zaMeL

Product catalogue

Wireless control system EXTA FREE

The EXTA FREE wireless control system is a simple and flexible radio control solution. EXTA FREE is used for controlling lighting, roller shutters and gate drives. The system receivers operate in monostable, bistable and timer mode. It is the user who chooses how the device is supposed to work. The system is therefore completely universal. Among available devices there are those for installation in switchboards (TH35 - DIN rail mounting), flush-mounted devices (60 mm junction box), as well as devices allowing for direct connection to an electrical socket. The EXTA FREE system stands out from the competition thanks to its easy and quick installation process, intuitive operation and low installation costs. The system can be installed and then flexibly extended with new components.

The EXTA FREE system means:
· no need to lay cabling for devices thanks to the use of wireless solutions, and thus low costs and short installation time,
· convenient adaptation of the system to existing installations, without need for modifications,
· possibility of increasing the functionalities of already installed elements of the EXTA FREE system by installing the EFC-01 from EXTA LIFE system (selected receivers only),
· intuitive and trouble-free configuration and operation of the system,
· expanded functionality thanks to a diversified range of EXTA FREE receivers and transmitters.

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EXTA FREE is a wireless (radio) control system of the electrical devices' operation in a residential, office and industrial installations. The system includes a group of cooperating devices which operate at 868,32 MHz radio frequency, grouped according to their operation:

Transmitters and translators

RNK-02   P-257/2   RNM-10

RNP-01   RXM-01

Sensor

RCL-02   RCR-01

Receivers

ROP-01   ROM-01   SRP-02

RDP-02   RWG-01

Radio, GSM switches

RWS-311   GRM-10

Accessories

RTN-01   ANT-01

WIDE OPERATION RANGE
The operating range of EXTA FREE devices in an open area varies between 160 and 300 m. It is possible to apply easily mounted RTN-01 retransmitters by means of which the operating range can be increased up to 1 km. Operation of the wireless devices depends on the type of transmitters and receivers and conditions they operate in. The following table specifies the operating range of EXTA FREE devices in an open area:

	ROP-01	ROP-02 / ROP-07	ROB-01	SRP-02	SRP-03	RWG-01	ROM-01	ROM-10
RNK-02	180 m	200 m	200 m	200 m	200 m	250 m	250 m	250 m
RNK-04	180 m	200 m	200 m	200 m	200 m	250 m	250 m	250 m
P-256/8	230 m	250 m	250 m	250 m	250 m	300 m	300 m	300 m
P-256/36	230 m	250 m	250 m	250 m	250 m	300 m	300 m	300 m
P-257/2	180 m	200 m	200 m	200 m	200 m	250 m	250 m	250 m
P-257/4	180 m	200 m	200 m	200 m	200 m	250 m	250 m	250 m
RNM-10	230 m	250 m	250 m	250 m	250 m	300 m	300 m	300 m
RNP-01	160 m	180 m	180 m	180 m	180 m	200 m	200 m	200 m
RNP-02	160 m	180 m	180 m	180 m	180 m	200 m	200 m	200 m
RNL-01	160 m	180 m	180 m	brak*	brak*	200 m	200 m	200 m
RTN-01	200 m	200 m	200 m	200 m	200 m	250 m	250 m	250 m
RCR-01	160 m	180 m	180 m	brak*	brak*	200 m	200 m	200 m
RXM-01	230 m	250 m	250 m	250 m	250 m	300 m	300 m	300 m
RCL-02	160 m	180 m	180 m	180 m	180 m	200 m	200 m	200 m

* 1-channel transmitters RNL-01 and RCR-01 do not cooperate with roller shutter controllers SRP-02 and SRP-03.

The range specified in the table applies to device operation in an open area, it means an ideal condition. In case there are any obstacles between the range of a transmitter and a receiver, the following approximate range loss may occur:

brick: 10 ÷ 40%   wood, gypsum: 5 ÷ 20%   concrete: 40 ÷ 80%   metal: 90 ÷ 100%   glass: 10 ÷ 20%

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Simple and modern

Control of receivers directly by means of
EXTA FREE transmitters

lighting

heating

roller shutters

gates

alarms

doorbells

Control of receivers **EXTA FREE** by means of mobile devices
due to the EFC-01 EXTA LIFE controller (selected receivers only)

RDP-01	RTN-01	RDP-02	RDP-11	ROP-05	ROP-06	RWS-311J	RWS-311D	RWS-311C
180 m	250 m	180 m	180 m	200 m	200 m	300 m	300 m	300 m
180 m	250 m	180 m	180 m	200 m	200 m	300 m	300 m	300 m
230 m	300 m	230 m	230 m	250 m	250 m	350 m	350 m	350 m
230 m	300 m	230 m	230 m	250 m	250 m	350 m	350 m	350 m
180 m	250 m	180 m	180 m	200 m	200 m	300 m	300 m	300 m
180 m	250 m	180 m	180 m	200 m	200 m	300 m	300 m	300 m
230 m	300 m	230 m	230 m	250 m	250 m	350 m	350 m	350 m
160 m	200 m	160 m	160 m	180 m	180 m	250 m	250 m	250 m
160 m	200 m	160 m	160 m	180 m	180 m	250 m	250 m	250 m
160 m	200 m	160 m	-	180 m	180 m	300 m	300 m	300 m
200 m	250 m	200 m	200 m	200 m	200 m	200 m	200 m	200 m
160 m	200 m	160 m	-	180 m	180 m	-	-	-
230 m	300 m	230 m	230 m	250 m	250 m	300 m	300 m	300 m
160 m	200 m	160 m	-	180 m	180 m	-	-	-

Operating range increase is possible (even up to 1 km) by means of RTN-01 retransmitter

Transmitter   RTN-01   RTN-01   RTN-01   RTN-01   Receiver

200 m   200 m   200 m   200 m   200 m
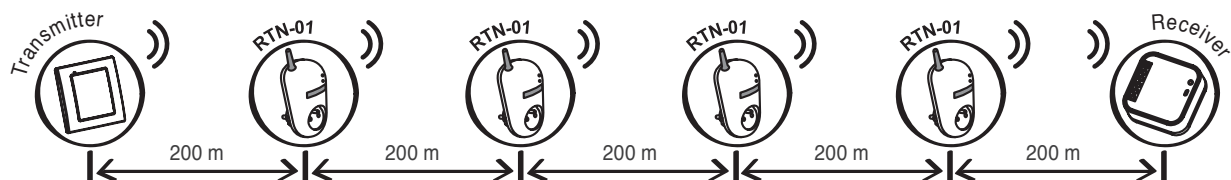
RNK-02 and RNK-04 button radio transmitters are designed to send control signals (switch on / switch off, dimming / brightening, roller shutters up / down, time functions) to the EXTA FREE receivers. The transmitters are made in the form of standard electrical system switches. Due to their small dimensions, weight and smart design the transmitters can be placed on any surface (including glass and wooden surfaces) and at any place in a room.

2-channel pushbutton radio transmitter RNK-02 / RNK-02/W

Features
- 1-pushbutton radio transmitter,
- remote control of EXTA FREE system receivers,
- ability to independently control two receivers,
- wide operating range (up to 300 m),
- battery-powered,
- easy intallation and mounting in any place with the use of double-sided tape or screws,
- colours: cream-coloured (RNK-02), white (RNK-02/W).

Optical indicator
of operation
of the transmitter

Pushbutton

Frame
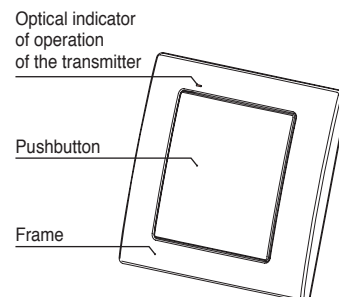
4-channel pushbutton radio transmitter RNK-04 / RNK-04/W

Features
- 2-pushbuttons radio transmitter,
- remote control of EXTA FREE receivers,
- ability to independently control four receivers,
- wide operating range (up to 300 m),
- battery-powered,
- easy intallation and mounting in any place with the use of double-sided tape or screws,
- colours: cream-coloured (RNK-02), white (RNK-02/W).

Optical indicator
of operation
of the transmitter

Pushbuttons

Frame
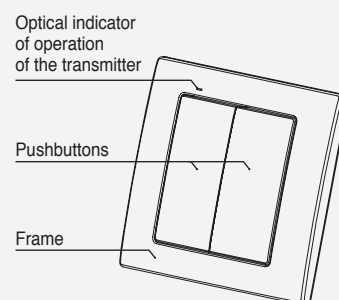
RNK-02 – APPLICATION
RNK-02 button radio transmitter controls the operation of radio receiver ROP-01 (switch on/switch off) or remote control socket RWG-01.

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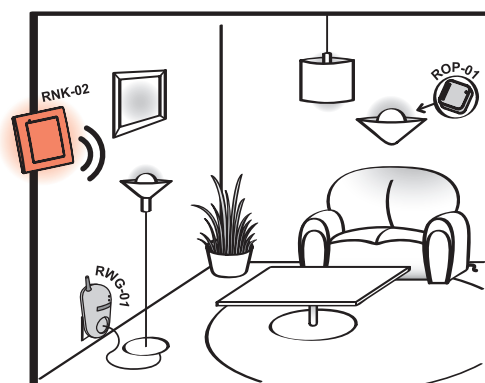
Technical data

Symbol:	RNK-02 / RNK-02/W		RNK-04 / RNK-04/W
Nominal supply voltage:	3 V DC – battery CR2032		
Operating range:	up to 300 m in an open area		
Transmission:	radio 868,32 MHz		
Transmission way:	one-way		
Coding:	transmission with addressing		
Number of channels:	2		4
Optical signalling of transmission/battery status:	red LED diode		
Battery life:	3 ÷ 5 years (depends on the usage)		
Temperature operating range:	-10 ÷ +55°C		
Casing protection degree:	IP20		
Dimensions:	90 x 80 x 11,5 mm		
Weight:	0,038 kg		
Reference standard:	ETSI EN 300 220-1, ETSI EN 300 220-2		

RNK-04 – APPLICATION

Radio button transmitter RNK-04 controls the operation of RDP-01 radio flush dimmer (switching on / switching off or brightening / dimming) or SRP-02 roller shutter controller (roller shutter raising / lowering).
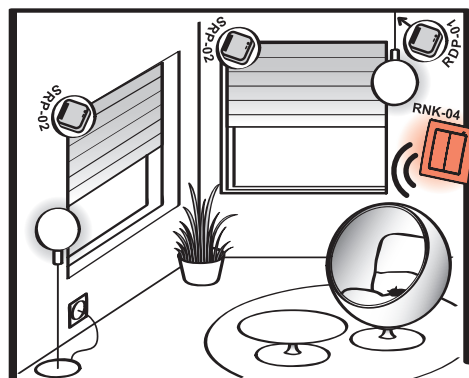
The wireless system remote control devices are available in 2-channel (P-257/2), 4-channel (P-257/4), 8-channel (P-256/8) and 36-channel (P-256/36) versions. The devices are general transmitters for the other devices to control the lighting, roller shutters, driveway and garage gate control systems.The remote controls are equipped with backlight components to signal the transmitter's operation, an ergonomic rubber keyboard and useful small chains for joining the device to the keys.

2-channel remote control P-257/2

Features
- radio transmitter (remote control), 2-buttons,
- remote control of EXTA FREE system receivers,
- a possibility of controlling two receivers independently,
- wide operating range (up to 300 m),
- battery operated.

Optical indication of operation of the transmitter

Buttons

4-channel remote control P-257/4

Features
- radio transmitter (remote control), 4-buttons,
- remote control of EXTA FREE system receivers,
- a possibility of controlling four receivers independently,
- wide operating range (up to 300 m),
- battery operated.

Optical indication of operation of the transmitter
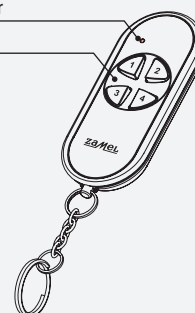
Buttons

8-channel remote control P-256/8

Features
- radio transmitter (remote control), 8-buttons,
- remote control of EXTA FREE system receivers,
- a possibility of controlling eight receivers independently,
- wide operating range (up to 300 m),
- battery operated.

Optical indication of operation of the transmitter
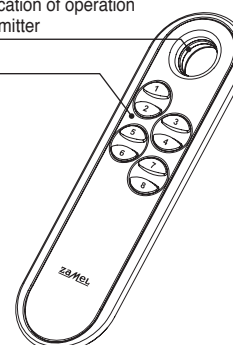
Buttons

36-channel remote control P-256/36

Features
- radio transmitter (remote control), 8-buttons – 36 channels,
- remote control of EXTA FREE system receivers,
- ability to independently control 36 receivers or 18 roller shutters,
- wide operating range (up to 300 m),
- battery-powered.

Optical indication of operation of the transmitter

Control buttons (1÷6)

Buttons to select
a button bank (◄ ►)

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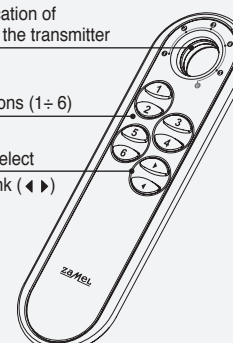
Technical data

Symbol:	P-257/2	P-257/4	P- 256/8	P- 256/36
Nominal supply voltage:	3 V DC – battery CR2032			
Operating range:	up to 300 m in an open area		up to 350 m in an open area	up to 300 m in an open area
Transmission:	radio 868,32 MHz			
Transmission way:	one-way			
Coding:	transmission with addressing			
Number of channels:	2	4	8	36
Optical signalling of transmission/battery status:	red LED diode		2 x red LED diode	5 x red LED diode
Battery life:	3 ÷ 5 years (depends on the usage)			
Temperature operating range:	-10 ÷ +55°C			
Casing protection degree:	IP20			
Dimensions:	74 x 33 x 11,5 mm		152 x 43 x 17,5 mm	
Weight:	0,018 kg		0,056 kg	0,060 kg
Reference standard:	ETSI EN 300 220-1, ETSI EN 300 220-2			

P-257/4 – APPLICATION

P-257/4 4-channel remote control operates as a transmitter of radio receiver ROP-01 and of remote control socket RWG-01. RNK-02 radio button transmitter is also device of EXTA FREE system.
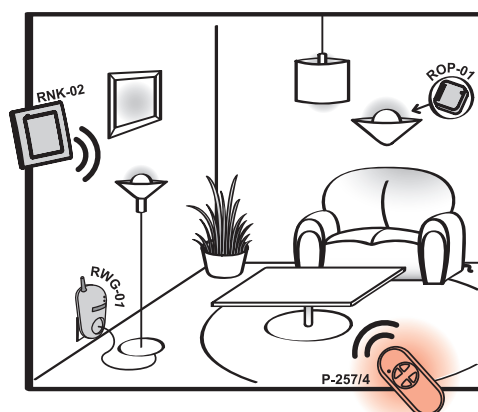
P-256/8 – APPLICATION

P-256/8 remote control can cooperate with any transmitter of EXTA FREE system. In this application it is used to control roller shutters and lighting. Roller shutter controllers SRP-02 can be controlled centrally or independently (locally) and RDP-01 radio dimmer allows to control lighting.
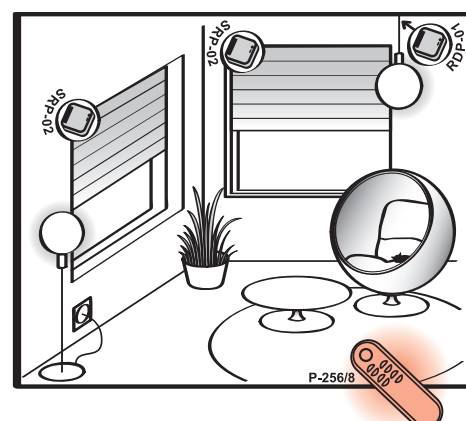
1-channel remote control P-301

Features
- 1-channel radio remote control,
- 3 control keys,
- dedicated to work with roller blind controllers,
- can control a maximum of two groups of roller blinds,
- works with EXTA LIFE or EXTA FREE system receivers,
- battery-operated,
- modern design,
- long operating range (up to 300 m),
- transmission / low battery optical indication.

Transmission indication
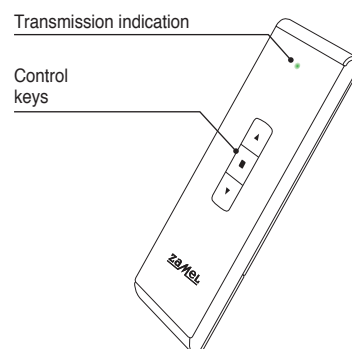
Control keys

20-channel remote control P-320

Features
- 20-channel radio remote control,
- 3 control keys + 2 channel selection keys,
- dedicated to work with roller blind controllers,
- independent control of a maximum of 20 roller blinds,
- several groups of roller blinds can be created,
- works with EXTA LIFE and EXTA FREE system receivers,
- battery-operated,
- modern design,
- long operating range (up to 300 m),
- transmission / low battery optical indication.

Transmission indication / selection keys

Control keys

Channel selection keys
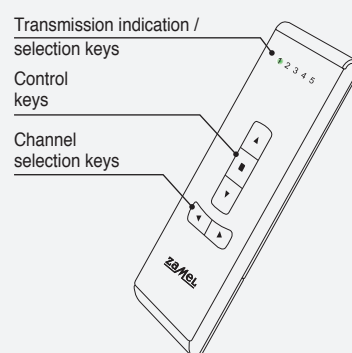
Remote control with an LCD P-321/L

Features
- 20-channel radio remote control,
- controlled by means of 5 keys and a clear LCD screen,
- dedicated to work with roller blind controllers,
- independent control of a maximum of 20 roller blinds,
- roller blinds can be grouped,
- works with EXTA LIFE and EXTA FREE system receivers,
- timer for implementation of time functions directly from the remote control level,
- battery-operated,
- modern design,
- long operating range (up to 300 m).

LCD screen

Control keys

Channel selection keys

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Technical data

Symbol:	P-301	P-320	P-321/L
Nominal supply voltage:	3 V DC – CR2430 battery		
Operating range:	300 m		
Transmission:	radio 868,32 MHz		
Transmission way:	one-way		
Functionality:	• dedicated to work with roller blind controllers • works with EXTA FREE system receivers • local and central roller blind control		• dedicated to work with roller blind controllers • works with EXTA FREE system receivers • clear LCD screen • timer function enabling direct implementation of the time functions from the remote control level
Number of channels:	1	20	20
Optical signalling:	1 x LED (transmission / battery low)	5 x LED (transmission / bank (channel) selection / battery low)	LCD screen
Signalling of transmission:	red colour		LCD screen
Battery life:	3 - 5 years (depending on the operational use)		2 - 3 years (depending on the operational use)
Temperature operating range:	-10 ÷ +55°C		
Casing protection degree:	IP20		
Dimensions:	130 x 45 x 10 mm		130 x 45 x 10 mm
Weight:	0,085 kg	0,095 kg	0,105 kg

The modular EXTA FREE system transmitters allow to transmit control signals from a building main distribution board or any other place where the building automation devices are mounted on TH-35 rail. These devices are a natural extension of the possibilities of standard wired EXTA building automation devices, and may cooperate with any home automation system. Additionally, RXM-01 RS485/EXTA FREE translator makes it possible to connect the intelligent building systems or controllers / programmable relays with EXTA FREE system by means of RS485 standard link.

4-channel radio modular transmitter RNM-10

Features
- a possibility of integration (control signals' transmission) with wired control systems (e.g. EXTA building automation system, relays and time programmers mounted inside a distribution board, etc.)
- a possibility of controlling four receivers independently
- wide operating range (up to 300 m)
- optical signalling of information transmission
- a possibility of switching on / switching off any number of the EXTA FREE receivers simultaneously
- a possibility of connecting ANT-01 external antenna mounted outside a distribution board.
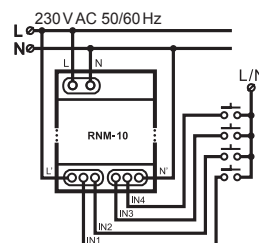
RS485 / EXTA FREE translator RXM-01

Features
- cooperation with EXTA FREE system wireless transmitters and receivers
- cooperation with devices operating in MODBUS standard (e.g. PLCs)
- mounted on TH-35 rail
- wide operating range (up to 300 m)
- power supply and data transmission optical signalling
- a possibility of connecting ANT-01 external antenna mounted outside a distribution board
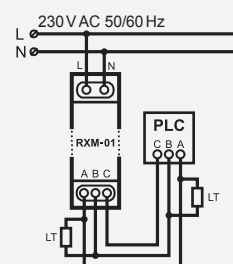
RNM-10 – APPLICATION
Radio modular transmitter RNM-10 receives a control signal from WZS-01 twilight switch and sends it to ROP-01 radio receiver. ANT-01 external antenna increases the operating range of this device.

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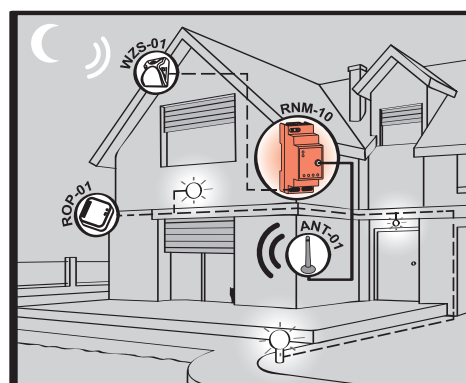
Technical data

Symbol:	RNM-10	RXM-01
Nominal supply voltage:	230 V AC	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	0,35 W	0,49 W
Optical signalling of supply voltage:	green LED diode	
Number of channels:	4	127
Transmission:	radio 868,32 MHz	
Transmission way:	one-way	
Coding:	transmission with addressing	
RS485 terminals:	-	A (D0), B (D1), C (common)
Applied communication protocols:	-	Modbus RTU, Modbus ASCII
Baud rate:	-	2400, 4800, 9600, 19200 bit/s
Parity:	-	none, even parity check, odd parity check
Network address:	-	0 (broadcast address), 1 ÷ 247
Operating range:	up to 350 m in an open area	up to 300 m
Radio transmission optical signalling:	red LED diode	-
Input status optical signalling:	4x red LED diode	-
Temperature operating range:	-10 ÷ +55°C	
Cross-section of the connecting cables:	up to 2,5 mm²	
Casing mounting:	TH-35 rail (according to PN-EN 60715)	
Casing protection degree:	IP20	
Dimensions:	90 x 35 x 66 mm	90 x 17,5 x 66 mm
Weight:	0,087 kg	0,070 kg
Reference standard:	ETSI EN 300 220-1, ETSI EN 300 220-2	

RXM-01 – APPLICATION

RS485/EXTA FREE translator RXM-01 allows to transmit control signals from PLC controller (which is installed in a distribution board) to wireless EXTA FREE system control devices (ROP-01 radio receiver, SRP-02 radio roller shutter controller).
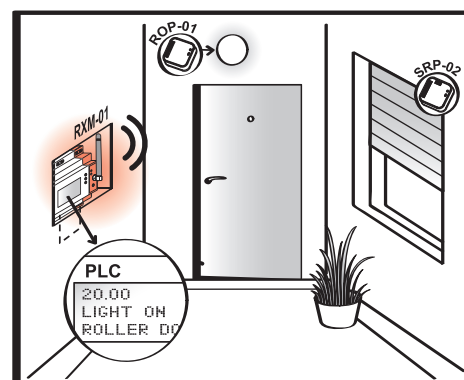
RNP-01, RNP-02 radio flush transmitters allow to realize the device control function within EXTA FREE by means of flush mounted devices – under the existing accessories (NO switches, "light" and "doorbell" push buttons). The solution is an advantage in the form of easy installation of EXTA FREE system without the necessity of interference in the existing electrical system. Another benefit is a possibility of application electrical accessories of different manufacturers, so there are no limitations of design and inside atmosphere.

