	EAN 4010312908457	3,00 €/pc.
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R1UE55-sg	Single universal frame, black glossy	EAN 4010312908471	3,00 €/pc.
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R2UE55-ag	Double universal frame, anthracite glossy	EAN 4010312908518	4,20 €/pc.
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R2UE55-al	Double universal frame, coated/aluminium paint	EAN 4010312908525	9,20 €/pc.
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NEW

R2UE55-am	Double universal frame, anthracite mat	EAN 4010312908754	9,20 €/pc.
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R2UE55-wg	Double universal frame, pure white glossy	EAN 4010312908365	4,20 €/pc.
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R2UE55-gw	Double universal frame, glossy white	EAN 4010312908495	4,20 €/pc.
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R3UE55-ag	Triple universal frame, anthracite glossy	EAN 4010312908556	4,40 €/pc.
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R3UE55-al	Triple universal frame, coated/aluminium paint	EAN 4010312908563	11,80 €/pc.
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NEW

R3UE55-am	Triple universal frame, anthracite mat	EAN 4010312908761	11,80 €/pc.
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R3UE55-wg	Triple universal frame, pure white glossy	EAN 4010312908358	4,40 €/pc.
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R3UE55-gw	Triple universal frame, glossy white	EAN 4010312908532	4,40 €/pc.
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FRAMES E-DESIGN55, E-DESIGN65 AND 55 MM SWITCH SYSTEM



R4UE55-ag	4-way universal frame, anthracite glossy	EAN 4010312908594	5,00 €/pc.
R4UE55-al	4-way universal frame, coated/aluminium paint	EAN 4010312908600	14,90 €/pc.
NEW R4UE55-am	4-way universal frame, anthracite mat	EAN 4010312908778	14,90 €/pc.
R4UE55-wg	4-way universal frame, pure white glossy	EAN 4010312908372	5,00 €/pc.
R4UE55-gw	4-way universal frame, glossy white	EAN 4010312908570	5,00 €/pc.

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NEW R5UE55-ag	5-way universal frame, anthracite glossy	EAN 4010312908914	5,60 €/pc.
NEW R5UE55-al	5-way universal frame, coated/aluminium paint	EAN 4010312908907	18,00 €/pc.
NEW R5UE55-am	5-way universal frame, anthracite mat	EAN 4010312908945	18,00 €/pc.
NEW R5UE55-wg	5-way universal frame, pure white glossy	EAN 4010312908938	5,60 €/pc.
NEW R5UE55-gw	5-way universal frame, glossy white	EAN 4010312908891	5,60 €/pc.



RIUE-wg	Single universal frame, pure white glossy	EAN 4010312908617	3,00 €/pc.
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R2UE-wg	Double universal frame, pure white glossy	EAN 4010312908327	4,20 €/pc.
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R3UE-wg	Triple universal frame, pure white glossy	EAN 4010312908334	4,40 €/pc.
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R4UE-wg	4-way universal frame, pure white glossy	EAN 4010312908440	5,00 €/pc.
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RF1E-wg	Single flat frame, pure white glossy	EAN 4010312907245	3,00 €/pc.
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RF2E-wg	Double flat frame, pure white glossy	EAN 4010312907252	4,20 €/pc.
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	RF3E-wg	Triple flat frame, pure white glossy	EAN 4010312907269	4,40 €/pc.
	RF4E-wg	4-way flat frame, pure white glossy	EAN 4010312907610	5,00 €/pc.
	R-	Single universal frame for wireless pushbuttons -ws, -rw, -wg, -an -al		4,00 €/pc. 4,80 €/pc.
	R2-	Double universal frame for wireless pushbuttons -ws, -rw, -wg, -an -al		4,30 €/pc. 9,20 €/pc.
	R3-	Triple universal frame for wireless pushbuttons -ws, -rw, -wg, -an -al		4,50 €/pc. 11,80 €/pc.
	FTVW	Wireless pushbutton encryption rocker	EAN 4010312907030	1,50 €/pc.
	NEW BLA55E-rw	Blind cover for R1UE55 - R4UE55, pure white	EAN 4010312908839	3,50 €/pc.
	NEW BLA55E-wg	Blind cover for R1UE55 - R4UE55, pure white glossy	EAN 4010312908822	3,50 €/pc.
	BLA65-wg	Blind cover for R1UE - R4UE, pure white glossy	EAN 4010312907139	3,50 €/pc.
	BLA65F-wg	Blind cover for RF1E - RF4E, pure white glossy	EAN 4010312907412	3,50 €/pc.
	BLA55-rw	Blind cover for R, R2 and R3, pure white	EAN 4010312905883	3,50 €/pc.
	BLA55-wg	Blind cover for R, R2 and R3, pure white glossy	EAN 4010312905913	3,50 €/pc.
	BLA55-ws	Blind cover for R, R2 and R3, white	EAN 4010312905869	3,50 €/pc.
	BLF-rw	Blind cover for R1F, R2F and R3F, pure white	EAN 4010312904237	3,50 €/pc.
	BLF-wg	Blind cover for R1F, R2F and R3F, pure white glossy	EAN 4010312904268	3,50 €/pc.

GERMAN SOCKETS (TYPE F), COVERS AND DESKTOP BASE

	NEW	DSS55E+ 2xUSBA-wg	German Socket (Type F) with 2xUSB-A, pure white glossy	EAN 4010312322512	38,70 €/pc.
	NEW	DSS55E+ USBA+C-wg	German Socket (Type F) with USB-A and USB-C, pure white glossy	EAN 4010312323830	45,80 €/pc.
		DSS65-wg	DSS with socket outlet front, pure white glossy	EAN 4010312315996	6,10 €/pc.
		DSS65F-wg	DSS with socket outlet front, pure white glossy	EAN 4010312316818	6,10 €/pc.
	NEW	DSS55E-am	DSS with socket outlet front, anthracite mat	EAN 4010312323823	14,20 €/pc.
		DSS55E-wg	DSS with socket outlet front, pure white glossy	EAN 4010312320082	5,90 €/pc.
		DSS+SD055-an	DSS with socket outlet front, anthracite	EAN 4010312310908	7,00 €/pc.
		DSS+SD055-rw	DSS with socket outlet front, pure white	EAN 4010312310854	7,00 €/pc.
		DSS+SD055-sz	DSS with socket outlet front, black	EAN 4010312310878	7,00 €/pc.
		DSS+SD055-wg	DSS with socket outlet front, pure white glossy	EAN 4010312310885	7,00 €/pc.
		DSS+SD055-ws	DSS with socket outlet front, white	EAN 4010312310830	7,00 €/pc.
		TAE65/3-wg	3-socket TAE cover for E-Design frames, pure white glossy	EAN 4010312907337	3,00 €/pc.
		TV65/2-wg	TV/RF cover for E-Design frames, pure white glossy	EAN 4010312907351	3,00 €/pc.
		TV65/3-wg	TV/RF/SAT cover for E-Design frames, pure white glossy	EAN 4010312907382	3,00 €/pc.
		TV65/4-wg	TV/RF/SAT cover for E-Design frames, pure white glossy	EAN 4010312907634	3,00 €/pc.

	UAE65F/2-wg	2-hole UAE/IAE cover for E-Design frames, pure white glossy	EAN 4010312907399	3,00 €/pc.
	TAE65F/3-wg	3-socket TAE cover for E-Design flat frames, pure white glossy	EAN 4010312907344	3,00 €/pc.
	TV65F/2-wg	TV/RF cover for E-Design flat frames, pure white glossy	EAN 4010312907368	3,00 €/pc.
	TV65F/3-wg	TV/RF/SAT cover for E-Design flat frames, pure white glossy	EAN 4010312907375	3,00 €/pc.
	TV65F/4-wg	TV/RF/SAT cover for E-Design flat frames, pure white glossy	EAN 4010312907627	3,00 €/pc.
	UAE65F/2-wg	2-hole UAE/IAE cover for E-Design flat frames, pure white glossy	EAN 4010312907405	3,00 €/pc.
	S065	Desktop base for E-Design65, pure white	EAN 4010312908143	7,30 €/pc.
	S055	Desktop base for E-Design55, pure white	EAN 4010312908150	7,30 €/pc.
	FSAF-gr	Cover grey for glass surface rear side	EAN 4010312908136	3,50 €/pc.

ROCKERS AND DOUBLE ROCKERS LASER ENGRAVED

	LGI	Laser engraving individually, create new pictogram	EAN 4010312908310	10,20 €/pc.
	W-B4FT65	Rocker for bus flat pushbutton E-Design65, pure white glossy	EAN 4010312907207	6,40 €/pc.
	DW-B4FT65	Double rocker for bus flat pushbutton E-Design65, pure white glossy	EAN 4010312907191	7,00 €/pc.
	W-B4T65	Rocker for bus pushbutton E-Design65, pure white glossy	EAN 4010312907184	6,40 €/pc.
	DW-B4T65	Double rocker for bus pushbutton E-Design65, pure white glossy	EAN 4010312907214	7,00 €/pc.
	W-FIFT65	Rocker for wireless flat pushbutton E-Design65, pure white glossy	EAN 4010312907153	6,40 €/pc.
	W-FIT65	Rocker for wireless pushbutton E-Design65, pure white glossy	EAN 4010312908952	6,40 €/pc.
	W-F2T65	Rocker for wireless pushbutton E-Design65, pure white glossy	EAN 4010312908402	6,40 €/pc.
	W-F4T65	Rocker for wireless pushbutton E-Design65, pure white glossy	EAN 4010312907160	6,40 €/pc.
	DW-F4T65	Double rocker for wireless pushbutton E-Design65, pure white glossy	EAN 4010312907177	7,00 €/pc.
	DW-F4FT65B	Double rocker for wireless flat pushbutton E-Design65, with batteries, pure white glossy	EAN 4010312908068	7,00 €/pc.
	DW-F4T65B	Double rocker for wireless pushbutton E-Design65, with batteries, pure white glossy	EAN 4010312907283	7,00 €/pc.
	DW-W2T65	Double rocker for rocker pushbutton E-Design65, pure white glossy	EAN 4010312907283	7,00 €/pc.
	W-WT/WS65	Double rocker for rocker pushbutton and rocker switch E-Design65, pure white glossy	EAN 4010312908853	7,00 €/pc.
	W-B4T55	Rocker for bus pushbutton, ws/rw/wg/sz/an/al	EAN 4010312907573	6,40 €/pc.

	DW-B4T55	Double rocker for bus pushbutton 55x55 mm, ws/rw/wg/sz/an/al	EAN 4010312907580	7,00 €/pc.
	W-F4T55B	Rocker for wireless pushbutton 55x55 mm, ws/rw/wg/sz/an/al	EAN 4010312907313	6,40 €/pc.
	DW-F4T55B	Double rocker for wireless pushbutton 55x55 mm, ws/rw/wg/sz/an/al	EAN 4010312907320	7,00 €/pc.
	W-FIT55E	Rocker for wireless pushbutton E-Design55, ag/al/am/gw/sg/wg	EAN 4010312908969	6,40 €/pc.
	W-F2T55E	Rocker for wireless pushbutton E-Design55, ag/al/am/gw/sg/wg	EAN 4010312908419	6,40 €/pc.
	DW-F4T55E	Double rocker for wireless pushbutton E-Design55, ag/al/am/gw/sg/wg	EAN 4010312908426	7,00 €/pc.
	W-FMT55/2	Rocker for wireless mini pushbutton, ws/rw/wg/sz/an/al	EAN 4010312906323	6,40 €/pc.
	DW-FMT55/4	Double rocker for wireless mini pushbutton, ws/rw/wg/sz/an/al	EAN 4010312906330	7,00 €/pc.
	W-FT4CH	Rocker for wireless pushbutton Swiss Design, ws(61)/hg(65)/sz(60)	EAN 4010312906347	6,40 €/pc.
	DW-FT4CH	Double rocker for wireless pushbutton Swiss Design, ws(61)/hg(65)/sz(60)	EAN 4010312906385	7,00 €/pc.
	W-FT4F-	Rocker for wireless pushbutton 63 x 63 mm, ws/rw/wg/sz/an/al	EAN 4010312906262	6,40 €/pc.
	DW-FT4F-	Double rocker for wireless pushbuttons 63 x 63 mm, ws/rw/wg/sz/an/al	EAN 4010312906279	7,00 €/pc.
	W-FT55	Rocker for wireless pushbutton 55 x 55 mm, ws/rw/wg/sz/an/al	EAN 4010312906286	6,40 €/pc.
	DW-FT55	Double rocker for wireless pushbuttons 55 x 55 mm, ws/rw/wg/sz/an/al	EAN 4010312906293	7,00 €/pc.
	W-FT55R	Rocker for wirel. pushbuttons 55x55 mm for Busch Reflex and Duro, white/alpine white	EAN 4010312907047	6,40 €/pc.

ROCKERS AND DOUBLE ROCKERS LASER ENGRAVED

	DW-FT55R	Double rocker for wirel. pushbuttons 55x55 mm for Busch Reflex and Duro, white/alpine white	EAN 4010312907061	7,00 €/pc.
	DW-W2T55	Double rocker for rocker pushbutton, pure white glossy	EAN 4010312908433	7,00 €/pc.
	W-WT/WS55	Rocker for rocker pushbutton and rocker switch, ws/rw/wg/sz/an/al	EAN 4010312908112	6,40 €/pc.
	DW-FF8	Double rocker for wireless remote control, anthracite-soft paint	EAN 4010312906378	7,00 €/pc.
	W-FHS/FMH2	Rocker for wireless hand-held transmitters FMH2, ws/rw/wg/sz/an/al	EAN 4010312906354	6,40 €/pc.
	DW-FMH4	Double rocker for wireless hand-held transmitters FMH4, ws/rw/wg/sz/an/al	EAN 4010312906361	7,00 €/pc.

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OVERVIEW PICTOGRAMS FOR LASER ENGRAVINGS



7-23

OVERVIEW PICTOGRAMS FOR LASER ENGRAVINGS



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OVERVIEW PICTOGRAMS FOR LASER ENGRAVINGS



7-25

For any laser engraving order, please specify the type of your pushbutton, remote control or hand-held transmitter, the engraving number and also if you need a single or double rocker. Rockers and double rockers for pushbuttons are available on pages 7-20 and 7-22.

Recommended retail prices excluding VAT.

**BUTH55D/
BBH65/**



8

WIRED BUS SENSORS.

Wired bus sensors for connection to the bus gateway BGW14

E-Design55

Bus motion/brightness sensor BBH55/12V DC-wg	8-2
Bus temperature controller with hand wheel BTR55H/12V DC-wg	8-2
Bus thermo clock/hygrostat with display BUTH55D/12V DC-wg	8-2
Bus temperature sensor BTF55/12V DC-wg	8-3

E-Design65

Bus motion/brightness sensor BBH65/12V DC-wg	8-3
Bus temperature controller with hand wheel BTR65H/12V DC-wg	8-3
Bus thermo clock/hygrostat with display BUTH65D/12V DC-wg	8-4
Bus temperature sensor BTF65/12V DC-wg	8-4

8-1

Wired bus pushbuttons for connection to the pushbutton gateway FTS14TG

E-Design65: Bus 2- or 4-way pushbutton B4T65-wg and Bus 2- or 4-way flat pushbutton B4FT65-wg	8-5
55mm switch system: Bus 2- or 4-way pushbutton B4T55-	8-5



BBH55/12VDC-wg

Bus motion/brightness sensor for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design55 switching system. 80 x 80 mm, 25 mm high. Installation depth 33 mm. Data transmission and power supply take place over the 4-wire bus with a 12 V DC switching power supply unit. Only 0.1 watt standby loss. Smart Home sensor.

BBH55/ 12VDC-wg	Bus motion/brightness sensor, pure white glossy	EAN 4010312319789	73,70 €/pc.
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BTR55H/12VDC-wg

Bus temperature controller with hand wheel for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design55 switching system. 80 x 80 mm, 27 mm high. Installation depth 33 mm. Data transmission and power supply take place over the 4-wire bus with a 12 V DC switching power supply unit. Only 0.1 watt standby loss. Smart Home sensor.

BTR55H/ 12VDC-wg	Bus temperature controller with hand wheel, pure white glossy	EAN 4010312319796	63,10 €/pc.
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BUTH55D/12V DC-wg

Bus thermo clock/hygrostat with display pure white glossy for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design55 switching system. 80 x 80 mm, 14 mm high. Installation depth 33 mm. With adjustable day and night reference temperatures and relative humidity. Illuminated display. Preset ready to operate. Data transmission and power supply takes place over the 4-wire bus with a 12 V DC power supply unit. Only 0.1 watt standby loss. Smart Home sensor.

BUTH55D/ 12V DC-wg	Bus thermo clock/hygrostat with display, pure white glossy	EAN 4010312319802	75,50 €/pc.
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BTF55/12V DC-wg

Bus temperature sensor pure white glossy for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design55 switching system. 80 x 80 mm, 17 mm high. Installation depth 33 mm. Data transmission and power supply take place over the 4-wire bus with a 12 V DC mains adapter. Only 0.1 watt standby loss.

BTF55/ 12V DC-wg	Bus temperature sensor, pure white glossy	EAN 4010312319819	58,00 €/pc.
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BBH65/12VDC-wg

Bus motion/brightness sensor pure white glossy for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design65 switching system. 84 x 84 mm, 27 mm high. Installation depth 33 mm. Data transmission and power supply takes place over the 4-wire bus with a 12 V DC power supply unit. Only 0.1 watt standby loss. Smart Home sensor.

BBH65/ 12VDC-wg	Bus motion/brightness sensor, pure white glossy	EAN 4010312318966	73,70 €/pc.
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BTR65H/12VDC-wg

Bus temperature controller with hand wheel pure white glossy for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design65 switching system. 84 x 84 mm, 27 mm high. Installation depth 33 mm. Data transmission and power supply takes place over the 4-wire bus with a 12 V DC power supply unit. Only 0.1 watt standby loss. Smart Home sensor.

BTR65H/ 12VDC-wg	Bus temperature controller with hand wheel, pure white glossy	EAN 4010312318959	63,10 €/pc.
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BUTH65D/12V DC-wg

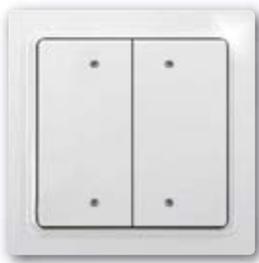
Bus thermo clock/hygrostat with display pure white glossy for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design65 switching system. 84 x 84 mm, 14 mm high. Installation depth 33 mm. With adjustable day and night reference temperatures and relative humidity. Illuminated display. Preset ready to operate. Data transmission and power supply takes place over the 4-wire bus with a 12 V DC power supply unit. Only 0.1 watt standby loss. Smart Home sensor.

BUTH65D/ 12V DC-wg	Bus thermo clock/hygrostat with display, pure white glossy	EAN 4010312318942	75,50 €/pc.
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BTF65/12V DC-wg

Bus temperature sensor pure white glossy for connection to the RS485 bus gateway BGW14. For single mounting or mounting into the E-Design65 switching system. 84 x 84 mm, 17 mm high. Installation depth 33 mm. Data transmission and power supply take place over the 4-wire bus with a 12 V DC mains adapter. Only 0.1 watt standby loss. Smart Home sensor.

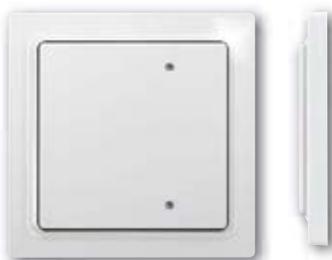
BTF65/ 12V DC-wg	Bus temperature sensor, pure white glossy	EAN 4010312319741	58,00 €/pc.
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Bus pushbutton with double rocker



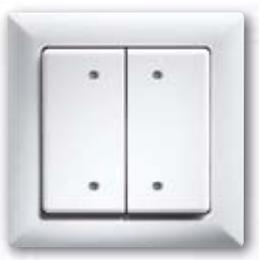
Bus pushbutton with rocker



Bus flat pushbutton with rocker



Bus flat pushbutton with double rocker



Bus pushbutton with double rocker



Bus pushbutton with rocker

B4T65-wg

Bus 2- or 4-way pushbutton for single mounting 84 x 84 x 16 mm or mounting into the E-Design65 switching system. For connection to FTS14TG pushbutton gateway. Only 0.2 watt standby loss. With rocker and double rocker. Smart Home sensor.

B4T65-wg	Bus pushbutton in E-Design, pure white glossy	EAN 4010312315675	43,40 €/pc.
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B4FT65-wg

Bus 2- or 4-way pushbutton for single mounting 84 x 84 x 11 mm or mounting into the E-Design65 switching system. For connection to FTS14TG pushbutton gateway. Only 0.2 watt standby loss. With rocker and double rocker. Smart Home sensor.

B4FT65-wg	Bus flat pushbutton in E-Design, pure white glossy	EAN 4010312315682	43,40 €/pc.
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B4T55-

Bus 2- or 4-way pushbutton for single mounting 80 x 80 x 15 mm. For connection to FTS14TG pushbutton gateway. Only 0.2 watt standby loss. With rocker and double rocker. Smart Home sensor.

B4T55-wg	Bus pushbutton 55 x 55 mm, pure white glossy	EAN 4010312316580	43,40 €/pc.
B4T55-an	Bus pushbutton 55 x 55 mm, anthracite	EAN 4010312316627	43,40 €/pc.

**EUD12NPN-
EUD12D-
EUD61NP-
DTD65NP-**



9

**THE RIGHT LIGHT FOR EVERY ROOM WITH
ELTAKO DIMMER SWITCHES.**

Universal dimmer switches, capacity enhancer, 1-10 V controllers and rotary dimmers

Selection table for universal dimmer switches, capacity enhancer and 1-10 V controllers	9 - 2
Universal dimmer switch EUD12NPN-UC	9 - 3
Digital settable multifunction universal dimmer switch EUD12D-UC	9 - 4
Universal dimmer switch EUD12F for mains disconnection switching	9 - 5
Universal dimmer switch with rotary knob EUD12DK/800W-UC	9 - 6
Capacity enhancer for universal dimmer switches LUD12-230V	9 - 7
Digitally adjustable motor dimmer MOD12D-UC	9 - 9
Fully electronic multifunction time relay MFZ12PMD-UC with 18 functions	9 - 10
1-10 V control dimmer switch SDS12/1-10V for electronic ballast units	9 - 11
1-10 V controller SUD12/1-10V for universal dimmer switches	9 - 12
Rotary dimmer in E-Design65 DTD65-230V-wg	9 - 13
Rotary dimmer in E-Design65 DTD65L-230V-wg without N connection	9 - 14
Rotary dimmer in E-Design55 DTD55-230V-wg	9 - 15
Rotary dimmer in E-Design55 DTD55L-230V-wg without N connection	9 - 16
Universal dimmer switch EUD61NP-230V without N connection	9 - 17
Universal dimmer switch EUD61NPL-230V without N connection, especially for LED	9 - 18
Universal dimmer switch EUD61NPN-UC	9 - 19
Universal dimmer switch EUD61NPN-230V	9 - 20
Multifunction universal dimmer switch EUD61M-UC	9 - 21
LED dimmer switch ELD61/12-36V DC	9 - 22
1-10 V control dimmer switch SDS61/1-10V for electronic ballast units	9 - 23
Technical data universal dimmer switches, capacity enhancers and 1-10 V controllers	9 - 24

SELECTION TABLE FOR UNIVERSAL DIMMER SWITCHES, CAPACITY ENHANCER AND 1-10 V CONTROLLERS

THE ENERGY SAVERS



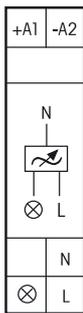
Set the mood and reduce energy costs at the same time - a fascinating combination for incandescent lamps, halogen lamps and LED lamps. The dimming of lamps in combination with soft ON and soft OFF, prolongs their lifetime considerably. This applies also to the infinitely dimmable energy saving lamps. Only universal dimmers with the marking R, L, C recognize automatically the connected load

and adjust their dimming function accordingly. Other dimmers have to be exchanged if lamps with other kind of loads are used later.

Only universal dimmer switches with the added ESL marking and added LED marking have the associated comfort settings.

Page		9-3	9-4	9-5	9-6	9-7	9-9	9-10	9-11	9-12	9-13	9-14	9-15	9-16	9-17	9-18	9-19	9-20	9-21	9-22	9-23
	Piktogramme	EUD12NPN-UC	EUD12D-UC	EUD12F	EUD12DK/800W-UC	LUD12-230V	MOD12D-UC	MFZ12PMD-UC	SDS12/1-10V	SUD12/1-10V	DTD65-230V	DTD65L-230V	DTD55-230V	DTD55L-230V	EUD61NP-230V	EUD61NPL-230V	EUD61NPN-UC	EUD61NPN-230V	EUD61M-UC	ELD61/12-36V DC	SDS61/1-10V
9-2	Modular device for DIN EN 60715 TH35 rail mounting, number of modules 18 mm each	1	1	1	2	1	1	1	1	1											
	Built-in device for installation (e.g. flush-mounting box) and surface mounting										■	■	■	■	■	■	■	■	■	■	■
	Dimming R, L and C loads	■	■	■	■	■ ⁵⁾	L	■	1-10V EVG	1-10V EVG	■	R, C	■	R, C	■	R, C	■	■	■	■	1-10V EVG
	With comfort position for dimmable energy saving lamps ESL	■	■	■	■	■					■	■	■	■		■	■	■	■		
	With comfort position for dimmable LEDs	■	■		■	■					■	■	■	■		■	■	■		■	
	Power MOSFET up to W (nearly unlimited number of switching cycles)	400	400	300	800	400	300	400	—	400 ⁷⁾	300	200	300	200	400	200	400	400	400	4A	—
	Increase of capacity with capacity enhancer LUD12-230V		■		■			■		■ ⁷⁾											
	Zero passage switching	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Minimum brightness level adjustable	■	■	■	■	■ ⁶⁾	■	■	■	■ ⁷⁾	■	■	■	■	■	■	■	■	■	■	■
	Dimming speed adjustable	■	■	■		■ ⁶⁾	■	■	■	■ ⁷⁾	■ ⁹⁾	■ ⁹⁾	■ ⁹⁾	■ ⁹⁾	■	■	■ ⁸⁾	■ ⁸⁾		■ ⁸⁾	■
	Universal control voltage 8 to 230V UC	■	■		■ ⁶⁾	■	■	■	■ ⁶⁾								■		■	■	
	Supply voltage 230V	■	■	■	■	■	■	■	■	■	■	■ ¹⁾	■	■ ¹⁾	■ ¹⁾	■ ¹⁾	■	■	■	■	■
	Low standby loss	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Glow lamp current (mA) ²⁾⁴⁾	5	5 ³⁾		5 ⁶⁾		5														
	Central control electrically isolated from the local input		■		■ ⁶⁾	■	■	■	■	■ ⁶⁾											
	Switching operation for children's rooms	■	■	■	■ ⁶⁾			■	■ ⁶⁾	■	■	■	■	■	■	■	■	■	■	■	■
	Snooze function	■	■	■	■ ⁶⁾			■	■ ⁶⁾	■	■	■	■	■	■	■	■	■	■	■	■
	Multifunction		■				■		■ ⁶⁾										■		

* EVG = electronic ballast units ¹⁾ No N connection required. ²⁾ Applies to glow lamps with 170 V ignition voltage, for glow lamps with 90 V ignition voltage approx. 1/2 glow lamp current. ³⁾ Depends on the set function. ⁴⁾ Will automatically be switched on from 110 V control voltage. ⁵⁾ Same load as main dimmer switch or separate R, L or C load, depending on circuit. ⁶⁾ This specification refers to EUD12D, which is connected in series. ⁷⁾ This specification refers to the connected EUD12D or LUD12 depending on the selected mode. ⁸⁾ Minimum brightness level or dimming speed adjustable. ⁹⁾ Rotation speed determines the dimming speed.



EUD12NPN-UC



Universal dimmer switch. Power MOSFET up to 400 W. Automatic lamp detection. Standby loss 0.1 watt only. With adjustable minimum or maximum brightness and dimming speed. With switching operation for children's rooms and snooze function.

Modular device for DIN EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Universal dimmer switch for lamps up to 400 W, depending on ventilation conditions, dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics.

Zero passage switching with soft start and soft OFF to protect lamps.

Universal control voltage input 8 to 230 V UC, electrically isolated from the 230 V supply voltage and switching voltage. No minimum load required.

Short-time control commands switch on/off, permanent control varies the brightness to the maximum level. An interruption of control changes the direction of dimming.

The setting of the brightness level is stored after switching off.

In case of a power failure the switching position and the brightness level are stored.

If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Glow lamp current up to 5 mA starting at 110 V.

Automatic electronic overload protection and over-temperature switch-off.

The LED below the top rotary switch on the front shows control commands. It starts blinking after 15 seconds if a pushbutton is inhibited.

The upper rotary switch determines the operation, whether the automatic lamp detection or special comfort positions should act:

AUTO allows the dimming of all light species.

EC1 is a comfort position for energy saving lamps which must be switched on with increased power dependent on the construction, so they will also switch on again safely in cold condition when dimmed down.

EC2 is a comfort position for energy saving lamps which will not be switched on again when dimmed down dependent on the construction. Memory is switched off in this position.

LC1 is a comfort position for LED lamps which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1, but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 no inductive (wound) transformers should be used. In addition, the maximum number of dimmable LED lamps can be lower than in the AUTO position dependent on the construction.

The minimum brightness level (completely dimmed down) or the maximum brightness level (completely dimmed up) is adjustable with the **middle % rotary switch**.

The dimming speed can be adjusted **with the lower dimming speed rotary switch**.

The duration of soft start and soft OFF is changed simultaneously.

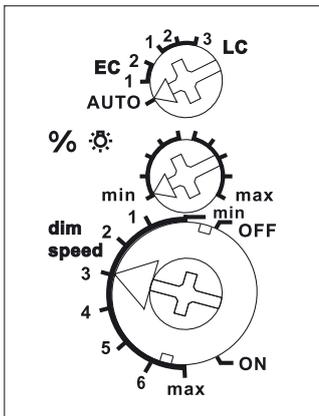
With special switching operation for children's rooms: If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function: With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Mixing of L loads (inductive loads, e.g. wound transformers) and C loads (capacitive loads, e.g. electronic transformers) is not permitted. R loads (ohmic loads, e.g. 230 V incandescent lamps and halogen lamps) may be added anytime.

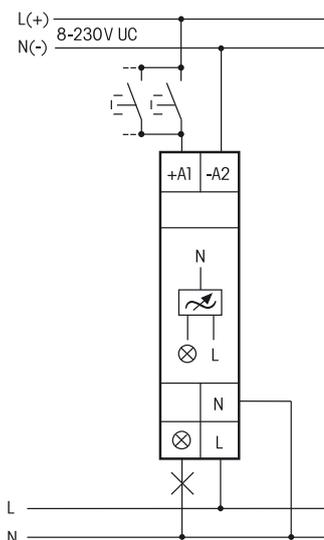
Mixing of L loads and C loads is possible with the dimmer switch **EUD12D** (page 9-4) in connection with capacity enhancer **LUD12** (page 9-7).

Function rotary switches



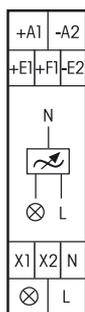
Standard setting ex works.

Typical connection



Technical data page 9-24.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

EUD12NPN-UC	Power MOSFET up to 400 W	EAN 4010312107843	59,20 €/pc.
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EUD12D-UC



Universal dimmer switch. Power MOSFET up to 400 W. Automatic lamp detection. Standby loss 0.3 watt only. With adjustable minimum brightness, maximum brightness and dimming speed. With switching operation for children's rooms and snooze function.

Modular device for DIN EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Universal dimmer switch for lamps up to 400 W, depending on ventilation conditions, dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics. **Up to 3600 W with capacity enhancers LUD12-230V** (description page 9-7) at the terminals X1 and X2. Universal control voltage 8 to 230 V UC and additionally the universal voltage control inputs 8 to 230 V UC central ON and central OFF. The control inputs are electrically isolated from the supply voltage and switching voltage. **Zero passage switching with soft start and soft OFF to protect lamps.** In case of a power failure the switching position and the brightness level are stored. If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered. From 110 V control voltage glow lamp current up to 5 mA (not for DSD). Automatic electronic overload protection and over-temperature switch-off. The functions and times are entered using the MODE and SET keys as described in the operating manual and indicated on the LC display. A keylock function is provided.

You can dim all lamp types in automatic mode settings EUD, DSD, Udo, STS, MIN, MMX, CG and R.

EUD = Universal dimmer switch with settings for dimming speed, minimum brightness, maximum brightness, memory and Soft ON/OFF as well as choice of priority for central control. ESL and LED is settable. Short-time control commands switch on/off, permanent control varies the brightness to the maximum level. A interruption of control changes the direction of dimming.

ESL is a convenience setting for energy saving lamps which must be switched on at high voltage for design reasons so that they can also be switched back on cold in dimmed state. Memory must be switched off on energy saving lamps which cannot be switched back on in dimmed state for design reasons.

LED is a convenience setting for LED lamps which cannot be dimmed down far enough in automatic mode (phase cut-off) for design reasons and must therefore be forced to phase control. There is a choice of 3 dimming curves. No inductive (wound) transformers may be used in ESL and LED settings. In addition the maximum number of lamps may be lower than in automatic mode for design reasons.

Switching operation for children's rooms: If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function: With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

DSD = Same as universal dimmer switch EUD but also comprising activation via two direction switches on the universal voltage control inputs 8..230 V UC.

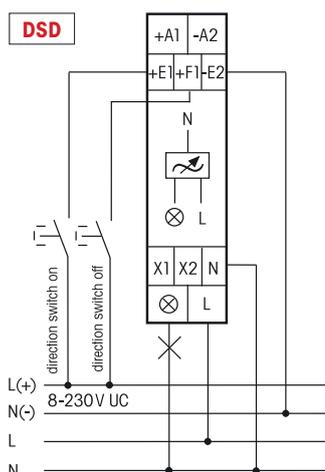
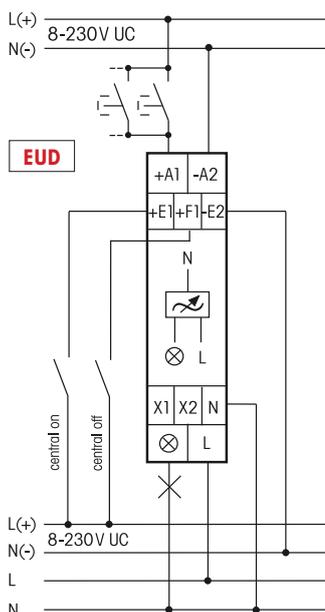
Udo = Same as universal dimmer switch EUD but also comprising setting for a time delay from 1 to 99 minutes. Switch-off early warning at the end by dimming is selectable and adjustable from 1 to 3 minutes.

STS = Staircase time switch with switchable switch-off early warning by dimming. With pump and permanent light by pushbutton. Time adjustable from 1 to 99 minutes. Switch-off early warning (no flickering) by dimming is adjustable from 1 to 3 minutes. Also for dimmable energy saving lamps ESL and 230 V LED lamps. **MIN** = Universal dimmer switch, switches when control voltage is applied to the minimum brightness setting. Maximum brightness is dimmed during the set dim time from 1 to 99 minutes. When the control voltage is interrupted, the device is switched off immediately, even during the dim time. **MMX** = Same function as for **MIN**; when the control voltage is interrupted, dimming still continues until the set minimum brightness is reached. Then the device is switched off. **CG** = Clock with adjustable switch on/off times from 0.1 to 9.9 seconds. The maximum brightness is adjustable from 3 to 99%.

R = Switching relay with setting for Soft ON/OFF from 0.1 to 9.9 seconds. The maximum brightness is adjustable from 3 to 99%. **ON** = permanent ON. **OFF** = permanent OFF.

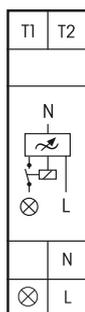
The dim position in % or the time lapse in minutes is indicated in the middle of the display. The expired, resettable switch-on time is indicated at the bottom of the display. Display menu guidance including language selection (German, English, French, Italian or Spanish) is described in the supplied operating instructions.

Typical connections



Technical data page 9-24.
Housing for operating instructions GBA14,
see accessories, chapter Z.

EUD12D-UC	Power MOSFET up to 400 W	EAN 4010312109489	71,10 €/pc.
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EUD12F



Universal dimming switch. Power MOSFET up to 300 W. Automatic lamp detection. Standby loss 0.1 watt only. With adjustable minimum brightness and dimming speed. With switching operation for children's rooms and snooze function.

Modular device for DIN EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Universal dimmer switch for lamps up to 300 W, depending on ventilation conditions, dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics.

Zero passage switching with soft start and soft OFF to protect lamps.

Supply voltage and switching voltage 230 V.

Short-time control commands switch on/off, permanent control varies the brightness to the maximum level.

An interruption of control changes the direction of dimming.

The setting of the brightness level is stored after switching off.

In case of a power failure the switching position and the brightness level are stored.

If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

With integrated switching-off relay for the mains disconnection of switched circuits.

The control pushbutton(s) of the room are connected via low voltage control wires to the terminals T1 and T2 of the EUD12F (field-free internal DC voltage). The permanent power supply must be connected directly to a phase conductor **ahead** of the mains disconnection relay FR12-230V. Due to this, the complete function remains but the leads to the lamps is disconnected by means of the switching-off relay. A glow lamp current is not permitted.

The minimum brightness level (completely dimmed down) can be adjusted with **the upper rotary switch** % , e.g. for dimmable energy saving lamps.

You can dim all lamp types in automatic mode.

Use the lower dimming speed rotary switch to set the dimming speed in seven steps in automatic mode.

+ESL is a convenience setting for energy saving lamps which must be switched on at high voltage for design reasons so that they can also be switched back on cold in dimmed state.

-ESL is a convenience setting for energy saving lamps which cannot be switched back on in dimmed state for design reasons.

This is why memory is switched off in this position. No inductive (wound) transformers may be used in +ESL and -ESL settings. In addition the maximum number of dimmable energy saving lamps may be lower than in automatic mode for design reasons.

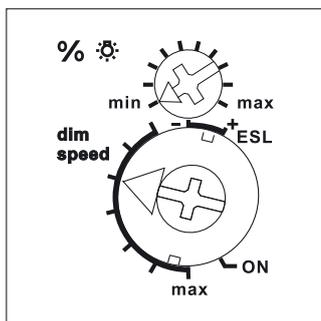
With special switching operation for children's rooms: If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function: With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Mixing of L loads (inductive loads, e.g. wound transformers) and C loads (capacitive loads, e.g. electronic transformers) is not permitted. R loads (ohmic loads, e.g. 230V incandescent lamps and halogen lamps) may be added anytime.

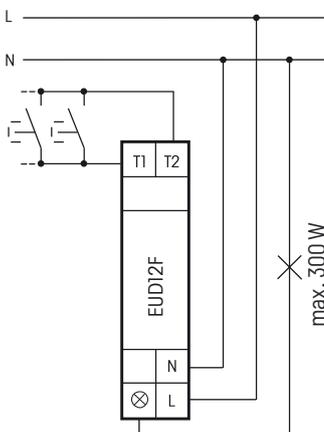
Mixing of L loads and C loads is possible with the dimmer switch **EUD12D** (page 9-4) in connection with capacity enhancer **LUD12** (page 9-7).

Function rotary switches



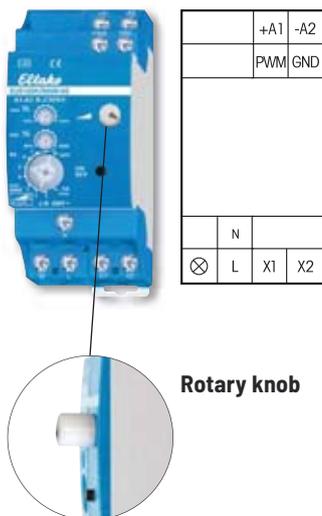
Standard setting ex works.

Typical connection



Technical data page 9-24.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

EUD12F	Power MOSFET 300 W and switching-off relay	EAN 4010312108086	71,10 €/pc.
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Rotary knob

EUD12DK/800W-UC



Universal dimmer switch with rotary knob, Power MOSFET up to 800 W. Automatic lamp detection. Standby loss 0.2 watt only. With adjustable minimum and maximum brightness.

Modular device for DIN EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep. Universal dimmer switch for lamps up to 800 W, depending on ventilation conditions, dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics.

Up to 3600W with capacity enhancers LUD12 at the terminals X1 and X2.

Zero passage switching with soft start and soft OFF to protect lamps.

Universal control voltage input 8 to 230 V UC, electrically isolated from the 230 V supply voltage and switching voltage. No minimum load required.

Alternatively, PWM control with 10-24 V DC at the PWM and GND connections.

The setting of the brightness level is stored after switching off (Memory).

In case of a power failure the switching position and the brightness level are stored.

If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

Maximum brightness (fully dimmed up) is adjustable using the upper % rotary switch.

Use the middle % rotary switch to set the minimum brightness (fully dimmed down).

The lower rotary switch sets the operating mode:

ON: Permanent ON at maximum brightness.

Pos. 1 is an AUTO position and allows the dimming of all lamp types. Switch on and off using pushbutton on the device and/or pushbutton connected to +A1/-A2. Dimming via rotary knob.

Pos. 2 is a comfort setting for LED lamps which cannot be dimmed down far enough on AUTO (phase cut-off) due to the design and must therefore be forced at phase control. Switch on and off using pushbutton on the device and/or pushbutton connected to +A1/-A2. Dimming via rotary knob.

Pos. 3 is a comfort setting for energy saving lamps which must be switched on at a higher voltage so that they can be safely switched on cold when they are dimmed down. Switch on and off using pushbutton on the device and/or pushbutton connected to +A1/-A2. Dimming via rotary knob.

Pos. 4 is an AUTO position and allows the dimming of all lamp types. Switch on and off using switch connected to +A1/-A2. Dimming via rotary knob.

Pos. 5 is a comfort setting for LED lamps which cannot be dimmed down far enough on AUTO (phase cut-off) due to the design and must therefore be forced at phase control. Switch on and off using switch connected to +A1/-A2. Dimming via rotary knob.

Pos. 6 is a comfort setting for energy saving lamps which must be switched on at a higher voltage so that they can be safely switched on cold when they are dimmed down. Switch on and off using switch connected to +A1/-A2. Dimming via rotary knob.

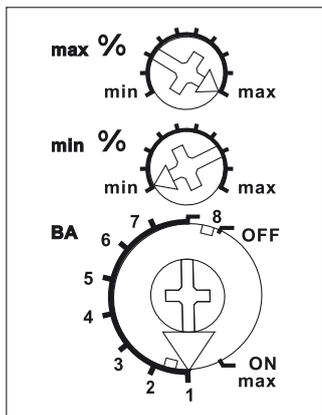
Pos. 7 is an AUTO position and allows the dimming of all lamp types. Switch on and off and dimming with PWM activation.

Pos. 8 is a comfort setting for LED lamps which cannot be dimmed down far enough on AUTO (phase cut-off) due to the design and must therefore be forced at phase control. Switch on and off and dimming with PWM activation.

OFF: Permanent OFF.

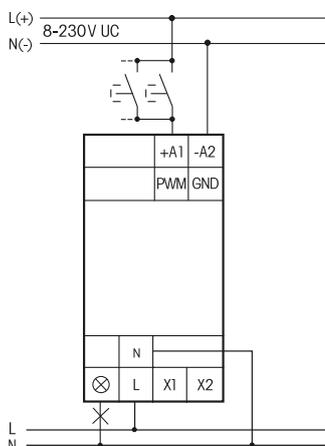
The LED under the upper rotary switch lights up when the lamp is switched on.

Function rotary switches



Standard setting ex works.

Typical connection



Technical data page 9-24.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

EUD12DK/800W-UC	Universal dimmer switch, Power MOSFET up to 800 W	EAN 4010312109656	69,20 €/pc.
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LUD12-230V

Capacity enhancer for universal dimmer switches. Power MOSFET up to 400 W. Standby loss 0.1 watt only.

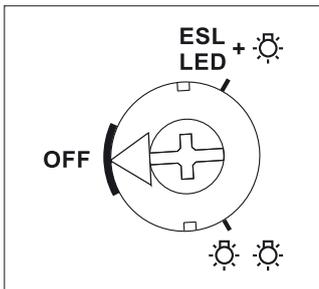
Modular device for DIN EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Capacity enhancers LUD12-230V can be connected to the universal dimmer switches EUD12D, SUD12 (1-10 V input) and the multifunction time relay MFZ12PMD. By this the switching capacity for **one lamp** will be increased up to 200 W or **alternatively for additional lamps** up to 400 W per each capacity enhancer. Dimmable energy saving lamps and dimmable 230 V LED lamps are also dependent on the lamp electronics. Both switching modes for increase of capacity can be executed simultaneously. Automatic lamp detection in the "Capacity increase **with additional lamps**" setting. Supply voltage 230 V.

Automatic electronic overload protection and over-temperature switch-off.

In the mode "Increase of capacity with additional lamps" the kind of load of a capacity enhancer LUD12-230V can vary from the kind of load of the universal impulse dimmer switch.

Therefore it is possible to mix L loads and C loads.

Function rotary switch



Standard setting ex works.

Standard setting ex works.

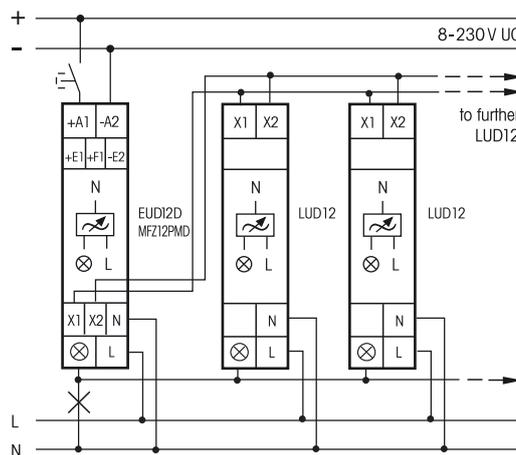
The switching mode **"one lamp"** (☀️) or **"additional lamps"** (☀️☀️) is set with a rotary switch on the front.

This setting must be same as the actual installation, otherwise there is a risk of destruction of the electronics.

Alternative setting for ESL and 230 V LED when the universal dimmer switch in operated in the ESL or LED comfort settings. See page 9-8.

Technical data page 9-24.
Housing for operating instructions GBA14, see accessoires, chapter Z.

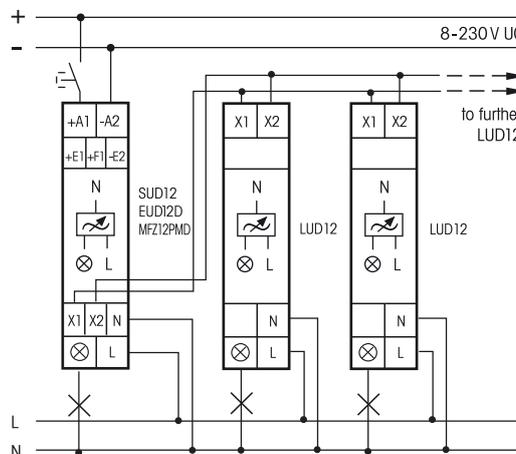
Increase of capacity for one lamp (☀️), ESL and LED see next page



EUD12D and MFZ12PMD:

1.-9. LUD12 + up to 200 W each

Increase of capacity with additional lamps (☀️☀️), ESL and LED see next page



EUD12D, SUD12 and MFZ12PMD:

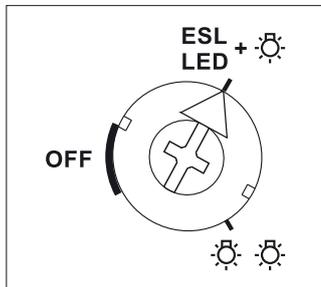
1.-8. LUD12 + up to 400W each

LUD12-230V	Power MOSFET up to 400 W	EAN 4010312107867	64,10 €/pc.
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LUD12-230V



Function rotary switch



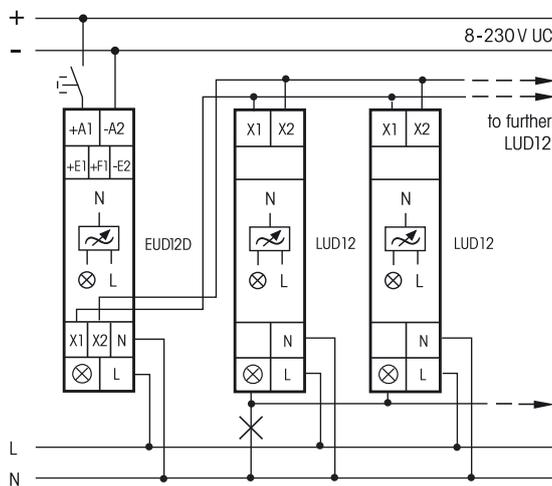
Standard setting ex works.

This setting must be made on the front panel of ESL and 230 V LED lamps if the universal dimmer switch is operated in the ESL or LED comfort settings. Also for capacity increase with additional lamps.

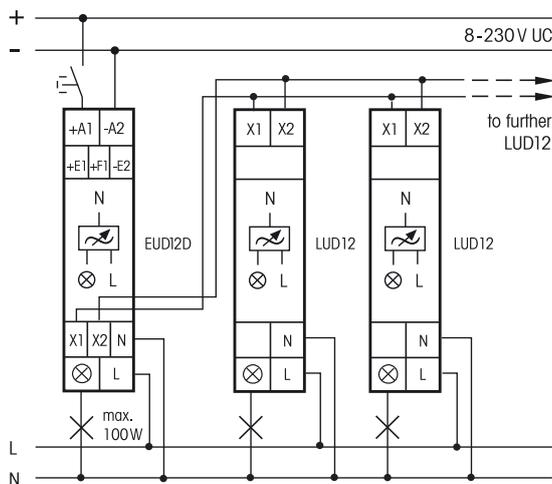
Otherwise there is a risk of destruction of the electronics.

Capacity increase with capacity enhancer LUD12 for ESL dimmable energy saving lamps and dimmable 230 V LED lamps in the ESL and LED comfort settings.

Increase of capacity for one lamp



Increase of capacity with additional lamps



Technical data page 9-24.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

LUD12-230V	Power MOSFET up to 400 W	EAN 4010312107867	64,10 €/pc.
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MOD12D-UC

Power MOSFET up to 300 W. Standby loss 0.3 watt only. Minimal speed, maximum speed and dimming speed are adjustable.

Modular device for DIN EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Motor dimmer with phase control for L loads up to 300 W, depending on ventilation conditions. Only 1 fan motor should be connected.

Universal control voltage 8 to 230V UC and additionally the universal voltage control inputs 8 to 230V UC central ON and central OFF. The control inputs are electrically isolated from the 230V supply voltage and switching voltage.

Switching in zero crossing and switch-on at increased speed.

If there is a power failure, the switch position and the speed level are saved. The device can be switched on when the power supply is restored.

Automatic electronic overload protection and over-temperature switch-off.

Enter the 6 functions and times using the MODE and SET keys as described in the operator manual.

The functions and times are indicated in the LC display. Other features include language selection and keylock.

The total switch-on time is added and indicated in the bottom line of the display. It can be reset to zero. The top line shows the parameters during the setting procedure and the active function in service. The left arrow indicates the switch position 'ON' and the right arrow shows the keylock function when applied. During the setting procedure, the middle line shows the parameters set. In service, the middle line indicates the speed between 10 and 99 for the MOD and DSD functions or the remaining time in minutes for the Udo and ODT functions.

MOD = Motor dimmer with settings for dimming speed DSP, minimum speed MI%, maximum speed MA%, memory function MEM+ and selection of the central control inputs ON and/or OFF when activated or deactivated. Short commands switch on/off, permanent activation changes speed. An interruption in activation changes the dimming direction.

DSD = Motor dimmer with activation with two direction buttons for dimming direction. Setting the dimming speed DSP, minimum speed MI%, maximum speed MA% and memory function MEM+. When activation takes place via +E1, a short command switches on. Permanent activation dims up to maximum speed. A double-click immediately dims to maximum speed. When activation takes place via +F1, a short command switches off. Permanent activation dims down to minimum speed. No central control function.

Udo = Motor dimmer as for MOD function with manual on/off. In addition, a time delay time TIM can be set from 1 to 99 minutes. When the time delay expires, the device switches off. Central ON has priority over Central OFF.

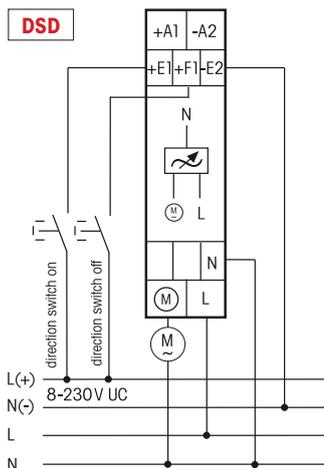
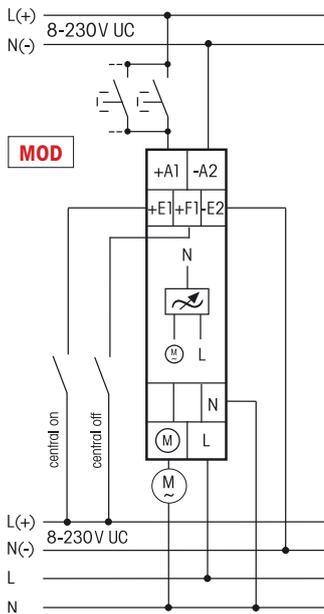
ODT = Motor dimmer with run-on switch function with adjustable speed SP%, response lag AV adjustable from 1 to 99 minutes and time delay RV adjustable from 1 to 99 minutes. When the control voltage is applied, the device switches on after the AV time expires. When the control voltage cuts off, the RV time begins. When the RV time expires, the device switches off.

No central control function.

ON = Permanent ON at maximum speed, **OFF** = Permanent OFF.

Press MODE and SET briefly and simultaneously to activate the keylock. Then press SET to confirm the flashing LCK. Press MODE and SET simultaneously for 2 seconds to deactivate keylock. Then press SET to confirm the flashing UNL.

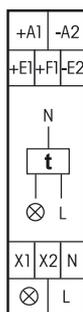
Typical connections



Technical data page 9-24.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

MOD12D-UC	Power MOSFET up to 300 W	EAN 4010312109526	71,10 €/pc.
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FULLY ELECTRONIC MULTIFUNCTION TIME RELAY MFZ12PMD-UC WITH 18 FUNCTIONS



MFZ12PMD-UC



Power MOSFET with almost unlimited number of circuits up to 400 W. Automatic lamp detection. Standby loss 0.3 watt only. Dim down to minimum brightness and up to maximum brightness and Soft ON / Soft OFF are also adjustable for lamp circuit.

Modular device for DIN EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Digitally adjustable and fully electronic multifunction time relay for lamps up to 400 W dependent on ventilation conditions. Dimmable energy saving lamps (ESL) and dimmable 230V LED lamps are also dependent on the lamp electronics.

If **minimum brightness** is not set to 0, the circuit is not switched off but dimmed down to the set percentage.

Up to 3600 W with capacity enhancers LUD12-230V (description page 9-7) at the terminals X1 and X2. Universal control voltage 8 to 230 V UC and additionally the universal voltage control inputs 8 to 230 V UC central ON and central OFF. The control inputs are electrically isolated from the supply voltage and switching voltage.

Zero passage switching to protect lamps.

Glow lamp current up to 5 mA starting at 110 V.

Automatic electronic overload protection and overtemperature switch-off.

Enter both the functions and the times using the two buttons MODE and SET. The functions and times are indicated digitally on an LC display. The time can be set by entering all values within the preselected time scale (0.1 to 9.9 or 1 to 99 seconds, minutes or hours). The longest time is 99 hours. This permits 600 time settings. The time(s) entered is (are) permanently displayed digitally.

Settable functions (description page 13-11): **RV** = release delay, **AV** = operate delay, **AV+** = additive operate delay, **TI** = clock generator starting with impulse, **TP** = clock generator starting with pause, **IA** = impulse-controlled operate delay, **IF** = pulse shaper, **EW** = fleeting NO contact, **AW** = fleeting NC contact, **EAW** = fleeting NO contact and fleeting NC contact, **ARV** = operate and release delay, **ARV+** = additive operate and release delay, **ES** = impulse switch, **SRV** = release-delay impulse switch, **ESV** = impulse switch with release delay and switch-off early-warning function, **ER** = relay, **ON** = permanent ON, **OFF** = permanent OFF. With TI, TP, IA, EAW, ARV and ARV+ functions, a different second time can be entered also with different time ranges.

Setting the times and functions: The LCD component to be changed is selected by pressing the MODE key. The component accessed flashes. Press the SET key to change the component accessed. This may be the function, the time ranges, time T1 or time T2 (on TI, TP, IA, EAW, ARV and ARV+ only). Pressing the MODE key terminates each input. Once the time has been set with MODE, no more components are flashing. The timing relay is now ready to operate. Press the MODE key again to restart the input cycle. All the entered parameters are retained if they are not changed using SET. 25 sec. after the last operation and if the component still flashes the input cycle is automatically terminated and the previously made changes lapse.

Setting additional parameters valid for all functions: when you press the MODE button for longer than 2 seconds, you access the submenu. Press the SET button to select the parameter you want to change. Then confirm by pressing MODE. Press SET to enter the parameter and confirm by pressing MODE. After the 'LED' submenu, you return automatically to the main menu.

MIN = Minimum brightness in OFF state settable to 0 and from 10 to 89 (%), factory setting = 0.

MAX = Maximal brightness in ON state settable from 10 to 99 (%), factory setting = 99. MAX must be at least 10 divisions above MIN.

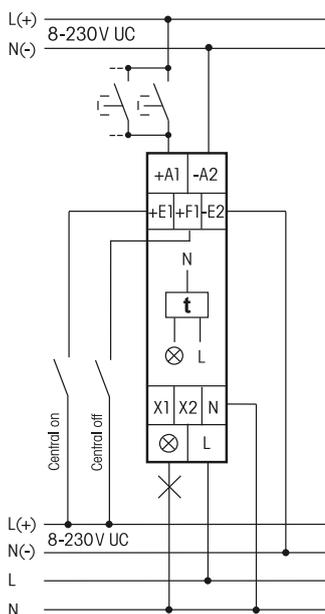
RMP = Switch ON/OFF ramp (soft ON and soft ON) adjustable from 0 = 10 ms to 99 = 1 s, factory setting = 0.

LED = LED+ for dimmable 230 V LED lamps which cannot be dimmed down far enough in automatic mode (trailing edge control) for design reasons and must therefore be forced by phase control. Enabled by pressing MODE; factory setting = LED without +.

Functions of the LC display: if you selected the functions ON or OFF, no time is displayed. Instead an arrow indicates either ON or OFF. In all other functions the set time(s), the function abbreviation and an arrow next to ON and OFF display the switching position. The clock symbol flashes while the set time is elapsing and the remaining time is shown.

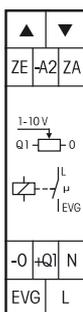
Safety in the event of a power failure: The set parameters are stored in an EEPROM and are therefore immediately available again when the power supply is restored after a power failure.

Typical connection



Technical data page 9-24.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

MFZ12PMD-UC	Power MOSFET up to 400 W	EAN 4010312601099	70,40 €/pc.
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SDS12/1-10V



1 NO contact not potential free 600 VA and 1-10 V control output 40 mA. Only 1 watt standby loss. With adjustable minimum brightness and dimming speed. With switching operation for children's rooms and snooze function.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 modul = 18 mm wide, 58 mm deep.

Zero passage switching with soft ON and soft OFF to protect lamps.

Also adapted for LED driver with 1-10 V passive interface, without voltage source up to 0.6 mA, above this value an additional voltage source is necessary.

Universal control voltage 8 to 230 V UC, local and central on/off with same potential.

Supply voltage 230 V electrically isolated.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

The brightness level is stored on switch-off (Memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

The minimum brightness (fully dimmed) is adjustable with the upper % rotary switch.

At the same time, you define whether the children's room function and the snooze function are active (+KI +SL).

The dimming speed is adjustable **using the lower dimming speed rotary switch.**

The load is switched on and off by a bistable relay at output EVG (electronic ballast units). Switching capacity for fluorescent lamps or LV halogen lamps with electronic ballast units 600 VA.

By using a bistable relay coil power loss and heating is avoided even in the on mode. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

Either direction pushbuttons can be connected to ▲ ▼ or these terminals are bridged and a push-button is connected as universal pushbutton. As direction pushbutton ▲ is 'switch on and dim up' and ▼ is 'switch off and dim down'. A double click at ▲ triggers the automatic updimming until full brightness with dim speed. A double click at ▼ triggers the snooze function. The children's room function is realized with the pushbutton at ▲.

As a universal pushbutton, change the direction by briefly releasing the pushbutton.

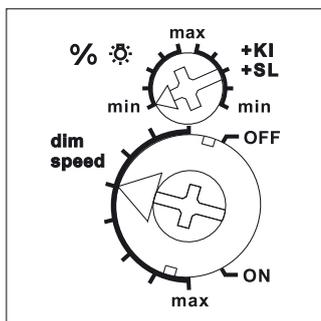
Switching operation for children's rooms KI (universal pushbutton or direction pushbutton ▲):

If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function SL (universal pushbutton or direction pushbutton ▼): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off.

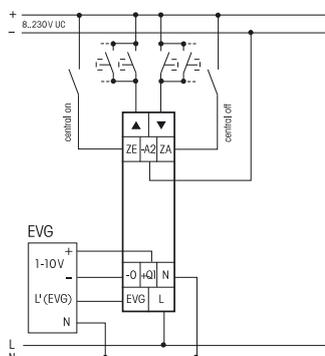
The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Function rotary switches

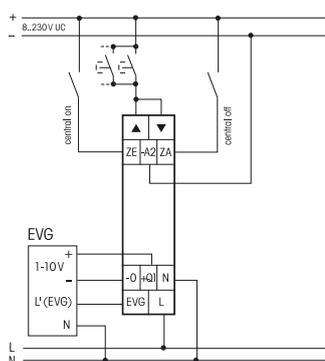


Standard setting ex works.

Typical connections



with direction pushbutton



with universal pushbutton

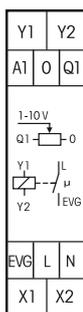
Technical data page 9-24.

Housing for operating instructions GBA14, see accessories, chapter Z.

Recommended retail prices excluding VAT.

SDS12/1-10V	1 NO contact 600 VA	EAN 4010312109403	57,00 €/pc.
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1-10V CONTROLLER SUD12/1-10V FOR UNIVERSAL DIMMER SWITCHES



SUD12/1-10V



1 NO contact potential free 600 VA and 1-10 V control output 40 mA. Standby loss 0.9 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.
State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

The controller SUD12 can be used in two different modes:

Mode 1-10 V output

In this mode electronic ballast units and transformers with a 1-10V interface up to a total control current of 40 mA can be controlled when connected to an universal dimmer switch EUD12D or MFZ12PMD. The EUD12D or the MFZ12PMD is controlled with pushbuttons at the universal control voltage input locally or centrally. The SUD12 converts the dimmer signals from Y1/Y2 to the 1-10V output 0/Q1 for the interface.

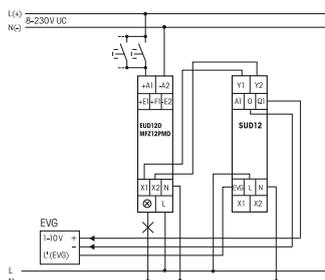
It switches the electronic ballast with a bistable relay at the output EVG (electronic ballast units). **Zero passage switching to protect contacts.** The switching capacity for fluorescent lamps or low voltage halogen lamps with electronic ballast is up to 600 VA.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

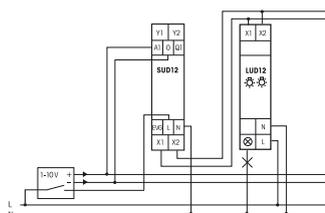
The switched load may not be connected to the mains before the short automatic synchronisation after installation has terminated.

At the same time a directly dimmable lamp can be connected to the dimmer switch EUD12D. Furthermore the dimmer switch EUD12D or MFZ12PMD can be expanded with capacity enhancers LUD12 for directly dimmable lamps as described on page 9-7.

Mode 1-10 V output



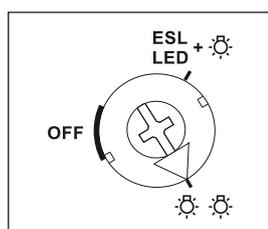
Mode 1-10 V input



Mode 1-10 V input

In this mode the output of a 1-10V controller can be converted at A1/0 into a direct dimming function when connected to a capacity enhancer LUD12 at terminals X1/X2. The closing operation and the opening operation is also carried out externally at L of the SUD12.

The rotary switch of the LUD12 must be adjusted to the setting (additional lamps).



Further capacity enhancers LUD12 in the mode "increase of capacity with additional lamps" can be connected to the controller SUD12 as described on page 9-8.

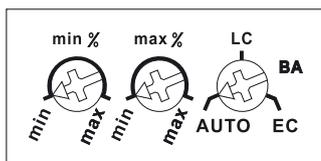
A 100 K potentiometer for brightness control may also be directly connected to the control input A1/0. If the input A1/0 is disconnected the LUD12 dims to maximum brightness.

Technical data page 9-24.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

SUD12/1-10V	1 NO contact 600 VA	EAN 4010312108116	54,40 €/pc.
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Function rotary switches



Standard setting ex works.

DTD65-230V-wg



Rotary dimmer for single mounting 84 x 84 x 25 mm or mounting into the E-Design65 switching system. Installation depth 33 mm. Universal dimmer switch with rotary knob, Power MOSFET up to 300 W. Automatic lamp detection. With adjustable minimum and maximum brightness. Standby loss 0.14 watt only.

Universal dimmer switch for lamps up to 300 W, depending on the ventilation conditions. Dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps also depending on the lamp electronics.

Zero passage switching with soft start and soft OFF to protect lamps.

Control voltage, supply voltage and switching voltage 230 V. No minimum load required.

The setting of the brightness level is stored after switching off (Memory).

In case of a power failure the switching position and the brightness level are stored. If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

Mounting: screw mounting plate. After the rotary switch setting, pull the red insulating cap and attach the knob. The insulating cap should be remained for future use in the DTD65. Then put up the frame and attach the front panel.

⚠ Important! Before mounting and removal, always disconnect the power supply!

Minimum brightness (fully dimmed down) is adjustable using the left % rotary switch.

Use the middle % rotary switch to set the maximum brightness (fully dimmed up).

The right rotary knob sets the operating mode:

AUTO allows the dimming of all lamp types.

LC is a comfort position for LED lamps which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

EC is a comfort position for energy saving lamps which must be switched on with increased power dependent on the construction, so they will also switch on again safely in cold condition when dimmed down.

Operation:

Press the middle of the rotary knob to switch on with memory value and to switch off and save the current dimming value.

Turn to the right (clockwise) to dim up. The turning speed determines the dim-up speed.

If the dimming actuator was switched off to the right at the start of dimming, switch-on is at minimum brightness followed by gradual dim-up. **This is the children's room circuit.**

When the rotary knob is turned jerkily to the right - dim-up is rapid to the maximum brightness adjusted.

Turn to the left (anticlockwise) to dim-down to the minimum brightness adjusted.

The turning speed determines the dim-down speed.

When the rotary knob is turned jerkily to the left, dim-down is rapid to the minimum brightness adjusted.

If the dimming switch was switched off to the left at the start of turning, switch-on is at minimum brightness followed by gradual dim-up by turning to the right.

Control is also possible using a 230 V control pushbutton in addition to the rotary knob: Short commands switch on/off, continuous activation changes brightness up to maximum or minimum value. If you interrupt activation, it changes the dimming direction.

Children's room circuit with control pushbutton: Press the control pushbutton for a long time to switch on at minimum brightness, then continue pressing the pushbutton to dim up the lights slowly without changing the last dimming value stored.

Sleep time with control pushbutton: A double pulse dims down and switches off the lighting from the current dimming position through to minimum brightness.

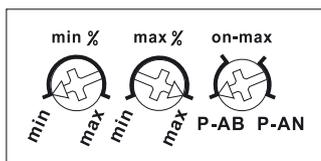
The maximum dimming time of 60 minutes is dependent on the current dimming position and the adjusted minimum brightness and can therefore be shortened as required. Tap briefly at any time during dim-down process to switch off. Press long during the dimming-down process to dim up and end the sleep timer.

Technical data page 9-24.

DTD65-230V-wg	Rotary dimmer, pure white glossy	EAN 4010312317426	56,40 €/pc.
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Function rotary switches



Standard setting ex works.

DTD65L-230V-wg



Rotary dimmer without N connection for single mounting 84 x 84 x 25 mm or mounting into the E-Design65 switching system. Installation depth 33 mm. Universal dimmer switch with rotary knob, Power MOSFET up to 200 W. With adjustable minimum and maximum brightness. Standby loss 0.5 watt only.

Universal dimmer switch for R and C loads up to 200 watt, depending on ventilation conditions. Dimmable energy saving lamps ESL and 230 V LED lamps in 'trailing edge' mode up to 200 W or up to 40 W in 'leading edge' mode, depending on ventilation conditions.

If 230 V LED lamps are lightly glowing when they are turned off, a GLE base load must be installed parallel to the lamp.