4-channel flush radio transmitter RNP-01

Features
- radio transmitter for mounting in a Ø60 mm junction box,
- 230 V AC supply voltage,
- EXTA FREE receivers remote control,
- connection possibility to the existing standard electrical system push buttons "doorbell",
- low power consumption, designed for continuous operation,
- a possibility of controlling four receivers independently,
- a possibility of simultaneous switching on / switching off any number of the EXTA FREE receivers.
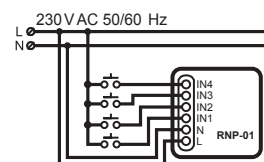
4-channel flush radio transmitter RNP-02

Features
- radio transmitter for mounting in a Ø60 mm junction box,
- battery operated,
- connection possibility to the existing standard electrical system push buttons "doorbell",
- four control inputs (voltage free),
- low power consumption, designed for continuous operation,
- a possibility of controlling four receivers independently,
- wide operating range (up to 250 m),
- optical signalling of information transmission,
- a possibility of simultaneous switching on / switching off any number of the EXTA FREE receivers.
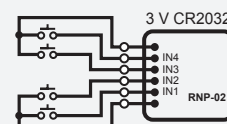
RNP-01 – APPLICATION
4-channel radio flush transmitter RNP-01 controls the operation of 1-channel radio dimmer RDP-01 (switching on / switching off or lighting brightening / dimming) or remote control socket RWG-01 (switching on / switching off). The receivers can also be controlled by P-256/8 8-channel remote control. RNP-01 device can be mounted under the existing lighting push buttons (required 230 V AC power supply – L and N wires).

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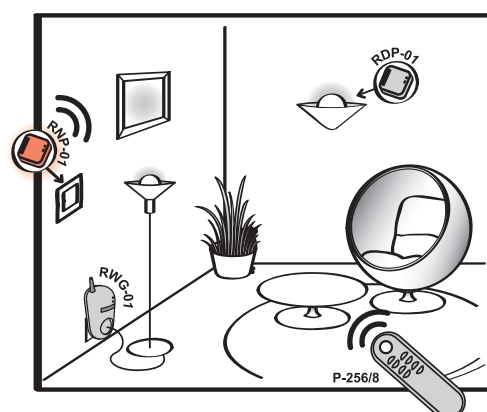
Technical data

Symbol:	RNP-01	RNP-02
Nominal supply voltage:	230 V AC	3 V DC – battery CR2032
Nominal frequency:	50 / 60 Hz	-
Nominal power consumption:	0,22 W	-
Number of channels:	4	
Transmission:	radio 868,32 MHz	
Transmission way:	one-way	
Coding:	transmission with addressing	
Operating range:	up to 250 m in an open area	
Optical signalling of radio transmission:	red LED diode	
Optical signalling of battery discharge:	-	red LED diode
Temperature operating range:	-10 ÷ +55°C	
Cross-section of the connecting cables:	0,2 ÷ 2,5 mm²	1 mm²
Casing mounting:	Ø60 mm junction box	
Casing protection degree:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	47,5 x 47,5 x 13 mm
Weight:	0,031 kg	0,023 kg
Reference standard:	ETSI EN 300 220-1, ETSI EN 300 220-2, EN 60950, EN 61000	ETSI EN 300 220-1, ETSI EN 300 220-2

RNP-02 – APPLICATION

4-channel radio transmitter RNP-02 controls the operation of 2-channel radio receiver ROP-02 (switching on / switching off, time switch off) or remote control socket RWG-01 (switching on / switching off). The receivers can also be controlled by P-256/8 8-channel remote control. The RNP-02 device does not require connection to 230 V AC.
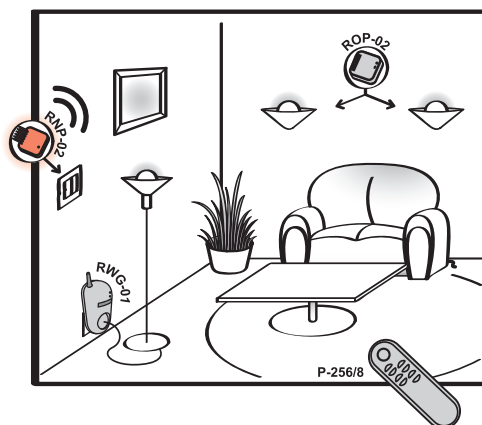
Radio foot transmitter RNL-01 is a control solution by means of a foot-operated switch - for placing on the floor or other flat surfaces. RNL-01, RCR-01 1-channel transmitter do not interoperate with SRP-02 and SRP-03 roller shutter controllers.

Radio foot transmitter RNL-01

Features
- radio transmitter, 1-channel,
- remote control of EXTA FREE system receivers,
- wide operating range (up to 300 m),
- device mounting and wiring are not required,
- battery operated,
- optical signalling of transmission and battery status.

Button

Optical indication
of operation
of the transmitter

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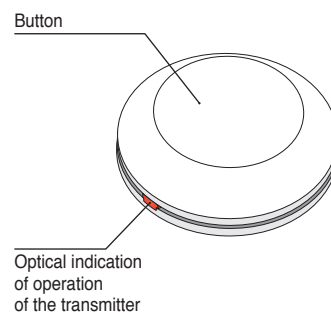
Technical data

Symbol:	RNL-01
Nominal supply voltage:	3 V DC – battery CR2032
Nominal frequency:	-
Nominal power consumption:	-
Number of channels:	1
Twilight sensor adjustment range:	-
Transmission:	radio 868,32 MHz
Transmission way:	one-way
Coding:	transmission with addressing
Operating range:	up to 250 m in an open area
Optical signalling of radio transmission:	red LED diode
Temperature operating range:	-10 ÷ +55°C
Casing protection degree:	IP20
Dimensions:	Ø75 x 40 mm
Weight:	0,040 kg
Reference standard:	ETSI EN 300 220-1, ETSI EN 300 220-2

RNL-01 – APPLICATION

Radio foot transmitter RNL-01 controls the operation of RDP-01 radio dimmer (switching on / switching off, light brightening / dimming). The receivers can also be controlled by 4-channel button radio transmitter RNK-04.
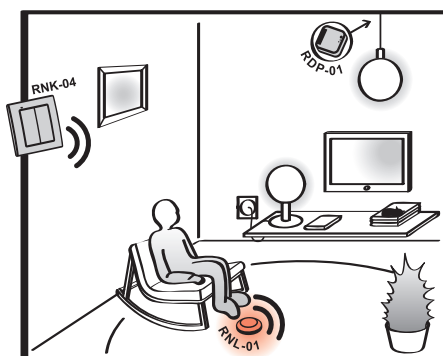
Radio receivers are used both as elements in flush and surface mounting (junction box) and as an actuator built directly in lighting fittings and other receivers. ROP-05 and ROP-06 receivers are designed to realise simple control functions in low-voltage 10 ÷ 14 V DC installations. ROP-05 is equipped with two output relays (dry contacts) NO type and ROP-06 is designed to directly control LED circuits (3 circuits maximum).

1-channel radio receiver ROP-01

Features
- 1 NO/NC output relay (dry contacts),
- lighting, heating operation control,
- easy flush mounting (in Ø60 mm junction box),
- 5 operation modes: switching on, switching off, monostable mode, bistable mode, time mode (switch off delay),
- low current consumption, possibility of continuous operation
- control by means of mobile devices (in cooperation with EFC-01).

230 V AC 50/60 Hz

12
11
14
N
L   ROP-01
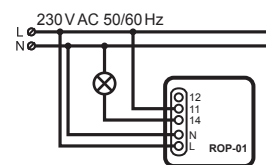
Load capacity

- 750 W AC5b
LED 100 W
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a

2-channel, junction box – mounted radio receiver ROP-02 / ROP-07

Features
- two output relays (change-over contacts with voltage 230 V AC),
- control of lighting, heating, others,
- easy installation in flush mount junction box Ø60 mm,
- 5 operation modes: switch on, switch off, monostable, bistable, timer (delayed switch off),
- low power consumption, ability to operate continuously,
- ROP-07 cooperates with bipolar switches
- control by means of mobile devices (in cooperation with EFC-01).

230 V AC 50/60 Hz

IN1
IN2
OUT1
OUT2
N   ROP-02
L
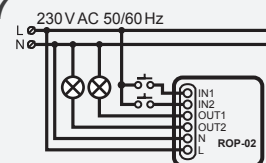
Load capacity

- 750 W AC5b
LED 60 W
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a

2-channel radio receiver ROP-05

Features
- 2 NO/NC output relay (dry contacts),
- maximum dry contacts capacity (2 x 5 A / 250 V AC)
- low-voltage installation control,
- 5 operation modes: switching on, switching off, monostable mode, bistable mode, time mode (switch off delay),
- wide operating range (up to 250 m),
- low current consumption in the stand-by mode – designed for continuous operation
- control by means of mobile devices (in cooperation with EFC-01).

12 V AC

12
11
22
21
-
10 ÷ 14 V DC   + ROP-05
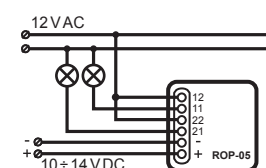
3-channel radio receiver ROP-06

Features
- three MOSFET transistor outputs with a maximum load capacity of 2,5 A
- used in low-voltage installation control,
- direct connection possibility of LED sources (10 ÷ 14 V DC),
- 5 operation modes: switching on, switching off, monostable mode, bistable mode, time mode (switch off delay),
- wide operating range (up to 250 m),
- low current consumption in the stand-by mode – designed for continuous operation,
- control by means of mobile devices (in cooperation with EFC-01).

LED - OUT 3
LED - OUT 2
LED - OUT 1
+
-
10 ÷ 14 V DC   + ROP-06

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Technical data

Symbol:	ROP-01	ROP-02 / ROP-07	ROP-05	ROP-06
Nominal supply voltage:	230 V AC		10 ÷ 14 V DC	
Nominal frequency:	50 / 60 Hz		-	
Nominal power consumption:	0,29 W	• 0,39 W "stand-by" mode • 0,69 W 1-channel operation mode • 1,09 W 2-channel operation mode	• 0,15 W – "stand-by" • 0,7 W – 2-channel operation	0,22 W
Number of channels:	1	2	2	3
Maximum number of transmitters:	32			
Operation modes of EXTA FREE system transmitters:	• switching on • switching off • monostable • bistable • time			
Transmission:	radio 868,32 MHz			
Transmission way:	one-way			
Coding:	transmission with addressing			
Operating range:	up to 230 m in an open area	up to 250 m in an open area		
Optical signalling of radio transmission:	red LED diode			
Relay contact parameters:	1 NO / NC 5A / 250 V AC1 1250 VA	2 NO 5A / 250 V AC1 1250 VA		-
Maximum output capacity:	5 A	2 x 5 A / 250 V AC		3 x 2,5 A
Temperature operating range:	-10 ÷ +55°C			
Casing protection degree:	IP20			
Dimensions:	47,5 x 47,5 x 20 mm			
Weight:	0,043 kg	0,039 kg	0,036 kg	0,025 kg
Reference standard:	EN 60669, EN 60950, EN 61000			

ROP-01 – APPLICATION

1-channel radio receiver ROP-01 operates as a receiver of 8-channel remote controller P-256/8 and of 2-channel button radio transmitter RNK-02 (light sources switching on / switching off control). The above mentioned transmitters can also control operation of remote control socket RWG-01.
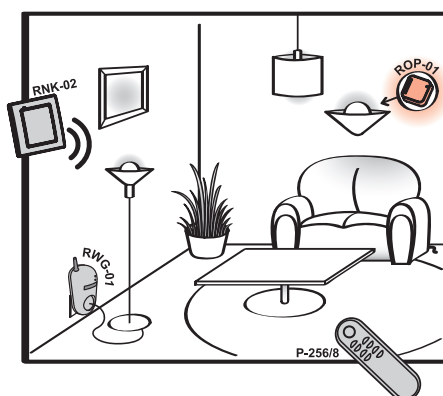
ROP-02 – APPLICATION

2-channel radio receiver ROP-02 operates as a receiver of 8-channel remote control P-256/8 and of 2-channel button radio transmitter RNK-02 (light sources switching on / switching off control). The above mentioned transmitters can also control operation of remote control socket RWG-01.
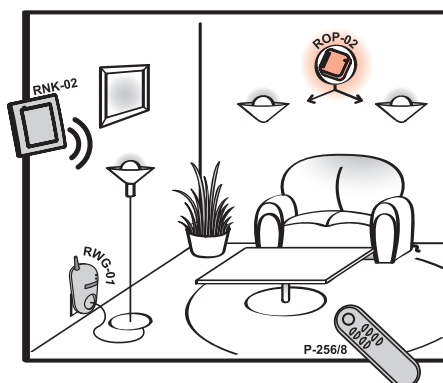
Radio dimmer RDP-01 cooperates with light bulbs, halogen and compact fluorescent lamps equipped with electronic power supply (EVG). The one-colour controller RDP-02 is dedicated to control monochrome LED light sources with 10 to 14 V DC supply voltage. It realizes the following functions: switching on, switching off and luminous flux intensity adjustment. RDP-11 controller is dedicated to LED RGB products. The presented controllers cooperate with EXTA FREE system transmitters, dedicated RGB touch remote control P-260 and mobile devices (in cooperation with EFC-01).

1-channel radio dimmer RDP-01

Features
• light sources switching on / switching off, brightening / dimming,
• cooperation with light bulbs, compact fluorescent lamps powered by electronic or toroidal power supply transformers,
• memory of the adjusted luminous flux intensity level,
• easy installation in Ø60 mm junction box,
• control by means of mobile devices (in cooperation with EFC-01),
• wide operating range (up to 230 m),
• operation is optically signalled,
• low current consumption, possibility of continuous operation.

230 V AC 50/60 Hz

max. 250 W

RDP-01
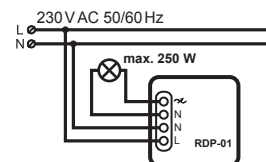
Load capacity

- 250 W AC5b
LED 40 W
- 250 W AC5a
250 W AC5a
250 W AC5a

One-colour LED controller RDP-02

Features
• brightening / dimming of the monochrome LED sources with 10 ÷ 14 V DC supply voltage,
• one transistor output with a maximum load capacity of 4 A,
• wired or wireless control,
• control by means of mobile devices (in cooperation with EFC-01),
• wide operating range (up to 230 m),
• operation is optically signalled,
• low current consumption in stand-by mode.

IN1
IN2
LED
RDP-02
10 ÷ 14 V DC
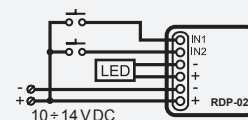
Wireless RGB controller RDP-11

Features
• 3 transistor output (3 x 2,5 A),
• 1 out of 10 colour selection, automatic fluent colour change, luminous flux intensity adjustment (for EXTA FREE transmitters),
• strobe colour change, colour selection from the touch field, white colour temperature adjustment (only for P-260 remote control),
• PWM adjustment with a resolution of 9-bits,
• control by means of mobile devices (in cooperation with EFC-01).

RGB
LED
RDP-11
10 ÷ 14 V DC

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Technical data

Symbol:	RDP-01	RDP-02	RDP-11
Nominal supply voltage:	230 V AC	10 ÷ 14 V DC	
Nominal frequency:	50 / 60 Hz	-	
Nominal power consumption:	0,50 W	0,22 W	
Number of channels:	1		3
Maximum number of transmitters:	32		
Operation modes for EXTA FREE system transmitters:	• comfortable • one push button (bistable) • two push button (switch on / switch off • time	• switch on / switch off • brightening /dimming • time with dimmer	• switch on / switch off • colour selection (1 out of 10) • brightening /dimming • automatic fluent colour change (FLOATING)
Operation modes for P-260 remote control:	-	-	• switch on / switch off • colour selection from a touch field • brightening /dimming • automatic fluent colour change (FLOATING), • automatic strobe colour change (STROBE)
Control type:	wireless	wireless / wired	wireless
Transmission:	radio 868,32 MHz		
Transmission way:	one-way		
Coding:	transmission with addressing		
Operating range:	up to 230 m in an open area		
Optical signalling of operation:	red LED diode		
Relay contact parameters:	-	2 NO 5A / 250 V AC1 1250 VA	-
Maximum power load capacity:	250 W	-	250 W
Temperature operating range:	-10 ÷ +55°C		
Casing protection degree:	IP20		
Dimensions:	47,5 x 47,5 x 20 mm		
Weight:	0,034 kg	0,025 kg	0,027 kg
Reference standard:	EN 60669, EN 60950, EN 61000		

RDP-11 – APPLICATION

Radio dimmer RDP-11 controls LEDIX lighting fittings with RGB diodes and LED RGB strip. It communicates with P-256/8 portable remote control and wall transmitter RNK-04 in a wireless way. By means of the above mentioned transmitters it is possible to select 1 out of 10 colours (default setting), change the luminous flux intensity and enter the fluent automatic colour change mode. In cooperation with EFC-01 controller it is possible to control RGB lighting by means of mobile devices.
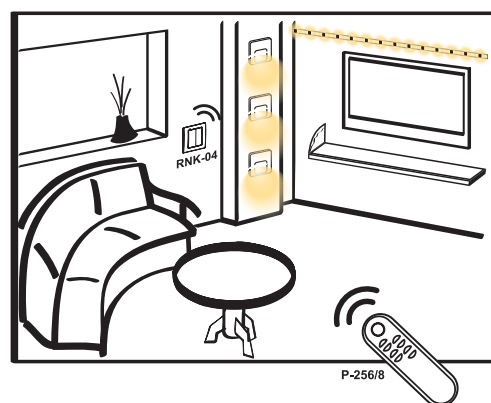
SRP-02, SRP-03 roller shutter controllers allow to create the roller shutter control systems by means of EXTA FREE wireless system. The SRP-02 controller allows to realise roller shutter local and central control and additionally can save comfort operating modes. SRP-03 controller enables the integration of wired roller shutter controllers SRP-01 and SRM-10 and other manufacturer's devices with EXTA FREE radio control system. Both controllers are fitted with wired control inputs that allow for a control by means of EXTA FREE transmitters as well as typical roller shutter control switches.

Radio roller shutter controller SRP-02

Features
- cooperation with EXTA FREE wireless control system transmitters,
- control of the roller shutter drives,
- a possibility of local wired control (by means of a roller shutter control switch),
- comfort operating modes – upper and lower (a possibility of memorising the roller shutter vertical position),
- control by means of mobile devices (in cooperation with EFC-01),
- wide operating range (up to 250 m)
- low power consumption, a possibility of continuous operation.
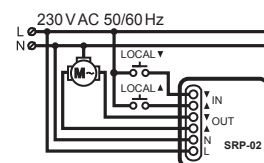
Central radio roller shutter controller SRP-03

Features
- cooperation with EXTA FREE wireless control system transmitters
- cooperation with wired roller shutter controllers SRP-01, SRM-10 of EXTA series and controllers from other manufacturers,
- a possibility of wireless control of the existing roller shutters with the group / central wired control installation,
- a possibility of local wired control (by means of a roller shutter control switch),
- control by means of mobile devices (in cooperation with EFC-01),
- wide operating range (up to 250 m)
- low power consumption, a possibility of continuous operation.
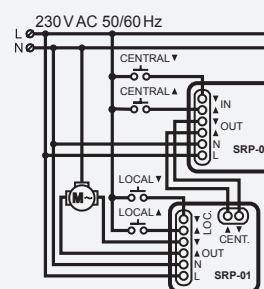
SRP-02 – APPLICATION
Roller shutter control system realised by means of SRP-02 roller shutters controllers. One controller can be used for one roller shutter only. Each of the controllers is operated by means of a wireless P-256/8 remote control.

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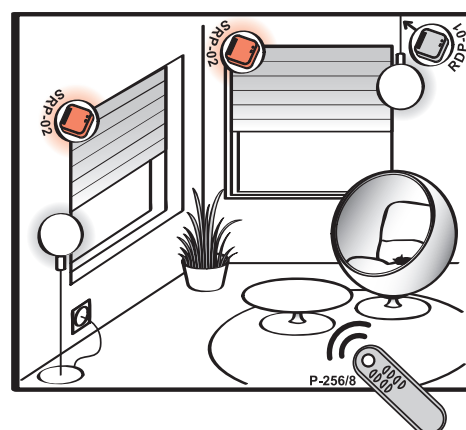
Technical data

| Symbol:	SRP-02	SRP-03
Nominal supply voltage:	230 V AC	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	• 0,4 W "stand-by" mode • 0,7 W operation mode	
Optical signalling of roller shutter movement:	red LED diode	
Programmable time for the comfort mode:	1 ÷ 120 s	-
Wired control terminals:	LOCAL ▲ (up), ▼ (down)	LOCAL/CENTRAL ▲ (up), ▼ (down)
Drive control terminals:	▲ (up), ▼ (down)	-
Output terminals:	-	OUT ▲ (up), ▼ (down) - wired central control
Optical signalling of operation:	red LED diode	
Maximum number of transmitters:	32	
Transmission:	radio 868,32 MHz	
Transmission way:	one-way	
Coding:	transmission with addressing	
Operating range:	up to 250 m in an open area	
Relay contact parameters:	2 NO 5 A / 250 V AC1 1250 VA	
Temperature operating range:	-10 ÷ +55°C	
Cross-section of the connecting cables:	up to 2,5 mm²	
Casing protection degree:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	
Weight:	0,039 kg	
Reference standard:	EN 60669, EN 60950, EN 61000	

SRP-03 – APPLICATION

Roller shutters control system realized by means of wired roller shutter controllers SRP-01. One controller can be used for one roller shutter only. Each of the controllers is equipped with local control push button and connected inputs of central control, which allow to close or open a given group of roller shutters by means of SRP-03 central roller shutter controller. SRP-03 is operated in a wireless way by means of 8-channel remote control P-256/8. Roller shutters switches can not be equipped with backlight.
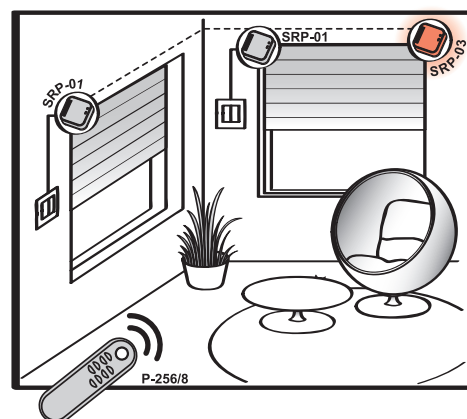
ROM-01, ROM-10 radio receivers can be mounted inside a typical distribution board on TH-35 rail and can realize radio control functions by means of any EXTA FREE transmitter. It is possible to connect any electrical devices realising functions set by the radio system components (e.g. EXTA building automation wired devices, relay and contactor systems, etc.) to the relay outputs of the receivers.