It is not permitted to connect L loads (inductive loads, like wounded transformers).

Zero passage switching with soft start and soft OFF to protect lamps.

Control voltage, supply voltage and switching voltage 230 V. Minimum load 4 W.

In case of a power failure the switching position and the brightness level are stored. If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

Mounting: screw mounting plate. After the rotary switch setting, pull the red insulating cap and attach the knob. The insulating cap should be remained for future use in the DTD65L. Then put up the frame and attach the front panel.

⚠ Important! Before mounting and removal, always disconnect the power supply!

Minimum brightness (fully dimmed down) is adjustable **using the left % rotary switch.**

Use the middle % rotary switch to set the maximum brightness (fully dimmed up).

The right rotary switch allows to choose the dimming technology: **trailing edge** with memory (**P-AB**), **trailing edge** without memory (**P-AB on-max**), **leading edge** with memory (**P-AN**) or leading edge without memory (**P-AN on-max**).

The adjusted brightness stays saved at turning off if the **memory function** is active. At **on-max function** it turns on always with 100% brightness, by this way ESL can be switched.

Operation:

Press the middle of the rotary knob to switch on with memory value and to switch off and save the current dimming value.

Turn to the right (clockwise) to dim up. The turning speed determines the dim-up speed.

If the dimming actuator was switched off to the right at the start of dimming, switch-on is at minimum brightness followed by gradual dim-up. **This is the children's room circuit.**

When the rotary knob is turned jerkily to the right – dim-up is rapid to the maximum brightness adjusted.

Turn to the left (anticlockwise) to dim-down to the minimum brightness adjusted.

The turning speed determines the dim-down speed.

When the rotary knob is turned jerkily to the left, dim-down is rapid to the minimum brightness adjusted.

If the dimming switch was switched off to the left at the start of turning, switch-on is at minimum brightness followed by gradual dim-up by turning to the right.

Control is also possible using a 230 V control pushbutton in addition to the rotary knob: Short commands switch on/off, continuous activation changes brightness up to maximum or minimum value. If you interrupt activation, it changes the dimming direction.

Children's room circuit with control pushbutton: Press the control pushbutton for a long time to switch on at minimum brightness, then continue pressing the pushbutton to dim up the lights slowly without changing the last dimming value stored.

Sleep time with control pushbutton: A double pulse dims down and switches off the lighting from the current dimming position through to minimum brightness.

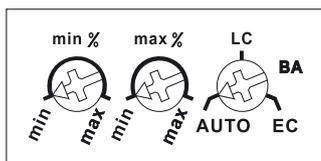
The maximum dimming time of 60 minutes is dependent on the current dimming position and the adjusted minimum brightness and can therefore be shortened as required. Tap briefly at any time during dim-down process to switch off. Press long during the dimming-down process to dim up and end the sleep timer.

Technical data page 9-24.

DTD65L-230V-wg	Rotary dimmer without N connection, pure white glossy	EAN 4010312317716	56,40 €/pc.
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Function rotary switches



Standard setting ex works.

DTD55-230V-wg



Rotary dimmer for single mounting 80 x 80 x 25 mm or mounting into the E-Design55 switching system. Installation depth 33 mm. Universal dimmer switch with rotary knob, Power MOSFET up to 300 W. Automatic lamp detection. With adjustable minimum and maximum brightness. Standby loss 0.14 watt only.

Universal dimmer switch for lamps up to 300 W, depending on the ventilation conditions. Dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps also depending on the lamp electronics.

Zero passage switching with soft start and soft OFF to protect lamps.

Control voltage, supply voltage and switching voltage 230 V. No minimum load required.

The setting of the brightness level is stored after switching off (Memory).

In case of a power failure the switching position and the brightness level are stored. If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

Mounting: screw mounting plate. After the rotary switch setting, pull the red insulating cap and attach the knob. The insulating cap should be remained for future use in the DTD55. Then put up the frame and attach the front panel.

⚠ Important! Before mounting and removal, always disconnect the power supply!

Minimum brightness (fully dimmed down) is adjustable **using the left % rotary switch.**

Use the middle % rotary switch to set the maximum brightness (fully dimmed up).

The right rotary knob sets the operating mode:

AUTO allows the dimming of all lamp types.

LC is a comfort position for LED lamps which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

EC is a comfort position for energy saving lamps which must be switched on with increased power dependent on the construction, so they will also switch on again safely in cold condition when dimmed down.

Operation:

Press the middle of the rotary knob to switch on with memory value and to switch off and save the current dimming value.

Turn to the right (clockwise) to dim up. The turning speed determines the dim-up speed.

If the dimming actuator was switched off to the right at the start of dimming, switch-on is at minimum brightness followed by gradual dim-up. **This is the children's room circuit.**

When the rotary knob is turned jerkily to the right - dim-up is rapid to the maximum brightness adjusted.

Turn to the left (anticlockwise) to dim-down to the minimum brightness adjusted.

The turning speed determines the dim-down speed.

When the rotary knob is turned jerkily to the left, dim-down is rapid to the minimum brightness adjusted.

If the dimming switch was switched off to the left at the start of turning, switch-on is at minimum brightness followed by gradual dim-up by turning to the right.

Control is also possible using a 230 V control pushbutton in addition to the rotary knob: Short commands switch on/off, continuous activation changes brightness up to maximum or minimum value. If you interrupt activation, it changes the dimming direction.

Children's room circuit with control pushbutton: Press the control pushbutton for a long time to switch on at minimum brightness, then continue pressing the pushbutton to dim up the lights slowly without changing the last dimming value stored.

Sleep time with control pushbutton: A double pulse dims down and switches off the lighting from the current dimming position through to minimum brightness.

The maximum dimming time of 60 minutes is dependent on the current dimming position and the adjusted minimum brightness and can therefore be shortened as required. Tap briefly at any time during dim-down process to switch off. Press long during the dimming-down process to dim up and end the sleep timer.

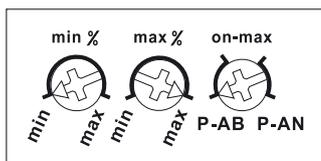
Technical data page 9-24.

9-15

DTD55-230V-wg	Rotary dimmer, pure white glossy	EAN 4010312317785	56,40 €/pc.
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Function rotary switches



Standard setting ex works.

DTD55L-230V-wg



Rotary dimmer without N connection for single mounting 80 x 80 x 25 mm or mounting into the E-Design55 switching system. Installation depth 33 mm. Universal dimmer switch with rotary knob, Power MOSFET up to 200 W. With adjustable minimum and maximum brightness. Standby loss 0.5 watt only.

Universal dimmer switch for R and C loads up to 200 watt, depending on ventilation conditions. Dimmable energy saving lamps ESL and 230 V LED lamps in 'trailing edge' mode up to 200 W or up to 40 W in 'leading edge' mode, depending on ventilation conditions.

If 230 V LED lamps are lightly glowing when they are turned off, a GLE base load must be installed parallel to the lamp.

It is not permitted to connect L loads (inductive loads, like wounded transformers).

Zero passage switching with soft start and soft OFF to protect lamps.

Control voltage, supply voltage and switching voltage 230 V. Minimum load 4 W.

In case of a power failure the switching position and the brightness level are stored. If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

Mounting: screw mounting plate. After the rotary switch setting, pull the red insulating cap and attach the knob. The insulating cap should be remained for future use in the DTD55L. Then put up the frame and attach the front panel.

⚠ Important! Before mounting and removal, always disconnect the power supply!

Minimum brightness (fully dimmed down) is adjustable **using the left % rotary switch.**

Use the middle % rotary switch to set the maximum brightness (fully dimmed up).

The right rotary switch allows to choose the dimming technology: **trailing edge** with memory (**P-AB**), **trailing edge** without memory (**P-AB on-max**), **leading edge** with memory (**P-AN**) or leading edge without memory (**P-AN on-max**).

The adjusted brightness stays saved at turning off if the **memory function** is active. At **on-max function** it turns on always with 100% brightness, by this way ESL can be switched.

Operation:

Press the middle of the rotary knob to switch on with memory value and to switch off and save the current dimming value.

Turn to the right (clockwise) to dim up. The turning speed determines the dim-up speed.

If the dimming actuator was switched off to the right at the start of dimming, switch-on is at minimum brightness followed by gradual dim-up. **This is the children's room circuit.**

When the rotary knob is turned jerkily to the right - dim-up is rapid to the maximum brightness adjusted.

Turn to the left (anticlockwise) to dim-down to the minimum brightness adjusted.

The turning speed determines the dim-down speed.

When the rotary knob is turned jerkily to the left, dim-down is rapid to the minimum brightness adjusted.

If the dimming switch was switched off to the left at the start of turning, switch-on is at minimum brightness followed by gradual dim-up by turning to the right.

Control is also possible using a 230 V control pushbutton in addition to the rotary knob: Short commands switch on/off, continuous activation changes brightness up to maximum or minimum value. If you interrupt activation, it changes the dimming direction.

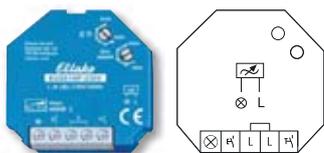
Children's room circuit with control pushbutton: Press the control pushbutton for a long time to switch on at minimum brightness, then continue pressing the pushbutton to dim up the lights slowly without changing the last dimming value stored.

Sleep time with control pushbutton: A double pulse dims down and switches off the lighting from the current dimming position through to minimum brightness.

The maximum dimming time of 60 minutes is dependent on the current dimming position and the adjusted minimum brightness and can therefore be shortened as required. Tap briefly at any time during dim-down process to switch off. Press long during the dimming-down process to dim up and end the sleep timer.

Technical data page 9-24.

DTD55L-230V-wg	Rotary dimmer without N connection, pure white glossy	EAN 4010312317792	56,40 €/pc.
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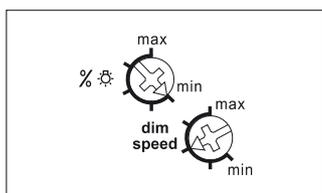


EUD61NP-230V



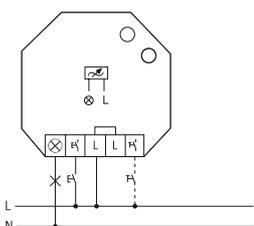
Without N connection, POWER MOSFET up to 400 W. Standby loss 0.5 watt only. With control inputs for pushbutton light switches and light switches. With adjustable minimum brightness and dimming speed.

Function rotary switches



Standard setting ex works.

Typical connection



Control by pushbutton switches or light switches.

Built-in device for installation. 45 mm long, 45 mm wide, 18 mm deep.
 Universal dimmer switch for R, L and C loads up to 400 watt, depending on ventilation conditions. Automatic detection of load R+L or R+C.

Not compatible with energy saving lamps and 230 V LED, please use the EUD61NPL or the dimmer with N connection: EUD61NPN.

Zero passage switching with soft start and soft OFF to protect lamps.

Control voltage 230 V. Min. load 20 W.

Short-time control commands switch on/off, permanent control varies the brightness up to the maximum level. A short interruption of control changes the direction of dimming.

The brightness level is stored after switching off.

In case of a power failure the switching position and the brightness level are stored.

If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

The minimum brightness level (completely dimmed down) can be adjusted **with the upper rotary switch** %☼.

The dimming speed can be adjusted **with the lower dimming speed rotary switch**. Simultaneously the soft on and soft off period is changed.

If light switches cannot be replaced by pushbutton light switches, there is a separate control input for light switches. If the switch is opened briefly after closing, the light is dimmed until the next time it is opened again briefly. The dimming direction changes automatically at both peaks. The dimming direction can also be changed by opening the switch briefly twice.

Switching operation for children's rooms (only if controlled by pushbutton light switch): If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function (only if controlled by pushbutton light switch): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Without N connection, therefore suitable for mounting directly behind the pushbutton light switch or light switch, even if no N wire is available.

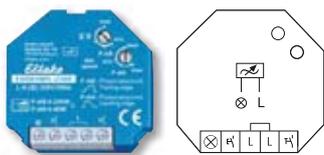
Mixing of L loads (inductive loads, e.g. wound transformers) and C loads (capacitive loads, e.g. electronic transformers) is not permitted. R loads (ohmic loads, e.g. 230 V incandescent lamps and halogen lamps) may be added anytime.

Technical data page 9-24.

EUD61NP-230V	Power MOSFET up to 400 W	EAN 4010312108062	56,90 €/pc.
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9-17

UNIVERSAL DIMMER SWITCH EUD61NPL-230V WITHOUT N CONNECTION, ESPECIALLY FOR LED

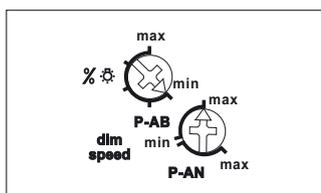


EUD61NPL-230V



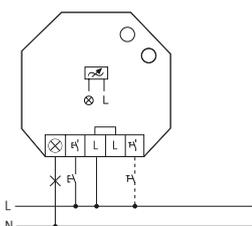
Without N connection, POWER MOSFET up to 200 W. Standby loss 0.5 watt only. With control inputs for pushbutton light switches and light switches. With adjustable minimum brightness, dimming technology and dimming speed.

Function rotary switches



Standard setting ex works.

Typical connection



Control by pushbutton switches or light switches.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

Universal dimmer switch for R and C loads up to 200 W, depending on ventilation conditions.

Dimmable energy saving lamps ESL and 230 V LED lamps in 'trailing edge' mode up to 200 W or up to 40 W in 'leading edge' mode, depending on ventilation conditions.

If 230 V LED lamps are lightly glowing when they are turned off, a GLE base load must be installed parallel to the lamp.

It is not permitted to connect L loads (inductive loads, like wounded transformers).

Zero passage switching with soft start and soft OFF to protect lamps.

Control voltage, supply voltage and switching voltage 230 V. Min. load 4 W.

Short-time control commands switch on/off, permanent control varies the brightness up to the maximum level. A short interruption of control changes the direction of dimming.

The brightness level is stored after switching off (memory). It is possible to deactivate the memory function by turning 3 times the upper rotary switch to the right stop (max), then it is compatible with ESL. To reactivate the memory function (factory setting), turn the upper rotary switch 3 times to the left stop (min). In case of a power failure the switching position and the brightness level are stored, and will switch on after the failure if applicable.

Automatic electronic overload protection and over-temperature switch-off.

The minimum brightness level (completely dimmed down) can be adjusted **with the upper rotary switch** % ⚙️.

The lower rotary switch allows to choose between the both dimming technologies, P-AN leading or P-AB trailing edge and to change the dimming speed. Simultaneously the duration of soft on and soft off will be adjusted.

If light switches cannot be replaced by pushbutton light switches, there is a separate control input for light switches: If the switch is opened briefly after closing, the light is dimmed until the next time it is opened again briefly. The dimming direction changes automatically at both peaks. The dimming direction can also be changed by opening the switch briefly twice.

Switching operation for children's rooms (only if controlled by pushbutton light switch): If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

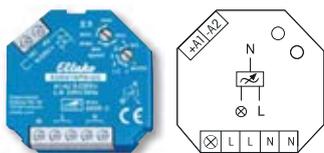
Snooze function (only if controlled by pushbutton light switch): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required.

It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Without N connection, therefore suitable for mounting directly behind the pushbutton light switch or light switch, even if no N wire is available.

Technical data page 9-24.

EUD61NPL-230V	Power MOSFET up to 200 W	EAN 4010312109618	56,50 €/pc.
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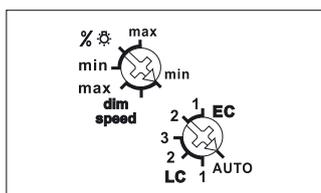


EUD61NPN-UC



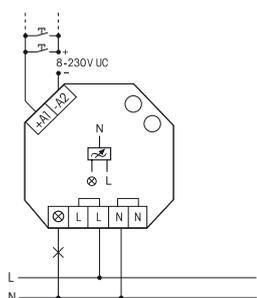
Universal dimmer switch. Power MOSFET up to 400 W. Automatic lamp detection. Standby loss 0.1 watt only. With adjustable minimum brightness or dimming speed. With switching operation for children's rooms and snooze function.

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 18 mm deep.

Universal dimmer switch for lamps up to 400 watts, depending on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V LED lamps dependent on the lamps electronics.

Zero passage switching with soft start and soft OFF to protect lamps.

Universal control voltage input 8 to 230 V UC, electrically isolated from the 230 V supply voltage and switching voltage. No minimum load required.

Short-time control commands switch on/off, permanent control varies the brightness to the maximum level. An interruption of control changes the direction of dimming.

The setting of the brightness level is stored after switching off (Memory).

In case of a power failure the switching position and the brightness level are stored. If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

With the top rotary switch %/dim speed either the minimum brightness level (completely dimmed down) or the dim speed can be adjusted. The duration of soft-on and soft-off will be changed with the dimming speed.

In operation, the bottom rotary switch determines, whether automatic lamp detection or special comfort positions should operate:

AUTO allows the dimming of all lamp types.

EC1 is a comfort position for energy saving lamps which must be switched on with increased power dependent on the construction, so they will also switch on again safely in cold condition when dimmed down.

EC2 is a comfort position for energy saving lamps which will not be switched on again when dimmed down dependent on the construction. Memory is switched off in this position.

LC1 is a comfort position for LED lamps which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1, but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 no inductive (wound) transformers should be used. In addition, the maximum number of dimmable LED lamps can be lower than in the AUTO position dependent on the construction.

With special switching operation for children's rooms: If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

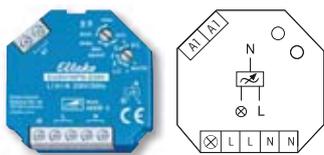
Snooze function: With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Mixing of L loads (inductive loads, e.g. wound transformers) and C loads (capacitive loads, e.g. electronic transformers) is not permitted. R loads (ohmic loads, e.g. 230V incandescent lamps and halogen lamps) may be added anytime.

Technical data page 9-24.

EUD61NPN-UC	Power MOSFET up to 400 W	EAN 4010312107874	54,90 €/pc.
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UNIVERSAL DIMMER SWITCH EUD61NPN-230V

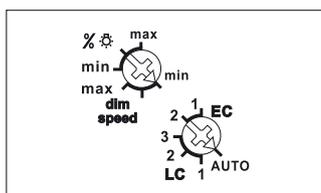


EUD61NPN-230V



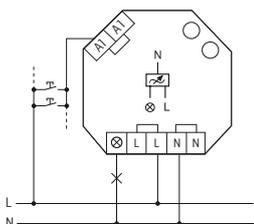
Universal dimmer switch. Power MOSFET up to 400 W. Automatic lamp detection. Standby loss 0.1 watt only. With adjustable minimum brightness or dimming speed. With switching operation for children's rooms and snooze function.

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 18 mm deep.

Universal dimmer switch for lamps up to 400 watts, depending on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V LED lamps dependent on the lamps electronics.

Zero passage switching with soft start and soft OFF to protect lamps.

Control voltage, supply voltage and switching voltage 230 V.

No minimum load required.

Short-time control commands switch on/off, permanent control varies the brightness to the maximum level. An interruption of control changes the direction of dimming.

The setting of the brightness level is stored after switching off (Memory).

In case of a power failure the switching position and the brightness level are stored. If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

With the top rotary switch % dim speed either the dim speed can be adjusted or the minimum brightness level (completely dimmed down). The duration of soft-on and soft-off will be changed with the dimming speed.

In operation, **the bottom rotary switch** determines, whether automatic lamp detection or special comfort positions should operate:

AUTO allows the dimming of all lamp types.

EC1 is a comfort position for energy saving lamps which must be switched on with increased power dependent on the construction, so they will also switch on again safely in cold condition when dimmed down.

EC2 is a comfort position for energy saving lamps which will not be switched on again when dimmed down dependent on the construction. Memory is switched off in this position.

LC1 is a comfort position for LED lamps which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1, but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 no inductive (wound) transformers should be used. In addition, the maximum number of dimmable LED lamps can be lower than in the AUTO position dependent on the construction.

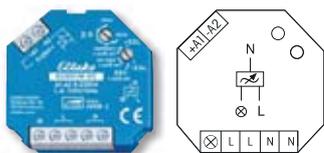
With special switching operation for children's rooms: If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function: With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Mixing of L loads (inductive loads, e.g. wound transformers) and C loads (capacitive loads, e.g. electronic transformers) is not permitted. R loads (ohmic loads, e.g. 230 V incandescent lamps and halogen lamps) may be added anytime.

Technical data page 9-24.

EUD61NPN-230V	Power MOSFET up to 400 W	EAN 4010312109564	54,90 €/pc.
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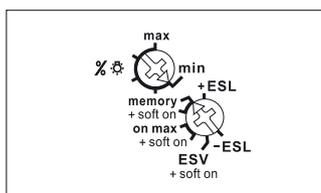


EUD61M-UC



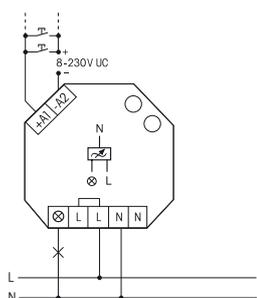
Universal dimmer switch. Power MOSFET up to 400 W. Automatic lamp detection. Standby loss 0.1 watt only. With adjustable minimum brightness. With switching operation for children's rooms and snooze function.

Function rotary switches



Standard setting ex works.

Typical connection



Built-in device for installation. 45 mm long, 45 mm wide, 18 mm deep.

Universal dimmer switch for lamps up to 400 W, depending on ventilation conditions, dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics.

Zero passage switching with soft start and soft OFF to protect lamps.

Universal control voltage input 8 to 230 V UC, electrically isolated from the 230 V supply voltage and switching voltage.

Short-time control commands switch on/off, permanent control varies the brightness to the maximum level.

A interruption of control changes the direction of dimming. The brightness level is stored after switching off in case the **function memory** is set. If the **function on max** is set, it always switches on at the maximum brightness level.

In case of a power failure the switching position and the brightness level are stored.

If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

Automatic electronic overload protection and over-temperature switch-off.

The minimum brightness level (completely dimmed down) can be adjusted with **the upper rotary switch** %⚙️, e.g. for dimmable energy saving lamps.

You can dim all lamp types in automatic mode.

Use the lower function rotary switch to select between five automatic mode functions: memory, memory+soft on, on max, on max+soft on and ESV+soft on.

+ESL is a convenience setting for energy saving lamps which must be switched on at high voltage for design reasons so that they can also be switched back on cold in dimmed state.

-ESL is a convenience setting for energy saving lamps which cannot be switched back on in dimmed state for design reasons. This is why memory is switched off in this position.

No inductive (wound) transformers may be used in +ESL and -ESL settings. In addition the maximum number of dimmable energy saving lamps may be lower than in automatic mode for design reasons.

Setting of function ESV same as 'memory+soft on' with setting of a release delay up to 90 minutes with the rotary switch %⚙️ if the manual off command is not given. Before time-out switch-off early warning function by dimming down within 1 minute.

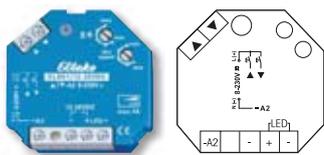
Switching operation for children's rooms: If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function: With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Mixing of L loads (inductive loads, e.g. wound transformers) and C loads (capacitive loads, e.g. electronic transformers) is not permitted. R loads (ohmic loads, e.g. 230 V incandescent lamps and halogen lamps) may be added anytime.

Technical data page 9-24.

EUD61M-UC	Power MOSFET up to 400 W	EAN 4010312107973	54,90 €/pc.
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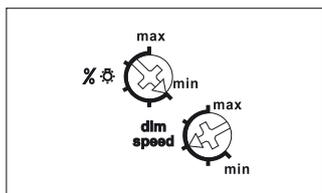


ELD61/12-36V DC



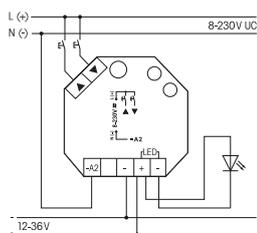
Power MOSFET for LED lamps 12-36 V DC up to 4 A, pulse width modulation PWM. Stand-by loss 0.1 Watt only. With adjustable minimum brightness and dimming speed. With switching operation for children's rooms and snooze function.

Function rotary switches



Standard setting ex works.

Typical connection



For installation. 45 mm long, 45 mm wide, 18 mm deep.

Dimmer switch for R- and LED loads up to 4 A depending on ventilation conditions.

Zero passage switching with soft start and soft OFF to protect lamps.

Supply voltage input 12 to 36 V DC, depending on the connected LED illumination.

A pulse resistant switching power supply unit is necessary.

Universal control voltage 8..230 V UC, electrically isolated from the supply voltage.

Either direction pushbuttons can be connected to ▲ ▼ or these terminals will be bridged and a pushbutton will be connected as an universal pushbutton.

With universal pushbutton: short commands switch on/off, permanent control changes the brightness to the maximum. An interruption of the control changes the dimming direction.

With direction pushbutton: switching and dimming on with ▲, turning and dimming off with ▼. A dual pulse with ▲ effects dimming on up to the maximum brightness with the set dimming speed (dimspeed). The set brightness level will be stored when turning off (Memory).

In case of power failure the switching position and the brightness level will be stored and will be switched on when supply voltage recurs.

Automatic electronic overload protection and overtemperature switch off.

The LED indicates an activation by a short flickering.

With the top rotary switch %: the minimum brightness level (completely dimmed down) can be adjusted.

With the lower dim speed rotary switch, the dimming speed can be set. At the same time, soft-on and soft-off is changed.

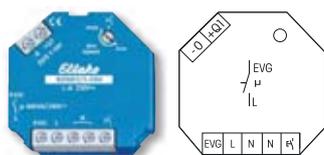
With switching operation for children's rooms (universal or direction pushbutton ▲):

if the light is switched on by holding down the pushbutton it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is pressed without modifying the latest stored brightness level.

Snooze function (universal or direction pushbutton ▼): with a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

Technical data page 9-24.

ELD61/12-36V DC	Power MOSFET up to 4 A	EAN 4010312109502	52,70 €/pc.
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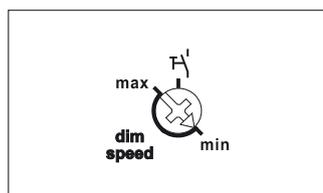


SDS61/1-10V



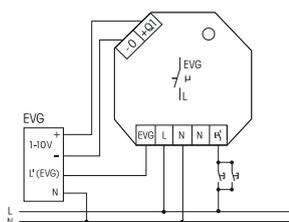
1 NO contact not potential free 600 VA and 1-10 V control output 40 mA. Only 1 watt standby loss. With adjustable dimming speed. With switching operation for children's rooms and snooze function. With pushbutton or switch activation.

Function rotary switch



Standard setting ex works.

Typical connection



Technical data page 9-24.

Built-in device for installation. 45 mm long, 45 mm wide, 33 mm deep.

Zero passage switching with soft ON and soft OFF to protect lamps.

Also adapted for LED driver with 1-10 V passive interface, without voltage source up to 0.6 mA, above this value an additional voltage source is necessary.

Switching voltage and control voltage 230 V.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

The load is switched on and off by a bistable relay at output EVG (electronic ballast units). Switching capacity for fluorescent lamps or LV halogen lamps with electronic ballast units 600 VA.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

Short-time control commands switch on/off, permanent control varies the brightness up to the maximum level. An interruption of control changes the direction of dimming.

The brightness level is stored after switching off.

In case of a power failure the switching position and the brightness level are stored.

If applicable the dimmer will be switched on at the stored brightness level after the supply voltage is recovered.

The dimming speed is adjustable **using the dimming speed rotary switch (only for pushbutton activation).**

If light switches cannot be replaced by light pushbuttons, the rotary switch can be set to the switch symbol at the right stop:

When the closed switch is briefly opened, the light is dimmed until the switch is briefly opened again. The dimming direction is changed automatically at each of the two vertices. In addition the direction can be changed by opening the switch briefly twice.

Switching operation for children's rooms (only for pushbutton activation): If the light is switched on by holding down the pushbutton, it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down without modifying the last stored brightness level.

Snooze function (only for pushbutton activation): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (max. = 60 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down. Holding down the pushbutton during the dimming down process dims up and stops the snooze function.

SDS61/1-10V	1 NO contact 600 VA	EAN 4010312109496	52,30 €/pc.
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TECHNICAL DATA UNIVERSAL DIMMER SWITCHES, CAPACITY ENHANCERS AND 1-10 V CONTROLLERS

Type	ELD61 ¹⁾	EUD12NPN ¹⁾ EUD12D ¹⁾ EUD12DK ¹⁾ LUD12 ¹⁾ MFZ12PMD ¹⁾	EUD61NPN ¹⁾ EUD61M ¹⁾ EUD61NP ¹⁾ EUD61NPL ¹⁾	EUD12F ¹⁾	SDS12 SUD12	SDS61	MOD12D	DTD65 ¹⁾ DTD65L ¹⁾ DTD55 ¹⁾ DTD55L ¹⁾
Spacing of control connections/load	6 mm	6 mm	6 mm EUD61NP: 3 mm	6 mm	6 mm	3 mm	6 mm	3 mm
Incandescent and halogen lamps 230 V (R)	-	up to 400 W EUD12DK: up to 800 W	up to 400 W EUD61NPL: 200 W	up to 300 W	-	-	-	up to 300 W DTD65L and DTD55L: up to 200 W
Inductive transformers (L) ²⁾³⁾	-	up to 400 W EUD12DK: up to 800 W	up to 400 W (not EUD61NPL)	up to 300 W	-	-	-	up to 300 W DTD65L and DTD55L: -
Motor (L)	-	-	-	-	-	-	up to 300 W ⁷⁾	-
Capacitive transformers (C) ³⁾⁸⁾	-	up to 400 W EUD12DK: up to 800 W	up to 400 W EUD61NPL: 200 W	up to 300 W	-	-	-	up to 300 W DTD65L and DTD55L: up to 200 W
Dimmable energy saving lamps ESL ⁵⁾⁶⁾⁹⁾	-	up to 400 W EUD12DK: up to 800 W	up to 400 W EUD61NPL: 200 W (not EUD61NP)	up to 300 W	-	-	-	up to 300 W DTD65L/FL and DTD55L: up to 200 W
Dimmable 230 V LED lamps ⁵⁾⁶⁾⁹⁾	-	up to 400 W EUD12DK: up to 800 W	up to 400 W EUD61NPL: 200 W (not EUD61NP)	-	-	-	-	up to 300 W DTD65L and DTD55L: up to 200 W
Dimmable LED lamps 12-36 V DC	4 A	-	-	-	-	-	-	-
1-10 V EVG*	-	-	-	-	40 mA 600 VA	40 mA 600 VA	-	-
Maximum conductor cross-section (3-fold terminal)	4 mm ²	6 mm ² (4 mm ²)	4 mm ²	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	4 mm ²	6 mm ² (4 mm ²)	4 mm ²
Two conductors of same crosssection (3-fold terminal)	1.5 mm ²	2.5 mm ² (1.5 mm ²)	1.5 mm ²	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	1.5 mm ²	2.5 mm ² (1.5 mm ²)	1.5 mm ²
Screw head	slotted/crosshead	slotted/crosshead, pozidriv	slotted/crosshead	slotted/cross- head, pozidriv	slotted/cross- head, pozidriv	slotted/cross- head	slotted/cross- head, pozidriv	slotted/cross- head, pozidriv
Type of enclosure/terminals	IP30/IP20	IP50/IP20	IP30/IP20	IP50/IP20	IP50/IP20	IP30/IP20	IP50/IP20	IP50/IP20
Time on	100%	100%	100%	100%	100%	100%	100%	100%
Max./min. temperature at mounting location ⁴⁾	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (active power)	0.1 W	0.1 W EUD12DK: 0.2 W EUD12D and MFZ12PMD: 0.3 W	0.1 W EUD61NP: 0.5 W	0.1 W	1 W SUD12: 0.9 W	1 W	0.3 W	0.14 W DTD65L and DTD55L: 0.5 W
Control voltage	8..230 V UC	8..230 V UC	8..230 V UC EUD61NPN-230V und EUD61NP: 230 V	internal DC voltage	8..230 V UC	230 V	8..230 V UC	230 V
Control current 230 V-control input (<5 s)	-	-	EUD61NP: 0.7 mA EUD61NPN-230V: 4(100) mA	-	-	0.5 mA	-	0.4 mA
Control current universal control voltage all control voltages (<5 s)	-	10(100) mA	-	-	-	-	2/3/8/5 (100) mA	-
8/12/24/230 V (<5 s)	2/3/7/4(100) mA	-	2/3/7/4(100) mA	-	3/5/10/4(100) mA	-	-	-
Control current central 8/12/24/230 V (<5 s)	-	3/5/10/4(100) mA	-	-	3/5/10/4(100) mA	-	2/3/8/5 (100) mA	-
Max. parallel capacitance (approx. length) of single control lead at 230 V AC	0.3 µF (1000 m)	0.9 µF (3000 m)	0.9 µF (3000 m) EUD61NP: 0.3 µF (1000 m)	-	0.3 µF (1000 m)	0.06 µF (200 m)	0.9 µF (3000 m)	0.3 µF (1000 m)
Max. parallel capacitance (approx. length) of central control lead at 230 V AC	-	0.9 µF (3000 m)	-	-	0.3 µF (1000 m)	-	0.9 µF (3000 m)	-

* EVG = electronic ballast units; KVG = conventional ballast units⁴⁾ Secondary cable length with a maximum of 2 m. ¹⁾ At a load of more than 200 W (EUD12DK: 400 W, EUD12F: 100 W) a ventilation clearance of 1/2 module to adjacent devices must be maintained. The switching capacity of the EUD61 and DTD depends also on the ventilation conditions. ²⁾ Per dimmer or capacity enhancer it is only allowed to use max. 2 inductive (wound) transformers of the same type, furthermore no-load operation on the secondary part is not permitted. The dimmer might be destroyed. Therefore do not permit load breaking on the secondary part. Operation in parallel of inductive (wound) and capacitive (electronic) transformers is not permitted! ³⁾ When calculating the load a loss of 20% for inductive (wound) transformers and a loss of 5% for capacitive (electronic) transformers must be considered in addition to the lamp load. ⁴⁾ Affects the max. switching capacity. ⁵⁾ In the settings ESL and LED no wound (inductive) transformer must be dimmed. ⁶⁾ Increase of capacity for dimmable energy saving lamps ESL and dimmable 230 V LED lamps see page 9-8. ⁷⁾ Only 1 fan motor may be connected. ⁸⁾ For 12 V halogen and LED lamps. ⁹⁾ Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. Different lamp electronics may result in restricted dimming areas, on/off problems and a limited maximum number of lamps (to 10 units), especially if the connected load is very low (e.g. with 5 W LEDs). The comfort positions of the dimmer switches optimize the dimming range, which, however, only gives a maximum power up to 100 W. No inductive (wound) transformers may be dimmed in these comfort positions.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

**WSZ15D-
DSZ15D-
DSZ15DE-**



10

**INTELLIGENTLY MEASURE AND
VISUALIZE POWER.**

Three-phase and single-phase energy meters

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The Eltako wireless system works with the reliable and worldwide standardized EnOcean wireless technology in 868 MHz.

It transmits ultra short and interference-proof signals with a range of up to 100 meters in halls.

Eltako wireless pushbuttons reduce the electrosmog load since they emit high-frequency waves that are 100 times weaker than conventional light switches. There is also a significant reduction in low-frequency alternating fields since fewer power cables need to be installed in the building.

SELECTION TABLE THREE-PHASE AND SINGLE-PHASE ENERGY METERS

THE SMART COUNTING CHAMPIONS

Depending on the customer's installation, only a conventional meter panel is required for billing with the electricity supply operator. On the other hand, dwellings and businesses can be billed using small three-phase meters installed in power distribution panels. See the installation instructions for electricians on page 10-25. It is then the task of the building management service to read

the intermediate meter. This either takes place at the same time as heating consumption is read or centrally, e.g. when the meter interface is evaluated. All Eltako energy meters for rail mounting are therefore fitted as standard with an S0 interface.

Page	10-3	10-4	10-5	10-6	10-7	10-8	10-9	10-10	10-10	10-11	10-12
	DSZ15D-3x80A	DSZ15DE-3x80A	DSZ15WD-3x5A	DSZ15DM-3x80A	DSZ15WDM-3x5A	DSZ14DRS-3x80A	DSZ14WDRS-3x5A	WSZ15D-32A	WSZ15D-65A	WSZ15DE-32A	WZR12-32A
Modular device for mounting on DIN rail EN 60715 TH35, number of modules 18 mm each	4	4	4	4	4	4	4	1	1	1	1
Meter mounting installation											
Single-phase energy meter								■	■	■	■
Three-phase energy meter	■	■	■	■	■	■	■				
With MID approval	■		■	■	■	■	■	■	■		
Reference current I_{ref} (Limiting current I_{max}) A	10(80)	10(80)	5(6) ¹⁾	10(80)	5(6) ¹⁾	10(80)	5(6) ¹⁾	5(32)	10(65)	5(32)	5(32)
Display LC display digits	5+2 ²⁾ 6+1	5+2 ²⁾ 6+1	6+1	5+2 ²⁾ 6+1	6+1	5+2 ²⁾ 6+1	6+1	5+2 ²⁾ 6+1	5+2 ²⁾ 6+1	5+2 ²⁾ 6+1	2/4
Accuracy class MID, inaccuracy ±1%	B	B	B	B	B	B	B	B	B	B	B
With return stop	■	■	■	■	■	■	■	■	■	■	■
Display instantaneous values	■	■	■	■	■	■	■	■	■	■	■
Indication of misconnection	■	■	■	■	■	■	■	■	■	■	■
Low standby loss	■	■	■	■	■	■	■	■	■	■	■
S0 interface potential	■	■	■					■	■	■	
M-bus interface				■	■						
Interface for Eltako RS485 bus						■	■				

¹⁾ CT operated energy meter

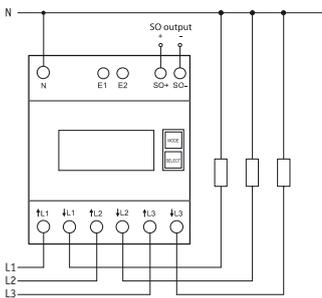
²⁾ Switches over automatically from 5+2 to 6+1.

MID meters require no subsequent calibration with calibration mark. Instead, they are the equivalent of calibrated meters as a result of MID testing and an EU Declaration of Conformity from the manufacturer.



Typical connection

4-wire-connection 3x230/400 V



DSZ15D-3X80A MID

MID

Maximum current 3x80 A. Standby loss 0.5 watt per path only.

Modular device for DIN-EN 60715 TH35 rail mounting.

4 modules = 70 mm wide and 58 mm deep.

Accuracy class B (1%). With SO interface.

It measures active energy by means of the current between input and output. The internal power consumption of 0.5 watt active power per path is neither metered nor indicated.

1, 2 or 3 phase conductors with max. currents up to 80 A can be connected.

The inrush current is 40 mA.

The N terminal must always be connected.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

Power consumption is shown by a bar flashing at a rate of 100 times per kWh.

Designed as standard for using as double-tariff meter: Switch over to a second tariff by applying 230 V to terminals E1/E2.

On the right next to the display are the keys MODE and SELECT. Press them to scroll through the menu according to the operation manual. First the **background lighting** switches on. The display then shows the total active energy per tariff, the active energy per resettable memory RS1 or RS2, and the instantaneous values of consumption, voltage and current per phase.

Error message (false)

When the phase conductor is missing or the current direction is wrong 'false' and the corresponding phase conductor are indicated on the display.

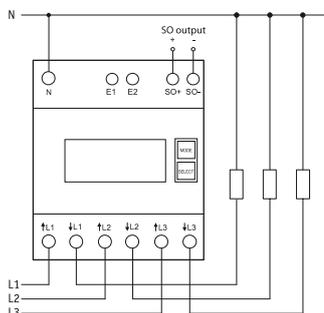
DSZ15D-3x80A	Three-phase energy meter, MID approval	EAN 4010312501634	129,70 €/pc.
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THREE-PHASE ENERGY METER DSZ15DE-3X80A, WITHOUT APPROVAL



Typical connection

4-wire-connection 3x230/400 V



DSZ15DE-3X80A

Maximum current 3x80 A. Standby loss 0.5 watt per path only.

Modular device for DIN-EN 60715 TH35 rail mounting.

4 modules = 70 mm wide and 58 mm deep.

Accuracy class B (1%). With SO interface.

It measures active energy by means of the current between input and output. The internal power consumption of 0.5 watt active power per path is neither metered nor indicated. Like all meters without declaration of conformity (e.g. MID), this meter is not permitted for billing.

1, 2 or 3 phase conductors with max. currents up to 80 A can be connected.

The inrush current is 40 mA.

The N terminal must always be connected.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

Power consumption is shown by a bar flashing at a rate of 100 times per kWh.

Designed as standard for using as double-tariff meter: Switch over to a second tariff by applying 230 V to terminals E1/E2.

On the right next to the display are the keys MODE and SELECT. Press them to scroll through the menu according to the operation manual. First the **background lighting** switches on. The display then shows the total active energy per tariff, the active energy per resettable memory RS1 or RS2, and the instantaneous values of consumption, voltage and current per phase.

Error message (false)

When the phase conductor is missing or the current direction is wrong 'false' and the corresponding phase conductor are indicated on the display.

DSZ15DE-3x80A	Three-phase energy meter, without approval	EAN 4010312501719	89,30 €/pc.
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DSZ15WD-3X5A MID

MID

CT operated three-phase energy meter with settable CT ratio and MID. Maximum current 3x5 A. Standby loss 0.5 watt per path only.

Modular device for DIN-EN 60715 TH35 rail mounting.

4 modules = 70 mm wide and 58 mm deep.

Accuracy class B (1%). With SO interface.

This three-phase energy meter measures active energy by means of the current between input and output. The internal power consumption of 0.5 watt active power per path is neither metered nor indicated.

1, 2 or 3 phase conductors with max. currents up to 5 A can be connected.

The inrush current is 10 mA.

The N terminal must always be connected.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

Power consumption is shown by a bar flashing at a rate of 10 times per kWh.

On the right next to the display are the keys MODE and SELECT. Press them to scroll through the menu according to the operation manual. First the **background lighting** switches on. The display then shows the total active energy, the active energy per resettable memory, and the instantaneous values of consumption, voltage and current per phase.

The CT ratio can also be set. It is set to 5:5 at the factory and blocked with a bridge over the terminals which are marked with 'JUMPER'. To adjust the CT ratio to the installed transformer remove the bridge and reset the energy meter according to the operation manual. Then block it again with the bridge. Adjustable current transformer ratios: 5:5, 50:5, 100:5, 150:5, 200:5, 250:5, 300:5, 400:5, 500:5, 600:5, 750:5, 1000:5, 1250:5 and 1500:5.

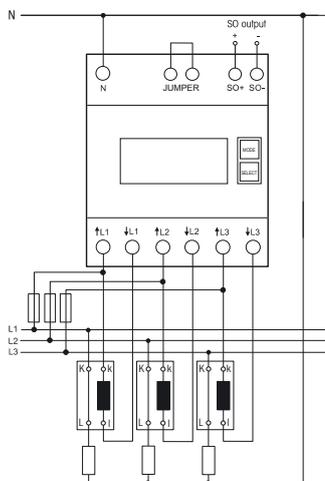
Error message (false)

When the phase conductor is missing or the current direction is wrong 'false' and the corresponding phase conductor are indicated on the display.

Important! Before working on the current transformers disconnect the voltage paths of the energy meters.

Typical connection

4-wire-connection 3x230/400 V

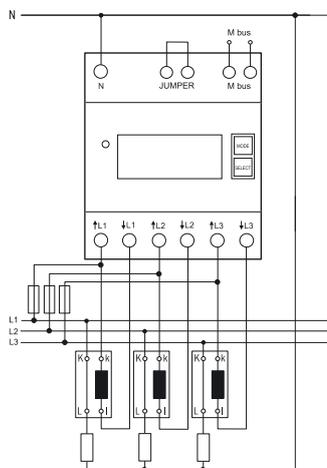


DSZ15WD-3x5A	CT operated three-phase energy meter, MID approval	EAN 4010312501641	177,20 €/pc.
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Typical connection

4-wire-connection 3x230/400 V



DSZ15WDM-3X5A MID

MID

M-bus CT operated three-phase energy meter with settable CT ratio and MID. Maximum current 3x5 A. Standby loss 0.5 watt per path only.

Modular device for DIN-EN 60715 TH35 rail mounting.
 4 modules = 70 mm wide and 58 mm deep.
 Accuracy class B (1%). With M-bus interface.
 This three-phase meter measures active energy by means of the currents flowing between inputs and outputs. The internal power consumption of 0.5 watt active power per path is neither metered nor indicated.
1, 2 or 3 converters with secondary currents of up to 5 A can be connected.

The inrush current is 10 mA.
 The N terminal must always be connected.
The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.
 Power consumption is indicated by an LED flashing at a rate of 10 times per kWh.

On the right next to the display are the MODE and SELECT buttons to browse through the menu. First the **background lighting** switches on. Then the total active energy, the active energy of the resettable memory and the instantaneous values of power, voltage and current are displayed for each outer conductor.
The CT ratio can also be set. It is set to 5:5 at the factory and blocked with a bridge over the terminals which are marked with 'JUMPER'. To adjust the CT ratio to the installed transformer remove the bridge and reset the energy meter according to the operation manual. Then block it again with the bridge. Adjustable current transformer ratios: 5:5, 50:5, 100:5, 150:5, 200:5, 250:5, 300:5, 400:5, 500:5, 600:5, 750:5, 1000:5, 1250:5 and 1500:5.

Error message (false)
 If there is no outer conductor of the current direction is incorrect, 'false' and the related outer conductor are indicated in the display.

- M-bus data transfer**
- On read-out all values are transferred in a telegram.
 - The following telegrams are supported:

- Initialisation: SND_NKE	Reply: ACK
- Read out meter: REQ_UD2	Reply: RSP_UD
- Change primary address: SND_UD	Reply: ACK
- Reset RS1: SND_UD	Reply: ACK
- Slave selection for the secondary address	Reply: ACK

- The device does not reply to unknown requests
- The transfer rate is detected automatically
- The device has a voltage monitor. In case of voltage loss, all registers are saved in the EEPROM.

Changing the M-bus primary address:
 To change the M-bus primary address, hold down SELECT for 3 s. In the menu that appears, press MODE to increment the address by 10. Press SELECT to increment by 1. When the required primary address is set, wait until the main menu reappears.

Secondary address

- It is possible to communicate with the energy meters according to the standard EN13757 using the secondary address.
- The use of wild cards is possible.

For details refer to the operating instructions at www.eltako.com.

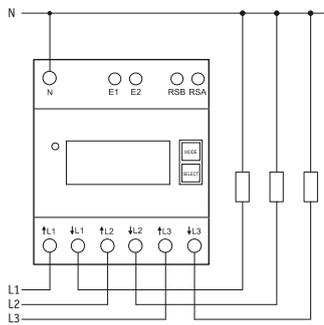
Important!
 Before working on the current transformers disconnect the voltage paths of the energy meters.

DSZ15WDM-3x5A	CT operated three-phase energy meter, MID approval	EAN 4010312501665	211,60 €/pc.
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Typical connection

4-wire-connection 3x230/400 V



DSZ14DRS-3X80A MID

MID

RS485 bus wireless three-phase energy meter. Maximum current 3x80 A. Standby loss 0.8 W at L1 and only 0.5 W at L2 and L3 each.

Modular device for DIN-EN 60715 TH35 rail mounting in distribution cabinets with IP51 protection class.

4 modules = 70 mm wide and 58 mm deep.

Accuracy class B (1%). With RS485 interface.

It measures active energy by means of the current between input and output. The internal power consumption of 0.8 W or 0.5 W active power per path is neither metered nor indicated.

1, 2 or 3 phase conductors with max. currents up to 80 A can be connected.

The inrush current is 40 mA.

The terminals I1.1 and N must always be connected.

Connection to the Eltako RS485 bus via a FBA14 by means of a 2-wire screened bus line (e.g. telephone line). The meter reading and the momentary capacity are transferred to the bus – e.g. for transfer to an external computer of the GFVS 4.0 Software – and is also transferred to the wireless network via the FAM14. For this it is necessary that a device address is assigned from the wireless antenna module FAM14, according to the operating instructions.

Also display with FEA65D.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

The power consumption is displayed with a LED flashing 1000 times per kWh next to the display.

Designed as standard for using as double-tariff meter: Switch over to a second tariff by applying 230 V to terminals E1/E2.

On the right next to the display are the keys MODE and SELECT. Press them to scroll through the menu according to the operation manual. First the **background lighting** switches on. The display then shows the total active energy per tariff, the active energy per resettable memory RS1 or RS2, and the instantaneous values of consumption, voltage and current per phase.

Error message (false)

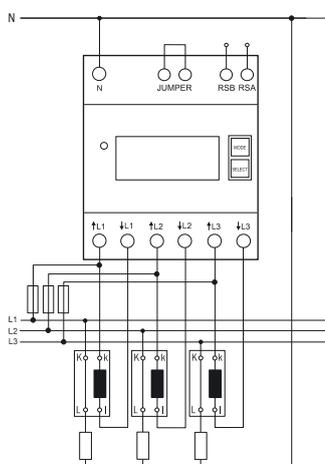
When the phase conductor is missing or the current direction is wrong 'false' and the corresponding phase conductor are indicated on the display.

DSZ14DRS-3x80A	RS485 bus wireless three-phase energy meter, MID approval	EAN 4010312501733	165,00 €/pc.
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Typical connection

4-wire-connection 3x230/400 V



DSZ14WDRS-3X5A MID

MID

RS485 bus wireless three-phase energy meter with settable CT ratio and MID. Maximum current 3x5 A. Standby loss 0.8 W at L1 and only 0.5 W at L2 and L3 each.

Modular device for DIN-EN 60715 TH35 rail mounting in distribution cabinets with IP51 protection class. 4 modules = 70 mm wide and 58 mm deep.

Accuracy class B (1%). With RS485 interface.

This three-phase energy meter measures active energy by means of the current between input and output. The internal power consumption of 0.8 W or 0.5 W active power per path is neither metered nor indicated.

1, 2 or 3 phase conductors with max. currents up to 5 A can be connected.

The inrush current is 10 mA.

The terminals I1 and N must always be connected.

Connection to the Eltako RS485 bus via a FBA14 by means of a 2-wire screened bus line (e.g. telephone line). The meter reading and the momentary capacity are transferred to the bus – e.g. for transfer to an external computer of the GFVS 4.0 Software – and is also transferred to the wireless network via the FAM14. For this it is necessary that a device address is assigned from the wireless antenna module FAM14, according to the operating instructions.

Also display with FEA65D.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

The power consumption is displayed with a LED flashing 10 times per kWh next to the display.

On the right next to the display are the keys MODE and SELECT. Press them to scroll through the menu.

First the **background lighting** switches on. The display then shows the total active energy, the active energy of the resettable memory as well as the instantaneous values of consumption, voltage and current per phase

The CT ratio can also be set. It is set to 5:5 at the factory and blocked with a bridge over the terminals which are marked with 'JUMPER'. To adjust the CT ratio to the installed transformer remove the bridge and reset the energy meter according to the operation manual. Then block it again with the bridge. Adjustable current transformer ratios: 5:5, 50:5, 100:5, 150:5, 200:5, 250:5, 300:5, 400:5, 500:5, 600:5, 750:5, 1000:5, 1250:5 and 1500:5.

Error message (false)

When the phase conductor is missing or the current direction is wrong 'false' and the corresponding phase conductor are indicated on the display.

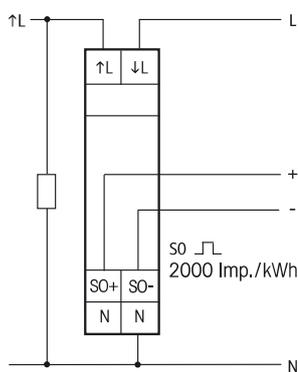
Important! Before working on the current transformers disconnect the voltage paths of the energy meters.

10-9

DSZ14WDRS-3x5A	RS485 bus wireless three-phase energy meter, MID approval	EAN 4010312501450	172,00 €/pc.
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Typical connection



WSZ15D-32A MID

MID

Maximum current 32 A. Standby loss 0.4 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide and 58 mm deep.

Accuracy class B (1%). With SO interface.

This single-phase energy meter measures active energy by means of the current between input and output. The internal power consumption of 0.4 watt active power is neither metered nor indicated.

1 phase conductor with a max. current of up to 32 A can be connected.

The start current is 20 mA.

If the anticipated load exceeds 50%, maintain an air gap of 1/2 pitch unit to the devices mounted adjacently.

If necessary, use spacer DS12.

Two N terminals for secure cross wiring of several counters.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

Press the button.

Below the displays is a button which you can use to browse through the menu as described in the User Manual. First the **background lighting** switches on. Then you can display the total active energy, active energy of the resettable memory and the instantaneous values for active power, voltage and current.

Power consumption is shown by a bar flashing at a rate of 1000 times per kWh.

Error message

In the event of a connection error the backlighting of the display flashes.

WSZ15D-32A	Single-phase energy meter, MID approval	EAN 4010312501627	58,20 €/pc.
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WSZ15D-65A MID

MID

Maximum current 65 A. Standby loss 0.4 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide and 58 mm deep.

Accuracy class B (1%). With SO interface.

This single-phase energy meter measures active energy by means of the current between input and output. The internal power consumption of 0.4 watt active power is neither metered nor indicated.

1 phase conductor with a max. current up to 65 A can be connected.

The start current is 40 mA.

If the anticipated load exceeds 50%, maintain an air gap of 1/2 pitch unit to the devices mounted adjacently.

If necessary, use spacer DS12.

Two N terminals for secure cross wiring of several counters.

The 7 segment LC display is also legible twice within a period of 2 weeks without power supply.

Press the button.

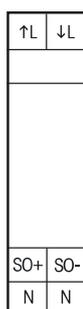
Below the displays is a button which you can use to browse through the menu as described in the User Manual. First the **background lighting** switches on. Then you can display the total active energy, active energy of the resettable memory and the instantaneous values for active power, voltage and current.

Power consumption is shown by a bar flashing at a rate of 1000 times per kWh.

Error message

In the event of a connection error the backlighting of the display flashes.

WSZ15D-65A	Single-phase energy meter, MID approval	EAN 4010312501696	71,50 €/pc.
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WSZ15DE-32A

Maximum current 32 A. Standby loss 0.4 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide and 58 mm deep.

Accuracy class B (1%). With SO interface.

It measures active energy by means of the current between input and output. The internal power consumption of 0.4 watt active power is neither metered nor indicated. Like all meters without declaration of conformity (e.g. MID), this meter is not permitted for billing.

Every 30 seconds, the display switches for 5 seconds from the accumulated active energy in kWh to the momentary consumption in watts.

1 phase conductor with a max. current up to 32 A can be connected. If the anticipated load exceeds 50%, maintain an air gap of ½ pitch unit to the devices mounted adjacently.

If necessary, use spacer DS12. The inrush current is 20 mA. The display can only be read when the power supply is on. However, the consumption is saved to a non-volatile memory and is displayed immediately after power restoration.

Two N terminals for secure cross wiring of several counters.

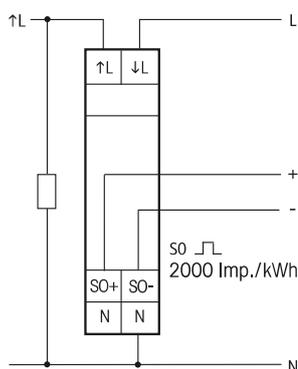
The digital display has 7 digits. Two decimal places are indicated up to 99999.99 kWh. Above 100000.0 kWh there is only one decimal place.

Power consumption is shown by a bar flashing at a rate of 1000 times per kWh.

Error message

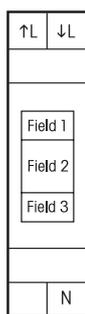
In the event of a connection error a LED in the display flashes.

Typical connection

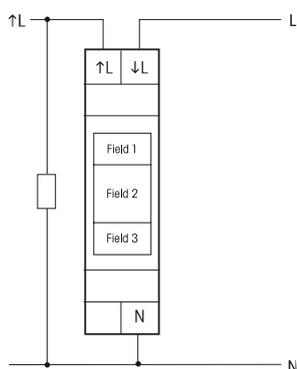


WSZ15DE-32A	Single-phase energy meter, without approval	EAN 4010312501702	47,60 €/pc.
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SINGLE-PHASE ENERGY METER WZR12-32A WITH RESET, WITHOUT APPROVAL



Typical connection



WZR12-32A

Maximum current 32 A, standby loss 0.5 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

This single-phase energy meter with reset function uses the current between input and output to measure active energy and saves the consumption parameter in a non-volatile memory.

Like all meters without declaration of conformity (e.g. MID), this meter is not permitted for billing.

Accuracy conforms to Class B MID (1%) like all Eltako single-phase energy meters, the inrush current is 20 mA.

The display is subdivided into 3 fields.

■ Field 1:

This display refers to the cumulative value in field 3.

|||| moving slowly to the right = Field 3 shows the cumulative consumption since last reset. This is the display standard mode.

H01 = Field 3 shows the consumption for the last hour up to H24 = 24 hours ago.

D01 = Field 3 shows the consumption for the last day up to D95 = 95 days ago.

■ Field 2:

Instantaneous values of energy consumption (active power) in watt (W) or kilowatt (kW).

The display arrows on the left and right show the automatic change W and kW.

■ Field 3:

Cumulative value up to 9999 kWh. Display up to 9.999 kWh with 3 decimal digits, from 10 kWh with 1 decimal digit and from 1000 kWh without decimal digit.

Press the left button MODE to scroll down the display options which are shown in field 1:

H01 and D01 as described above. Finally, press MODE to show the abbreviation of the set language, e.g. GB for English, D for German, F for French and ES for Spanish.

Press the right button SELECT once within the display options to increment the indicated figure by 1.

The corresponding value is indicated in field 3. The last clock hour then becomes the hour before last, etc. If the active language was selected with MODE, press SELECT to switch to a different language. Exit the new language setting by pressing MODE to activate the setting.

The program returns to the standard display mode automatically if MODE or SELECT are not operated for 20 seconds or if you press both buttons briefly simultaneously.

Reset

Hold down the buttons MODE and SELECT simultaneously for 3 seconds until RES appears in segment 1.

Then press SELECT briefly to reset all memories. Afterwards the program returns automatically to standard display mode.

WZR12-32A	Single-phase energy meter with reset, without approval	EAN 4010312501252	56,30 €/pc.
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WIRELESS VISUALISATION AND CONTROL SOFTWARE GFVS-ENERGY AND WIRELESS ENERGY METER TRANSMITTER MODULE FSS12-12V DC

With the Wireless Visualisation and Control Software GFVS-Energy and the USB receiver FAM-USB, the wireless telegrams of the wireless energy meter transmitter module FSS12 or the single- and three-phase energy meters and the transmitter modules can be received or displayed on the PC.

⚠ Caution! The software GFVS-Energy is contained in the Wireless Visualisation and Control Software GFVS 4.0 and need not be installed separately.



with FAM-USB

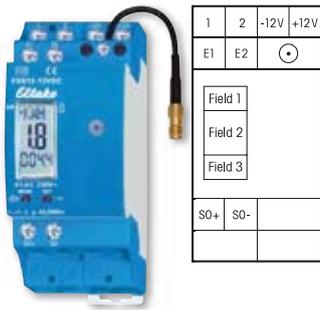


GFVS-Energy

Wireless Visualisation and Control Software for up to 100 electricity meters with S0 interface with FSS12 energy meter transmitter modules as well as wireless single-phase energy meter, wireless three-phase energy meter and wireless energy meter transmitter modules.

The software GFVS 4.0 on the Smart Home central unit SafeIV can evaluate up to 250 energy meters. **The wireless receiver FAM-USB** with USB port is required for PC reception and if required for transmitting wireless telegrams from a PC to load shedding relay and is not included in the scope of supply. It must be licenced via web.

FAM-USB	Wireless USB receiver/transmitter	EAN 4010312312971	82,30 €/pc.
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1	2	-12V	+12V
E1	E2		⤵
Field 1			
Field 2			
Field 3			
S0+	S0-		

FSS12-12V DC

Wireless energy meter transmitter module for connection to S0 interface of many single-phase energy meters and three-phase energy meters. Only 0.5 watt standby loss. With load shedding relay 1 NO contact potential free 4 A/250 V. With exchangeable antenna. If required, a wireless antenna FA250 can be connected.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep.

The energy meter transmitter module FSS12 evaluates the signals from the energy meter S0 interface and transmits wireless telegrams containing consumption and meter reading to the Eltako wireless network for evaluation on a PC using the Visualisation and Control Software GFVS 4.0 and GFVS-Energy. On three-phase energy meters, the data sent includes normal rate (HT) or off-peak (NT) energy tariff data, provided the E1/E2 terminals on the three-phase energy meter are connected to E1/E2 on the FSS12. With adjustable pulse rate.

GFVS-Energy supports up to 100 transmitter modules and GFVS 4.0 up to 250 transmitter modules.

The 12 V DC supply voltage is powered at 12 W by a switch mode power supply unit FSNT12-12V that is only 1 pitch unit wide. If the relay of the FSS12 is switched on, a power of 0.6 watts is required.

The setting and display screen is subdivided into 3 fields:

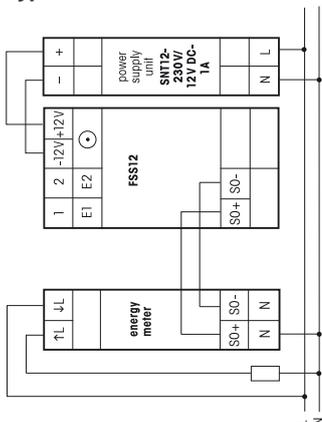
- **Field 1:** The normal display is the unit of the meter reading currently displayed in Field 3. This alternates every 4 seconds with either kilowatt hours kWh (KWH in display) or megawatt hours MWh (MWH in display). The display in Field 1 is supplemented by a + sign after the reading to indicate that the off-peak tariff rate is applied to E1/E2.
- **Field 2:** Instantaneous values of energy consumption (active power) in watt (W) or kilowatt (kW). The left-pointing arrow in Field 1 indicates an automatic switchover from 0 to 99 W to 0.1 to 65 kW.
- **Field 3:** The meter reading is the normal display. Every 4 seconds the display alternates between 3 whole numbers and 1 decimal point (from 0.1 to 999.9 kWh) and 1 or max. 3 whole numbers (from 0 to 999 MWh). The meter reading is displayed without decimals in increments of 1kWh with freely chosen pulse rates whose last digit is not 0.

Wireless telegrams: Maximum every 130 seconds a performance telegram will be sent and the display will be updated. Otherwise a telegram will be sent within 20 seconds if the power changed by at least 10%.

A switchover from HT to NT is transmitted immediately in the same way as a meter reading change. A full telegram comprising meter reading HT, meter reading NT and power is transmitted 20 seconds after the power supply is switched on and then every 10 minutes. The LED lights up briefly when a telegram is transmitted. For settings with the buttons MODE and SET see the operating instructions.

The enclosed small antenna can be replaced with a wireless antenna FA250 with magnetic base and cable.

Typical connection



FSS12-12V DC	Wireless energy meter transmitter module	EAN 4010312301944	89,60 €/pc.
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FEA65D-wg

Wireless energy consumption indicator with display for individual fitting and mounting into the E-Design65 switching system. For up to 20 wireless single-phase energy meters, wireless three-phase energy meters and energy meter transmitter modules. Illuminated display. Standby loss 0.2 watt only.

Power supply 12 V DC. A 20 cm long red/black connecting wire is routed to the rear.

The complete module can be removed from the frame for screw mounting.

We recommend stainless-steel countersunk screws 2.9 x 25 mm, DIN 7982 C, for screw connections. Both with rawl plugs 5 x 25 mm and with 55 mm switch boxes. Set of 2 stainless-steel countersunk screws 2.9 x 25 mm and plugs 5 x 25 mm are enclosed.

The energy consumption indicator evaluates the information of the wireless two-phase energy meters FWZ12 and FWZ61, the RS485 two-phase energy meter transmitter module FWZ14-65A, the RS485 three-phase energy meters DSZ14DRS and DSZ14WDRS as well as the wireless energy meter transmitter module FSS12.

The last energy meter selected is displayed from EM01 to EM20: the accumulated energy consumption (meter reading) in kWh with 7 digits, of which one digit is a decimal point, and the currently consumed active power (momentary capacity) from 15 watts to 65,000 watts.

The data of one energy meter transmitter module FSS12 and one RS485 three-phase energy meter DSZ14DRS also contains separate values for normal rate (HT) and off-peak (NT), both of which are displayed. Momentary capacity is also identified accordingly.

When you press MODE for longer than two seconds, the display goes to energy meter EM01.

For energy meter EM01, an additional statistic can be displayed for total energy consumption over the last hours, days, months and years. This is obtainable by briefly pressing MODE, *statistic* appears in the display.

Press MODE to browse through all the possible displays *consump. total, hour, day, month and year*.

Press the button SET within the display options. Each press of the button increments the number displayed by 1 and the actual value is indicated in the display. The last full hour then becomes the last hour but one, etc.

Hour 01 = Displays consumption over the last full hour to 24 = 24 hours ago.

Day 01 = Displays consumption of the last full day up to day 31 = 31 days ago.

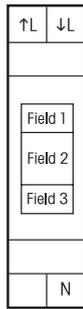
Month 01 = Displays consumption of the last full month up to month 12 = 12 months ago.

Year 01 = Displays consumption of the last full year up to year 24 = 24 years ago.

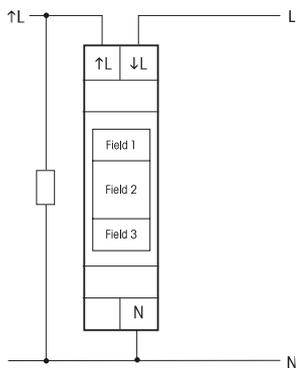
20 seconds after last pressing MODE or SET, and if you press and hold down MODE for longer than 2 seconds, the program revert automatically back to normal display.

FEA65D-wg	Wireless energy consumption indicator with display, pure white glossy	EAN 4010312315903	97,30 €/pc.
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10-14



Typical connection



EVA12-32A

Maximum current 32 A, standby loss 0.5 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

The energy consumption indicator EVA12 uses the current between input and output to measure active energy in the same way as a single-phase energy meter. It saves the consumption parameter in a non-volatile memory.

Like all meters without declaration of conformity (e.g. MID), this meter is not permitted for billing.

Accuracy conforms to Class B MID (1%) like all Eltako single-phase energy meters.

The inrush current is 20 mA.

In this way the energy consumption indicator reproduces exactly the reading on the billing energy meter installed at a different location in the building.

The display is subdivided into 3 fields.

■ Field 1:

This display refers to the cumulative value in field 3.

||| moving slowly to the right = Field 3 shows the cumulative consumption since last reset. This is the display standard mode.

H01 = Field 3 shows the consumption for the last hour up to H24 = 24 hours ago.

D01 = Field 3 shows the consumption for the last day up to D31 = 31 days ago.

M01 = Field 3 shows the consumption for the last month up to M12 = 12 months ago.

Y01 = Field 3 shows the consumption for the last year up to Y24 = 24 years ago.

■ Field 2:

Instantaneous values of energy consumption (active power) in watt (W) or kilowatt (kW). The display arrows on the left and right show the automatic change W and kW.

■ Field 3:

Cumulative value in kWh. Display up to 9.999 kWh with 3 decimal digits, from 10 kWh with 1 decimal digit and from 1000 kWh without decimal digit.

Press the left button MODE to scroll down the display options which are shown in field 1:

H01, D01, M01 and Y01 as described above. Finally, press MODE to show the abbreviation of the set language, e.g. GB for English, D for German and F for French.

Press the right button SELECT once within the display options to increment the indicated figure by 1. The corresponding value is indicated in field 3. The last clock hour then becomes the hour before last, etc. If the active language was selected with MODE, press SELECT to switch to a different language. Exit the new language setting by pressing MODE to activate the setting.

The program returns to the standard display mode automatically if MODE or SELECT are not operated for 20 seconds or if you press both buttons briefly simultaneously.

Reset

To start saving the values to the nearest hour, we recommend performing a reset at an opportune moment after installation. Hold down the buttons MODE and SELECT simultaneously for a further 3 seconds until RES appears in field 1. Then press SELECT briefly to reset all memories. Afterwards the program returns automatically to standard display mode.

EVA12-32A	Single-phase energy meter with energy consumption indicator	EAN 4010312500828	61,70 €/pc.
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RS485 BUS WIRELESS SINGLE-PHASE ENERGY METER FWZ14-65A AND WIRELESS SINGLE-PHASE ENERGY METER FWZ12-65A



FWZ14-65A

RS485 bus wireless single-phase energy meter, maximum current 65 A. Only 0.5 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Accuracy class B (1%). With RS485 interface.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

The meter reading, the current power and the serial number will be handed over to the bus – eg for forwarding to an external computer, the software GFVS 4.0 or GFVS-Energy – and also to the wireless network via FAM14. For this it is necessary that a device address is assigned from the wireless antenna module FAM14, according to the manual.

Also display with FEA65D.

It measures active energy by means of the current between input and output. The internal power consumption of 0.5 watt active power is not metered.