1-channel radio modular receiver ROM-01

Features
- cooperation with EXTA FREE wireless control system transmitters
- radio receiver, 1-channel, designed for mounting inside a distribution board on TH-35 rail,
- 5 operating modes: switching on, switching off, monostable, bistable and time mode (delayed switch off),
- 8 A relay output (changeover contact),
- control by means of mobile devices (in cooperation with EFC-01),
- wide operating range (up to 300 m),
- power supply and relay operation optical signaling,
- a possibility of integration with wired control systems (e.g. EXTA building automation devices, bistable relays and other equipment mounted inside a distribution board),
- a possibility of connecting an external antenna ANT-01 mounted outside a distribution board.
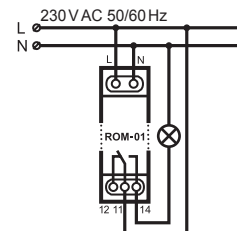
Load capacity

- ☼- 1000 W AC5b
- **LED** 60 W
- - 250 W AC5a
- 500 W AC5a
- 375 W AC5a

2-channel radio modular receiver ROM-10

Features
- cooperation with EXTA FREE wireless control system transmitters,
- radio receiver, 2-channel, designed for mounting inside a distribution board on TH-35 rail,
- 5 operating modes: switching on, switching off, monostable, bistable and time mode (delayed switch off),
- 2 x 8 A relay outputs (changeover contacts),
- control by means of mobile devices (in cooperation with EFC-01),
- wide operating range (up to 300 m),
- power supply and relay operation optical signaling,
- a possibility of integration with wired control systems (e.g. EXTA building automation devices, bistable relays and other equipment mounted inside a distribution board),
- a possibility of connecting an external antenna ANT-01 mounted outside a distribution board.

Load capacity

- ☼- 1000 W AC5b
- **LED** 60 W
- - 250 W AC5a
- 500 W AC5a
- 375 W AC5a

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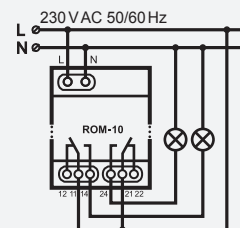
Technical data

Symbol:	ROM-01	ROM-10
Nominal supply voltage:	230 V AC	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	0,45 W	0,55 W
Optical signalling of supply voltage:	green LED diode	
Number of channels:	1	2
Maximum number of transmitters:	32	
Transmission:	radio 868,32 MHz	
Transmission way:	one-way	
Coding:	transmission with addressing	
Operating range:	up to 300 m in an open area	
Optical signalling of relay status:	red LED diode	2 x red LED diode
Relay contact parameters:	1 NO / NC 8 A / 250 V AC1 2000 VA	2 NO / NC 8 A / 250 V AC1 2000 VA
Temperature operating range:	-10 ÷ +55°C	
Cross-section of the connecting cables:	up to 2,5 mm²	
Casing mounting:	TH-35 rail (according to PN-EN 60715)	
Casing protection degree:	IP20	
Dimensions:	90 x 17,5 x 66 mm	90 x 35 x 66 mm
Weight:	0,083 kg	0,087 kg
Reference standard:	ETSI EN 300 220-1, ETSI EN 300 220-2	

ROM-01 – APPLICATION

ROM-01 module radio receiver operates as a receiver of P-257/2 2-channel remote control (lighting control in front of a garage gate). P-257/2 remote control may also realise a garage gate operation control by means of ROB-01/12-24V gate radio receiver.
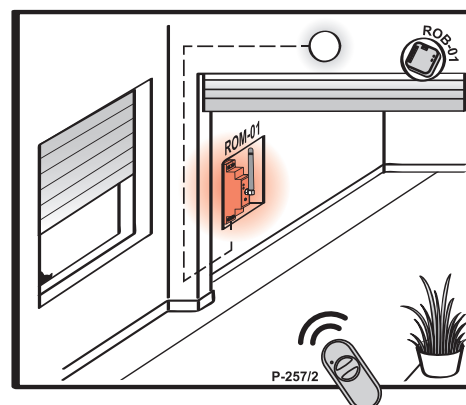
ROM-10 – APPLICATION

ROM-10 module radio receiver operates as a receiver of P-257/4 4-channel remote control (lighting control in front of a garage gate and inside a garage). Additionally, P-257/4 remote control may realise the gate radio receiver control ROB-01/12-24V.
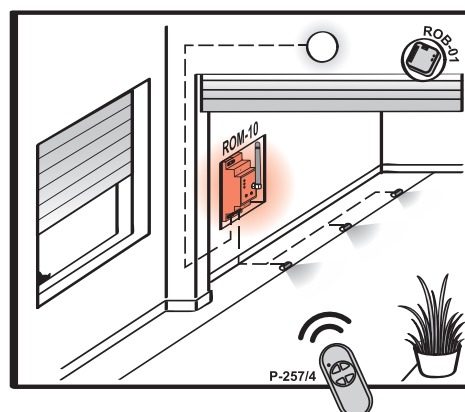
ROB-01/12-24V gate radio receiver is a general purpose (any gate manufacturer) garage gate or similar drives operation controller that allows to control the gate by means of EXTA FREE system transmitters. An additional advantage is common control – by means of a single remote control – of a driveway gate, garage gate, room lighting, etc.

Radio gate controller ROB-01/12-24 V

Features
- cooperation with EXTA FREE wireless control system transmitters,
- control of driveway and garage gates and other similar drives,
- a possibility of using a single remote control for several various drives (driveways, garages) with mounted ROB-01/12-24V device,
- easy mounting inside Ø60 mm junction box,
- versatile low-voltage supply (12 ÷ 24 V AC / DC),
- connection possibility of external wire antenna,
- control by means of mobile devices (in cooperation with EFC-01),
- wide operating range (up to 250 m),
- optical signalling of operation.

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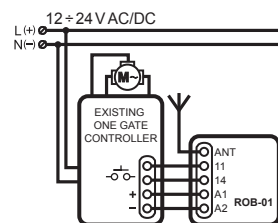
Technical data

Symbol:	ROB-01/12-24V
Nominal supply voltage:	12 ÷ 24 V AC / DC
Nominal power consumption:	0,20 W
Number of channels:	1
Maximum number of transmitters:	32
Transmission:	radio 868,32 MHz
Transmission way:	one-way
Coding:	transmission with addressing
Operating range:	up to 250 m in an open area
Optical signalling of operation:	red LED diode
Relay contact parameters:	1NO 2 A / 250 V AC3 500 VA
Temperature operating range:	-10 ÷ +55°C
Cross-section of the connecting cables:	up to 2,5 mm²
Casing protection degree:	IP20
Dimensions:	47,5 x 47,5 x 20 mm
Weight:	0,043 kg
Reference standard:	EN 60669, EN 60950, EN 61000

ROB-01/12-24V – APPLICATION
ROB-01/12-24V radio gate receiver operates as a receiver of P-256/8 eight-channel remote control (controls the operation of a garage gate of any type). Additionally, P-256/8 remote control can operate the SRP-02 roller shutter controller and ROP-01 1-channel radio receiver.
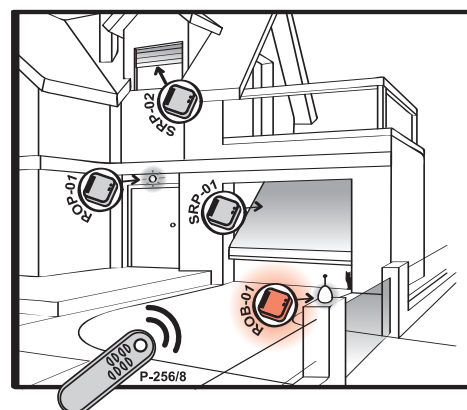
RWG-01 remote control socket allows for an easy connection of any 230 V AC receiver and its wireless control by means of any EXTA FREE system transmitters. Neither tools nor the existing electrical system modifications are required in order to mount this device, which is directly mounted in a 230 V AC socket outlet.

Remote control socket RWG-01

Features
- cooperation with EXTA FREE wireless control system transmitters (it is necessary to buy the transmitters separately),
- lighting, heating control,
- easy mounting directly in 230 V AC plug-in socket,
- 5 operating modes: switching on, switching off, monostable, bistable and time mode (delayed switch off),
- control by means of mobile devices (in cooperation with EFC-01),
- wide operating range (up to 300 m)
- optical signalling of radio transmission and relay status
- low power consumption, a possibility of continuous operation.

Plug and socket
Schuko standard
on special request.

Aerial

Power supply
optical signalling

Receiver ON-state
optical signalling

Programming
button

Receiver socket

Power
plug

Load capacity

- 2000 W AC5b
- **LED** 100 W
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
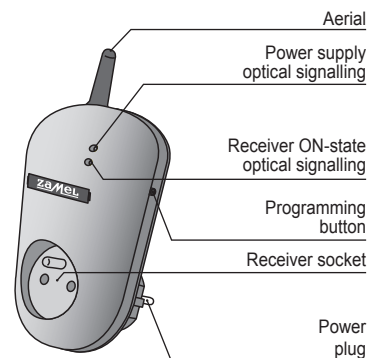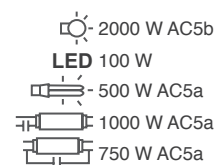
Remote control socket with a remote control RWG-01K

Features
- cooperation with EXTA FREE wireless control system transmitters transmitters (it is necessary to buy the transmitters separately),
- P-257/2 remote control included,
- lighting, heating control,
- easy mounting directly in a 230 V AC plug-in socket,
- 5 operating modes: switching on, switching off, monostable, bistable and time mode (delayed switch off),
- control by means of mobile devices (in cooperation with EFC-01),
- wide operating range (up to 300 m),
- low power consumption, a possibility of continuous operation.

Plug and socket
Schuko standard
on special request.

Load capacity

- 2000 W AC5b
- **LED** 100 W
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

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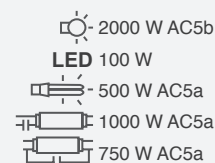
Technical data

Symbol:	RWG-01 / RWG-01K
Nominal supply voltage:	230 V AC
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	0,29 W
Number of channels:	1
Maximum number of transmitters:	32
Transmission:	radio 868,32 MHz
Transmission way:	one-way
Coding:	transmission with addressing
Operating range:	up to 300 m in an open area
Optical signalling of supply voltage:	green LED diode
Optical signalling of relay status:	red LED diode
Maximum capacity:	4000 VA
Temperature operating range:	-10 ÷ +55°C
Casing protection degree:	IP20
Dimensions:	160 x 66 x 90 mm
Weight:	0,160 kg
Reference standard:	EN 60669, EN 60950, EN 61000

RWG-01 – APPLICATION

RWG-01 remote control socket operates as a receiver of P-256/8 8-channel remote control and RNK-02 2-channel button radio transmitter (lighting source control switching on / switching off). The presented transmitters can also control ROP-01 radio receiver.
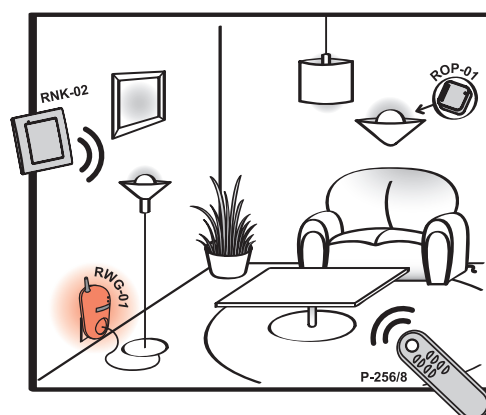
EFC-01 controller cooperates with selected EXTA FREE system receivers. The central unit fully connects receivers, sensors and transformers of the EXTA LIFE system, granting them functionality of an intelligent system. The aim of the controller is also cooperation with mobile devices operating based on Android and iOS system. This requires installation of a free EXTA LIFE application, which enables configuration of the whole system and its later use. The role of the controller EFC-01 in the EXTA LIFE system is management of all its elements, which have been paired with it. It is also an excellent tool for the system installer – it allows remote adding of transmitters to receivers and their parametrization. Implementation of time and logical functions increases possibilities of EXTA LIFE by automation of certain processes. Bi-directional communication between the controller and the receivers ensures that at all times the current status of a receiver is displayed in the application. This applies both to control within home network and beyond (through the Internet). The controller is small in size and is characterized by its modern design.

Controller EFC-01

Features
- cooperation with selected EXTA FREE system receivers,
- cooperation with elements of the EXTA LIFE system (transmitters, receivers, sensors),
- management off the system from the level of mobile devices (tablets, smartphones),
- performance of scenes, time and logical functions,
- radio transmission in bandwidth ISM 868 MHz with coding,
- possibility of local control within home and remote (through the Internet),
- one way transmission with the EXTA FREE system receivers,
- bi-directional transmission with the EXTA LIFE system receivers,
- supports Android and iOS devices,
- wide operating range (up to 350 m in open area),
- small dimensions and modern design.
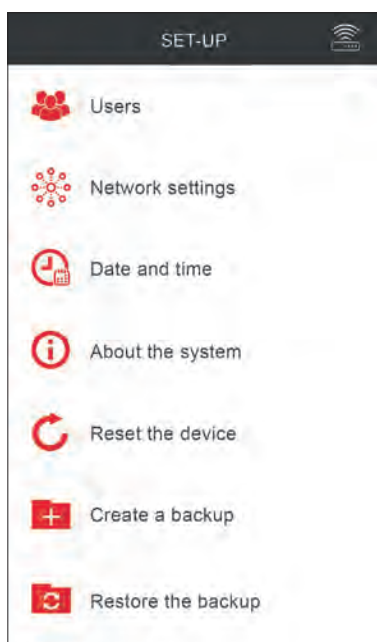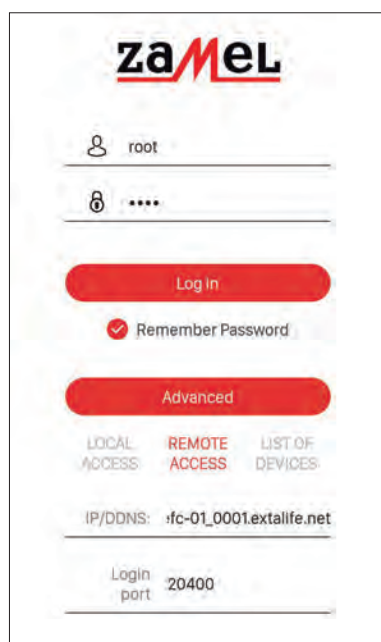
Log in and configuration menu in the ExtaLife application

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Technical data

Symbol:	EFC-01
Nominal input voltage:	5 V DC / 1,2 A – Standard Micro-USB
Nominal power consumption:	1,6 W
Communication with elements of the EXTA LIFE system:	radio – bandwidth ISM 868 MHz
Transmission mode:	bi-directional - 9600 bps
Coding:	128-bit key based algorithm
Operating range:	up to 330 m in open area
Possibility to connect external antenna:	no
Transmission with mobile devices:	TCP protocol based – connection performed through external Wi-Fi router
Connectors:	• 1 x RJ45 Ethernet Port • 1 x micro USB B 2.0 • 2 x USB A 2.0 • RESET button
Maximum number of supported devices*:	100
Possibility of software update:	yes
Sygnalling:	LED diodes
Operating temperature range:	-10 ÷ +55°C
Ingress protection rating of the casing:	IP20
Protection class:	III
Dimensions:	70 x 70 x 70 mm
Weight:	0,098 kg
Compliance with standards:	ETSI EN 300 220-1, ETSI EN 300 220-2

* Concerns all devices paired with the controller (transmitters / receivers / sensors).

GSM remote control switches allow to control electrical devices (switching on / switching off, restart) by means of a mobile phone or PC / mobile device. Such devices make it possible to control receivers without limitations due to the local radio system operating range – a remote access to switch them on or off is possible almost from any location within GSM network operating range or in areas with LAN/Internet access. In case of GRG-01, device installation does not require tools or modifications in the existing electrical system – the devices are mounted directly in 230 V AC socket outlets. GRM-10 device can be mounted in a distribution board on TH-35 rail and it can be directly connected with EXTA/EXTA FREE building automation wireless or wired components.

GSM remote switch GRG-01

Features
- remote control of electrical devices by means of commands (phone incoming connection, SMS message) from a mobile phone,
- comfortable control of hard to reach devices (ventilation, heating, etc.),
- three operating modes (switching on, switching off, restart – relay contacts changeover for a defined period),
- easy mounting directly in a standard 230 V AC plug-in socket,
- low power consumption, a possibility of continuous operation.

Load capacity

- 2000 W AC5b
- **LED** 100 W
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

Plug and socket Schuko standard on special request.

GSM remote switch GRM-10

Features
- remote control of electrical devices by means of commands (phone incoming connection, SMS message) send from a mobile phone,
- 2 independent relay outputs,
- 2 digital inputs including status control by the device,
- configuration of SMS messages received after digital inputs' status change,
- free configuration software for PC,
- special gate mode to control the entry gate drives,
- comfortable control of hard to reach devices (ventilation, heating, etc.),
- three operating modes (switching on, switching off, restart – relay contacts changeover for a specified period),
- mounted inside a distribution board on TH-35 rail,
- low power consumption, a possibility of continuous operation,
- RS-485 protocol, cooperation with RXM-01.

230 V AC 50/60 Hz

Load capacity

- 2000 W AC5b
- **LED** 100 W
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

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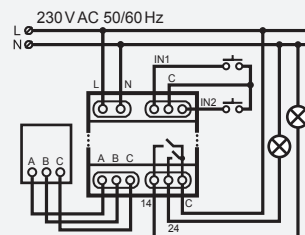
Technical data

Symbol:	GRG-01	GRM-10
Nominal supply voltage:	230 V AC	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	• 0,5 W – stand-by • 2,5 W – GSM operation	2,6 W
GSM frequency:	900 / 1800 / 1900 MHz	
Operating range:	limited with GSM network structure	
Applied communication protocols:	-	RS485
Coding:	-	
LAN socket:	-	
Optical signalling of supply voltage:	green LED diode	
Optical signalling of relay status:	two-colour (red colour) LED diode	2 x red LED diode
Optical signalling of GSM connection status:	two-colour (green colour) LED diode	yellow LED diode
Relay contact parameters:	1 NO 16 A / 250 V AC1 4000 VA	2 NO 16 A / 250 V AC1 4000 VA
Temperature operating range:	-10 ÷ +55°C	
Casing protection degree:	IP20	
Dimensions:	160 x 66 x 90 mm	90 x 53 x 66 mm
Weight:	0,190 kg	0,200 kg
Reference standard:	EN 60950-1, EN 55024, EN 610004-4	

Mobile phone

GRG-01 – APPLICATION

GSM remote switch GRG-01 allows for a remote control (switching on / switching off or restart) of a fan – by means of commands send from a mobile phone.
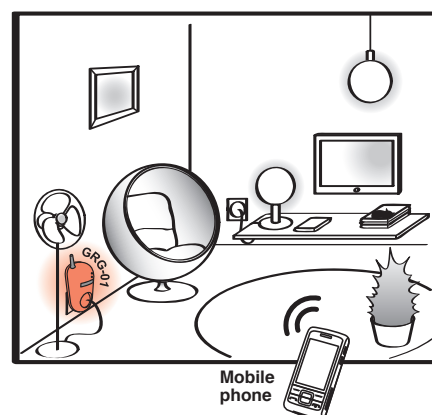
Radio power switches RWS-311J, RWS-311D and RWS-311C are receivers of EXTA FREE system dedicated to operate with increased loads. The above is due to the application of output relays of a maximum load 16 A / 250 V AC. It is possible to independently control one (RWS-311J), two (RWS-311D) or four (RWS-311C) circuits regarding the type of switch that is used. They are ideal for device group control such as: lighting, heaters, fans, air conditioners, pumps, gates. Hermetical casing with IP56 protection degree allow the receivers to be mounted outdoor. Resistance to changing weather conditions ensures their correct operation throughout their lifetime. 230 V AC power supply, easy mounting and a wide range of operation are additional advantages of the presented switches.

1-channel radio power switch RWS-311J

Features
- cooperation with EXTA FREE system transmitters,
- designed for indoor and outdoor mounting,
- designed for operation in difficult weather conditions,
- unidirectional radio transmission 868,32 MHz in accordance with EXTA FREE system protocol,
- independent control of maximum 1 circuit,
- wide operating range up to 350 m in an open area,
- a possibility of increasing the range by means of RTN-01 retransmitter.

RWS-311J

230 V AC
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Load capacity

- 2000 W AC5b
- **LED** 100 W
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
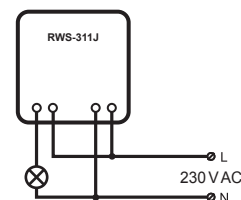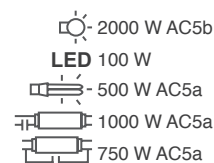
2-channel radio power switch RWS-311D

Features
- cooperation with EXTA FREE system transmitters,
- designed for indoor and outdoor mounting,
- designed for operation in difficult weather conditions,
- unidirectional radio transmission 868,32 MHz in accordance with EXTA FREE system protocol,
- independent control of maximum 2 circuits by means of one remote control,
- wide operating range up to 350 m in an open area,
- a possibility of increasing the range by means of RTN-01 retransmitter.

RWS-311D

230 V AC
L
N

Load capacity

- 2000 W AC5b
- **LED** 100 W
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
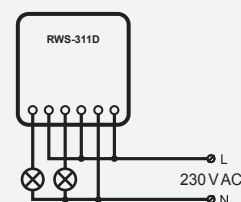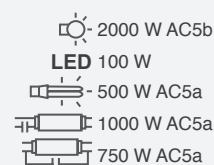
4-channel radio power switch RWS-311C

Features
- cooperation with EXTA FREE system transmitters,
- designed for indoor and outdoor mounting,
- designed for operation in difficult weather conditions,
- unidirectional radio transmission 868,32 MHz in accordance with EXTA FREE system protocol,
- independent control of maximum 4 circuits by means of one remote control,
- wide operating range up to 350 m in an open area,
- a possibility of increasing the range by means of RTN-01 retransmitter.