Like all meters without declaration of conformity (e.g. MID), this meter is not permitted for billing.

1 phase conductor with a max. current up to 65 A can be connected.

The inrush current is 40 mA. In operation the rotary switch must be set to AUTO.

Power consumption is indicated using a LED.

If the L input and the L output were interchanged when hooked up, a normal rate (HT)/off-peak (NT) switchover telegram is transmitted to indicate the hook-up error.

If the anticipated load exceeds 50%, maintain an air gap of ½ pitch unit to the devices mounted adjacently. Thereto included are 2 spacers DS14, a short jumper and two long jumpers.

FWZ14-65A	RS485 bus wireless single-phase energy meter	EAN 4010312501511	63,80 €/pc.
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FWZ12-65A

Wireless single-phase energy meter, maximum current 65 A. Only 0.5 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

This single-phase energy meter measures active energy by means of the current between input and output and transmits the consumption and meter reading over the Eltako wireless network. Accuracy class B (1%).

Evaluation on the computer with Eltako Wireless Building Visualisation and Control Software GFVS or with energy consumption indicator FEA65D.

GFVS-Energy supports up to 100 transmitter modules and GFVS 4.0 up to 250 transmitter modules.

The internal power consumption of max. 0.5 watt active power is neither metered nor indicated.

Like all meters without declaration of conformity (e.g. MID), this meter is not permitted for billing.

1 phase conductor with a max. current up to 65 A can be connected.

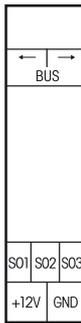
If the anticipated load exceeds 50%, maintain an air gap of ½ pitch unit to the devices mounted adjacently. If necessary, use spacer DS12.

The inrush current is 40 mA. The consumption is saved to a non-volatile memory and is immediately available again after a power failure.

Wireless telegrams: A telegram is transmitted within 60 seconds if the power status changes by min. 10 percent. A change in meter reading is transmitted immediately. A full telegram comprising meter reading and power status is transmitted every 10 minutes. When the power supply is switched on, a **teach-in telegram** is sent to teach in the associated energy consumption indicator.

If the L input and the L output were interchanged when hooked up, a normal rate (HT)/off-peak (NT) switchover telegram is transmitted to indicate the hook-up error.

FWZ12-65A	Wireless single-phase energy meter	EAN 4010312311059	85,70 €/pc.
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Further settings can be made using the PC Tool PCT14.

F3Z14D



**Wireless meter concentrator for electricity, gas and water meters.
For 3 S0 interfaces and/or 3 AFZ scanners, only 0.1 watt standby loss.**

Modular device for DIN-EN 60715 TH35 rail mounting. 1 modul = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

This meter concentrator concentrates the data of up to three electricity, data and water meters and supplies this data to the RS485 bus. Either for forwarding to an external computer or for sending over the Wireless Building System.

Hook-up is either by connection to the S0 interface of the meters or by use of an AFZ scanner on each Ferraris meter. The scanner is bonded above the rotary disc of the meter and connected by its connecting wire to one of the S01-S03/GND terminals. The F3Z14D detects automatically whether an S0 interface or an AFZ is connected.

The meter reading is entered into the display by two pushbuttons as well as the impulse rate (number of impulses or revolutions per kilowatt hour or cubic meter). The settings can be locked.

Meter readings can be entered and read out using the **PCT14 PC Tool**. In addition, impulse rates can be entered. The default display is selectable and operation of the device is interlocked.

The display is subdivided into 3 fields.

Field 1:

The default display is the unit of the meter reading currently displayed in Field 3, either in kilowatt hours kWh or megawatt hours MWh or cubic meter M3 or cubic decametre DM3

Field 2:

Momentary value of active power in watts and kilowatts or flow in centilitres and decilitres.

The arrow on the left in display field 1 indicates automatic switchover from 0-99 W or cl/s to 0.1 to 65 kW or dal/s. The display depends on the number of impulses of the meter.

The displayed minimum load is e.g. 10 watts at 2000 impulses per KWH and 2000 watts at 10 impulses per KWH.

Field 3:

The meter reading is the default display. Every 4 seconds, the display alternates between 3 integer numbers and 1 decimal point (from 0 to 999.9) and an additional 1 or to 3 integer numbers (from 0 to 999).

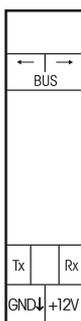
Select meter in display:

Press MODE and then press MODE again to select the **ANZ function**. Press SET to select the meter number to be displayed as default. Press MODE to confirm.

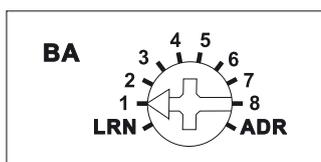
Issue device address in the bus and send teach-in telegrams as described in the operating instructions.

All Eltako energy meters are fitted with an S0 interface and can therefore be connected to the energy meter concentrator F3Z14D. Only devices FWZ14-65A, DSZ14DRS-3x80A and DSZ14WDRS-3x5A are directly connected to the bus.

F3Z14D	RS485 bus meter collector	EAN 4010312501528	51,40 €/pc.
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Function rotary switch



Standard setting ex works.



IR scanner for energy meters

FSDG14



Wireless energy meter data gateway for meters equipped with an IEC 62056-21 IR interface. 2 channels. Only 0.4 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

This energy meter data gateway can provide the data of an electronic domestic supply meter (eHZ-EDL) with IR interface according to IEC 62056-21 and SML protocol version 1 to the RS485 bus. Either for forwarding to an external computer or the GFVS software.

Regular flashing of the **green LED** indicates that the FSDG14 is receiving data from the meter. Active power, up to 4 meter readings and the serial number are transferred. The serial number corresponds to the last 4 bytes (hex) of the server ID printed on the meter. The telegram is sent over the wireless building service by means of the wireless antenna module FAM14. Usage data are transmitted over channel 1 and delivery data over channel 2. It is therefore essential for the FAM14 to issue a device address. If there is a change in active power or a meter reading, the appropriate telegram is sent immediately and all telegrams including the serial number are sent cyclically every 10 minutes.

Also display with FEA65D.

The PCT14 PC tool can also read out the FSDG14.

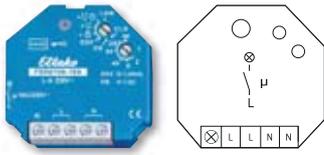
Turn the rotary switch to select the following operating modes (OBIS codes according to IEC 62056-61):

- 1: Usage meter (1.8.0) and usage power on channel 1, delivery meter (2.8.0) and delivery power on Channel 2.
- 2: Usage tariff 1 (1.8.1) and tariff 2 (1.8.2) and usage power on channel 1, delivery tariff 1 (2.8.1) and tariff 2 (2.8.2) and delivery power on channel 2.
- 3: Usage tariff 1 (1.8.1) and tariff 2 (1.8.2) and usage power on channel 1, delivery meter (2.8.0) and delivery power on Channel 2.
- 4: Usage meter (1.8.0) and usage power on channel 1, delivery tariff 1 (2.8.1) and tariff 2 (2.8.2) and delivery power on channel 2.

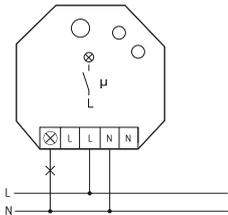
The link is made by using an AIR IR scanner. The scanner is attached by its fixing magnets to the IR output of the meter and is connected by its connecting cable to terminals Rx, GND and +12 V.

FSDG14	RS485 bus energy meter data gateway	EAN 4010312316146	46,50 €/pc.
AIR	IR scanner for energy meters	EAN 4010312316153	99,80 €/pc.

WIRELESS ACTUATOR IMPULSE SWITCH WITH INTEGR. RELAY FUNCTION FSR61VA-10A AND SOCKET SWITCHING ACTUATOR FSVA-230V-10A WITH CURRENT MEASUREMENT



Typical connection



FSR61VA-10A

1 NO contact not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. With integrated current measurement up to 10 A. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep. Supply voltage and control voltage 230 V. If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains. Apparent power is measured by the integrated current measurement from approx. 10 VA to 2300 VA when the contact is closed. A wireless telegram is transmitted into the Eltako wireless network within 30 seconds after switching on the load or after a change in power by min 5% and cyclically every 10 minutes.

Evaluation on the computer with Eltako Wireless Building Visualisation and Control Software GFVS or with energy consumption indicator FEA65D. GFVS-Energy supports up to 100 transmitter modules and GFVS 4.0 up to 250 transmitter modules. **You can teach in encrypted sensors.** You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state and incoming central command telegrams are confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the GFVS software and in universal displays.

FSR61VA-10A	Wireless actuator Impulse switch with integr. relay function with current measurement	EAN 4010312311462	84,40 €/pc.
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FSVA-230V-10A

1 NO contact not potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, ESL and LED up to 400 W. With integrated current measurement up to 10 A. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Adapter for German fused safety socket. With increased shock protection. Supply and switching voltage 230 V. In case of failure of the supply voltage, the switching state is maintained. The recurrent supply voltage is disconnected in a definite sequence. After plugging wait for short automatic synchronization before the switched consumer is plugged.

This wireless actuator features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics and a bistable relay.

Apparent power is measured by the integrated current measurement from approx. 10 VA to 2300 VA when the contact is closed. A wireless telegram is transmitted into the Eltako wireless network within 30 seconds after switching on the load or after a change in power by min 5% and cyclically every 10 minutes.

Evaluation on the computer with Eltako Wireless Building Visualisation and Control Software GFVS or with the energy consumption indicator FEA65D. GFVS-Energy supports up to 100 energy meters and GFVS 4.0 up to 250 energy meters. **You can teach in encrypted sensors.** You can switch on **bidirectional wireless** and/or a **repeater** function. Every change in state and incoming central command telegrams are then confirmed by a wireless telegram. This wireless telegram can be taught into other actuators, the software GFVS 4.0, and universal displays. Up to 35 wireless pushbuttons are assigned **with the left button LRN**, either as a universal pushbutton, direction pushbutton or central pushbutton. For the control of extractor hoods or similar items up to 35 wireless window door contacts FTK or wireless window handle sensors FFG7B-rw can be taught-in. Several FTK or wireless window handle sensors FFG7B-rw are linked together. If a FTK or wireless window handle sensor FFG7B-rw is taught-in, control commands of eventually taught-in pushbuttons are no longer running. It can be switched on and off manually **with the right button**. **The LED** performs during the teach-in process according to the operation manual. It shows wireless control commands by short flickering during operation.

FSVA-230V-10A	Wireless actuator Socket switching actuator with current measurement	EAN 4010312314555	109,10 €/pc.
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TECHNICAL DATA SINGLE-PHASE AND THREE-PHASE ENERGY METERS AND ENERGY CONSUMPTION INDICATOR

	EVA12-32A WSZ15D-32A  WSZ15DE-32A WZR12-32A	WSZ15D-65A 	DSZ15D-3x80A  DSZ15DE-3x80A DSZ15DM-3x80A  DSZ14DRS-3x80A 	DSZ15WD-3x5A  DSZ15WDM-3x5A  DSZ14WDRS-3x5A 
Rated voltage Extended range	230V, 50 Hz -20%/+15%	230V, 50 Hz -20%/+15%	3x230/400V, 50 Hz -20%/+15%	3x230/400V, 50 Hz -20%/+15%
Reference current I_{ref} (Limiting current I_{max})	5(32)A	10(65)A	3x10(80)A	3x5(6)A
Internal consumption active power	0.4 W EVA12, WZR12: 0.5 W	0.4 W	0.5 W per path DSZ14DRS: 0.8 W at L1	0.5 W per path DSZ14WDRS: 0.8 W at L1
Display	LC display 7 digits, therefrom 1 or 2 digits after the decimal point	LC display 7 digits, therefrom 1 or 2 digits after the decimal point	LC display 7 digits, therefrom 1 or 2 digits after the decimal point	LC display 7 digits, therefrom 1 digit after the decimal point
Display instantaneous values	WSZ15D: With a key you can select active power, voltage and current WSZ15DE: Active power displayed for 5 seconds every 30 seconds EVA12, WZR12: active power	With a key you can select active power, voltage and current	With a key you can select total active energy and active energy resettable, power, voltage and current per phase tariff 1 and tariff 2	With a key you can select total active energy and active energy resettable, power, voltage and current per phase
Accuracy class $\pm 1\%$	B	B	B	B
Inrush current according to accuracy class B	20 mA	40 mA	40 mA	10 mA
Operating temperature	-25/+55°C EVA12, WZR12: -10/+55°C	-25/+55°C	-25/+55°C	-25/+55°C
Interface (not EVA12, WZR12)	DSZ15DM and DSZ15WDM with M-bus interface. DSZ14DRS and DSZ14WDRS with interface for Eltako RS485 bus. All else: Pulse interface S0 according to DIN EN 62053-31, potential free by opto-coupler, max. 30 V DC/20 mA and min. 5 V DC. Impedance 100 ohms.			
	pulse length 30 ms	pulse length 30 ms	pulse length 30 ms	pulse length 30 ms
	2000 Imp./kWh	2000 Imp./kWh	1000 Imp./kWh	10 Imp./kWh
Terminal cover sealable	With sealing cap PK18. For the current path 1 sealing cap is required	With sealing cap PK18. For the current path 1 sealing cap is required	Terminal cover claps	Terminal cover claps
Protection degree	IP50 for mounting in distribution cabins with protection class IP51			
Maximum conductor cross section	6 mm ² WSZ15D, WSZ15DE: L terminals 16 mm ²	L terminals 16 mm ² , N and S0 terminals 6 mm ²	N and L terminals 16 mm ² , S0, M-Bus and RS485 bus terminals 6 mm ² DSZ15D/DE/DM-3x80A and DSZ14DRS-3x80A: L terminals 25 mm ²	

The N terminal of three-phase energy meters must be connected, if not the electronics might be destroyed.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 1 or Type 2 surge protection device (SPD) must be installed.

MEASURING INSTRUMENTS DIRECTIVE MID

On 31.04.2004, the European Parliament and the Council adopted the European Measuring Instruments Directive (MID) 2004/22/EC. The MID came into force in all member states of the EU and in Switzerland on 30.10.2006.

The 10 types of measuring instruments also include active electrical energy meters.

The MID replaces previous regulations on national approval and subsequent calibration in the domestic, trade and light industry sectors.

A manufacturer's Declaration of Conformity was produced based on this new directive.

There is a type examination certificate or pattern examination certificate for each type.

The MID regulates the following:

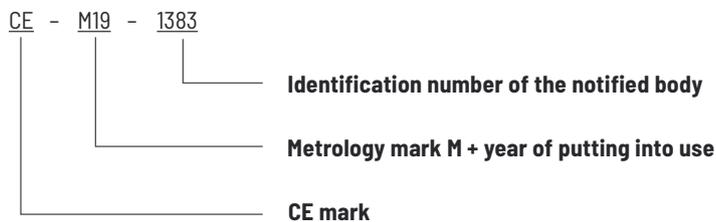
- the technical requirements (standard series DIN EN 50470-1/-3)
- the conformity assessment procedure
- the putting into use of measuring instruments
- marking the measuring instruments
- market surveillance

National law continues to regulate the following:

- recalibration
- calibration validity
- charges

When an MID instrument is put into use, we declare conformity with the MID in the operating instructions. The number of the type examination certificate is also quoted there.

THE DEVICE BEARS THE MID CONFORMITY MARK THAT CONSISTS OF:



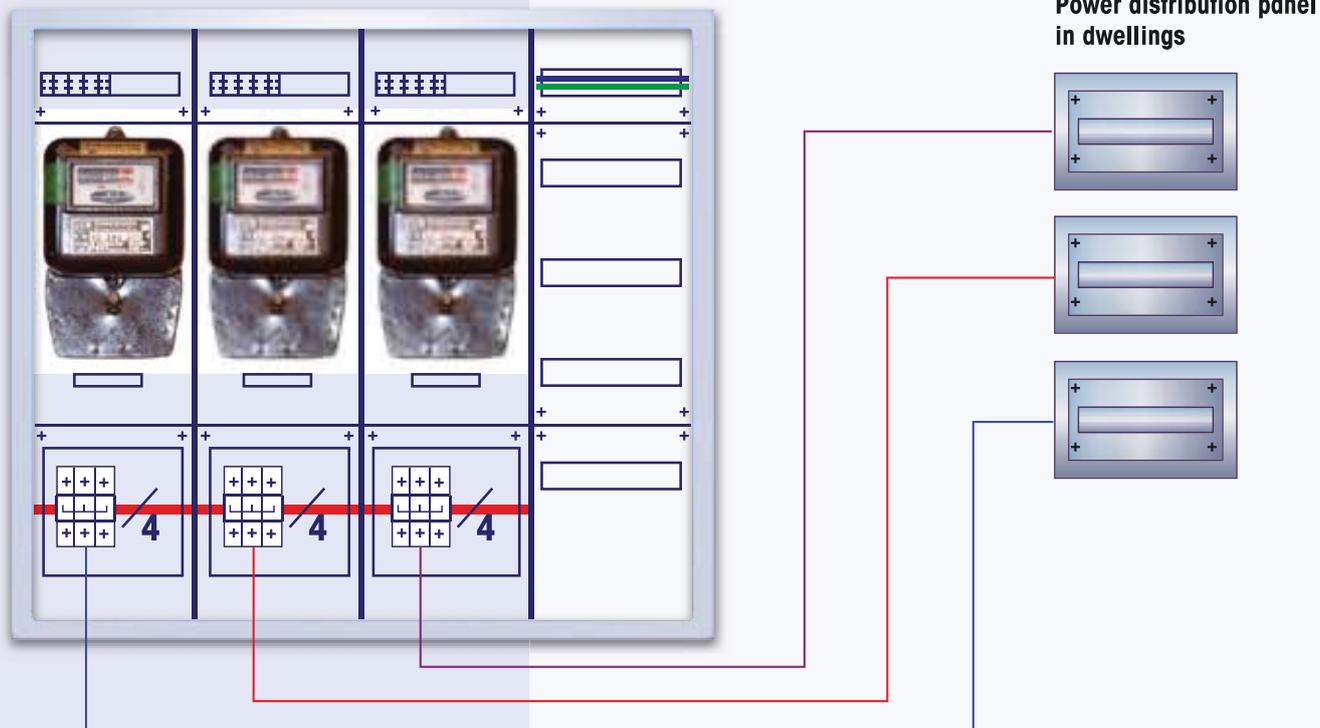
The year after the year of putting into use defines the recalibration time.

The period of calibration validity depends on the prevailing national law. In Germany, this is 8 years and can then be extended by a further 8 years by a state certified inspection body, i.e. not the manufacturer.

MID meters require no subsequent calibration with calibration mark. Instead, they are the equivalent of calibrated meters as a result of MID testing and an EU Declaration of Conformity from the manufacturer.

Conventional installation

Main meter 1 Main meter 2 Main meter 3

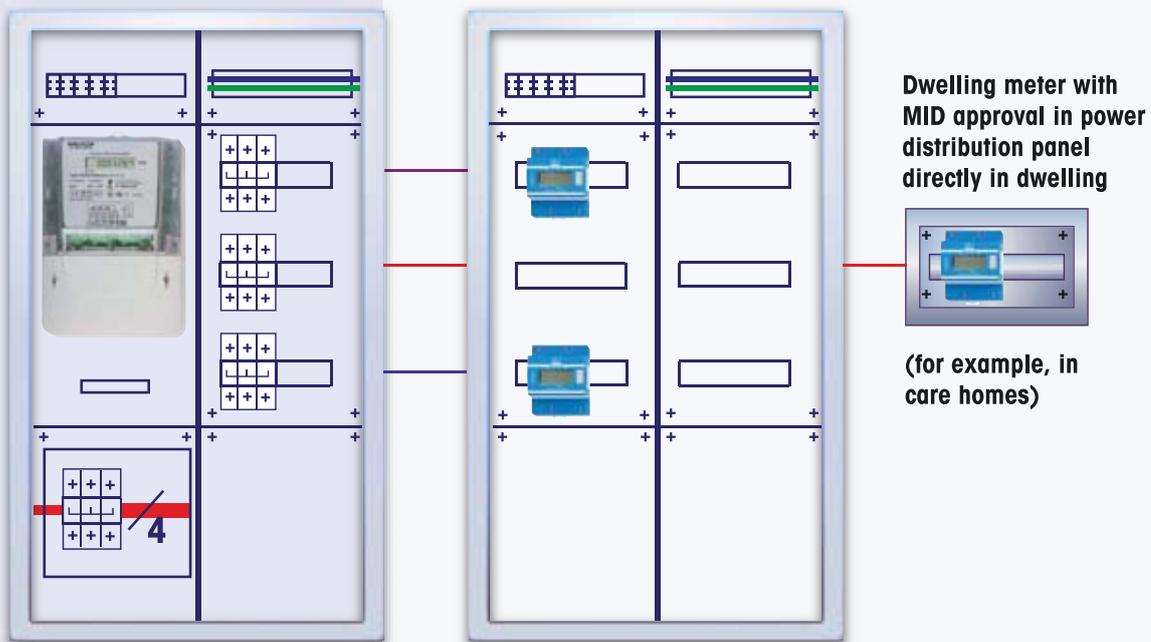


10-22

Modern installation acc. to TAB 2007

Main meter in meter cupboard

Dwelling meter with MID approval in power distribution



Dwelling meter with MID approval in power distribution panel directly in dwelling

(for example, in care homes)

TAB

VDE

**ESR12Z-
ESR12DDX-
ESR61NP-**



11

**ELECTRONIC IMPULSE SWITCHES -
THE SILENT REVOLUTION.**

Electronic impulse switches

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Technical data impulse switches	11-17

SELECTION TABLE ELECTRONIC IMPULSE SWITCHES

THE SILENT REVOLUTION

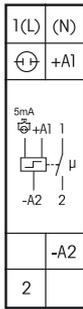
Without attracting particular attention by switching noise, the importance of electronic impulse switches with all their variants compared to conventional mechanical versions is growing steadily. They offer a highly reduced switching noise and further attractive

advantages, such as multifunction, central control, zero passage switching for AC voltage, minimized control power demand and universal control voltage.

Page		11-3	11-4	11-5	11-6	11-7	11-8	11-8	11-9	11-10	11-10	11-11	11-12	11-13
	pictograms													
		ES12DX-UC	ES12-200-UC	ES12-110-UC	ESR12NP-230V+UC	ESR12DDX-UC	ES12Z-200-UC	ES12Z-110-UC	ESR12Z-4DX-UC	ES61-UC	ES75-12..24V UC	ESR61NP-230V+UC	ESR61M-UC	ESR61SSR-230V
	Modular device for mounting on DIN rail EN 60715 TH35, number of modules 18 mm each	1	1	1	1	1	1	1	2					
	Built-in device for installation (e.g. flush-mounting box)									■	■	■	■	■
	Number NO contacts (not potential free)	1	2	1	(1)	1+1 ³⁾ 2 ³⁾	2	1	4x1	1	(1)	(1)	1+1 ³⁾ 2 ³⁾	(1)
	Number NC contacts potential free			1		1-2 ³⁾		1					1-2 ³⁾	
	Zero passage switching		■ ¹⁰⁾		■				■ ¹⁰⁾			■		■
	Switching capacity 16 A/250 V AC	■	■	■	■	■	■	■	■					
	Switching capacity 10 A/250 V AC									■	■	■	■	
	Incandescent lamp load W	2000	2000	2000	3600	2000	2000	2000	2000	2000	500	2000	2000	400
	Bistable relay(s) as relay contact(s)		■ ⁸⁾	■ ⁸⁾	■ ⁸⁾		■ ⁹⁾	■ ⁹⁾	■ ⁹⁾	■ ⁹⁾	■ ⁸⁾		■ ⁹⁾	■ ⁸⁾
	Universal control voltage		■	■	■	■	■	■	■	■		■	■	
	Additional control voltage 230 V	■ ⁵⁾	■ ⁵⁾	■ ⁵⁾	■ ⁶⁾					■ ⁵⁾		■ ⁶⁾		■
	Control voltage 12 to 24 V UC										■			
	Supply voltage same as control voltage					■	■	■	■					■
	Supply voltage 230 V				■ ⁶⁾						■	■ ⁶⁾		■
	No standby loss		■ ¹⁰⁾	■	■					■			■	
	Low standby loss					■	■ ¹⁰⁾	■	■	■ ¹⁰⁾		■	■	■
	Glow lamp current (mA) at the control input 230 V		5 ¹⁾⁷⁾	5 ¹⁾⁷⁾	5 ¹⁾⁷⁾	150 ²⁾				5 ¹⁾⁷⁾		50 ²⁾⁷⁾		
	Glow lamp current (mA) at the control input for universal voltage					5 ¹⁾	50 ¹⁾⁴⁾	50 ¹⁾⁴⁾						
	Off delay, switch-off early warning function and permanent light by pushbutton can be switched on				■							■		■
	Multi circuit switch						■ ³⁾							■ ³⁾
	Group switch						■ ³⁾							■ ³⁾
	Central control electrically isolated from the local control							■	■	■				

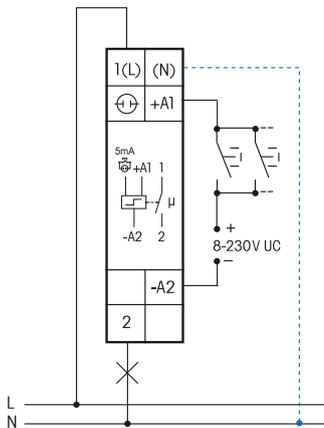
¹⁾ Applies to glow lamps with 170 V ignition voltage, for glow lamps with 90 V ignition voltage approx. 1/2 glow lamp current. ²⁾ Glow lamp current independent from the ignition voltage. ³⁾ Depends on the set function. ⁴⁾ Will automatically be switched on starting at 110 V control voltage. ⁵⁾ Control with 230 V or low-voltage possible. ⁶⁾ If the control voltage is 230 V, but the phase conductor is different than the 230 V supply voltage, the universal voltage control input must be used due to the potential disconnection. ⁷⁾ At the control input . ⁸⁾ The relay contact can be open or closed when putting into operation. It will be synchronised at first operation. ⁹⁾ The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated. ¹⁰⁾ Patented Duplex technology: When switched with 230 V/50 Hz zero passage switching is activated if L is connected to (L) and N to (N). Then additional standby loss of only 0.1 watt.

11-2

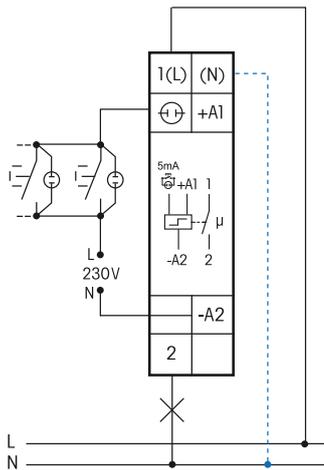


Typical connections

Either universal control voltage 8 to 230 V UC



or control voltage 230 V with glow lamp current up to 5 mA



If N is connected, the zero passage switching is active.

Technical data page 11-14.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

ES12DX-UC



1 NO contact potential free 16 A/250 V AC. Incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear.

Simply connect the neutral conductor to the terminal (N) and L to 1(L) for this. This results in an standby consumption of only 0.1 watt.

If the contact is used for controlling switching devices which do not perform zero passage switching themselves, (N) should not be connected because the additional closing delay otherwise causes the opposite effect.

Either universal control voltage 8 to 230 V UC at the control input +A1/A2

or 230 V with glow lamp current up to 5 mA at the control input ⊕(L)/-A2(N).

The simultaneous use of two potentials at the control inputs is not permitted.

Very low switching noise.

No permanent power supply necessary, therefore no standby loss.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

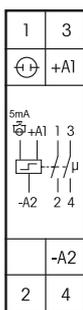
The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

Same terminal connection as the electromechanical impulse switch S12-100-.

If this impulse switch is in a circuit, which is monitored by a FR12-230V mains disconnection relay, no additional base load is required. However, the monitoring voltage of the FR12-230V must be set to 'max'. Control only through A1-A2.

The electronics does not have an internal power supply and therefore no power is consumed in any contact position. A control current flows only during a short control impulse of 0.2 seconds. This activates the microcontroller, reads the last switching state from the non-voltage memory, switches the bistable relay to its opposite state accordingly and rewrites the new switching state to memory.

ES12DX-UC	1 NO contact 16 A	EAN 4010312107959	42,90 €/pc.
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ES12-200-UC



2 NO contacts potential free 16 A/250 V AC. Incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Either universal control voltage 8 to 230 V UC at the control input +A1/A2
or 230V with glow lamp current up to 5 mA at the control input \oplus (L)/-A2(N).
The simultaneous use of two potentials at the control inputs is not permitted.
Very low switching noise.

No permanent power supply necessary, therefore no standby loss.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

Same terminal connection as the electromechanical impulse switch S12-200-.

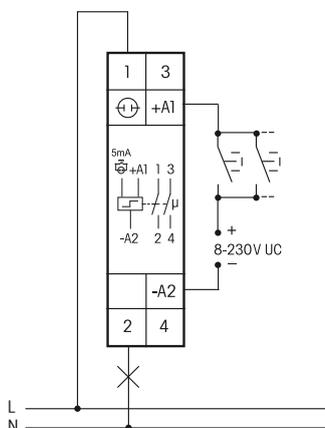
Maximum current across both contacts 16 A for 230 V.

If this impulse switch is in a circuit, which is monitored by a FR12-230V mains disconnection relay, no additional base load is required. However, the monitoring voltage of the FR12-230V must be set to 'max'.

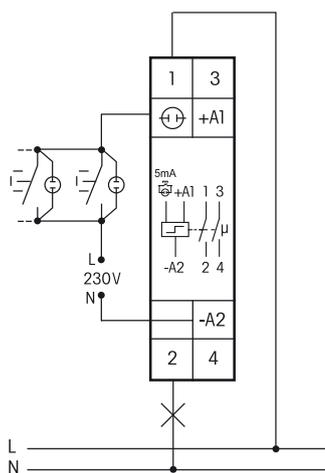
The electronics does not have an internal power supply and therefore no power is consumed in any contact position. A control current flows only during a short control impulse of 0.2 seconds. This activates the microcontroller, reads the last switching state from the non-voltage memory, switches the bistable relay to its opposite state accordingly and rewrites the new switching state to memory

Typical connections

Either universal control voltage 8 to 230 V UC

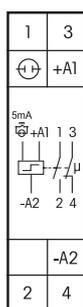


or control voltage 230 V with glow lamp current up to 5 mA



Technical data page 11-14.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

ES12-200-UC	2 NO contacts 16 A	EAN 4010312108048	46,30 €/pc.
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ES12-110-UC



1 NO contact + 1 NC contact potential free 16 A/250 V AC. Incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Either universal control voltage 8 to 230 V UC at the control input +A1/A2
or 230V with glow lamp current up to 5 mA at the control input \ominus (L)/-A2(N).
The simultaneous use of two potentials at the control inputs is not permitted.
Very low switching noise.

No permanent power supply necessary, therefore no standby loss.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

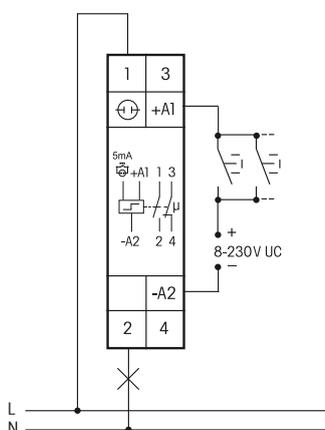
Same terminal connection as the electromechanical impulse switch S12-110-.

If this impulse switch is in a circuit, which is monitored by a FR12-230V mains disconnection relay, no additional base load is required. However, the monitoring voltage of the FR12-230V must be set to 'max'.

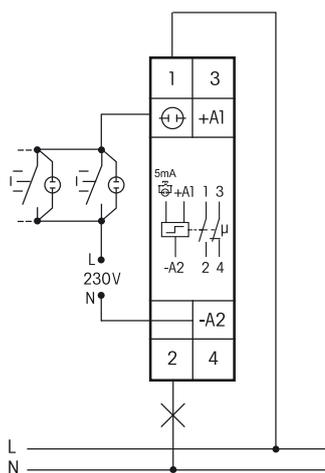
The electronics does not have an internal power supply and therefore no power is consumed in any contact position. A control current flows only during a short control impulse of 0.2 seconds. This activates the microcontroller, reads the last switching state from the non-voltage memory, switches the bistable relay to its opposite state accordingly and rewrites the new switching state to memory.

Typical connections

Either universal control voltage 8 to 230 V UC



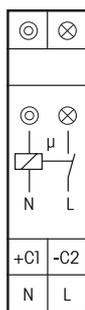
or control voltage 230 V with glow lamp current up to 5 mA



Technical data page 11-14.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

ES12-110-UC	1 NO contact + 1 NC contact 16 A	EAN 4010312108055	46,30 €/pc.
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IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION ESR12NP-230V+UC



ESR12NP-230V+UC



1 NO contact not potential free 16 A/250 V AC. Incandescent lamp load up to 2300W. Off delay impulse switch with switch-off early warning and pushbutton permanent light switchable. Standby loss 0.5 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control voltage 230 V. In addition electrically isolated universal voltage from 8 to 230 V UC. Supply voltage and switching voltage 230 V.

Very low switching noise. If the function ESV is set, definitely variable off-delay time RV from 2 to 120 minutes, settable by minute scale.

Contact position indication with two LEDs. This starts blinking after 15 seconds in case of an inhibited pushbutton (not if the function ER is set).

Glow lamp current up to 150 mA only at the control input 230 V independent from ignition voltage (not if the function ER is set).

Relays with suitable functions to feed back the switching voltage signal of a dimmer switch.

In case of a power failure the system is disconnected in a preset sequence.

The functions ES, ESV or ER are selectable **by means of a rotary switch.**

ES = Impulse switch

ER = Switching relay

ESV = Impulse switch with off delay. The impulse switch automatically disconnects after the set delay is timed out if a manual OFF command has not been given. Infinitely variable time range up to 120 minutes.

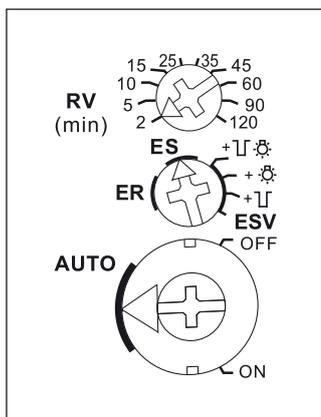
ESV = If switch-off early warning \sqcup is set the stairwell lighting starts flickering approximately + \sqcup 30 seconds before timeout at repeated shorter time intervals. During this process reset is possible.

ESV = If pushbutton permanent light \odot is set permanent light can be switched on by pressing longer + \odot than 1 sec. This switches off automatically after 2 hours or by an operation longer than 2 seconds.

ESV = If both switch-off early warning function and permanent light by pushbutton set, the switch-off + \sqcup \odot early warning function is activated before switching off the permanent light.

If this impulse switch with integrated relay function is in a circuit, which is monitored by a FR12-230V mains disconnection relay, no additional base load is required. However, the monitoring voltage of the FR12-230V must be set to 'max'.

Function rotary switches



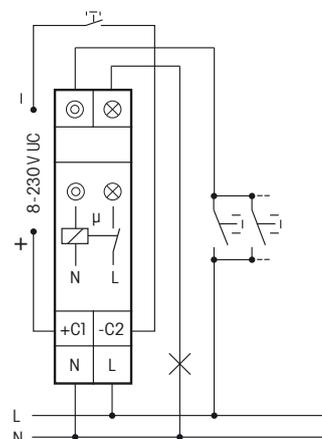
Standard setting ex works.

\sqcup = switch-off early warning

\odot = pushbutton permanent light

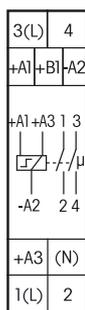
\sqcup \odot = switch-off early warning and pushbutton permanent light

Typical connection

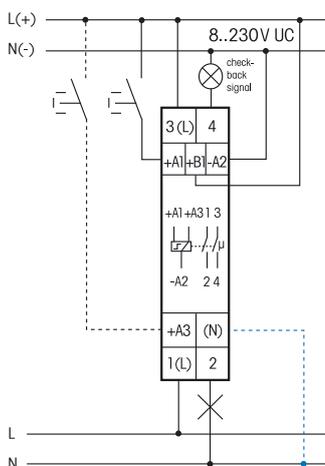


Technical data page 11-14.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

ESR12NP-230V+UC	1 NO contact 16 A	EAN 4010312107928	45,70 €/pc.
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Typical connection



If N is connected, the zero passage switching is active.

Technical data page 11-14.
 Housing for operating instructions GBA14,
 see accessoires, chapter Z.

ESR12DDX-UC



1+1 NO contacts potential free 16 A/250 V AC. Incandescent lamp load up to 2000 W. Standby loss 0.03-0.4 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 1(L) and/or 3(L) for this. This results in an additional standby consumption of only 0.1 Watt.

Universal control voltage 8 to 230 V UC. Supply voltage is same as the control voltage.

The functions are set with the keys MODE and SET as described in the operating instructions. They are indicated on the display and can be blocked if required.

The accrued switch-on time is continuously displayed. First in hours (h), then in months (m) with 1 digit after the decimal point.

By using bistable relays coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Only impulse switch functions: After a power failure the system is disconnected in a definite sequence or the switch position is kept depending on the setting (then + on the display next to function abbreviations). Settings under RSM in the menu guidance. Furthermore, when using these functions, with the keys MODE and SET, the control inputs A1 and A3 can be defined as central control inputs.

ZA1 = 'central off' with A1, local with A3; **ZE1** = 'central on' with A1, local with A3;

Z00 = no central control. 'Central on' with A1, 'central off' with A3. No local control refer to function RS.

Relays with suitable functions to feed back the switching voltage signal of a dimmer switch.

From 110V control voltage and in the settings 2S, WS, SS and GS glow lamp current up to 5mA, dependent on the ignition voltage.

With the keys MODE and SET you can select amongst 18 functions:

- OFF** = Permanent OFF
- 2xS** = 2-fold impulse switch with 1 NO contact each, control inputs A1 and A3
- 2S** = Impulse switch with 2 NO contacts
- WS** = Impulse switch with 1 NO contact and 1 NC contact
- SS1** = Impulse multi circuit switch 1+1 NO contacts for switching sequence 0 - contact 1(1-2) - contact 2(3-4) - contacts 1+2
- SS2** = Impulse multi circuit switch 1+1 NO contacts for switching sequence 0 - contact 1 - contacts 1+2 - contact 2
- SS3** = Impulse multi circuit switch 1+1 NO contacts for switching sequence 0 - contact 1 - contacts 1+2
- GS** = Impulse group switch 1+1 NO contacts for switching sequence 0 - contact 1 - 0 - contact 2
- RS** = Switch with 2 NO contacts, with A1 = set control input and A3 = reset control input
- 2xR** = 2-fold switching relay with 1 NO contact each, control inputs A1 and A3
- 2R** = Switching relay with 2 NO contacts
- WR** = Switching relay with 1 NO contact and 1 NC contact
- RR** = Switching relay (closed-circuit current relay) with 2 NC contacts
- EAW** = Impulse relay for fleeting NO contact and fleeting NC contact with 1+1 NO contacts, wiping time 1 sec each
- EW** = Impulse relay for fleeting NO contact with 1 NO contact and 1 NC contact, wiping time 1 sec
- AW** = Impulse relay fleeting NC contact with 1 NO contact and 1 NC contact, wiping time 1 sec
- GR** = Group relay 1+1 NO contacts (relay with alternating closing contacts)
- ON** = Permanent ON

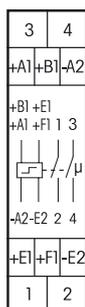
The control inputs A1 and A3 have the same functions except for 2xS, 2xR and RS, if not used as central control inputs.

After setting the required function, the function can be blocked.

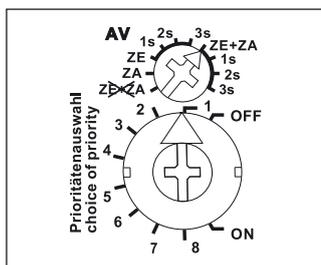
An arrow on the right of the abbreviation indicates the blocking status.

ESR12DDX-UC	1+1 NO contacts 16 A	EAN 4010312108093	62,70 €/pc.
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IMPULSE SWITCH WITH POTENTIAL FREE CONTACTS ES12Z, ALSO FOR CENTRAL CONTROL

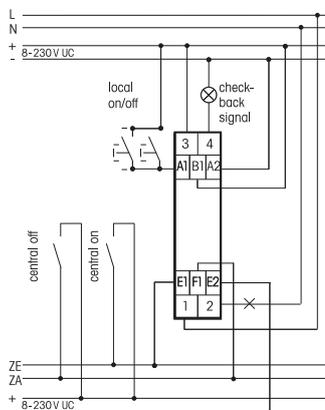


Function rotary switches



Standard setting ex works.

Typical connection



Technical data page 11-14.
Housing for operating instructions GBA14,
see accessories, chapter Z.

ES12Z-200-UC



2 NO contacts potential free 16 A/250 V AC. Incandescent lamp load up to 2000 W. Standby loss 0.03-0.4 watt only. Central control priorities selectable.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Local universal control voltage 8 to 230 V UC.

In addition control inputs 8 to 230 V UC central ON and central OFF, electrically isolated from the local input. Supply voltage same as the local control voltage. Very low switching noise. Glow lamp current starting at 110 V control voltage up to 50 mA in positions 1 to 3 and 5 to 7 of the rotary switch.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Maximum current across both contacts 16 A for 230 V. Contact position indication with LED. This starts blinking after 15 seconds in case of an inhibited pushbutton, not in position 4+8 of the rotary switch.

With the upper rotary switch this impulse switch can be partly or completely excluded from central control: **ZE+ZA** = 'Central ON' and 'Central OFF' are active. You can select a response delay of 0, 1, 2 or 3 seconds for 'Central ON'. **ZE** = Only 'Central ON' is active. You can select a response delay of 0, 1, 2 or 3 seconds. **ZA** = Only 'Central OFF' is active. **ZE+ZA** = No central control is active.

The lower rotary switch sets several priorities. These determine which other control inputs are inhibited as long as another control input is excited permanently.

Furthermore, here it is decided if the switch position should be kept or not after a power failure:

In positions 1 to 4 of the rotary switch the switch position remains unchanged, in positions 5 to 8 it is switched off. Incoming central commands are executed immediately after the powersupply returns.

OFF = Permanent OFF, **ON** = Permanent ON

1 and 5 = No priority. Also if central control inputs are excited permanently, it is possible to operate the device by pushing a local push-button. The last central command is executed. This is the setting ex factory.

2 and 6 = Priority for central ON and OFF. Local push-buttons are temporarily inhibited. However, continuous excitation central OFF has priority over continuous excitation central ON.

3 and 7 = Priority for central ON and OFF. Local push-buttons are temporarily inhibited. However, continuous excitation central ON has priority over continuous excitation central OFF.

4 and 8 = Priority for permanently excited local push-button. In the meantime central commands are not executed. In these positions a glow lamp current is not permitted.

ES12Z-200-UC	2 NO contacts 16 A	EAN 4010312107690	56,60 €/pc.
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ES12Z-110-UC

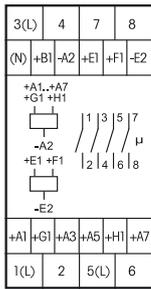


1 NO contact + 1 NC contact potential free 16 A/250 V AC. Incandescent lamp load up to 2000 W. Standby loss 0.03-0.4 watt only. Central control priorities selectable.

All functions same as ES12Z-200, but with 1 NO contact and 1 NC contact.

ES12Z-110-UC	1 NO contact + 1 NC contact 16 A	EAN 4010312107683	55,00 €/pc.
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4-FOLD IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION ESR12Z-4DX-UC, ALSO FOR CENTRAL CONTROL AND GROUP CONTROL



ESR12Z-4DX-UC



With 4 independent contacts, 1NO contact each potential free 16 A/250 V AC, incandescent lamp load up to 2000 W. Standby loss 0.03-0.4 watt only.

Modular devices for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep.

Patented Eltako Duplex technology (DX) allows you to switch 3 of the 4 normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and the phase conductors to 1(L), 3(L) or 5(L). This results in an additional standby consumption of only 0.1 watt. If the channels are used to control switchgear that has no zero passage switching, (N) should not be connected, otherwise the additional off-delay would have the opposite effect.

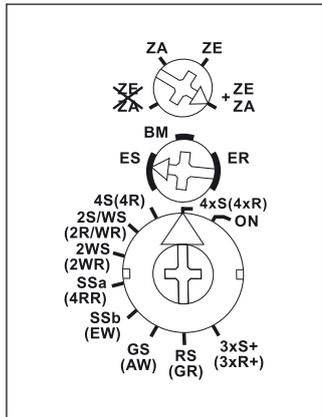
Local universal control voltage 8 to 230 V UC. In addition universal control inputs central ON and central OFF for 8 to 230V UC, electrically isolated from the local inputs.

With additional group control inputs ON and OFF for 8..230 V UC. Same potential like the local control inputs. Groups of these impulse switches can be controlled separately using the group control inputs. Supply voltage like the local control voltage. **By using a bistable relay coil power loss and heating is avoided even in the on mode.** The switched consumers may not be connected to the mains before the short automatic synchronisation after installation has terminated. Central commands always have priority, local control inputs are blocked as long as central commands are activated. In case of a power failure the system is disconnected in a defined mode.

With the upper rotary switch this impulse switch with integrated relay function can be partly or completely excluded from central control: ZE+ZA = central ON and central OFF ZE = central ON only ZA = central OFF only ~~ZE+ZA~~ = no central control

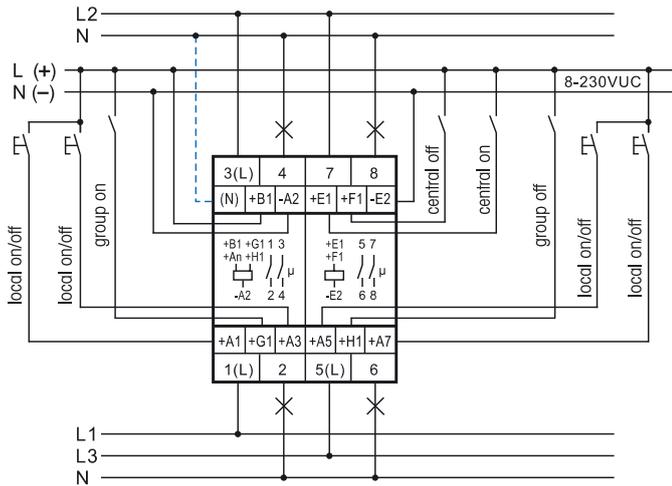
Use the middle rotary switch to preselect the functions of the lower rotary switch for ES and ER. Use ER to select the clamp functions. If BM is selected, control can be exerted by a motion detector. **Not suitable to feed back the switching voltage signal of a dimmer switch. Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose. With the lower rotary switch 18 different functions may be selected:**

Function rotary switches



Standard setting ex works.

Typical circuit with central control and group control



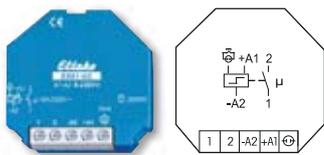
If N is connected, the zero passage switching is active at the contacts 1-2, 3-4 and 5-6.

Technical data page 11-14.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

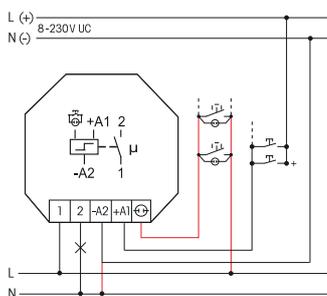
- ON** = Permanent ON
- 4xS** = 4-fold impulse switch with 1 NO contact each, 4x control inputs A1, A3, A5 and A7
- (4xR)** = 4-fold switching relay with 1 NO contact each, control inputs A1, A3, A5 and A7
- 4S** = Impulse switch with 4 NO contacts
- (4R)** = Switching relay with 4 NO contacts
- 2S/WS** = Impulse switch with 3 NO contacts and 1 NC contact
- (2R/WR)** = Switching relay with 3 NO contacts and 1 NC contact
- 2WS** = Impulse switch with 2 NO contacts and 2 NC contacts
- (2WR)** = Switching relay with 2 NO contacts and 2 NC contacts
- SSa** = Impulse multi circuit switch 2+2 NO contacts for switching sequence 0-2-2+4-2+4+6; check back signal 8
- (4RR)** = closed-circuit current relay with 4 NC contacts
- SSb** = Impulse multi circuit switch 2+2 NO contacts for switching sequence 0-2-2+4-2+4+6-2+4+6+8
- (EW)** = Impulse relay for fleeting NO contact with 3 NO contacts and 1 NC contact, wiping time 1 sec
- GS** = Impulse group switch. Switching sequence 0-2-0-4-0-6-0; check back signal 8
- (AW)** = Impulse relay fleeting NC contact with 3 NO contacts and 1 NC contact, wiping time 1 sec
- RS** = Switch with 4 NO contacts, A1 = set control input and A3 = reset control input
- (GR)** = Group relay 1+1+1 NO contacts
- 3xS+** = 3-fold impulse switch with 1 NO contact each + check back signal 8, control inputs A1, A3 and A5
- (3xR+)** = 3-fold switching relay with 1 NO contact each + check back signal 8, control inputs A1, A3 and A5

ESR12Z-4DX-UC	4 x 1 NO contact 16 A	EAN 4010312108130	94,90 €/pc.
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IMPULSE SWITCH ES61-UC
IMPULSE SWITCH ES75-12..24V UC FOR INSTALLATION IN LIGHTING FITTINGS

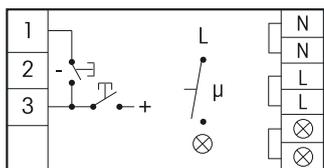


Typical connection



Technical data page 11-14.

11-10



ES61-UC



1 NO contact potential free 10 A/250 V AC. Incandescent lamp load up to 2000 W. No standby loss.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Either universal control voltage 8 to 230 V UC at the control input +A1/-A2

or 230 V with a glow lamp current up to 5 mA at the control input $\ominus(L)/-A2(N)$.

Using two potentials simultaneously at the control inputs is not permitted.

Very low switching noise.

No permanent power supply necessary, therefore no standby loss.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

If this impulse switch is in a circuit, which is monitored by a FR12-230V mains disconnection relay, no additional base load is required. However, the monitoring voltage of the FR12-230V must be set to 'max'.

The electronics does not have an internal power supply and therefore no power is consumed in any contact position. A control current flows only during a short control impulse of 0.2 seconds. This activates the microcontroller, reads the last switching state from the non-voltage memory, switches the bistable relay to its opposite state accordingly and rewrites the new switching state to memory.

ES61-UC	1 NO contact 10 A	EAN 4010312107966	43,50 €/pc.
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ES75-12..24V UC



For installation in lighting fittings. 1 NO contact not potential free 10 A/250 V AC. Standby loss 1 watt only.

Built-in device for installation. 85 mm long, 40 mm wide, 28 mm deep.

With integrated transformer to galvanically separate the control circuit from the switching circuit to comply with the requirements for safety extra low voltage (SELV) to EN 60669-2-2. As of production week 18/18, compliance is fulfilled with the safety requirements of 2x MOPP to EN 60601-1. Activation by internal voltage or external control voltage of 12 to 24 V UC, control current 10 mA at 24 V. Continuous power supply 230 V. A circuit breaker of max. 10 A is required.

Incandescent lamps and halogen lamps load up to 500 W¹⁾ and fluorescent lamps with conventional ballast units in lead-lag circuit up to 1000 VA. Fluorescent lamps with conventional ballast units parallel compensated 300 VA.

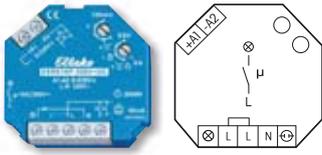
Temperatures at the mounting location between -20°C and +50°C.

Min. command pulse duration/command pause 20/300 ms.

Connections on the low voltage side: 4-pole pin receptacle for STOCKO MKF 13264-6-0-404 plug, 230 V connections: 6-pole terminal strip with plug-in terminals. max. conductor cross section 2.5 mm². One STOCKO plug comes with each device.

¹⁾ For lamps with 150 W max.

ES75-12..24VUC	1 NO contact 10 A	EAN 4010312101063	44,60 €/pc.
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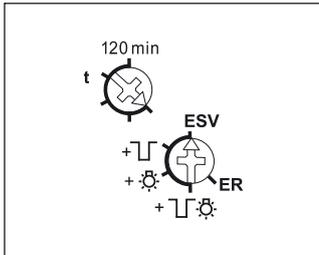


ESR61NP-230V+UC



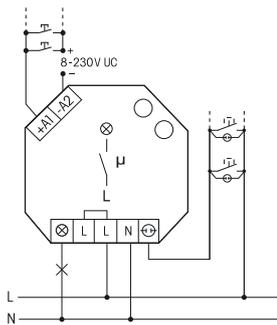
1 NO contact not potential free 10 A/250 V AC, incandescent lamp load up to 2000 W. Off delay impulse switch with switch-off early warning and pushbutton permanent light switchable. Standby loss 0.7 watt only.

Function rotary switches



Standard setting ex works.

Typical connection



Technical data page 11-14.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Control voltage 230V. In addition electrically isolated universal control voltage from 8 to 230 V UC. Supply voltage and switching voltage 230 V. Very low switching noise. Variable time range up to 120 minutes in the function ESV. At the control input ⊕ pushbuttons with a glow lamp current up to 50 mA can be connected. In case of a power failure the system is disconnected in a preset sequence.

If the timing period is set to minimum in the function ESV, the release delay is switched off. The standard impulse switch function ES is then set. The function ER is selectable. If the function ER is selected a glow lamp current is not permitted. Only the control input A1-A2 should be used.

When set to the function ER this device is suitable to feed back the switching voltage signal of a dimmer switch.

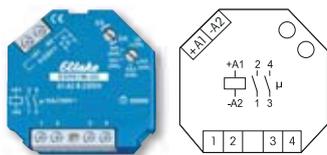
If switch-off early warning function  is switched on, the light starts flickering approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If the permanent light function  is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton for longer than 2 seconds.

If both switch-off early warning function and permanent light by pushbutton   are set, the switch-off early warning function is activated before switching off the permanent light.

ESR61NP-230V+UC	1 NO contact 10 A	EAN 4010312107911	43,90 €/pc.
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MULTIFUNCTION IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION ESR61M-UC



ESR61M-UC



1+1 NO contacts potential free 10 A/250 V AC. Incandescent lamp load up to 2000 W. No standby loss.

For installation. 45 mm long, 45 mm wide, **32 mm deep.**

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Universal control voltage 8 to 230 V UC.

No permanent power supply necessary, therefore no standby loss.

By using bistable relays coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

The functions of the second rotary switch are preselected using the rotary switch ES/ER.

The setting ER selects the function in brackets. 10 different functions are selectable.

2S = Impulse switch with 2 NO contacts

(2R) = Switching relay with 2 NO contacts

WS = Impulse switch with 1 NO contact and 1 NC contact

(WR) = Switching relay with 1 NO contact and 1 NC contact

SS1 = Impulse multi circuit switch 1+1 NO contacts for switching sequence
0 - contact 1(1-2) - contact 2(3-4) - contacts 1+2

(RR) = Switching relay (closed-circuit current relay) with 2 NC contacts

SS2 = Impulse multi circuit switch 1+1 NO contacts for switching sequence
0 - contact 1 - contacts 1+2 - contact 2

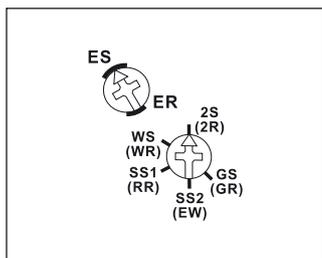
(EW) = Impulse relay for fleeting NO contact with 1 NO contact and 1 NC contact, wiping time 1 sec

GS = Impulse group switch 1+1 NO contacts for switching sequence 0 - contact 1 - 0 - contact 2

(GR) = Group relay 1+1 NO contacts (relay with alternating closing contacts)

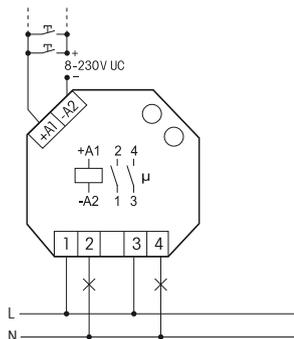
This relay is not suitable to feed back the switching voltage signal of a dimmer switch. Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

Function rotary switches



Standard setting ex works.

Typical connection

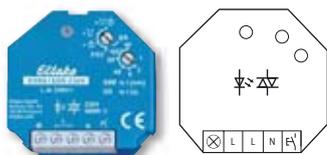


Technical data page 11-14.

The electronics does not have an internal power supply and therefore no power is consumed in any contact position. A control current flows only during a short control impulse of 0.2 seconds. This activates the microcontroller, reads the last switching state from the non-voltage memory, switches the bistable relay to its opposite state accordingly and rewrites the new switching state to memory.

ESR61M-UC	1 + 1 NO contacts 10 A	EAN 4010312108079	56,80 €/pc.
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NOISELESS IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION ESR61SSR-230V WITH SOLID STATE RELAY

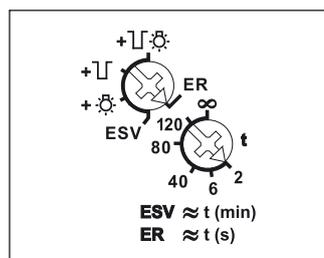


ESR61SSR-230V



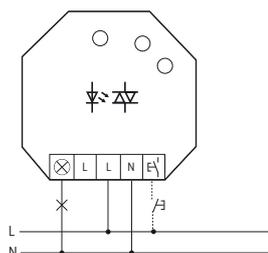
Noiseless solid state relay not potential free, 400 Watt, off delay impulse switch with switch-off early warning and pushbutton permanent light switchable. Standby loss 0,3 watt only.

Function rotary switches



Standard setting ex works.

Typical connection



Technical data page 11-14.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

Supply, switching and control voltage 230 V.

Zero passage switching.

In case of a power failure the system is disconnected in a preset sequence.

In the ER function the relay switches back on when the power is restored and the control input is active.

It is not permitted to apply a glow lamp current to the control input.

With automatic electronic overtemperature switch-off.

At a load of < 1W a GLE must be switched in parallel to the load.

Use the top rotary switch to select the required function of this impulse switch:

ER = switching relay

ESV = impulse switch. Possibly with off delay, then

+ = ESV with pushbutton permanent light

+ = ESV with switch-off early warning

+ = ESV with pushbutton permanent light and switch-off early warning

The LED flashes when the rotary switch reaches a new setting range to assist you to find the require position with certainty.

The LED lights up permanently when the relay is switched on.

When the pushbutton permanent light is switched on , set the LED to permanent light by pressing the pushbutton for longer than 1 second. This is indicated by the LED flickering briefly. After 2 hours, the permanent light switches off automatically or it can be switched off previously by briefly pressing the pushbutton.

If the switch-off early warning is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

During the switch-off early warning, the light can be switched back on by briefly pressing the pushbutton.

If both switch-off early warning and pushbutton permanent light are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

The function **ESV on the bottom rotary switch** sets the off delay from 2 to 120 minutes.

In setting ∞ normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

In the ER function a switch-on wipe time can be set between 2 and 120 seconds. On expiry of the wipe time the relay switches off automatically.

In setting ∞ default relay function ER without wipe time.

ESR61SSR-230V	Impulse switch with integrated relay function with SSR	EAN 4010312109786	44,70 €/pc.
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TECHNICAL DATA ELECTRONIC IMPULSE SWITCHES, ALSO FOR CENTRAL CONTROL

Type	ES12DX ^{a)} ES12-200 ^{a)} ES12-110 ^{a)}	ESR12NP	ESR12DDX ^{b)}	ES12Z ^{b)} ESR12Z- 4DX ^{b)}	ES61 ^{a)} ESR61M ^{a)}	ESR61NP ^{b)}	ESR61SSR
Contacts							
Contact material/contact gap	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	Opto Triac
Spacing of control connections/contact control connections C1-C2 or A1-A2/contact	6 mm -	3 mm 6 mm	6 mm -	6 mm -	3 mm ESR61M: 6 mm	3 mm 6 mm	- -
Test voltage contact/contact	ES12-200/110: 2000 V	-	4000 V	4000 V	ESR61M: 2000 V	-	-
Test voltage control connection/contact Test voltage C1-C2 or A1-A2/contact	4000 V -	2000 V 4000 V	4000 V -	4000 V -	2000 V 4000 V	2000 V 4000 V	- -
Rated switching capacity	16 A/250 V AC ⁵⁾	16 A/250 V AC	16 A/250 V AC	16 A/250 V AC ⁵⁾	10 A/250 V AC	10 A/250 V AC	-
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/10 ms	2000 W	2300 W	2000 W	2000 W	2000 W	2000 W	up to 400 W
Fluorescent lamp load with KVG* in lead-lag or non compensated	1000 VA	1000 VA	1000 VA	1000 VA	1000 VA	1000 VA	-
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	500 VA	500 VA	500 VA	500 VA	500 VA	up to 400 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	I on ≤ 70 A/ 10 ms ²⁾ ES12DX: 15x7 W 10x20 W ^{3m)}	15x7 W 10x20 W ⁷⁾	15x7 W 10x20 W ^{3m)}	I on ≤ 70 A/ 10 ms ²⁾ ESR12Z-4DX: 15x7 W 10x20 W ^{3m)}	I on ≤ 70 A/ 10 ms ²⁾	15x7 W 10x20 W ⁷⁾	up to 400 W ⁷⁾
230 V LED lamps	up to 200 W ⁷⁾ I on ≤ 120 A/5 ms	up to 200 W ⁷⁾ I on ≤ 30 A/20 ms	up to 200 W ⁷⁾ I on ≤ 120 A/5 ms	up to 200 W ⁷⁾ I on ≤ 120 A/5 ms	up to 200 W ⁷⁾ I on ≤ 120 A/5 ms	up to 200 W ⁷⁾ I on ≤ 120 A/5 ms	up to 400 W ⁷⁾ I on ≤ 120 A/5 ms
Max. switching current DC1: 12 V/24 V DC	8 A	-	8 A	8 A	8 A	-	-
Life at rated load, cos φ = 1 resp. for incandescent lamps 1000 W at 100/h	>10 ⁵	>10 ⁵	>10 ⁵	>10 ⁵	>10 ⁵	>10 ⁵	-
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	∞
Max. operating cycles	10 ⁵ /h	10 ⁵ /h	10 ⁵ /h	10 ⁵ /h	10 ⁵ /h	10 ⁵ /h	10 ⁵ /h
Maximum conductor cross-section (3-fold terminal)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	4 mm ²	4 mm ²	4 mm ²
Two conductors of same cross-section (3-fold terminal)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	1.5 mm ²	1.5 mm ²	1.5 mm ²
Screw head	slotted/crosshead, pozidriv				slotted/crosshead		
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20	IP30/IP20	IP30/IP20	IP30/IP20
Electronics							
Time on (also for central on/off)	100%	100%	100%	100% ⁶⁾	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (active power) 230 V	-	0.5 W	0.4 W	0.4 W	-	0.7 W	0.3 W
Standby loss (active power) 12 V ⁴⁾	-	-	0.03 W	0.03 W	-	-	-
Control current 230 V-control input local (<10 s)	-	10 mA	-	-	-	10 mA	1 mA
Control current universal control voltage all control voltages (<5 s) ± 20% 8/12/24/230 V (<10 s) ± 20%	1.5 mA (15 mA) ⊕ 30 (23) mA	- 2/4/9/5 (100) mA	- 2/3/7/3 (50) mA	- 0.1/0.1/0.2/1 (30) mA	1.5 mA (15 mA) ⊕ 30 (23) mA ESR61M: 4 mA	- 2/4/9/5 (100) mA	-
Control current central 8/12/24/230 V (<10 s) ± 20%	-	-	-	2/4/9/5 (100) mA	-	-	-
Max. parallel capacitance (approx. length) of single control lead at 230 V AC	⊖ 0.3 μF (1000 m) A1-A2: 0.06 μF (200 m)	ES: 0.3 μF (1000 m) ER: 3 nF (10 m) C1-C2: 15 nF (50 m)	0.3 μF (1000 m)	0.3 μF (1000 m)	⊖ : 0.3 μF (1000 m) A1-A2: 0.06 μF (200 m) ESR61M: 0.5 nF (2 m)	⊖ 0.06 μF (200 m) A1-A2: 0.3 μF (1000 m)	30 nF (100 m)
Max. parallel capacitance (approx. length) of central control lead at 230 V AC	-	-	-	0.9 μF (3000 m)	-	-	-

* EVG = electronic ballast units; KVG = conventional ballast units

^{a)} Bistable relay as relay contact. The relay contact can be open or closed when putting into operation. It will be synchronised at first operation. ^{b)} Bistable relay as relay contact. The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated. ¹⁾ For lamps with 150 W max. ²⁾ A 40-fold inrush current must be expected for electronic ballast devices. For steady loads of 1200 W or 600 W use the current-limiting relay SBR12 or SBR61. See chapter 14, page 14-8. ³⁾ When using DX types close attention must be paid that zero passage switching is activated! ⁴⁾ Standby loss at 24 V approx. two times greater than at 12 V. ⁵⁾ For ES12-200 and ES12Z-200 maximum current across both contacts 16 A for 230 V. ⁶⁾ Please consider sufficient ventilation at permanent connection of several impulse switches according to power loss calculation, and if necessary leave a ventilation distance of about ½ module. ⁷⁾ Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. Due to differences in the lamps electronics, there may be a restriction on the maximum number of lamps; especially if the connected load is very low (for 5 W-LEDs).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

OVERVIEW

Type	Switching type	Control voltage	Current consumption	Nominal switching current/voltage	Pushbutton type	Advantages and application
IFE12-10TS	Off-switch	12 V AC	5 mA	10 A/250 V AC	Without glow lamp	Impulse switch with 1 NO contact
IFES12-20TS	Impulse multi-circuit switch	12 V AC	5 mA	10 A/250 V AC	Without glow lamp	Multicircuit switch sequence 0/1/2/1+2/0
IFED12-20	Double off-switch	12 V AC	5 mA	10 A/250 V AC	Without glow lamp	Two separately controllable remote switch in one device; space-saving and well suited for new distributions



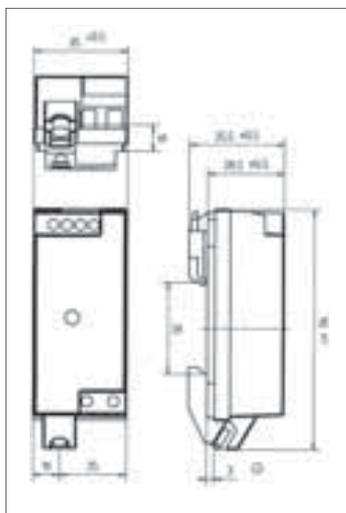
Mounting plate HPI

IFE..

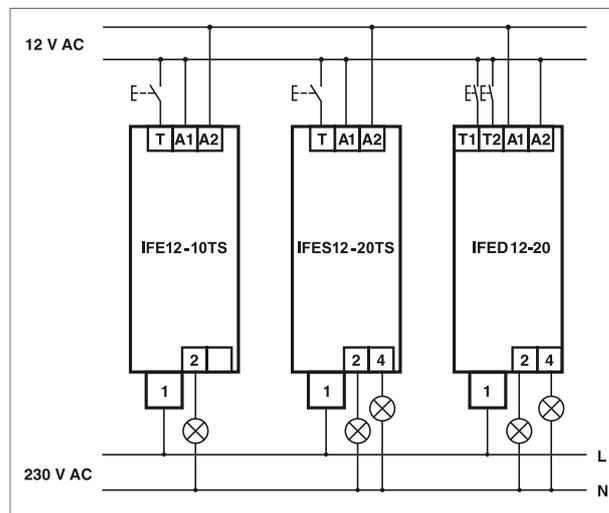
Impulse switches with monostable relay 10 A/250 V AC

- No annoying switching noises.
- For DIN rail and screw fastening.
- 100% duty cycle.
- Increased insensitivity to unsafe contact with the button.
- Minimal power consumption.
- According to DIN VDE 0637 and EMC directive.
- Shock protected.

Dimension drawing in mm



Wiring diagram



Max. fuse 10 A
 Note: the buttons must be connected to T and optionally to A1 or A2. The remote switches with monostable relay are not suitable for operation with illuminated buttons.

IFE12-10TS	1 NO contact 10 A	EAN 4010312107379	20,10 €/pc.
IFES12-20TS	1+1 NO contact 10 A	EAN 4010312107430	27,40 €/pc.
IFED12-20	2x1 NO contacts 10 A	EAN 4010312107454	27,40 €/pc.
HPI	Mounting plate with screws	EAN 4010312901663	1,30 €/pc.

Technical data page 11-17.

Recommended retail prices excluding VAT.

IMPULSE SWITCHES WITH BISTABLE RELAY 10 A/250 V AC

OVERVIEW

Type	Switching type	Control voltage	Current consumption	Nominal switching current/voltage	Pushbutton type	Advantages and application
IFE12-10.11	Off-switch	12 V AC	1 mA	10 A/250 V AC	With or without glow lamp ¹⁾	Use with illuminated buttons: The button lighting is always on.
IFE12-20.13	Double off-switch	12 V AC	1 mA	10 A/250 V AC	without glow lamp	two separately controllable remote switch in one device

¹⁾Suitable for all illuminated button types up to a maximum glow lamp current of 50 mA.

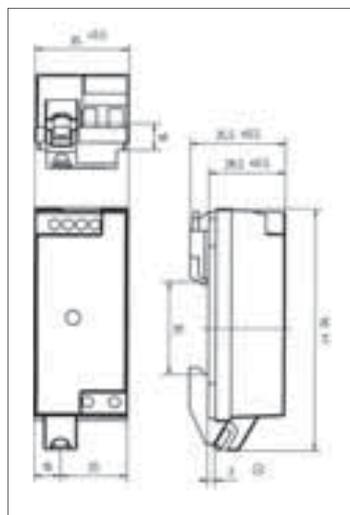


Mounting plate HP1

IFE..

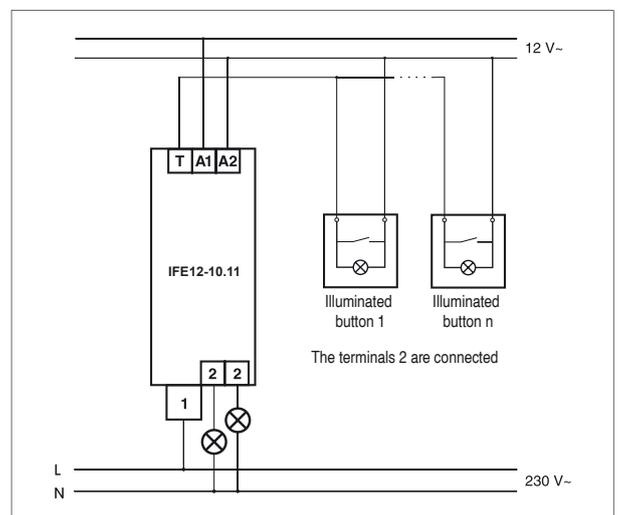
Impulse switches with bistable relay 10 A/250 V AC

Dimension drawing in mm



IFE12-10.11

For illuminated and non-illuminated buttons, button lighting always on.



Technical data page 11-17.

IFE12-10.11	1 NO contact 10 A	EAN 4010312107386	27,40 €/pc.
IFE12-20.13	2x1 NO contacts 10 A	EAN 4010312107461	38,00 €/pc.
HP1	Mounting plate with screws	EAN 4010312901663	1,30 €/pc.

Recommended retail prices excluding VAT.

Type	IFE12-10TS IFES12-20TS ¹⁾ IFED12-20	IFE12-10.11 IFE12-20.13
Control part		
Rated voltage	12 V AC (10..20 V AC)	12 V AC (10..20 V AC)
Time on	100%ED	100%ED
Minimum command time	20 ms	20 ms
Switching frequency	180/min	180/min
Load part		
Rated switching capacity	10A/250V AC ³⁾	10A/250V AC ³⁾
Incandescent lamp and halogen lamp ²⁾ 230V, I on ≤ 70A/10ms	2000 W	1200 W
EVG* and energy saving lamps ESL	1000 VA, max. 5 pcs in parallel	400 VA, max. 5 pcs in parallel
Fluorescent lamp load with KVG* in lead-lag or non compensated	1000 VA	400 VA, max. 3 pcs in parallel
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	400 VA	not approved
Connections	Socket clamp 2.5 mm ² for control input and load output Head screw terminal 2.5 mm ² for load input	
Max./min. temperature at mounting location	+35°C/-5°C	+35°C/-5°C
Protection class	IP 00	IP 00
Mounting position	All positions	All positions
Mounting method	For quick fastening on mounting rails or for screw fastening using holding plate and screws HP1.	
In case of power failure	Defined OFF (not IFED12)	The switch position is retained in the event of a power failure

* EVG = electronic ballast units; KVG = conventional ballast units

¹⁾ Switching sequence of the multicircuit switch: 0/1/2/1+2/0

²⁾ For lamps with 150 W max.

³⁾ Multicircuit switch and switch double: sum of both contacts max. 2500 VA.

**ER12DX-
ESR12DDX-
ER61-UC**



**SWITCHING AND CONTROL PROFESSIONALS –
ELECTRONIC SWITCHING RELAYS, CONTROL
RELAYS AND COUPLING RELAYS.**

Electronic switching relays, control relays and coupling relays

Selection table switching relays, control relays and coupling relays	12 - 2
Switching relay ER12DX-UC	12 - 3
Switching relay ER12-200-UC and ER12-110-UC	12 - 4
Switching and control relays ER12-001-UC and ER12-002-UC	12 - 5
Switching relay ER12SSR-UC	12 - 6
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Coupling relays KR09-12V UC, KR09-24V UC and KR09-230V	12 - 9
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Multifunction impulse switch with integr. relay function ESR61M-UC	12 - 12
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Technical data electronic switching relays, control relays and coupling relays	12 - 16

SWITCHING AND CONTROL PROFESSIONALS

Professional hybrid relays combine the advantages of nonwearing electronic control with high switching capacity of special relays. We also use mainly bistable relays. Thus preventing coil power loss

even in the on mode. This increases energy efficiency and reduces heating in the switch cabinet.

Page	12-3	12-4	12-4	12-5	12-5	12-6	12-7	12-8	12-9	12-10	12-11	12-11	12-12	12-13	12-14	12-14	12-15	
	pictograms	ERT2DX-UC	ERT2-200-UC	ERT2-110-UC	ERT2-001-UC	ERT2-002-UC	ERT2SSR-UC	ESR12NP-230V+UC	ESR12DDX-UC	KR09-12V UC, 24V UC, 230V	KRW12DX-UC	ER61-UC	ESR61NP-230V+UC	ESR61M-UC	ESR61SSR-230V	ETR61-230V	ETR61NP-230V	ETR61NP-230V+FK
Modular device for mounting on DIN rail EN 60715 TH35, number of modules 18 mm each	1	1	1	1	1	1	1	1	1/2	1								
Built-in device for installation (e.g. flush-mounting box)											■	■	■	■	■	■	■	■
Number NO contacts or changeover contact (W) potential free (not potential free)	1	2	1	1W	2W	1	(1)	1+1 ²⁾ 2 ²⁾	1	1	1W	(1)	1+1 ²⁾ 2 ²⁾	(1)	1	(1)	(1)	
Number NC contacts potential free			1					1-2 ²⁾				1-2 ²⁾						
Zero passage switching		■ ⁷⁾					■	■	■ ⁷⁾	■ ⁷⁾		■		■				
Switching capacity 16 A/250 V AC	■	■	■	■	■		■	■		■								
Switching capacity 10 A/250 V AC									6A		■	■	■		■	■	■	
Incandescent lamp load W	2000	2000	2000	2000	2000	400	2300	2000	500	2000	2000	2000	2000	400	1000	2000	2000	
Bistable relay(s) as relay contact(s)		■ ⁵⁾		■ ⁶⁾		■ ⁵⁾	■ ⁵⁾	■ ⁶⁾	■ ⁵⁾									
Switchable between the functions for impulse switches and switching relays							■	■				■	■	■				
Universal control voltage		■	■	■	■	■	■	■		■	■	■	■					
(additional) control voltage 230 V								(■)				(■)		■				
Supply voltage same as control voltage									■					■				
Supply voltage 230 V							■ ³⁾					■		■	■	■	■	■
No standby loss		■ ⁷⁾	■	■	■	■			■	■ ⁷⁾	■		■					
Low standby loss								■	■ ⁷⁾			■		■	■	■	■	■
Glow lamp current (mA) at the control input 230 V								150 ¹⁾	5			50 ¹⁽⁴⁾						

¹⁾ Glow lamp current independent from the ignition voltage.

²⁾ Depends on the set function.

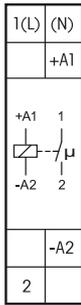
³⁾ If the control voltage is 230 V, but the phase conductor is different from the 230 V supply voltage, the universal voltage control input must be used.

⁴⁾ At the control input .

⁵⁾ The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

⁶⁾ The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

⁷⁾ Patented duplex technology: When switching 230 V/50 Hz the contact switching takes place in the zero passage when L is connected to (L) and N to (N). The standby loss is then 0.1 Watt.



ER12DX-UC



1 NO contact potential free 16 A/250 V AC, incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 1(L) for this. This gives an standby consumption of only 0.1 watt.

If the contact is used for controlling switching devices which do not perform zero passage switching themselves, (N) should not be connected because the additional closing delay otherwise causes the opposite effect.

Universal control voltage 8 to 230 V UC.

Very low switching noise.

Contact position indicator with LED.

Same terminal connection as electromechanical switching relay R12-100-.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

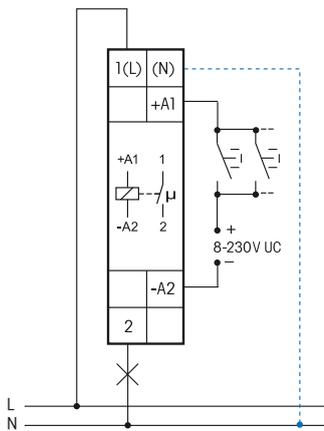
The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

This relay is not suitable to feed back the switching voltage signal of a dimmer switch.

Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

The electronics does not have an internal power supply and therefore no standby loss. The microcontroller is activated when the control contact closes. This switches the bistable relay to the correct direction. The bistable relay switches back either when the control contact opens or when the control voltage falls.

Typical connection

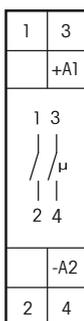


If N is connected, the zero passage switching is active.

Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

ER12DX-UC	1 NO contact 16 A	EAN 4010312205402	42,50 €/pc.
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SWITCHING RELAY ER12-200-UC AND ER12-110-UC



Technical data page 12-16.
Housing for operating instructions GBA14,
see accessories, chapter Z.

ER12-200-UC



2 NO contacts potential free 16 A/250 V AC, incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.
State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Universal control voltage 8 to 230 V UC.

Very low switching noise.

Contact position indicator with LED.

Maximum current across both contacts 16 A for 230 V.

Same terminal connection as electromechanical switching relay R12-200-.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

This relay is not suitable to feed back the switching voltage signal of a dimmer switch.

Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

The electronics does not have an internal power supply and therefore no standby loss.

The microcontroller is activated when the control contact closes. This switches the bistable relay to the correct direction. The bistable relay switches back either when the control contact opens or when the control voltage falls.

ER12-200-UC	2 NO contacts 16 A	EAN 4010312205433	44,00 €/pc.
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ER12-110-UC



1 NO + 1 NC contact potential free 16 A/250 V AC, incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.
State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Universal control voltage 8 to 230 V UC.

Very low switching noise.

Contact position indicator with LED.

Same terminal connection as electromechanical switching relay R12-110-.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

This relay is not suitable to feed back the switching voltage signal of a dimmer switch.

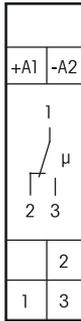
Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

The electronics does not have an internal power supply and therefore no standby loss.

The microcontroller is activated when the control contact closes. This switches the bistable relay to the correct direction. The bistable relay switches back either when the control contact opens or when the control voltage falls.

ER12-110-UC	1 NO contact + 1 NC contact 16 A	EAN 4010312205440	44,00 €/pc.
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Technical data page 12-16.
Housing for operating instructions GBA14,
see accessories, chapter Z.



ER12-001-UC



1 CO contact potential free 16 A/250 V AC, incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays. Universal control voltage 8 to 230 V UC.

Low control power demand, therefore substantially less heat is generated.

Integrated free-wheeling anti-surge diode (A1 = +, A2 = -).

Safe disconnection to VDE 0106, Part 101; therefore, these devices can also be used as coupling relays.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

This relay is not suitable to feed back the switching voltage signal of a dimmer switch.

Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

The electronics does not have an internal power supply and therefore no standby loss.

The microcontroller is activated when the control contact closes. This switches the bistable relay to the correct direction. The bistable relay switches back either when the control contact opens or when the control voltage falls.

ER12-001-UC	1 CO contact 16 A	EAN 4010312205365	42,40 €/pc.
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Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.



ER12-002-UC



2 CO contacts potential free 16 A/250 V AC, incandescent lamp load up to 2000 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Low switching noise. Contact position indicator with LED.

Integrated free-wheeling anti-surge diode (A1 = +, A2 = -).

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

This relay is not suitable to feed back the switching voltage signal of a dimmer switch.

Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

The electronics does not have an internal power supply and therefore no standby loss.

The microcontroller is activated when the control contact closes. This switches the bistable relay to the correct direction. The bistable relay switches back either when the control contact opens or when the control voltage falls.

ER12-002-UC	2 CO contacts 16 A	EAN 4010312205372	51,20 €/pc.
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Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

SWITCHING RELAY ER12SSR-UC



ER12SSR-UC



Noiseless solid state relay potential free, 400 Watt. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Universal control voltage: 8 to 230 V UC.

Contact position indication with LED.

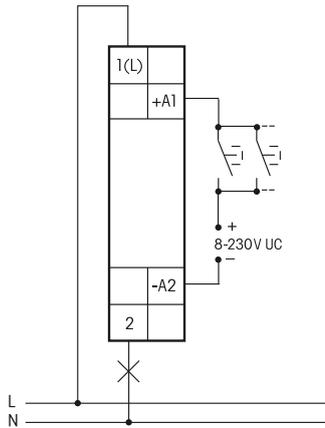
Switching voltage 230 V AC.

Zero passage switching.

With automatic overtemperature shutdown.

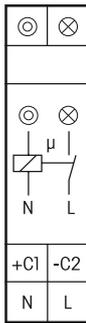
With a load < 1W a GLE must be switched parallel to the load.

Typical connection



Technical data page 12-16.
Housing for operating instructions GBA14,
see accessories, chapter Z.

ER12SSR-UC	Noiseless solid state relay potential free	EAN 4010312206720	44,70 €/pc.
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ESR12NP-230V+UC



1 NO contact not potential free 16 A/250 V AC, incandescent lamp load up to 2300 W. Off delay impulse switch with switch-off early warning and pushbutton permanent light switchable. Standby loss 0.5 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. **Zero passage switching** to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control voltage 230 V. In addition electrically isolated universal voltage from 8 to 230 V UC.

Supply voltage and switching voltage 230 V.

Very low switching noise. If the function ESV is set, definitely variable off-delay time RV from 2 to 120 minutes, settable by minute scale.

Contact position indication with two LEDs. This starts blinking in case of a blocked pushbutton (not if the function ER is set).

Glow lamp current up to 150 mA only at the control input 230 V independent from ignition voltage (not if the function ER is set).

Relays with suitable functions to feed back the switching voltage signal of a dimmer switch.

In case of a power failure the system is disconnected in a preset sequence.

The functions ES, ESV or ER are selectable **by means of a rotary switch.**

ES = Impulse switch

ER = Switching relay

ESV = Impulse switch with off delay. The impulse switch automatically disconnects after the set delay is timed out if a manual OFF command has not been given. Infinitely variable time range up to 120 minutes.

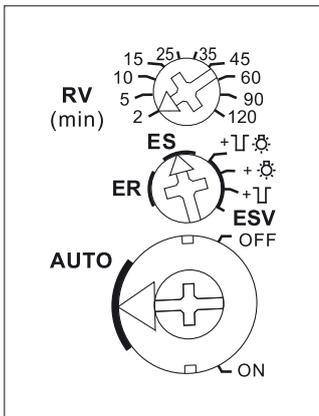
ESV = If switch-off early warning \sqcup is set the stairwell lighting starts flickering approximately 0 seconds + \sqcup before timeout at repeated shorter time intervals. During this process reset is possible.

ESV = If push-button permanent light \odot is set permanent light can be switched on by pressing longer + \odot than 1 sec. This switches off automatically after 2 hours or by an operation longer than 2 seconds.

ESV If both switch-off early warning function and permanent light by push-button $\sqcup \odot$ are set, the + $\sqcup \odot$ switch-off early warning function is activated before switching off the permanent light.

This electronic impulse switch does not need a base load for switching lights in rooms which are monitored by a FR12-230V mains disconnection relay.

Function rotary switches



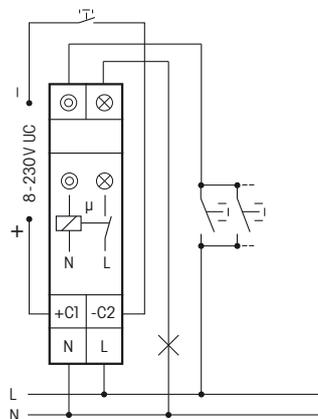
Standard setting ex works.

\sqcup = switch-off early warning

\odot = pushbutton permanent light

$\sqcup \odot$ = switch-off early warning and pushbutton permanent light

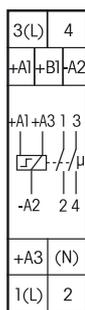
Typical connection



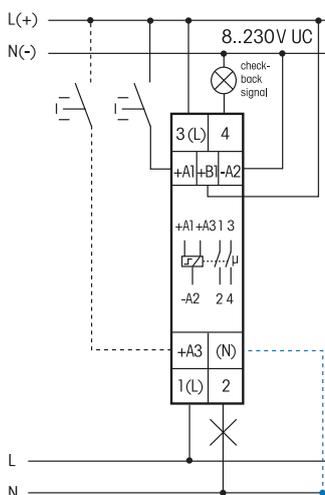
Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

ESR12NP-230V+UC	1 NO contact 16 A	EAN 4010312107928	45,70 €/pc.
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DIGITAL SETTABLE MULTIFUNCTION IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION ESR12DDX-UC



Typical connection



If N is connected, the zero passage switching is active.

ESR12DDX-UC



1+1 NO contacts potential free 16 A/250 V AC. Incandescent lamp load up to 2000 W. Standby loss 0.03–0.4 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 1(L) and/or 3(L) for this. This results in an additional standby consumption of only 0.1 Watt.

Universal control voltage 8 to 230V UC. Supply voltage is same as the control voltage.

The functions are set with the keys MODE and SET as described in the operating instructions. They are indicated on the display and can be blocked if required.

The accrued switch-on time is continuously displayed. First in hours (h), then in months (m) with 1 digit after the decimal point.

By using bistable relays coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Only impulse switch functions: After a power failure the system is disconnected in a definite sequence or the switch position is kept depending on the setting (then + on the display next to function abbreviations). Settings under RSM in the menu guidance. Furthermore, when using these functions, with the keys MODE and SET, the control inputs A1 and A3 can be defined as central control inputs.

ZA1 = 'central off' with A1, local with A3; **ZE1** = 'central on' with A1, local with A3;

Z00 = no central control. 'Central on' with A1, 'central off' with A3. No local control refer to function RS.

Relays with suitable functions to feed back the switching voltage signal of a dimmer switch.

From 110V control voltage and in the settings 2S, WS, SS and GS glow lamp current up to 5 mA, dependent on the ignition voltage.

With the keys MODE and SET you can select amongst 18 functions:

- OFF** = Permanent OFF
- 2xS** = 2-fold impulse switch with 1 NO contact each, control inputs A1 and A3
- 2S** = Impulse switch with 2 NO contacts
- WS** = Impulse switch with 1 NO contact and 1 NC contact
- SS1** = Impulse multi circuit switch 1+1 NO contacts for switching sequence
0 - contact 1(1-2) - contact 2(3-4) - contacts 1 + 2
- SS2** = Impulse multi circuit switch 1+1 NO contacts for switching sequence
0 - contact 1 - contacts 1 + 2 - contact 2
- SS3** = Impulse multi circuit switch 1+1 NO contacts for switching sequence
0 - contact 1 - contacts 1 + 2
- GS** = Impulse group switch 1+1 NO contacts for switching sequence
0 - contact 1 - 0 - contact 2
- RS** = Switch with 2 NO contacts, with A1 = set control input and A3 = reset control input
- 2xR** = 2-fold switching relay with 1 NO contact each, control inputs A1 and A3
- 2R** = Switching relay with 2 NO contacts
- WR** = Switching relay with 1 NO contact and 1 NC contact
- RR** = Switching relay (closed-circuit current relay) with 2 NC contacts
- EAW** = Impulse relay for fleeting NO contact and fleeting NC contact with 1+1 NO contacts, wiping time 1 sec each
- EW** = Impulse relay for fleeting NO contact with 1 NO contact and 1 NC contact, wiping time 1 sec
- AW** = Impulse relay fleeting NC contact with 1 NO contact and 1 NC contact, wiping time 1 sec
- GR** = Group relay 1+1 NO contacts (relay with alternating closing contacts)
- ON** = Permanent ON

The control inputs A1 and A3 have the same functions except for 2xS, 2xR and RS, if not used as central control inputs.

After setting the required function, the function can be blocked. An arrow on the right of the abbreviation indicates the blocking status.

Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

ESR12DDX-UC	1+1 NO contacts 16 A	EAN 4010312108093	62,70 €/pc.
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Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

KR09-12V UC



1 NO contact potential free 6 A/250 V AC, incandescent lamp load up to 500 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1/2 module = 9 mm wide, 55 mm deep.
State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control voltages 12 V UC.

Contact position indicator with LED. Control power demand 0.2 W only.

Safe disconnection to VDE 0106, Part 101; therefore, these devices can also be used as coupling relays.

KR09-12V UC	1 NO contact 6 A	EAN 4010312203415	35,00 €/pc.
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Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

KR09-24V UC



1 NO contact potential free 6 A/250 V AC, incandescent lamp load up to 500 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1/2 module = 9 mm wide, 55 mm deep.
State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control voltages 24 V UC.

Contact position indicator with LED. Control power demand 0.2 W only.

Safe disconnection to VDE 0106, Part 101; therefore, these devices can also be used as coupling relays.

KR09-24V UC	1 NO contact 6 A	EAN 4010312203385	33,90 €/pc.
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Technical data page 12-16.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

KR09-230V



1 NO contact potential free 6 A/250 V AC, incandescent lamp load up to 500 W. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1/2 module = 9 mm wide, 55 mm deep.
State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

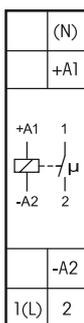
Control voltages 230 V.

Contact position indicator with LED. Control power demand 0.2 W only.

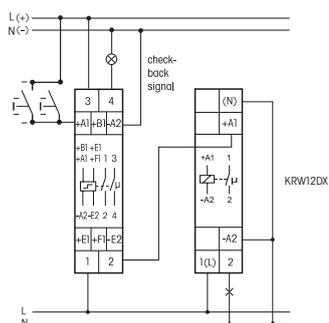
Safe disconnection to VDE 0106, Part 101; therefore, these devices can also be used as coupling relays.

KR09-230V	1 NO contact 6 A	EAN 4010312203378	33,90 €/pc.
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COUPLING RELAY KRW12DX-UC



Typical connection



ES12Z with KRW12DX-UC

If N is connected, the zero passage switching is active.

Housing for operating instructions GBA14, see accessoires, chapter Z.

KRW12DX-UC



1 NO contact potential free 16 A/250 V AC with tungsten pre-contact, max. inrush current 500 A/2 ms. No standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 1(L) for this. This gives an standby consumption of only 0.1 watt.

If the contact is used for controlling switching devices which do not perform zero passage switching themselves, (N) should not be connected because the additional closing delay otherwise causes the opposite effect.

Universal control voltage 8 to 230 V UC.

Low switching noise.

Contact position indicator with LED.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

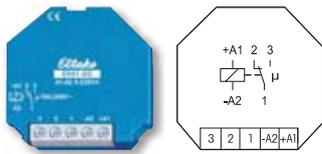
This relay is not suitable to feed back the switching voltage signal of a dimmer switch. Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

The electronics does not have an internal power supply and therefore no standby loss.

The microcontroller is activated when the control contact closes. This switches the bistable relay to the correct direction. The bistable relay switches back either when the control contact opens or when the control voltage falls.

KRW12DX-UC	1 NO contact 16 A	EAN 4010312206683	44,00 €/pc.
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**SWITCHING RELAY ER61-UC
IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION ESR61NP-230V+UC**



ER61-UC



1 CO contact potential free 10 A/250 V AC, incandescent lamp load up to 2000 W. No standby loss.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays. Universal control voltage 8 to 230 V UC. Low switching noise.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The relay contact can be open or closed when putting into operation. It will be synchronised at first operation.

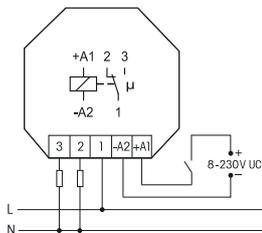
This relay is not suitable to feed back the switching voltage signal of a dimmer switch.

Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

The electronics does not have an internal power supply and therefore no standby loss.

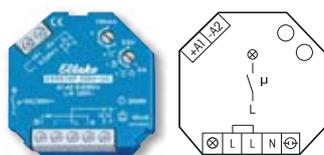
The microcontroller is activated when the control contact closes. This switches the bistable relay to the correct direction. The bistable relay switches back either when the control contact opens or when the control voltage falls.

Typical connection



Technical data page 12-16.

ER61-UC	1 CO contact 10 A	EAN 4010312205358	40,70 €/pc.
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ESR61NP-230V+UC



1 NO contact not potential free 10 A/250 V AC, incandescent lamp load up to 2000W. Off delay impulse switch with switch-off early warning and pushbutton permanent light switchable. Standby loss 0.7 watt only.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Control voltage 230 V. In addition electrically isolated universal control voltage from 8 to 230 V UC. Supply voltage and switching voltage 230 V. Very low switching noise. Variable time range up to 120 minutes in the function ESV. At the control input pushbuttons with a glow lamp current up to 50 mA can be connected.

In case of a power failure the system is disconnected in a preset sequence.

If the timing period is set to minimum in the function ESV, the release delay is switched off.

The standard impulse switch function ES is then set. The function ER is selectable. If the function ER is selected a glow lamp current is not permitted. Only the control input A1- A2 should be used.

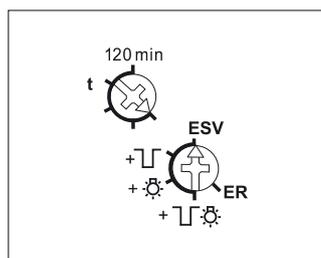
When set to the function ER this device is suitable to feed back the switching voltage signal of a dimmer switch.

If switch-off early warning function is switched on, the light starts flickering approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

If the permanent light function is switched on, the function can be activated by pressing the pushbutton for longer than 1 second. This function switches off automatically after 2 hours or by pressing the pushbutton for longer than 2 seconds.

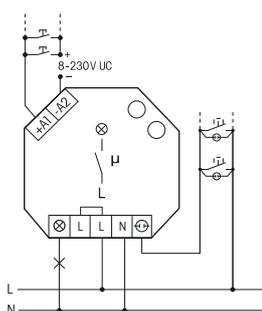
If both switch-off early warning function and permanent light by pushbutton are set, the switch-off early warning function is activated before switching off the permanent light.

Function rotary switches



Standard setting ex works.

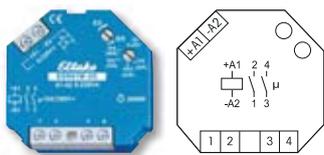
Typical connection



Technical data page 12-16.

ESR61NP-230V+UC	1 NO contact 10 A	EAN 4010312107911	43,90 €/pc.
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MULTIFUNCTION IMPULSE SWITCH WITH INTEGR. RELAY FUNCTION ESR61M-UC



ESR61M-UC



1+1 NO contacts potential free 10 A/250 V AC. Incandescent lamp load up to 2000 W. No standby loss.

For installation. 45 mm long, 45 mm wide, **32 mm deep.**

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Universal control voltage 8 to 230 V UC.

No permanent power supply necessary, therefore no standby loss.

By using bistable relays coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

The functions of the second rotary switch are preselected using the rotary switch ES/ER.

The setting ER selects the function in brackets. 10 different functions are selectable.

2S = Impulse switch with 2 NO contacts

(2R) = Switching relay with 2 NO contacts

WS = Impulse switch with 1 NO contact and 1 NC contact

(WR) = Switching relay with 1 NO contact and 1 NC contact

SS1 = Impulse multi circuit switch 1+1 NO contacts for switching sequence

0 - contact 1(1-2) - contact 2(3-4) - contacts 1 + 2

(RR) = Switching relay (closed-circuit current relay) with 2 NC contacts

SS2 = Impulse multi circuit switch 1+1 NO contacts for switching sequence

0 - contact 1 - contacts 1 + 2 - contact 2

(EW) = Impulse relay for fleeting NO contact with 1 NO contact and 1 NC contact, wiping time 1 sec

GS = Impulse group switch 1+1 NO contacts for switching sequence

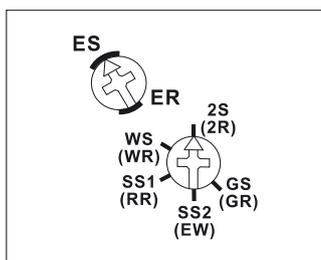
0 - contact 1 - 0 - contact 2

(GR) = Group relay 1+1 NO contacts (relay with alternating closing contacts)

This relay is not suitable to feed back the switching voltage signal of a dimmer switch.

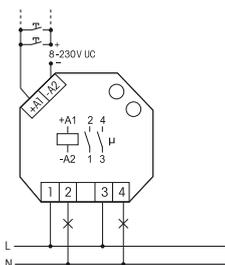
Use only relays ESR12DDX-UC, ESR12NP-230V+UC or ESR61NP-230V+UC for this purpose.

Function rotary switches



Standard setting ex works.

Typical connection

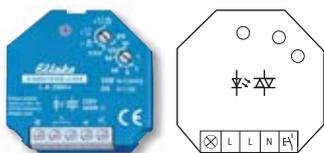


The electronics does not have an internal power supply and therefore no power is consumed in any contact position. A control current flows only during a short control impulse of 0.2 seconds. This activates the microcontroller, reads the last switching state from the non-voltage memory, switches the bistable relay to its opposite state accordingly and rewrites the new switching state to memory

Technical data page 12-16.

ESR61M-UC	1+1 NO contacts 10 A	EAN 4010312108079	56,80 €/pc.
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NOISELESS IMPULSE SWITCH WITH INTEGRATED RELAY FUNCTION ESR61SSR-230V WITH SOLID STATE RELAY

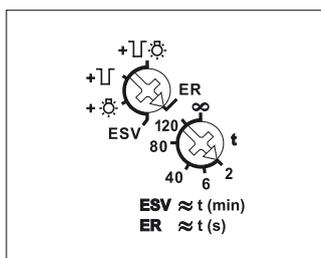


ESR61SSR-230V



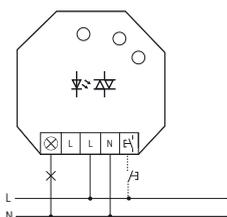
Noiseless solid state relay not potential free, 400 watt, Off delay impulse switch with switch-off early warning and pushbutton permanent light switchable. Standby loss 0,3 Watt only.

Function rotary switches



Standard setting ex works.

Typical connection



Technical data page 12-16.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

Supply, switching and control voltage 230 V.

Zero passage switching.

In case of a power failure the system is disconnected in a preset sequence.

In the ER function the relay switches back on when the power is restored and the control input is active.

It is not permitted to apply a glow lamp current to the control input.

With automatic electronic overtemperature switch-off.

At a load of < 1W a GLE must be switched in parallel to the load.

Use the top rotary switch to select the required function of this impulse switch:

ER = switching relay

ESV = impulse switch. Possibly with off delay, then

+ (light icon) = ESV with pushbutton permanent light

+ (square wave icon) = ESV with switch-off early warning

+ (square wave icon and light icon) = ESV with pushbutton permanent light and switch-off early warning

The LED flashes when the rotary switch reaches a new setting range to assist you to find the require position with certainty.

The LED lights up permanently when the relay is switched on.

When the pushbutton permanent light is switched on (light icon), set the LED to permanent light by pressing the pushbutton for longer than 1 second. This is indicated by the LED flickering briefly. After 2 hours, the permanent light switches off automatically or it can be switched off previously by briefly pressing the pushbutton.

If the switch-off early warning (square wave icon) is switched on, the light starts to flicker approx. 30 seconds before time-out. This is repeated three times at decreasing time intervals.

During the switch-off early warning, the light can be switched back on by briefly pressing the pushbutton.

If both switch-off early warning and pushbutton permanent light (square wave icon and light icon) are switched on, switch-off early warning is activated before automatic switch-off of the permanent light.

The function **ESV on the bottom rotary switch** sets the off delay from 2 to 120 minutes.

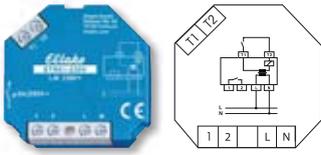
In setting ∞ normal impulse switch function ES without off delay, without pushbutton permanent light and without switch-off early warning.

In the ER function a switch-on wipe time can be set between 2 and 120 seconds. On expiry of the wipe time the relay switches off automatically.

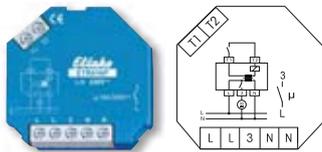
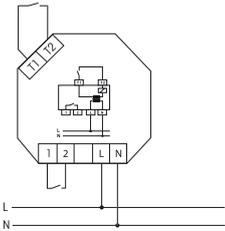
In setting ∞ default relay function ER without wipe time.

ESR61SSR-230V	Impulse switch with integrated relay function with SSR	EAN 4010312109786	44,70 €/pc.
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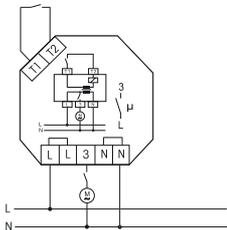
ISOLATING RELAY ETR61-230V AND ETR61NP-230V



Typical connection



Typical connection



Technical data page 12-16.

ETR61-230V



1 NO contact potential free 5 A/250 V AC. Standby loss 0.5 watt only.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control input with internally produced low voltage 24 V DC. With an isolating transformer electrically isolated from power supply and make contact (PELV).

Therefore no external low voltage power supply necessary.

Spacing between power supply and contact: 6 mm.

Power supply 230 V.

ETR61-230V	1 NO contact 5 A	EAN 4010312206690	35,50 €/pc.
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ETR61NP-230V



1 NO contact not potential free 10 A/250 V AC. With window contact. Standby loss 0.5 watt only.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control input with internally produced low voltage 24 V DC. With an isolating transformer electrically isolated from power supply and make contact (PELV).

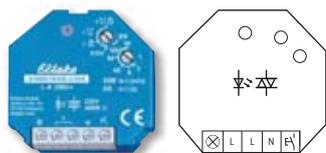
Therefore no external low voltage power supply necessary.

With 2 L terminals and 2 N terminals for an easy and quick installation.

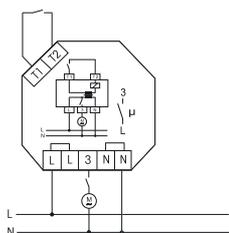
Power supply 230 V.

ETR61NP-230V	1 NO contact 10 A	EAN 4010312205488	35,50 €/pc.
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ISOLATING RELAY ETR61NP-230V WITH WINDOW CONTACT FK AND WINDOW CONTACT FK



Typical connection



The power supply of an extractor hood is connected by a window contact (NO if window open) so it can be switched on only if the window is open.

Window contact FK



Reed relay and solenoid each
54 x 12 x 10 mm

Technical data page 12-16.

Window contact FK



Reed relay and solenoid each
54 x 12 x 10 mm

ETR61NP-230V+FK



1 NO contact not potential free 10 A/250 V AC. With window contact. Standby loss 0.5 watt only.

For installation. 45 mm long, 45 mm wide, 18 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control input with internally produced low voltage 24 V DC. With an isolating transformer electrically isolated from power supply and make contact (PELV).

Therefore no external low voltage power supply necessary.

With 2 L terminals and 2 N terminals for an easy and quick installation.

Power supply 230 V.

The enclosed window contact consists of a Reed relay with terminals and a solenoid. The NC contact opens when the solenoid approaches closer than 25 mm. The disconnection relay ETR61NP is connected to terminals T1 and T2. Power supply to the extractor only cuts in when the window is open. ETR61NP can be wired in the flush mounted socket behind the socket for the extractor.

Mounting the window contact FK:

Lever out the inserts at the narrow end of the housing. Wire up the Reed relay and cut out the cable entry on the housing. Affix the two housings in parallel maximum 15 mm apart and also screw if necessary. In the longitudinal direction the solenoid may be twisted in any direction compared to the Reed relay.

ETR61NP-230V+FK	1 NO contact 10 A	EAN 4010312205495	60,20 €/pc.
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FK

Window contact

The window contact as described above is also supplied as individual (accessory) item.

Reed relay with 1 NC contact, switching capacity 5 W or VA. Switching voltage max. 175 V UC.

FK	window contact	EAN 4010312903001	26,80 €/pc.
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TECHNICAL DATA ELECTRONIC SWITCHING RELAYS, CONTROL RELAYS AND COUPLING RELAYS

Type	ESR12NP-230V+UC	ESR12DDX-UC ^{b)} ER12DX-UC ^{a)} ER12-200-UC ^{a)} ER12-110-UC ^{a)} ER12-001-UC ^{a)} ER12-002-UC ^{a)}	ESR61NP-230V+UC ^{b)} ESR61M-UC ^{a)} ETR61-230V ETR61NP-230V ER61-UC ^{a)}	ER12SSR-UC ESR61SSR-230V	KR09 -12V UC, -24V UC, -230V	KRW12DX-UC ^{a)}
Contacts						
Contact material/contact gap	AgSnO ₂ /0.5 mm			Opto Triac	AgSnO ₂ /0.5 mm	W+AgSnO ₂ /0.5 mm
Spacing of control connections/contact	3 mm	6 mm	6 mm, ER61: 3 mm		6 mm	6 mm
Spacing of control connections C1-C2 or A1-A2/contact	6 mm	6 mm	ESR61NP+M: 6 mm	–	–	–
Test voltage contact/contact	–	ESR12DDX: 4000 V ER12-200/110: 2000 V	ESR61M: 2000 V	–	–	–
Test voltage control connections/contact Test voltage C1-C2 or A1-A2/contact	2000 V 4000 V	4000 V –	2000 V ESR61NP+M+ETR61NP: 4000 V	–	4000 V –	4000 V –
Rated switching capacity	16 A/250 V AC	16 A/250 V AC ⁴⁾	10 A/250 V AC ETR61: 5 A/250 V AC	–	6 A/250 V AC	16 A/250 V AC
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/10 ms	2300 W	2000 W	2000 W ETR61: 1000 W	up to 400 W	500 W	3300 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	1000 VA	1000 VA	1000 VA	–	600 VA	1000 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	500 VA	500 VA	up to 400 VA ⁵⁾	300 VA	500 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	15x7 W 10x20 W ⁵⁾	I on ≤ 70 A/10 ms ²⁾ When using DX types: 15x7 W 10x20 W ³⁾⁵⁾	I on ≤ 70 A/10 ms ²⁾ ESR61NP: 15x7 W, 10x20 W ⁵⁾	up to 400 W ⁵⁾	52 W	I on ≤ 500 A/2 ms ²⁾
230 V LED lamps	up to 200 W ⁵⁾ I on ≤ 30 A/20 ms	up to 200 W ⁵⁾ I on ≤ 120 A/5 ms	up to 200 W ⁵⁾ I on ≤ 120 A/5 ms	up to 400 W ⁵⁾ I on ≤ 120 A/ 20 ms	up to 50 W ⁵⁾ I on ≤ 10 A/10 ms	up to 500 W ⁵⁾ I on ≤ 500 A/2 ms
Max. switching current DC: 12 V/24 V DC	–	8 A	8 A (not ESR)	–	6 A	–
Life at rated load, cos φ = 1 or for incandescent lamps 1000 W at 100/h	> 10 ⁵	> 10 ⁵	> 10 ⁵	∞	> 10 ⁵	> 10 ⁵
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	–	–	> 4x10 ⁴
Max. operating cycles	10 ³ /h	10 ³ /h	10 ³ /h	10 ³ /h	10 ⁴ /h	10 ³ /h
Contact position indication	LED (not series 61)					
Maximum conductor cross-section	series 12: 6 mm ² (3-fold terminal 4 mm ²), series 61: 4 mm ²					
Two conductors of same cross-section	series 12: 2.5 mm ² (3-fold terminal 1.5 mm ²), series 61: 1.5 mm ²					
Screw head	series 12: slotted/crosshead, pozidriv, series 61: slotted/crosshead					
Type of enclosure/terminals	series 12: IP50/IP20, series 61: IP30/IP20					
Electronics						
Time on	100%					
Max./min. temperature at mounting location	+50°C/-20°C					
Stand by loss (active power)	0.5 W	– ESR12DDX: 0.4 W	– ESR61NP: 0.7 W, ETR61+ ETR61NP: 0.5 W	– ESR61SSR: 0.3 W	–	–
Control current 230 V control input local ±20%	10 mA	–	10 mA, ER61 and ESR61M: –	1 mA	–	–
Control current universal control voltage all control voltages mA ± 20%	–	4 (not ESR12DDX)	ER61: 2, ESR61M: 4	4	–	4
Control current at 8/12/24/230 V (<10 s) mA ± 20%	2/4/9/5(100)	only ESR12DDX: 2/3/7/3(50) mA	only ESR61NP: 2/4/9/5(100) only ETR61+ ETR61NP: 10 mA/24 V DC	–	–/15/10/11	–
Max. parallel capacitance (approx. length) of control lead at 230 V AC	ES: 0.3 μF (1000 m) ER: 3 nF (10 m) C1-C2: 15 nF (50 m)	0.06 μF (200 m) ESR12DDX: 0.3 μF (1000 m)	0.06 μF (200 m)	30 nF (100 m)	0.06 μF (200 m)	0.06 μF (200 m)

* EVG = electronic ballast units; KVG = conventional ballast units ^{a)} Bistable relay as relay contact. The relay contact can be open or closed when putting into operation. It will be synchronised at first operation. ^{b)} Bistable relay as relay contact. The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated. ¹⁾ For lamps with 150 W max. ²⁾ A 40-fold inrush current must be expected for electronic ballast devices. For steady loads of 1200 W or 600 W use the currentlimiting relay SBR12 or SBR61. See chapter 14, page 14-8. ³⁾ When using DX types close attention must be paid that zero passage switching is activated! ⁴⁾ For ER12-200 maximum current across both contacts 16 A for 230 V. ⁵⁾ Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. Due to differences in the lamps electronics, there may be a restriction on the maximum number of lamps; especially if the connected load is very low (for 5 W-LEDs).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

**MFZ12DDX-
MFZ12NP-
MFZ12-
MFZ61DX-**



**UP TO 18 FUNCTIONS COMBINED WITH
UNIVERSAL CONTROL VOLTAGE -
AN UNRIVALLED COMBINATION.**

Time relays, multifunction time relays and timer

Selection table time relays and multifunction time relays	13 - 2
Digital settable multifunction time relay MFZ12DDX-UC with 18 functions	13 - 3
Analogue settable multifunction time relay MFZ12DX-UC with 18 functions	13 - 4
Analogue settable time relays RVZ/AVZ/TGI/EAW	13 - 5
Analogue settable multifunction time relay MFZ12NP-230V+UC with 10 functions	13 - 6
Analogue settable multifunction time relay MFZ12-230V with 10 functions	13 - 7
Analogue settable 2-stage ON-delay A2Z12-UC	13 - 8
Fully electronic multifunction time relay MFZ12PMD-UC with 18 functions	13 - 9
Analogue settable multifunction time relay MFZ61DX-UC	13 - 10
Test Pushbutton for emergency lighting with off-delay PTN12-230V	13 - 10
Description of functions of the time relays and multifunction time relays	13 - 11
Digital settable timer with 2 channels S2U12DDX-UC	13 - 12
Technical data time relays, multifunction time relays and timer	13 - 13

SELECTION TABLE TIME RELAYS AND MULTIFUNCTION TIME RELAYS

THE SUCCESSFUL

Multifunction time relays with up to 18 functions combined with universal control voltage 8 to 230 V UC - a competitive advantage, particularly the digital settable time relays MFZ12DDX.

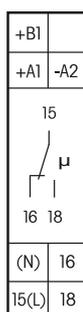
Multifunction time relays always switch at zero passage, the DX devices only when connected to N.

Page	13-3	13-4	13-5	13-5	13-5	13-5	13-6	13-7	13-8	13-9	13-10	13-10	13-12	
	pictograms	MFZ12DDX-UC	MFZ12DX-UC	RVZ12DX-UC	AVZ12DX-UC	TG12DX-UC	EAW12DX-UC	MFZ12NP-230V+UC	MFZ12-230V	AZ12-UC	MFZ12PMD-UC	MFZ61DX-UC	PTN12-230V	S2U12DDX-UC
Modular device for mounting on DIN rail EN 60715 TH35, number of modules 18 mm each		1	1	1	1	1	1	1	1	1	1		1	1
Built-in device for installation (e.g. flush-mounting box)												■		
Digital settable		■									■			■
Analogue settable			■	■	■	■	■	■	■	■		■	■	
Number of NO contacts (not potential free)								(1)	1	1+1	(1)	1		1+1
Number of CO contacts potential free		1	1	1	1	1	1						(1)	
Zero passage switching		■ ³⁾	■			■	■ ³⁾		■ ³⁾					
Switching capacity 16 A/250 V AC							■						■	■
Switching capacity 10 A/250 V AC		■	■	■	■	■	■		■	■		■		
Incandescent lamp load W		2000	2000	2000	2000	2000	2000	2300	1000	1000	400 ¹⁾	2000	2300	2000
Bistable relay as relay contact		■ ²⁾		■ ²⁾	■ ²⁾		■ ²⁾		■ ²⁾					
Universal control voltage		■	■	■	■	■	■	■	■	■	■	■	■	■
Low standby loss		■	■	■	■	■	■	■	■	■	■	■	■	■
Multifunction time relay		■	■					■	■		■	■		
Off delay RV		■	■	■				■	■		■	■	■	
Operate delay AV		■	■		■			■	■		■	■		
Additive operate delay AV+		■	■								■			
2-stage ON-delay										■				
Fleeting NO contact EW		■	■				■	■	■		■	■		
Fleeting NC contact AW		■	■				■	■	■		■	■		
Fleeting NO contact and fleeting NC contact EAW		■	■				■				■			
Operate and release delay ARV		■	■					■	■		■			
Additive operate and release delay ARV+		■	■								■			
Relay function ER		■	■								■			
Release-delay impulse switch SRV		■	■								■			
Impulse switch functions ES and ESV		■	■								■			
Clock generator starting with impulse TI		■	■			■		■	■		■	■		
Clock generator starting with pause TP		■	■					■	■		■			
Impulse controlled operate delay IA (e.g. automatic door opener)		■	■					■	■		■	■		
Pulse shaper IF		■	■								■			

¹⁾ Up to 3400 W with capacity enhancers LUD12-230V. ²⁾ The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

³⁾ Duplex technology: When switched with 230 V/50 Hz zero passage switching is activated if L is connected to (L) and N to (N). Then additional standby loss of only 0.1 watt.

DIGITAL SETTABLE MULTIFUNCTION TIME RELAY MFZ12DDX-UC WITH 18 FUNCTIONS



MFZ12DDX-UC



**1 CO contact potential free 10 A/250 V AC. Incandescent lamps 2000 W*.
Standby loss 0.05–0.5 watt only.**

Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 15 (L) for this. This gives an additional standby consumption of only 0.1 Watt.

Universal control voltage 8 to 230 V UC. Supply voltage same as the control voltage.

Both functions and times are entered at the touch of a key and indicated digitally on an LC display.
Only two keys are required for this purpose.

When setting the time all values can be entered within preset time ranges (0.1 to 9.9 or 1 to 99 seconds, minutes or hours). The longest possible setting is 99 hours. 600 settings are possible. The time setting is continuously displayed digitally.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Functions (description page 13-11)

- | | |
|---|--|
| RV = off delay | EAW = fleeting NO contact and
fleeting NC contact |
| AV = operate delay | ARV = operate and release delay |
| AV+ = operate delay additive | ARV+ = operate and release delay additive |
| TI = clock generator starting with
impulse | ES = impulse switch |
| TP = clock generator starting with
pause | SRV = release-delay impulse switch |
| IA = impulse controlled pickup delay
(e.g. automatic door opener) | ESV = impulse switch with release delay
and switch-off early-warning
function |
| IF = pulse shaper | ER = relay |
| EW = fleeting NO contact | ON = permanent ON |
| AW = fleeting NC contact | OFF = permanent OFF |

With TI, TP, IA, EAW, ARV and ARV+ functions, a different second time can be entered also with different time ranges.

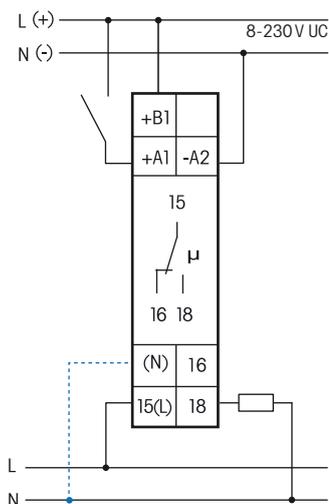
Setting the times and functions: The LCD component to be changed is selected by pressing the MODE key. The component accessed flashes. Press the SET key to change the component accessed. This may be the function, the time ranges, time T1 or time T2 (on TI, TP, IA, EAW, ARV and ARV+ only). Pressing the MODE key terminates each input. Once the time has been set with MODE, no more components are flashing. The timing relay is now ready to operate. Press the MODE key again to restart the input cycle. All the entered parameters are retained if they are not changed using SET. 25 sec. after the last operation and if the component still flashes the input cycle is automatically terminated and the previously made changes lapse.

Functions of the LC display: If the ON or OFF function was selected, no time is displayed, only ON and OFF and a contact symbol in the correct position. On all other functions, the set time, the function code and the contact symbol are shown in the correct position (open or closed). The clock symbol flashes while the set time is elapsing and the remaining time is shown.

Safety in the event of a power failure: The set parameters are stored in an EEPROM and are therefore immediately available again when the power supply is restored after a power failure.

* The maximum load can be used starting at a delay time or clock cycle of 5 minutes.
The maximum load will be reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%.

Typical connection

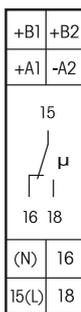


If N is connected, the zero passage switching is active.

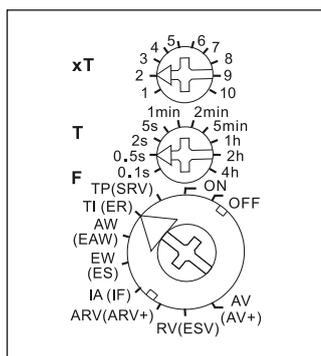
Technical data page 13-13.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

MFZ12DDX-UC	1 CO contact 10 A	EAN 4010312603079	59,10 €/pc.
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ANALOGUE SETTABLE MULTIFUNCTION TIME RELAY MFZ12DX-UC WITH 18 FUNCTIONS

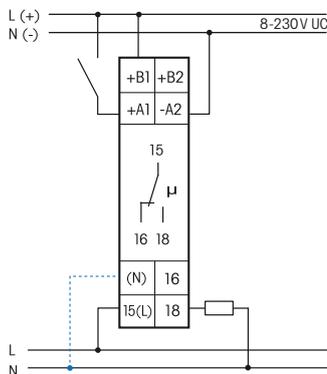


Function rotary switches



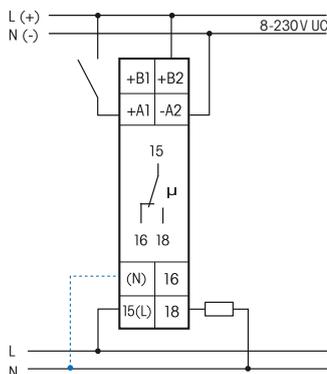
Typical connection

Level of setting 1, Functions F



Typical connection

Level of setting 2, Functions (F)



If N is connected, the zero passage switching is active.

Technical data page 13-13.

Housing for operating instructions GBA14, see accessories, chapter Z.

MFZ12DX-UC



1 CO contact potential free 10 A/250 V AC. Incandescent lamps 2000 W*. Standby loss 0.02-0.6 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 15(L) for this. This gives an additional standby consumption of only 0.1 Watt.

Universal control voltage from 8 to 230 V UC. Supply voltage same as control voltage.

Time setting between 0.1 second and 40 hours.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

According to the connection of the power supply to the terminals B1-A2 or B2-A2 **two different levels of settings** can be selected:

Functions F with connection of the power supply to B1-A2 (description page 13-11)

(Standby loss 0.02-0.4 W)

- RV** = off delay
- AV** = operate delay
- TI** = clock generator starting with impulse
- TP** = clock generator starting with pause
- IA** = impulse controlled operate delay (e.g. automatic door opener)
- EW** = fleeting NO contact
- AW** = fleeting NC contact
- ARV** = operate and release delay
- ON** = permanent ON
- OFF** = permanent OFF

Functions (F) with connection of the power supply to B2-A2 (description page 13-11)

(Standby loss 0.02-0.6 W)

- SRV** = release-delay impulse switch
- ER** = relay
- EAW** = fleeting NO contact and fleeting NC contact
- ES** = impulse switch
- IF** = pulse shaper
- ARV+** = additive operate and release delay
- ESV** = impulse switch with release delay and switch-off early-warning function
- AV+** = additive operate delay
- ON** = permanent ON
- OFF** = permanent OFF

The LED below the big rotary switch indicates the contact position while time-out is in progress. It blinks while the relay contact 15-18 is open (15-16 closed), and is continuously ON as long as the relay contact 15-18 is closed (15-16 open).

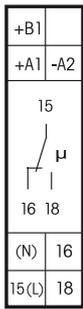
The time base T is selected by means of the middle, latching rotary switch **T**. Time-base figures available are 0.1 seconds, 0.5 seconds, 2 seconds, 5 seconds, 1 minute, 2 minutes, 5 minutes, 1 hour, 2 hours and 4 hours. The total time is obtained by multiplying the timebase by the multiplier.

The multiplier xT is set on the upper, latching rotary switch **xT** and is in the range from 1 to 10. Thus, time settings can be selected in the range from 0.1 second (time base 0.1 second and multiplier 1) and 40 hours (time base 4 hours and multiplier 10).

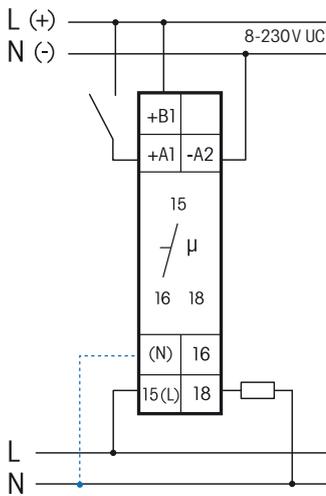
* The maximum load can be used starting at a delay time or clock cycle of 5 minutes.

The maximum load will be reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%.

MFZ12DX-UC	1 CO contact 10 A	EAN 4010312603086	60,90 €/pc.
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Typical connection



If N is connected, the zero passage switching is active.

RVZ/AVZ/TGI/EAW12DX-UC



1 CO contact potential free 10 A/250 V AC. Incandescent lamps 2000 W*. Standby loss 0.02-0.4 watt only.

Modular device for DIN EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

These digital settable time relays are identical to the MFZ12DX-UC, except that they have one function only (description page 13-11).

On type TGI12DX-UC T1 and T2 can be set separately by a second multiplier while the time base remains the same.

On type EAW12DX-UC different functions can be selected by a rotary switch: fleeting NO contact (EW), fleeting NC contact (AW) or fleeting NO contact and fleeting NC contact (EAW).

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230V AC 50Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 15(L) for this. This gives an additional standby consumption of only 0.1 Watt.

Universal control voltage from 8 to 230 V UC. Supply voltage like control voltage.

Time setting between 0.1 second and 40 hours.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

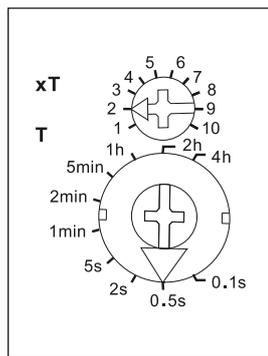
The LED below the big rotary switch indicates the contact position while time-out is in progress. It blinks while the relay contact 15-18 is open (15-16 closed), and is continuously ON as long as the relay contact 15-18 is closed (15-16 open).

The time base T is selected by means of the middle, latching rotary switch **T**. Time-base figures available are 0.1 seconds, 0.5 seconds, 2 seconds, 5 seconds, 1 minute, 2 minutes, 5 minutes, 1 hour, 2 hours and 4 hours. The total time is obtained by multiplying the time base by the multiplier.

The multiplier xT is set on the upper, latching rotary switch **xT** and is in the range from 1 to 10. Thus, time settings can be selected in the range from 0.1 second (time base 0.1 second and multiplier 1) and 40 hours (time base 4 hours and multiplier 10).

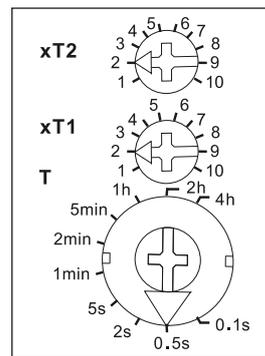
* The maximum load can be used starting at a delay time or clock cycle of 5 minutes. The maximum load will be reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%.

Function rotary switches



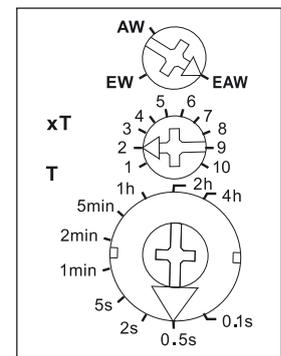
RVZ/AVZ12DX-UC

Function rotary switches



TGI12DX-UC

Function rotary switches

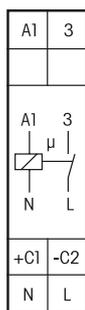


EAW12DX-UC

Technical data page 13-13. Housing for operating instructions GBA14, see accessoires, chapter Z.

RVZ12DX-UC	RV release delay (OFF delay)	EAN 4010312603093	53,90 €/pc.
AVZ12DX-UC	AV operate delay (ON delay)	EAN 4010312603109	53,90 €/pc.
TGI12DX-UC	T1 clock generator	EAN 4010312603116	54,00 €/pc.
EAW12DX-UC	EW+AW+EAW fleeting NO contact and fleeting NC contact	EAN 4010312603123	54,00 €/pc.

ANALOGUE SETTABLE MULTIFUNCTION TIME RELAY MFZ12NP-230V+UC WITH 10 FUNCTIONS



MFZ12NP-230V+UC



1 NO contact not potential free 16 A/250 V AC. Incandescent lamps 2300 W*. Standby loss 0.5 watt only.

Modular device for DIN EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

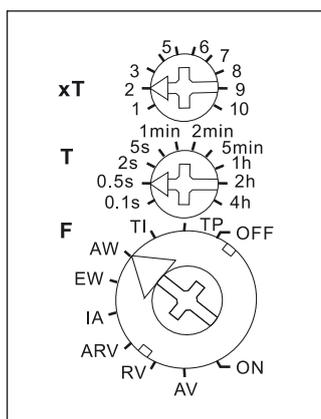
230 V control voltage and additionally 8 to 230 V UC electrically isolated universal control voltage.

230 V supply voltage and switching voltage.

Very low switching noise.

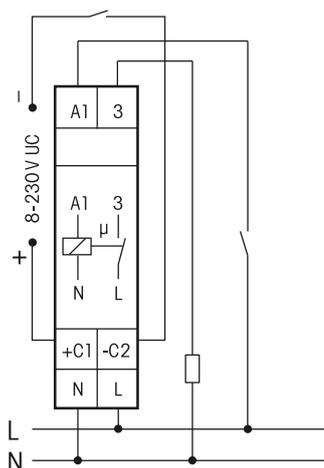
Time settings between 0.1 seconds and 40 hours.

Function rotary switches



Standard setting ex works.

Typical connection



Technical data page 13-13.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

Functions F (description page 13-11)

- RV** = release delay
- AV** = operate delay
- TI** = clock generator starting with impulse
- TP** = clock generator starting with pause
- IA** = impulse-controlled operate delay
- EW** = fleeting NO contact
- AW** = fleeting NC contact
- ARV** = operate and release delay
- ON** = permanent ON
- OFF** = permanent OFF

The LED below the upper function rotary switch informs about the position of the contact during the countdown. It blinks while the contact is open and stays on as long as the contact is closed.

The time base T is selected by means of the middle, latching rotary switch **T**. Time-base figures available are 0.1 second, 0.5 seconds, 2 seconds, 5 seconds, 1 minute, 2 minutes, 5 minutes, 1 hour, 2 hours and 4 hours. The total time is obtained by multiplying the time base by the multiplier.

The multiplier xT is set on the upper, latching rotary switch **xT** and is in the range from 1 to 10. Thus, time settings can be selected in the range from 0.1 second (time base 0.1 second and multiplier 1) and 40 hours (time base 4 hours and multiplier 10).

* The maximum load can be used starting at a delay time or clock cycle of 5 minutes.
The maximum load will be reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%.

MFZ12NP-230V+UC	1 NO contact 16A	EAN 4010312602935	49,90 €/pc.
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ANALOGUE SETTABLE MULTIFUNCTION TIME RELAY MFZ12-230V WITH 10 FUNCTIONS



MFZ12-230V

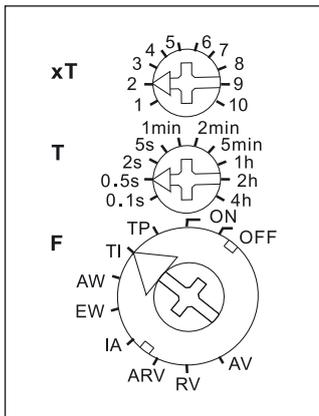
1 NO contact potential free 10 A/250 V AC. Incandescent lamps 1000 W*.
Standby loss 0.4 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting.
 1 module = 18 mm wide, 58 mm deep.

Control voltage 230 V. Supply voltage same as control voltage.
 Time setting between 0.1 second and 40 hours.

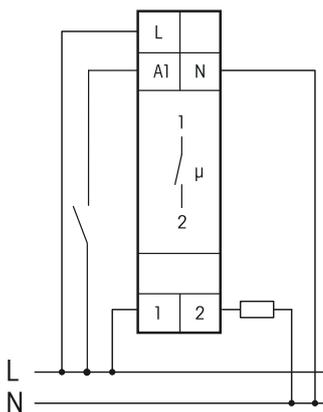


Function rotary switches



Standard setting ex works.

Typical connection



Technical data page 13-13.
 Housing for operating instructions GBA14,
 see accessoires, chapter Z.

Functions F (description page 13-11)

- RV** = off delay
- AV** = operate delay
- TI** = clock generator starting with impulse
- TP** = clock generator starting with pause
- IA** = impulse controlled operate delay (e.g. automatic door opener)
- EW** = fleeting NO contact
- AW** = fleeting NC contact
- ARV** = operate and release delay
- ON** = permanent ON
- OFF** = permanent OFF

The LED below the big rotary switch indicates the contact position while time-out is in progress. It blinks while the relay contact is open, and is continuously ON as long as the relay contact is closed.

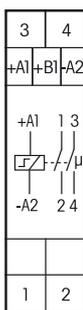
The time base T is selected by means of the middle, latching rotary switch **T**. Time-base figures available are 0.1 seconds, 0.5 seconds, 2 seconds, 5 seconds, 1 minute, 2 minutes, 5 minutes, 1 hour, 2 hours and 4 hours. The total time is obtained by multiplying the timebase by the multiplier.

The multiplier xT is set on the upper, latching rotary switch **xT** and is in the range from 1 to 10. Thus, time settings can be selected in the range from 0.1 second (time base 0.1 second and multiplier 1) and 40 hours (time base 4 hours and multiplier 10).

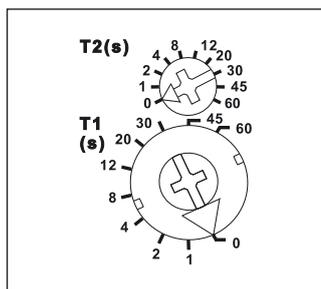
* The maximum load can be used starting at a delay time or clock cycle of 5 minutes.
 The maximum load will be reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%.

MFZ12-230V	1 NO contact 10 A	EAN 4010312603147	47,60 €/pc.
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ANALOGUE SETTABLE 2-STAGE ON-DELAY A2Z12-UC

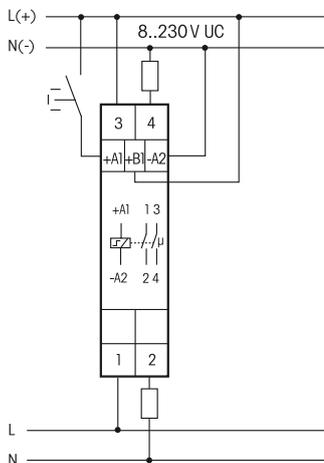


Function rotary switches



Standard setting ex factory.

Typical connection



Technical data page 13-13.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

A2Z12-UC



1+1 NO contact potential free 10 A/250 V AC. Incandescent lamps 1000 W. Standby loss 0.4 watt only.

Modular device for DIN EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Universal control voltage input 8 to 230 V UC. Supply voltage is same as the control voltage.

Contact position display with two LEDs. Very low switching noise.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

In case of a power failure the system is disconnected in a preset sequence.

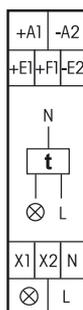
When the control voltage is applied, the time lapse T1 starts between 0 and 60 seconds.

At the end of the time lapse, contact 1-2 closes and time lapse T2 starts between 0 and 60 seconds.

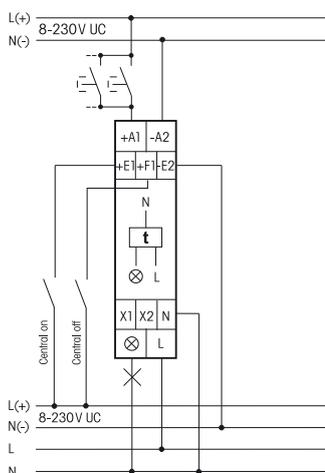
At the end of this time lapse, contact 3-4 closes. After an interval, the time lapse starts again at T1.

A2Z12-UC	1+1 NO contact 10 A	EAN 4010312603178	63,80 €/pc.
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FULLY ELECTRONIC MULTIFUNCTION TIME RELAY MFZ12PMD-UC WITH 18 FUNCTIONS



Typical connection



MFZ12PMD-UC



Power MOSFET with almost unlimited number of circuits up to 400 W. Automatic lamp detection. Standby loss 0.3 watt only. Dim down to minimum brightness and up to maximum brightness and Soft ON / Soft OFF are also adjustable for lamp circuit.

Modular device for DIN EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep. Digitally adjustable and fully electronic multifunction time relay for lamps up to 400 W dependent on ventilation conditions. Dimmable energy saving lamps (ESL) and dimmable 230 V LED lamps are also dependent on the lamp electronics.

If **minimum brightness** is not set to 0, the circuit is not switched off but dimmed down to the set percentage. **Up to 3600 W with capacity enhancers LUD12-230V** (description page 9-7) at the terminals X1 and X2. Universal control voltage 8 to 230 V UC and additionally the universal voltage control inputs 8 to 230 V UC central ON and central OFF. The control inputs are electrically isolated from the supply voltage and switching voltage.

Zero passage switching to protect lamps.

Glow lamp current up to 5 mA starting at 110 V.

Automatic electronic overload protection and overtemperature switch-off.

Enter both the functions and the times using the two buttons MODE and SET. The functions and times are indicated digitally on an LC display. The time can be set by entering all values within the preselected time scale (0.1 to 9.9 or 1 to 99 seconds, minutes or hours). The longest time is 99 hours. This permits 600 time settings. The time(s) entered is (are) permanently displayed digitally.

Settable functions (description page 13-11): **RV** = release delay, **AV** = operate delay, **AV+** = additive operate delay, **TI** = clock generator starting with impulse, **TP** = clock generator starting with pause, **IA** = impulse-controlled operate delay, **IF** = pulse shaper, **EW** = fleeting NO contact, **AW** = fleeting NC contact, **EAW** = fleeting NO contact and fleeting NC contact, **ARV** = operate and release delay, **ARV+** = additive operate and release delay, **ES** = impulse switch, **SRV** = release-delay impulse switch, **ESV** = impulse switch with release delay and switch-off early-warning function, **ER** = relay, **ON** = permanent ON, **OFF** = permanent OFF. With TI, TP, IA, EAW, ARV and ARV+ functions, a different second time can be entered also with different time ranges.

Setting the times and functions: The LCD component to be changed is selected by pressing the MODE key. The component accessed flashes. Press the SET key to change the component accessed. This may be the function, the time ranges, time T1 or time T2 (on TI, TP, IA, EAW, ARV and ARV+ only). Pressing the MODE key terminates each input. Once the time has been set with MODE, no more components are flashing. The timing relay is now ready to operate. Press the MODE key again to restart the input cycle. All the entered parameters are retained if they are not changed using SET. 25 sec. after the last operation and if the component still flashes the input cycle is automatically terminated and the previously made changes lapse.

Setting additional parameters valid for all functions: when you press the MODE button for longer than 2 seconds, you access the submenu. Press the SET button to select the parameter you want to change. Then confirm by pressing MODE. Press SET to enter the parameter and confirm by pressing MODE. After the 'LED' submenu, you return automatically to the main menu.