RWS-311C

230 V AC
L
N

Load capacity

- 2000 W AC5b
- **LED** 100 W
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

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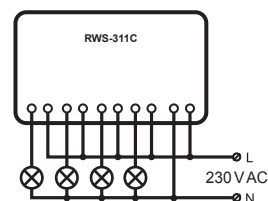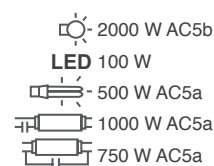
Technical data

Symbol:	RWS-311J	RWS-311D	RWS-311C
Nominal supply voltage:	230 V AC		
Supply voltage tolerance:	-15% ÷ +10%		
Nominal power consumption:	• 1,1 W stand-by • 1,5 W operation	• 1,15 W – stand-by • 2,4 W – operation	• 1,3 W stand-by • 4,4 W operation
Number of channels:	1	2	4
Maximum number of transmitters:	32		
Transmission:	radio 868,32 MHz		
Transmission way:	one-way		
Coding:	transmission with addressing		
Operating range:	up to 350 m in an open area		
Possibility of range increase:	yes – retransmitter RTN-01		
Relay contact parameters:	1 x 16 A / 250 V AC 4000 VA AC1	2 x 16 A / 250 V AC 4000 VA AC1	4 x 16 A / 250 V AC 4000 VA AC1
Contacts type:	1 x NO dry contact	2 x NO dry contact	4 x NO dry contact
Operation mode:	bistable, time		
Time adjustment for time mode:	1 ÷ 120 s – independently for each channel		
Mounting:	surface		
Casing protection degree:	IP56		
Temperature operating range:	-20 ÷ +50°C		
Dimensions:	127 x 120 x 60 mm		157 x 82 x 55 mm
Weight:	0,39 kg	0,41 kg	0,58 kg
Reference standard:	EN 60669, EN 60950, EN 61000		

RWS-311D – APPLICATION

Radio power switch RWS-311D cooperates with garage gate control system. Opening and closing the gate is carried out by means of P-256/8 remote control. It is also used to control the entry gate drive, lighting and roller shutter drive.
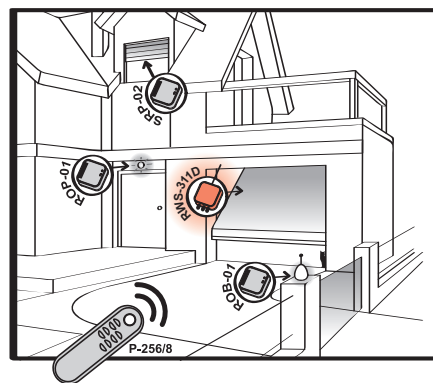
Wireless temperature and luminous flux intensity sensor RCL-02 and radio wireless motion detector RCR-01 is an ideal completion of EXTA FREE system increasing its functionality. These sensors can cooperate directly with system receivers. Due to this cooperation the users gain the ability to automate control processes within their home, garden, work and leisure place. Proper temperature and sunshine analysis by RCL-02 is an irreplaceable help and, above all, time saving in the control process of roller shutters and maintaining thermal comfort at home. The sensor is battery powered. The RCL-02 sensor can be mounted outdoor. The motion radio detector RCR-01 is a device that makes it possible to create modern, energy-saving lighting control system in an easy way. The lighting is switched on for a specified time in case any movement occurs within the operating zone. An additional advantage of RCR-01 device is its complete mobility and lack of wiring related to power supply.

Radio temperature and luminous flux intensity sensor RCL-02

Features
- designed to cooperate only with EXTA FREE system receivers,
- equipped with 4-push button keyboard to enter the adjustment values,
- a possibility to view current temperature and luminous flux intensity values in the LCD display,
- a possibility to adjust the setpoint and hysteresis independently to measure temperature and luminous flux intensity,
- temperature value measurement from -20 to +60 °C,
- temperature measurement accuracy is not less than ± 1 °C,
- luminous flux intensity measurement from 0 to 16500 lx,
- battery powered (2 x AAA),
- hermetic casing – casing protection degree IP54.

Radio wireless motion detector RCR-01

Features
- PIR motion passive detector,
- built-in twilight switch (a possibility of switching off the sensor's operation),
- EXTA FREE system receivers remote control,
- easy mounting, easy adaptation to the operating condition changes,
- battery operated,
- cooperation with EFC-02 controller.

Battery compartment

Mode switches

Motion detector lens

Operation optical signalling zone

PROG button

Sensitivity potentiometer
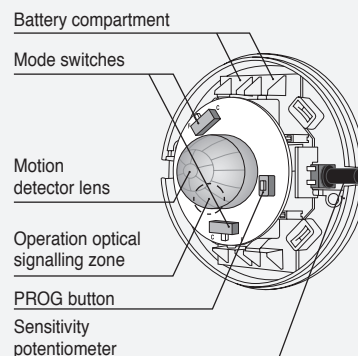
RCR-01 – APPLICATION

Radio motion sensor RCR-01 controls the operation of ROP-01 radio receiver. The application of RCR-01 gives a possibility of automatic lighting control – also in rooms where wired control installation is not done.

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Technical data

Symbol:	RCL-02	RCR-01
Nominal supply voltage:	3 V DC	2 x 1,5 V DC – battery AAA
Battery type:	2 x 1,5V battery AAA	-
Transmission:	radio 868,32 MHz	
Transmission way:	one-way	
Coding:	-	transmission with addressing
Operating range:	up to 200 m in an open area	up to 250 m in an open area
Optical signalling of radio transmission:	-	red LED diode
Cooperation with system elements:	directly with EXTA FREE system receivers	
Functionality:	sending switch on / switch off commands to receivers depending on the setpoint and hysteresis separately for temperature and luminous flux intensity	-
Control (interface):	LED display + 4 button keypad	-
Temperature measuring range:	-20 ÷ +60°C	-
Temperature resolution:	0,1°C	-
Temperature measuring accuracy:	• ± 0,5°C in the range of 0 ÷ 80°C • ± 1°C n a different range	-
Luminous flux intensity measuring range:	0 ÷ 16 500 lx	-
Luminous flux intensity resolution:	1 lx	-
Number of channels:		1
Twilight sensor adjustment range:	-	2 ÷ 20 lx
Luminous flux intensity measuring accuracy:	range 2 ÷ 30 lx: ± 2 lx, range 30 ÷ 40 lx: ± 3 lx, range 40 ÷ 50 lx: ± 5 lx range > 50 lx: percentage acc. to user's adjustment	-
Casing protection degree:	IP54	IP20
Mounting:	surface (2 x strecher 6x 3,5 x 35)	-
Temperature operating range:	-20 ÷ +50°C	-10 ÷ +55°C
Dimensions:	84 x 68 x 43 mm	Ø75 x 40 mm
Weight:	0,09 kg	0,07 kg
Reference standard:	EN 60669, EN 60950, EN 61000	ETSI EN 300 220-1, ETSI EN 300 220-2

Wireless control set – lighting RZB-01
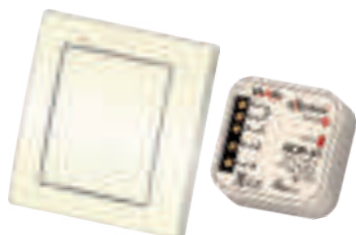
Features
- a complete set of wireless control (RNK-02 2-channel button radio transmitter and ROP-01 1-channel radio bistable receiver),
- operation control of lighting or other receivers.

Technical data

RNK-02
information on page 8
ROP-01
information on page 20

Wireless control set – lighting with dimming function RZB-02

Features
- a complete set of wireless control (RNK-02 2-channel button radio transmitter and RDP-01 1-channel radio dimmer),
- operation control of lighting – switching on / switching off, brightening / dimming.

Technical data

RNK-02
information on page 8
RDP-01
information on page 22

Wireless control set – roller shutter control RZB-03
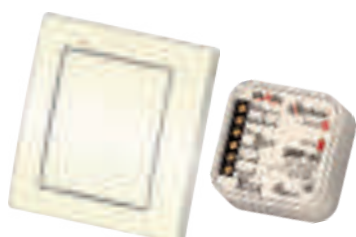
Features
- a complete set of wireless control (RNK-02 2-channel button radio transmitter and SRP-02 roller shutter controller),
- operation control of roller shutter drives.

Technical data

RNK-02
information on page 8
SRP-02
information on page 24

Wireless control set – lighting, 2-channel RZB-04
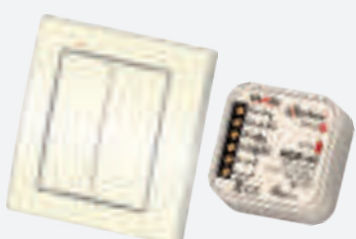
Features
- a complete set of wireless control (RNK-04 4-channel button radio transmitter and ROP-02 2-channel radio receiver),
- operation control of lighting, heating or other receivers.

Technical data

RNK-04
information on page 8
ROP-02
information on page 20

Wireless control set – universal RZB-05

Features
- a complete set of wireless control (P-257/2 2-channel remote control and ROP-01 1-channel radio bistable receiver),
- operation control of lighting, ventilation, heating or other receivers.

Technical data

P-257/2
information on page 10
ROP-01
information on page 20

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1-channel radio power switch set RWS-311J/Z

Features

- a complete set of wireless control (P-257/2 2-channel remote control and RWS-311J 1-channel radio power switch),
- control operation of lighting, ventilation, heating, watering or other receivers.
- independent control of maximum 1 channel (circuit).

Technical data

P-257/2
information on page 10
RWS-311J
information on page 36

2-channel radio power switch set RWS-311D/Z

Features

- a complete set of wireless control (P-257/2 2-channel remote control and RWS-311D 2-channel radio power switch),
- control operation of lighting, ventilation, heating, watering or other receivers.
- independent control of maximum 2 channels (circuits).

Technical data

P-257/2
information on page 10
RWS-311D
information on page 36

4-channel radio power switch set RWS-311C/Z

Features

- a complete set of wireless control (P-257/4 4-channel remote control and RWS-311C 4-channel radio power switch),
- control operation of lighting, ventilation, heating, watering or other receivers.
- independent control of maximum 4 channels (circuits).

Technical data

P-257/4
information on page 10
RWS-311C
information on page 36

RTN-01 retransmitter increases the operating range of the EXTA FREE radio transmitters. Up to four retransmitters may operate in a single system, so it is possible to increase the distance between the transmitter and the receiver up to 1000 m. The device is equipped with 230 V AC passthrough socket for connecting any receiver – in this way the retransmitter does not block the power outlet. ANT-01 external antenna increases the operating range of the system module transmitters and receivers and allows for a correct operation of these devices when mounted in distribution boards with metal door – in this case the antenna may be placed outside the board.

Retransmitter RTN-01

Plug and socket
Schuko standard
on special request.

Features
- increasing the operating range of the EXTA FREE radio devices,
- a possibility of cooperation with three other RTN-01 retransmitters,
- easy mounting in a 230 V AC socket outlet,
- low power consumption, a possibility of continuous operation,
- wide operating range (up to 250 m),
- optical signalling of power supply and radio transmission.

Aerial

Power supply optical signalling

Optic signalling of radio transmission

Programming button

Receiver socket

Power plug

Retransmitter's number switch
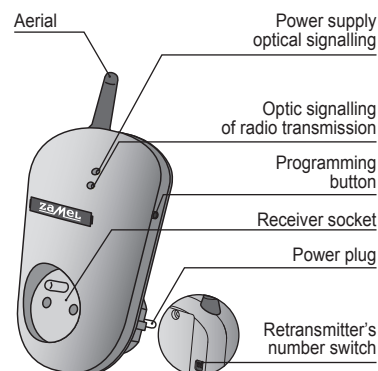
External antenna ANT-01

Features
- additional antenna for leading radio signal outside a distribution board – connection to RNM-10, ROM-01, ROM-10, RXM-01 devices,
- EXTA FREE wireless system transmitters and receivers operating range increase,
- simple mounting by means of SMA connector,
- 3 m long connection cable.

Aerial

SMA socket

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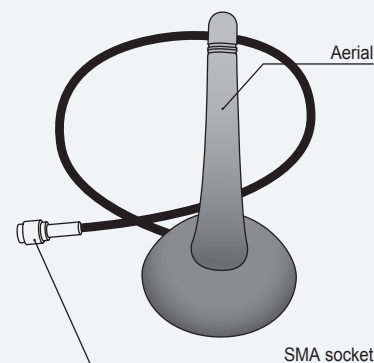
Technical data

Symbol:	RTN-01	ANT-01
Nominal supply voltage:	230 V AC	-
Nominal frequency:	50 / 60 Hz	-
Nominal power consumption:	0,45 W	-
Transmission:	radio 868,32 MHz	-
Transmission way:	one-way	-
Coding:	transmission with addressing	-
Operating range:	up to 300 m in an open area	-
Optical signalling of supply voltage:	green LED diode	-
Optical signalling of radio transmission:	red LED diode	-
Connecting socket:	-	SMA simple, masculine
Cable length:	-	3 m
Temperature operating range:	-10 ÷ +55°C	
Casing mounting:	230 V AC socket	magnet or double-sided tape
Casing protection degree:	IP20	
Dimensions:	160 x 66 x 90 mm	Ø 30,8 x 71,8 mm
Weight:	0,160 kg	0,043 kg
Reference standard:	ETSI EN 300 220-1, ETSI EN 300 220-2, EN 60950, EN 61000	ETSI EN 300 220-1, ETSI EN 300 220-2

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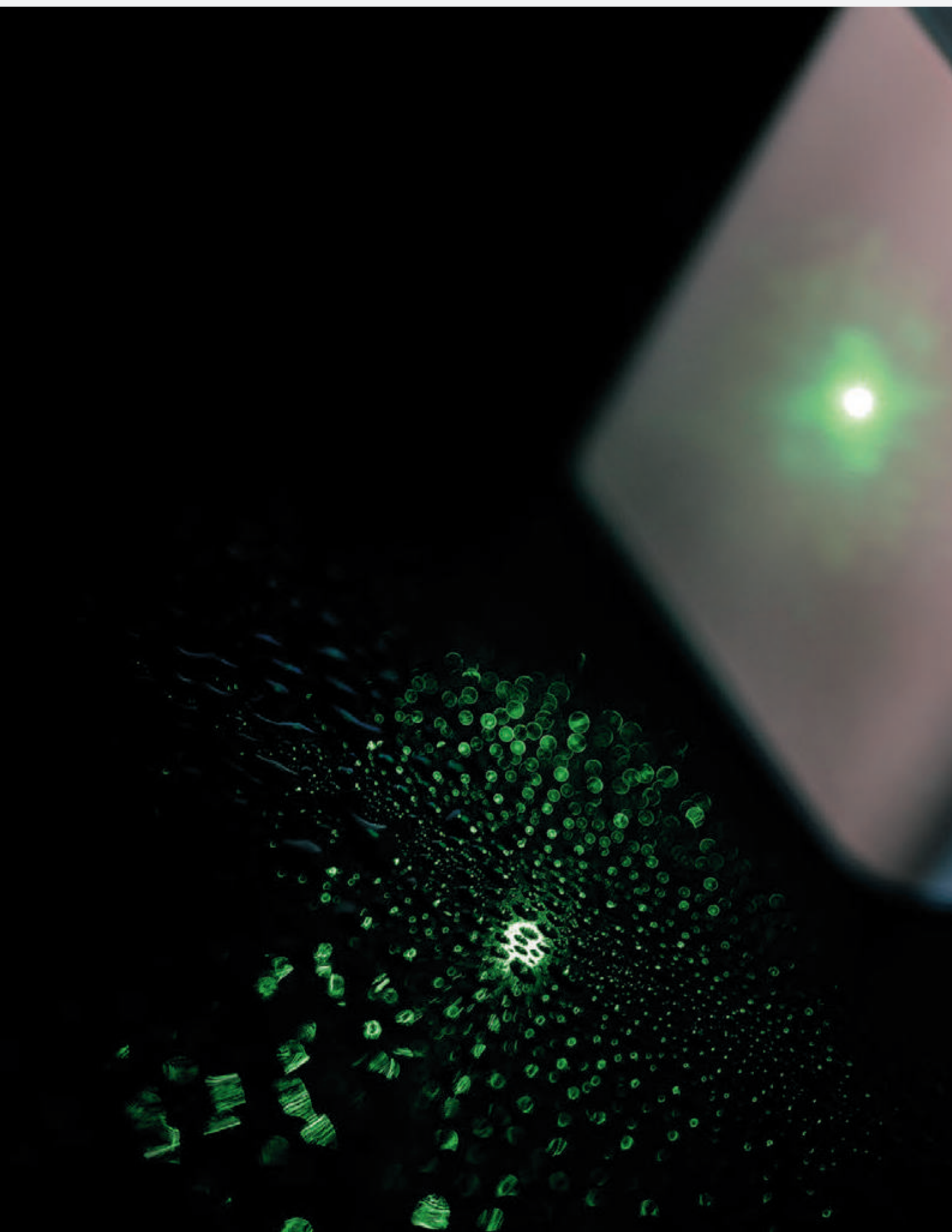
Smart home EXTA LIFE

EXTA LIFE smart home is a system offering a comfortable, wireless control of home lighting, heating, roller blinds and gate drives. Thanks to two--way radio communication, the user can check the installation status at any time, open the gate, turn on the light or close the roller blinds. The EXTA LIFE system, unlike the EXTA FREE system, is focused mainly on the management of receivers from the level of mobile devices with Android and iOS systems. Creating the EXTA LIFE system, Zamel engineers have made every effort to adapt the system to the individual needs and expectations of the user. The system is focused on the maximum simplification of the installation and configuration process. It offers the possibility of remotely adding and removing transmitters to selected receivers, parameterisation of receivers and remotely changing their software. The control from the app level has been designed in such a way that the process of switching on/off, adjusting the light intensity and controlling the roller blinds is efficient and intuitive. EXTA LIFE is ideally suited for controlling the operation of electrical equipment in home and office installations. It includes a group of co-operating devices, such as transmitters, receivers, sensors and a controller. The innovative design of sensors allows for comfortable

mounting, DC or wireless connection via replaceable batteries. EXTA LIFE sensors work with the logic functions of the controller, which ensures automatic control of temperature, lighting or drives depending on the changing environmental conditions. Transmission between components of the system is carried out in the ISM 868 MHz band with 128 bit key coding. This solution guarantees a high level of transmission security. A large operating range of up to 300 m in an open area ensures the correct operation of the EXTA LIFE system in homes and offices.

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Bidirectionality

Minor actions are often done automatically – without major engagement. When you're at home you can always check if your iron is definitely off and if your windows are definitely closed, but how to find the answer to these troubling and nagging questions when you're away from your place of residence? With the EXTA LIFE system it's as easy as child's play thanks to two-way transmission. EXTA LIFE enables instantaneous obtaining of information on such matters as the door / window closure, the level of external roller blinds or the state of particular devices.

Transmission encoding

When developing the EXTA LIFE smart home the Zamel designers placed particular emphasis on the issues of securing the system from the access of third parties. EXTA LIFE is not visible to the bystanders – complex encryption protocols utilised within the EXTA LIFE SYSTEM prevent impersonating users, and even viewing actions performed within the system. EXTA LIFE enables setting up multiple accounts for users with diverse authorisations – this function is particularly important when the system users are not only adults, but also children.

Auto-detection of system components

EXTA LIFE smart home is also an efficient and intuitive installation process thanks to auto-detection of system components. The controller, once connected to a mobile device, automatically detects all the receivers available within its range. This solution saves a lot of time normally devoted to entering subsequent receivers into the controller.

Receiver software updates

Taking into account the rapid technological progress, the EXTA LIFE system has been developed to allow software updates. Thanks to this function the software of EXTA LIFE devices can continuously be updated with most recent solutions and functionalities. This option saves time and most of all money, as instead of costly replacement of the devices with the new-generation products all you need to do is download a free software update.

Devices controlled in the ExtaLife app

49

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

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ynsta

expo
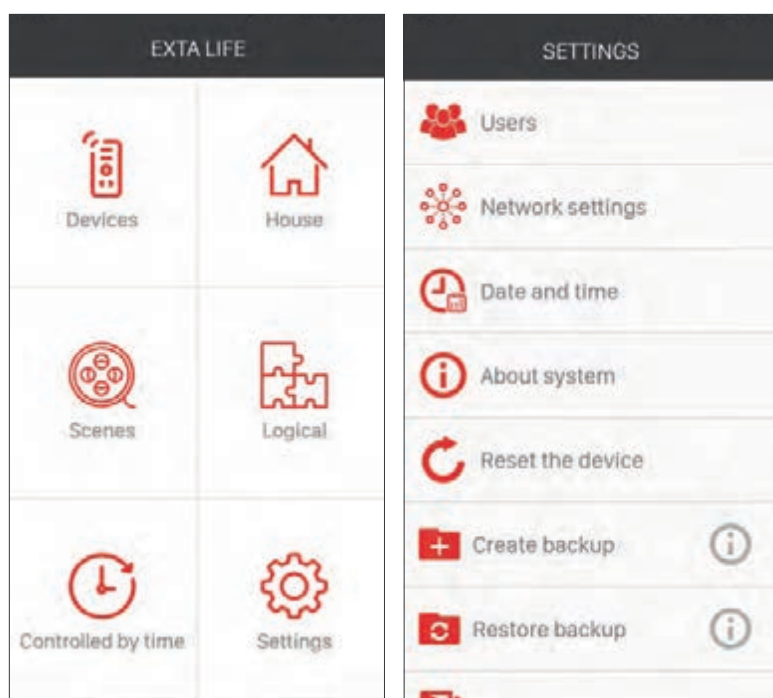
Home within a hand's reach from any place in the world

EXTA LIFE is an excellent choice for those who are often away from home. The system enables control of home installations, in particular control over devices coupled within a system from any place in the world. All you need to do is properly configure remote access and then take a mobile device with Internet access on your trip to be able to check at any time of day and night if nothing worrying is happening on the property. If a user does not have a fixed external IP address, free DDNS service made available by Zamel can be used.

Logic functions

EXTA LIFE allows to define single events, sequences, as well as scenes, implementation of which can be a subject to fulfilment of logic conditions specified by the user. These conditions can most often be coupled with the value of parameters read by the sensors operating within the system. Conditions can also include pressing a selected transmitter. Functions can be single or repeated based on the date, time or day of the week.

Long range

The transmission range of EXTA LIFE devices is 280-350 m. Operation of wireless devices depends on their type and conditions they operate in. In the case of issues with the range it can be increased by means of installation in a system of REP-21 retransmitters. The table below specifies the transmission range of some EXTA LIFE devices on open grounds:

	ROP-21	ROP-22	RDP-21	SRP-22	EFC-01
RNK-22	280 m	300 m	280 m	300 m	350 m
RNK-24	280 m	300 m	280 m	300 m	350 m
P-457/2	280 m	300 m	280 m	300 m	350 m
P-457/4	280 m	300 m	280 m	300 m	350 m
EFC-01	330 m	350 m	330 m	350 m	-

lighting

heating

roller blinds

gates

alarms

logic functions

RNK-22 and RNK-24 radio transmitters are used to send controlling signals and information on the value of temperature in the EXTA LIFE system. They are used in the implementation of such operations as activation/deactivation, brightening/dimming, controlling roller blinds. Thanks to implemented frame encryption algorithm transmission safety is increased. Temperature data combined with the functionality of the EFC-01 controller can be used to control the heating system. The appearance and dimensions of the transmitters refer to the traditional switches. Battery power and the lack of any wiring grant a wide range of applications. Transmitters can be placed on any surfaces (except for metal) and in any location of the room. The option of programming several transmitters for a single receiver grants major freedom when developing the part controlling the installation.

2-channel key transmitter with a temperature sensor RNK-22

Features
• 1-key (2-channel) radio transmitter,
• Remote control of EXTA LIFE system receivers,
• Can control two receivers independently,
• Encrypted RF transmission,
• Integrated temperature sensor,
• Temperature measured by the sensor: -40 ÷ +125°C,
• battery-operated,
• Easy to install by means of double sided tape or two screws,
• Long operating range (up to 350 m in open areas).

Optical indicator
of operation
of the transmitter

Pushbutton

Temperature
sensor

Frame
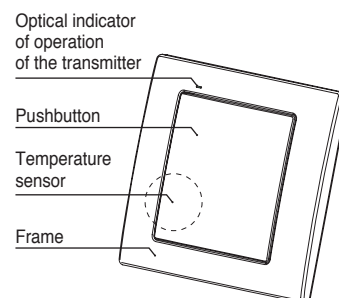
4-channel key transmitter with a temperature sensor RNK-24

Features
• 2-key (4-channel) radio transmitter,
• Remote control of EXTA LIFE system receivers,
• Can control up to four receivers independently,
• Encrypted RF transmission,
• Integrated temperature sensor,
• Temperature measured by the sensor: -40 ÷ +125°C,
• battery-operated,
• Easy to install by means of double sided tape or two screws,
• Long operating range (up to 350 m in open areas).

Optical indicator
of operation
of the transmitter

Pushbuttons

Temperature
sensor

Frame
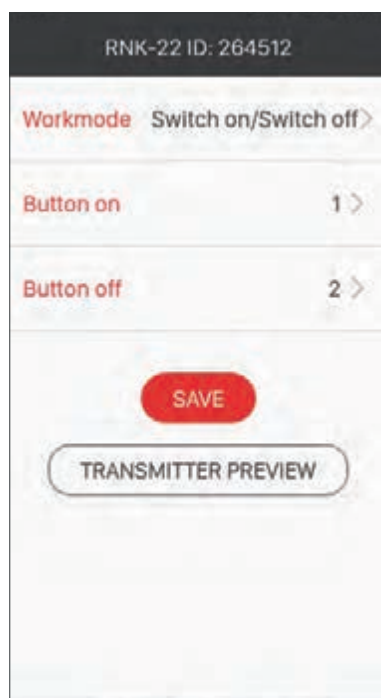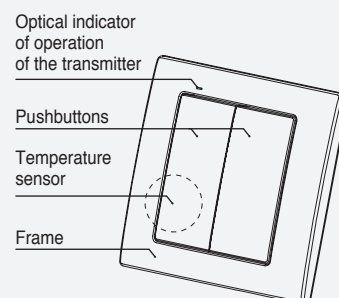
Devices
controlled in the
ExtaLife app

Technical data

Symbol:	RNK-22	RNK-24
Rated supply voltage:	3 V DC – CR2032 battery	
Transmission range:	max. 350 m in open areas	
Transmission:	radio 868,50 MHz	
Transmission mode:	one-way – 9600 bps	
Encryption:	128-bit key algorithm	
Channels:	2	4
Transmission / low battery optical indication:	green LED diode	
Temperature range measured by the sensor:	-40 ÷ 125°C	
Temperature measurement resolution:	0,1 °C	
Measurement accuracy:	± 1°C (type) 0 ÷ 85°C ± 2°C (type) -40 ÷ 125°C	
Temperature measurement frequency *:	Every 15 minutes	
Battery life:	up to 2 years with enabled temperature sensor 3 ÷ 5 years with disabled temperature sensor (battery life depends on the frequency of use and conditions of operation)	
Operating temperature range:	-10 ÷ +55°C	
Enclosure protection rating:	IP20	
Protection class:	III	
Dimensions:	90 x 80 x 11,5 mm	
Weight:	0,038 kg	

* The temperature in the transmitter is measured once in every 15 minutes. If the currently measured temperature value differs from the previous one by a value > than ±0,3°C the transmitter sends the measurement result (e.g. to a controller). If the temperature does not change the measurement result is obligatorily sent in every 20 subsequent measurements. The information regarding temperature is also sent each time when any button of the transmitter is pressed five times. The temperature sensor in RNK-22 and RNK-24 transmitters can be disabled entirely.

RNK-22 – APPLICATION
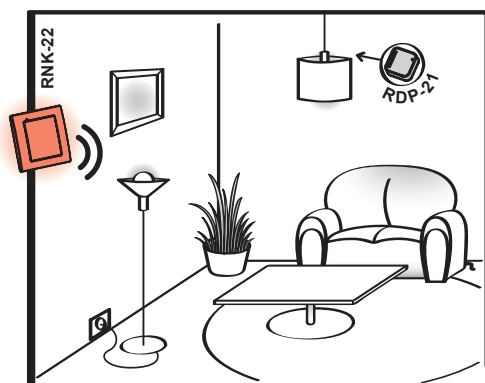
RNK-24 – APPLICATION
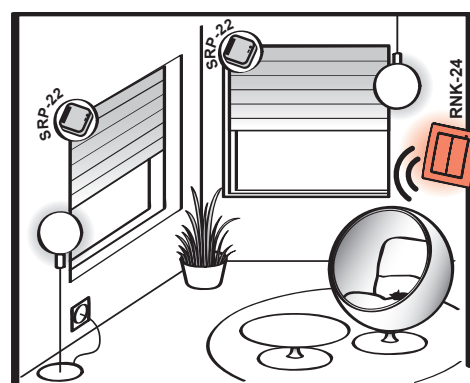
The remote controls enable wireless operation of EXTA LIFE system receivers. They are used for remote enabling/disabling of the lighting, brightening/dimming operations and operation of window roller blinds, entrance and garage gates. Thanks to implemented frame encryption algorithm control safety is increased. The remote controls are distinguished by their small size, ergonomic shape and attractive appearance. Comfortable silicon buttons facilitate operation. A practical chain with a fob enables combining the remote control, for example with car keys.

2-channel remote control P-457/2

Features
• 2-button (2-channel) radio remote control,
• Remote control of EXTA LIFE system receivers,
• Can control two receivers independently,
• Encrypted RF transmission,
• Battery-operated,
• Small size and ergonomic silicon buttons,
• Long operating range (up to 350 m in open areas).

Optical indication of operation of the transmitter

Buttons

4-channel remote control P-457/4

Features
• 4-button (4-channel) radio remote control,
• Remote control of EXTA LIFE system receivers,
• Can control up to four receivers independently,
• Encrypted RF transmission,
• Battery-operated,
• Small size and ergonomic silicon buttons,
• Long operating range (up to 350 m in open areas).

Optical indication of operation of the transmitter
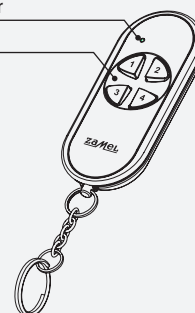
Buttons

8-channel remote control P-456/8

Features
• 8-button (8-channel) radio remote control,
• Remote control of EXTA LIFE system receivers,
• Controls up to 8 receivers independent of each other,
• Encrypted RF transmission,
• Battery-operated,
• Integrated magnet to attach the remote control to metal surfaces (metal holder included with the product),
• Long operating range (up to 350 m in open areas).

Optical indication of operation of the transmitter

Buttons
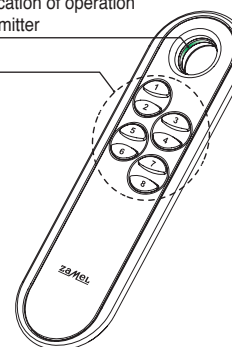
36-channel remote control P-456/36

Features
• 36-channel radio remote control,
• Remote control of EXTA LIFE system receivers,
• Can control 36 receivers or 18 roller blinds independently,
• Encrypted RF transmission,
• Battery-operated,
• Integrated magnet to attach the remote control to metal surfaces (metal holder included with the product),
• Long operating range (up to 350 m in open areas).

Optical indication of operation of the transmitter

Control buttons (1÷6)

Buttons to select a button bank (◄ ►)

53

exta free

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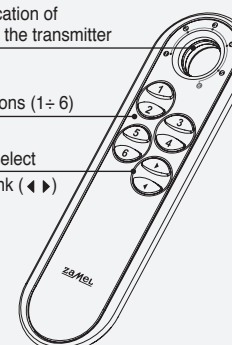
Technical data

| Symbol:	P-457/2	P-457/4	P-456/8	P-456/36
Rated supply voltage:	3 V DC – CR2032 battery			
Transmission range:	max. 350 m in open areas			
Transmission:	Radio 868,50 MHz			
Transmission mode:	one-way 9600 bps			
Encryption:	128-bit key algorithm			
Channels:	2	4	8	36
Transmission / low battery optical indication:	green LED diode		2 × green LED	5 × green LED
Battery life:	3 to 5 years (depending on the operational use)			
Operating temperature range:	-10 ÷ +55°C			
Enclosure protection rating:	IP20			
Dimensions:	74 x 33 x 11,5 mm		152 x 43 x 17,5 mm	
Weight:	0,018 kg		0,056 kg	0,060 kg

Devices controlled in the ExtaLife app
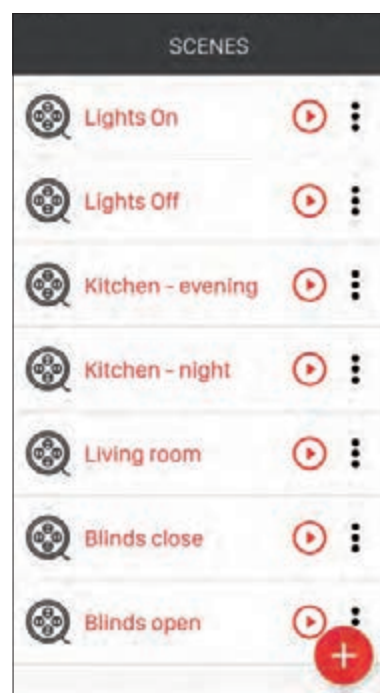
P-457/2 – APPLICATION
P-457/4 – APPLICATION
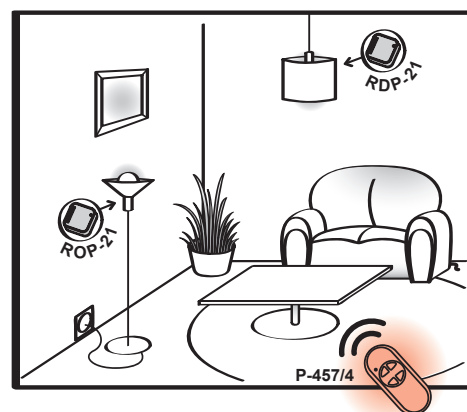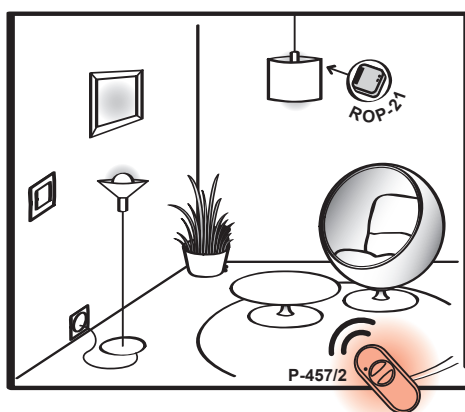
1-channel remote control P-501

Features
- 1-channel radio remote control,
- 3 control keys,
- Dedicated to work with roller blind controllers,
- Can control a maximum of two groups of roller blinds,
- Works with EXTA LIFE or EXTA FREE system receivers,
- Battery-operated,
- Modern design,
- Long operating range (up to 300 m),
- Transmission / low battery optical indication.

Transmission indication
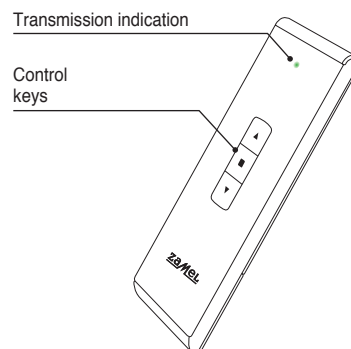
Control keys

20-channel remote control P-520

Features
- 20-channel radio remote control,
- 3 control keys + 2 channel selection keys,
- Dedicated to work with roller blind controllers,
- Independent control of a maximum of 20 roller blinds,
- Several groups of roller blinds can be created,
- Works with EXTA LIFE and EXTA FREE system receivers,
- Battery-operated,
- Modern design,
- Long operating range (up to 300 m),
- Transmission / low battery optical indication.

Transmission indication / selection keys

Control keys

Channel selection keys
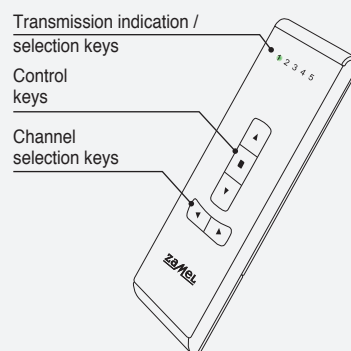
Remote control with an LCD P-521/L

Features
- 20-channel radio remote control,
- Controlled by means of 5 keys and a clear LCD screen,
- Dedicated to work with roller blind controllers,
- Independent control of a maximum of 20 roller blinds,
- Roller blinds can be grouped,
- Works with EXTA LIFE and EXTA FREE system receivers,
- Timer for implementation of time functions directly from the remote control level,
- Battery-operated,
- Modern design,
- Long operating range (up to 300 m).

LCD screen

Control keys

Channel selection keys

Technical data

Symbol:	P-501	P-520	P-521/L
Rated supply voltage:	3 V DC – CR2430 battery		
Transmission range:	300 m		
Transmission:	radio 868,50 MHz (EXTA LIFE), 868,32 MHz (EXTA FREE)		
Transmission mode:	one-way 9600 bps		
Encryption:	128-bit key algorithm		
Functionality:	• Dedicated to work with roller blind controllers • Works with EXTA LIFE and EXTA FREE system receivers* • Local and central roller blind control		• Dedicated to work with roller blind controllers • Works with EXTA LIFE and EXTA FREE system receivers* • Clear LCD screen • Timer function enabling direct implementation of the time functions • From the remote control level
Number of channels:	1	20	20
Optical signalling:	1 x LED (transmission / battery low)	5 x LED (transmission / bank (channel) selection / battery low)	LCD screen
Signalling of transmission:	red colour – exta free green colour – exta life		LCD screen
Battery life:	3 - 5 years (depending on the operational use)		2 - 3 years (depending on the operational use)
Operating temperature range:	-10 ÷ +55°C		
Enclosure protection rating:	IP20		
Dimensions:	130 x 45 x 10 mm		130 x 45 x 10 mm
Weight:	0,085 kg	0,095 kg	0,105 kg

* The remote controllers can work with EXTA LIFE or EXTA FREE system receivers. The systems differ from each other in terms of the data transmission protocol. For this reason the P-501, P-520, P-521/L remote controls cannot simultaneously work with both systems. The particular protocol (EXTA LIFE / EXTA FREE) is selected by means of a button located under the battery cover.

4-channel mains powered flush radio transmitter RNP-21

Features
- Radio transmitter for installation in a mounting box (min. Ø 60 mm),
- Remote control of EXTA LIFE system receivers,
- Installation under traditional mounting equipment,
- Capable of independent control of up to four receivers (circuits),
- Encrypted RF transmission,
- 230 VAC power supply,
- Long operating range (up to 300 m in open areas).
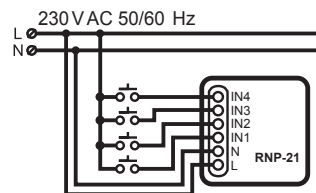
4-channel battery-operated flush radio transmitter RNP-22

Features
- 4-input (4-channel) radio transmitter,
- Remote control of EXTA LIFE system receivers,
- Capable of independent control of up to four circuits (receivers),
- Encrypted RF transmission,
- Battery-operated,
- Small dimensions enabling installation under traditional mounting equipment,
- Long operating range (up to 300 m in open areas).
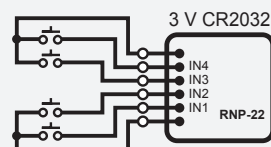
4-channel modular radio transmitter RNM-24

Features
- 4-input (4-channel) radio transmitter,
- Remote control of EXTA LIFE system receivers,
- Capable of independent control of up to four circuits (channels),
- Encrypted RF transmission,
- 230 VAC power supply,
- Long operating range (up to 350 m in open areas),
- Removable antenna – enables connecting an external antenna,
- Installation in switchboards on a TH35 bus.

exta free

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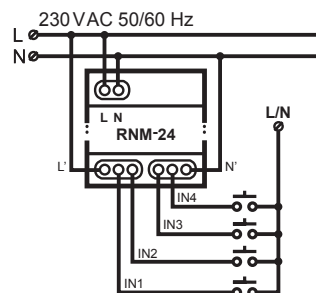
Technical data

Symbol:	RNP-21	RNP-22	RNM-24
Rated supply voltage:	230 V AC	3 V DC	230 V AC
Rated mains frequency:	50 / 60 Hz	-	50 / 60 Hz
Rated power consumption:	0,65 W	-	0,4 W
Number of channels:	4		
Transmission:	Radio 868,50 MHz		
Transmission mode:	one-way 9600 bps		
Encryption:	yes – 128-bit key		
Transmission range:	up to 300 m		up to 350 m
Range expandable:	yes – REP-21 retransmitter		
Optical signalling of transmission:	yes – LED diode		
Low battery optical indication:	-	yes	-
Operating temperature range:	-10 ÷ +55°C		
Cross section of the connection cables:	up to 2,5 mm^2	-	up to 2,5 mm^2
Enclosure installation:	Ø 60 box		TH35 bar
Enclosure protection rating:	IP20		
Dimensions:	47,5 x 47,5 x 20 mm	47,5 x 47,5 x 13 mm	90 x 35 x 66 mm
Weight:	0,03 kg		0,09 kg

Flush and modular radio receivers are the essence of the EXTA LIFE system. They enable comfortable and efficient control of not only lighting by means of smooth adjustment of LEDs, but also control of LED RGB and RGBW strips. Window roller blinds, entry gate, heating and other electrical equipment – all these devices are controlled not only from the level of radio transmitters, but also by means of smartphones and tablets, from any place in the world. Based on two-way communication between the controller and receivers, the mobile app always shows the current status of the receivers. That way, communication is not only trouble-free, but also user-friendly, it enables changes to selected receiver parameters and remote addition of transmitters. This is implemented directly from the controller level without physical access to the receivers. Thanks to implemented frame encryption algorithm control safety is guaranteed. Receivers outside the controller can be controlled in parallel from the level of wireless transmitters, remote controls and battery keys. You can register more transmitters with a single receiver to enable independent control from several locations. Receivers can be mounted in any location: in a power socket, on a surface, in flush back and surface boxes, and on a mounting rail in an electric switchboard. This ensures a simplified installation and configuration process for the user. Additional wire inputs, which are fully configurable at the controller level increase the control functionality. The receivers have an integrated remote software update function at the controller level, which is useful in the case of introduction of new functionalities.

1-channel flush radio receiver ROP-21

Features
- Rated supply voltage 230 VAC,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- Two-way transmission – receiver status visualised in the app,
- Output in the form of a normally open voltage-free contact,
- Programmable output status after supply voltage loss,
- Programmable external inputs,
- For connecting monostable or bistable connectors,
- 4 operating modes when working with transmitters (activate/deactivate, bistable, monostable, time),
- 2 operating modes when working with controller (activate/deactivate, time)
- Independently set activation times for transmitters, controller and external inputs,
- Software can be updated,
- Control of lighting, solenoid valves etc.
- Installation in the junction box Ø 60 mm.

230 V AC 50/60 Hz

ROP-21
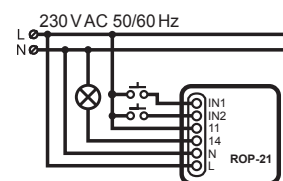
Capacity
- 750 W AC5b
- **LED** 60 W
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a

2-channel flush radio receiver ROP-22

Features
- Rated supply voltage 230 VAC,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- 2 output channels (230 V AC voltage outputs),
- Two-way transmission – visualisation of each output status in the app,
- Programmable output status after supply voltage loss,
- 2 programmable external inputs,
- For connecting monostable or bistable connectors,
- 4 operating modes when working with transmitters (activate/deactivate, bistable, monostable, time),
- 2 operating modes when working with controller (activate/deactivate, time),
- Times independent for the transmitters, controller and external input,
- Times independently for each output,
- Software can be updated,
- Designed to control light wiring circuits,
- Installation in the junction box Ø 60 mm.

230 V AC 50/60 Hz

ROP-22

Capacity
- 750 W AC5b
- **LED** 60 W
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a

59

exta free

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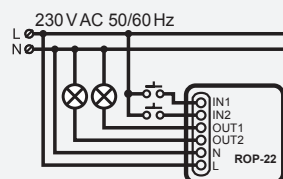
Technical data

Symbol:	ROP-21	ROP-22
Rated supply voltage:	230 V AC	
Rated mains frequency:	50 / 60 Hz	
Rated power consumption:	0,29 W	• 0.39 W stand-by mode • 0.69 W 1-channel operation mode • 1.09 W 2-channel operation mode
Number of channels:	1	2
Transmission:	radio – 868,50 MHz	
Transmission mode:	two-way – 9600 bps	
Encryption:	128-bit key algorithm	
Transmission range:	max. 330 m in open areas	
Optical signalling (transmission / programming):	LED RGB diode	
Maximum number of paired buttons:	96 pairs	
Current receiver status information:	Yes - in EXTA LIFE mobile app	
Operation modes in co-operation with EXTA LIFE system transmitters:	turn on/off, bistable, monostable, time	
Operation modes in co-operation with the EFC-01 controller:	turn on, off, timer	
Number of external inputs:	2	
Compatible connectors*:	monostable (buttons), bistable	
Operation modes for external inputs (monostable connectors)*:	turn on/off, bistable, monostable, time	
Operation modes for external inputs (bistable connectors)*:	a change in connector status causes a change in the output status to the opposite status	
Time setpoint range**:	1 s ÷ 18 h	
Relay contact ratings:	1 x NO 10A / 250 V AC1 2500 VA (normally open contact)	2 x NO 10A / 250 V AC1 2500 VA (on voltage contacts)
Maximum outputs current-carrying capacity:	5 A / 250 V AC	2 x 5 A / 250 V AC
Operating temperature range:	-10 ÷ +55°C	
Enclosure protection rating:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	
Weight:	0,043 kg	0,039 kg

* Parameters of external inputs (connector type / operation mode / time for external input) are programmable solely at the mobile app level in co-operation with the EFC-01 controller. By default these inputs are adapted for work with monostable connectors, i.e. buttons working in bistable mode.
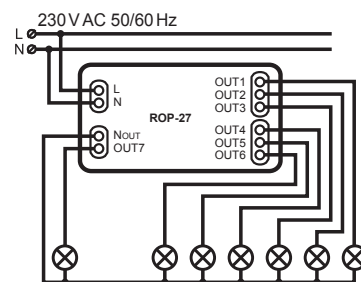
** The time is set independently for each transmitter entered in the receiver in time mode, for each external input and for control from the mobile app level.

7-channel surface mounted radio receiver ROP-27

Features
- Rated supply voltage 230 V AC,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- 7 output channels (230 V AC voltage outputs),
- Two-way transmission – visualisation of each output status in the app,
- Programmable output status after supply voltage loss,
- 4 operating modes when working with radio transmitters (activate/deactivate, bistable, monostable, time),
- 2 operating modes when working with controller (activate/deactivate, time),
- Designed to co-operate with solenoid valves in floor heating systems or control a greater number of light wiring circuits,
- Software can be updated remotely,
- Surface-mounted.