MIN = Minimum brightness in OFF state settable to 0 and from 10 to 89(%), factory setting = 0.

MAX = Maximal brightness in ON state settable from 10 to 99(%), factory setting = 99. MAX must be at least 10 divisions above MIN.

RMP = Switch ON/OFF ramp (soft ON and soft OFF) adjustable from 0 = 10 ms to 99 = 1 s, factory setting = 0.

LED = LED+ for dimmable 230 V LED lamps which cannot be dimmed down far enough in automatic mode (trailing edge control) for design reasons and must therefore be forced by phase control. Enabled by pressing MODE; factory setting = LED without +.

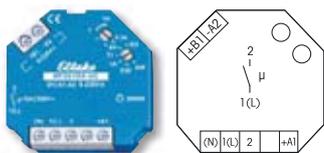
Functions of the LC display: if you selected the functions ON or OFF, no time is displayed. Instead an arrow indicates either ON or OFF. In all other functions the set time(s), the function abbreviation and an arrow next to ON and OFF display the switching position. The clock symbol flashes while the set time is elapsing and the remaining time is shown.

Safety in the event of a power failure: The set parameters are stored in an EEPROM and are therefore immediately available again when the power supply is restored after a power failure.

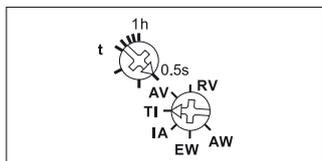
Technical data page 13-13.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

MFZ12PMD-UC	Power MOSFET up to 400 W	EAN 4010312601099	70,40 €/pc.
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ANALOGUE SETTABLE MULTIFUNCTION TIME RELAY MFZ61DX-UC TEST PUSHBUTTON FOR EMERGENCY LIGHTING SYSTEMS WITH OFF-DELAY PTN12-230V

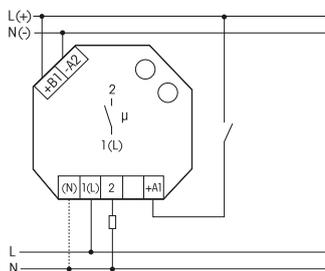


Function rotary switches



Standard setting ex factory.

Typical connection



If N is connected, the zero passage switching is active.

MFZ61DX-UC



1 NO contact potential free 10 A/250 V AC. Incandescent lamps 2000 W*. Standby loss 0.02-0.4 watt only.

Built-in device for installation.

45 mm long, 45 mm wide, 18 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 1(L) for this. This gives an additional standby consumption of only 0.1 watt.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Universal control voltage input 8 to 230 V UC. Supply voltage is same as the control voltage.

Time settings between 0.5 seconds and 1 hour.

Functions F (description page 13-11)

- RV** = off delay
- AV** = operating delay
- TI** = clock generator starting with impulse
- IA** = impulse-controlled operating delay
- EW** = fleeting NO contact
- AW** = fleeting NC contact

* The maximum load can be used from a delay time or clock cycle of 5 minutes.

The maximum load is reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%.

MFZ61DX-UC	1 NO contact 10 A	EAN 4010312603055	45,80 €/pc.
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PTN12-230V



Test pushbutton for emergency lighting systems with its own battery supply. 1 CO contact 16 A/250 V AC. Off-delay settable between 10 and 180 minutes. Only 0.5 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

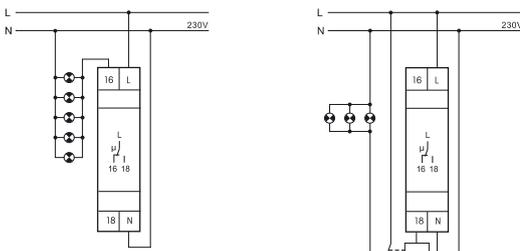
Supply voltage 230 V, 50/60 Hz.

Off-delay 10, 20, 30, 40, 50, 60, 90, 120, 150 and 180 minutes settable with rotary switch.

When the supply voltage is applied, the green LED lights up.

For further informations see the operating instructions.

Typical connections

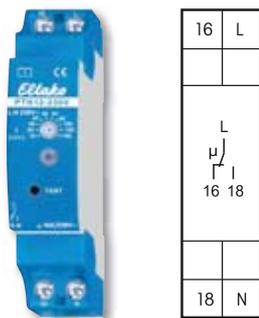


Direct control of the emergency light systems $I \leq 16$ A
 Ⓢ Emergency light systems with own battery supply

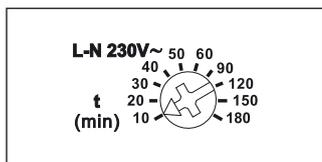
Control of emergency light systems via electric contactor $I > 16$ A
 Ⓢ Emergency light systems with own battery supply

PTN12-230V	1 CO contact 16 A	EAN 4010312603215	51,50 €/pc.
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13-10



Function rotary switch



Standard setting ex works.

Technical data page 13-13.
 Housing for operating instructions GBA14,
 see accessoires, chapter Z.

Recommended retail prices excluding VAT.

The contact 15-18 corresponds on MFZ12NP to the contact L-3. The terminals A1-A2 correspond on MFZ12NP to the terminals A1-N or C1-C2. The contact 15-18 corresponds on MFZ61DX and MFZ12-230V to the contact 1-2. The terminals A1-A2 correspond on MFZ12-230V to the terminals A1-N. The contact 15-18 corresponds on MFZ12PMD to the output ⊗.

RV = Release delay (OFF delay)



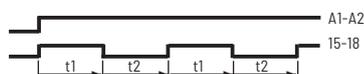
When the control voltage is applied the relay contact switches to 15-18. When the control voltage is interrupted the timing period is started; on time-out the relay contact returns to normal position. Resettable during the timing period.

AV = Operate delay (ON delay)



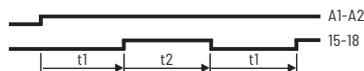
When the control voltage is applied the timing period is started; on time-out the relay contact changes to 15-18. After an interruption, the timing period is restarted.

TI = Clock generator starting with impulse (flasher relay)



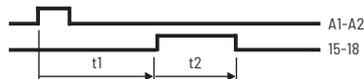
As long as the control voltage is applied the relay contact opens and closes. On MFZ12, MFZ12DX, MFZ12NP and MFZ61DX the changeover time in both directions is identical, and is equal to the preset time. On TGI12DX both times can be set separately (identical time base, but additional multiplier), on MFZ12DDX and MFZ12PMD it is completely settable separately. When the control voltage is applied the relay contact immediately changes to 15-18.

TP = Clock generator starting with pause (flasher relay)



Description of function same as for TI, except that, when the control voltage is applied, the contact initially remains at 15-18 rather than changing to 15-18.

IA = Impulse-controlled operate delay



The timing period t1 starts with a control impulse from 50ms; on time-out the relay contact changes for the timing period t2 (for MFZ12 and MFZ12DX = 1 second, for MFZ12NP and MFZ61DX = 3 seconds) to 15-18 for 1 second (e.g. for automatic door opener). If t1 is set to t1 min = 0.1 seconds, the IA operates as pulse shaper, when timing period t2 elapses, independent of the duration of the control impulse (min. 150 ms).

EW = Fleeting NO contact



When the control voltage is applied the NO contact changes to 15-18 and reverts on wiping time-out. If the control voltage is removed during the wiping time the NO contact immediately reverts to 15-16 and the residual time is cancelled.

AW = Fleeting NC contact



When the control voltage is interrupted the NO contact changes to 15-18, and reverts on wiping time-out. If the control voltage is applied during the wiping time the NO contact immediately reverts to 15-16 and the residual time is cancelled.

ARV = Operate and release delay



When the control voltage is applied the timing period starts; on time-out he relay contact changes to 15-18. If the control voltage is interrupted then, another timing period is started and, on time-out, the relay contact to normal position. On MFZ12, MFZ12DX and MFZ12NP this release delay is identical to the operating delay, on MFZ12DDX and MFZ12PMD it is completely settable separately. After an interruption of the operating delay, the timing period is restarted.

ER = Relais

As long as the control contact is closed the make contact reverts from 15-16 to 15-18.

EAW = Fleeting NO contact and fleeting NC contact



When the control voltage is applied or interrupted the relay contact changes to 15-18 and reverts after the set wiping time.

ES = Impulse switch

With control impulses from 50ms the make contact switches to and fro.

IF = Pulse shaper



When the control voltage is applied the relay contact changes to 15-18 for the set time. Further control impulses are evaluated only after the set time has elapsed.

ARV+ = Additive operate and release delay

Same function as ARV, but after an interruption of the operate delay the elapsed time is stored.

ESV = Impulse switch with release delay and switch-off early-warning function

Function same as SRV. Additionally with switch-off early warning: approx. 30 sec. before time-out the lighting starts flickering 3 times at gradually shorter time intervals.

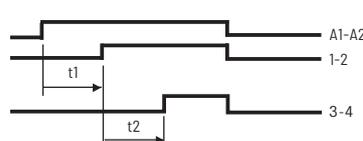
AV+ = Additive operate delay

Function same as AV. However, after an interruption the elapsed time is stored.

SRV = Release-delay impulse switch

With control impulses from 50ms the make contact switches to and fro. In the contact position 15-18, the device switches automatically to the rest position 15-16 on delay time-out.

A2 = 2-stage ON-delay



When the control voltage is applied, the time lapse T1 starts between 0 and 60 seconds. At the end of the time lapse, contact 1-2 closes and time lapse T2 starts between 0 and 60 seconds. At the end of this time lapse, contact 3-4 closes. After an interval, the time lapse starts again at T1.



3(L)	4
A1	A2
1	3
2	4
	(N)
1(L)	2

S2U12DDX-UC



2-channel timer. 1+1 NO contacts potential free 16 A/250 V AC. With 'astro' function. Only 0.03–0.4 watt standby loss. From week 26/19 with display backlighting.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18mm wide, 58mm deep.

Patented Eltako Duplex technology (DX) allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to 1(L) and/or 3(L). This results in an additional standby consumption of only 0.1 watt.

In the ON state, the use of bistable relays causes no coil power loss or heating. Up to 60 timer memory locations are freely assigned to the channels. With date and automatic summer/winter time changeover. Ca. 7 days power reserve without battery. Each memory location can be assigned with the astro function (automatic switching after sunrise or sundown), the switch on/off time or a pulsed switching time (which triggers an impulse of 2 seconds). The astro switch on/off time can be changed up to ± 2 hours. A time lag of up to ± 2 hours influenced by the solstices can be entered additionally.

With control input (+A1) for central control ON or OFF with priority.

Supply voltage and control voltage for central control 8 to 230 V UC.

The timer is set using the MODE and SET buttons and a keylock function is provided.

The display illumination goes on by pressing on MODE or SET.

20 seconds after you last press MODE or SET, the program returns automatically to normal display and the display illumination goes off.

Set language: Every time the power supply is applied, press SET within 10 seconds to set the language and press MODE to confirm. D = German, GB = English, F = French, IT = Italian and ES = Spanish. The normal display then appears: weekday, time, day and month.

Rapid scroll: In the following settings, the numerals scroll rapidly when you press and hold down Enter. Release then press and hold down to change the scroll direction.

Set clock: Press MODE then at PRG (program) press SET to search for the **CLK function**. Press MODE to set. In H, press SET to select the hour and press MODE to confirm. In M proceed in the same way to set the minute.

Set date: Press MODE then at PRG press SET to search for the **DAT function**. Press MODE to select. At Y, press SET to select the year and press MODE to confirm. Proceed in the same way at M to set the month and at D to set the day. The last setting in the sequence is MO (weekday) blinking. Press SET to set it and press MODE to confirm.

Set geographic position (if astro function is required): you can find a list of German cities at the end of the operating manual. Press MODE then press SET at PRG to search for the **POS function**. Select by pressing MODE. Press SET at LAT to select the latitude. Select by pressing MODE. Repeat this procedure for LON to select the longitude and press MODE to confirm. Press SET at GMT to select the time zone and press MODE to confirm. If desired a time lag of up to ± 2 hours can be entered at WS (winter solstice) and SS (summer solstice) for both channels.

Manual switching ON or OFF with priority: Press MODE and for PRG press SET to search for **function INT**. Then press MODE to select. For CH press SET to select channel 1 or 2 and press MODE to confirm. Now you can switch between AUT (automatic) and ON or OFF using SET. After confirming with MODE the shift position of the selected channel may change. If the shift position should change automatically when a time program becomes active, AUT (automatic) should be selected again. If MODE is pressed longer than 2 seconds at confirmations the change is saved and the normal display will appear.

Summer/winter time changeover: Press MODE then at PRG press SET to search for the SWT function and press MODE to select. Now press SET to switch between ON and OFF. If you select ON, changeover is automatic.

Central control ON or OFF with priority at automatic mode (AUT): Press MODE and then SET for PRG (program) to search for the **function CIA**. Press MODE to select. Then press SET to switch from CON to COF and press MODE to confirm.

Switch random mode on/off: Press MODE then at PRG press SET to search for the RND function and press MODE to select. Press SET to set to ON (RND+) or OFF (RND) and press MODE to confirm. When random mode is switched on, all switch-on time points of all channels are shifted at random by up to 15 minutes. Switch-on times are switched earlier and switch-off times are switched later.

Entering timer programs: refer to the operating instructions.

Enable keylock: Briefly press MODE and SET together and at LCK, press SET to lock. This is displayed by an arrow next to the lock symbol.

Disable keylock: Press MODE and SET together for 2 seconds and at UNL press SET to unlock.

S2U12DDX-UC	2-channel timer	EAN 4010312603208	77,80 €/pc.
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Type	MFZ12DDX ^{b)} MFZ12DX ^{b)} RVZ/AVZ/TGI/ EAW12DX ^{b)}	MFZ12NP PTN12	MFZ12-230V A2Z12-UC ^{b)}	MFZ61DX ^{b)}	S2U12DDX ^{b)}	MFZ12PMD
Contacts						
Contact material/contact gap	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	Power MOSFET
Spacing of control connections/contact	6 mm	3 mm	6 mm	6 mm	6 mm	6 mm
Spacing of control connections C1-C2/contact	–	6 mm	–	–	–	–
Test voltage control connections/contact	4000 V	2000 V	4000 V	4000 V	4000 V	4000 V
Test voltage C1-C2/contact	–	4000 V	–	–	–	–
Rated switching capacity	10 A/250 V AC	16 A/250 V AC	10 A/250 V AC	10 A/250 V AC	16 A/250 V AC	400 W
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/10 ms	2000 W ³⁾	2300 W ³⁾	1000 W ³⁾	2000 W ³⁾	2000 W ³⁾	400 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	1000 VA ³⁾	1000 VA ³⁾	500 VA ³⁾	1000 VA ³⁾	1000 VA ³⁾	–
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA ³⁾	500 VA ³⁾	250 VA ³⁾	500 VA ³⁾	500 VA ³⁾	–
Compact fluorescent lamps with EVG* and energy saving lamps ESL	15x7 W 10x20 W ³⁾⁴⁾⁵⁾	15x7 W 10x20 W ³⁾⁵⁾	I on ≤ 35 A/10 ms ²⁾³⁾⁵⁾	15x7 W 10x20 W ³⁾⁴⁾⁵⁾	15x7 W 10x20 W ³⁾⁴⁾⁵⁾	100 W ⁵⁾
230 V LED lamps	up to 200 W ⁵⁾ I on ≤ 120 A/5 ms	up to 200 W ⁵⁾ I on ≤ 30 A/20 ms	up to 200 W ⁵⁾ I on ≤ 120 A/5 ms	up to 200 W ⁵⁾ I on ≤ 120 A/5 ms	up to 200 W ⁵⁾ I on ≤ 120 A/5 ms	–
Max. switching current DC1: 12 V/24 V DC	8 A	–	8 A	8 A	8 A	–
Life at rated load, cos φ = 1 for incandescent lamps 1000 W at 100/h	> 10 ⁵	> 10 ⁵	> 10 ⁵	> 10 ⁵	> 10 ⁵	∞
Life at rated load, cos φ = 0,6 bei 100/h	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	∞
Maximum conductor cross-section (3-fold terminal)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	4 mm ²	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)
Two conductors of same cross-section (3-fold terminal)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	1.5 mm ²	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)
Screw head	slotted/cross- head, pozidriv	slotted/cross- head, pozidriv	slotted/cross- head, pozidriv	slotted/cross- head	slotted/cross- head, pozidriv	slotted/cross- head, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP30/IP20	IP50/IP20	IP50/IP20
Electronics						
Time on	100%	100%	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Temperature dependence	< 0.2% per °C	< 0.2% per °C	< 0.2% per °C	< 0.2% per °C	< 0.2% per °C	< 0.2% per °C
Repeat accuracy at 25°C	±0.1%	±0.1%	±0.1%	±0.1%	±0.1%	±0.1%
Control voltage dependence from 0.9 to 1.1x rated voltage	none	none	none	none	none	none
Stored energy time in the event of power failure (then total reset)	≥ 0.2 seconds	≥ 0.2 seconds	≥ 0.2 seconds	≥ 0.2 seconds	7 days	≥ 0.2 seconds
Standby loss (active power) 230 V	MFZ12DDX: 0.5 W; MFZ12DX: 0.4-0.6 W; RVZ/AVZ/TGI/ EAW12: 0.4 W	0.5 W	0.4 W	0.4 W	0.4 W	0.3 W
Standby loss (active power) 12 V/24 V	0.02 W/0.04 W; MFZ12DDX: 0.05 W/0.1 W	–	–	0.02 W/0.04 W	0.03 W/0.06 W	–
Control current 230 V-control input local ±20%	–	2 mA	2 mA; A2Z12: –	–	–	–
Control current universal control voltage 8/12/24/230 V (<10 s) ± 20%	0.05/0.1/ 0.2/1 mA	2/4/9/5 (100) mA	A2Z12: 0.05/ 0.1/0.2/1 mA	0.05/0.1/ 0.2/1 mA	0.04/0.05/ 0.1/1.2 mA	10 (100) mA
Max. parallel capacitance (approx. length) of the control leads at 230 V AC	0.2 µF (600 m)	0.01 µF (30 m) C1-C2: 0.03 µF (100 m)	0.01 µF (30 m); A2Z12: 0.2 µF (600 m)	0.2 µF (600 m)	0.2 µF (600 m)	0.9 µF (3000 m)

* EVG = electronic ballast units; KVG = conventional ballast units^{b)} Bistable relay as relay contact. The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated. ¹⁾ For lamps with a load of 150 W max. ²⁾ A 40-fold inrush current must be calculated for electronic ballast devices. For steady loads of 1200 W or 600 W use the current-limiting relay SBR12 or SBR61. See chapter 14, page 14-8. ³⁾ The maximum load can be used from a delay time or clock cycle of 5 minutes. The maximum load is reduced for shorter times as follows: up to 2 seconds 15%, up to 2 minutes 30%, up to 5 minutes 60%. ⁴⁾ When using DX types close attention must be paid that zero passage switching is activated! ⁵⁾ Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. Due to differences in the lamps electronics, there may be a restriction on the maximum number of lamps; especially if the connected load is very low (for 5 W-LEDs).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

**FR12-
NR12-
BZR12DDX-
FR61-**



14
THE BODYGUARDS.

Mains disconnection relays, operating hours impulse counter, current relay, mains monitoring relay and current-limiting relays

Selection table mains monitoring relays, current relays and current-limiting relays	14 - 2
Self-learning mains disconnection relay FR12-230V	14 - 3
Self-learning mains disconnection relay FR61-230V and accessory base load GLE	14 - 4
Digital adjustable operating hours impulse counter BZR12DDX-UC with alarm relay and reset	14 - 5
Current relay AR12DX-230V	14 - 6
Mains monitoring relays NR12 monitoring the rotating field	14 - 7
Current-limiting relays capacitive SBR12-230V/240μF and SBR61-230V/120μF	14 - 8
Phase annunciator P3K12-230V and technical data	14 - 9
Typical connections mains disconnection relays	14 - 10
Questions and answers on mains disconnection relays	14 - 11

SELECTION TABLE MAINS MONITORING RELAYS, CURRENT RELAY AND CURRENT-LIMITING RELAYS

THE BODYGUARDS

Eltako mains disconnection relays switch off a monitored 230 V conductor after connected loads are switched off manually. This prevents interfering electromagnetic alternating fields.

A DC voltage with an extremely low residual ripple is used for monitoring purposes. No measurable alternating field is generated but it

is guaranteed that room lighting is detected when switched on. The monitored conductor is then switched on again.

Electronically controlled loads or supplied loads, require a high degree of monitoring effort. Here, the self-learning mains disconnection relays are ideal for such applications.

Page	14-3	14-4	14-5	14-6	14-7	14-7	14-8	14-8	14-9	
	pictograms	FR12-230V	FR61-230V	BZR12DDX-UC	AR12DX-230V	NR12-001-3x230V	NR12-002-3x230V	SBR12-230V/240µF	SBR61-230V/120µF	P3K12
Modular device for mounting on DIN rail EN 60715 TH35, number of modules 18 mm each	1		1	1	1	2	1		1	
Built-in device for installation (e.g. flush-mounting box)		■						■		
Number NO contacts or CO contacts potential free (not potential free)	(1)	(1)	1W	1W	1W	2W	(1)	(1)	-	
Zero passage switching 			■ ²⁾	■ ²⁾						
Switching capacity 16 A/250 V AC	■			■			■			
Switching capacity 10 A/250 V AC		■	■		■	■		■		
Incandescent lamp load W	2300	1000	2000	2300	1600	1600	1200	600	-	
Fluorescent lamp load with EVG* and energy saving lamps W	I _{on} ≤ 70 A/10 ms ¹⁾	I _{on} ≤ 70 A/10 ms ¹⁾	150-200 ²⁾	150-200 ²⁾	I _{on} ≤ 70 A/10 ms ¹⁾	I _{on} ≤ 70 A/10 ms ¹⁾	1200	600	-	
No standby loss 							■	■	-	
Low standby loss 	■	■	■	■	■	■			■	
Adjustable operating hours counter			■							
Current relay				■						
Mains monitoring relay					■	■				
Current-limiting relay							■	■		
Mains disconnection relay	■	■								
Phase annunciator									■	

* EVG = electronic ballast units

¹⁾ A 40-fold inrush current must be expected for electronic ballast devices. Limit with SBR12 or SBR61 if applicable.

²⁾ Duplex technology: When switched with 230 V/50 Hz zero passage switching is activated if L is connected to (L) and N to (N). Then additional standby loss of only 0.1 watt.

SELF-LEARNING MAINS DISCONNECTION RELAY FR12-230V



FR12-230V



1 NO contact not potential free 16 A/250 V AC. Self-learning. Incandescent lamp load 2300 W. Standby loss 0.8 watt only.

Modular device for DIN EN 60715 TH35 rail mounting.

1 module = 18 mm wide and 58 mm deep.

230 V supply voltage and switching voltage.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

The FR12-230V mains disconnection relay disconnects the power supply once all series connected loads are turned off, thus preventing any electromagnetic interference fields from occurring.

Small loads up to 200 mA, are acceptable and, once major loads are disconnected, they do not prevent field disconnection. The limit is taught-in automatically by the FR12 using a patented method so you need not set the limit manually. Loads drawing more than 200 mA are consistently defined as loads which should cause the line power to be connected.

As long as no major load is turned on, one pole of the monitored circuit remains isolated from the mains. Neutral and earth are connected continuously to avoid acting as an aerial.

A DC voltage with an extremely low residual ripple is applied for monitoring.

Therefore, **it is prohibited to bridge the relay contact**, which would ultimately cause device failure.

When a load is turned on, the mains disconnection switch connects the monitored phase after approx. 1 sec and the LED lights red.

Function of the lower rotary switch

In the function ON/P → position, the relay contact is continuously closed and field disconnection deactivated.

When turning back to position [A] = automatic with self-learning, the actual current value is stored as shut down value in which should be switched-off even if small consumers, such as electronic dimmers, are still available. Lighting must therefore be switched-off when 'learnin by rotary switch'.

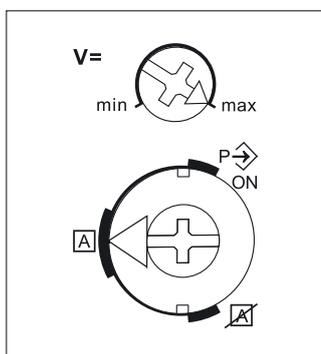
In position [A] changes of connected consumers can be taught-in independently. When the outer conductor is switched-on the first time and after a power failure the FR12 automatically teaches-in again.

If a new small consumer is switched-on more than 24 hours, the total current drawn of the monitored circuit is less than 200mA, the disconnection switch is set to [A] mode and the light was switched-on and off occasionally, the new small consumer is taught-in and the ladder is switched-off. This can be achieved immediately after connecting of a new small consumer by briefly jumping from [A] to P → and back. If self-learning of the device is not desired, the rotary switch must be set to the function [A] 'automatic switched-off'.

Function of the upper rotary switch

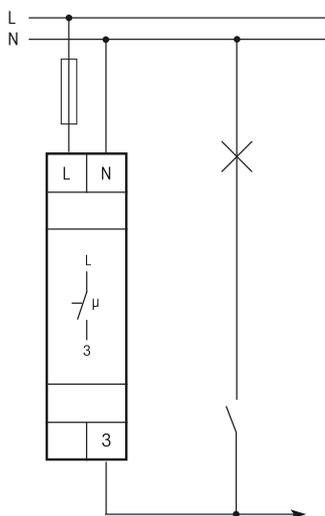
The monitoring voltage can be adjusted in the range from 5 V DC to 230 V DC. Due to its low residual ripple, it generates no measurable alternating field even at 230 V DC. The higher the adjustment, the greater the number of capacitive loads detectable without switching on a base load. It can therefore be reduced until the loads are barely detectable. In many applications, even the lowest monitoring voltages are detectable.

Rotary switches



Standard setting ex factory.

Typical connection

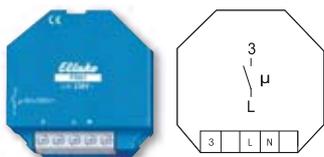


monitored circuit

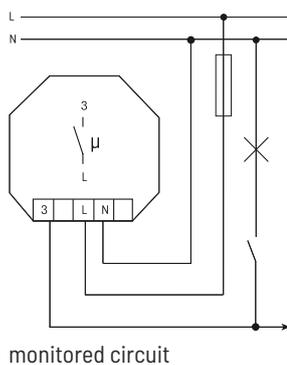
Technical data page 14-9.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

FR12-230V	1 NO contact 16 A	EAN 4010312203255	80,40 €/pc.
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SELF-LEARNING MAINS DISCONNECTION RELAY FR61-230V ACCESSORY BASE LOAD GLE



Typical connection



Technical data page 14-9.



FR61-230V

1 NO contact not potential free 10 A/250 V AC. Standby loss 0.8 watt only.

Built-in device for installation.

45 mm long, 45 mm wide, **26 mm deep.**

230 V supply voltage and switching voltage.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

The FR61-230V mains disconnection relay disconnects the power supply once all series connected loads are turned off, thus preventing any electromagnetic interference fields from occurring.

Small loads up to 20 mA are acceptable and, once major loads are disconnected, they do not prevent field disconnection. There is no need to manually set the limit; it is learned by the FR61. Loads drawing more than 200 mA are consistently defined as loads which should cause the line power to be connected.

As long as no major load is turned on, one pole of the monitored circuit remains isolated from the mains.

Neutral and earth are connected continuously to avoid acting as an aerial.

A DC voltage of 230 V DC with an extremely low residual ripple is applied for monitoring. Therefore, **it is prohibited to bridge the relay contact**, which would ultimately cause device failure.

When a load is turned on, the mains disconnection relay connects the phase.

If the phase is switched on for the first time and after a power failure the FR61 automatically learns in again: At first an inrush current of 30 mA is specified. If a new small load is switched on for more than 24 hours, the total current drawn by the monitored circuit is less than 200 mA, and in the meantime the light has been switched on and off, the new load is learned in and the conductor is switched off. This learn-in mode can be realised immediately after connection of the new load by briefly switching off the MCB.

FR61-230V	1 NO contact 10 A	EAN 4010312203477	70,40 €/pc.
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GLE

Accessory base load

A base load is used if loads cannot be detected due to their capacitance but are meant to switch on the line voltage. Base loads must consistently start or operate in parallel with the related load and be turned off with the latter. Higher stand by loads may affect or jam the detection of a base load. Typical applications: Fluorescent lamps, dimmer circuits and electronic transformers.

GLE base load element

PTC in a small coupler with connecting leads; can be used directly in a load, a switch box or a junction box. It is not capable of keeping the mains disconnection relay in the connected state without an additional load connected.

GLE	1x base load	EAN 4010312900970	5,80 €/pc.
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DIGITAL ADJUSTABLE OPERATING HOURS IMPULSE COUNTER BZR12DDX-UC WITH ALARM RELAY AND RESET



+B1	+AR
+A1	-A2
Field 1	
Field 2	
Field 3	
(N)	2
1(L)	3

BZR12DDX-UC



1 CO contact potential free 10 A/250 V AC. Standby loss 0.05-0.5 watt only.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 1 (L) for this. This gives an additional standby consumption of only 0.1 watt.

The BZR12DDX is adjustable when the supply voltage UC (8-253 V AC or 10-230 V DC) is applied to B1/A2: Select the function by pressing the projecting buttons **MODE** and **SET**: Press MODE briefly to make the last function selected (factory setting **BST = operating hours counter**) flash in field 1. Then press SET to switch between **IMP = impulse counter up to 9999 impulses** and **I10 = impulse counter x 10 up to 99990 impulses**. Confirm the selected function by pressing MODE.

BST function = operating hours counter

Field 3 shows the accumulated **operating hours T1** up to 8760 hours = 1 year. Up to 999.9 hours with one decimal point. Field 2 can display up to 99 accumulated **operating years T2**.

Press MODE to activate **the alarm time AZT** when the relay contact is switched over from 1-2 to 1-3. AZT flashes and SET increments each time by 1 hour in field 3. Press and hold down to change the time rapidly. Release and then press and hold down again to change the direction. Confirm the selected time by pressing MODE. The + character in field 1 displays the set alarm time. AA flashes and SET activates (display AA+) or deactivates (display AA) the automatic alarm disconnection.

The operating hours are counted in field 3 as long as the control voltage (= supply voltage) is applied to A1. The display II moves slowly to the right in field 1.

The residual alarm time RZT in hours can be displayed by pressing SET briefly in field 3. Press SET again to switch back to the operation display.

If there is a power failure, the contact switches over from 1-2 to 1-3 and may therefore be used for an alarm signal.

When the alarm time AZT is reached, the contact switches over from 1-2 to 1-3, SET flashes in field 1 and the display of the elapsed alarm period starts in field 2 from 0.1 minute (m) to 99 hours (h). The contact position 1-3 is indicated by an arrow on the left in field 1.

Acknowledge the alarm: a) If the automatic alarm disconnection is activated (AA+), the contact 1-3 closes for only 1 second and the alarm time restarts. b) By connecting the control voltage +B1 to AR the contact switches back, if AR is disconnected from the control voltage the alarm time restarts. c) Press SET for 3 seconds to switch back the contact and to restart the alarm time. The operating hours counter in field 3 continues running same as for a) and b).

Reset the operating hours counter previous to the alarm signal by applying the control voltage +B1 to AR for 3 seconds or by pressing the MODE and SET buttons simultaneously for 3 seconds, confirm the RES display in field 1 by pressing SET. The counter is reset to 0. This does not change the alarm time.

Enable the keylock by pressing MODE and SET briefly and simultaneously. When you confirm the flashing display LCK by pressing SET, the buttons are locked and this is indicated by an arrow in field 1 pointing in the direction of the lock icon sticker.

Disable the keylock by pressing MODE and SET simultaneously for 2 seconds. Confirm the flashing display UNL by pressing SET to unlock.

IMP function = impulse counter and function I10 = impulse counter x 10

Field 3 shows the accumulated **impulses T1** up to 9999 (99990) impulses. Press MODE to **activate the alarm impulse number AIZ** when the relay contact switches over from 1-2 to 1-3. AIZ flashes and SET increments each time by 1 impulse in field 3. Press and hold down to change the impulse number rapidly. Release and then press and hold down again to change the direction. Confirm the selected impulse number by pressing MODE and the + character in field 1 to display the set alarm impulse number.

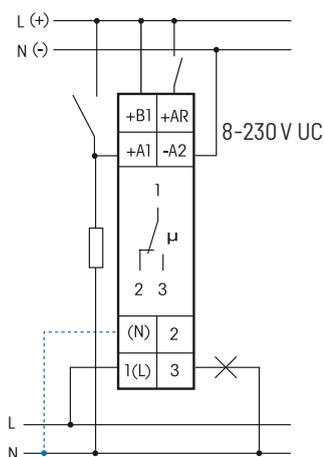
Every voltage impulse (identical with the supply voltage) detected at A1 increments the number of counted impulses in field 3.

The residual impulse number RIZ can be displayed after pressing SET briefly. RIZ appears in field 1 and the residual impulses until the alarm is displayed in field 3. Press SET again to switch back to the operation display.

When the **alarm impulse number is reached**, the contact switches over from 1-2 to 1-3, SET flashes in field 1 and the display of other impulses up to 99 (990) starts during the alarm signal. The contact position 1-3 is indicated by an arrow on the left in field 1.

'Acknowledge alarm', 'Reset' and 'Lock/unlock setting' are identical to the BST function = operating hours counter.

Typical connection

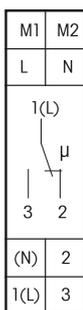


If N is connected, the zero passage switching is active.

Technical data page 14-9.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

BZR12DDX-UC	1 CO contact 10 A	EAN 4010312603161	56,90 €/pc.
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CURRENT RELAY AR12DX-230V



AR12DX-230V



1 CO contact potential free 16 A/250 V AC. Standby loss 0.8 watt only.

Modular device for DIN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

With the patented Eltako Duplex technology (DX) the normally potential-free contacts can still switch in zero passage when switching 230 V AC 50 Hz and therefore drastically reduce wear. Simply connect the neutral conductor to the terminal (N) and L to 1 (L) for this. This gives an additional standby consumption of only 0.1 watt.

If the contact is used for controlling switching devices which do not perform zero passage switching themselves, (N) should not be connected because the additional closing delay otherwise causes the opposite effect.

With an internal toroidal-core current transformer the single phase AC current flowing through a consumer V1 of 0.1A up to max. 32 A is compared to the setpoint. When the latter is exceeded a relay switches off a consumer V2 connected to 2 within 0.5 seconds or switches on a consumer V3 connected to 3.

Adjustment accuracy $\pm 5\%$. From 25 A the relay always switches on.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

The basis of current A will be set with the lower rotary switch **A**.

The following basic values can be selected: 0.1 A, 0.3 A, 0.6 A, 0.9 A, 1.5 A, 1.9 A, 3.0 A and 3.2 A.

The multiplier xA will be set with the middle rotary switch **xA** and offers values between 1 and 10. So currents starting from 0.1 A (basis of current 0.1 A and multiplier 1) can be set.

OFF delay RV can be set with the upper rotary switch **RV** between 0 and 120 secs.

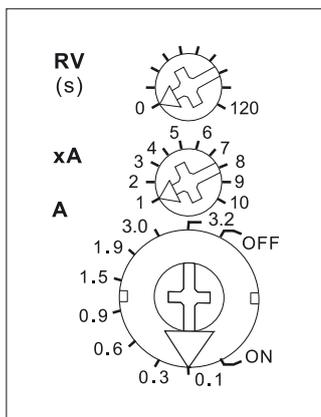
The hysteresis is defined as approx. 25%.

Status indication by LED.

The measuring input M1-M2 is electrically isolated from power supply L-N and make contact 1(L)-2/3.

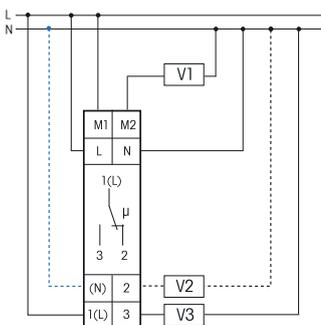
Reference values larger than 32 A can be adapted by an external measuring transformer.

Function rotary switches



Standard setting ex factory.

Typical connection



If (N) is connected, the zero passage switching is active.

Technical data page 14-9.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

AR12DX-230V	1 CO contact 16 A	EAN 4010312205426	58,70 €/pc.
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NR12-001-3X230V



1 CO contact potential free 10 A/250 V AC. Standby loss 0.8 watt only.

Modular device for DIN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Designed to monitor 230 V AC voltage between 1 to 3 phase conductors and neutral and to monitor the rotating field (clockwise) in the switch positions 2 Ph and 3 Ph.

In the position \triangle only the rotating field is monitored, independent from the mains voltage.
Supply voltage L1-N 180-250 V/50 Hz.

In case of failure of L1 the relay releases immediately without delay.

With the lower rotary switch on the front two operate voltages resp. dropout voltages can be set and the number of monitored phase conductors must be selected.

U1: 161V dropout voltage and 185V operate voltage.

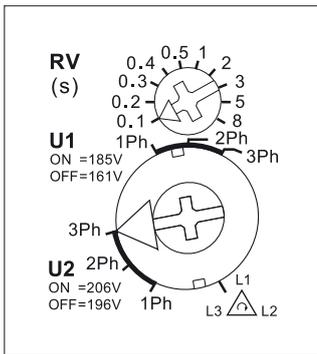
U2: 196V dropout voltage and 206V operate voltage as per VDE 0100, part 718 (formerly: VDE 0108, part 1).
Voltage applied signalled by LED. At wrong polarity or in case of a missing phase conductor the LED flashes rapidly.

Release delay **RV** settable with the upper rotary switch from 0.1 to 8 sec.

The LED flashes slowly during the release delay time period. Operate delay 0.5 sec.

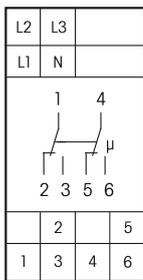
Maximum fusing 16 A.

Function rotary switches



Technical data page 14-9.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

NR12-001-3x230V	1 CO contact 10 A	EAN 4010312202524	50,40 €/pc.
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NR12-002-3X230V



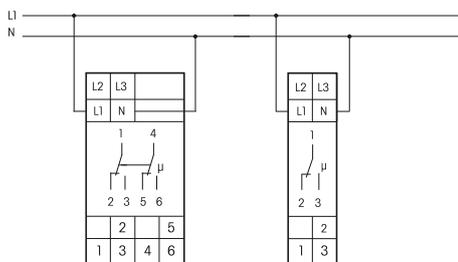
2 CO contacts potential free 10 A/250 V AC. Standby loss 0.8 watt only.

Modular device for DIN 60715 TH35 rail mounting.
2 modules = 36 mm wide, 58 mm deep.

All functions same as NR12-001-3x230V but with a second CO contact.

Maximum fusing 16 A.

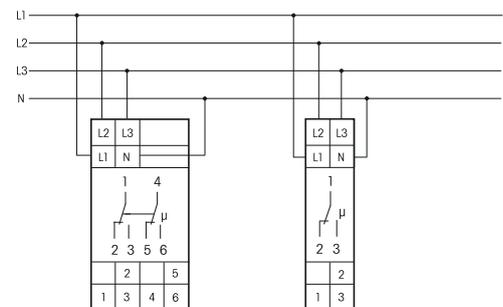
Typical connections: 1 phase monitoring



NR12-002-3x230V

NR12-001-3x230V

Typical connections: 3 phase monitoring

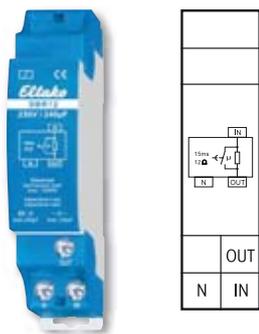


NR12-002-3x230V

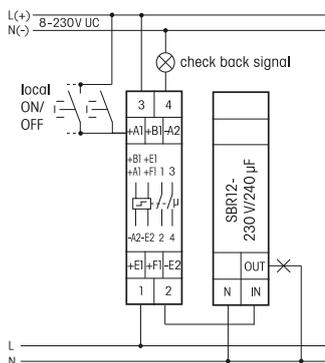
NR12-001-3x230V

Technical data page 14-9.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

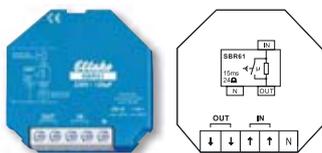
NR12-002-3x230V	2 CO contact 10 A	EAN 4010312202548	65,70 €/pc.
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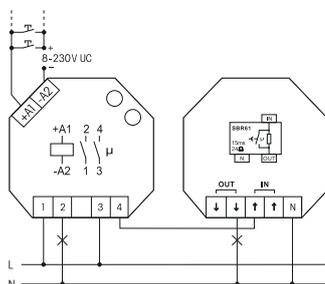
Typical connection



ES12Z with SBR12-230V/240 µF



Typical connection



SBR12-230V/240µF



1 NO contact 16 A/250 V AC. No standby loss.

Modular device for DIN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Max. capacitive load 240 µF downstream of rectifier (e.g. energy saving lamps and electronic ballast) or 120 µF directly at the mains (e.g. shunt-compensated fluorescent lamps).

Limiting resistor 12 Ω, limiting period approx. 15 ms.

The starting current impulse of energy saving lamps, fluorescent lamps and compact fluorescent lamps is limited to 20 A by short-time switch-on (approx. 15 ms) of heavy-duty resistors (12 Ω).

The current-limiting relay is connected on the load side of the protected relay contact.

Permanent load max. 1200 W, max. switching frequency 600/h.

Explanation of capacitive load specification:

The specified max. capacitive load directly at the mains is the deciding factor determining shunt-compensated fluorescent lamps or conventional ballast, for example.

Here the capacitor switched in parallel to the mains is the deciding factor determining the correct dimensioning per lamp.

The specified max. capacitive load downstream of the rectifier is the deciding factor determining fluorescent lamp ballast or energy saving lamps, for example. An equivalent capacitance of 10 µF per lamp may be calculated.

SBR12-230V/240µF	1 NO contact 16 A	EAN 4010312205457	40,80 €/pc.
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SBR61-230V/120µF



1 NO contact 10 A/250 V AC. No standby loss.

Built-in device for installation. 45 mm long, 45 mm wide, 18 mm deep.

Max. capacitive load 120 µF downstream of rectifier (e.g. energy saving lamps and electronic ballast) or 60 µF directly at the mains (e.g. shunt-compensated fluorescent lamps).

Limiting resistor 24 Ω, limiting period approx. 15 ms.

The starting current impulse of energy saving lamps, fluorescent lamps and compact fluorescent lamps is limited to 10 A by short-time switch on (approx. 15 ms) of heavy-duty resistors (24 Ω).

The current-limiting relay is connected on the load side of the protected relay contact.

Permanent load max. 600 W, max. switching frequency 600/h.

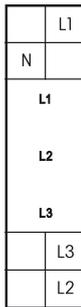
Explanation of capacitive load specification:

The specified max. capacitive load directly at the mains is the deciding factor determining shunt-compensated fluorescent lamps or conventional ballast, for example.

Here the capacitor switched in parallel to the mains is the deciding factor determining the correct dimensioning per lamp.

The specified max. capacitive load downstream of the rectifier is the deciding factor determining fluorescent lamp ballast or energy saving lamps, for example. An equivalent capacitance of 10 µF per lamp may be calculated.

SBR61-230V/120µF	1 NO contact 16 A	EAN 4010312205464	37,90 €/pc.
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P3K12-230V

Phase annunciator. Standby loss 0.06 watt only.

Modular device for DIN 60715 TH35 rail mounting.
 1 module = 18 mm wide, 58 mm deep.
 For visual monitoring of 1 to 3 phases 230 V.
 Indication with three red LEDs.



P3K12-230V	Phase annunciator	EAN 4010312701065	34,10 €/pc.
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Type	BZR12DDX	NR12	AR12DX/FR12	FR61
Contacts				
Contact material	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm
Spacing of control connections/contact	3 mm	>6 mm	-, AR12DX: >6 mm	-
Test voltage contact to contact	2000 V	-, NR12-002: 2000 V	-	-
Test voltage control connection to contact	-	4000 V	-, AR12DX: 4000 V	-
Rated switching capacity	10 A/250 V AC	10 A/250 V AC	16 A/250 V AC	10 A/250 V AC
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/10 ms	2000 W	2000 W	2300 W	1000 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	1000 VA	1000 VA	1000 VA	1000 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	500 VA	500 VA	500 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	15x7 W, 10x20 W ³⁾	I on ≤ 70 A/10 ms ²⁾	FR12: I on ≤ 70 A/10ms ²⁾ AR12DX: 15x7 W, 10x20 W ³⁾	I on ≤ 70 A/10 ms ²⁾
230 V LED lamps	up to 200 W ⁵⁾ I on ≤ 120 A/5 ms	up to 200 W ⁵⁾ I on ≤ 30 A/20 ms	up to 200 W ⁵⁾ I on ≤ 30 A/20 ms	up to 200 W ⁵⁾ I on ≤ 30 A/20 ms
Max. switching current DC1: 12 V/24 V DC	8 A	8 A	-	-
Life at rated load, cos φ = 1 at 100/h and incandescent lamps 1000 W at 100/h	>10 ⁵	>10 ⁵	>10 ⁵	>10 ⁵
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴
Max. operating cycles	10 ³ /h	10 ³ /h	10 ³ /h	10 ³ /h
Switching position indication/voltage indication	display	LED	LED	-
Maximum conductor cross-section	6 mm ²	6 mm ²	6 mm ²	4 mm ²
Two conductors of same cross-section	2.5 mm ²	2.5 mm ²	2.5 mm ²	1.5 mm ²
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP30/IP20
Electronics				
Time on	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Control voltage range	0.9 to 1.1x rated voltage	180-250 V/50-60 Hz	0.9 to 1.1x rated voltage	0.9 to 1.1x rated voltage
Stand by loss (active power) 230 V	0.5 W	0.8 W	0.8 W	0.8 W
Stand by loss (active power) 12 V ⁴⁾	0.05 W	-	-	-
Max. parallel capacitance (length) of control lead	0.06 μF (200 m)	0.06 μF (200 m)	0.06 μF (200 m)	0.06 μF (200 m)

* EVG = electronic ballast units; KVG = conventional ballast units
¹⁾ Applies to lamps with max. 150 W. ²⁾ A 40-fold inrush current must be expected for electronic ballast devices. ³⁾ When using DX types close attention must be paid that zero passage switching is activated! ⁴⁾ Standby loss at 24 V approx. two times greater than at 12 V. ⁵⁾ Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. Due to differences in the lamps electronics, there may be a restriction on the maximum number of lamps; especially if the connected load is very low (for 5 W-LEDs).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

Function check?

Disconnect terminal 3 with the power on. The mains disconnection relay must switch the phase on. The LED goes out.

Base load?

A base load is used if loads cannot be detected due to their capacitance but are meant to switch on the line voltage. Never connect a base load directly between the disconnecting phase and neutral.

The mains disconnection relay is clocking?

A base load device may be connected directly between the disconnecting phase and neutral. An inductive consumer (e.g. plug-in power supply) is located in the disconnecting circuit without any isolation directly downstream of the mains disconnection relay. To function correctly, the consumer must be isolated from the mains.

Dimmer operation downstream of a mains disconnection relay?

We recommend using the universal dimmer switch EUD12F or EUD12NPN, as described on page 14-10. Rotary dimmer with phase sector control for electronic transformers: only possible with additional terminal for mains disconnection devices (e.g. make Busch-Jaeger, Jung, Berker und Gira).

Touch dimmers and sensor dimmers cannot be used.

The universal dimmer switch EUD61 and a push-button from the associated switch product range can replace a touch dimmer.

Operate electronic transformers?

All electronic transformers must be switched with a base load in parallel to the primary input, as long as they are not dimmed.

Appliances with transformer power supplies

(i.e. entertainment electronic appliances, PC, etc.)?

These appliances are often switched on or off on the secondary side. The transformer power supplies are permanently connected to the mains. Devices with these features must be disconnected from the mains after operation by unplugging the mains plug or by a switchable multiple socket strip or power consumption is learnt-in and is also disconnected (up to 200 mA).

Time-controlled roller blind controls directly mounted at the windows?

These roller blind controls receive a continuous quiescent current and should not be operated downstream of a mains disconnection relay for this reason. If disconnection is not possible from the room electrical circuit, the roller blind controls must be replaced by roller blind switches.

Electronic impulse switches downstream of a mains disconnection relay?

We recommend the electronic impulse switches ESR12NP which can also connect the FR12 without an additional base load.

Electromechanical impulse switches need to be pressed a little longer until the FR12 and the lighting circuit switch on.

Fluorescent lamps or compressed fluorescent lamps (energy saving lamps) downstream of a mains disconnection relay?

Fluorescent lamps always require a base load which must be connected in parallel to the lamp.

230 V LED lamps after a mains disconnection switch?

230 V LED lamps always need a base load which must be connected in parallel to the lamp.

**TLZ12-
TLZ12D-
TLZ61NP-
NLZ12NP-**



MAKE A CONFIDENT STRIDE THROUGH THE STAIRWELL WITH ELTAKO STAIRCASE TIME SWITCHES.

Staircase time switches and off-delay timers

Selection table staircase time switches and off-delay timers	15 - 2
Staircase time switch TLZ12-8plus - The Standard	15 - 3
Staircase time switch TLZ12-8 - The Simple	15 - 4
Staircase time switch TLZ12G-230V+UC - The Noiseless	15 - 5
Digital settable staircase time switch TLZ12D-plus - The Allrounder	15 - 6
Staircase time switch TLZ12-9 for older installations	15 - 7
Staircase time switch TLZ61NP-230V	15 - 8
Staircase time switch TLZ61NP-230V+UC	15 - 9
Technical data staircase time switches	15 - 10
Off-delay timer NLZ12NP-230V+UC	15 - 11
Off-delay timer NLZ61NP-230V	15 - 12
Off-delay timer NLZ61NP-UC	15 - 12
Technical data off-delay timer	15 - 13

THE COMPLETE RANGE

Incandescent lamps and energy saving lamps ESL are replaced by LED lamps. As the first leading manufacturer of staircase time switches, we produce devices with optimisation for that since 2010. TLZ12G up to 400 watt!

When these staircase time switches are in ESL setting, the switch-off early warning by flickering function does not reduce the service life of the energy saving lamps. The warning function which prevents sudden darkness fully complies with the stipulations in DIN 18015-2.

In addition, the lighting is immediately switched on again after a power failure if the set time has not yet elapsed, to increase security.

- The Standard: TLZ12-8plus**
- The Simple: TLZ12-8**
- The Noiseless: TLZ12G-230V+UC**
- The Allrounder: TLZ12D-plus**

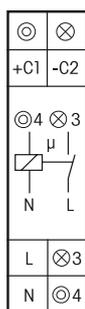
Page	15-3	15-4	15-5	15-6	15-7	15-8	15-9	15-11	15-12	15-12	
	pictograms	TLZ12-8plus	TLZ12-8	TLZ12G-230V+UC	TLZ12D-plus	TLZ12-9	TLZ6INP-230V	TLZ6INP-230V+UC	NLZ12NP-230V+UC	NLZ6INP-230V	NLZ6INP-UC
Modular device for mounting on DIN rail EN 60715 TH35, number of modules 18mm each	1	1	1	1	1			1			
Built-in device for installation (e.g. flush-mounting box)							■	■	■	■	
Incandescent lamp load W	2300	2000	400	2300	2300	2000	2000				
For energy saving lamps ESL*	■	■	■	■	■	■	■				
For 230V LED lamps	■	■	■	■	■	■	■				
Switch-off early warning function switchable ¹⁾	■		■	■	■	■	■				
Variable time range up to	30 min	12min	30 min	99 min	12 min	12 min	12 min	12 min	12 min	12 min	
Low standby loss 	■	■	■	■	■	■	■	■	■	■	
230V control voltage	■	■	■	■	■	■	■	■	■	■	
Universal control voltage (additionally) 8 to 230V UC 	■		■	■			■	■		■	
Glow lamp current mA 	50	50	50	50	50	50	50				
Double connections pushbutton and lamp	■	■	■								
Single connections below					■						
Automatic detection 3-/4-wire circuit	■	■	■	■		■	■				
3-wire circuit, without attic lighting					■						
Resettable	■	■	■	■		■	■				
Permanent light and switch-off logics with pushbutton switchable	■		■	■		■	■				
Incrementing ²⁾	■		■	■		■	■				
Spearate continuous light switch	■	■	■	■	■						
Additional input for motion control				■							
With multifunction: TLZ, ESV, ES and ER	■		■	■		without ER	without ER	■			
Bistable relay 	■			■	■	■	■				
Zero passage switching 	■		■	■	■	■	■	■		■	

* ESL = abbr. for energy saving lamps

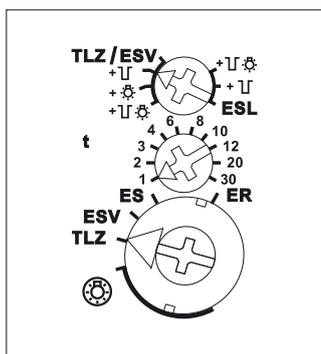
¹⁾ As stipulated in DIN 18015-2 under 4.2 the following should be taken into account: For lighting systems in staircases, corridors, arcades or elevator areas it is recommended to use the switch off early warning function to prevent sudden darkness. If the switch-off early warning function is active, the light starts flickering approx. 30 seconds before time-out and is repeated three times at decreasing time intervals.

²⁾ Time can be extended: Within the first second after switching on or resetting the time can be extended by pressing the pushbutton repeatedly up to three times (incrementing). Each operation increments the set time once.

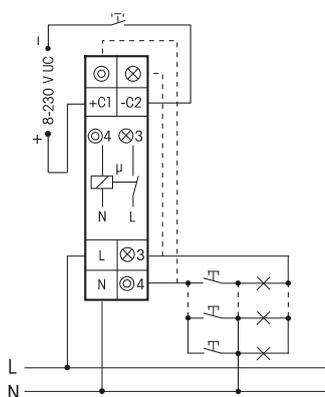
STAIRCASE TIME SWITCH TLZ12-8PLUS THE STANDARD



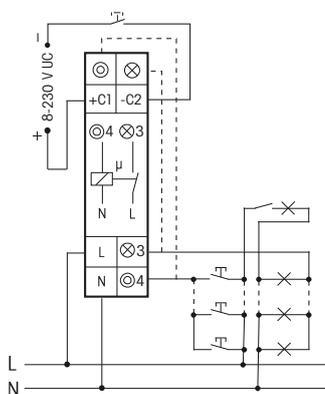
Function rotary switches



Typical connections



3-wire circuit, resettable.



4-wire circuit with attic lighting, resettable.

Technical data page 15-10.
Housing for operating instructions GBA14, see accessories, chapter Z.

Recommended retail prices excluding VAT.

TLZ12-8plus



1 NO contact not potential free 16 A/250 V AC. Incandescent lamps up to 2300 W, energy saving lamps ESL and LED lamps up to 200 W. Control voltage 230 V and/or 8..230 V UC. Switch-off early warning and permanent light by pushbutton switchable. Standby loss 0.7 watt only. With ESL optimisation and multifunction.

Modular device for DIN EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

The noiseless electronics do not even bother the sensitive ear - unlike many synchronous motors with mechanical gears.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Control voltage, supply voltage and switching voltage 230 V. In addition electrically isolated universal voltage from 8 to 230 V UC. 3-wire and 4-wire circuits, resettable, with attic lighting if 4-wire circuit.

Automatic detection of the method of connection.

Glow lamp current up to 50 mA, dependent on the ignition voltage of the glow lamps.

Precise variable time range from 1 to 30 minutes, settable by minute scale.

Permanent light switch with the big rotary switch.

If the function TLZ is set, the lighting is switched on again after a power failure provided the set time has not yet elapsed.

With double connections for pushbutton and lamp in order to connect either above or below or only below.

If switch-off early warning function is switched on, the light starts flickering approx. 30 seconds before time-out and is repeated three times at decreasing time intervals.

If permanent light by pushbutton is switched on, permanent light can be switched on by pressing the pushbutton longer than 1 second. This is switched off automatically after 60 minutes or by pressing the pushbutton longer than 2 seconds.

If both switch-off early warning function and permanent light by pushbutton are switched on, the switch-off early warning function is activated before the permanent light switches off.

When energy saving lamps ESL are completely or partially switched, then set the switch-off early warning and the permanent light by pushbutton on the right hand side of the rotary switch.

If the function TLZ is selected **the time can be extended** within the first second after switching on or resetting **by pressing the pushbutton repeatedly up to three times** (incrementing). Each momentary-contact control increments the set time once.

With multifunction: The following functions can be selected optionally: **ES** (impulse switch), **ER** (relay), **ESV** (impulse switch with release delay).

If the function ESV is set the time ranges (t), which can be set with the middle rotary switch are as follows: 1 = 2 min, 2 = 5 min, 3 = 10 min, 4 = 15 min, 6 = 25 min, 8 = 35 min, 10 = 45 min, 12 = 60 min, 20 = 90 min, 30 = 120 min. In this function the impulse switch automatically disconnects after the set delay is timed out, if a manual OFF command has not been given. Switch-off early warning and permanent light by pushbutton can also be switched on in this position. Forgotten permanent light is switched off after 2 hours.

☐ = Switch-off early warning function

☼ = Permanent light by pushbutton

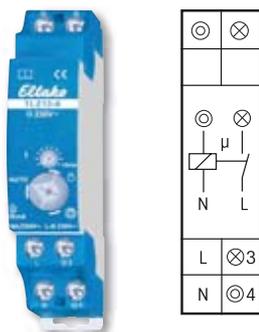
☐☼ = Switch-off early warning function and permanent light by pushbutton

⊙ = Permanent light switched on (all click-stop positions)

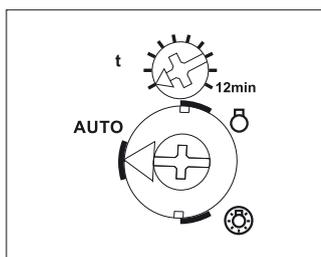
TLZ/ESV/ES/ER = The set function is active

TLZ12-8plus	1 NO contact 16 A	EAN 4010312401613	45,00 €/pc.
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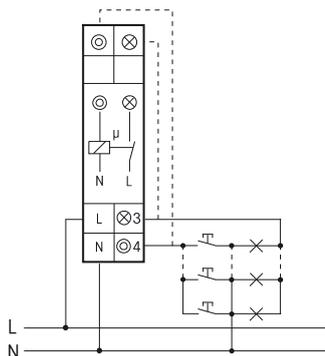
STAIRCASE TIME SWITCH TLZ12-8 THE SIMPLE



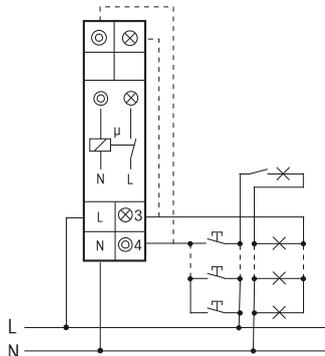
Function rotary switches



Typical connections



3-wire circuit, resettable.



4-wire circuit with attic lighting, resettable.

Technical data page 15-10.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

TLZ12-8



1 NO contact not potential free 16 A/250 V AC. Incandescent lamps up to 2000 W, energy saving lamps ESL and LED lamps up to 100 W, without switch-off early warning. Standby loss 0.7 watt only.

Modular device for DIN EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

The noiseless electronics do not even bother the sensitive ear - unlike many synchronous motors with mechanical gears.

230 V control voltage, supply voltage and switching voltage.

Variable time range from approx. 0.2 to 12 minutes.

Glow lamp current up to 50 mA, dependent on the ignition voltage of the glow lamps.

Own permanent light switch with the big rotary switch.

3-wire and 4-wire circuits, resettable, with attic lighting if 4-wire circuit.

Automatic detection of the method of connection.

Without switch-off early warning function and without zero passage switching.

With double connections for pushbutton and lamp in order to connect either above or below or only below.

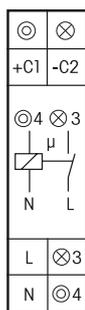
⊖ = Function switched off

⊕ = Permanent light switched on

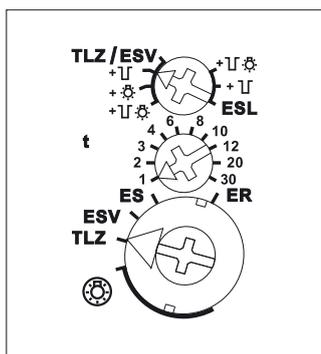
AUTO = The set function is active

TLZ12-8	1 NO contact 16 A	EAN 4010312401637	33,60 €/pc.
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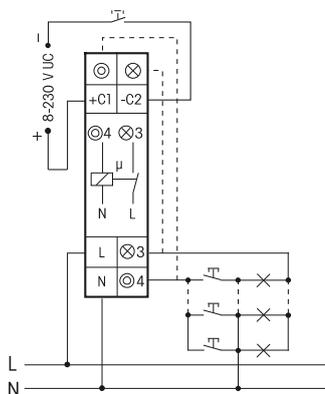
STAIRCASE TIME SWITCH TLZ12G-230V+UC THE NOISELESS



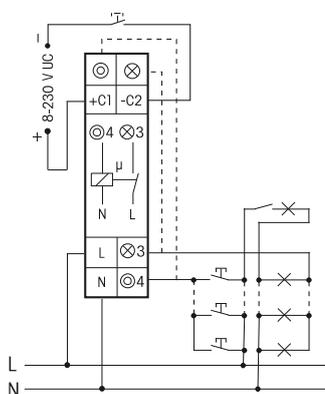
Function rotary switches



Typical connections



3-wire circuit, resettable.



4-wire circuit with attic lighting, resettable.

Technical data page 15-10.
Housing for operating instructions GBA14, see accessoires, chapter Z.

Recommended retail prices excluding VAT.

TLZ12G-230V+UC



Noiseless solid-state relay not potential-free 400 W, also energy saving lamps ESL and LED lamps. Switch-off early warning and pushbutton permanent light switchable. Standby loss 0.4 watt only. With ESL optimisation and multifunction.

Modular device for DIN-EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Zero passage switching to protect lamps. This prolongs in particular the lifetime of energy saving lamps. The noiseless electronics and zero passage switching do not even bother the sensitive ear – unlike many synchronous motors with mechanical gears.

Control, supply and switching voltage 230 V. Additionally 8 to 230 V UC electrically isolated universal control voltage. 3-wire and 4-wire circuits, resettable, with attic lighting if 4-wire circuit. **Automatic detection of the method of connection.**

Glow lamp current up to 50 mA, dependent on the ignition voltage of the glow lamps.

Precise variable time range from 1 to 30 minutes, settable by minute scale.

Permanent light switch with the big rotary switch.

If the function TLZ is set, the lighting is switched on again after a power failure provided the set time has not yet elapsed.

With double connections for pushbutton and lamp in order to connect either above or below or only below. **If switch-off early warning function is switched on** the light starts flickering approx. 30 seconds before time-out and is repeated three times at decreasing time intervals.

If pushbutton permanent light is switched on permanent light can be switched on by pressing pushbutton longer than 1 second. This is switched off automatically after 60 minutes or by pressing pushbutton longer than 2 seconds.

If both switch-off early warning function and permanent light pushbutton are switched on, the switch-off early warning function is activated before the permanent light switches off.

When energy saving lamps ESL are completely or partially switched, then set the switch-off early warning and the pushbutton permanent light on the right hand side of the rotary switch.

If the function TLZ is selected **the time can be extended** within the first second after switching on or resetting **by pressing the pushbutton repeatedly up to three times** (incrementing). Each momentary-contact control increments the set time once.

With multifunction: the following functions can be selected optionally: ES (impulse switch), ER (relay), ESV (impulse switch with release delay).

If the function ESV is set the time ranges (t) which can be set with the middle rotary switch are as follows: 1 = 2 min, 2 = 5 min, 3 = 10 min, 4 = 15 min, 6 = 25 min, 8 = 35 min, 10 = 45 min, 12 = 60 min, 20 = 90 min, 30 = 120 min. In this function the impulse switch automatically disconnects after the set delay is timed out, if a manual OFF command has not been given. Switch-off early warning and pushbutton permanent light can be switched on additionally in this position as well. Forgotten permanent light is switched off after 2 hours.

⏏ = Switch-off early warning function

⏏ = Permanent light by pushbutton

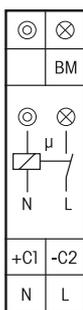
⏏ = Switch-off early warning function and permanent light by pushbutton

⊙ = Permanent light switched on (all click-stop positions)

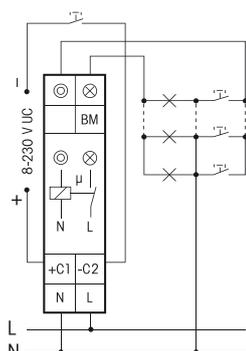
TLZ/ESV/ES/ER = The set function is active

TLZ12G-230V+UC	Solid state relays 400 W	EAN 4010312401460	53,70 €/pc.
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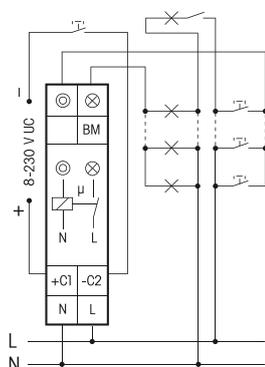
DIGITAL SETTABLE STAIRCASE TIME SWITCH TLZ12D-PLUS THE ALLROUNDER



Typical connections



3-wire circuit, resettable.



4-wire circuit with attic lighting, resettable.

TLZ12D-plus



1 NO contact not potential free 16 A/250 V AC. Incandescent lamps up to 2300 W, energy saving lamps ESL and LED lamps up to 200 W. Control voltage 230 V and/or 8..230 V UC. Switch-off early warning and permanent light by pushbutton switchable. Standby loss 0.5 watt only. With ESL optimisation and multifunction.

Modular device for DIN EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

The functions and times are entered using the MODE and SET keys as described in the operating manual and indicated on the LC display. A keylock function is provided.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

The noiseless electronics do not even bother the sensitive ear – unlike many synchronous motors with mechanical gears.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Control voltage, supply voltage and switching voltage 230 V. In addition electrically isolated universal voltage from 8 to 230 V UC. 3-wire and 4-wire circuits, resettable, with attic lighting if 4-wire circuit.

Automatic detection of the method of connection.

Glow lamp current up to 50 mA, dependent on the ignition voltage of the glow lamps.

Precise variable time range from 1 to 99 minutes.

Separate continuous light pushbutton with projecting SET button in the functions STS, ISO, IS and R.

With motion detector control input BM, which converts the input signal into a control impulse if the function STS is set. In this case the permanent light by pushbutton function is not active.

If the function STS is set, the lighting is switched on again after a power failure provided the set time has not yet elapsed.

The elapsed period is shown in the middle of the display. The set time flashes at the bottom edge of the display until the set period elapses. **The accrued switch-on time** is displayed there outside the elapsed time, first in hours (h), then in months (m) with 1 digit after the decimal point.

When the set time flashes but the elapsed time does not change, a control pushbutton is inhibited.

If switch-off early warning function is switched on, the light starts flickering in time variable from 10 to 50 seconds before time-out and is repeated three times at decreasing time intervals.

If permanent light by pushbutton is switched on, permanent light can be switched on by pressing the pushbutton longer than 1 second. This is switched off automatically after time variable from 0.5 to 10 hours or by pressing the pushbutton longer than 2 seconds. This function is not active at the BM input.

If both switch-off early warning function and permanent light by pushbutton are switched on, the switch-off early warning function is activated before the permanent light switches off.

If energy saving lamps are switched completely or partially, activate position 'ESL' in the menu guidance. This is indicated by a + sign next to the abbreviation for the function at the top of the display.

If the function STS is selected **the time can be extended** within the first second after switching on or resetting **by pressing the pushbutton repeatedly up to three times** (incrementing). Each momentary-contact control increments the set time once. This function is not active at the BM input.

With multifunction: Switchable to the functions **IS** (impulse switch), **R** (relay), **ISO** (impulse switch with off-delay) and **HC** (hour counter). After setting the required function, the function can be blocked. An arrow on the right of the abbreviation indicates the blocking status.

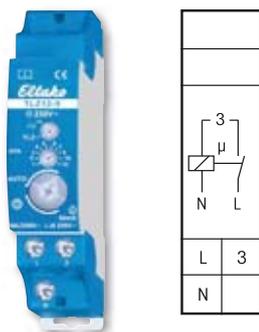
ISO: The impulse switch automatically disconnects after the set delay from 0.1 to 9.9 hours is timed out, provided there is no manual OFF command. Switch-off early warning, permanent light by pushbutton and ESL are also switchable if the function ISO is set.

HC: As long as the pushbutton input is excited, the + sign is indicated next to the abbreviation for the function HC at the top of the display. The time is added and indicated at the bottom of the display. Initially up to 9999 hours (h), then automatic change-over to months (m) each with 730 hours and display with 1 digit after the decimal point. The relay is not switched on if the function HC is set.

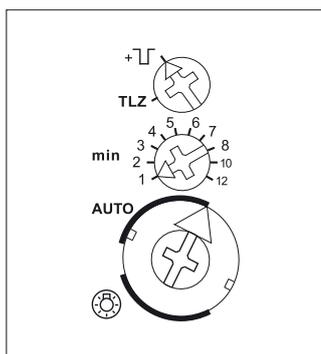
Menu guidance with selectable languages German, English or French as described in the attached operating instructions.

Technical data page 15-10.
Housing for operating instructions GBA14,
see accessories, chapter Z.

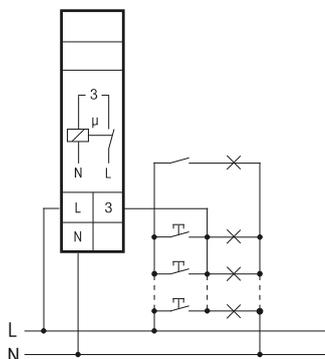
TLZ12D-plus	1 NO contact 16 A	EAN 4010312401712	51,00 €/pc.
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Function rotary switches



Typical connection



3-wire circuit with attic lighting, not resettable.

Technical data page 15-10.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

TLZ12-9



1 NO contact not potential free 16 A/250 V AC. Incandescent lamps up to 2300 W. Energy saving lamps ESL and LED lamps up to 100 W. Switch-off early warning switchable. Standby loss 0.7 watt only.

Modular device for DIN EN 50022 rail mounting. 1 module = 18 mm wide, 58 mm deep.
Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

The noiseless electronics do not even bother the sensitive ear - unlike many synchronous motors with mechanical gears.

By using a bistable relay coil power loss and heating is avoided even in the onmode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

230 V control voltage, supply voltage and switching voltage.

Glow lamp current up to 50 mA, dependent on the ignition voltage of the glow lamps.

Precise variable time range from 1 to 12 minutes, settable by minute scale.

Own permanent light switch with the big rotary switch.

3-wire circuit with attic lighting, not resettable. Only for retrofitting of existing systems.

After a power failure the lighting is switched on again in case the set time has not elapsed yet.

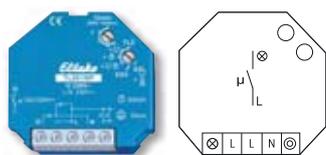
If switch-off early warning function is switched on the light starts flickering approx. 30 seconds before time-out and is repeated three times at decreasing time intervals.

⏏ = Switch-off early warning function

⏻ = Permanent light switched on (all click-stop positions)

AUTO = The set function is active (all click-stop positions)

TLZ12-9	1 NO contact 16 A	EAN 4010312401620	44,50 €/pc.
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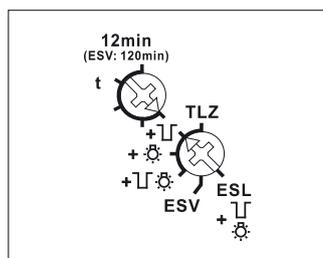


TLZ61NP-230V



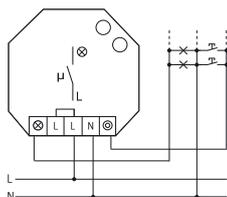
1 NO contact not potential free 10 A/250 V AC. Incandescent lamps up to 2000 W, energy saving lamps ESL and LED lamps up to 200 W. Switch-off early warning and permanent light by pushbutton switchable. Standby loss 0.7 watt only. With ESL optimisation.

Function rotary switches

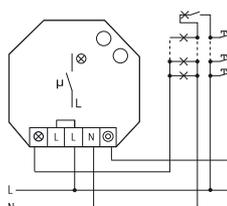


Standard setting ex works.

Typical connections



3-wire circuit, resettable.



4-wire circuit with attic lighting, resettable.

Technical data page 15-10.

Built-in device for installation. 45 mm long, 45 mm wide, 18 mm deep.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Control voltage, supply voltage and switching voltage 230 V. With infinitely variable time range from 1 to 12 minutes.

50 mA glow lamp current, dependent on the ignition voltage of the glow lamps.

3-wire and 4-wire circuits, resettable, with attic lighting if 4-wire circuit.

Automatic detection of the method of connection.

After a power failure the lighting is switched on again in case the set time has not elapsed yet.

If switch-off early warning function  **is switched on**, the light starts flickering approx. 30 seconds before time-out and is repeated three times at decreasing time intervals.

If permanent light by pushbutton  **is switched on**, permanent light can be switched on by pressing the pushbutton longer than 1 second. This is switched off automatically after 60 minutes or by pressing the pushbutton longer than 2 seconds.

If both switch-off early warning function and permanent light by pushbutton  are switched on, the switch-off early warning function is activated before the permanent light switches off.

When energy saving lamps ESL are completely or partially switched, then set the switch-off early warning with the pushbutton permanent light ESL on the lower rotary switch.

If the function TLZ is selected the **time** can be **extended** within the first second after switching on or resetting by pressing the pushbutton repeatedly up to three times (incrementing).

Each momentary-contact control increments the set time once.

The function **ESV**, impulse switch with release delay up to 120 minutes, can be selected optionally. If this function is set it is automatically disconnected after the set delay is timed out if a manual OFF command has not been given.

If the timing period is set to minimum in the function **ESV**, the release delay is switched off.

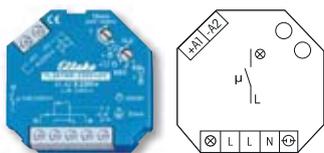
The standard impulse switch function **ES** is then set.

 = Switch-off early warning function

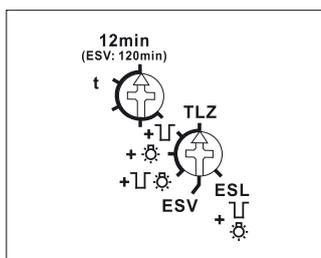
 = Permanent light by pushbutton

 = Switch-off early warning function and permanent light by pushbutton

TLZ61NP-230V	1 NO contact 10 A	EAN 4010312400791	42,90 € /pc.
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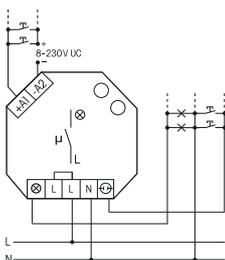


Function rotary switches

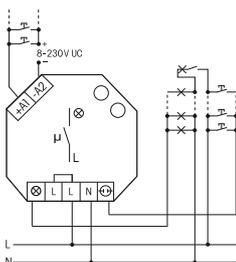


Standard setting ex works.

Typical connections



3-wire circuit, resettable



4-wire circuit with attic lighting, resettable

Technical data page 15-10.

TLZ61NP-230V+UC



1 NO contact not potential free 10 A/250 V AC. Incandescent lamps up to 2000 W, energy saving lamps ESL and LED lamps up to 200 W. Switch-off early warning and permanent light by pushbutton switchable. Standby loss 0.7 watt only. With ESL optimisation.

Built-in device for installation. 45 mm long, 45 mm wide, 18 mm deep.

Zero passage switching to protect contacts and lamps. This prolongs in particular the lifetime of energy saving lamps.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

Control voltage, supply voltage and switching voltage 230 V. In addition electrically isolated universal voltage from 8 to 230 V UC.

With infinitely variable time range from 1 to 12 minutes. 50 mA glow lamp current, dependent on the ignition voltage of the glow lamps.

3-wire and 4-wire circuits, resettable, with attic lighting if 4-wire circuit.

Automatic detection of the method of connection.

After a power failure the lighting is switched on again in case the set time has not elapsed yet.

If switch-off early warning function is switched on, the light starts flickering approx. 30 seconds before time-out and is repeated three times at decreasing time intervals.

If permanent light by pushbutton is switched on, permanent light can be switched on by pressing the pushbutton longer than 1 second. This is switched off automatically after 60 minutes or by pressing the pushbutton longer than 2 seconds.

If both switch-off early warning function and permanent light by pushbutton are switched on, the switch-off early warning function is activated before the permanent light switches off.

When energy saving lamps ESL are completely or partially switched, then set the switch-off early warning with the pushbutton permanent light ESL on the lower rotary switch.

If the function TLZ is selected the **time** can be **extended** within the first second after switching on or resetting by pressing the pushbutton repeatedly up to three times (incrementing).

Each momentary-contact control increments the set time once.

The function **ESV**, impulse switch with release delay up to 120 minutes, can be selected optionally. If this function is set it is automatically disconnected after the set delay is timed out if a manual OFF command has not been given.

If the timing period is set to minimum in the function **ESV**, the release delay is switched off.

The standard impulse switch function **ES** is then set.

☐ = Switch-off early warning function

☼ = Permanent light by pushbutton

☐☼ = Switch-off early warning function and permanent light by pushbutton

TLZ61NP-230V+UC	1 NO contact 10A	EAN 4010312400739	45,90 €/pc.
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TECHNICAL DATA STAIRCASE TIME SWITCHES

Type	TLZ12-8plus ^{b)} TLZ12D-plus ^{b)}	TLZ12G	TLZ12-8 TLZ12-9 ^{b)}	TLZ61NP ^{b)} TLZ61NP+UC ^{b)}
Contacts				
Contact material/contact gap	AgSnO ₂ /0.5 mm	Opto-Triac	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm
Spacing of control connections/contact	3 mm	3 mm	3 mm	3 mm
Spacing of control connections C1-C2 or A1-A2/contact	6 mm	6 mm	-	6 mm
Test voltage control connection/contact	2000 V	-	2000 V	2000 V
Test voltage C1-C2 or A1-A2/contact	4000 V	4000 V	-	4000 V
Rated switching capacity	16 A/250 V AC	up to 400 W	16 A/250 V AC	10 A/250 V AC
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/10 ms	2300 W	up to 400 W	2000 W TLZ12-9: 2300 W	2000 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	1000 VA	-	500 VA TLZ12-9: 1000 VA	1000 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	up to 400 VA	500 VA	500 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	up to 200 W ²⁾	up to 400 W ²⁾	up to 100 W ²⁾	up to 200 W ²⁾
230 V LED lamps	up to 200 W ²⁾ I on ≤ 120 A / 5 ms	up to 400 W ²⁾ I on ≤ 120 A / 20 ms	up to 100 W ²⁾ I on ≤ 30 A / 20 ms	up to 200 W ²⁾ I on ≤ 120 A / 5 ms
Life at rated load, cos φ = 1 or for incandescent lamps 1000 W at 100/h	> 10 ⁵	∞	> 10 ⁵	> 10 ⁵
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	∞	> 4x10 ⁴	> 4x10 ⁴
Max. operating cycles	10 ³ /h	10 ³ /h	10 ³ /h	10 ³ /h
Maximum conductor cross-section (3-fold terminal)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	4 mm ²
Two conductors of same cross-section (3-fold terminal)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	1.5 mm ²
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP30/IP20
Electronics				
Time on	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (activ power)	0.7 W; TLZ12D-plus: 0.5 W	0.4 W	0.7 W	0.7 W
Control current local at 230 V (<10 s) ± 20%	5(100) mA	5(100) mA	5(100) mA	5(100) mA
Control current universal control voltage 8/12/24/230 V (<10 s) ± 20%	2/4/9/5(100) mA	2/4/9/5(100) mA	-	2/4/9/5(100) mA (nur TLZ61NP+UC)
Max. parallel capacitance (approx. length) of individual control lead at 230 V AC	0.06 μF (200 m) C1/C2: 0.9 μF (3000 m)	0.9 μF (3000 m)	0.06 μF (200 m)	0.06 μF (200 m) A1-A2: 0.3 μF (1000 m)

* EVG = electronic ballast units; KVG = conventional ballast units

^{b)} Bistable relay as relay contact. The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

¹⁾ Applies for lamps with max. 150 W.

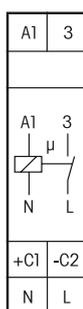
²⁾ Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. Due to differences in the lamps electronics, there may be a restriction on the maximum number of lamps; especially if the connected load is very low (for 5 W-LEDs).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

THE FRESH AIR PROFESSIONALS

Fresh air in the bathroom with the professional off-delay timers NLZ, also known as off-delay relay. Accurate timing is self-evident for this electronic device as well as noiseless operation. The off-delay timers with universal voltage offer additional appli-

cations as here even different potentials for switch and fan can be applied. The NP types have a settable operate delay up to 12 minutes.



NLZ12NP-230V+UC



1 NO contact not potential free 16 A/250 V AC. Standby loss 0.5 watt only.

Modular device for DIN EN 60715 TH35 rail mounting.
1 module = 18 mm wide, 58 mm deep.

Zero passage switching to protect contacts and consumers.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

Control, supply and switching voltage 230 V. Additionally 8 to 230 V UC electrically isolated universal control voltage.

Very low switching noise.

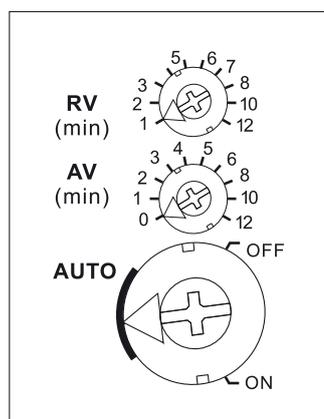
Off-delay time settable from 1 to 12 min with the top rotary switch. Operating delay settable from 0 to 12 minutes with the middle rotary switch. Permanent ON and permanent OFF with the bottom rotary switch.

Function: When the control contact (light switch) is closed the operate delay AV starts (if not set '0 minutes'), on time-out the fan is switched on. The set release delay RV (delay time) starts when the control contact opens and if a set operating delay has elapsed.

The fan switches off on time-out.

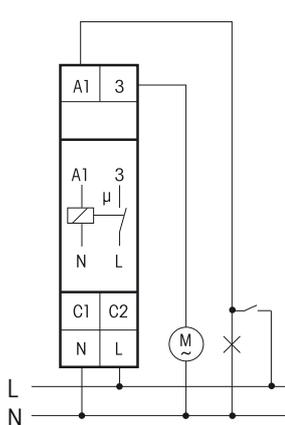
This off-delay timer can be controlled by all dimmer switches EUD12 and EUD61 even in the minimum dimming position.

Function rotary switches

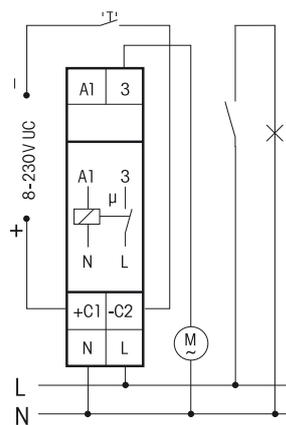


RV = release delay (delay time)
AV = operating delay

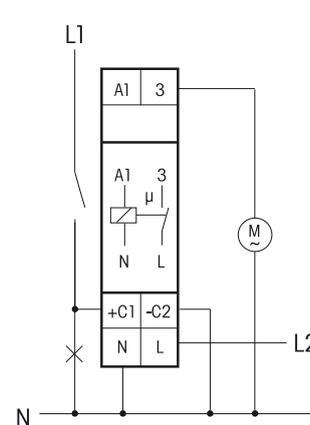
Typical connections



Fan control through light switch



Fan control through ultra low voltage door contact, light is controlled separately

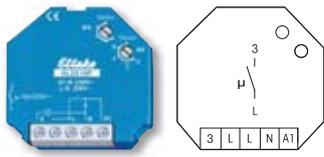


Fan control through light switch in case of different potentials on switch and fan

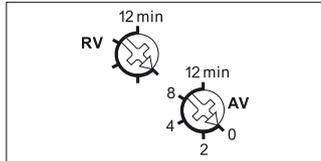
Technical data page 15-13.
Housing for operating instructions GBA14, see accessoires, chapter Z.

NLZ12NP-230V+UC	1 NO contact 16 A	EAN 4010312602911	45,00 €/pc.
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OFF-DELAY TIMER NLZ61NP-230V AND NLZ61NP-UC

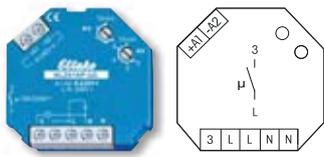
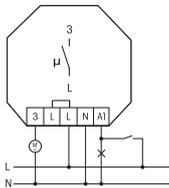


Function rotary switches

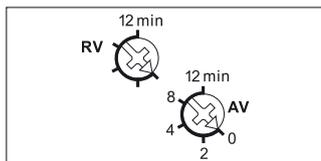


Standard setting ex works.

Typical connection



Function rotary switches



Standard setting ex works.

NLZ61NP-230V



1 NO contact not potential free 10 A/250 V AC. Standby loss 0.7 watt only.

Built-in device for installation.

45 mm long, 45 mm wide, 18 mm deep.

Zero passage switching to protect contacts and consumers.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

230 V control voltage, supply voltage and switching voltage.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

The top rotary switch varies the off-delay time from 1 to 12 minutes.

Operating delay settable from 0 to 12 minutes with the lower rotary switch.

Function: When the control contact (light switch) is closed the operating delay AV starts (if not set '0 minutes'), on time-out the fan is switched on. The set release delay RV (delay time) starts when the control contact opens and if a set operating delay has elapsed. The fan switches off on time-out.

NLZ61NP-230V	1 NO contact 10A	EAN 4010312603185	42,90 €/pc.
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NLZ61NP-UC



1 NO contact not potential free 10 A/250 V AC. Standby loss 0.7 watt only.

Built-in device for installation. 45 mm long, 45 mm wide, 18 mm deep.

Zero passage switching to protect contacts and consumers.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

8 to 230 V UC universal control voltage, electrically isolated from the 230 V supply voltage and switching voltage.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

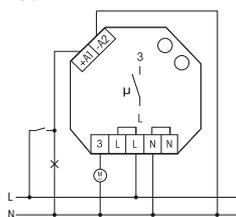
The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated. The top rotary switch varies the off-delay time from 1 to 12 minutes.

Operating delay settable from 0 to 12 minutes with the lower rotary switch.

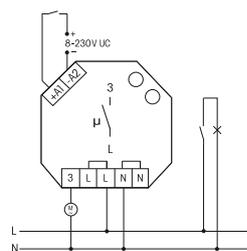
Function: When the control contact (light switch) is closed the operating delay AV starts (if not set '0 minutes'), on time-out the fan is switched on. The set release delay RV (delay time) starts when the control contact opens and if a set operating delay has elapsed. The fan switches off on time-out.

This off-delay timer can be controlled by all dimmer switches EUD12 and EUD61 even in the minimum dimming position.

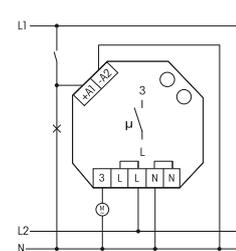
Typical connections



Fan control through light switch



Fan control through ultra low voltage door contact, light is controlled separately



Fan control through light switch in case of different potentials on switch and fan

NLZ61NP-UC	1 NO contact 10A	EAN 4010312603048	44,50 €/pc.
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Technical data page 15-13.

Recommended retail prices excluding VAT.

Type	NLZ12NP	NLZ61NP-230V ^{b)} NLZ61NP-UC ^{b)}
Contacts		
Contact material/contact gap	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm
Spacing of control connections/contact Spacing of control connections C1-C2 or A1-A2/contact	3 mm 6 mm	3 mm 6 mm
Test voltage control connection/contact Test voltage C1-C2 or A1-A2/contact	2000 V 4000 V	2000 V 4000 V
Rated switching capacity	16 A/250 V AC	10 A/250 V AC
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/10 ms	2300 W	2000 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	1000 VA	1000 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	500 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	up to 200 W ²⁾	up to 200 W ²⁾
230 V LED lamps	up to 200 W ²⁾ I on ≤ 30 A/20 ms	up to 200 W ²⁾ I on ≤ 120 A/5 ms
Life at rated load, cos φ = 1 or for incandescent lamps 1000 W at 100/h	> 10 ⁵	> 10 ⁵
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	> 4x10 ⁴
Max. operating cycles	10 ³ /h	10 ³ /h
Maximum conductor cross-section (3-fold terminal)	6 mm ² (4 mm ²)	4 mm ²
Two conductors of same cross-section (3-fold terminal)	2.5 mm ² (1.5 mm ²)	1.5 mm ²
Screw head	slotted/crosshead, pozidriv	slotted/crosshead
Type of enclosure/terminals	IP50/IP20	IP30/IP20
Electronics		
Time on	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C
Standby loss (activ power)	0.5 W	0.7 W
Control current local at 230 V (<10 s) ± 20%	2 mA	1 mA
Control current universal control voltage 8/12/24/230 V (<10 s) ± 20%	2/4/9/5(100)mA	2/4/9/5(100)mA
Max. parallel capacitance (approx. length) of individual control lead at 230 V AC	0,06 μF (200 m) C1/C2: 0.9 μF (3000 m)	0.06 μF (200 m) A1-A2: 0.3 μF (1000 m)

* EVG = electronic ballast units; KVG = conventional ballast units

^{b)} Bistable relay as relay contact. The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

¹⁾ Applies for lamps with max. 150 W.

²⁾ Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. Due to differences in the lamps electronics, there may be a restriction on the maximum number of lamps; especially if the connected load is very low (for 5 W-LEDs).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

**EGS61Z-
MSR12-
EGS12Z-
MS**



**CABLE-BOUND SHADING SYSTEMS AND
ROLLER SHUTTER CONTROL - THE MODULAR
APPROACH FOR THE ELECTRICAL TRADE.**

Cable-bound shading systems and roller shutter control

Shading systems and roller shutter control	16 - 2
Multi sensor MS, rain sensor RS, light sensor LS and wind sensor WS	16 - 3
Multifunction sensor relay MSR12-UC	16 - 4
Digital settable sensor relay LRW12D-UC	16 - 5
Impulse group switch EGS12Z-UC for central control	16 - 6
Impulse group switch EGS12Z2-UC for central control	16 - 7
Motor isolating relay MTR12-UC and DC motor relay DCM12-UC	16 - 7
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Typical circuit example of a roller shutter control and shading system control	16 - 12
Typical circuit examples of a roller shutter control	16 - 13

THE MODULAR APPROACH FOR THE ELECTRICAL TRADE

Planning and realisation of a shading system or roller shutter control are classical tasks for the electrical installer.

Eltako has developed a well thought-out modular system of control devices and switchgear for mounting in switch cabinets and distribution boards.

The modular approach has been chosen to provide a control or switch-gear device (module) for any desired function match the overall system, typically permitting an individual awning to be controlled as perfectly as a large system which comprises dozens of shutters, awnings, Venetian blinds, etc.

Any assignment of control devices to the switchgear devices can be chosen, and provision is made for easy modifications, retrofitting and expansion, "bit by bit".

There are four groups of devices:

1. Sensors

Sensors serve to detect the actual situation. A light sensor, for example, measures brightness and generates a control voltage as a function of it.

2. Sensor relays

Sensor relays serve to convert the sensor-produced actual signals to control signals as a function of practical set points, whilst logic operations are performed and faulty sensors detected.

3. Actuators

Actuators serve to control the motors of shading systems and roller shutters. These are group impulse switches in hybrid technology with central control functions and possibly motor isolating relays or DC motor relays.

4. Accessories

Switching power supply units for the power supply of the multi sensor and the multifunction sensor relay as well as for the heating of the rain sensors are available as accessories.

Sensors, page 16-3	Sensor relays, page 16-4 and 16-5	Actuators, page 16-6 to 16-9
Multi sensor MS	Multifunction sensor relay MSR12-UC for brightness, twilight, wind, rain and frost	Group impulse switch EGS12Z-UC
Rain sensor RS	Light-twilight-rain-wind sensor relay LRW12D for light, twilight and wind	Group impulse switch EGS12Z2-UC
Light sensor LS		Group impulse switch EGS61Z
Wind sensor WS		Motor isolating relay MTR12-UC and MTR61
		DC motor relay DCM12-UC

The principle of overall control is quite simple: each shading element or its motor is controlled by an actuator that receives commands via sensors and, where fitted, sensor relays.

A complete Control System consists (as the smallest unit) of a switch or momentary contact switch controlled EGS12Z-UC group impulse switch for one motor. The largest unit comprises any number of sensors and sensor relays as well as any number of impulse group switches EGS12Z-UC and EGS12Z2-UC with or without motor isolating relay MTR12 and DC motor relay DCM12-UC to control the motors.



MS

Multi sensor

The MS multi sensor sends the current weather details, including brightness (from three points of the compass), wind, rain and frost, to the multifunction sensor relay MSR12-UC connected in series once per second. A standard telephone wire is sufficient as connecting lead: J-Y(ST)Y 2x2x0.8 or equivalent. 100 m line length is permitted. Solid plastic housing, l x w x h = 118x96x77 mm. Protection degree IP44. Temperature at mounting location -30°C to +50°C. A power supply unit SNT12-230V/24V DC (chapter 17) is required for the power supply, including heating of the rain sensor. This is only 1 module = 18 mm wide and it also it supplies the multifunction sensor relay MSR12-UC (page 16-4). Several MSR12-UC can be connected to a multisensor MS, e.g. for evaluating up to three directions with the light sensor of the MS.

MS	Multi sensor	EAN 4010312901731	251,50 €/pc.
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RS

Rain sensor

The rain sensor RS reports rain to the sensor relay LRW12D connected in series once per second. A standard telephone wire is sufficient as connecting lead: J-Y(ST)Y 2x2x0.8 or equivalent. 100 m line length is permitted. Solid plastic housing, l x w x h = 118x96x77 mm. Protection degree IP44. Temperature at mounting location -30°C to +50°C. A power supply unit SNT61-230V/24V DC or SNT12-230V/24V DC (chapter 17) is required for the power supply, including heating of the rain sensor (1.2 W). An LED lights up green when the supply voltage is applied and lights up yellow for rain.

RS	Rain sensor	EAN 4010312206546	116,40 €/pc.
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LS

Light sensor

The LS light sensor generates a voltage dependent on light intensity by means of a photo resistor. This voltage is evaluated in a LRW12D universal sensor relay connected in series. Solid plastic housing, l x w x h = 38x28x95 mm, Protection degree IP54. Temperature at mounting location -20°C to +60°C. Mounting with the supplied screw and nut on the accompanying aluminum mounting bracket or directly on the plastic mounting bracket KM1 of the wind sensor WS. Maximum diameter of the measuring cable (not included in the scope of supply) 5 mm.

LS	Light sensor	EAN 4010312901267	29,70 €/pc.
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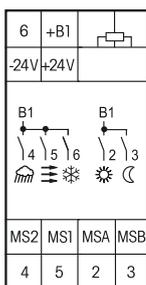


WS

Wind sensor

The WS wind sensor provides a sequence of pulses as a function of the wind vane speed. This pulse sequence is evaluated in a LRW12D universal sensor relay connected in series. Solid plastic housing, 125 mm dia. x117 mm high. Protection degree IP54. Temperature at mounting location -15°C to +60°C. For mounting, use KM1 plastic mounting bracket that comes with the device. With 5-metre measuring lead connected.

WS	Wind sensor	EAN 4010312901281	63,60 €/pc.
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MSR12-UC

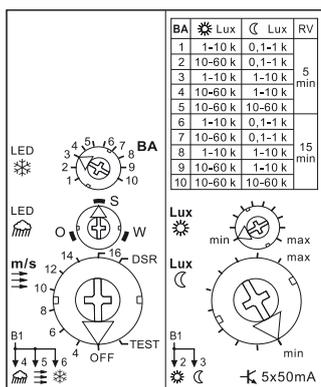


Multifunction sensor relay for brightness, twilight, wind, rain and frost, 5 OptoMOS semiconductor outputs 50 mA/8..230 V UC. Standby loss without Multi sensor MS 0.5 watt only.

Modular device for DIN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep. The multi-sensor relay MSR12-UC evaluates the signals from the multisensor MS once per second, and sends appropriate control signals to the downstream EGS12Z-UC or EGS12Z2-UC actuators depending on the setting of the rotary switch on the front.

The OptoMOS semiconductor outputs switch the voltage applied to the universal voltage input terminal +B1. Only a single Multisensor MS can be connected to a Multifunction sensor relay MSR12-UC. Several MSR12-UC can be connected to a multisensor MS, e.g. for evaluating up to three directions with the light sensor of the MS. Only a single MSR12-UC must provide the outer terminal resistance. It must be removed if there is a further MSR12-UC. Supply voltage 24 V DC from power unit SNT12-230V/24V DC (chapter 17). This power unit simultaneously supplies the multisensor MS connected to the terminals MS1, MS2, MSA and MSB, including heating of the rain sensor surface. After installation wait for the short automatic synchronisation of approx. 1 minute. During this process three LEDs flash in a slow sequence.

Function rotary switches



Standard setting ex works.

Function rotary switches

BA = Setting the operating modes 1 to 10 from the adjacent table. 2 delay times RV - for wind and twilight - each in connection with 5 brightness ranges for light and twilight. The LED behind the rotary switch indicates Frost when the outdoor temperature drops below 2°C, at which point output 6 closes. This output opens again as soon as the temperature is over 3°C for 5 minutes.

O-S-W = If the Multisensor MS is aligned towards the south, the weighting for light and twilight can be shifted towards the east or west. If the MS is mounted in a different direction, the desired point of the compass can be set using this rotary switch. An LED behind the rotary switch indicates **rain detection**, at which point output 4 closes. Once the rain sensor surface dries out - assisted by a heating unit - contact 4 opens immediately. This is automatically followed by a 2-second pulse on output 2 if the sun signal is applied at that moment.

m/s = This rotary switch is used to select the wind speed in metres per second at which the **wind signal** is triggered. This closes output 5. This is indicated by the LED behind the rotary switch. Opening takes place after the set delay time RV, during which the LED flashes. This is automatically followed by a 2-second pulse on output 2 if the sun signal is applied at that moment.

DSR = In this position of the wind rotary switch the MSR12-UC functions like a twilight sensor relay. The twilight signal as described under **Lux ☾** is then continuously applied to output 3 as long as the set twilight value is undershot. Output 3 opens with a delay of 5 minutes if the brightness value set is overshot. The outputs 4 (rain) and 6 (frost) remain active as described there. Output 5 (wind) likewise remain active, but the wind signal is triggered at 10 m/s.

TEST = As long as TEST remains switched on, each switchover from the OFF position to the TEST position activates the outputs 2 to 6 in ascending order.

OFF = In the OFF position the MSR12-UC has no function.

Lux ☾ = This rotary switch is used to set the brightness at which the sun signal is immediately triggered as a 2-second pulse at output 2. The LED behind the rotary switch indicates when the brightness value is exceeded.

Lux ☀ = This rotary switch is used to set the brightness at which the 2-second twilight signal is triggered at output 3 after the set delay time RV when the value is undershot. This is indicated by the LED behind the rotary switch. It flashes during the delay time. If the twilight switching threshold is set to the same level or higher than the sun switching threshold, then the sun switching threshold is raised internally above the twilight switching threshold.

Changing light compensation: Constant changes between sun and rain clouds would result in sensitive closing and opening of the shade elements. This is prevented by a changing light compensation function.

Sensor function and open circuit monitoring: The Multisensor MS sends updated information to the MSR12-UC every second. If this signal is missing completely for 5 seconds, or if the individual signal from the wind sensor is missing for 24 hours, then an alarm is triggered: three LEDs flash rapidly and the wind output 5 is closed for 2 seconds in order to protect any awnings or windows which may be connected here. This pulse is repeated every hour. The alarm is turned off automatically when a signal is detected again.

Technical data page 16-10.
Typical connections page 16-11.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

MSR12-UC	5 OptoMOS	EAN 4010312205327	94,50 €/pc.
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+B1	-A2
LS	GND WS
Field 1	
Field 2	
Field 3	
5	4 RS
2	3

LRW12D-UC



**Light-twilight rain wind sensor relay, 4 OptoMOS semiconductor outputs 50 mA/8..230 V UC.
Standby loss 0.05-0.5 watt only.**

Modular device for DIN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.
Supply voltage 8 to 230 V UC.

The sensor relay LRW12D evaluates the signals from the light sensor LS, the rain sensor RS and the wind sensor WS and sends appropriate control signals to the downstream EGS12Z-UC or EGS12Z-UC actuators depending on the setting via the display on the front panel.

The OptoMOS semiconductor outputs switch the voltage applied to the universal voltage input terminal +B1. A light sensor LS, rain sensor RS and wind sensor WS can be connected to a sensor relay LRW12D.

However, only one per sensor.

If one or two of the three possible sensors are not connected, OFF has to be selected in the function menu for the relevant sensor.

However, at a wind sensor WS several LRW12D can be connected for controlling different wind speeds.

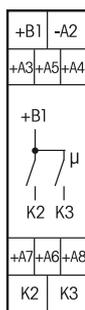
Then the LRW12D must be connected to the same potential +B1/-A2.

When the supply voltage UC (8-253 V AC or 10-230 V DC) is applied to B1/A2, the LRW12D can be set as described in the operating instructions.

Technical data page 16-10.
Typical connections page 16-12.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

LRW12D-UC	4 OptoMOS	EAN 4010312206553	68,60 €/pc.
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IMPULSE GROUP SWITCH EGS12Z-UC FOR CENTRAL CONTROL



EGS12Z-UC



Impulse group switch for central control, 1+1 NO contacts not potential free 16 A/250 V AC, for 1 motor or motor relays. Standby loss 0.05-0.4 watt only.

Modular device for DIN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.

This impulse group switch serves to implement commands generated by the sensor relays or by switches and push-buttons and controls a motor, a motor isolating relay MTR12-UC or a DC motor relay DCM12-UC dependent on the setting of the rotary switch on the front. 8 to 230 V UC supply voltage and switching voltage at terminals +B1/-A2. The control voltage at terminals A3 up to A8 must have an identical potential.

The function of this electronic group impulse switch is based on the principle that, on the one hand, impulse control is used to obtain UP-Stop-DOWN-Stop (contact 1 closed - both contacts open - contact 2 closed - both contacts open) and, on the other hand, additional control inputs can be used to select UP or DOWN as desired. **Dynamic** refers to control inputs for which one impulse of not less than 20 milliseconds is sufficient to close a contact. **Static** denotes a control input for which the contact is only closed as long as the control command is applied. UP and DOWN apply to roller shutters, Venetian blinds and roller blinds. For awnings, 'UP' = retract and 'DOWN' = extend. For windows 'UP' = open and 'DOWN' = close.

Function rotary switches

AUTO 1 = When the lower rotary switch is in this position, the local advanced automatic reversing system for Venetian blinds is activated. When a push-button connected to A3+A4 (connected with a bridge) or A5/A6 connected to a dual push-button are used for local control a double impulse activates a slow rotation in the opposite direction, which can be stopped with a further impulse.

AUTO 2 = When the lower rotary switch is in this position, the local advanced automatic reversing system for Venetian blinds is completely switched off.

AUTO 3 = When the lower rotary switch is in this position, the local advanced automatic reversing system for Venetian blinds is switched off as well. The central control inputs A5 and A6 though, which are dynamic at AUTO 1 and AUTO 2, **are static at first, thus, allow reversal of Venetian blinds by operating pushbuttons.**

They only switch to dynamic after 1 second continuous operation.

▲▼ = ▲ (UP) and ▼ (DOWN) of the lower rotary switch are the positions for **manual control**. Manual control has priority over all other control commands.

WA = Automatic reversal for Venetian blinds and awnings is controlled by means of the middle rotary switch. 0 = OFF, otherwise from 0.1 to 5 seconds ON with selected reversal time. In this case, it is only for DOWN that the direction is reversed on time-out of the time lag selected by means of the top rotary switch, e.g. to extend awnings or set Venetian blinds to a defined position.

RV = The time delay (delay time RV) is set by means of the top rotary switch. If, the group impulse switch is in the UP or DOWN position the selected delay time runs (elapses); at time-out the device changes automatically to STOP. Therefore, the time delay must be chosen at least as long as the shading element or roller shutter will need to move from one limit position to the other. The LED indication for the delay times WA and RV is located behind this rotary switch.

Local control with pushbutton connected to terminals A3+A4 (to be connected with a bridge). Each impulse causes the group impulse switch to change its position in the UP-Stop-DOWN-Stop sequence.

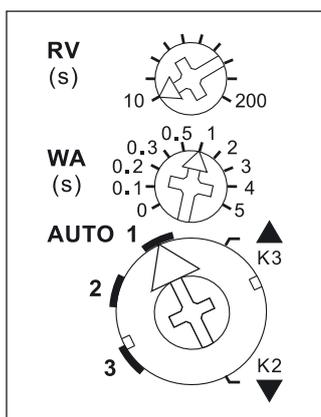
Local control with roller shutter toggle switch connected to terminals A3 and A4.

Local control with dual roller shutter pushbutton connected to A5 and A6. The 'UP' or 'DOWN' position is activated with an impulse by pushbutton. A further impulse from one of the two push-buttons stops the sequence immediately.

Central control dynamic without priority connected to terminals A5 (UP) and A6 (DOWN). Up or DOWN is activated by a control signal. A further control signal (<700ms) at this control input interrupts this process immediately, a further control signal (>700ms) continues the process. **This is without priority** because the local input A3+A4 (with bridge) and the central control inputs A7 and A8 can immediately override even whilst the control contact on A5 or A6 is still closed.

Central control dynamic with priority connected to terminals A7 (UP) and A8 (DOWN). **With priority** because these control inputs cannot be overridden by other control inputs **as long as** the central control contact is closed. Otherwise it has the same function as the central control dynamic without priority. These central control inputs A7 and A8 are used for the sensor relays MSR12 and LRW12D for the wind sensor, the frost sensor and the rain sensor functions as these are required to have absolute priority over other sensor commands.

Function rotary switches

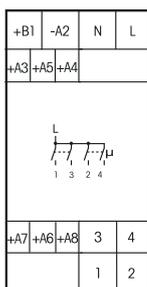


Standard setting ex works.

Technical data page 16-10.
Housing for operating instructions GBA14,
see accessories, chapter Z.

EGS12Z-UC	1 + 1 NO contacts 16 A	EAN 4010312107737	64,60 €/pc.
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IMPULSE GROUP SWITCH EGS12Z2-UC FOR CENTRAL CONTROL, MOTOR ISOLATING RELAY MTR12-UC AND DC MOTOR RELAY DCM12-UC



Technical data page 16-10.
Typical connections page 16-12.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

EGS12Z2-UC



Impulse group switch for central control, 2+2 NO contacts not potential free 5 A/250 V AC, for two 230 V-motors. Standby loss 0.05-0.9 watt only.

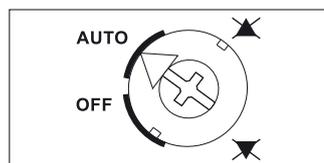
Modular device for DIN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep.
Supply voltage 8..230 V UC at terminals +B1/-A2. The control voltage at terminals A3 up to A8 must have an identical potential. This impulse group switch serves to implement commands generated by the sensor relays or by switches and pushbuttons and controls two 230 V motors according to the setting of the rotary switches on the front. 1/2 = motor 1, 3/4 = motor 2.

The mode of operation corresponds completely to the impulse group switch EGS12Z-UC on page 16-6 in which a MTR12-UC as described below is integrated.

EGS12Z2-UC	2 + 2 NO contacts 5 A	EAN 4010312108031	87,40 €/pc.
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Function rotary switch



MTR12-UC and DCM12-UC

Technical data page 16-10.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

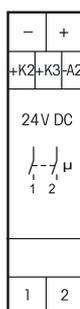
MTR12-UC



Motor isolating relay, 2+2 NO contacts not potential free 5 A/250 V AC for one or two 230 V-motors. Standby loss 0.5 watt only.

Modular device for DIN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.
Universal control voltage 8..230 V UC. 230 V supply voltage.
The tube-mounted motors of shading elements and roller shutters must not be connected in parallel, or reverse voltages will occur through the limit switches, ultimately causing failure of the motors.
For one motor and if the control voltage and the motor voltage are 230 V, one EGS12Z-UC is adequate. Where more than one motor is controlled by an EGS12Z-UC or in case the control voltage is different, one MTR12-UC must be connected to two motors. It must be remembered that the MTR12-UC devices, while they can be operated in parallel, require unassigned contact outputs K2/K3 of the controlling EGS12Z-UC. These have to be connected to terminals K2/K3 of the MTR12-UC. 1/2 = motor 1, 3/4 = motor 2.
The functions UP and DOWN may be blocked or switched off entirely by a rotary switch. This block applies only to the max. 2 connected motors. Therefore single shading elements or roller shutters can be completely or partially excepted from the automatic function of an over-all control.

MTR12-UC	2 + 2 NO contacts 5 A	EAN 4010312205211	62,50 €/pc.
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Technical data page 16-10.
Housing for operating instructions GBA14,
see accessoires, chapter Z.

DCM12-UC

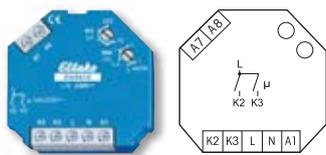


DC motor relay, 2 NO contacts not potential free 24 V DC/90 watt, for one 24 V DC motor. Standby loss 0.07 watt only.

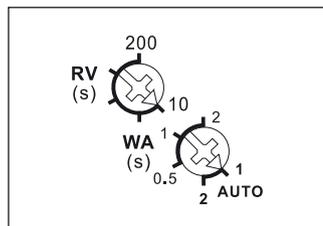
Modular device for DIN 60715 TH35 rail mounting. 1 module = 18 mm wide, 58 mm deep.
Universal control voltage 8..230 V UC. 24 V DC supply voltage.
The DCM12-UC can be operated in parallel, but they require unassigned contact outputs K2/K3 of the controlling EGS12Z-UC. These have to be connected to terminals K2/ K3 of the DCM12-UC.
The functions UP and DOWN may be blocked or switched off entirely by a rotary switch. This block applies only to the 1 connected motor. Therefore single shading elements or roller shutters can be completely or partially excepted from the automatic function of an over-all control.

DCM12-UC	2 NO contacts 90 W	EAN 4010312205310	60,80 €/pc.
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IMPULSE GROUP SWITCH EGS61Z-230V FOR CENTRAL CONTROL

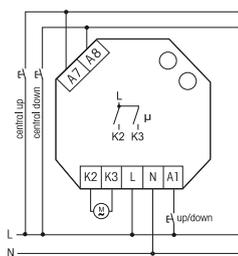


Function rotary switches

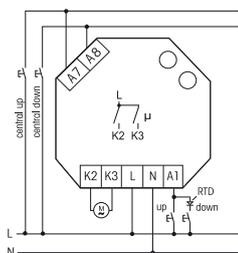


Standard setting ex factory.

Typical connection UT



Typical connection RT



Technical data page 16-10.

EGS61Z-230V



Impulse group switch for central control, 1+1 NO contacts not potential free 10 A/250 V AC, for one 230 V AC motor. Standby loss 0.4 watt only.

For installation. 45 mm long, 45 mm wide, **32 mm deep.**

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

This impulse group switch serves to implement commands generated by the sensor relays or by switches and push-buttons and controls a 230 V motor for a shading element or a roller shutter.

Control, supply and switching voltage 230 V.

The same control voltage must be supplied to A1, A7 and A8 as to L.

By using bistable relays coil power loss and heating is avoided even in the on mode.

The switched consumer may not be connected to the mains before the short automatic synchronisation after installation has terminated.

A universal pushbutton connected to control input A1 controls the pulse signals for 'up, stop, down, stop'.

As of production week 25/18, a direction pushbutton for 'down' can be connected via the diode RTD (any polarity). Another direction pushbutton for 'up' is connected directly to A1. On the first control pulse 'down', EGS61Z switches over the control input A1 to 'direction pushbutton'. To switch the control input back to 'universal pushbutton', briefly switch off the power supply and switch back on. Additional control inputs A7 and A8 can be used for central control UP or DOWN with priority.

With priority because these control inputs cannot be overridden by other control inputs **as long as** the central control contact is closed. Up or DOWN is activated by a control signal. A further control signal (< 700 ms) at this control input interrupts this process immediately, a further control signal (> 700 ms) continues the process.

The time delay (delay time RV) is set by means of the rotary switch **RV**. If, the group impulse switch is in the UP or DOWN position the selected delay time runs (elapses); at time-out the device changes automatically to STOP. Therefore, the time delay must be chosen at least as long as the shading element or roller shutter will need to move from one limit position to the other.

With the rotary switch **WA** automatic reversal is controlled: in the setting from 0.5 to 2 sec. reversal time the automatic reversal is activated. In this case, it is only for DOWN that the direction is reversed on time-out of the time lag selected by means of the top rotary switch RV, e.g. to extend awnings or set Venetian blinds to a defined position.

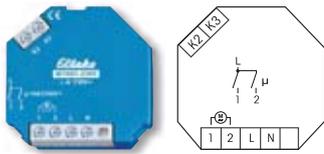
AUTO 1: No automatic reversal and no local advanced automatic reversing system.

A7 and A8 operation < 1s → static process (contact closes only during operation)

operation > 1s → dynamic process (contact remains closed), stop command by new operation.

AUTO 2: Automatic reversal with 1s reversal time. Additionally the local advanced automatic reversing system for Venetian blinds at A1 is active: a double impulse activates a slow rotation in the opposite direction, which can be stopped with a further impulse.

RTD	Direction pushbutton diode	EAN 4010312908273	2,20 €/pc.
EGS61Z-230V	1+1 NO contacts 10 A	EAN 4010312108123	59,50 €/pc.



MTR61-230V



Motor isolating relay, 1+1 NO contacts not potential free 10 A/250 V AC, for one 230 V AC motor. Standby loss 0.4 watt only.

For installation. 45 mm long, 55 mm wide, **32 mm deep.**

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

This actuator implements the instructions of the EGS61Z and switches a 230 V motor for a shading element or a roller shutter at 1-2. Therefore connect the motor connections K2-K3 of the EGS61Z with the K2-K3 connections of one or several MTR61.

Control, supply and switching voltage 230 V.

Technical data page 16-10.

MTR61-230V	1 + 1 NO contacts 10 A	EAN 4010312206577	56,20 €/pc.
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TECHNICAL DATA SHADING SYSTEMS AND ROLLER SHUTTER CONTROL

Type	EGS12Z ^{b)}	EGS12Z2 ^{b)}	EGS61Z ^{b)} MTR61 ^{b)}	LRW12D/MSR12 ¹⁾	MTR12/DCM12
Contacts					
Contact material/contact gap	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	OptoMOS	AgSnO ₂ /0.5 mm
Spacing of control connections/contact	3 mm	3 mm	3 mm	3 mm/6 mm	3 mm
Test voltage as per VDE 0110 control connection/contact	2000 V	2000 V	2000 V	LRW12D: 2000 V MSR12: 4000 V	2000 V
Rated switching capacity	16 A/250 V AC	5 A/250 V AC	10 A/250 V AC	50mA/8..230 V UC	5 A/250 V AC DCM: 90 W
Inductive load cos φ = 0.6/230 V AC inrush current ≤ 35 A	650 W	650 W ²⁾	650 W	-	MTR12: 650 W ²⁾
Life at rated load, cos φ = 0.6	>4x10 ⁴	>4x10 ⁴	>4x10 ⁴	-	>4x10 ⁴
Switch position indication	WA and RV	WA and RV	-	LRW12D: Display MSR12: LED	LED
Maximum conductor cross-section (3-fold terminal)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	4 mm ²	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)
Two conductors of same cross-section (3-fold terminal)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	1.5 mm ²	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)
Screw head	slotted /cross-head, pozidriv	slotted /cross-head, pozidriv	slotted /cross-head	slotted /crosshead, pozidriv	slotted /cross-head, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP30/IP20	IP50/IP20	IP50/IP20
Electronics					
Time on (also for central on/off)	100%	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (active power) at 230 V	0.4 W	0.9 W	0.4 W	LRW12D: 0.5 W MSR12: -	MTR12: 0.5 W
Standby loss (active power) at 24 V	0.1 W	0.1 W	-	LRW12D: 0.1 W MSR12: 0.5 W	DCM12: 0.07 W
Standby loss (active power) at 12 V	0.05 W	0.05 W	-	LRW12D: 0.05 W MSR12: -	-
Control current A1 or A3-A8 at 12/24/230 V ±20%	0.05/0.11/0.7 mA	0.05/0.11/0.7 mA	-/-/0.7 mA	-	0.1/0.2/1 mA
Max. parallel capacitance (approx. length) of control lead at 230 V AC	0.06 μF (200 m)	0.06 μF (200 m)	0.3 μF (1000 m) MTR61: 0.06 μF (200 m)	-	0.3 μF (1000 m)
Min. command duration	50 ms	50 ms	50 ms	-	-

^{b)} Bistable relay as relay contact. Do not connect the switched consumer to the mains before the short automatic synchronisation after installation has terminated.

¹⁾ After installation and after a power failure the multisensor needs approx. 1 minute before the wind sensor is active. During this process the outputs wind and sun of the MSR12-UC are blocked and 3 LEDs flash slowly.

²⁾ Inductive load cos φ = 0.6 as sum of both contacts 1000 W max.

If necessary, see the operating instructions of the appropriate shading elements for the maximum wind speed that can be set for the sensor relays.

m/s	4	6	8	10	12	14	16
km/h	14.4	21.6	28.8	36.0	43.2	50.4	57.6
Bft	3	4	4	5	6	7	7

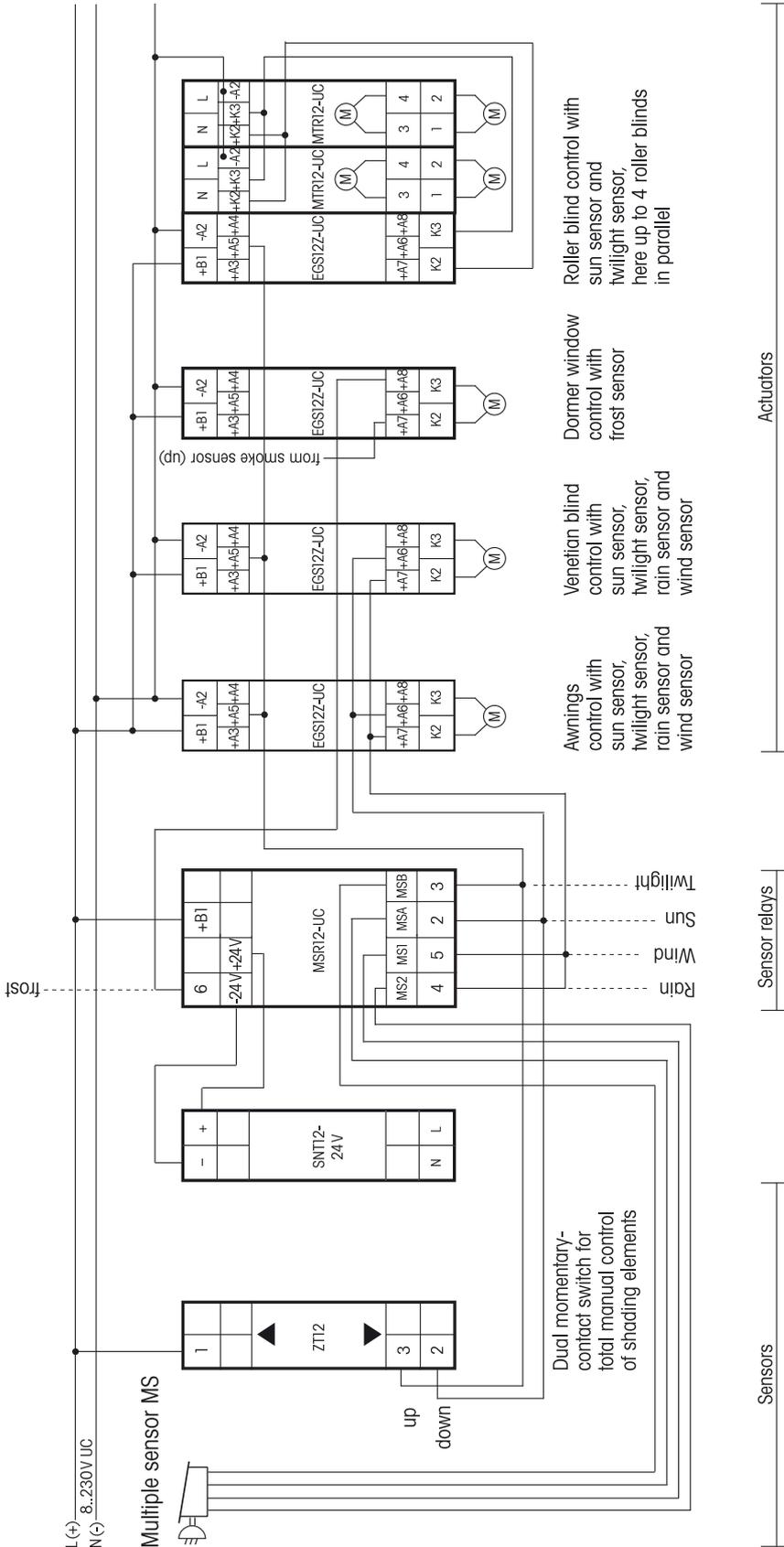
Do not route measurement leads parallel to other electrical lines - measurement leads must be screened statically if longer than 10m. For example JY-ST-Y. To extend leads use screw terminals and damp-proof connectors.

When selecting an installation site for light, wind and multi sensors, ensure that the sensors are not in the shadow of the objects being monitored.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

WITH MULTIFUNCTION SENSOR RELAY MSR12-UC

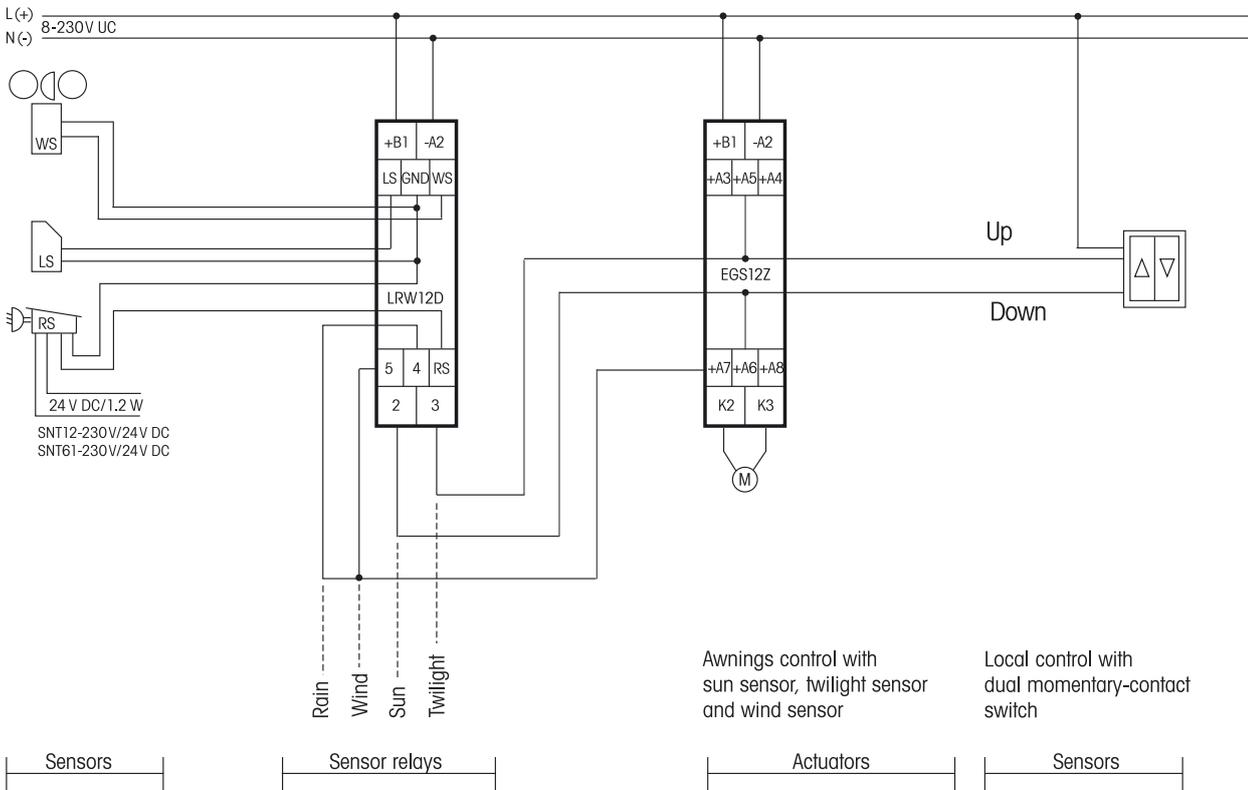
For clarity, the L and N connections are not shown.
 Similarly, provision made for local control through A3 and A4 are not shown.



When controlling with 230 V (+B1=L, -A2=N) the 230 V motors are directly connected to K2, K3 and N. Otherwise motor isolating relays MTR12-UC must be interconnected to K2/K3. A night time window can be set with a digital time switch with 1 CO so that the multi sensor does not cause any disturbance. To do this, program the changeover as follows: in the daytime the terminal +B1 of MSR12-UC connect to L(+) and at night time L(+) direct to terminal 3 of MSR12-UC. This simulates twilight at the beginning of the time window in order to open all shading elements and at the same time all sensors are switched off.

TYPICAL CIRCUIT EXAMPLE OF A ROLLER SHUTTER CONTROL AND SHADING SYSTEM CONTROL

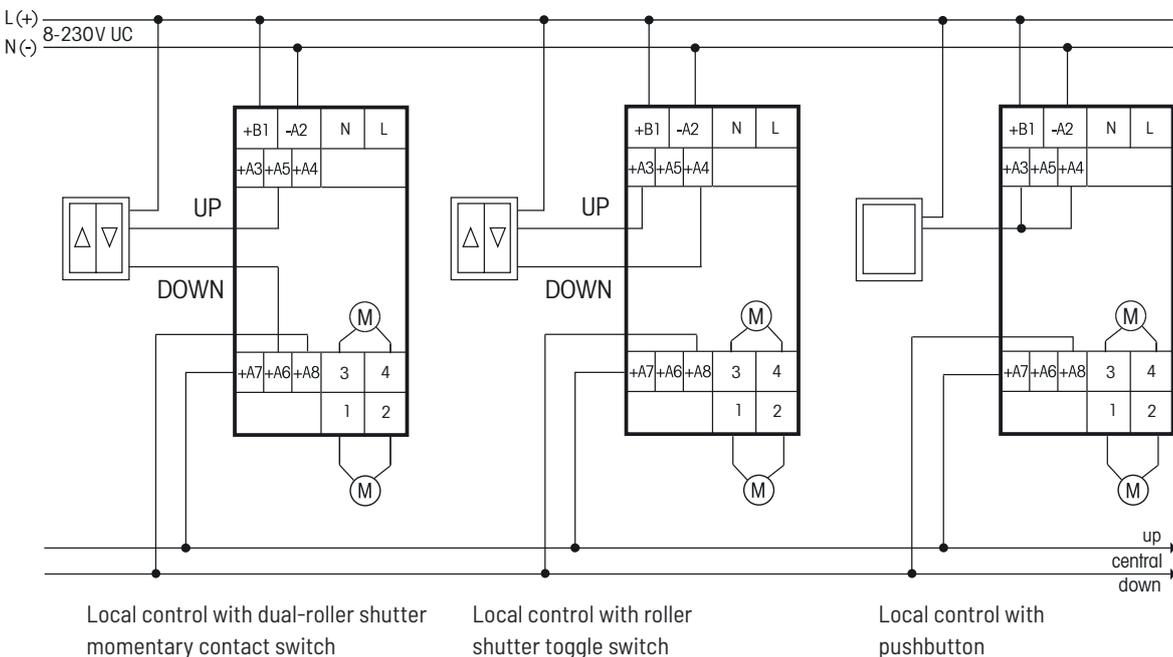
SHADING SYSTEM WITH THE LIGHT, TWILIGHT, RAIN AND WIND SENSOR RELAY LRW12D



When controlling with 230 V (+B1= L, -A2=N) the 230 V awning motor is directly connected to K2, K3 and N. Otherwise a motor isolating relay MTR12-UC must be interconnected to K2/K3.

ROLLER SHUTTER CONTROL WITH EGS12Z2-UC

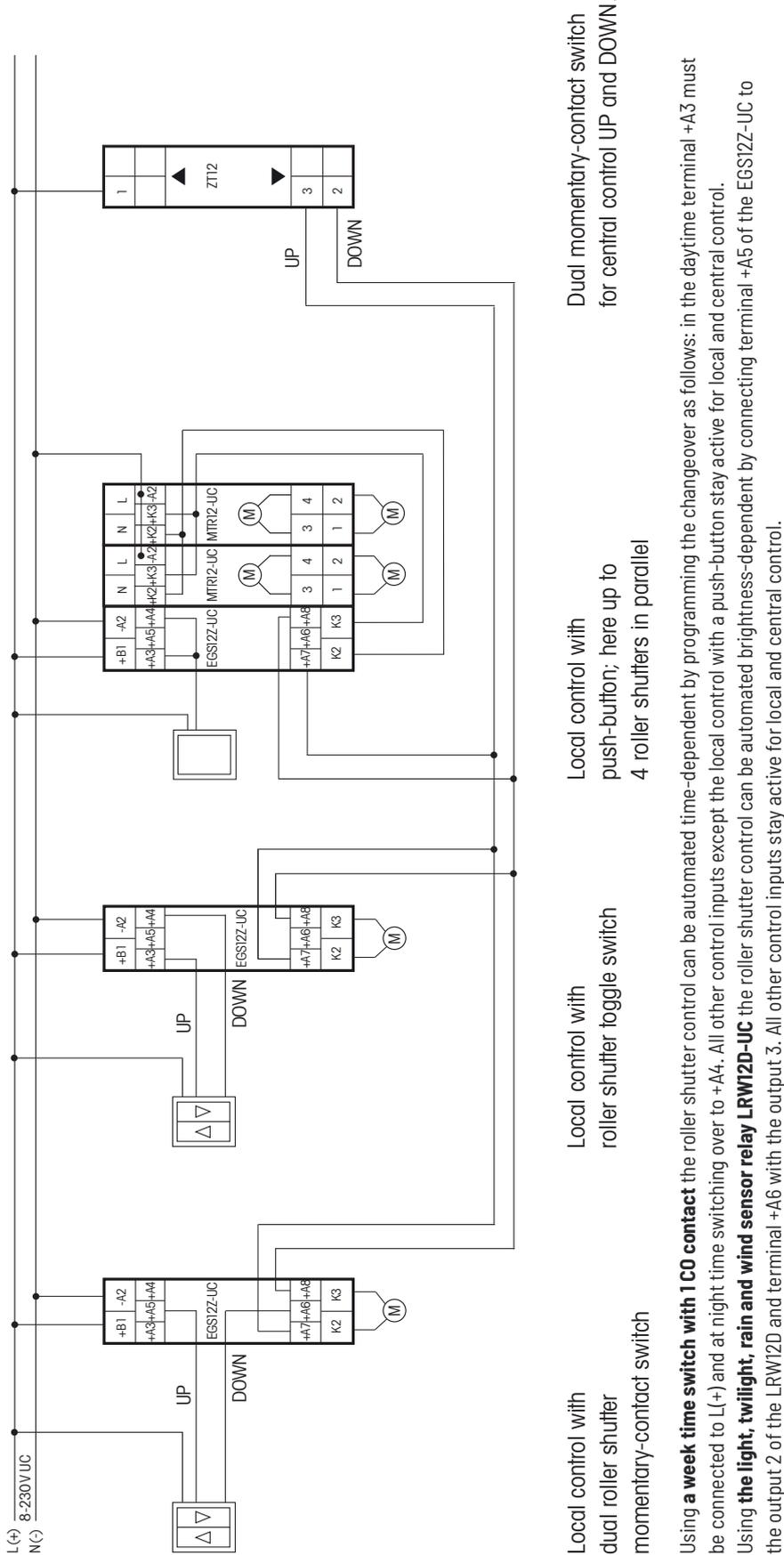
For clarity, the L and N connections for the 230 V motors are not shown.



TYPICAL CIRCUIT EXAMPLES OF A ROLLER SHUTTER CONTROL

ROLLER SHUTTER CONTROL WITH EGS12Z-UC

For clarity, the L and N connections for the 230V motors are not shown.



Using a **week time switch with 1 CO contact** the roller shutter control can be automated time-dependent by programming the changeover as follows: in the daytime terminal +A3 must be connected to L (+) and at night time switching over to +A4. All other control inputs except the local control with a push-button stay active for local and central control. Using the **light, twilight, rain and wind sensor relay LRW12D-UC** the roller shutter control can be automated brightness-dependent by connecting terminal +A5 of the EGS12Z-UC to the output 2 of the LRW12D and terminal +A6 with the output 3. All other control inputs stay active for local and central control.

**WNT12-
SNT12-
SNT61-**



**SWITCHING POWER SUPPLY UNITS
AND WIDE-RANGE SWITCHING POWER
SUPPLY UNITS - WITH LOW STANDBY
CONSUMPTION AND HIGH EFFICIENCY.**

Switching power supply units and wide-range switching power supply units

Wide-range switching power supply units WNT12	17-2
Switching power supply units SNT12	17-4
Switching power supply units SNT14	17-5
Switching power supply units SNT61	17-6
Technical data switching power supply units and wide-range switching power supply units	17-7



-	+
SEC (+/-) 24V DC / 0,5A	
PRI (L/N) 88-264V / 50-60Hz	
N	L

WNT12-12V DC-12W/1A AND WNT12-24V DC-12W/0,5A



Wide-range switching power supply unit. Rated capacity 12 W. Standby loss 0.2 watt only.

Modular devices for DIN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.

Wide-range input voltage 88-264 V AC (110 V -20% up to 240 V +10%).

Efficiency 12 V DC 83%, 24 V DC 86%. Stabilised output voltage ±1%, low residual ripple.

Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

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WNT12-12V DC-12W/1A	Wide-range switching power supply unit	EAN 4010312901748	62,90 €/pc.
WNT12-24V DC-12W/0,5A	Wide-range switching power supply unit	EAN 4010312901755	62,90 €/pc.



-	+
SEC (+/-) 24V DC / 1A	
PRI (L/N) 88-264V / 50-60Hz	
N	L

WNT12-12V DC-24W/2A AND WNT12-24V DC-24W/1A



Wide-range switching power supply unit. Rated capacity 24 W. Standby loss 0.2 watt only.

Modular devices for DIN 60715 TH35 rail mounting.

2 modules = 36 mm wide, 58 mm deep.

At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.

Wide-range input voltage 88-264 V AC (110 V -20% up to 240 V +10%).

Efficiency 12 V DC 83%, 24 V DC 87%. Stabilised output voltage ±1%, low residual ripple.

Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

Technical data page 17-7.

WNT12-12V DC-24W/2A	Wide-range switching power supply unit	EAN 4010312300077	69,90 €/pc.
WNT12-24V DC-24W/1A	Wide-range switching power supply unit	EAN 4010312300084	69,90 €/pc.



Technical data page 17-7.

WNT12-24V DC-48W/2A



Wide-range switching power supply unit. Rated capacity 48 W. Standby loss 0.4 watt only.

Modular devices for DIN 60715 TH35 rail mounting.

4 modules = 72 mm wide, 58 mm deep.

At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.

Wide-range input voltage 88-264 V AC (110 V -20% up to 240V +10%).

Efficiency 87%. Stabilised output voltage $\pm 1\%$, low residual ripple.

Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

WNT12-24V DC-48W/2A	Wide-range switching power supply unit	EAN 4010312300114	103,60 €/pc.
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SNT12-230V/12V DC-1A AND SNT12-230V/24V DC-0,5A



Switching power supply unit. Rated capacity 12 W. Standby loss 0.2 watt only.

Modular devices for DIN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.

Input voltage 230 V (-20% up to +10%). Efficiency 12 V DC 83%, 24 V DC 86%.

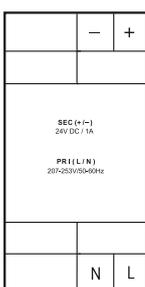
Stabilised output voltage $\pm 1\%$, low residual ripple.

Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

Technical data page 17-7.

SNT12-230V/12V DC-1A	Switching power supply unit	EAN 4010312301111	51,20 €/pc.
SNT12-230V/24V DC-0,5A	Switching power supply unit	EAN 4010312301128	51,20 €/pc.



SNT12-230V/12V DC-2A AND SNT12-230V/24V DC-1A



Switching power supply unit. Rated capacity 24 W. Standby loss 0.2 watt only.

Modular devices for DIN 60715 TH35 rail mounting.

2 modules = 36 mm wide, 58 mm deep.

At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.

Input voltage 230 V (-20% up to +10%). Efficiency 12 V DC 83%, 24 V DC 87%.

Stabilised output voltage $\pm 1\%$, low residual ripple.

Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

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SNT12-230V/12V DC-2A	Switching power supply unit	EAN 4010312301135	63,30 €/pc.
SNT12-230V/24V DC-1A	Switching power supply unit	EAN 4010312301142	63,30 €/pc.



Technical data page 17-7.

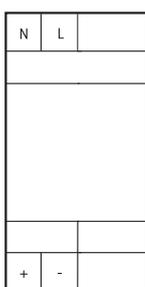
SNT14-24V/12W



Switching power supply unit. Rated capacity 12 W. Standby loss 0.2 watt only.

Modular devices for DIN 60715 TH35 rail mounting.
 1 module = 18 mm wide, 58 mm deep.
 At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.
 Input voltage 230 V (-20% up to +10%). Efficiency 86%.
 Stabilised output voltage $\pm 1\%$, low residual ripple.
 Short-circuit proof.
 Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

SNT14-24V/12W	Switching power supply unit	EAN 4010312314395	39,50 €/pc.
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Technical data page 17-7.

SNT14-24V/24W



Switching power supply unit. Rated capacity 24 W. Standby loss 0.2 watt only.