230 V AC 50/60 Hz

ROP-27

L
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N out
OUT7

OUT1
OUT2
OUT3
OUT4
OUT5
OUT6

Capacity

1250 VA AC1

350 W AC3

61

exta free

exta life

supla

exta

ledix

konekto

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Technical data

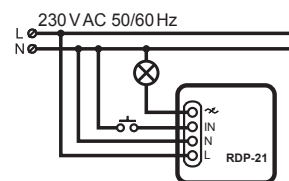| Symbol:	ROP-27
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	0,35 W – stand-by mode 2,85 W – all channels active
Number of channels:	7
Transmission:	Radio – 868,5 MHz
Transmission mode:	two-way – 9600 bps
Encryption:	128-bit key algorithm
Transmission range:	max. 330 m in open areas
Optical signalling (transmission / programming):	LED RGB diode
Maximum number of paired buttons:	96 pairs (distributed into all channels)
Current channel status information:	Yes - in EXTA LIFE mobile app
Operation modes in co-operation with EXTA LIFE system transmitters:	turn on/off, bistable, monostable, time
Operation modes in co-operation with the controller:	Turn on, off, timer
Number of internal inputs:	no
Time setpoint range*:	1 s – 18 h
Relay contact ratings:	7 x NO 10A / 250 V AC1 2500 VA (on voltage contacts)
Maximum outputs current-carrying capacity:	5 A / 250 V AC 1250 VA for AC1 loads 350 W for AC3 loads
Operating temperature range:	-10 ÷ +55°C
Enclosure protection rating:	IP20
Dimensions:	167 x 52,5 x 38,5 mm
Weight:	170 g

* The time is set independently for each key entered in the receiver in time mode and for control from the mobile app level.

Flush radio dimmer RDP-21

Features
- Rated supply voltage 230 VAC,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- Two-way transmission – visualisation of the dimmer status (ON/OFF) and information on the light intensity value in the mobile app,
- Control component: 2 x MOSFET transistor,
- Leading edge dimming,
- Compatible lighting:
  – Traditional filament and halogen 230 V,
  – Light sources supplied by an electronic or toroidal transformer,
  – Selected dimmable LEDs and dimmable compact fluorescent tubes (CFL),
- Programmable external inputs,
- For connecting monostable or bistable connectors,
- 4 operating modes when working with transmitters (1-key, 2-key, time, comfortable),
- 2 operating modes when working with controller (activate/deactivate + light intensity adjustment, time),
- Memory of the last light intensity setting,
- Programmable brightening and dimming time,
- Programmable minimum and maximum light intensity level,
- Software can be updated,
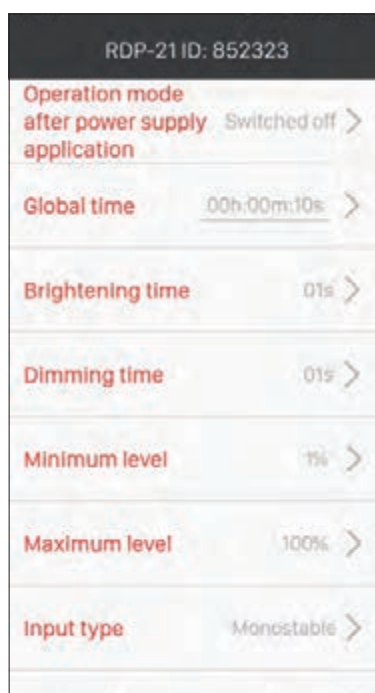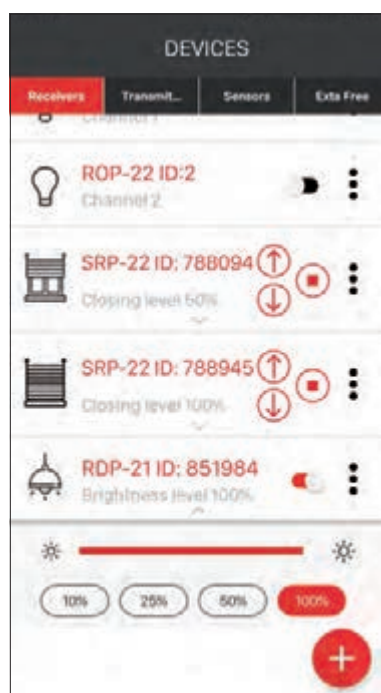- Installation in the junction box Ø 60 mm.

Capacity

- 250 W-R
LED 200 VA-RC, RL
**CFL**
DIMMABLE

Devices controlled in the ExtaLife app

exta free

exta life

supla

exta

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ynsta

expo

Technical data

Symbol:	RDP-21
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	0,50 W
Number of channels:	1
Control type:	wireless / wire
Transmission:	radio – 868,50 MHz
Transmission mode:	two-way – 9600 bps
Encryption:	128-bit key algorithm
Transmission range:	max. 330 m in open areas
Optical signalling (transmission / programming):	green LED diode
Maximum number of paired buttons:	96 pairs
Current receiver status information:	yes – in EXTA LIFE mobile app (ON / OFF status + % value of light intensity)
Operation modes in co-operation with EXTA LIFE system transmitters:	one-key, two-key, time, comfortable
Operation modes in co-operation with the EFC-01 controller:	turn on, turn off, light intensity adjustment (slider), time, a maximum of 4 "favourite" settings
Number of external inputs:	1
Level memory:	yes
Compatible connectors*:	monostable (buttons), bistable
Operation modes for external input (monostable connector)*:	bistable (activation to the last set level, activation to 100% brightness, brightness adjustment), time
Operation modes for external input (bistable connector)*:	a change in connector status causes a change in the output status to the opposite status (activation to the last set level, activation to 100% brightness)
Time setpoint range**:	1 s ÷ 18 h
Control module:	MOSFET transistors
Control method:	leading edge – output activated at "0"
Supported loads:	• Traditional filament and halogen 230 V AC • Light sources supplied by an electronic or toroidal transformer • selected dimmable LED lights – selected dimmable fluorescent CFL tubes
Maximum load power:	250 W for R loads / 200 VA for RC and RL loads
Operating temperature range:	-10 ÷ +55°C
Enclosure protection rating:	IP20
Dimensions:	47,5 x 47,5 x 23 mm
Weight:	0,040 kg

* External input parameters (connector type / operation mode / time for external input) are programmable solely at the mobile app level in co-operation with the EFC-01 controller. By default the input is adapted for work with monostable connectors (buttons) working in bistable mode.

** The time is set independently for each transmitter entered in the receiver in time mode, for the external input and for control from the mobile app level.
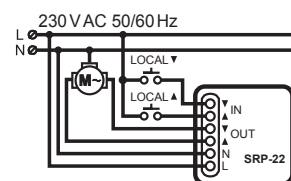
RDP-21 – APPLICATION
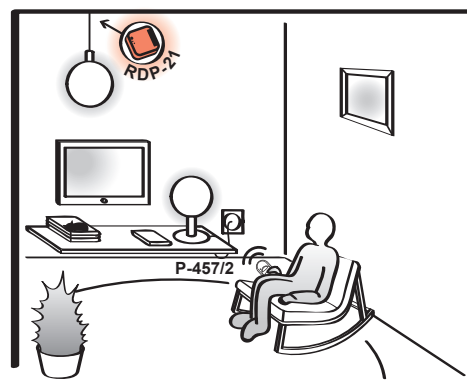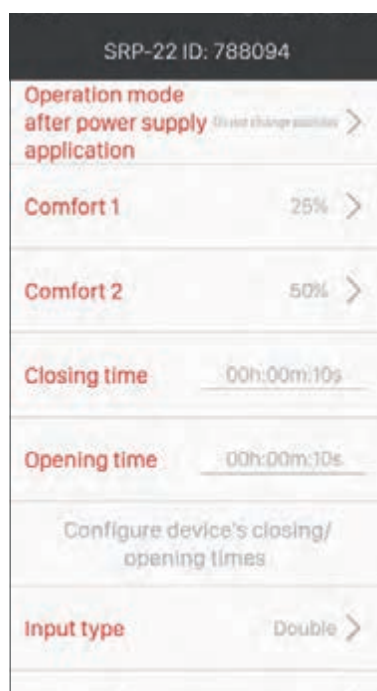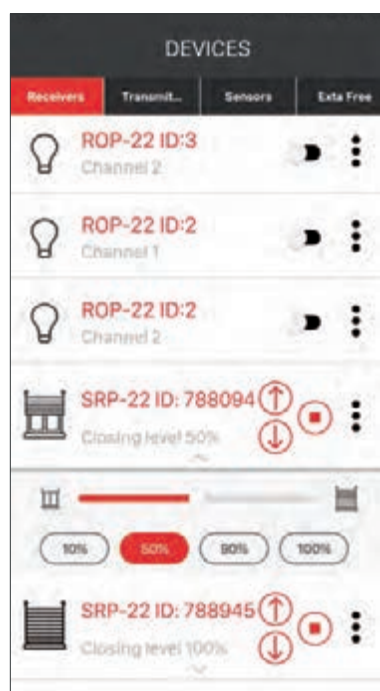
Flush shutter controller SRP-22

Features
- Rated supply voltage 230 V AC,
- Controlling roller blinds or other devices driven with single-phase 230 V AC motors,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- Two-way transmission enables information on the current position of the shutter in the mobile app (% of closure),
- Maximum load 350 W (2 A) – AC3 class,
- Programmable inputs (local or central control function),
- Single or double roller blind buttons can be connected,
- Programmable movement time for each shutter,
- 2 programmable "Favourite" settings for transmitters and external inputs,
- Up to 4 programmable "Favourite" settings for calling up from the app,
- 2 operating modes in cooperation with receivers (local / central), control type from the app level: open – close – close + slider control,
- Software can be updated,
- Installation in the junction box Ø 60 mm.

230 V AC 50/60 Hz

Capacity

350 W (2A) AC3

Devices controlled in the ExtaLife app

65

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Technical data

Symbol:	SRP-22
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	0,4 W stand-by mode / 0,7 W operation mode
Control type:	wireless / wire
Transmission:	radio – 868,50 MHz
Transmission mode:	two-way – 9600 bps
Encryption:	128-bit key algorithm
Transmission range:	max. 330 m in open areas
Optical signalling (transmission / programming):	LED RGB diode
Maximum number of paired buttons:	96 pairs
Current receiver status information:	Yes — in EXTA LIFE mobile app (roller blind closure percentage)
Operation modes in co-operation with EXTA LIFE system transmitters:	local, central, 2 "favourite" settings
Operation modes in co-operation with the EFC-01 controller:	open, stop, close roller blind closure percentage set by means of a slider max. 4 "favourite" settings
Number of external inputs:	2
Co-operation with roller blind buttons*:	Only spring-action shutter buttons, single or double buttons
Operation modes for external input*:	local or central – in the case of the local mode 2 "favourite" settings
Shutter movement time**:	Programmable from 1s to 10 minutes
Relay contact ratings:	2NO 10 A / 250 V AC AC3 2500 VA (on voltage contacts)
Maximum load:	350 W (2 A) — AC3 class
Supported motors:	1-phase, 230 V AC
Operating temperature range:	-10 ÷ +55°C
Enclosure protection rating:	IP20
Dimensions:	47,5 x 47,5 x 20 mm
Weight:	0,040 kg

* The operation mode for external inputs (local / central) is programmable solely at the mobile app level in co-operation with the EFC-01 controller. By default the inputs are adapted to operation in local mode. The type of button (single or double) can be programmed at the mobile app level and in the equipment (shorting the external outputs). The "favourite" settings for radio transmitters and external inputs (in the local mode) can be programmed at the app level and the controller level. The "favourite" settings are programmed independently for radio transmitters and external (local) inputs and calls at the mobile app level.

**The shutter movement time is programmable at the controller level and at the mobile app level in co-operation with the EFC-01 controller.
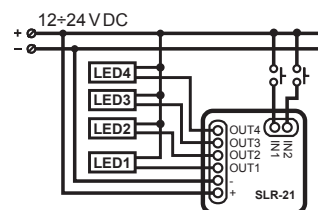
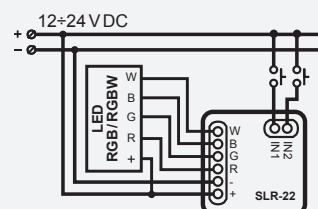SRP-22 – APPLICATION
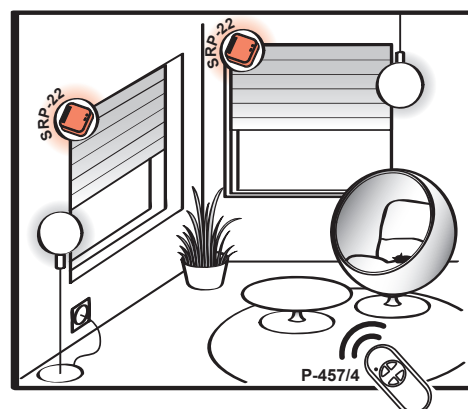
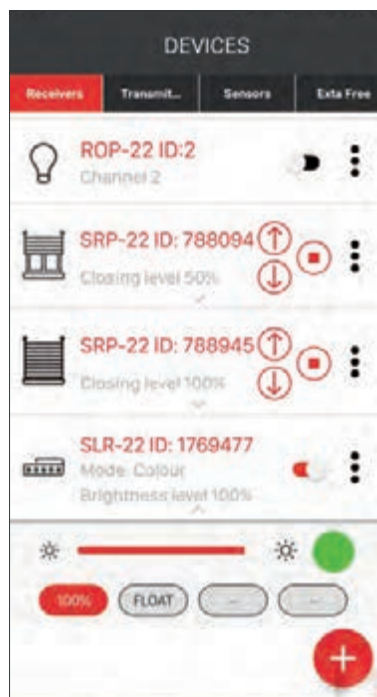## 4-channel flush LED controller SLR-21

Features
- Rated supply voltage 12-24 V DC,
- Compatible with Exta Life system transmitters and EFC-01 controller,
- 4 output channels with a maximum current load capacity of 4 A / channel,
- Two-way transmission – status information in the app,
- Programmable output status after supply voltage loss,
- 2 configurable external inputs,
- For connecting mono- or bistable connectors,
- Software can be updated remotely,
- Designed to control 12-24 V DC LED circuits,
- Installation in a 60 mm junction box.

Flush RGBW controller SLR-22

Features
- Rated supply voltage 12-24 V DC,
- Compatible with Exta Life system transmitters and EFC-01 controller,
- 4 input channels with a maximum current load capacity of 4 A / channel,
- Control of RGB or RGBW strips with a supply voltage of 12-24 V DC,
- Colour selection and implementation of automatic modes (programmes),
- Two-way transmission – status information in the app,
- Programmable output status after supply voltage loss,
- 2 configurable external inputs,
- For connecting mono- or bistable connectors,
- Software can be updated remotely,
- Installation in a 60 mm junction box.

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Technical data

Symbol:	SLR-21	SLR-22
Rated supply voltage:	12-24 V DC	
Rated power consumption:	0,24 W	
Number of channels:	4	
Maximum number of paired buttons:	96 pairs	
Operating mode for EXTA LIFE transmitters:	turn on / turn off, adjust brightness, monostable, bistable, time	turn on / turn off, adjust brightness, colour selection, Floating mode, programme selection
Control type:	wireless / wire	
Transmission:	Radio 868,50 MHz	
Transmission mode:	two-way 9600 bps	
Encryption:	yes – 128-bit key	
Transmission range:	up to 230 m	
Range expandable:	yes – REP-21 retransmitter	
Optical signalling of operation:	yes – LED diode	
Compatible connectors:	monostable, bistable	
Output parameters:	4 x MOSFET transistor, PWM	
Maximum load power:	4 A / channel (4 x 4 A)	
Operating temperature range:	-10 ÷ +55°C	
Enclosure protection rating:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	
Weight:	0,04 kg	

Devices controlled in the ExtaLife app

## 4-channel surface mounted LED controller SLN-21

Features
- Rated supply voltage 12-24 V DC,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- 4 output channels with a maximum current load capacity of 6 A / channel (4 x 6 A),
- Two-way transmission – status information in the app,
- Programmable output status after supply voltage loss,
- 4 configurable external inputs,
- For connecting mono- or bistable connectors,
- Software can be updated remotely,
- Designed to control 12-24 V DC LED circuits,
- Surface-mounted.

Surface mounted RGBW controller SLN-22

Features
- Rated supply voltage 12-24 V DC,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- 4 output channels with a maximum current load capacity of 6 A / channel (4 x 6 A),
- Control of RGB or RGBW strips with a supply voltage of 12-24 V DC,
- Colour selection and implementation of automatic modes (programmes),
- Two-way transmission – status information in the app,
- Programmable output status after supply voltage loss,
- 4 configurable external inputs,
- For connecting mono- or bistable connectors,
- Software can be updated remotely,
- Surface-mounted.

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Technical data

Symbol:	SLN-21	SLN-22
Rated supply voltage:	12-24 V DC	
Rated power consumption:	0,24 W	
Number of channels:	4	
Maximum number of paired buttons:	96 pairs	
Operating mode for EXTA LIFE transmitters:	turn on / turn off, adjust brightness, monostable, bistable, time	turn on / turn off, adjust brightness, colour selection, Floating mode, programme selection
Control type:	wireless / wire	
Transmission:	Radio 868,50 MHz	
Transmission mode:	two-way 9600 bps	
Encryption:	yes – 128-bit key	
Transmission range:	up to 230 m	
Optical signalling of operation:	yes – LED diode	
Compatible connectors:	monostable, bistable	
Output parameters:	4 x MOSFET transistor, PWM	
Maximum load power:	6 A / channel (4 x 6 A)	
Operating temperature range:	-10 ÷ +55°C	
Enclosure protection rating:	IP20	
Dimensions:	167 x 52,5 x 38,5 mm	
Weight:	0,04 kg	
Range expandable:	yes – REP-21 retransmitter	

Devices controlled in the ExtaLife app
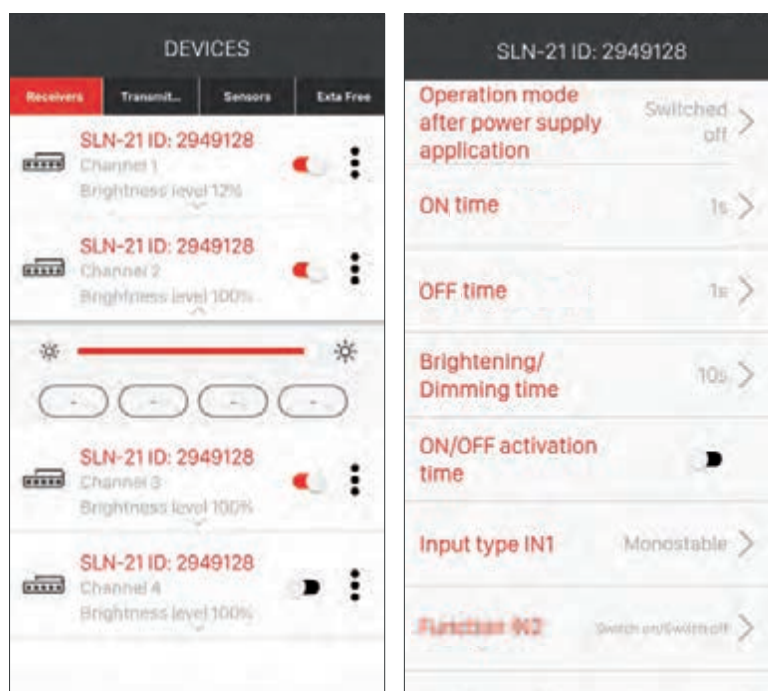
Modular radio receiver ROM-22

Features
- Rated supply voltage 230 V AC,
- Compatible with EFC-01 EXTA LIFE system controller and transmitters,
- With 2 output channels (2 x potential-free NO/NC switchable contacts),
- Two-way transmission – with an indication of each output status in the app,
- Programmable output status after supply voltage loss and restoration,
- 2 programmable external inputs,
- For connecting monostable or bistable connectors,
- Different operating modes,
- Software can be updated remotely,
- Removable antenna,
- Installation on a TH35 rail (2 modules).
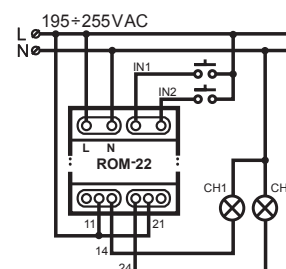
Modular radio receiver ROM-24

Features
- Rated supply voltage 230 V AC,
- Compatible with EXTA LIFE system transmitters and EFC-01 controller,
- 4 output channels (4 x voltage-free closing contacts),
- Two-way transmission – with an indication of the current output status in the app,
- Programmable output status after supply voltage loss,
- 4 programmable external inputs,
- For connecting monostable or bistable connectors,
- 4 operating modes when working with transmitters (activate/deactivate, bistable, monostable, time),
- 2 operating modes when working with controller (activate/deactivate, time),
- Times independent for the radio transmitters, controller and external inputs,
- Times independently for each output,
- Software can be updated remotely,
- Installation in a switchboard on a TH35 bus (2 modules).
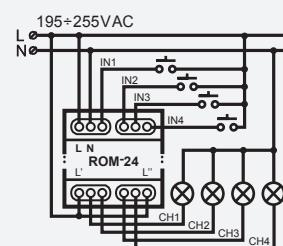
Technical data

Symbol:	ROM-22	ROM-24
Rated supply voltage:	230 V AC	
Rated mains frequency:	50 / 60 Hz	
Rated power consumption:	0,65 W	
Number of channels:	2	4
Transmission:	Radio 868,50 MHz	
Transmission mode:	two-way – 9600 bps	
Encryption:	yes – 128-bit key	
Transmission range:	up to 330 m	
Range expandable:	yes – REP-21 retransmitter	
Optical signalling (transmission / programming):	yes – LED diode	
Maximum number of paired buttons:	96 pairs distributed into all channels	
Current receiver / channel status information:	yes – in the EXTA LIFE app	
Operation modes in co-operation with EXTA LIFE system transmitters:	Turn on/off, bistable, monostable, time	
Operation modes in co-operation with the EFC-01 controller:	Turn on, off, timer	
Number of external inputs:	2	4
Compatible connectors:	monostable / bistable	
Operation modes for external inputs (monostable connectors):	bistable, time, monostable, turn on, turn off	
Operation modes for external inputs (bistable connectors):	time, monostable, turn on, turn off	
Time setpoint range:	1 s ÷ 18 h	
Relay contact ratings:	2 x 16 A / 250 V AC	4 x 10 A / 250 V AC
Maximum outputs current-carrying capacity:	2 x 10 A / 250 V AC	4x 5 A / 250 V AC
Operating temperature range:	-10 ÷ +55°C	
Enclosure protection rating:	IP20	
Dimensions:	90 x 35 x 66 mm (double module)	
Weight:	0,13 kg	0,125 kg

Modular shutter controller SRM-22

Features
- Rated supply voltage 230 V AC,
- Controlling roller blinds or other devices driven with single-phase 230 V AC motors,
- Independent control of two shutters / motors,
- Compatible with EXTA LIFE transmitters and controller,
- Two-way transmission – information on the current position of the shutter in the mobile app,
- Maximum load 350 W (2 A) class AC3 per shutter.
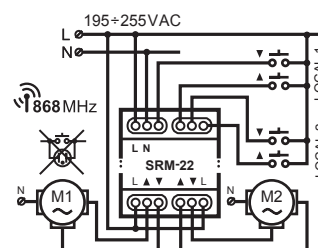
Capacity

2 x 350 W (2A) AC3

Technical data

Symbol:	SRM-22
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	0,65 W
Control type:	wireless / wire
Transmission:	radio – 868,5 MHz
Transmission mode:	two-way 9600 bps
Encryption:	yes – 128-bit key
Transmission range:	up to 330 m
Range expandable:	yes – REP-21 retransmitter
Optical signalling (transmission / programming):	yes – LED diode
Maximum number of paired buttons:	96 pairs
Current receiver status information:	Yes – in the mobile app
Operation modes in co-operation with EXTA LIFE system transmitters:	local, central, 2 favourite settings
Operation modes in co-operation with the EFC-01 controller:	open / close / stop closure degree percentage a maximum of 4 favourite settings
Number of external inputs:	4 (2 per shutter)
Co-operation with roller blind buttons:	Yes – spring-action single or double buttons
Operation modes for external input:	local or central
Shutter movement time:	Programmable from 1s to 10 minutes
Relay contact ratings:	4 x 5 A / 250 V AC
Maximum load:	2 x 350 W (2A) AC3 class
Supported motors:	Single-phase 230 VAC with limit switches
Operating temperature range:	-10 ÷ +55°C
Enclosure protection rating:	IP20
Dimensions:	90 x 35 x 66 mm (double module)
Weight:	0,125 kg

Remote controlled socket ROG-21

Features
- Rated supply voltage 230 V AC,
- Easy installation directly in a 230 V socket,
- Small dimensions,
- Compatible with EXTA LIFE system transmitters
  and EFC-01 controller,
- Two-way transmission – socket status information in the app,
- Selected parameters can be configured,
- 4 operating modes when working with transmitters
  (activate/deactivate, bistable, monostable, time),
- 2 operating modes when working with controller (activate/deactivate, time),
- Software can be updated,
- Measurement of basic network parameters (current voltage, intensity),
- Measurement of active power and consumed energy,
- Estimation of the cost of energy consumption for the device connected to the socket.

Programming button

Power plug

Receiver socket
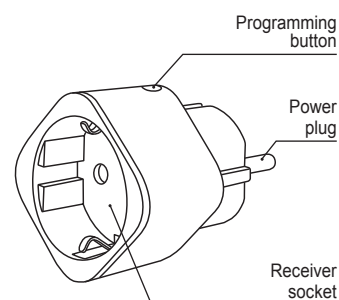
Radio gate receiver ROB-21

Features
- Wide supply voltage range: 12 - 24 V AC / DC,
- Two voltage-free outputs for independent control of the gate
  and the walk gate,
- Two inputs to connect signals from the limit switches
  (gate status information),
- Programmable impulse length for gate and walk gate control,
- Automatic gate closure function,
- Gate controlled from the mobile app coupled with the EFC-01 controller,
- Gate status information visible in the app (with the use of inputs and connection of appropriate sensors),
- Selected parameters can be configured,
- Remote software update,
- For installation in Ø 60 mm boxes.

12 ÷ 24 V AC/DC
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21
24
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A1
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Devices controlled in the ExtaLife app

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Technical data

Symbol:	ROG-21	ROB-21
Rated supply voltage:	230 V AC	12 - 24 V AC / DC
Rated frequency:	50 / 60 Hz	-
Rated power consumption:	0,6 W	0,9 W
Number of channels:	1	2 voltage-free closing contacts
Transmission:	Radio 868,50 MHz	
Transmission mode:	two-way – 9600 bps	
Encryption:	yes – 128-bit key	
Transmission range:	250 m	300 m
Optical signalling (transmission / programming):	yes – LED diode	
Maximum number of paired buttons:	96 pairs	
Compatibility:	EXTA LIFE system components only	
Functionality:	• Control of any 230 V AC devices, • Measurement and estimation of electric energy consumption, • Active power, voltage, current strength measurement	• Co-operation with dedicated entrance and garage gate controller as an external triggering component • Independent gate and walk gate control option • Programmable impulse length for gate and walk gate opening • Automatic gate closure function after a specified time (inactive by default) • Option to connect signals from limit switches / sensors (allows to obtain information on the current gate status)
Current receiver / channel status information:	yes – in the EXTA LIFE app	
Operation modes in co-operation with EXTA LIFE system transmitters:	Turn on/off, bistable, monostable, time	-
Operation modes in co-operation with the EFC-01 controller:	Turn on, off, timer	-
Number of external inputs:	-	2 - low-voltage 12 - 24 V AC / DC
Number of terminals:	-	8
Time setpoint range:	1 s ÷ 18 h	-
Relay contact ratings:	16 A / 250 V AC	2 x NO 8 A / 250 V AC
Maximum outputs current-carrying capacity:	13 A for cosφ = 1/ 8 A for cosφ = 0,5	-
Range expandable:	yes – REP-21 retransmitter	-
Measurements of network parameters:	current voltage, intensity	-
Power measurement:	active power P (W)	-
Energy measurement (kWh):	yes (with a reset option)	-
Energy consumption cost estimation:	yes – based on the rate per kWh	-
Operating temperature range:	-10 ÷ +55°C	
Enclosure protection rating:	IP20	
Dimensions:	52 x 52 x 52 mm	47,5 x 47,5 x 20 mm
Weight:	0,64 kg	0,04 kg

GKN-01 temperature controller - a device for adjusting the local temperature by using manual setting or a selected weekly schedule. The controller can work with heating mats or control valves through a relay output. In the case of low-voltage solenoid valves the use of additional isolation relays.

Temperature controller GKN-01

Features
- Universal graphic controller module with a 16 x 16 matrix designed to display numbers, icons and texts,
- 5 backlit touch buttons enabling intuitive operation,
- Red/blue diode to signal the communication and device status,
- Integrated light intensity and temperature sensor, buzzer and battery powering the timer,
- Black body with laser engravings to mark the button functions,
- 230 V AC mains power, 16 A relay output,
- Software can be updated remotely,
- EXTA LIFE controller integration (operation, schedule editing, configuration).

Radio thermostatic radiator controller RGT-01

Features
- For autonomous operation or as a part of EXTA LIFE system,
- Enables configuring temperature for 24-hour and weekly cycles,
- Manual mode (outside schedule),
- Changing operation method and changing settings from app,
- With selected parameters configurable,
- With clear LCD screen,
- Optimised energy consumption,
- Battery-operated,
- Compatible with M30 x 1.5 valves or valve inserts,
- Adjustable valve closing force,
- Easy installation directly next to the heater.
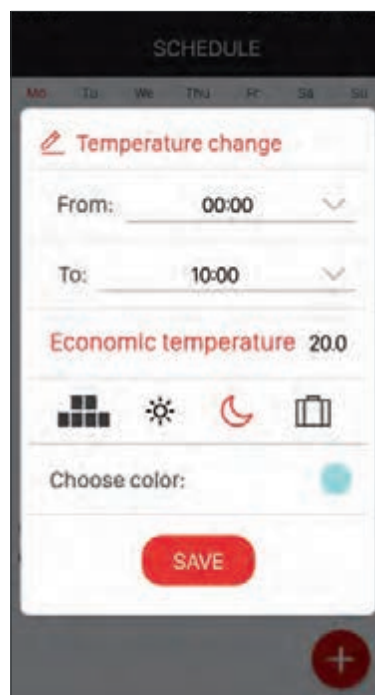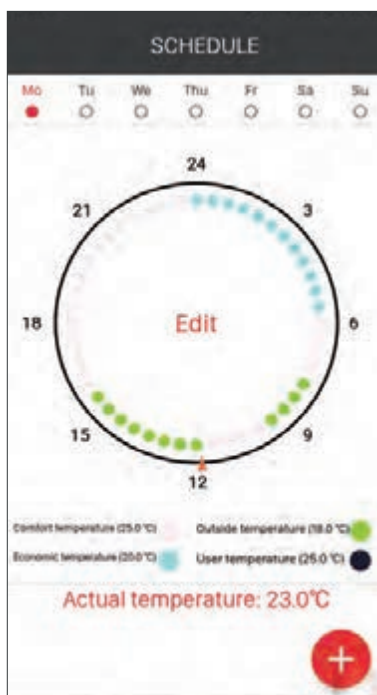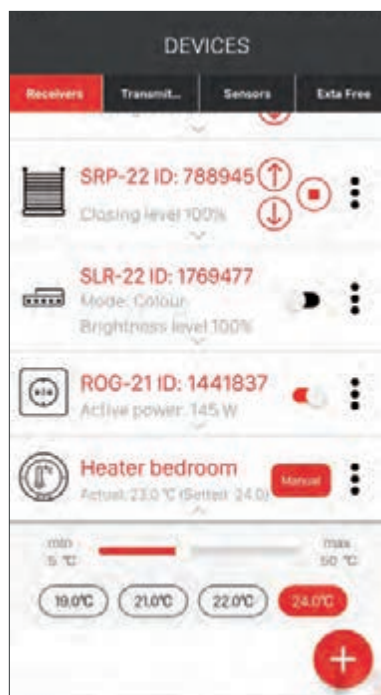
Devices controlled in the ExtaLife app

Technical data

Symbol:	GKN-01
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	1,6 W – stand-by, 2 W – active relay
Timer power supply:	3 V – CR1220 battery
Battery life:	to 2 years
Temperature setting range:	5-50 °C with 0.5°C steps
Temperature measurements:	internal probe, external probe internal probe with floor temperature limited by the external probe
Temperature measurement accuracy:	± 0,5°C
Display:	LED matrix (white colour)
Operation:	5 x touch buttons, Exta Life mobile app
Signalling of communication / output status:	yes – white LED diode (communication), red (status)
Operating mode:	manual, comfortable, economical, off, schedule-based operating modes (away from home, home, anti-frost, holiday) floor tempering mode
Transmission:	Radio 868,50 MHz
Transmission mode:	two-way – 9600 kbps
Encryption:	yes – 128-bit key
Transmission range:	200 m
Body installation:	Ø 60 mm box
Floor probe connection:	yes – 10 kΩ NTC probe
Internal probe:	NTC thermistor
Controller output:	230 V AC voltage output
Output component:	relay – contact 16 A / 250 V AC
Operating temperature range:	-10 ÷ 55°C
Display brightness adjustment:	yes – selected level or auto mode
Button sound level adjustment:	yes (10 steps)
Range expandable:	yes – REP-21 retransmitter
Enclosure protection rating:	IP20
Dimensions:	90 x 90 x 45 mm
Weight:	0,156 kg

Technical data

Symbol:	RGT-01
Rated supply voltage:	3 V DC
Battery type:	2 x 1,5 V LR6 AA
Battery life:	up to 8 months (with default settings)
Low battery indication:	yes
Transmission:	Radio 868,5 MHz
Data encoding:	yes – 128-bit key
Transmission range:	max. 300 m in open areas
Range expandable:	yes – REP-21 retransmitter
User interface:	LCD screen + 5x control buttons, Exta Life app
Compatible with valves / valve insert thread:	M30 x 1.5 thread
Temperature sensor type:	NTC integrated into radiator controller
Supports an external sensor:	no
Temperature setting range:	+5-50 °C with 0,5°C steps
Temperature measurement time:	60 s to 30 min
Synchronization time ts:	60 s to 6 h – set as time multiplier tp
Hysteresis (upper/lower):	0 ÷ 5°C
Alarm temperatures:	minimum (3 to 15°C), maximum (50 to 90°C)
Enclosure protection rating:	IP20
Operating temperature range:	-10 ÷ +55°C
Dimensions:	88 mm (length), 54,5 mm (diameter)
Weight:	0,178 kg

Flush radio temperature sensor RCT-21

Features
- 4-input (4-channel) radio sensor,
- Temperature measurement in the EXTA LIFE system,
- 12 V DC rated power supply,
- Compatible with NTC 10k resistance temperature detectors (NTC-03 probes),
- Wide measurement range (-40°C to +110°C),
- Software can be updated remotely and each measurement channel can be parametrised,
- Encrypted RF transmission,
- Small dimensions enabling installation in junction boxes,
- Long operating range (up to 300 m in open areas).
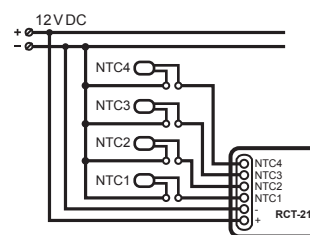
Flush radio temperature sensor RCT-22

Features
- Integrated digital temperature sensor,
- 3 V battery power (1 × CR2032),
- Temperature measurement resolution: 0,1°C,
- Encrypted RF transmission,
- Small dimensions enabling installation in junction boxes,
- Long operating range (up to 300 m in open areas).

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Technical data

Symbol:	RCT-21	RCT-22
Rated supply voltage:	12 V DC	3 V DC
Rated power consumption:	0,24 W	-
Battery type:	-	CR2032
Battery life:	-	up to 2 years
Transmission:	radio – 868,5 MHz	
Transmission mode:	two-way – 9600 bps	one-way – 960 kbps
Encryption:	yes – 128-bit key	
Compatibility with system components:	EXTA LIFE (only by means of the EFC-01 controller)	
Functionality:	Temperature measurement in 4 independent channels	Temperature measurement
Control / Configuration:	only via mobile app	
Temperature measurement range:	-40 ÷ 110°C	-40 to 125°C (digital sensor range)
Temperature measurement frequency:	1 s to 10 h (set for the entire device)	every 15 min or obligatorily every 150 min
Measurement hysteresis:	0,3 to 10°C (set for each channel)	0.3°C (change not possible)
Temperature measurement resolution:	0,1°C	
Temperature measurement accuracy:	depends on the NTC probes used	1°C from 0 to 85°C; 2°C outside this range
Enclosure protection rating:	IP20	
Installation method:	Ø 60 mm box	
Operating temperature range:	-10 ÷ 55°C	
Dimensions:	47,5 x 47,5 x 20 mm	47,5 x 47,5 x 13 mm
Weight:	0,02 kg	
Range expandable:	yes – REP-21 retransmitter	

Radio motion sensor RCR-21

Features
- Battery-operated (transmission only) or from a fixed power source (two-way communication),
- External power supply only via the PCL-01 base stand,
- Motion detection based on the digital PIR sensor,
- Compatible with the EFC - 01 controller and the EXTA LIFE receivers,
- Direct sensor – receiver co-operation bypassing the controller possible,
- Operation with or without the twilight sensor,
- Adjustable operation sensitivity (size of the detected objects),
- Several operating modes,
- Tamper-resistance function based on an integrated accelerometer,
- Additional configurable output (NO or NC) to co-operate, for example with an alarm system,
- Low battery indication,
- Installation using a magnetic stand,
- Convenient direction-setting method,
- Small dimensions.

Radio reed relay sensor RCK-21

Features
- Battery-operated (transmission only) or from a fixed power source (two-way communication),
- Detection of window, door opening/closure based on a magnetic Hall effect sensor,
- Compatible with the EFC - 01 controller and the EXTA LIFE receivers,
- Direct sensor – receiver co-operation bypassing the controller possible,
- 10 different operating modes,
- Low battery indication,
- Transmission signalling,
- Small dimensions.

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Technical data

Symbol:	RCR-21
Rated supply voltage:	3,0 to 3,6 V - internal 1/2 AA battery 5,5 to 24 V AC / DC – external power supply
External power supply connection:	Only via the PCL-21 base stand;
Transmission:	radio – 868,5 MHz
Transmission mode:	one-direction (when battery-operated) two-way (when powered from an external power supply)
Encryption:	yes – 128-bit key
Compatibility with system components:	with the EFC-01 controller directly with EXTA LIFE receivers bypassing the controller
Functionality:	Motion detection, operation with / without a twilight sensor; Adjustable operation sensitivity (size of the detected objects); Integrated accelerometer – tamper-resistance function; Configurable output (NO / NC)
Motion detection:	digital PIR sensor
Detection range:	1 m to 8 m
Detection sensitivity:	highest sensitivity (sensor triggered by small objects) lowest sensitivity (small objects are ignored by the sensor)
Twilight sensor:	yes – integrated (0 to 100000 lx)
Selected parameters configurable:	yes – via mobile app (only with external power supply)
Switch-off delay time:	10 s to 1 h – set with 1 s steps
Range expandable:	yes – REP-21 retransmitter
Enclosure protection rating:	IP20
Installation method:	optional – magnetic holder or PCL-01 stand
Operating temperature range:	-10 ÷ + 55°C
Dimensions:	height: 32 mm, diameter: 50 mm, height with a stand: 46 mm
Weight:	45 g

Technical data

Symbol:	RCK-21
Rated supply voltage:	3,0 V to 3,6 V – internal 1/2 AA battery 5,5 to 24 V AC / DC – external power supply
External power supply connection:	additional terminals
Transmission:	radio – 868,5 MHz
Transmission mode:	one-direction (when battery-operated) two-way (when powered from an external power supply)
Encryption:	yes – 128-bit key
Compatibility with system components:	with the EFC-01 controller directly with EXTA LIFE receivers bypassing the controller
Functionality:	Door or window opening / closure detection Controlling signals sent to selected receivers 10 different operating modes
Sensor type used:	magnetic Hall effect sensor
Detection range:	maximum 12 mm
Transmission signalling:	yes – LED diode
Selected parameters configurable:	yes – via mobile app (only with external power supply)
Range expandable:	yes – REP-21 retransmitter
Enclosure protection rating:	IP20
Installation method:	on the window / door frame
Operating temperature range:	-10 ÷ + 55°C
Dimensions:	19 x 75 x 17 mm (height x length x width)
Weight:	35 g

Radio flooding sensor RCZ-21

Features
- Battery-operated (transmission only) or from a fixed power source (two-way communication),
- External power supply only via the PCZ-21 base stand,
- Detection of water and other conductive liquids by means of integrated telescopic probes,
- External probe connection option (only via the PCL-01 base stand),
- The terminals used to connect the external probe can play the role of a count input,
- Co-operation with the EFC-01 controller and the EXTA LIFE receivers,
- Direct sensor – receiver co-operation bypassing the controller possible,
- Flooding-resistant,
- Low battery indication,
- Transmission signalling,
- Small dimensions.

Multisensor RCM-21

Features
- Battery-operated (transmission only) or from a fixed power source (two-way communication),
- External power supply only via the PCL-01 base stand,
- Compatibility with the EFC-01 controller,
- Measurement of basic physical quantities, such as: temperature, humidity, light intensity, and pressure,
- Parametrisable sensor (measurement, hysteresis frequency),
- Usable in control processes by means of logic functions,
- Low battery indication,
- Transmission signalling,
- Small dimensions.

Power supply stand (magnetic) PCL-21

Features
- Is used for power supply of Exta Life sensors,
- Cooperation with EFC-01 controller and Exta Life receivers,
- Supply voltage range 6 - 24 V AC / DC,
- Is equipped with power supply unit connector,
- Sensor to stand magnetic mount,
- Extends functionality of sensors.

Power supply stand (magnetic) with flooding probe PCZ-21

Features
- Is used for power supply of RCZ-21 Exta Life flooding sensor,
- Supply voltage range 6 - 24 V AC / DC,
- Is equipped with connector for power supply unit and flooding probe,
- Cooperation with EFC-01 controller and Exta Life receivers,
- RCZ-21 flooding sensor to stand magnetic mount,
- Extends functionality of RCZ-21 flooding sensor.

Technical data

Symbol:	RCZ-21
Rated supply voltage:	3 V – 1 x CR2032 – internal battery 5,5 to 24 V AC / DC – external power supply
External power supply connection:	Only via the PCL-01 base stand
Transmission:	radio – 868,5 MHz
Transmission mode:	one-direction (when battery-operated) two-way (when powered from an external power supply)
Encryption:	yes – 128-bit key
Compatibility with system components:	with the EFC-01 controller directly with EXTA LIFE receivers bypassing the controller
Functionality:	Detection of water and other conductive liquids, Controlling signals sent to selected receivers, Optical and acoustic flooding signalling
Flooding detection:	By means of gold-plated telescopic probes (3 pcs.) By means of external probe (optional)
Connections to an external probe:	Only via the PCL-01 base stand
Impulse counting function:	yes – by means of terminals once an external probe is connected
Dimensions:	height: 13,5 mm x diameter: 50 mm, height with a stand: 27 mm
Weight:	35 g

Technical data

Symbol:	RCM-21
Rated supply voltage:	3 V – 1 x CR2032 – internal battery 5 to 24 V AC / DC – external power supply
External power supply connection:	Only via the PCL-01 base stand
Transmission:	radio – 868,5 MHz
Transmission mode:	one-direction (when battery-operated) two-way (when powered from an external power supply)
Encryption:	yes – 128-bit key
Compatibility with system components:	only with the EFC-01 controller
Functionality:	Measurement of temperature, humidity, light intensity, and atmospheric pressure Processes controlled by means of logic functions
Sensors used:	digital, integrated with the device
Temperature measurement range:	-30°C ÷ + 60°C
Temperature hysteresis:	0,3 ÷ 30°C with interval of 0,1°C
Humidity measurement range:	0 ÷ 99%
Humidity hysteresis:	1 ÷ 99% with interval of 1%
Light intensity range:	1 ÷ 100.000 lx
Light hysteresis:	1 ÷ 10.000 lx with interval of 1 lx
Atmospheric pressure measurement range:	260 ÷ 1260 kPa
Pressure hysteresis:	1 ÷ 100 hPa with interval of 1 hPa
Relative and absolute pressure measurement:	yes
Measurement frequency:	configurable 1 s ÷ 6480 s (for the entire sensor)
Transmission signalling:	yes – LED diode
Selected parameters configurable:	yes – via mobile app (only with external power supply)
Enclosure protection rating:	IP20
Installation method:	any or installation in a PCL-01 base stand
Operating temperature range:	-10 ÷ + 55°C
Dimensions:	height: 13,5 mm, diameter: 50 mm, height with a stand: 27 mm
Weight:	35 g
Range expandable:	yes – REP-21 retransmitter

Flush retransmitter REP-21

230 V AC 50/60 Hz

REP-21

Features
- Rated supply voltage 230 V AC,
- Co-operation with EXTA LIFE system components (controller, receivers, transmitters, sensors),
- Range increased up to approximately 250 m in open areas,
- Easy and intuitive operation from the app level,
- For installation in 60 mm junction boxes,
- Software can be updated remotely.
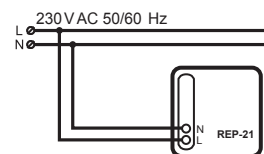
Exta Life – IRDA converter RTI-21

Features
- 230 V AC mains power,
- Signals received from infra-red remote controls and converted to the EXTA LIFE standard,
- EXTA LIFE signals received and converted to infra-red signals,
- Support for basic and most popular IR remote control coding systems,
- Selected devices controllable (TV, amplituner, air conditioning) by means of EXTA LIFE system remote controls or app,
- Wide detection range (360°) for IR remote controls,
- Transmission signalling,
- Small size.

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Technical data

Symbol:	REP-21	RTI-21
Rated supply voltage:	230 V AC	
Rated power consumption:	0,5 W	0,7 W
Supply voltage tolerance:	-	-15 ÷ +10%
Rated frequency:	50 / 60 Hz	
Connection wiring length:	-	1,5 m
Transmission:	radio – 868,5 MHz	radio – 868,5 MHz / infra-red (IRDA)
Transmission mode:	two-way 9600 bps	radio – two-way 9600 bps infra-red – two-way (transmitter + receiver)
RF transmission encryption:	yes – 128-bit key	
IRDA coding:	-	in accordance with the coding of the entered IR remote sensor
Functionality:	-	• any EXTA LIFE receiver can be controlled from the remote control level • any device compatible with an infra-red remote control can be controlled from the remote sensor or EXTA LIFE app level
Maximum number of IR buttons:	-	128
Maximum number of paired dvices:	32	96
Optical signalling of transmission:	yes – LED RGB diode	yes – LED diode
RF transmission range:	up to 250 m	max. 230 m in open areas
IR transmission range:	-	up to 10 m
Number of terminals:	2	-
Installation method:	Ø 60 mm box	-
Operating temperature:	-10 ÷ + 55°C	
Installation orientation:	-	any – visibility should be maintained between the IR remote controls and RTI-21
Enclosure protection rating:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	Ø 75 mm, height: 40 mm
Weight:	0,025 kg	0,04 kg

* RTI-21 supports the most popular IRDA coding systems

The EFC-01 controller is a central unit that connects EXTA LIFE receivers, sensors and transmitters to provide them with smart system functionality. Another purpose of the controller is to co-operate with Android and iOS mobile devices. It requires installing EXTA LIFE, the free app that enables setting up the entire system and its subsequent management. The role of the EFC-01 controller in the EXTA LIFE system comes down to managing all the components paired with it. This is a perfect tool for a system fitter — it enables remote addition of transmitters to receivers and their parametrisation. Implementation of temporal and logical functions enables extending EXTA LIFE system features by automation of certain processes. Based on two-way communication between the controller and receivers the app always shows the current status of the receiver. It applies both to control from within and without the home network (via Internet). The controller is distinguished by small size and modern look.