Modular devices for DIN 60715 TH35 rail mounting.
 2 modules = 36 mm wide, 58 mm deep.
 At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.
 Input voltage 230 V (-20% up to +10%). Efficiency 87%.
 Stabilised output voltage $\pm 1\%$, low residual ripple.
 Short-circuit proof.
 Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

SNT14-24V/24W	Switching power supply unit	EAN 4010312314401	47,60 €/pc.
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Technical data page 17-7.

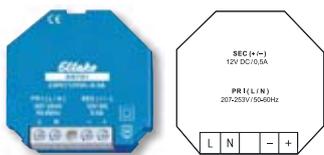
SNT14-24V/48W



Switching power supply unit. Rated capacity 48 W. Standby loss 0.4 watt only.

Modular devices for DIN 60715 TH35 rail mounting.
 4 modules = 72 mm wide, 58 mm deep.
 At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DS12 on both sides.
 Input voltage 230 V (-20% up to +10%). Efficiency 87%. Stabilised output voltage $\pm 1\%$, low residual ripple. Short-circuit proof.
 Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

SNT14-24V/48W	Switching power supply unit	EAN 4010312314418	79,50 €/pc.
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Technical data page 17-7.

SNT61-230V/12V DC-0,5A



Switching power supply unit. Rated capacity 6 W. Standby loss 0.1 watt only.

Built-in device for installation. 45 mm long, 45 mm wide, 33 mm deep.

Input voltage 230 V (-20% up to +10%).

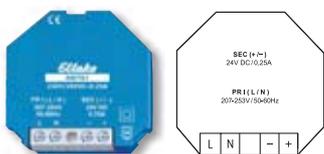
Efficiency 81%.

Stabilised output voltage $\pm 1\%$, low residual ripple.

Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

SNT61-230V/12V DC-0,5A	Switching power supply unit	EAN 4010312301319	49,60 €/pc.
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Technical data page 17-7.

SNT61-230V/24V DC-0,25A



Switching power supply unit. Rated capacity 6 W. Standby loss 0.1 watt only.

Built-in device for installation. 45 mm long, 45 mm wide, 33 mm deep.

Input voltage 230 V (-20% up to +10%).

Efficiency 82%.

Stabilised output voltage $\pm 1\%$, low residual ripple.

Short-circuit proof.

Overload protection and over-temperature switch-off by means of switching off with automatic switching-on after fault clearance (autorecovery function).

SNT61-230V/24V DC-0,25A	Switching power supply unit	EAN 4010312301326	49,60 €/pc.
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TECHNICAL DATA

SWITCHING POWER SUPPLY UNITS AND WIDE-RANGE SWITCHING POWER SUPPLY UNITS

Type	SNT61-230V/ 12V DC-0,5A	SNT61-230V/ 24V DC-0,25A	WNT12-12V DC- 12W/1A SNT12-230V/ 12V DC-1A	SNT14- 24V/12W WNT12-24V DC-12W/0,5A SNT12-230V/ 24V DC-0,5A	WNT12-12V DC- 24W/2A SNT12-230V/ 12V DC-2A	SNT14- 24V/24W WNT12-24V DC-24W/1A SNT12-230V/ 24V DC-1A	WNT12-24V DC-48W/2A SNT14- 24V/48W
Output wattage	6 W ¹⁾	6 W ¹⁾	12 W ²⁾	12 W ²⁾	24 W ²⁾	24 W ²⁾	48 W ²⁾
Output voltage, tolerance ±	12 V DC, ±1%	24 V DC, ±1%	12 V DC, ±1%	24 V DC, ±1%	12 V DC, ±1%	24 V DC, ±1%	24 V DC, ±1%
Output current	0.5 A	0.25 A	1 A	0.5 A	2 A	1 A	2 A
Standby loss	0.1W	0.1W	0.2 W	0.2 W	0.2 W	0.2 W	0.4 W
Residual ripple	100 mV	100 mV	100 mV	100 mV	100 mV	100 mV	100 mV
Class of protection	II	II	II	II	II	II	II
Protection degree	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Starting current ³⁾	18 A/230 V	18 A/230 V	18 A/230 V	18 A/230 V	18 A/230 V	18 A/230 V	18 A/230 V
Efficiency	81%	82%	83%	86%	83%	87%	87%
Overload protection short-term	160-200%	160-200%	160-200%	160-200%	160-200%	160-200%	160-200%
Overvoltage protection	140-170%	140-170%	140-170%	140-170%	140-170%	140-170%	140-170%
Short-circuit proof ⁴⁾	yes	yes	yes	yes	yes	yes	yes
Over-temperature protection ⁴⁾	yes	yes	yes	yes	yes	yes	yes
Switchable in parallel, number	-	-	2	2	2	2	-
Size	45 x 45 x 33 mm	45 x 45 x 33 mm	1 module, 18 mm	1 module, 18 mm	2 modules, 36 mm	2 modules, 36 mm	4 modules, 72 mm
Operating temperature °C	-10/+50	-10/+50	-10/+50	-10/+50	-10/+50	-10/+50	-10/+50

¹⁾ Even at full load a ventilation clearance is not necessary.

²⁾ At a load of more than 50% of the rated capacity and always if there are adjacent switching power supply units from 12 W rated capacity and if there are dimmers a ventilation clearance of 1/2 module must be maintained with the spacers DST2 on both sides.

³⁾ If connected on the primary side, 2 ms.

⁴⁾ With autorecovery function after fault clearance.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

**S12-400-
S12-100-
S91-100-**



**ELECTROMECHANICAL IMPULSE SWITCHES –
POLE POSITION S.**

18

Electromechanical impulse switches

1- and 2-pole electromechanical impulse switches S12	18 - 2
2-pole electromechanical impulse multicircuit switches SS12	18 - 2
Electromechanical 16 A impulse switches 1-pole S09, 4-pole S12	18 - 3
Auxiliary contact KM12	18 - 3
1- and 2-pole impulse switches S91 and S81	18 - 4
1-, 2- and 4-pole electromechanical 25 A impulse switches XS12	18 - 5
Switch positions of electromechanical impulse switches, comparable electronic types	18 - 6
Technical data electromechanical impulse switches	18 - 7

1- AND 2-POLE ELECTROMECHANICAL IMPULSE SWITCHES S12
2-POLE ELECTROMECHANICAL IMPULSE MULTICIRCUIT SWITCHES SS12

POLE POSITION S

When we introduced the first ELTAKO impulse switches in 1949, they were already standing in the pole position in Europe and since then we have defended this position time and again with innovative

products, highest quality, best possible service and attractive prices. Then, impulse switches were also called impulse relays, step switches or latching relays.



S12-100-230V

Technical data page 18-7.

S12-100-/200-/110-



1- and 2-pole 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

1 module = 18 mm wide, 55 mm deep.

100% time on. Control power demand 5-6 W only.

Contacts 1 NO, 2 NO, 1 NO + 1 NC.

Contact gap 3 mm. Spacing of control connections/contact > 6 mm.

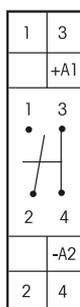
Devices for 25 A XS12, page 18-5.

Retrofittable auxiliary contact KM12, page 18-3.

The pin-compatible ES12DX-UC, ES12-200-UC and ES12-110-UC electronic impulse switches can also be used.

Their universal control voltage UC covers the voltage ranges of 8 to 253 V AC at 50-60Hz and 10 to 230 V DC.

S12-100-12V	1 NO 16 A	EAN 4010312100455	24,80 €/pc.
S12-100-230V	1 NO 16 A	EAN 4010312100479	24,80 €/pc.
S12-100-8V, 24V, 12V DC, 24V DC	1 NO 16 A		26,70 €/pc.
S12-200-12V	2 NO 16 A	EAN 4010312100530	31,00 €/pc.
S12-200-230V	2 NO 16 A	EAN 4010312100554	31,60 €/pc.
S12-200-8V, 24V, 12V DC, 24V DC	2 NO 16 A		33,10 €/pc.
S12-110-12V	1 NO + 1 NC 16 A	EAN 4010312100493	31,00 €/pc.
S12-110-230V	1 NO + 1 NC 16 A	EAN 4010312100516	31,60 €/pc.
S12-110-8V, 24V, 12V DC, 24V DC	1 NO + 1 NC 16 A		33,10 €/pc.



SS12-110-230V

Technical data page 18-7.

SS12-110-



Impulse multicircuit switch, 1+1 NO contacts 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

1 module = 18 mm wide, 55 mm deep.

100% time on. Control power demand 5-6 W.

Contact gap 3 mm. Spacing of control connections/contact > 6 mm.

The ESRI2DDX-UC electronic impulse switch can also be used.

The universal control voltage UC covers the voltage ranges of 8 to 253 V AC at 50-60Hz and 10 to 230 V DC.

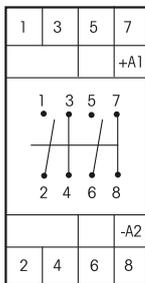
SS12-110-12V	1 + 1 NO 16 A	EAN 4010312101346	33,10 €/pc.
SS12-110-230V	1 + 1 NO 16 A	EAN 4010312101124	33,10 €/pc.

ELECTROMECHANICAL 16 A IMPULSE SWITCHES 1-POLE S09, 4-POLE S12 AND AUXILIARY CONTACT KM12



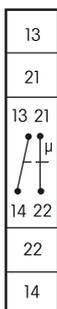
S09-230V

Technical data page 18-7.



S12-220-230V

Technical data page 18-7.



S09-

1 NO contact 16 A/230 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

Only ½ module = 9 mm wide, 55 mm deep.

Control power demand 5 W. For impulse control.

Contact gap 3 mm.

S09-12V	1 NO 16 A	EAN 4010312104187	25,40 €/pc.
S09-230V	1 NO 16 A	EAN 4010312104200	25,40 €/pc.

S12-400-/310-/220-

4-pole 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator, for impulse control.

2 modules = 36 mm wide, 55 mm deep.

Time on: **impulse control only**. Control power demand 12-15 W.

Contacts: 4 NO, 3 NO + 1 NC, 2 NO + 2 NC. Contact gap 3 mm.

Devices for 25 A XS12, page 18-5.

Retrofittable auxiliary contact KM12.

S12-400-230V	4 NO 16 A	EAN 4010312104484	47,10 €/pc.
S12-310-230V	3 NO + 1 NC 16 A	EAN 4010312100639	47,10 €/pc.
S12-220-230V	2 NO + 2 NC 16 A	EAN 4010312100592	47,10 €/pc.

KM12

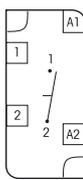
Contact module, 1 NO contact and 1 NC contact 4 A/250 V AC

Retrofittable to the left of all impulse switches S12 and XS12 as well as switching relays and installation contactors R12 and XR12.

½ module = 9 mm wide.

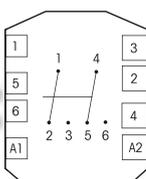
KM12	Auxiliary contact 1 NO + 1 NC, 4 A	EAN 4010312901243	16,60 €/pc.
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1- AND 2-POLE IMPULSE SWITCHES S91 AND S81



S91-100-230V

Technical data page 18-7.
Mounting accessory, see chapter Z.



S81-002-230V

Technical data page 18-7.
Mounting accessory, see chapter Z.

S91-100-

1 NO contact 10 A/250 V AC

Built-in devices for installation and surface mounting. With manual control and switch position indicator.
50 mm long, 26 mm wide, 32 mm deep.

Time on 100%. Control power demand 4–5 W. Contact gap 2 mm.

The ES61-UC electronic impulse switch can also be used.

The universal control voltage UC covers the voltage ranges of 8 to 253 V AC at 50-60 Hz and 10 to 230 V DC.

S91-100-230V	1 NO 10 A	EAN 4010312103531	25,50 €/pc.
S91-100-12V	1 NO 10 A	EAN 4010312103517	25,50 €/pc.
S91-100-8V	1 NO 10 A	EAN 4010312103500	25,50 €/pc.



S81-002-

2 CO contacts 10 A/250 V AC

Built-in devices for installation and surface mounting.

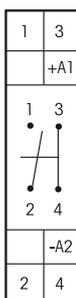
With manual control and switch position indicator.

50 mm long, 42 mm wide, 32 mm deep.

Time on 100%. Control power demand 5 W. Contact gap 2 mm.

S81-002-230V	2 CO 10 A	EAN 4010312103333	30,90 €/pc.
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XS12-110-230V

Technical data page 18-7.

XS12-100-/200-/110-



1- and 2-pole, 25 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

1 module = 18 mm wide, 55 mm deep.

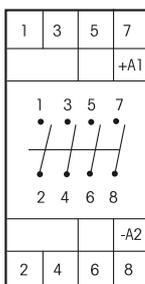
100% time on. Control power demand 5-6 W.

Contacts: 1 NO, 2 NO, 1 NO + 1 NC.

Contact gap 3 mm.

Retrofittable auxiliary contact KM12, page 18-3.

XS12-100-230V	1 NO 25 A	EAN 4010312101513	29,70 €/pc.
XS12-200-230V	2 NO 25 A	EAN 4010312101605	35,00 €/pc.
XS12-110-230V	1 NO + 1 NC 25 A	EAN 4010312101551	35,00 €/pc.



XS12-400-230V

Technical data page 18-7.

XS12-400-/310-/220-



4-pole 25 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator, for impulse control.

2 modules = 36 mm wide, 55 mm deep.

Time on: **impulse control only**. Control power demand 12-15 W.

Contacts: 4 NO, 3 NO + 1 NC, 2 NO + 2 NC.

Contact gap 3 mm.

Retrofittable auxiliary contact KM12, page 18-3.

XS12-400-230V	4 NO 25 A	EAN 4010312101650	49,50 €/pc.
XS12-310-230V	3 NO + 1 NC 25 A	EAN 4010312101704	49,50 €/pc.
XS12-220-230V	2 NO + 2 NC 25 A	EAN 4010312101759	49,50 €/pc.

SWITCH POSITIONS OF ELECTROMECHANICAL IMPULSE SWITCHES COMPARABLE ELECTRONIC TYPES

CONTACTS	TYPE	CONTACTS	TYPE
<p>1 NO contact</p>	<p>S12-100- XS12-100- S91-100-</p>	<p>2 CO contacts</p>	<p>S81-002</p>
<p>2 NO contacts</p>	<p>S12-200- XS12-200-</p>		
<p>1 NO contact + 1 NC contact</p>	<p>S12-110- XS12-110-</p>		
<p>Multicircuit switch 1+1 NO contacts</p>	<p>SS12-110-</p>		
<p>4 NO contacts</p>	<p>XS12-400-</p>		
<p>3 NO contacts + 1 NC contact</p>	<p>XS12-310-</p>		
<p>2 NO contacts + 2 NC contact</p>	<p>XS12-220-</p>		

Comparable electronic types	
ES12DX-UC	replaces terminal compatible the S12-100- , all control voltages
ES12-200-UC	replaces terminal compatible the S12-200- , all control voltages
ES12-110-UC	replaces terminal compatible the S12-110- , all control voltages
ESR12DDX-UC	replaces the SS12-110- , all control voltages
ES61-UC	replaces the S91-100- , all control voltages
ESR61M-UC	replaces S81- , SS81- and GS81- , all control voltages

Type	S09/S12/SS12	S91/S81	XS12
Contacts			
Contact material/contact gap	AgSnO ₂ /3 mm	AgSnO ₂ /2 mm	AgSnO ₂ /3 mm ¹⁾
Spacing of control connections/contact	> 6 mm	> 6 mm	> 6 mm
Test voltage contact/contact	2000 V	2000 V	2000 V
Test voltage control connections/contact	4000 V	4000 V	4000 V
Rated switching capacity	16 A/250 V AC 10 A/400 V AC	10 A/250 V AC 6 A/400 V AC	25 A/250 V AC 16 A/400 V AC
Incandescent lamp and halogen lamp load ²⁾ 230 V	2300 W	2300 W	2300 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	2300 VA	2300 VA	3600 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	500 VA	1000 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	I on ≤ 140 A/10 ms ³⁾	I on ≤ 70 A/10 ms ³⁾	I on ≤ 140 A/10 ms ³⁾
HQL and HQL non compensated	500 W	-	500 W
Max. switching current DC1: 12 V/24 V DC	8 A	8 A	12 A
Life at rated load cos φ = 1 or incandescent lamps 1000 W at 100/h	> 10 ⁵	> 10 ⁵	> 10 ⁵
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴
Max. operating cycles	10 ³ /h	10 ³ /h	10 ³ /h
Switch position indication	yes	yes	yes
Manual control	yes	yes	yes
Maximum conductor cross-section	6 mm ²	4 mm ²	6 mm ²
Two conductors of same cross-section	2.5 mm ²	1.5 mm ²	2.5 mm ²
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20
Solenoid			
Time on at rated voltage 1- and 2-pole, without S09	100% ⁴⁾	100%	100% ⁴⁾
Time on at rated voltage 4-pole as well as S09	impulse control	-	impulse control
Max./min. temperature at mounting location	+50°C/-5°C	+50°C/-5°C	+50°C/-5°C
Control voltage range	0.9 to 1.1 x rated voltage	0.9 to 1.1 x rated voltage	0.9 to 1.1 x rated voltage
Coil power loss AC+ DC ±20%	1- and 2-pole 5 - 6 W; 4-pole 12 - 15 W	S81: 5 W S91: 2.5 W	1- and 2-pole 5 - 6 W; 4-pole 12 - 15 W
Min. command duration	50 ms	50 ms	50 ms
Max. parallel capacitance (length) of single control lead at 230 V AC	0.06 μF (approx. 200 m)	0.06 μF (approx. 200 m)	0.06 μF (approx. 200 m)
Max. voltage induced at the control inputs	0.2 x rated voltage	0.2 x rated voltage	0.2 x rated voltage
Glow lamps in parallel with the 230 V control switches	5 mA	5 mA	5 mA
With 1 μF/250 V AC capacitor in parallel with coil	10 mA	10 mA	10 mA
With 2.2 μF/250 V AC capacitor in parallel with coil	15 mA	15 mA	15 mA

* EVG = electronic ballast units; KVG = conventional ballast units

¹⁾ Contact distance of the NC contacts 1.2 mm.

²⁾ For lamps with 150 W max.

³⁾ A 40-fold inrush current must be calculated for electronic ballast devices. For steady loads of 1200 W or 600 W use the current-limiting relay SBR12 or SBR61. See chapter 14, page 14-8.

⁴⁾ Whenever several impulse switches are continuously energised make sure there is adequate ventilation and, in addition, a ventilation clearance of approx. half a module. Use the DS12 spacer as necessary.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 1 or Type 2 surge protection device (SPD) must be installed.

**R12-400-
R12-100-
R91-100-**



**ELECTROMECHANICAL SWITCHING RELAYS
AND INSTALLATION CONTACTORS - POLE
POSITION R**

Electromechanical switching relays and installation contactors

1-, 2- and 4-pole electromechanical switching relays R12	19 - 2
1- and 2-pole electromechanical switching relays R91 and R81	19 - 3
1-, 2- and 4- pole 25 A electromechanical installation contactors XR12	19 - 4
Technical data electromechanical switching relays and installation contactors	19 - 5

1-, 2- AND 4-POLE ELECTROMECHANICAL SWITCHING RELAYS R12



R12-110-230V

Technical data page 19-5.

R12-100-/200-/110-/020-



1- and 2-pole 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

1 module = 18 mm wide, 55 mm deep.

100% time on. Control power demand 1.9 W.

Contacts: 1 NO, 2 NO, 1 NO + 1 NC, 2 NC (closed-circuit current relay, 230 V only).

Contact gap 3 mm.

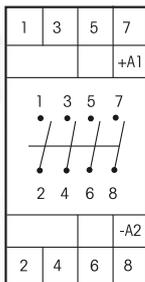
Contact/contact test voltage 2000 V and control connections/contact test voltage 4000 V.

25 A devices XR12, page 19-4. Retrofittable auxiliary contact KM12, page 18-3.

The pin-compatible ER12DX-UC, ER12-200-UC and ER12-110-UC electronic switching relays can also be used.

The universal control voltage UC covers the voltage ranges of 8 to 253 V AC at 50-60 Hz and 10 to 230 V DC.

R12-100-12V	1 NO 16 A	EAN 4010312200421	24,80 €/pc.
R12-100-230V	1 NO 16 A	EAN 4010312200445	24,80 €/pc.
R12-100-8V, 24V, 12V DC, 24V DC	1 NO 16 A		26,70 €/pc.
R12-200-12V	2 NO 16 A	EAN 4010312200506	31,60 €/pc.
R12-200-230V	2 NO 16 A	EAN 4010312200520	31,60 €/pc.
R12-200-8V, 24V, 12V DC, 24V DC	2 NO 16 A		33,10 €/pc.
R12-110-12V	1 NO + 1 NC 16 A	EAN 4010312200469	31,60 €/pc.
R12-110-230V	1 NO + 1 NC 16 A	EAN 4010312200483	31,60 €/pc.
R12-110-8V, 24V, 12V DC, 24V DC	1 NO + 1 NC 16 A		33,10 €/pc.
R12-020-230V	2 NC 16 A	EAN 4010312201572	30,90 €/pc.



R12-400-230V

Technical data page 19-5.

R12-400-/310-/220-



4-pole 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

2 modules = 36 mm wide, 55 mm deep.

100% time on. Control power demand 4 W.

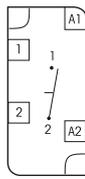
Contacts: 4 NO, 3 NO + 1 NC, 2 NO + 2 NC.

Contact gap 3 mm.

Contact/contact test voltage 2000 V and control connections/contact test voltage 4000 V.

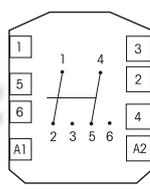
25 A devices XR12, page 19-4. Retrofittable auxiliary contact KM12, page 18-3.

R12-400-230V	4 NO 16 A	EAN 4010312200643	47,10 €/pc.
R12-310-230V	3 NO + 1 NC 16 A	EAN 4010312200605	47,10 €/pc.
R12-220-230V	2 NO + 2 NC 16 A	EAN 4010312200568	47,10 €/pc.



R91-100-230V

Technical data page 19-5.



R81-002-230V

Technical data page 19-5.

R91-100-

1 NO contact 10 A/250 V AC

Built-in devices for installation and surface mounting.

50 mm long, 26 mm wide, 32 mm deep.

Time on 100%. Control power demand 4-5 W.

Contact gap 2 mm.

Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.

The ER61-UC electronic switching relay can also be used.

The universal control voltage UC covers the voltage ranges of 8 to 253 V AC at 50-60 Hz and 10 to 230 V DC.

R91-100-230V	1 NO 10 A	EAN 4010312203125	25,50 €/pc.
R91-100-12V	1 NO 10 A	EAN 4010312203101	25,50 €/pc.
R91-100-8V	1 NO 10 A	EAN 4010312203095	28,80 €/pc.

R81-002-

2 CO contacts 10 A/250 V AC

Built-in devices for installation and surface mounting.

50 mm long, 42 mm wide, 32 mm deep.

Time on 100%. Control power demand 5 W.

Contact gap 2 mm.

Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.

R81-002-230V	2 CO 10 A	EAN 4010312203040	30,90 €/pc.
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Comparable electronic types	
ER12DX-UC	replaces terminal compatible the R12-100- , all control voltages
ER12-200-UC	replaces terminal compatible the R12-200- , all control voltages
ER12-110-UC	replaces terminal compatible the R12-110- , all control voltages
ER61-UC	replaces the R91-100- , all control voltages
ESR61M-UC	replaces partially the R81 , all control voltages

Recommended retail prices excluding VAT.

1-, 2- AND 4- POLE 25 A ELECTROMECHANICAL INSTALLATION CONTACTORS XR12



XR12-110-230V

Technical data page 19-5.

XR12-100-/200-/110-



1- and 2-pole, 25 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

1 module = 18 mm wide, 55 mm deep.

100% time on. Control power demand 1.9 W.

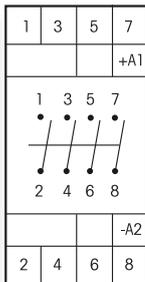
Contacts 1 NO, 2 NO, 1 NO + 1 NC.

Contact gap 3 mm.

Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.

Retrofittable auxiliary contact KM12, page 18-3.

XR12-100-230V	1 NO 25 A	EAN 4010312201206	29,70 €/pc.
XR12-200-230V	2 NO 25 A	EAN 4010312201305	35,00 €/pc.
XR12-110-230V	1 NO + 1 NC 25 A	EAN 4010312201251	35,00 €/pc.



XR12-400-230V

Technical data page 19-5.

XR12-400-/310-/220-



4-pole, 25A/250V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

2 modules = 36 mm wide, 55 mm deep.

100% time on. Control power demand 4 W.

Contacts: 4 NO, 3 NO + 1 NC, 2 NO + 2 NC.

Contact gap 3 mm.

Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.

Retrofittable auxiliary contact KM12, page 18-3.

XR12-400-230V	4 NO 25 A	EAN 4010312201374	49,50 €/pc.
XR12-310-230V	3 NO + 1 NC 25 A	EAN 4010312201428	49,50 €/pc.
XR12-220-230V	2 NO + 2 NC 25 A	EAN 4010312201473	49,50 €/pc.

TECHNICAL DATA

ELECTROMECHANICAL SWITCHING RELAYS AND INSTALLATION CONTACTORS

Type	R12	R81/R91	XR12
Contacts			
Contact material/contact gap	AgSnO ₂ /3 mm	AgSnO ₂ /2 mm	AgSnO ₂ /3 mm ¹⁾
Spacing of control connections/contact	> 6 mm	> 6 mm	> 6 mm
Test voltage contact/contact	2000 V	2000 V	2000 V
Test voltage control connections/contact	4000 V	4000 V	4000 V
Rated switching capacity	16 A/250 V AC 10 A/400 V AC	10 A/250 V AC 6 A/400 V AC	25 A/250 V AC 16 A/400 V AC
Incandescent lamp and halogen lamp load 230 V ²⁾	2300 W	2300 W	2300 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	2300 VA	2300 VA	3600 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	500 VA	1000 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	I _{on} ≤ 140 A/10 ms ³⁾	I _{on} ≤ 70 A/10 ms ³⁾	I _{on} ≤ 140 A/10 ms ³⁾
HQL and HQL non compensated	500 W	-	500 W
Max. switching current DC1: 12 V/24 V DC	8 A	8 A	12 A
Life at rated load, cos φ = 1 or incandescent lamps 1000 W at 100/h	> 10 ⁵	> 10 ⁵	> 10 ⁵
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴
Max. operating cycles	10 ³ /h	10 ³ /h	10 ³ /h
Closing time	10-20 ms	10-20 ms	10-20 ms
Opening time	5-15 ms	5-15 ms	5-15 ms
Switch position indication	yes	yes	yes
Manual control	yes	yes	yes
Maximum conductor cross-section	6 mm ²	4 mm ²	6 mm ²
Two conductors of same cross-section	2.5 mm ²	1.5 mm ²	2.5 mm ²
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20
Solenoid System			
Time on	100% ⁴⁾	100%	100% ⁴⁾
Max./min. temperature at mounting location	+50°C/-5°C	+50°C/-5°C	+50°C/-5°C
Control voltage range	0.9 to 1.1 x rated voltage	0.9 bis 1,1 x rated voltage	0.9 to 1.1 x rated voltage
Coil power loss AC+DC ±20%	1- and 2-pole: 1.9 W 4-pole: 4 W	R81: 5 W R91: 2,5 W	1- and 2-pole: 1,9 W 4-pole: 4 W
Total power loss with continuous excitation at rated voltage and rated contact load	1-pole: 4 W, 2-pole: 6 W 4-pole: 12 W	1-pole: 7 W 2-pole: 9 W	1-pole: 4 W, 2-pole: 6 W 4-pole: 12 W
Max. parallel capacitance (length) of control lead	0.06 μF (ca. 200 m)	0.06 μF (ca. 200 m)	0.06 μF (ca. 200 m)
Max. voltage induced at the control inputs	0.2 x rated voltage	0.2 x rated voltage	0.2 x rated voltage

* EVG = electronic ballast units; KVG = conventional ballast units. ¹⁾ Contact distance of the NC contacts 1.2mm. ²⁾ Contact spacing of NC contacts 1.2 mm. ³⁾ A 40-fold inrush current must be calculated for electronic ballast devices. For steady loads of 1200 W or 600 W use the current-limiting relay SBR12 or SBR61. See chapter 14, page 14-8. ⁴⁾ Whenever several impulse switches are continuously energised make sure there is adequate ventilation as a function of the calculated power loss.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 1 or Type 2 surge protection device (SPD) must be installed.

**GBA12
ST12-
P10**



**ACCESSORIES – USEFUL HELPERS ABOUT
THE ELTAKO INSTALLATION**

Accessories wireless and others

Blisterpack dimming BPD and blisterpack switching BPS	Z-2
Blisterpack dimming BPD55 and blisterpack switching BPS55	Z-3
Blisterpack shading BPB and BPB55	Z-4
Set of jumpers STS14	Z-5
WET.PROTECT WP50	Z-5
Wireless Powernet phase coupler FPP12	Z-5
Wireless MP3 player FMP3	Z-6
EnOcean KNX gateways KNX ENO	Z-7
EnOcean Field Test Tool P10	Z-8
Wireless pushbutton inserts with EnOcean energy generators FTE...	Z-8
Wireless repeater FRP61-230V and wireless socket repeater FSRP-230V	Z-9
Wireless repeater FRP70-230V and FRP65/230V-wg	Z-10
Outdoor wireless repeater FARP60-230V	Z-11
Wireless transmitter module FSM60B with batteries	Z-12
Wireless outdoor transmitter module FASM60-UC	Z-12
Wireless antennas FA250 , FHM175 and FA200	Z-13
NEW Wireless antenna FAG65-wg , spacer DS12 , socket outlet ST12-16A and universal double DIN rail mounting plate U2RP	Z-14
Screws S + rawls D , triple RC module RC12-230V and housings for operating instructions GBA14	Z-15



BPD

Blisterpack dimming with wireless pushbutton F2T65 and universal dimmer switch FUD61NPN-230V. Smart Home sensor and Smart Home actuator.

F2T65: Wireless pushbutton pure white glossy for single mounting 84 x 84 x 16 mm or mounting into the E-Design65 switching system. Generates the power for wireless telegrams itself when the button is pressed, therefore there is no connecting wire and no standby loss.

Wireless pushbuttons with one rocker can transmit two evaluable signals: press rocker up and press rocker down.

The mounting base can be screwed onto a flat surface or glued to the wall, on glass or on furniture using the enclosed adhesive foil. Use the sleeves in the 55 mm socket box for screw mounting.

FUD61NPN-230V: Universal dimmer switch, 300 W power MOSFET. Automatic lamp detection. Only 0.7 watt standby loss. With adjustable minimum brightness or dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Additionally with light scene control. Encrypted wireless, bidirectional wireless and repeater function are switchable.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Universal dimmer switch for lamps up to 300 W, dependent on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V-LED lamps, additionally dependent on the lamps electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

Supply voltage, switching voltage and control voltage local 230 V. No minimum load.

The brightness level is stored on switch-off (memory).

BPD	Blisterpack dimming	EAN 4010312314241	143,90 €/pc.
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BPS

Blisterpack switching with wireless pushbutton F2T65 and wireless actuator impulse switch with integrated relay function FSR61-230V. Smart Home sensor and Smart Home actuator.

F2T65: Wireless pushbutton pure white glossy for single mounting 84 x 84 x 16 mm or mounting into the E-Design65 switching system. Generates the power for wireless telegrams itself when the button is pressed, therefore there is no connecting wire and no standby loss.

Wireless pushbuttons with one rocker can transmit two evaluable signals: press rocker up and press rocker down.

The mounting base can be screwed onto a flat surface or glued to the wall, on glass or on furniture using the enclosed adhesive foil. Use the sleeves in the 55 mm socket box for screw mounting.

FSR61-230V: Wireless actuator impulse switch with integrated relay function. 1 NO contact potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage and control voltage locally 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this universal impulse switching relay can also be controlled locally by a conventional control switch if fitted previously. Glow lamp current is not permitted.

BPS	Blisterpack switching	EAN 4010312314258	121,70 €/pc.
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BPD55

Blisterpack dimming with wireless pushbutton F2T55E and universal dimmer switch FUD61NPN-230V. Smart Home sensor and Smart Home actuator.

F2T55E: Wireless pushbutton pure white glossy for single mounting 84 x 84 x 15 mm or mounting into the E-Design55 switching system. Generates the power for wireless telegrams itself when the button is pressed, therefore there is no connecting wire and no standby loss.

Wireless pushbuttons with one rocker can transmit two evaluable signals: press rocker up and press rocker down.

The mounting base can be screwed onto a flat surface or glued to the wall, on glass or on furniture using the enclosed adhesive foil. Use the sleeves in the 55 mm socket box for screw mounting.

FUD61NPN-230V: Universal dimmer switch, 300 W power MOSFET. Automatic lamp detection. Only 0.7 watt standby loss. With adjustable minimum brightness or dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Additionally with light scene control. Encrypted wireless, bidirectional wireless and repeater function are switchable.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Universal dimmer switch for lamps up to 300 W, dependent on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230 V-LED lamps, additionally dependent on the lamps electronics.

Zero passage switching with soft ON and soft OFF to protect lamps.

Supply voltage, switching voltage and control voltage local 230 V. No minimum load.

The brightness level is stored on switch-off (memory).

BPD55	Blisterpack dimming	EAN 4010312317839	143,90 €/pc.
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BPS55

Blisterpack switching with wireless pushbutton F2T55E and wireless actuator impulse switch with integrated relay function FSR61-230V. Smart Home sensor and Smart Home actuator.

F2T55E: Wireless pushbutton pure white glossy for single mounting 84 x 84 x 15 mm or mounting into the E-Design55 switching system. Generates the power for wireless telegrams itself when the button is pressed, therefore there is no connecting wire and no standby loss.

Wireless pushbuttons with one rocker can transmit two evaluable signals: press rocker up and press rocker down.

The mounting base can be screwed onto a flat surface or glued to the wall, on glass or on furniture using the enclosed adhesive foil. Use the sleeves in the 55 mm socket box for screw mounting.

FSR61-230V: Wireless actuator impulse switch with integrated relay function. 1 NO contact potential free 10 A/250 V AC, incandescent lamps up to 2000 watts, off delay with switch-off early warning and switchable pushbutton permanent light. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage and control voltage locally 230 V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

In addition to the wireless control input via an internal antenna, this universal impulse switching relay can also be controlled locally by a conventional control switch if fitted previously. Glow lamp current is not permitted.

BPS55	Blisterpack switching	EAN 4010312317846	121,70 €/pc.
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BPB

Blisterpack shading with wireless pushbutton F2T65 and wireless actuator for shading elements and roller shutters FSB61NP-230V. Smart Home sensor and Smart Home actuator.

F2T65: Wireless pushbutton pure white glossy for single mounting 84 x 84 x 16 mm or mounting into the E-Design65 switching system. Generates the power for wireless telegrams itself when the button is pressed, therefore there is no connecting wire and no standby loss.

Wireless pushbuttons with one rocker can transmit two evaluable signals: press rocker up and press rocker down.

The mounting base can be screwed onto a flat surface or glued to the wall, on glass or on furniture using the enclosed adhesive foil. Use the sleeves in the 55 mm socket box for screw mounting.

FSB61NP-230V: Wireless actuator for shading elements and roller shutters. 1+1 NO contact not potential free 4 A/250 V AC, for roller blinds and shading systems. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

If a power failure occurs, the device is switched off in a defined sequence.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch previously mounted.

BPB	Blisterpack shading	EAN 4010312316979	130,40 €/pc.
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BPB55

Blisterpack shading with wireless pushbutton F2T55E and wireless actuator for shading elements and roller shutters FSB61NP-230V. Smart Home sensor and Smart Home actuator.

F2T55E: Wireless pushbutton pure white glossy for single mounting 84 x 84 x 15 mm or mounting into the E-Design55. Generates the power for wireless telegrams itself when the button is pressed, therefore there is no connecting wire and no standby loss.

Wireless pushbuttons with one rocker can transmit two evaluable signals: press rocker up and press rocker down.

The mounting base can be screwed onto a flat surface or glued to the wall, on glass or on furniture using the enclosed adhesive foil. Use the sleeves in the 55 mm socket box for screw mounting.

FSB61NP-230V: Wireless actuator for shading elements and roller shutters. 1+1 NO contact not potential free 4 A/250 V AC, for roller blinds and shading systems. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage, switching voltage and control voltage local 230 V.

If a power failure occurs, the device is switched off in a defined sequence.

In addition to the wireless control input via an internal antenna, this wireless actuator can also be controlled locally by a conventional 230 V control switch previously mounted.

BPB55	Blisterpack shading	EAN 4010312317822	130,40 €/pc.
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ACCESSORIES

JUMPERS STS14, WET.PROTECT WP50 AND WIRELESS POWERNET PHASE COUPLER FPP12



Lx	
Ly	

STS14

STS14 set of jumpers for Series 14, 7 pieces.

STS14	Jumpers	EAN 4010312314975	7,60 €/pc.
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WP50

WET.PROTECT e.nautic 50ml.

High-performance protection against humidity, moisture and corrosion. This water blocker completely infiltrates any moisture and humidity. It creates a micro-thin protective film with extremely water repellent effect. The dielectric strength is extremely high with 200 kV/mm. Due to the salt water resistance, it is not only perfect for the use in winter as it protects against the effects of road salt, but also for applications close to the sea. Wireless pushbuttons treated with this spray according to the operating manual even remain fully functional outdoors on the weather side for years.

WP50	WET.PROTECT 50 ml	EAN 4010312907306	22,60 €/pc.
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FPP12



Wireless Powernet phase coupler to transmit wireless telegrams over the 230 V power mains. Only 0.2 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

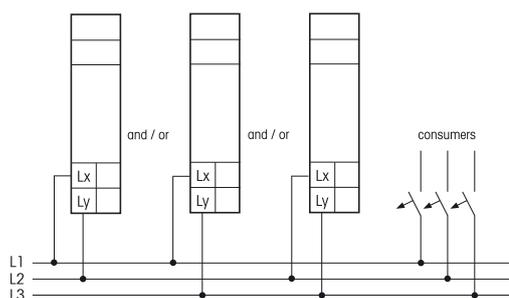
Voltage between the two outer conductors: 400 V/50 Hz.

Frequency range 115-132 kHz.

The phase coupler increases the capacitive coupling between 2 different outer conductors if, for example, the cables within the installation are not laid in parallel at a distance of at least several metres apart (as ribbon cables or jacketed cables).

Caution: The phase coupler may only be connected to the input side of the line circuit-breaker.

Typical connection



FPP12	Wireless Powernet phase coupler	EAN 4010312311769	27,20 €/pc.
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ACCESSORIES
WIRELESS MP3 PLAYER



FMP3

Wireless MP3 player to play back MP3 files such as music, noises and sounds. With internal loudspeaker, USB port, micro USB port, 3.5 mm jack socket to connect stereo headphones and a 3.5 mm jack socket to connect an external loudspeaker.

Plastic housing, pure white, l x w x h: 165 x 70 x 35 mm with oblong holes for wall mounting and plastic feet for placing on flat surfaces, weight 230 grams.

The scope of supply comprises a USB stick (plugged as delivered in the USB port) containing MP3 files, a 5 V plug-in power adapter with micro USB cable and a 3.5 mm jack plug with screw terminals to connect an external loudspeaker.

Up to 120 sensors, e.g. wireless pushbuttons, wireless window/door contacts and wireless motion detection sensors, can be taught in.

Up to 50 different tracks can be played back.

Eltako has stored examples of noises and sounds on the USB stick with the kind approval of the operator of the internet platform www.salamisound.de. You can supplement or replace them.

We also recommend the website www.audiyou.de as an additional source to download sounds.

Possible applications:

- doorbell with a variety of different tracks for various sensors
- acoustic signalling device for open/close doors, cabinets or drawers
- acoustic signalling device for motion detection
- repetitive acoustic signal for open doors (e.g. refrigerator)
- acoustic confirmation signal for any incident in the Eltako wireless building system

FMP3	Wireless MP3 player	EAN 4010312317853	146,70 €/pc.
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KNX ENO 626



Bidirectional gateway between EnOcean wireless and KNX bus with 8 channels from Weinzierl, flush mounting.

The KNX ENO 626 secure acts as a bidirectional gateway between EnOcean Wireless and the KNX/EIB bus. Control commands and measured values can be transmitted by EnOcean wireless sensors to the KNX bus, for example to control KNX actuators. Similarly, EnOcean wireless actuators can be controlled by KNX. The KNX ENO 626 secure from Weinzierl allows encrypted communication with security compatible EnOcean devices.

The KNX ENO 626 secure has 8 wireless channels and accepts over 100 EEP (EnOcean Equipment Profile), it allows an easy and secure connection from different EnOcean sensors and actor to a KNX installation. In addition the gateway offers logic functions and comprises an integrated wireless repeater.

The configuration is done with the KNX ENO-Tool, downloadable on weinzierl.de.

Flush mounting in a 55 mm wall box.

The repeater function is designed to bridge large distances between sensors and actuators. The KNX ENO 626 is a Level 1 wireless repeater.

KNX ENO 626	EnOcean KNX gateway	EAN 4010312318911	284,10 €/pc.
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KNX ENO 636



Bidirectional gateway between EnOcean wireless and KNX bus with 32 channels from Weinzierl, 81 x 81 x 25 mm.

The KNX ENO 636 secure acts as a bidirectional gateway between EnOcean Wireless and the KNX/ EIB bus. Control commands and measured values can be transmitted by EnOcean wireless sensors to the KNX bus, for example to control KNX actuators. Similarly, EnOcean wireless actuators can be controlled by KNX. The KNX ENO 636 secure from Weinzierl allows encrypted communication with security compatible EnOcean devices.

The KNX ENO 636 secure has 32 wireless channels and accepts over 100 EEP (EnOcean Equipment Profile), it allows an easy and secure connection from different EnOcean sensors and actor to a KNX installation. In addition the gateway offers logic functions and comprises an integrated wireless repeater.

The configuration is done with the KNX ENO-Tool, downloadable on weinzierl.de.

Surface mounting by means of a 55 mm flush mount box. Power is supplied over the KNX bus.

The repeater function is designed to bridge large distances between sensors and actuators. The KNX ENO 636 is a Level 1 wireless repeater.



KNX ENO 636	EnOcean KNX gateway	EAN 4010312318904	453,60 €/pc.
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ACCESSORIES - ENOCEAN FIELD TEST TOOL P10 PROBARE AND WIRELESS PUSHBUTTON INSERTS WITH ENOCEAN ENERGY GENERATORS



P10

The EnOcean field test tool Probare P10 is a portable field tester which shows the signal quality of the received EnOcean 868MHz telegrams. Additionally it helps to determine the best place for EnOcean transmitters, receivers or repeaters, it can also help to look if any signals are sent or not.

2 AA/LR06 batteries are additionally necessary.

Switch on and off by pressing the ON/OFF button for 1.5 seconds.

The signal quality is shown by LEDs.

With the MODE button you can switch between the different functions.

All shows the signal quality of all received EnOcean telegrams.

Filter shows the signal quality of one unique transmitter.

Repeater activates the repeater function (level 1) by this way you can determine the best position for a repeater.

Radio Link Test allows the wireless coverage testing in combination with the adequate receiver by sending telegrams cyclically.

P10	Wireless level meter Probare	EAN 4010312317068	122,90 €/pc.
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FTE...



Wireless pushbutton inserts with EnOcean energy generators for wireless pushbuttons made by other manufacturers. Generates the power for wireless telegrams itself when the button is pressed, therefore there is no connecting wire and no standby loss.

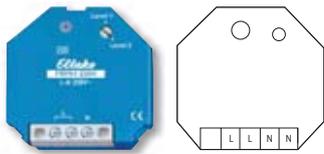
The scope of supply comprises the mounting base and an attachment frame for FT55 with EnOcean module inserts PTM215 (encrypted) or PTM215B (Bluetooth).

Wireless pushbuttons with one rocker can transmit two evaluable signals. Wireless pushbuttons with double rocker can transmit four evaluable signals.

FT55 rockers W-FT55 and double rockers DW-FT55, also with laser engraving, chapter 8.



FTE215	Wireless pushbutton insert, encrypted	EAN 4010312318539	36,60 €/pc.
FTE215BLE	Wireless pushbutton insert, Bluetooth	EAN 4010312318553	39,90 €/pc.



FRP61-230V



1 and 2 level wireless repeaters. Only 0.7 watt standby loss.

For installation. 45 mm long, 45 mm wide, 33 mm deep.

Supply voltage 230 V.

This repeater is only needed if the building conditions prevent undisturbed reception or the distance between the wireless pushbutton and receiver is too great.

The 1-level mode is activated ex works. Only wireless signals from sensors are received, tested and retransmitted at full transmit power. Wireless signals from other repeaters are ignored to reduce the data volume.

Use the rotary switch to switch over to 2 level mode. Then the wireless signals from sensors and from another 1 level repeater are processed. A signal may therefore be received and amplified twice.

The LED indicates incoming wireless signals by flashing briefly.

Wireless repeaters need not be taught-in. They receive and amplify signals from all wireless sensors within their reception area.

FRP61-230V	Wireless repeater	EAN 4010312300251	55,30 €/pc.
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FSRP-230V



1- and 2-level wireless socket repeater. Only 0.7 watt standby loss.

Adapter for German Socket (Typ F). With increased shock protection.

This repeater is only needed if the building conditions do not allow undisturbed reception or the distance between the wireless pushbutton and receiver is too great.

The 2-level mode is activated ex works. Sensor wireless signals are then processed in addition to the wireless signals of another 1-level repeater. A wireless signal can then receive and amplify a maximum of two times.

From production week 31/18: By multiple unplugging and plugging can be switched to the 1-level mode.

Now only the wireless signals from sensors are received and amplified. Wireless signals from other repeaters are ignored to reduce the amount of data.

Activate 1-level mode:

Briefly unplug and replug the adapter plug 3 times at intervals of 1 second within a period of 10 seconds.

Activate 2-level mode:

Briefly unplug and replug the adapter plug 5 times at intervals of 1 second within a period of 20 seconds.

Wireless repeaters need not be taught-in. They receive and amplify signals from all wireless sensors within their reception area.

FSRP-230V	Wireless socket repeater	EAN 4010312314999	71,00 €/pc.
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WEEE-Reg.-Nr. DE 30298319

ACCESSOIRES

WIRELESS REPEATERS FRP70-230V AND FRP65/230V-WG



FA250

FRP70-230V



1 and 2 level wireless repeater with small antenna and with antenna FA250. Only 0.6 watt standby loss. A wireless antenna FA250 is connectable as required.

Mounting in the 230 V power supply cord, e.g. in false ceilings.

100 mm long, 50 mm wide and 25 mm deep.

This repeater is only needed if the building conditions prevent undisturbed reception or the distance between the wireless pushbutton and receiver is too great. Antenna FA250 with 250 cm cable is connectable instead of the enclosed antenna. The range can be extended considerably by placing it in the optimum position. The 1-level mode is activated ex works. Only wireless signals from sensors are received, tested and retransmitted at full transmit power. Wireless signals from other repeaters are ignored to reduce the data volume.

Use the rotary switch to switch over to 2 level mode. Then the wireless signals from sensors and from another 1 level repeater are processed. A signal may therefore be received and amplified twice.

The LED indicates incoming wireless signals by flashing briefly.

Wireless repeaters need not be taught-in. They receive and amplify signals from all wireless sensors within their reception area.

FRP70-230V	Wireless repeater	EAN 4010312306482	94,20 €/pc.
FA250	Wireless antenna with 250 cm cable, black	EAN 4010312300244	23,90 €/pc.
FA250-gw	Wireless antenna with 250 cm cable, grey white	EAN 4010312317051	23,90 €/pc.



FRP65/230V-wg



2 level wireless repeaters in the housing for single mounting 84 x 84 x 30 mm or mounting into the E-design switching system. Only 0.8 watt standby loss.

We recommend stainless-steel countersunk screws 2.9 x 25 mm, DIN 7982 C, for screw connections.

Set of 2 stainless-steel countersunk screws 2.9 x 25 mm and plugs 5 x 25 mm are enclosed.

Supply voltage 230 V.

This repeater is only needed if the building conditions prevent undisturbed reception or the distance between the wireless pushbutton and receiver is too great.

The 2-level mode is activated. The signals from sensors and actuators are received, tested and retransmitted with full transmitting power.

The wireless signals from another 1-level repeater are also being processed.

A signal may therefore be received and amplified twice.

Wireless repeaters need not be taught-in. They receive and amplify signals from all wireless sensors within their reception area.

FRP65/230V-wg	Wireless repeater pure white glossy	EAN 4010312315927	75,10 €/pc.
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FARP60-230V



Outside wireless repeater 1 and 2 levels, 60 x 46 mm, 30 mm deep. Only 0.7 watt standby loss.

Supply voltage 230 V.

This repeater is only needed if the building conditions prevent undisturbed reception or the distance between the wireless pushbutton and receiver is too great.

The 1-level mode is activated ex works. Only the signals from sensors and actuators are received, tested and retransmitted at full transmit power. Wireless signals from other repeaters are ignored to reduce the data volume.

Switchover to 2-level mode is carried out by removing the cover (loosen two screws on the front panel) and repositioning the jumper flush right. In this setting, wireless signals from other 1-level repeaters are also processed. A signal may therefore be received and amplified twice.

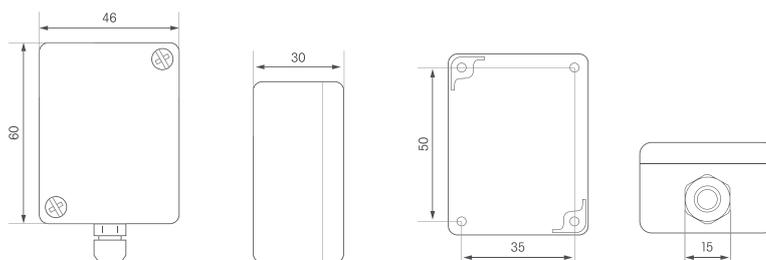
A red LED blinks briefly to indicate all the wireless signals detected.

Wireless repeaters need not be taught-in. They receive and amplify signals from all wireless sensors within their reception area.

On the underside there is an M12 screw for a waterproof mains connection.

The protection class is IP54, the allowable ambient temperature is -20°C to +55°C.

For screw mounting.



FARP60-230V	Outdoor wireless repeater	EAN 4010312310137	71,80 €/pc.
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ACCESSOIRES - WIRELESS TRANSMITTER MODULE FSM60B WITH BATTERIES AND WIRELESS OUTDOOR TRANSMITTER MODULE FASM60-UC



FSM60B



Wireless transmitter module with batteries and antenna rod. L x W x H: 60 x 46 x 30 mm (dimensions excluding antenna and fixing screws).

This wireless transmitter module can be operated by a water sensor FWS60 or a pushbutton and transmits a variety of adjustable wireless telegrams to the Eltako building wireless system.

An internal jumper permits selection between 4 operating modes.

In mode 1 (jumper plugged at Position JP1) wireless telegrams is sent from a wireless pushbutton, such as 'Press double rocker at bottom left'.

In mode 2 (jumper plugged at Position 2) wireless telegrams is sent from a wireless pushbutton, such as 'Press double rocker at top right and bottom right'.

In mode 3 (jumper plugged at Position 3; factory setting) wireless telegrams is sent to EnOcean Standard EEP A5-30-03.

In mode 4 (jumper plugged at Position 4) wireless telegrams is sent to EnOcean Standard EEP A5-30-01.

In modes 3 and 4 a status telegram is also sent every 33 minutes.

The power supply that lasts several years is provided by an internal 3V button cell CR2032. The charge status of the battery is transmitted in every data and status telegram in mode 4.

Press the internal LRN button **to teach in** the actuator which is ready for teach-in.

Release two screws on the front to remove the cover. When closing, make sure the seal is in the correct position.

An M12 screw is located on the underside to connect the cable.

It is not permitted to activate several wireless transmitter modules at the same time.

FSM60B	Transmitter module with batteries	EAN 4010312316092	61,40 €/pc.
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FASM60-UC



Wireless outdoor transmitter module 2 channels. L x W x H: 60 x 46 x 30 mm (dimensions excluding fixing screws). With internal antenna. No standby loss.

The wireless transmitter module FASM60-UC has two channels and can transmit wireless pushbutton telegrams to the Eltako building wireless system. A1 initiates a wireless telegram, such as 'Press top rocker' for a wireless pushbutton with one rocker and A3 such as 'Press bottom rocker'. The telegram on opening the two control contacts is identical to 'Release wireless pushbutton'. Several wireless transmitter modules must not be switched at the same time.

There is a screw joint M12 at the bottom for the waterproof connection IP54. Connection to a 5-fold inside terminal for the control input +A1/-A2 and +A3/-A2. Loosen the 2 screws on the front and remove lid.

If the terminals A1 and A3 are connected with a bridge, the wireless telegram is transmitted once per minute by A3, provided the control voltage is applied, e.g. for central commands with priority.

The universal control voltage processes control commands of 8 to 253 V AC or 10 to 230 V DC with periods lasting min. 0.2 seconds.

Max. parallel capacitance of the single control leads (separately installed) at 230 V 3 nF, this corresponds to a length of approx. 10 meters. Parallel control leads (jointly installed) at 230 V 0.5 nF, approx. 2 meters.

Max. parallel capacitance (approx. length) of control lead at 12-24 V UC 0.03 µF, this corresponds to a length of approx. 100 meters.

No permanent power supply required, therefore no standby losses.

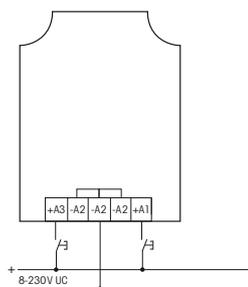
The wireless telegrams can be encrypted.

The internal rotary switch activates or deactivates the encryption mode, and is in operation in the center position.

Encryption activation: Turn the rotary switch to the right end and tap one time.

Encryption deactivation: Turn the rotary switch to the left end and tap one time.

Typical connection



FASM60-UC	Outdoor transmitter module 2 channels	EAN 4010312311998	59,50 €/pc.
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FA250, FHM175 AND FA200

Wireless antenna **FA250** with magnetic base and 250 cm cable, black

The small enclosed wireless antenna of the wireless antenna modules and several wireless transmitter modules are replaceable by this larger 868MHz-HF-antenna to receive and transmit wireless signals to or from metal control cabinets. It is mounted on the magnetic base externally and the 250 cm cable is routed inside the cabinet. The best performance is achieved by attaching the magnetic foot on a metal surface. The transmit and receive ranges are almost spherical around this antenna. Antenna height, only 10 cm. With SMA screw terminal. Extension by 5 m using wireless antenna extension FAV5 or by 10 m using FAV10.

Wireless antenna **FA250-gw** with magnetic base and 250 cm cable, grey white

Description see FA250, black.

HF ground **FHM175** for the HF wireless antenna FA250, aluminium disc anodized, 4 mm thick, 175 mm diameter.

This HF ground optimizes the receiver and transmitter performance of the HF antenna FA250 (not included in the scope of supply) since the diameter has twice the length of the antenna plus its bar diameter. A deepened steel disc with the diameter of the magnetic antenna coil is pressed into the center. Thereby the FA250 can easily be centered. The aluminium disc is formed with a hole and a slot to be fixed to the wall.

High-performance receive antenna **FA200** with magnetic base and 200 cm cable

This antenna has a radial gain of up to 7 dBi and therefore has a much greater range than wireless antenna FA250. As a trade-off the receive power along the antenna axis is considerably lower. This must be taken into consideration when positioning the antenna. **It may only be used as a receive antenna.** Antenna height 59 cm. With SMA screw terminal. Extension by 5 m using wireless antenna extension FAV5 or by 10 m using FAV10.

FA250	Wireless antenna with 250 cm cable, black	EAN 4010312300244	23,90 €/pc.
FA250-gw	Wireless antenna with 250 cm cable, grey white	EAN 4010312317051	23,90 €/pc.
FHM175	HF ground for FA250	EAN 4010312313121	73,30 €/pc.
FA200	High-performance receive antenna with 200 cm cable	EAN 4010312303306	72,70 €/pc.
FAV5	Antenna extension 5 m	EAN 4010312302897	31,30 €/pc.
FAV10	Antenna extension 10 m	EAN 4010312302903	39,30 €/pc.

ACCESSORIES - WIRELESS ANTENNA FAG65-WG, SPACER DS12, SOCKET OUTLET ST12-16A AND UNIVERSAL DOUBLE DIN RAIL MOUNTING PLATE U2RP



FAG65-wg



Wireless antenna in the housing for single mounting 84 x 84 x 30 mm or mounting into the E-design switching system. With 100 cm cable.

We recommend stainless-steel countersunk screws 2.9 x 25 mm, DIN 7982 C, for screw connections. Set of 2 stainless-steel countersunk screws 2.9 x 25 mm and plugs 5 x 25 mm are enclosed. In the housing there is a wireless antenna with ground plane and permanently attached antenna cable, 100 cm long, with SMA screw.

Image without frame

FAG65-wg	Wireless antenna pure white glossy	EAN 4010312315910	36,10 €/pc.
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DS12

Spacer

1/2 module wide = 9 mm, to produce and maintain a ventilation clearance for modular devices dissipating much heat, e.g. dimmers from 300 W/400 W and continuously rated electromechanical impulse switches.

DS12	Spacer	EAN 4010312900987	1,20 €/pc.
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ST12-16A

Socket outlet

Socket outlet 16 A as modular device for mounting on DIN-EN 60715 TH35 rail or as built-in device. 2.5 modules = 45 mm wide, 55 mm deep.

ST12-16A	Socket outlet	EAN 4010312700358	19,10 €/pc.
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U2RP



Universal DIN rail mounting plate for installation of 1 or 2 devices from the series 61, 62 and 64 in distributors and control cabinets on DIN-EN 60715 TH35 mounting rails. Attachment with pre-assembled adhesive pads. Additional fastening possible on site with cable ties.

U2RP	Universal double DIN rail mounting plate for series 61+62+64, grey	EAN 4010312908860	4,80 €/pc.
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DIN rail not included in the scope of delivery.

Recommended retail prices excluding VAT.



S+D 25

25 pcs screws and rawl plugs to fit the mounting plate for wireless pushbuttons. Screws also for fitting on UP boxes.

Contents: 25 pcs countersunk sheet metal screws with cross head 2.9x25 mm DIN 7982 C, stainless steel A2 and 25 pcs Fischer rawl plugs with lip SX5, 25 mm long.

The screw head fits exactly (in height and diameter) between the mounting plate of the wireless pushbutton and the Eltako frame.

Moreover, the screws are also suitable for fixing devices on UP switch boxes in the screw sleeves there.

S+D 25	25 screws and rawl plugs 25 mm	EAN 4010312906231	5,70 €/pc.
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RC12-230V

Triple RC module

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 55 mm deep.

Used to compensate for inductive interference voltages on control leads. Up to three switchgear devices can be interference-suppressed by connection in parallel with the 230 V control inputs.

RC12-230V	Triple RC module	EAN 4010312201596	33,60 €/pc.
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GBA14

Housing for operating instructions

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18 mm wide, 55 mm deep.

Housing without front panel to insert operating instructions.

GBA14	Housing for operating instr., white-blue	EAN 4010312906422	2,30 €/pc.
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ALL SPECIFICATIONS AT A GLANCE

Technical data of the wireless actuators, teach-in list, operating distances and contents of Eltako Wireless telegrams

Technical data switching actuators and dimming actuators for the Eltako RS485 bus	T-2
Technical data switching actuators and dimming actuators for installation	T-3
Teach-in list - Wireless sensors that can be taught-in in wireless actuators	T-4
Teach-in settings of lower rotary switch for the most customary devices of Series 61	T-5
Teach-in settings of upper rotary switch for the most customary devices of Series 14	T-6
Operating distances of the Eltako Wireless	T-7
Contents of Eltako Wireless telegrams	T-9

The Eltako wireless system works with the reliable and worldwide standardized EnOcean wireless technology in 868 MHz. It transmits ultra short and interference-proof signals with a range of up to 100 meters in halls. Eltako wireless pushbuttons reduce the electrosmog load since they emit high-frequency waves that are 100 times weaker than conventional light switches. There is also a significant reduction in low-frequency alternating fields since fewer power cables need to be installed in the building.

TECHNICAL DATA – SWITCHING ACTUATORS AND DIMMING ACTUATORS FOR THE ELTAKO RS485 BUS

Type	F4HK14 FHK14 FSB14 FSR14-4x	FUD14 FUD14/800W ⁷⁾	FSG14/1-10V ^{b)}	F2L14 ^{b)} F4SR14-LED FMS14, FMZ14 FSR14-2x ^{b)} FTN14 ^{b)}	FSR14SSR
Contacts					
Contact material/contact gap	AgSnO ₂ /0.5 mm	Power MOSFET	AgSnO ₂ /0.5 mm	AgSnO ₂ /0.5 mm	Opto-Triac
Test voltage control connections/contact	-	-	-	2000 V	4000 V
Rated switching capacity each contact	4 A/250 V AC	-	600 VA ⁵⁾	16 A/250 V AC; FMZ14: 10 A/250 V AC up to 400 W ⁶⁾ F4SR14: 8 A/250 V AC	-
incandescent lamps and halogen lamp load 230 V ²⁾	1000 W I _{on} ≤ 10 A/10 ms	up to 400 W; FUD14/800 W: up to 800 W ¹⁾³⁾⁴⁾	-	2000 W F4SR14: 1800 W I _{on} ≤ 70 A/10 ms	up to 400 W ⁶⁾
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	500 VA	-	-	1000 VA	-
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	250 VA, I _{on} ≤ 10 A/10 ms	-	600 VA ⁵⁾	500 VA	up to 400 VA ⁶⁾
Compact fluorescent lamps with EVG* and energy saving lamps ESL	up to 200 W ⁹⁾	up to 400 W ⁹⁾¹⁾	-	up to 400 W ⁹⁾	up to 400 W ⁶⁾⁹⁾
Inductive load cos φ = 0,6/230 V AC inrush current ≤ 35 A	650 W ⁸⁾	-	-	650 W ⁸⁾	-
230 V LED lamps	up to 200 W ⁹⁾	up to 400 W ⁹⁾¹⁾	-	up to 400 W ⁹⁾	up to 400 W ⁶⁾⁹⁾
Max. switching current DC1: 12 V/24 V DC	4 A	-	-	8 A (not FTN14 and FZK14)	-
Life at rated load, cos φ = 1 or for incandescent lamps 500 W at 100/h	>10 ⁵	-	>10 ⁵	>10 ⁵	∞
Service life at rated load, cos φ = 0,6 at 100/h	>4x10 ⁴	-	>4x10 ⁴	>4x10 ⁴	∞
Max. operating cycles	10 ³ /h	-	10 ³ /h	10 ³ /h	10 ³ /h
Maximum conductor cross-section (3-fold terminal)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ² (4 mm ²)	6 mm ²
Two conductors of same cross-section (3-fold terminal)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)	2.5 mm ² (1.5 mm ²)
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/cross- head, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20
Electronics					
Time on	100%	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (active power)	0.1 W	0.3 W	0.9 W	0.05-0.5 W	0.1 W
Local control current at 230 V control input	-	-	-	5 mA	-
Max. parallel capacitance (approx. length) of local control lead at 230 V AC	-	-	-	FTN14: 0.3 μF (1000 m)	-

* EVG = electronic ballast units; KVG = conventional ballast units

¹⁾ Bistable relay as relay contact. After installation, wait for short automatic synchronisation before teaching-in the wireless pushbuttons.

²⁾ If the load exceeds 200 W, a ventilation clearance of 1/2 pitch unit to adjacent devices must be maintained.

³⁾ Applies to lamps of max. 150 W.

⁴⁾ Per dimmer or capacity enhancer it is only allowed to use max. 2 inductive (wound) transformers of the same type, furthermore no-load operation on the secondary part is not permitted. The dimmer might be destroyed. Therefore do not permit load breaking on the secondary part. Operation in parallel of inductive (wound) and capacitive (electronic) transformers is not permitted!

⁵⁾ When calculating the load a loss of 20% for inductive (wound) transformers and a loss of 5% for capacitive (electronic) transformers must be considered in addition to the lamp load.

⁶⁾ Fluorescent lamps or LV halogen lamps with electronic ballast.

⁷⁾ Applies to one contact and the sum of both contacts.

⁸⁾ Capacity increase for all dimmable lamp types with Capacity Enhancer FLUD14.

⁹⁾ All actuators with 2 contacts: Inductive load cos φ = 0.6 as sum of both contacts 1000 W max.

¹⁰⁾ Generally applies to energy saving lamps (ESL) and 230 V LED lamps. Due to different lamp electronics, switch on/off problems and a restriction in the maximum number of lamps, however, the dimming ranges may be limited depending on the manufacturer; in particular when the connected load is very low (e.g. with 5 W LEDs). The dimmer switch comfort settings EC1, EC2, LC1, LC2 and LC3 optimise the dimming range, however, the maximum power is then only up to 100 W. In these comfort settings, no inductive (wound) transformers may be dimmed.

The second terminating resistor has to be plugged to the last actuator included in the FAM14 respectively FSNT14 scope of supply.

Eltako Wireless is based on the EnOcean wireless standard for 868 MHz, frequency 868.3 MHz, data rate 125 kbps, modulation mode ASK, max. transmit power 7 dBm (<10 mW).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

Type	FSUD FUD61NP FUD61NPN	FUD70S FUD71 FUD71L	FKLD61 ^{a)} FLD61 ^{a)} FRGBW71L ^{a)} FWWKW71L ^{a)}	FDH62, FHK61, FLC61, FMS61, FMZ61, FSHA, FSR61, FSR61LN, FSR70S, FSR71, FSSA, FSSG, FSVA, FTN61	FSG71/1-10V	FHK61SSR FSR61G	FSB61 FSB71 FSR71NP-4x
Contacts							
Contact material/contact gap	Power MOSFET	Power MOSFET	Power MOSFET	AgSnO ₂ /0.5 mm ^{b)}	AgSnO ₂ /0.5 mm ^{b)}	Opto Triac	AgSnO ₂ /0.5 mm ^{b)}
Spacing of control connections/contact	-	-	6 mm	3 mm	-	-	3 mm
Test voltage control connections/contact	-	-	-	2000 V	-	-	2000 V
Rated switching capacity each contact	-	-	-	10 A/250 V AC FSR71: 16 A/250 V AC	600 VA ⁴⁾	-	4 A/250 V AC
Incandescent lamp and halogen lamp load ¹⁾ 230 V, I on ≤ 70 A/10 ms	up to 300 W ²⁾	up to 400 W ²⁾ FUD71L: up to 1200 W ²⁾	-	2000 W	-	up to 400 W	1000 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	-	-	-	1000 VA	-	-	500 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	-	-	-	500 VA	600 VA ⁴⁾	up to 400 VA	250 VA
Compact fluorescent lamps with EVG* and energy saving lamps	up to 300 W ³⁾ (not FUD61NP)	up to 400 W ³⁾ FUD71L: up to 1200 W ³⁾	-	up to 400 W ³⁾	-	up to 400 W ³⁾	up to 200 W ³⁾
Inductive load cos φ = 0.6/230 V AC inrush current ≤ 35 A	-	-	-	650 W ⁵⁾	-	-	650 W ⁵⁾
Dimmable 230 V LED lamps	up to 300 W ³⁾ (not FUD61NP)	up to 400 W ³⁾ FUD71L: up to 1200 W ³⁾	-	up to 400 W ³⁾ I on ≤ 120 A/5 ms	-	up to 400 W ³⁾ I on ≤ 120 A/20 ms	up to 200 W ³⁾ I on ≤ 10 A/ 10 ms
Dimmable LED lamps 12-36 V DC	-	-	FLD61: 4 A FKLD61: 30 W FRGBW71L: 4x2 A FWWKW71L: 2x4 A	-	-	-	-
Max. switching current DC1: 12 V/24 V DC	-	-	-	8 A (not NP, FSHA, FSSA, FSVA, 70, 71)	-	-	-
Service life at rated load, cos φ = 1 or incandescent lamps 500 W at 100/h	-	-	-	> 10 ⁵	> 10 ⁵	∞	> 10 ⁵
Service life at rated load, cos φ = 0.6 at 100/h	-	-	-	> 4x10 ⁴	> 4x10 ⁴	-	> 4x10 ⁴
Max. operating cycles	-	-	-	10 ³ /h	10 ³ /h	10 ³ /h	10 ³ /h
Maximum conductor cross-section	4 mm ²	4 mm ²	4 mm ²	4 mm ²	4 mm ²	4 mm ²	4 mm ²
Two conductors of same cross-section	1.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²
Screw head	slotted/cross- head	slotted/cross- head	slotted/cross- head	slotted/cross- head	slotted/cross- head	slotted/cross- head	slotted/cross- head
Type of enclosure/terminals	IP30/IP20	IP30/IP20	IP30/IP20	IP30/IP20	IP30/IP20	IP30/IP20	IP30/IP20
Electronics							
Time on	100%	100%	100%	100%	100%	100%	100%
Max./min. temperature at mounting location	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C	+50°C/-20°C
Standby loss (active power)	0.7 W	0.6 W FUD71: 0.7 W	0.2-0.6 W	0.3 W-0.9 W	1.4 W	0.8 W	0.8 W
Control current universal control voltage 8/12/24/230 V (<5 s)	-	-	2/3/7/4(100) mA	-	-	-	-
Local control current at 230 V control input, only on Series 61	1 mA	-	-	3.5 mA; FSR61/8-24 V UC at 24 V DC: 0.2 mA	-	3.5 mA	3.5 mA
Max. parallel capacitance (approx. length) of local control lead at 230 V AC	0.06 μF (200 m)	-	0.3 μF (1000 m)	3 nF (10 m)	-	3 nF (10 m)	3 nF (10 m)

^{a)} Secondary cable length with a maximum of 2m. ^{b)} Bistable relay as relay contact. After installation, wait for short automatic synchronisation before teaching-in the wireless pushbuttons. ^{c)} Applies to lamps of max. 150 W. ^{d)} Also max. 2 induction transformers of the same type (L load) and electronic transformers (C load). ^{e)} Generally applies to energy saving lamps (ESL) and 230 V LED lamps. Due to different lamp electronics, switch on/off problems and a restriction in the maximum number of lamps, however, the dimming ranges may be limited depending on the manufacturer; in particular when the connected load is very low (e.g. with 5 W LEDs). The dimmer switch comfort settings EC1, EC2, LC1, LC2 and LC3 optimise the dimming range, however, the maximum power is then only up to 100 W. In these comfort settings, no inductive (wound) transformers may be dimmed. ^{f)} Fluorescent lamps or LV halogen lamps with electronic ballast. ^{g)} All actuators with 2 contacts: Inductive load cos φ = 0.6 as sum of both contacts 1000 W max. * EVG = electronic ballast units; KVG = conventional ballast units.

Eltako Wireless is based on the EnOcean wireless standard for 868 MHz, frequency 868.3 MHz, data rate 125 kbps, modulation mode ASK, max. transmit power 7 dBm (<10 mW).

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.

TEACH-IN LIST - WIRELESS SENSORS THAT CAN BE TAUGHT-IN IN WIRELESS ACTUATORS

Sensors	Pushbuttons, hand-held transmitters and remote controls B4, F1, F2, F4, F4T65B, FF8, FFD, FFT55, FHS, FKD, FMH, FMT55, FSTAP, FT55, FTTB	Transmitter modules FASM60 FSM14 FSM60B FSM61 FSU... FTS14EM F4USM61B	Card switch, pull switch and smoke alarm FHMB FKF FRW FRWB FZS	Window/door contact FFKB FFTE FPE FTK FTKB FTKE	Window handle sensor and window/door contact FFG7B FTKB-hg	Motion/brightness sensors FABH65S FB... FBH...	Brightness sensors FAH60 FAH60B FAH65S FHD60SB FIH65S	Temperature controller/sensors FFT... FFT60SB FTF65S FTFB FTFSB FTR... FUTH...	Air quality sensor FLGTF	Control from the Smart Home control unit SafeIV with software GFVS
F2L14	X	X		X	X			X	X	
F4HK14	X	X		X	X	X ³⁾		X ¹⁾	X ¹⁾	X
F4SR14-LED	X	X	X	X	X	X	X			X
FAE14...	X	X		X	X	X ³⁾		X ¹⁾	X ¹⁾	X
FDG14	X	X		X		X				X ²⁾
FFR14	X	X								X
FHK14	X	X		X	X	X ³⁾		X ¹⁾	X ¹⁾	X
FMS14	X	X	X							X
FMZ14	X	X	X	X	X					X
FSB14	X	X		X	X		X			X ²⁾
FSG14/1-10V	X	X		X		X	X			X ²⁾
FSR14...	X	X	X	X	X	X	X			X
FTN14	X	X		X	X	X				X
FUD14...	X	X		X		X	X			X ²⁾
FZK14			X	X	X	X ³⁾				
FAC...	X			X	X	X		X ¹⁾	X ¹⁾	
FD62...	X	X				X				X
FDG71	X	X		X		X				X ²⁾
FFR61-230V	X	X								X
FGM	X	X	X	X		X ³⁾				X
FHD62NP	X	X		X	X					X ²⁾
FHK61	X	X		X	X	X ³⁾		X ¹⁾		X ²⁾
FJ62...	X	X		X	X					X
FKLD61	X	X				X	X			X ²⁾
FL62...	X	X	X			X				X
FLC61NP-230V	X	X	X			X	X			X
FLD61	X	X				X	X			X ²⁾
FMS61NP-230V	X	X								X
FMZ61-230V	X	X	X	X						X
FR62...	X	X		X	X					X
FRGBW71L	X	X				X	X			X ²⁾
FSB61...	X	X		X	X		X			X ²⁾
FSB71...	X	X		X	X		X			X ²⁾
FSG71/1-10V	X	X		X						X ²⁾
FSHA-230V	X	X		X	X	X ³⁾		X ¹⁾	X ¹⁾	X ²⁾
FSR61...	X	X	X	X	X	X	X			X
FSR71...	X	X	X	X	X	X	X			X
FSR70S-230V	X	X	X			X ³⁾	X			X
FSSA-230V	X	X		X						X
FSUD-230V	X	X								X ²⁾
FSVA-230V	X	X		X						X
FTN61NP-230V	X	X		X	X	X				X
FUA12-230V	X	X	X	X	X	X	X			X
FUD61...	X	X				X	X			X ²⁾
FUD71	X	X		X		X	X			X ²⁾
FUD70S-230V	X	X								X ²⁾
FUTH...				X	X					
FWWKW71L	X	X				X	X			X ²⁾
FZK61NP-230V			X	X	X	X ³⁾				

TEACH-IN SETTINGS OF LOWER ROTARY SWITCH FOR THE MOST CUSTOMARY DEVICES OF SERIES 61*

Type	FMS61 from week 08/13	FMZ61 from week 18/11	FSB61 from week 39/12	FSR61 from week 41/12	FSR61 from week 11/14	FTN61 from week 25/11	FUD61NP from week 38/12	FUD61NPN from week 40/12
Teaching-in function				Phase-out-model				
Universal pushbutton / toggle / switch over (On/Off)	UT1 = channel 1 UT2 = channel 2 (2)	2	60	80	Approx. middle	2	LC2	
Universal pushbutton NC contact				120	120			
Direction pushbutton	RT1 = channel 1 RT2 = channel 2	1h	min	40	max	EC1		
On / central ON resp. UP			3	∞	∞	20	3	LC3
Off / central OFF resp. DOWN	(1)	1	2	2	1	1	LC1	
FTK as NC contact	0.5s	2	2	2	20			
FTK as NO contact	(3)			∞	∞	1		
FBH as motion detector					∞ (Slave)	20	max	EC1
FBH as motion detector with brightness sensor					2..120	1...20	min...3	AUTO...EC2
FAH as twilight sensor			min..max	2..120	2..120	AUTO...EC1		
FSU or pushbutton as wake-up light								EC2
Wireless Visualisation and Control Software GFVS/LZ light scene	RT1 = GFVS RT2 = GFVS	max	6 = LZ	80 = GFVS 6 = LZ	min	AUTO		

Additional information:

Clear all addresses:

Turn position CLR and the other rotary switches 3 times from centre to right. Centre-right-centre-right-centre-right.

Activate or deactivate feedback:

Turn position CLR and the other rotary switches 3 times from centre to left. Centre-left-centre-left-centre-left.

Activate or deactivate Repeater Level 1:

Switch off power, depress pushbutton connected to the pushbutton input and switch power back on.

TEACH-IN SETTINGS OF UPPER ROTARY SWITCH FOR THE MOST CUSTOMARY DEVICES OF SERIES 14

Type	FAE14 FHK14	FMS14	FSB14	FSR14	FTN14	FUD14
Teaching-in function						
Universal pushbutton / toggle / switch over (On/Off)		3 channel 1+2 7 channel 1 8 channel 2	20 channel 1 40 channel 2	5 switch 10 relay	3	EC2
Direction pushbutton		5 channel 1+2 9 channel 1 10 channel 2	10 channel 1 30 channel 2	0		LC2
On / Central On		4	180 channel 1 200 channel 2	45	4	LC1
Off / Central Off		2		90	2	EC1
Sequential light scene pushbutton						LC3
4-way direct light scene pushbutton			180 channel 1 200 channel 2	30		LC4
Single light scene pushbutton						LC5
Staircase light switch					3	LC6
Wireless Visualisation and Control Software GFVS	4,5	9 channel 1 10 channel 2	180 channel 1 200 channel 2	0	2 off 4 on	PCT
FTK window/door contact			20 channel 1 40 channel 2	0	LC2 as NO contact LC3 as NC contact	LC2 as NO contact LC3 as NC contact
FAH brightness sensor			150 both channels	0-120		LC5 as switch LC6 as dimmer
FSU or pushbutton as wake-up light						AUTO
FBH as motion detector with brightness sensor	4,5			0-120	1....20	AUTO
Central control without priority			60 both channels	45 on 90 off		
Central control with priority, first signal starts priority, second signal stops it			90 both channels			
Central control with priority as long as signal is applied			120 both channels	15 on 20 off		
FTR temperature controller	4,5					

OPERATING DISTANCES BETWEEN SENSORS AND ACTUATORS.

Compared with hard-wired systems, EnOcean wireless systems are highly flexible and simple to install. The following instructions simplify installation. You will find detailed instructions on wireless network planning in the 12-page booklet "EnOcean Wireless Systems - Range planning Guide" that you can download from www.enocean.com.

1. Wireless signal range

Wireless signals are electromagnetic waves. The field strength at the receiver decreases the further the distance away from the transmitter. The wireless range is therefore limited.

Obstacles standing in the radio field also shorten range compared with line-of-sight links:

OBSTACLE	REDUCED RANGE
Wood, plaster, glass uncoated, with no metal	0 - 10 %
Brick, particle board	5 - 35 %
Concrete with iron reinforcement bars	10 - 90 %
Metal, aluminium cladding	see 2.

The geometric shape of a room determines the radio range since propagation is not in the form of a beam but requires a certain volume of space (the radio beam from the transmitter and receiver ellipsoidal at their points of focus). Narrow corridors with solid walls are bad for propagation.

External antennas typically have better radio characteristics than flush-mounted receivers installed in walls. The type of fitted for the antennas and the spacing from ceilings, floors and walls all play a role.

People and obstacles in a room may reduce range.

It is therefore essential to integrate some reserve when performing range planning to ensure the reliable functioning of the wireless system even in poor conditions.

A sturdy, reliable installation in a building is achieved by integrating sufficient range reserves.

Recommendations from everyday practice:

RANGE	CONDITIONS
> 30 m	Under excellent conditions: Large free room, optimum antenna design and good antenna position.
> 20 m (planning safety)	If there are furniture and persons in the room, through up to 5 dry plasterboard walls or 2 brick/aerated concrete walls: For transmitters and receivers with good antenna design and good antenna position.
> 10 m (planning safety)	If there are furniture and persons in the room, through up to 5 plasterboard drywalls or 2 brick/aerated concrete walls: For receivers fitted in wall or in ceiling. Or small receiver with internal antenna. Or together with switch/wire antenna on/near metal. Or a narrow corridor.

RANGE	CONDITIONS
Dependent on reinforcement and antenna design	Vertical through 1-2 ceilings

2. Partitioning

So-called radio shadows form behind metal surfaces, e.g. behind metal partition walls and metal ceilings, behind metal foils of heat insulation and solid reinforcement in concrete walls. Single thin metal strips have very little influence, for example the profile sections in a plasterboard drywall.

It has been observed that radio communications also works with metal room dividers. This occurs by reflections: metal and concrete walls reflect radio waves and they travel to neighbouring corridors or rooms through openings, e.g. in a wooden door or a glass partition. The range may be strongly reduced depending on the location. An additional repeater at a suitable location can easily offer alternative radio paths.

Important conditions that reduce radio range:

- Metal partition walls or hollow walls filled with insulation wool backed by metal foil
- Suspended ceilings with panels made of metal or carbon fibre
- Steel furniture or glass with metal coating
- Fitting the pushbutton on a metal wall (typical range loss: 30%)
- Use of metal pushbutton frames (typical range loss: 30%)

Firewalls, staircases and building services areas should be regarded as partitions.

A partition can be avoided by repositioning the transmitter/receiver antenna out of the radio shadow or by using a repeater.

OPERATING DISTANCES BETWEEN SENSORS AND ACTUATORS.

3. Penetration angle

The angle at which the transmitted signal impinges on the wall plays a special role. Signals should penetrate masonry as vertically as possible. Wall niches must be avoided.

4. Antenna installation

The receive antenna or a **receiver with an integrated antenna** should not be installed on the same side of the wall as the transmitter. It is better to install the antenna on adjacent or opposite walls. The antennas should be spaced from the room corner at a distance of >10 cm as far as possible.

The ideal installation location for the receive antenna is a central position in the room.

A **"magnet foot antenna"** (e.g. Eltako FA200 or FA250) must adhere on a metallic surface that is as large as possible in order to create a sufficient opposite pole. For example, the simplest installation can be on a ventilation pipe.

5. Spacings between receiver and other interference sources

The spacing between the receiver and other transmitters (e.g. GSM/DECT/Wireless LAN) and high-frequency interference sources (computer, audio and video systems) should be >50 cm.

Eltako transmitters, on the other hand, can be installed without any problem next to other transmitters and interference sources.

6. Use of repeaters

In case of problems with reception quality, it may be helpful to use a wireless repeater. The Eltako Repeater FRP61 (see chapter Z) requires no configuration, only a mains connection. It receives the wireless signal and passes it on. This almost doubles the range. Eltako repeaters are switchable to 2-level function and allow more than two repeaters to be cascaded.

7. Field strength measuring instrument

The field strength measuring instrument EPM300 (see chapter Z) helps to find the best position for transmitter and receiver. Moreover, it can be used to test link interferences in installed devices and even identify an interfering transmitter.

8. Installation in residential buildings

Here there is no real necessity to overcome large radio links. If necessary, a central wireless repeater can be installed to amplify the signal.

9. Installation in industrial buildings

To cover large premises, a wireless gateway is typically used as an automation bus (TCP/IP, EIB/KNX, LON, etc.). Planning with a range radius of 10-12 m offers sufficient security, even if there are the usual changes to the environmental conditions later.

COMMUNICATION WITHIN ELTAKO WIRELESS BUILDING

All Eltako wireless sensors and Eltako wireless actuators communicate within the Eltako wireless network by means of wireless telegrams that are formatted using the world-wide standard of EnOcean Alliance. These are the EEPs as described below; some of them are partly modified to a certain extent. The feedback from the bidirectional actuators to confirm the switch position correspond to those of the PTM215 wireless modules but without the telegram sent when the button is released.

SENSOR TELEGRAMS

<p>F1T65, F1FT65, F1T55E, FET55E, FKD, FMH1W, FNS55B, FNS55EB, FNS65EB, FPE-1 (EEP F6-01-01)</p> <p>ORG = 0x05 Data_byte3 = push = 0x10, release = 0x00</p>	<p>F4USM61B</p> <p>EEP A5-07-01 Data_byte3 = - Data_byte2 = - Data_byte1 = E2, E4 = 0xC8 = semi-automatic motion detection E1, E3 = 0xFF = fully automatic motion detection Data_byte0 = 0x08 Teach-in telegram: 0x1C080D80</p> <p>EEP A5-08-01 ORG = 0x07 Data_byte3 = - Data_byte2 = - Data_byte1 = - Data_byte0 = 0x0D = motion 0x0F = no motion Teach-in telegram: 0x20080D85</p> <p>EEP A5-38-08 Data_byte3 = 0x01 Data_byte0 = E2, E4 = 0x08 = OFF E1, E3 = 0x09 = ON Teach-in telegram: 0xE0400D80</p> <p>EEP D5-00-01 ORG = 0x06 Data_byte3 = contact closed -> 0x09 contact open -> 0x08</p> <p>EEP F6-02-01 ORG = 0x05 Data_byte3 = E1 = 0x70, E2 = 0x50, E3 = 0x30, E4 = 0x10, release = 0x00</p>
<p>F2T65, F2T65B, F2FT65, F2FT65B, F2ZT65, F2ZT65B, F2T55E, F2T55EB, F2ZT55E, FZT55, FHS2, FMH2, FMH2S (EEP F6-02-01)</p> <p>ORG = 0x05 Data_byte3 = push up = 0x70, push bottom = 0x50, release = 0x00</p> <p>F3Z14D (EEP A5-12-01, 02, 03)</p> <p>Electricity EEP A5-12-01 ORG = 0x07 Data_byte3 to Data_byte1 form a 24-bit binary coded number Data_byte3 = Data Byte 3 (MSB) 0...16777215 Data_byte2 = Data Byte 2 0...16777215 Data_byte1 = Data Byte 1 (LSB) 0...16777215 Data_byte0 = DB0_Bit4 = - DB0_Bit3 = LRN Button (0 = teach-in telegram, 1 = data telegram) DB0_Bit2 = data content switchover: 1 = momentary power in watts, 0 = meter status in 0.1 KW/h DB0_Bit1 = 0 (fix) DB0_Bit0 = 1 (fix) Possible values in data telegram: DB0 = 0x09 -> meter status normal rate in 0,1 KW/h DB0 = 0x0C -> momentary power in W, normal rate active DB0 = 0x1C -> momentary power in W, off-peak rate active Teach-in telegram: 0x48080D80 ID = Base-ID of FAM14 + device addresses of F3Z14D Gas EEP A5-12-02 Teach-in telegram: 0x48100D80 Water EEP A5-12-03 Teach-in telegram: 0x48180D80</p>	<p>F6T65B, F6T55B (EEP F6-02-01)</p> <p>ORG = 0x05 Data_byte3 = 0x70/0x50/0x30/0x10 Data_byte3 = 0x70/0x50</p> <p>Presence telegram according to EEP A5-07-01 Data_byte3 = operating voltage 0..5V (0..250) Data_byte2 = - Data_byte1 = 0xFF Data_byte0 = 0x08 Teach-in telegram: 0x1C080D80</p>
<p>F4T65, F4T65B, F4FT65, F4FT65B, F4PT, FT4F, F4T55E, F4T55EB, F4PT55, FHS4, FMH4, FMH4S, FF8, FMH8 (EEP F6-02-01)</p> <p>ORG = 0x05 Data_byte3 = push top right = 0x70, push bottom right = 0x50, push top left = 0x30, push bottom left = 0x10, release = 0x00</p>	<p>FABH130</p> <p>ORG = 0x05 Data_byte3 = 0x70 = motion 0x00 = no motion</p>
<p>F4T55B, FT55 (EEP F6-02-01)</p> <p>Data_byte3 = 0x70/0x50 (with rocker) = 0x70/0x50/0x30/0x10 (with double rocker) release = 0x00</p>	

SENSOR TELEGRAMS

FABH65S, FBH65, FBH65S, FBH65TF (EEP A5-08-01 EXCEPTIONS BY ELTAKO)

Expanded brightness range, no Occupancy Button in DB0_Bit0)

ORG = 0x07

Data_byte3 = operating voltage 0..5,1V (0..255)

Data_byte2 = brightness 0..2048 lux (0..255)

Data_byte1 = -

Data_byte0 = 0x0D = motion

0x0F = no motion

Teach-in telegram: 0x20080D85

only FBH65TF additionally EEP A5-04-02

Data_byte2 = rel. air humidity 0..100% (0..250)

Data_byte1 = temperature -20..+60°C (0..250)

Teach-in telegram: 0x10100D87

ORG = 0x05

Data_byte3 = On = 0x70, Off = 0x50

FAH65S, FIH65S (EEP A5-06-01 EXCEPTIONS BY ELTAKO)

ORG = 0x07

Data_byte3 = brightness 0..100 lux (0..100)

(only valid if DB2 = 0x00)

Data_byte2 = brightness 300..30.000 lux (0..255)

Data_byte1 = -

Data_byte0 = 0x0F

Teach-in telegram: 0x18080D87

FASM60, FSM14, FSM61

ORG = 0x05

Data_byte3 = 0x70/0x50

only FSM14 additionally 0x30/0x10

FB65B, FB55B, FBH65SB, FBH55SB, FBHF65SB (EEP A5-07-01 OR A5-08-01)

EEP A5-07-01

Data_byte3 = -

Data_byte2 = -

Data_byte1 = 0xC8 = semi-automatic motion detection

0xFF = fully automatic motion detection

Data_byte0 = 0x08

Teach-in telegram: 0x1C080D80

Only FBH65SB, FBH55SB, FBHF65SB

FBH mode data telegram acc. to EEP A5-08-01

ORG = 0x07

Data_byte3 = operating voltage 0..5,1V (0..255)

Data_byte2 = brightness 0..510 lux (0..255)

Data_byte1 = -

Data_byte0 = 0x0D = motion

0x0F = no motion

Teach-in telegram: 0x20080D85

FC02TF65, FC02TS (EEP A5-09-04)

ORG = 0x07

Data_byte3 = humidity 0..100% (0..200)

Data_byte2 = CO₂ value 0..2550ppm (0..255)

Data_byte1 = temperature 0..51°C (0..255)

Teach-in telegram: 0x24200D80

FDT65B, FDT55B, FDT55EB, FDTF65B (EEP A5-38-08)

ORG = 0x07

Data_byte3 = 0x02

Data_byte2 = dimming value in % (0..100)

Data_byte1 = 0x01

Data_byte0_Bit0: 1 = On, 0 = Off

Teach-in telegram: 0xE0400D80

FFD

ORG = 0x05

Data_byte3 = 0x70/0x50/0x30/0x10

Dimming value acc. to EEP A5-38-08

ORG = 0x07

Data_byte3 = 0x02

Data_byte2 = dimming value in % (0..100)

Data_byte1 = 0x01

Data_byte0_Bit0: 1 = On, 0 = Off

Teach-in telegram: 0xE0400D80

FFG7B (EEP A5-14-09 OR EEP F6-10-00)

ORG = 0x07

Data_byte3 = operating voltage: 0..5 V (0..250)

Data_byte0 = 0x08 = window closed

0x0E = window open

0x0A = window tilted

Teach-in telegram: 0x50480D80

EEP F6-10-00

ORG = 0x05

Data_byte3 = 0xF0 = window closed

0xE0 = window open

0xD0 = window tilted

FFGB-hg (EEP A5-14-0A, A5-14-09, A5-14-01, A5-14-03, A5-14-07, A5-14-08 or F6-10-00)

FFT65B, FFTF65B, FFT55B, FTFB, FTFSB, FFT60SB (EEP A5-04-02 OR A5-04-03)

EEP A5-04-02

Data_byte2 = rel. air humidity 0..100% (0..250)

Data_byte1 = temperature -20..+60°C (0..250)

Teach-in telegram: 0x10100D87

EEP A5-04-03

Data_byte3 = rel. air humidity 0..100% (0..255)

Data_byte2 und 1 = temperature -20..+60°C (0..1023)

Teach-in telegram: 0x10180D80

FHD60SB (EEP A5-06-01 UND A5-38-08)

FAH-Modus: Data telegram acc. to EEP A5-06-01

Data_byte3 = brightness 0..100 lux (0..100)

(only valid if DB2 = 0x00)

Data_byte2 = brightness 300..30.000 lux (0..255)

Data_byte1 = -

Data_byte0 = 0x09

Teach-in telegram: 0x18080D80

TF-Modus: data telegram acc. to EEP A5-38-08

Data_byte3 = 0x01

Data_byte0 = 0x08 = OFF

0x09 = ON

0x28 = unlock

Teach-in telegram: 0xE0400D80

SENSOR TELEGRAMS

<p>FHD65SB (EEP A5-06-02 EXCEPTIONS BY ELTAKO)</p> <p>ORG = 0x07 Data_byte3 = operating voltage 0..5,1V (0..255) Data_byte2 = brightness 0..1020 lux (0..255) Data_byte1 = - Data_byte0 = 0x0F Teach-in telegram: 0x18100D87</p>	<p>FSU65D/230V, FSU55D/230V</p> <p>ORG = 0x05 Data_byte3 = 0x70 = switch on, 0x50 = switch off</p> <p>Clock telegramm nach EEP A5-13-04 Teach-in telegram: 0x4C200D80</p> <p>Tap-radio telegram acc. to EEP A5-38-08 Teach-in telegram: 0xE0400D80</p>
<p>FHMB, FRWB (EEP A5-30-03)</p> <p>ORG = 0x07 Data_byte3 = 0x00 Data_byte2 = temperature 0..40°C (255..0) Data_byte1 = 0x0F = alarm, 0x1F = no alarm Data-Byte0 = 0x08 Teach-in telegram: 0xC0182D80</p>	<p>FSDG14, FWZ14, FWZ12, DSZ14DRS, DSZ14WDRS (EEP A5-12-01)</p> <p>ORG = 0x07 Data_byte3 to Data_byte1 form a 24-bit binary coded number Data_byte3 = Data Byte 3 (MSB) 0...16777215 Data_byte2 = Data Byte 2 0...16777215 Data_byte1 = Data Byte 1 (LSB) 0...16777215 Data_byte0 = DB0.Bit4 = tariff changeover (0 = Normal rate, 1= Off-peak rate) DB0.Bit3 = LRN Button (0 = teach-in telegram, 1 = data telegram) DB0.Bit2 = data content switchover: 1 = momentary power in watts, 0 = meter status in 0.1 KW/h DB0.Bit1 = 0 (fix) DB0.Bit0 = 1 (fix)</p> <p>Possible values in data telegram: DB0 = 0x09 -> meter status normal rate in 0.1 KW/h DB0 = 0x19 -> meter status off-peak rate in 0.1 KW/h DB0 = 0x0C -> momentary power in W, normal rate active DB0 = 0x1C -> momentary power in W, off-peak rate active Teach-in telegram: 0x48080D80 (is sent once at every power-up) ID = base-ID des FAM14 + device address of DSZ14(W)DRS In addition, the meter serial number printed on the meter is transmitted every 10 minutes. The data is divided into 2 consecutive telegrams. 1. part: DB0 = 0x8F -> meter serial number = S-AABBCC (A,B,C = 0..9) DB1 = 0x00 -> the first 2 digits of the serial number in DB3 DB2 = 0x00 DB3 = AA 2. part: DB0 = 0x8F -> meter serial number = S-AABBCC (A,B,C = 0..9) DB1 = 0x01 -> the last 4 digits of the serial number in DB2 and DB3 DB2 = BB DB3 = CC</p>
<p>FKF65</p> <p>ORG = 0x05 Data_byte3 = 0x10/status (hex) KCG = 0x20 KCS = 0x30</p>	
<p>FKS-H (EEP A5-20-04)</p> <p>Data_byte3 = Valve position 0-100% (0..100) Data_byte2 = (if data_byte0 = 08) flow temperature 20..80°C (0..255) Data_byte2 = (if data_byte0 = 0A) setpoint temperature 10..30°C (0..255) Data_byte2 = (if data_byte0 = 09) Error code 0x12 = battery empty Data_byte1 = actual temperature 10..30°C (0..255) Teach-in telegram: 0x80204580</p>	
<p>FLGTF65, FLGTF55 (EEP A5-09-0C AND A5-04-02)</p> <p>TVOC data telegram acc. to EEP A5-09-0C Data_byte3 + Data_byte2 = 0..65535 ppb (0..255) Data_byte1 = - Data_byte0 = 0x0A Teach-in telegram: 0x24600D80</p> <p>Temperature humidity data telegram acc. to EEP A5-04-02 Data_byte3 = - Data_byte2 = rel. air humidity 0..100% (0..250) Data_byte1 = temperature -20..+60°C (0..250) Data_byte0 = 0x0F Teach-in telegram: 0x10100D87</p>	
<p>FMMS44SB, FMS55SB, FMS55EB, FMS65EB (EEP D2-14-41, D2-14-40, A5-04-01, A5-04-03, A5-02-05, A5-06-02, A5-06-03, A5-14-05, ONLY FMMS44SB ADDITIONALLY D2-00-01)</p>	
<p>FNS55B, FNS55EB, FNS65EB (EEP F6-01-01)</p> <p>ORG = 0x05 Data_byte3 = Hand in the detection area = 0x10, Hand away = 0x00</p>	
<p>FRW</p> <p>ORG = 0x05 Data_byte3 = 0x10 = alarm 0x00 = alarm-end 0x30 = battery voltage < 7.2 V</p>	
<p>FSM60B</p> <p>ORG = 0x05 Data_byte3 = 0x70 / 0x50 / 0x10 / 0x00</p> <p>EEP A5-30-01 ORG = 0x07 Data_byte1 = 0x00 / 0xFF</p> <p>EEP A5-30-03 ORG = 0x07 Data_byte1 = 0x0F / 0x1F</p>	<p>FSR61VA, FSVA-230V (EEP A5-12-01)</p> <p>ORG = 0x07 Data_byte3 to Data_byte1 form a 24-bit binary coded number Data_byte3 = Data Byte 3 (MSB) 0...16777215 Data_byte2 = Data Byte 2 0...16777215 Data_byte1 = Data Byte 1 (LSB) 0...16777215 Data_byte0 = DB0.Bit4 = 0 (fix) DB0.Bit3 = LRN Button (0 = teach-in telegram, 1 = data telegram) DB0.Bit2 = switchover data content: 1 = momentary power in watts, DB0.Bit1 = 0 (fixed) DB0.Bit0 = 1 (fixed)</p> <p>Possible values in data telegram: DB0 = 0x0C -> momentary power in W, normal rate active Teach-in telegram: 0x48080D80 (is sent once on every power-up)</p>
	<p>FSTAP</p> <p>ORG = 0x05 Data_byte3 = 0x70 = key right 0x50 = key left 0x00 = key center</p>

SENSOR TELEGRAMS

<p>FTF65S (EEP A5-02-05)</p> <p>ORG = 0x07 Data_byte3 = - Data_byte2 = - Data_byte1 = actual temperature 0..40°C (255..0) Data_byte0 = 0x0F Teach-in telegram: 0x08280D87</p>	<p>FTR78S (EEP A5-10-03)</p> <p>ORG = 0x07 Data_byte3 = - Data_byte2 = setpoint temperature 8..30°C (0..255) Data_byte1 = actual temperature 0..40°C (255..0) Data_byte0 = - Teach-in telegram: 0x40182D80</p>
<p>FTK, FTKB-RW, FFKB, FTKB-gr (EEP D5-00-01)</p> <p>ORG = 0x06 Data_byte3 = contact closed -> 0x09 contact open -> 0x08 Data_byte2 = - Data_byte1 = - Data_byte0 = - Teach-in telegram: 0x00000000 only FTKB-rw and FFKB additionally ORG = 0x07 Data_byte2 = battery voltage 0..5V (0..255) Data_byte3 = battery voltage 0..5V (0..255)</p>	<p>FTR86B (EEP A5-10-06)</p> <p>ORG = 0x07 Data_byte2 = setpoint temperature 0..40°C (0..255) Settable range: 12..28°C Data_byte1 = actual temperature 0..40°C (255..0) Data_byte0 = 0x0F Teach-in telegram: 0x40300D87</p>
<p>FTKB-hg (EEP A5-14-0A)</p> <p>ORG = 0x07 Data_byte3 = operating voltage 0..5V (0..250) Data_byte0 = 0x08 = window closed 0x0E = window open 0x0A = window tilted Data_byte0.0: 0 = no alarm, 1 = alarm Teach-in telegram: 0x50501680</p>	<p>FTS14EM (ONLY TELEGRAMS FOR THE ELTAKO-RS485-BUS)</p> <p>Depending on the set ID range (addition of lower rotary switch + upper rotary switch + 1000) the following basic ID's arise. Example for group 1: 1 (bottom rotary switch) +0 (top rotary switch) +1000 = basis- ID = 1001 Example for group 1: 1 (bottom rotary switch) +90 (top rotary switch) +1000 = basis- ID = 1091 Example for group 5: 401 (bottom rotary switch) +30 (top rotary switch) +1000 = basis- ID = 1431</p> <p>ORG = 0x05</p> <p>Setting UT Data_byte3 = control of +E1 -> 0x70 (basis-ID +0) control of +E2 -> 0x50 (basis-ID +1) control of +E3 -> 0x30 (basis-ID +2) control of +E4 -> 0x10 (basis-ID +3) control of +E5 -> 0x70 (basis-ID +4) control of +E6 -> 0x50 (basis-ID +5) control of +E7 -> 0x30 (basis-ID +6) control of +E8 -> 0x10 (basis-ID +7) control of +E9 -> 0x70 (basis-ID +8) control of +E10 -> 0x50 (basis-ID +9)</p> <p>Automatically pairs are formed with straight ID. when set to RT: +E1/+E2, +E3/+E4, +E5/+E6, +E7/+E8, +E9/+E10 If the control of a control input will be finished, a telegram with the respective ID and Data_byte3 = 0x00 will be created. Data_byte2 = not used (0x00) Data_byte1 = not used (0x00) Data_byte0 = not used (0x00) The control inputs can either be activated for buttons (delivery status), window-door contacts or motion detectors. All control inputs can be inverted.</p>
<p>FTKE, FFTE</p> <p>ORG = 0x05 Data_byte3 = 0xF0 = window closed 0xE0 = window open</p>	<p>FTTB (EEP A5-07-01)</p> <p>ORG = 0x07 Data_byte3 = operating voltage 0..5V (0..255) Data_byte2 = - Data_byte1 = 0xF0 Data_byte0 = 0x0F Presence telegram: 0x1C080D80 Pushbutton telegram: ORG = 0x05 Data_byte3 = 0x70</p>
<p>FTR65DSB, FTR55DSB, FTR65HB, FTRF65HB, FTR55HB, FTR65SB, FTRF65SB, FTR55SB</p> <p>Operating mode TF61: EEP A5-38-08 Teach-in telegram: 0xE0400D80 Data telegram: OFF = 0x01000008 ON = 0x01000009 Hysteresis: 1° Operating mode FHK: EEP A5-10-06 Teach-in telegram: 0x40300D87 Data_byte2 = Setpoint temperature 0..40°C (0..255) Settable range: 12..28°C Frost symbol = 8°C Data_byte1 = actual temperature 0..40°C (255..0) Data_byte0 = 0x0F</p>	
<p>FTR65HS, FTAF65D (EEP A5-10-06 PLUS DATA_BYTE3)</p> <p>ORG = 0x07 Data_byte3 = night reduction 0-5°K in 1° steps 0x00 = 0°K, 0x06 = 1°K, 0x0C = 2°K, 0x13 = 3°K, 0x19 = 4°K, 0x1F = 5°K Data_byte2 = Setpoint temperature 0..40°C (0..255) Settable range: 12..28°C Data_byte1 = actual temperature 0..40°C (255..0) Data_byte0 = 0x0F Teach-in telegram: 0x40300D87</p>	

SENSOR TELEGRAMS

FUTH65D, FUTH55D (EEP A5-10-06 AND A5-10-12)

EEP A5-10-06

Data_byte3 = night reduction 0..5°K in 1° steps
 Data_byte2 = setpoint temperature 0..40°C (0..255)
 Settable range: 8..40°C
 Data_byte1 = actual temperature 0..40°C (255..0)
 Data_byte0 = 0x0F
 Teach-in telegram: 0x40300D87

EEP A5-10-12

Data_byte3 = setpoint air humidity 0..100%
 Settable range: 10..90%
 Data_byte2 = rel. air humidity 0..100% (0..250)
 Data_byte1 = temperature 0..40°C (0..250)
 Data_byte0 = 0x08
 Teach-in telegram: 0x40900D80

FWS61 (EEP A5-13-01 AND 02)

The FWS61 has two telegrams to one data set, which are sent successively. In the telegrams last Byte (UU oder YY) it can be identified, which telegram part is involved.

Telegram part 1: 0xRRSSTUU

- RR is the twilight sensor which supplies data from 0..1000Lux (0..255)
 e.g.: 0x7A = 122; $122 * 1000 / 255 = 478 \text{ lux}$
- SS is the temperature which lies between -40°C..+80°C (0..255)
 e.g.: 0x2C = 44; $44 * 120 / 255 = 20,7$ a lower 40 after that -40+20,7 = -19,3°C
 e.g.: 0x6F = 111; $111 * 120 / 255 = 52,2$ a not lower then 40 after that 52,2-40 = 12,2°C
- TT is the wind speed which lies between 0..70 m/s (0..255)
 e.g.: 0x55 = 85; $85 * 70 / 255 = 23 \text{ m/s}$
- UU is either 0x1A with "rain" or 0x18 with "no rain".

Telegram part 2: 0xVWWXXYY

- VV is the solar value of the west sensor 0..150kLux (0..255)
 e.g.: 0x44 = 68; $68 * 150 / 255 = 40 \text{ klux}$
- WW is the solar value of the south sensor 0..150kLux (0..255)
- XX is the value of the east sensor 0..150kLux (0..255)
- YY is always 0x28

Teach-in telegram: 0x4C080D80

FWS81 (EEP F6-05-01)

ORG = 0x05
 Data_byte3 = 0x11 Status 0x30 = water
 0x11 Status 0x20 = no water

FZS65

ORG = 0x05
 Data_byte3 = 0x30

ACTIVATION TELEGRAMS FROM THE GFVS SOFTWARE

FSR61, FSR61NP, FSR61G, FSR61LN, FLC61NP

Direct switching command, FUNC=38, Command 1, (like EEP A5-38-08).

There is the possibility to **block** the switching state with absolut priority so that it cannot be changed by other taught-in pushbuttons.

ORG = 0x07
 Data_byte3 = 0x01
 Data_byte2 = no used
 Data_byte1 = no used
 Data_byte0 = DBO_Bit3 = LRN Button
 (0 = teach-in telegram, 1 = data telegram)
 DBO_Bit2 = 1: block switching state,
 0: do not block switching state
 DBO_Bit0 = 1: switching output ON,
 0: switching output OFF

Teach-in telegram DB3..DB0 must look like this: 0xE0, 0x40, 0x0D, 0x80

Data telegrams have to look like date:

0x01, 0x00, 0x00, **0x09** (switching output ON, not blocked)
 0x01, 0x00, 0x00, **0x08** (switching output OFF, not blocked)
 0x01, 0x00, 0x00, **0x0D** (switching output ON, blocked)
 0x01, 0x00, 0x00, **0x0C** (switching output OFF, blocked)

FSB14, FSB61, FSB71

Direct drive command with specification of runtime in s. FUNC=3F, Typ=7F (universal). Separately for each channel.

ORG = 0x07
 Data_byte3 = runtime in 100ms MSB
 Data_byte2 = runtime in 100ms LSB, or runtime in seconds 1-255 dec, the runtime setting on the device is ignored.
 Data_byte1 = command:
 0x00 = Stop
 0x01 = Up
 0x02 = Down
 Data_byte0 = DBO_Bit3 = LRN Button
 (0 = teach-in telegram, 1 = data telegram)
 DBO_Bit2 = Lock/unlock the actuator for pushbutton
 (0 = unlock, 1 = lock)
 DBO_Bit1 = change between runtime in seconds or in 100 ms.
 (0 = runtime only in DB2 in seconds)
 (1 = runtime in DB3 (MSB) + DB2 (LSB) in 100 ms.)

Teach-in telegram BD3..DB0 must look like this: 0xFF, 0xF8, 0x0D, 0x80
 It is possible to interrupt at any time by pressing taught-in buttons!

FSR14-2X, FSR14-4X, FSR14SSR, FSR71

Direct switching command, FUNC=38, Command 1, (like EEP A5-38-08). Separately for each channel.

There is the possibility to block the switching state with absolut priority so that it cannot be changed by other taught-in pushbuttons.

ORG = 0x07
 Data_byte3 = 0x01
 Data_byte2 = no used
 Data_byte1 = no used
 Data_byte0 = DBO_Bit3 = LRN Button
 (0 = teach-in telegram, 1 = data telegram)
 DBO_Bit2 = 1: **block switching state**,
 0: do not block switching state
 DBO_Bit0 = 1: switching output ON,
 0: switching output OFF

Teach-in telegram DB3..DB0 must look like this: 0xE0, 0x40, 0x0D, 0x80

Data telegrams have to look like date:

0x01, 0x00, 0x00, **0x09** (switching output ON, not blocked)
 0x01, 0x00, 0x00, **0x08** (switching output OFF, not blocked)
 0x01, 0x00, 0x00, **0x0D** (switching output ON, blocked)
 0x01, 0x00, 0x00, **0x0C** (switching output OFF, blocked)

FDG14, FDG71L, FKLD61, FLD61, FRGBW71L, FSG14/1-10V, FSG71/1-10V, FSUD-230V, FUD14, FUD14-800W, FUD61NP, FUD61NPN, FUD71

Direct transfer of dimming value from 0 to 100%, similar to FUNC=38, Command 2 (like EEP A5-38-08).

ORG = 0x07
 Data_byte3 = 0x02
 Data_byte2 = dimming value in % from 0 to 100 dec.
 Data_byte1 = dimming speed
 0x00 = the dimming speed set on the dimmer is used.
 0x01 = very fast dimming speed to ...
 0xFF = very slow dimming speed
 Data_byte0 = DBO_Bit3 = LRN Button
 (0 =)
 DBO_Bit0 = 1: Dimmer ON, 0: Dimmer OFF.
 DBO_Bit2 = 1: Block dimming value
 0: Dimming value not blocked

Teach-in telegram BD3..DB0 must look like this: 0xE0, 0x40, 0x0D, 0x80
 only FSUD-230V: 0x02, 0x00, 0x00, 0x00

Data telegrams BD3..DB0 must look like this, for example:

0x02, 0x32, 0x00, 0x09 (dimmer on at 50% and internal dimming speed)
 0x02, 0x64, 0x01, 0x09 (dimmer on at 100% and fastest dimming speed)
 0x02, 0x14, 0xFF, 0x09 (dimmer on at 20% and slowest dimming speed)
 0x02, 0x..., 0x..., 0x08 (dimmer off)

ONLY FRGBW71L AND FWWKW71L: FREE PROFILE (EEP 07-3F-7F)

Teach-in telegram DB3..DB0: 0xFF, 0xF8, 0x0D, 0x87

Confirmation telegram: DB3..DB0: 0xFF, 0xF8, 0x0D, 0x86

Data telegrams:

Data_byte0 = 0x0F = GFVS (FRGBW71L master)
 0x0E = confirmation telegram
 Data_byte1 = 0x02 = request confirmation telegram
 0x10 = dimming value red
 (DB3-DB2 = dimming value in 10Bit)
 0x11 = dimming value green
 (DB3-DB2 = dimming value in 10Bit)
 0x12 = dimming value blue
 (DB3-DB2 = dimming value in 10Bit)
 0x13 = dimming value white
 (DB3-DB2 = dimming value in 10Bit)
 0x30 = dim up
 (DB3 = dimming speed, DB2 = colour)
 Bit0 = red, Bit1 = green, Bit2 = blue, Bit3 = white)
 0x31 = dim down
 (DB3 = dimming speed, DB2 = colour)
 0x32 = dimming stop
 (DB3 = dimming speed, DB2 = colour)

data telegrams FWWKW71L:

Data_byte0 = 0x0F = GFVS (FWWKW71L master)
 0x0E = confirmation telegram
 Data_byte1 = 0x02 = request confirmation telegram
 0x10 = dimming value warm white
 (DB3-DB2 = dimming value in 10Bit)
 0x11 = dimming value cold white
 (DB3-DB2 = dimming value in 10Bit)
 0x30 = dim up
 (DB3 = dimming speed, DB2 = colour,
 Bit0 = warm white, Bit1 = cold white)
 0x31 = dim down
 (DB3 = dimming speed, DB2 = colour)
 0x32 = dimming stop
 (DB3 = dimming speed, DB2 = colour)

ACTIVATION TELEGRAMS FROM THE GFVS SOFTWARE

FHK61SSR

Direct transfer of PWM value from 0 to 100%.

ORG = 0x07
 Data_byte3 = 0x02
 Data_byte2 = PWM value in % from 0 to 100 dec.
 Data_byte1 = PWM basic time T in 10 second steps
 from 1-100 dec., e.g. 12: T = 120 seconds
 Data_byte0 = DB0_Bit3 = LRN Button
 (0 = teach-in telegram, 1 = data telegram)
 DB0_Bit1 = 1: Repeater on, 0: Repeater off.
 DB0_Bit0 = 1: PWM on, 0: PWM off.
 Teach-in telegram DB3..DB0 have to look like this: 0xE0, 0x40, 0x00, 0x80
 Data telegrams DB3..DB0 have to look like this for example:
 0x02, 0x2D, 0x0A, 0x09 (PWM on with 45% and T = 100 seconds, repeater off)
 0x02, 0x64, 0x18, 0x09 (PWM on with 100% and T = 240 seconds, repeater off)
 0x02, 0x14, 0x12, 0x0B (PWM on with 20% and T = 180 seconds, repeater on)

FD62NP-230V, FD62NPN-230V

Direct transfer of dimming value from 0 to 100%, similar to FUNC=38, Command 2 (like EEP A5-38-08).

ORG = 0x07
 Data_byte3 = 0x02
 Data_byte2 = dimming value in % from 0 to 100 dec.
 Data_byte1 = dimming speed: 0x01 = very fast
 -0xFF = very slow
 Data_byte0 = DB0_Bit3 = LRN Button
 (0 = teach-in telegram, 1 = data telegram)
 DB0_Bit0 = 1: Dimmer ON, 0: Dimmer OFF.
 DB0_Bit2 = 1: Block dimming value, 0: Dimming value not blocked
 DB0_Bit5 = 1: Teach-in mode activation, 3x within 2s = delete GFVS-ID
 Teach-in telegram: 0xE0400D80
 Unlock teach-in mode: 0x00000028
 Request confirmation telegram: 0x00000008

FJ62/12-36V DC, FJ62NP-230V

Direct drive command with specification of runtime in s. FUNC=3F, Typ=7F (universal).

ORG = 0x07
 Data_byte3 = Runtime in 100ms MSB
 Data_byte2 = Runtime in 100 ms LSB, or runtime in seconds
 1-255 dez.
 Data_byte1 = command: 0x00 = Stop, 0x01 = Up, 0x02 = Down
 Data_byte0 = DB0_Bit3 = LRN Button
 (0 = teach-in telegram, 1 = data telegram)
 DB0_Bit2 = Lock/unlock the actuator for pushbutton
 (0 = unlock, 1 = lock)
 DB0_Bit1 = change between runtime in seconds
 or in 100ms.
 (0 = runtime only in DB2 in seconds)
 (1 = runtime in DB3 (MSB) + DB2 (LSB) in 100ms.)
 DB0_Bit5 = 1: Teach-in mode activation, 3x within 2s = delete GFVS-ID
 Teach-in telegram: 0xFFF80D80
 Unlock teach-in mode: 0x00000028

FL62-230V, FL62NP-230V, FR62-230V, FR62NP-230V

Direct switching command, FUNC=38, Command 1, (like EEP A5-38-08).

There is the possibility to **block** the switching state with absolut priority so that it cannot be changed by other taught-in pushbuttons.

ORG = 0x07
 Data_byte3 = 0x01
 Data_byte2 = no used
 Data_byte1 = no used
 Data_byte0 = DB0_Bit3 = LRN Button
 (0 = teach-in telegram, 1 = data telegram)
 DB0_Bit2 = 1: block switching state, 0: do not block switching state
 DB0_Bit0 = 1: switching output ON, 0: switching output OFF
 DB0_Bit5 = 1: Teach-in mode activation, 3x within 2s = delete GFVS-ID
 Teach-in telegram: 0xE0400D80
 Unlock teach-in mode: 0x00000028
 Request confirmation telegram: 0x00000008

CONFIRMATION TELEGRAMS OF BIDIRECTIONAL ACTUATORS

FHK61U-230V

Every time the internal switching relay changes state, a PTM200 telegram containing the unique ID of the integrated TCM300 is sent after approx. 300 ms.

ORG = 0x05
 Data_byte3 = 0x70 = relay ON, 0x50 = relay OFF
 Remark: ON 0x00 (would be equivalent to button released) is never sent.

FHK61-230V, FHK61SSR-230V

PTM200 telegram
 ORG=0x05
 Data_byte3 = 0x70 = normal mode,
 0x50 = night reduction (-4°K)
 0x30 = setback mode (-2°K), 0x10 = OFF
 (frost protection active)

In addition every telegram received from a taught-in temperature sensor (e.g. B. FTR55H) is repeated as a confirmation telegram.

FHK61SSR-230V

Every time a PWM data telegram is received the same telegram is send with the unique ID of the integrated TCM 300.

At activation or deactivation of the thaw signal input a PTM200 telegram containing the unique ID of the integrated TCM 300 will be send.

Cyclically every 15 minutes a status signal will be send.

ORG = 0x05
 Data_byte3 = 0x70 = thaw signal input active,
 0x50 = thaw signal input inactive

FMS61NP-230V

Every time the internal switching relay 1 changes state, a PTM200 telegram containing the unique ID of the integrated TCM300 is sent after approx. 300ms. Relay 2 sends this message after approx. 1000 ms.

With central commands (ZE/ZA), the relay state is also sent if the state already corresponds to the desired state.

ORG = 0x05
 Data_byte3 = 0x70 = channel 1 ON, 0x50 = channel 1 OFF
 0x30 = channel 2 ON, 0x10 = channel 2 OFF
 Remark: ON 0x00 (would be equivalent to button released) is never sent.

FMZ61-230V

Every time the the internal switching relay changes state, a PTM200 telegram containing the unique ID of the integrated TCM300 is sent after approx. 300-400 ms.

With central commands (ZE/ZA), the relay state is also sent if the state already corresponds to the desired state.

ORG = 0x05
 Data_byte3 = 0x70 = relay ON, 0x50 = relay OFF
 Remark: ON 0x00 (would be equivalent to button released) is never sent.

FSB61NP-230V, FSB71, FJ62/12-36V DC, FJ62NP-230V

ORG= 0x05
 Data_byte3 = 0x70 = upper stop position,
 0x50 = lower stop position,
 0x01 = Start up, 0x02 = Start down

If the actuator is stopped before the end of RV, only the actual elapsed time is sent indicating the direction in a ORG7 message with the same ID! This is also the info that the engine has stopped now.

ORG = 0x07
 Data_byte3 = driving time in 100 ms MSB
 Data_byte2 = driving time in 100 ms LSB
 Data_byte1 = 0x01 = driven up or 0x02 = driven down
 Data_byte0 = 0x0A (not blocked) or 0x0E (blocked)

Remark: The RV time must be set on the device so that the end position is always reached. If the roller shutter is already at an end position, the relay is switched on receipt of a drive command anyway (0x01 or 0x02 is sent) and it is switched off on expiry of the RV. (0x70 or 0x50 is sent).

FLC61NP-230V, FSR61-230V, FSR61/8-24V, FSR61LN-230V, FSR61NP-230V, FSR61VA-10A, FSR71, FSSA-230V, FSVA-230V, FTN61NP-230V, FL62-230V, FL62NP-230V, FR62-230V, FR62NP-230V

Every time the the internal switching relay state changes, a PTM200 telegram containing the unique ID of the integrated TCM300 is sent after approx. 300-400 ms. With central commands (ZE/ZA) the relay state is also sent if the state already corresponds to the required state.

ORG = 0x05
 Data_byte3 = 0x70 = relay ON, 0x50 = relay OFF
 Remark: ON 0x00 (would be equivalent to button released) is never sent.

FDG71L, FRGBW71L, FSG71/1-10V, FSUD-230V, FUD61NP-230V, FUD61NPN-230V, FUD71, FD62NP-230V, FD62NPN-230V

Every time the dimmer is switched on or off, a PTM200 telegram containing the unique ID or base ID of the integrated TCM300 is sent after approx. 300-400 ms.

ORG = 0x05
 Data_byte3 = 0x70 = dimmer ON, 0x50 = dimmer OFF

In addition, approx. 1 second after reaching the required dimming value, a 4BS telegram containing the unique ID or base ID of the integrated TCM300 is also sent.

ORG = 0x07
 Data_byte3 = 0x02
 Data_byte2 = dimming value in % of 0-100 dec .
 Data_byte1 = 0x00
 Data_byte0 = 0x08 = dimmer OFF, 0x09 = dimmer ON.

Caution: No teach-in telegram containing ORG=7 can be generated. Caution: Two telegram kinds (ORG=5, ORG=7) containing the same ID are sent!

only FRGBW71L:
 channel1 red = Base ID+1
 channel2 green = Base ID+2
 channel3 blue = Base ID+3
 channel4 white = Base ID+4
 all channels = Base ID+5
 Master telegramm = Base ID+6

only FWWKW71L:
 channel1 warm white = Base ID+1
 channel2 cold white = Base ID+2
 all channels = Base ID+3
 Master telegramm = Base ID+4

To teach-in reply confirmation telegrams of bidirectional actuators into other actuators or into the software GFVS the local control input has to be used to change the switching position and to simultaneously send the confirmation telegrams.

SERIES 14 CONFIRMATION TELEGRAM

As soon as Series 14 actuators receive a device address, the FAM14 can request actuators for confirmation telegrams. The confirmation telegrams are then radioed by the FAM14. The ID of the radioed telegrams is identical to the Base ID of the TCM300 in the FAM14 plus the device address. Multichannel actuators have consecutive device addresses corresponding to the number of channels.

Note: Depending on the number of actuators on the bus, there may be a time lapse of up to 10 seconds before a confirmation telegram is requested and radioed. If fast confirmation is expected by certain actuators, a device list for confirmation telegrams must be generated via the PCT14. The actuator must be entered several times in the device list. The FAM14 must then be operated in operating mode 5.

CONFIRMATION TELEGRAMS OF BIDIRECTIONAL ACTUATORS.

FDG14, FSG14/1-10V, FUD14, FUD14/800W

Here you can select 2 confirmation telegrams in the PCT14 configuration independently of each other.

1. PTM200 telegram ORG=0x05
Data_byte3: 0x70 = Dimmer ON,
0x50 = Dimmer OFF
2. 4BS telegram with dimming value
ORG = 0x07
Data_byte3 = 0x02
Data_byte2 = Dimming value in %
Data_byte1 = 0x00
Data_byte0 = 0x08 = Dimmer OFF,
0x09 = Dimmer ON

FSB14

Per channel: PTM200 telegram
ORG=0x05
Data_byte3 = 0x70 = end position top,
0x50 = end position bottom
0x01 = start up,
0x02 = start down

If the actuator is stopped before the end of RV, only the actual elapsed time is sent indicating the direction in a ORG7 message with the same ID! This is also the info that the engine has stopped now.

ORG = 0x07
Data_byte3 = driving time in 100ms MSB
Data_byte2 = driving time in 100ms LSB
Data_byte1 = 0x01 = driven up or 0x02 = driven down
Data_byte0 = 0x0A (not blocked) or 0x0E (blocked)

Remark: The RV time must be set on the device so that the end position is always reached. If the roller shutter is already at an end position, the relay is switched on receipt of a drive command anyway (0x01 or 0x02 is sent) and it is switched off on expiry of the RV. (0x70 or 0x50 is sent).

FAE14LPR, FAE14SSR, F4HK14, FHK14

Per channel: PTM200 telegram
ORG=0x05
Data_byte3 = 0x70 = normal mode,
0x50 = night reduction (-4°K)
0x30 = setback mode (-2°K), 0x10 = OFF
(frost protection active)

In addition every telegram received from a taught-on temperature sensor (e.g. FTR55H) is repeated as a confirmation telegram.

FMSR14

The FMSR14 evaluates the MS multisensor data which is fed to the Eltako wireless network by the FWS61 transmitter module. The data contains measured values for sunlight from 3 cardinal points, light values to evaluate twilight, and wind speed in m/s.

In addition there are signals for rain and frost.

The device occupies 5 device addresses, providing confirmation telegrams for each of the 3 parameters and the 2 signals containing confirmation telegrams with an individual ID.

Limits can be set using the PCT14 configuration for the measured values of sunlight, twilight and wind speed. If these parameters are exceeded or overshot, telegrams containing Data_byte3 = 0x70 or 0x50 (selectable) are generated.

As soon as the limits are no longer exceeded or overshot, a telegram containing Data_byte3 = 0x00 is generated.

The signals for frost and rain are also converted into telegrams containing Data_byte3 = 0x70 or 0x50 (selectable).

When the signals are cancelled, telegrams containing Data_byte3 = 0x00 are generated.

FSU14

The 8 timer channels correspond to the 8 device addresses of the FSU14. Switch on/off commands are generated in the form of confirmation telegrams depending on the programmed switching times for the individual channels:

PTM200 telegrams ORG=0x05
Data_byte3 = 0x70 = switch ON,
0x50 = switch OFF

Clock telegram (EEP A5-13-04) with the current time (hour and minute) and the day of the week.

Teach-in clock telegram DB3..DB0: 0x4C, 0x20, 0x0D, 0x80

F2L14, FMS14, FMZ14, FSR14-2X, FSR14-4X, FSR14SSR, FTN14

With multichannel actuators per channel:

PTM200 telegram ORG=0x05
Data_byte3: 0x70 = relay ON, 0x50 = relay OFF



S

ALL SPECIFICATIONS AT A GLANCE.

Type comparison table, warranty regulations, terms of delivery and index

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TYPE COMPARISON TABLE

FOR ELTAKO SERIES 11 IN COMPARISON WITH THE UP-TO-DATE SERIES 12.

Devices of Series 12, which have not existed in former series and which have still the same type name, are not listed here.

ELECTRONIC IMPULSE SWITCHES				
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* If controlled only by a LS and/or WS the USR12- can also be replaced by a LRW12D-. The MSR12- needs a multi sensor MS12.

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WARRANTY REGULATIONS FOR THE ELECTRICAL TRADES IN GERMANY.

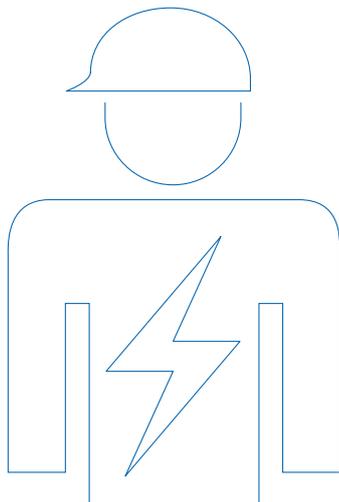
Since 1956 we offer a warranty period of 2 years for all Eltako products. Since 2004 the following improved warranty regulations applied for the electrical trades in Germany on the basis of an agreement between the ZVEI, VEG and ZVEH.

- **Products bearing the label ELTAKO delivered after 1.1.2019 are subject to an extended warranty period of 5 years from the data of manufacture.**
- If a complaint for defective products is received within the warranty period, ELTAKO waives the submission of evidence for the origin of the defect. The customer must return the defective parts to ELTAKO free of charge.
- In exchange, on acknowledgement of the defective products, ELTAKO will supply replacement parts free of charge as soon as possible. If it is not possible to deliver the same product due to a model upgrade or as a result of technical progress, ELTAKO will deliver replacement products of identical type and quality.
- In return, the electrical trade contractor waives the refunding of all other costs of the exchange of defective products.

With this simplified handling, the previously established practice continues, an occurring product defect is eliminated quickly, inexpensively and efficiently. Obviously the electrical trade contractor may also request a warranty processing in strict accordance with the legal provisions of the law of obligations.

TERMS OF DELIVERY

We exclusively deliver to the general conditions for products and services of the (German) electrical industry, as at January 2020, and to our current price list.



Only a trained electrician may install our switchgear, power supply units and energy meters with mains voltage connection, otherwise there is a risk of fire or electric shock. It is therefore prohibited to sell to other customers for this reason otherwise the risk passes to the seller.

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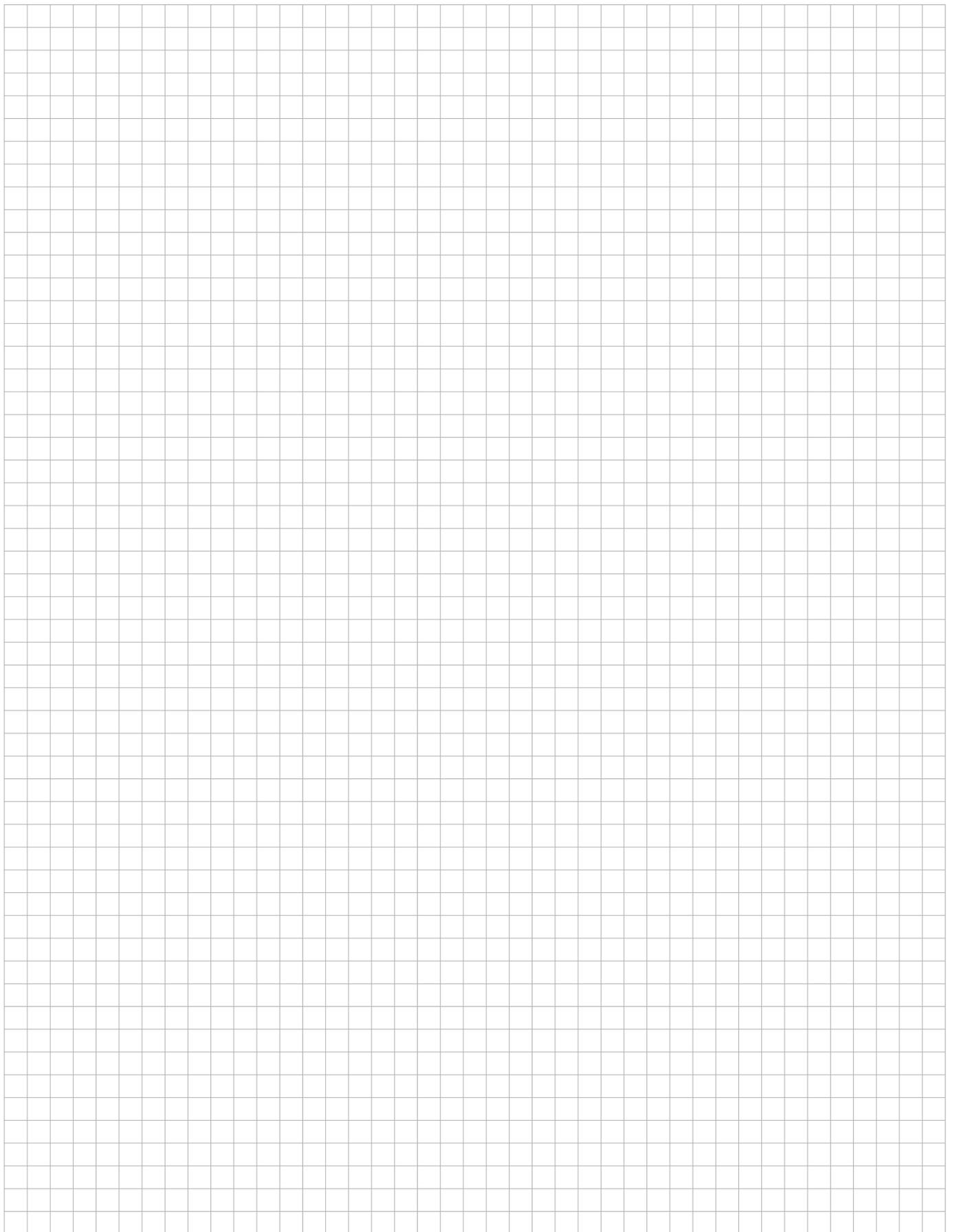
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GERMANY OFFICES AND SALES REPRESENTATIVES

Fellbach

Eltako Headquarter
Hofener Straße 54
70736 Fellbach
☎ 0711 94350000
✉ info@eltako.de
✉ kundenservice@eltako.de

Baden-Württemberg (West)

Sales representative
Carsten Krampe
☎ 0173 3180392
✉ krampe@eltako.de

Baden-Württemberg (East)

Sales representative
Patrick Lutz
☎ 0162 2575122
✉ lutz@eltako.de

Bavaria (North)

Sales representative
Mario Mehla
☎ 09122 61179 0174 8526825
✉ mehla@eltako.de

Bavaria (South)

Elka Hugo Kruschke GmbH
82024 Taufkirchen
☎ 089 3090409-0
☎ 089 3090409-50
✉ kruschke@eltako.de

Berlin/Brandenburg

Sales representative
Kristian Neff
☎ 0162 2575123
✉ neff@eltako.de

Hamburg/Schleswig-Holstein/ Bremen

Sales representative
Thimo Barluschke
☎ 0173 5667242
✉ barluschke@eltako.de

Hesse

Sales representative
Philipp Wecker
☎ 0152 08813428
✉ wecker@eltako.de

Lower Saxony

Sales representative
Detlef Hilker
☎ 05152 6984480
☎ 0173 3180390
✉ hilker@eltako.de

Mecklenburg-Vorpommern/ Brandenburg (North)

Sales representative
Christian Stemme
☎ 03843 215884
☎ 0176 13582501
✉ stemme@eltako.de

North Rhine-Westphalia (North)/ Lower Saxony (West)

Sales representative
Michael Otte
☎ 0152 09351347
✉ otte@eltako.de

North Rhine-Westphalia (Rhineland North)

Sales representative
Christoph Scheffler
☎ 0172 2178955
✉ scheffler@eltako.de

North Rhine-Westphalia (Rhineland South)

Sales representative
Antonio Sanchez
☎ 0172 2178896
✉ sanchez@eltako.de

North Rhine-Westphalia (Ruhr/Sauerland)

Sales representative
Mark Simon
☎ 0152 09351348
✉ simon@eltako.de

Rhineland-Palatinate/Saarland

Sales representative
Rainer Brilmayer
☎ 0176 13582516
✉ brilmayer@eltako.de

Saxony

Sales representative
Mario Geißler
☎ 0162 2575121
✉ geissler@eltako.de

Thuringia/Saxony-Anhalt

Sales representative
Andreas Misch
☎ 0176 13582505
✉ misch@eltako.de

INTERNATIONAL CONTACT ADDRESSES AND SALES REPRESENTATIVES

Austria (West)

Representative Robert Goedicke
☎ +43 664 1823322
✉ goedicke@eltako.com

Austria (East)

Miloš Mičićelović
☎ +43 664 5186509
✉ milos@eltako.com

Austria (East)

Representative Robert Papst
☎ +43 664 1844122
✉ papst@eltako.com

Austria (East)

Representative Winfried Rac
☎ +43 660 8081310
✉ rac@eltako.com

Belgium/France/ Luxembourg

Serelec n.v.
B-9000 Gent
☎ +32 9 2234953
✉ info@serelec-nv.be

Cyprus

MeshMade Ltd
CY 1096, Nicosia
☎ www.meshmade.com

Denmark

SOLAR A/S
DK-6600 Vejlen
☎ www.solar.dk

Finland

Representative Seppo Myllynen
FIN-20320 Turku
☎ +358 45 7870 6791
✉ seppo@eltako.com

Finland

Representative Tapio Rajamäki
FIN-45100 Kouvola
☎ +358 45 7870 6792
✉ tapio@eltako.com

Gulf area

M/S Golden Sand Trading
U.A.E. - Dubai
☎ www.goldensandtrading.net

Hong Kong, Malaysia, Macao, Singapore, the Philippines

TELCS Ltd.
HK-Hong Kong
☎ www.telcs-design.com

Iceland

Reykjafell Ltd.
IS-125 Reykjavik Iceland
☎ www.reykjafell.is

Ireland

Inter-Konnect
IRL-Dublin
☎ www.interkonnect.ie

Netherlands (North)

Representative Hans Oving
NL-7701 VV Dedemsvaart
☎ +31 6 21816115
✉ oving@eltako.com

Netherlands (South)

Representative Dennis Schellenberg
NL-5853 AL Siebengewald
☎ +31 6 50419067
✉ schellenberg@eltako.com

Norway

Malthé Winje Automasjon AS
NO-1415 Oppegard
☎ www.mwg.no

Poland

ASTAT Logistyka Sp z o.o.
Dłubrowskiego 441
PL-60-451 Poznań
☎ www.astat.com.pl

Portugal

TEV2, Lda
P-4470-434 Maia
☎ www.tev.pt

Russia

ATLAS Group JSC
RU-127591 Moscow
☎ www.atlasgroup.ru

South Africa

Innomatic (Pty) Ltd. - Franz Markt
ZA-Midrand
☎ www.innomatic.co.za

Spain

Representative Thomas Klassmann
E-08398 Santa Susanna
☎ +34 93 767 8557
☎ +34 650 959702
✉ klassmann@eltako.com

Spain

Representative Oriol Montsec Fuego
E-08303 Mataró
☎ +34 692 835972
✉ oriol@eltako.com

Sweden (North/Middle)

Representative Patrick Savinainen
S-69332 Degerfors
☎ +46 70 9596906
✉ patrick@eltako.com

Sweden (West)

Representative Glenn Johansson
S-43163 Mölndal
☎ +46 73 5815692
✉ glenn@eltako.com

Sweden (East)

Representative Dan Koril
S-57475 Korsberga
☎ +46 70 3201102
✉ dan@eltako.com

Sweden (South)

Representative Magnus Ellemark
S-26192 Härsöv
☎ +46 70 1702130
✉ magnus@eltako.com

Sweden (Stockholm)

Representative Niklas Lundell
S-11330 Stockholm
☎ +46 70 4875003
✉ niklas@eltako.com

Switzerland

Demelectric AG
CH-8954 Geroldswil
☎ www.demelectric.ch

UK

Sales Manager Stephen Payne
☎ +7810 094384
✉ stephen.payne@eltako.com

**DO YOU HAVE ANY QUESTIONS?
WE HAVE THE ANSWERS FOR YOU.**



The logo for Eltako, featuring the word "Eltako" in a white, cursive script font, centered within a dark blue square background.

Eltako

Eltako GmbH

Hofener Straße 54
D-70736 Fellbach

Technical support:

+49 711 943 500 25
technical-support@eltako.de

Commercial support:

+49 711 943 500 00
export@eltako.de

eltako.com