Controller EFC-01

Features
- Co-operation with EXTA LIFE system components (transmitters, receivers, sensors),
- System management from mobile devices (tablets, smartphones),
- Implementation of scenes, temporal and logical functions,
- Radio transmission in 868.5 MHz band, encrypted,
- Can be controlled locally from within the house and remotely (via Internet),
- Two-way transmission with system receivers,
- Support for Android and iOS system devices,
- long operating range (up to 350 m in open areas),
- Small size and modern look.
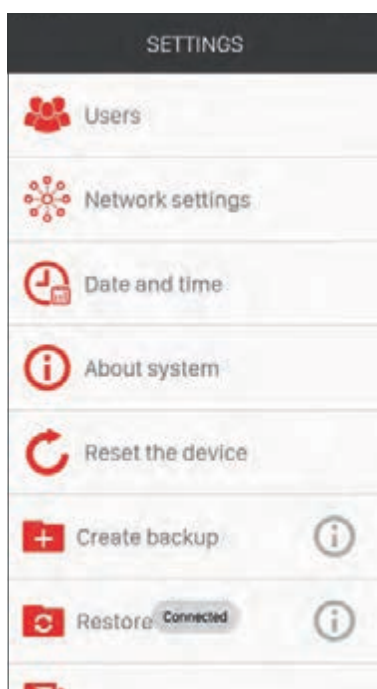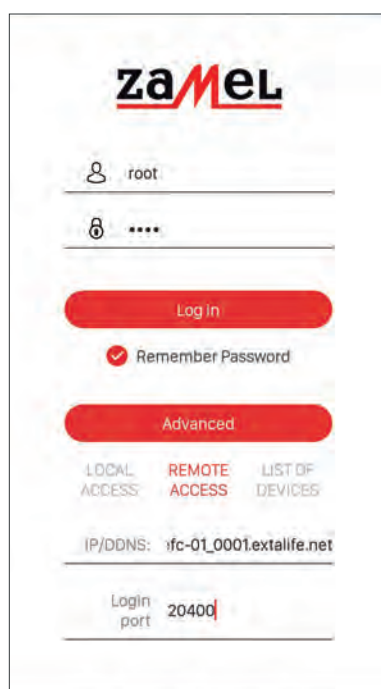
Logging and configuration menu in the ExtaLife app

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Technical data

Symbol:	EFC-01
Rated supply voltage:	5V DC / 1.2A – Micro USB standard
Rated power consumption:	1,6 W
Communication with EXTA LIFE components:	radio – 868,5 MHz
Transmission mode:	two-way – 9600 bps
Encryption:	128-bit key algorithm
Transmission range:	max. 350 m in open areas
Can be connected to an external antenna:	no
Communication with mobile devices:	based on the TCP protocol – connection via an external Wi–Fi router
Terminals:	• 1 x RJ45 Ethernet Port • 1 x Micro USB B 2.0 • 2 x USB A 2.0 • RESET button
Maximum number of supported devices*:	80
Software can be updated:	yes
Signalling:	LED
Operating temperature range:	-10 ÷ +55°C
Enclosure protection rating:	IP20
Protection class:	III
Dimensions:	70 x 70 x 70 mm
Weight:	0,098 kg

* Applicable to all devices paired with the controller (transmitters / receivers / sensors).

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Wi-Fi
Control
SUPLA

Supla is an innovative building automation solution based on the idea of the Internet of Things (IoT). Each module communicates with a cloud server that manages the system via the built-in Wi-Fi connection. The devices allow you to control both traditional lighting and LED RGB. They cooperate simultaneously with traditional connectors and buttons as well as EXTA building automation. With the help of a free app, the system user can check the installation status at any time from anywhere in the world, and also enable or disable the selected circuit. The controllers allow comfortable management of roller blinds by setting their height, group lowering or raising. The gate controller allows you to track the status of the gate, as well as to remotely open it using a smartphone. In addition, the use of a cloud enables automatic control of the installation via a cloud server in accordance with the previously planned schedule.

EASY INSTALLATION - SUPLA devices are easy to assemble and configure. They can be used to control devices such as lighting, household appliances, gates and doors. You don't need a central controller, all you need is a smartphone with Internet access, a Wi-Fi network and a controller. ALL IN ONE PLACE - If you're often preoccupied by the question if the light, oven or iron were definitely switched off SUPLA is a perfect solution for you. SUPLA allows to check the state of devices at any time from any place in the world. SUPLA COMMUNITY – SUPLA series products are based on open-source software, which attracts a community related to the project. You can share your comments and ideas with the other users of the system. You can seek support and inspiration in the community forum. Join thousands of satisfied users!

Flush mounted 1-channel Wi-Fi receiver type: ROW-01
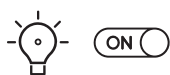
Product description:

ROW-01 belongs to the family of smart home Wi-Fi control products. The device utilises the SUPLA cloud technology. ROW-01 module allows lighting control, switching on and off sockets and electrical equipment by means of a smartphone or tablet. Flush-mounted ROW-01 modules are used both as components mounted in flush back and surface boxes, as well as operating devices enclosed directly in housings of light fixtures.

Features:
• Installation easy to assemble and configure,
• Additional wiring not required,
• Wi-Fi communication.

Flush mounted 2-channel Wi-Fi receiver type: ROW-02
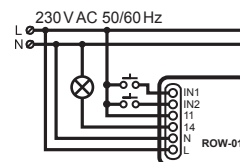
Product description:

ROW-02 controller allows lighting control via switches or connectors in bistable and monostable mode. In addition, integrated Wi-Fi module enables remote lighting control via a smartphone app. The device informs about the state of lighting. Users can control lighting from any place in the world. A cloud app also enables automatic activation and deactivation of lighting according to the schedule recorded in the cloud.

Features:
• Wi-Fi 2,4 GHz radio communication,
• Works with ordinary switches and push-buttons,
• Independent 2-channel control option,
• Control possible locally with a switch or remotely via a smartphone
• Ideal for installation under a 2-key switch which allows to add the smartphone control functionality.

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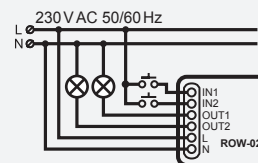
Technical data:

Symbol:	ROW-01	ROW-02
Rated supply voltage:	230 V AC	
Rated mains frequency:	50 / 60 Hz	
Rated power consumption:	0,45 W	1,2 W
Transmission:	Wi-Fi 2,4 GHz 802.11 b/g/n	
Transmission range:	Wi-Fi range	
Number of inputs:	2	
Compatible connectors:	monostable (bell buttons), bistable (standard light switches without backlight function)	
Number of output channels:	1	2
Relay contact parameters (normally open voltage-free contact):	1 x NO 5 A / 250 VAC	2 x NO 5 A / 250 V AC
Number of terminals:	6 (conductor cross-section up to 2,5 mm^2)	
Enclosure installation:	installation box Ø 60 mm	
Operating temperature range:	-10 ÷ +55 °C	
Enclosure protection rating:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	47,5 x 47,5 x 23 mm
Weight:	0,04 kg	0,046 kg
Maximum output current-carrying capacity:	5 A / 250 V AC: incandescent and halogen light bulbs - 750 W compact fluorescent lamps (CFL) - 250 W LED lamps - 60 W	2 x 5 A / 250 V AC: incandescent and halogen light bulbs -750 W compact fluorescent lamps (CFL) - 250 W LED lamps - 60 W
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17	

ROW-01
enables control of a single power circuit by means of an existing switch or smartphone. Moreover, it comes with a timer function operating on the basis of user-defined schedules.

ROW-02
enables control of two light wiring circuits from the Supla app.
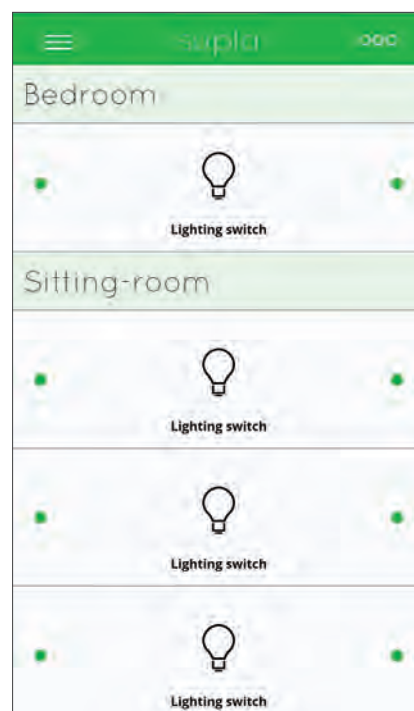
Modular 2-channel Wi-Fi receiver type: ROW-02M
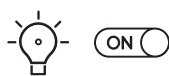
Product description:

ROW-02M modular Wi-Fi receiver is a component of the Supla system, which enables independent control of any two 230 V AC circuits / devices. The device is installed in the switch cabinet, which makes it very universal. ROW-02M is a great solution used to control lamps equipped with incandescent and halogen light bulbs, LEDs and compact fluorescent lamps (CFL).

Features:
• Wi-Fi 2,4 GHz radio communication,
• Works with ordinary switches and push-buttons,
• Independent 2-channel control option,
• Two channels can be controlled locally and from a smart-phone,
• Installation easy to assemble and configure,
• Additional wiring not required,
• Wi-Fi communication.
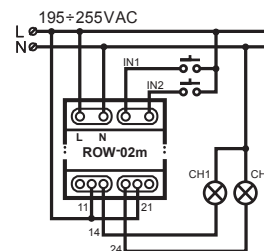
Modular 4-channel Wi-Fi receiver type: ROW-04M
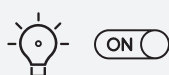
Product description:

ROW-04M modular Wi-Fi receiver is a component of the Supla system, which enables independent control of any four 230 V AC circuits / devices. The device is installed in the switch cabinet, which makes it very universal. This component is a great solution used to control lamps equipped with incandescent and halogen light bulbs, LEDs and compact fluorescent lamps (CFL)

Features:
• Wi-Fi 2,4 GHz radio communication,
• Works with ordinary switches and push-buttons,
• Independent 4-channel control option,
• Four channels can be controlled locally and from a smart-phone.

Technical data:

Symbol:	ROW-02M	ROW-04M
Rated supply voltage:	230 V AC	
Rated mains frequency:	50 / 60 Hz	
Rated power consumption:	4,0 W	4,6 W
Transmission:	Wi-Fi 2,4 GHz b/g/n	
Transmission range:	Wi-Fi range	
Number of inputs:	2	4
Compatible connectors:	monostable (bell buttons), bistable (standard light switches without backlight function)	
Number of output channels:	2	4
Relay contact parameters (normally open voltage-free contact):	2 x NO / NC 10 A / 250 V AC (switching contact)	4 x NO 5 A / 250 V AC normally open
Number of terminals:	10 (conductor cross-section up to 2,5 mm)	12 (conductor cross-section up to 2,5 mm)
Enclosure installation:	TH35 bar	
Operating temperature range:	-10 ÷ +55 °C	
Enclosure protection rating:	IP20	
Dimensions:	90 x 35 x 66 mm	
Weight:	0,12 kg	0,13 kg
Maximum output current-carrying capacity:	2 x 10 A / 250 V AC: incandescent and halogen light bulbs - 1000 W LED lamps - 60 W compact fluorescent lamps (CFL) - 250 W	4 x 5 A / 250 V AC: incandescent and halogen light bulbs -750 W LED lamps - 60 W compact fluorescent lamps (CFL) - 250 W
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17	

ROW-02M
enables control of two power circuits
by means of an existing switch
or smartphone.
Moreover, it comes with a timer function
operating on the basis
of user-defined schedules.
ROW-04M
enables control of four power circuits
by means of an existing switch
or smartphone.
Moreover, it comes with a timer function
operating on the basis
of user-defined schedules.

Surface mounted 7-channel Wi-Fi receiver type: ROW-07

Product description:

ROW-07 controller enables control of lighting and other electrical equipment. Integrated Wi-Fi module enables remote control of device activation / deactivation. ROW-07 informs about their state, which provides information if the devices are enabled or disabled. Users can control devices from any place in the world. A cloud app also enables automatic activation and deactivation of devices according to the schedule recorded in the cloud.

Features:
• Wi-Fi 2,4 GHz radio communication,
• seven channels can be controlled via a smartphone and auto-
  matically via a schedule,
• independent 7-channel control option,
• ideal for electrical wiring, which allows to add the smartphone
  control functionality.

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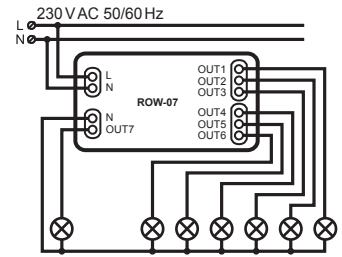
Technical data:

Symbol:	ROW-07
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	3,2 W
Transmission:	Wi-Fi 2,4 GHz b/g/n
Transmission range:	Wi-Fi range
Number of output channels:	7
Relay contact parameters (normally open voltage contact):	7 x NO 5 A / 250 V AC (normally open voltage contact)
Maximum output current-carrying capacity:	5 A / 250 V AC: filament and halogen bulbs – 750 W; CFL fluorescent tube – 250 W; LED bulbs – 60 W
Number of terminals:	10 (conductor cross-section up to 2,5 mm)
Enclosure installation:	surface box
Operating temperature range:	-10 ÷ +55 °C
Enclosure protection rating:	IP20
Dimensions:	167 x 52,5 x 38,5 mm
Weight:	0,177 kg
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17

ROW-07
enables control of seven power circuits by
means of an existing switch or smartphone.
Moreover, it comes with a timer function
operating on the basis of
user-defined schedules.
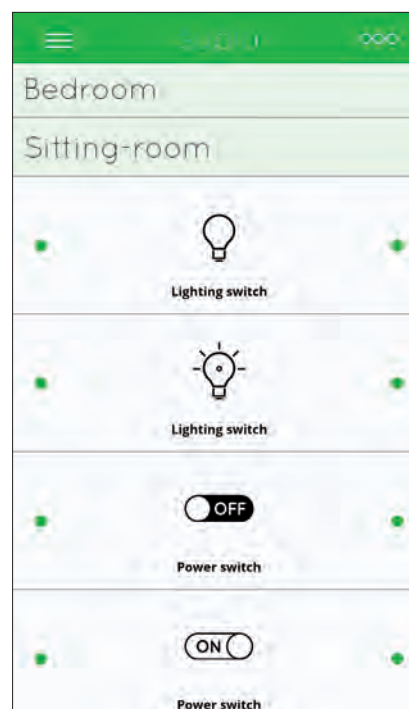
RGB Wi-Fi LED controller type: SLW-01

Product description:
The SLW-01 module allows control of LED RGB lighting via a smartphone or a tablet. Flush-mounted SLW-01 modules are used both as components mounted in flush back and surface boxes, as well as operating devices enclosed directly in housings of light fixtures.

Features:
• Easy installation – just replace the RGB ribbon with the SLW-01 device. Once the RGB ribbon is connected to the controller and concealed in an electrical box, local and remote control is possible,
• in the app the device is shown as RGB lighting, which can be controlled by means of two sliders – one to select the colour and the other to adjust brightness,
• with SLW-01 you can comfortably control RGB lighting from your smartphone or activate and deactivate it by means of a regular wall switch.
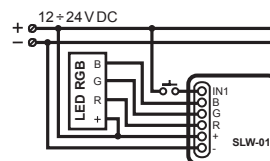
3 x LED Wi-Fi LED controller type: SLW-02

Product description:
The SLW-02 module allows control of 12 V LED and 24 V LED lighting via a smartphone or a tablet. The device generates a modulated PWM signal on three outputs. Flush-mounted SLW-02 modules are used both as components mounted in flush back and surface boxes, as well as operating devices enclosed directly in housings of light fixtures.

Features:
• Easy installation – just replace the 12- 24 V single colour ribbon controller with the SLW-02 device. Once the single colour ribbon is connected to the controller and concealed in an electrical box, local and remote control is possible,
• in the app the device is shown as LED lighting, which can be activated, deactivated, as well as smoothly dimmed and brightened,
• with SLW-02 you can comfortably control LED lighting from your smartphone or activate and deactivate it by means of a regular wall switch.

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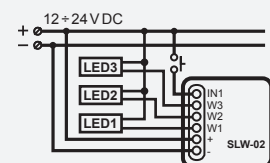
Technical data:

Symbol:	SLW-01	SLW-02
Rated supply voltage:	12-24 V DC	
Rated frequency:	50 / 60 Hz	
Rated power consumption:	0,4 W	
Transmission:	Wi-Fi 2,4 GHz b/g/n	
Transmission range:	Wi-Fi range	
Number of inputs:	1	
Number of output channels:	3 x PWM transistor	
Number of terminals:	6 (conductor cross-section up to 2.5 mm²)	
Enclosure installation:	installation box Ø 60 mm	
Operating temperature range:	-10 ÷ +55 °C	
Enclosure protection rating:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	
Weight:	0,04 kg	
Maximum output current-carrying capacity:	2 A / per channel: 12 V RGB LED light bars: 10 m - 70 W 24 V RGB LED light bars: 5 m - 140 W	2 A / per channel: 12 V LED light bars: 10 m - 70 W 24 V LED light bars: 5 m - 140 W
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17	

SLW-01
Allows control of LED RGB lighting via a smartphone or a tablet. Moreover, it comes with a timer function operating on the basis of user-defined schedules.
SLW-02
Allows control of LED lighting via a smartphone or a tablet. Moreover, it comes with a timer function operating on the basis of user-defined schedules
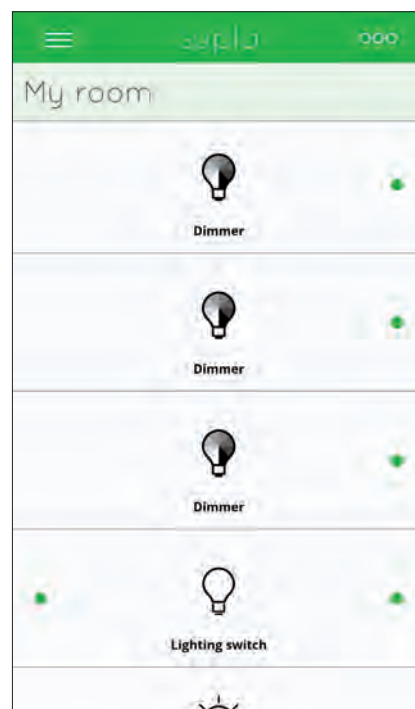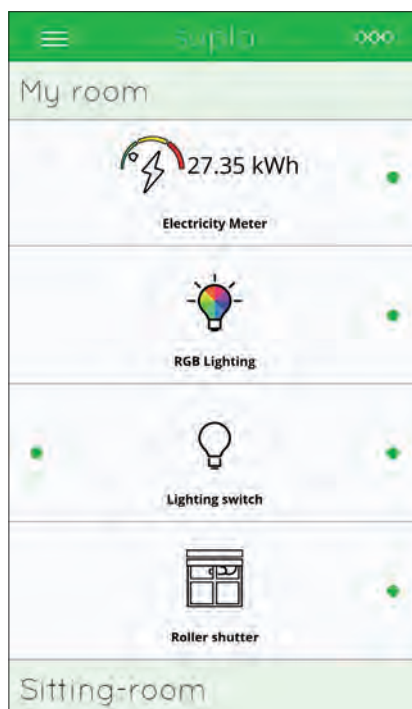
Wi-Fi foot extension cord type: PNW-01

Product description:

PNW-01 is to be installed indoors. PNW-01 can easily be used to activate and deactivate Christmas tree lights not only at home, but also from any place in the world. The foot switch is especially recommended when activation and deactivation of the lights is troublesome due to the poorly accessible location of the socket to which the Christmas lights are connected. PNW-01 is also an irreplaceable gadget for those who forget to switch off the lights before they leave their apartment.

Button

230 V AC male connector

230 V AC female connector

Features:
• easy installation,
• ready to use once connected,
• local switch control,
• features a plug and a socket – extension cord,
• Wi-Fi communication.
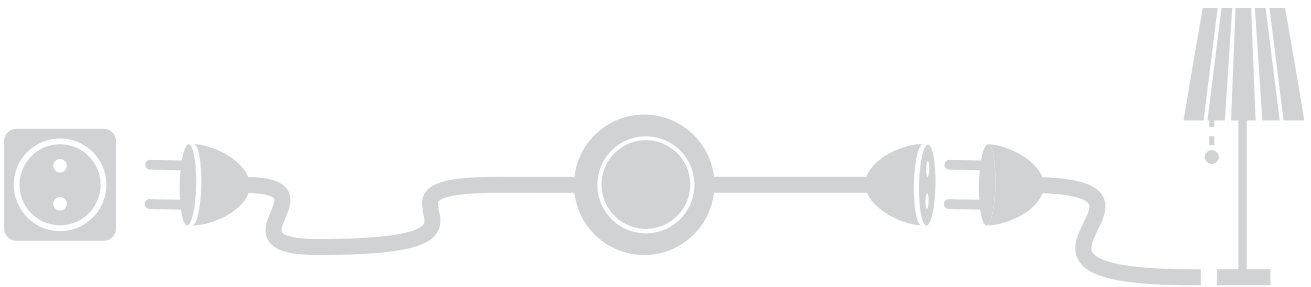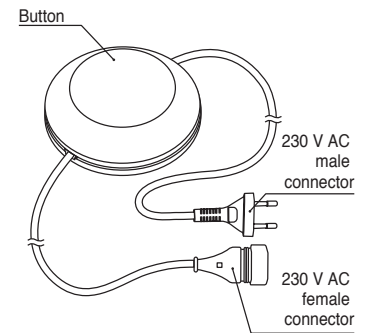
Technical data:

Symbol:	PNW-01
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	0,45 W
Transmission:	Wi-Fi 2,4 GHz b/g/n
Transmission range:	Wi-Fi range
Number of output channels:	1
Relay contact ratings: **(normally open voltage-free contact)**	1 x 2,5 A / 250 V AC (normally open voltage contact)
Number of terminals:	plug + socket 2,5 A
Enclosure installation:	any
Operating temperature range:	-10 ÷ +55 °C
Enclosure protection rating:	IP20
Dimensions:	75 x 75 x 32 mm
Weight:	0,15 kg
Maximum output current-carrying capacity:	2,5 A / 250 V AC: light bulbs and halogen bulbs – 350 W; CFL fluorescent tube – 125 W; LED bulbs – 60 W
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17
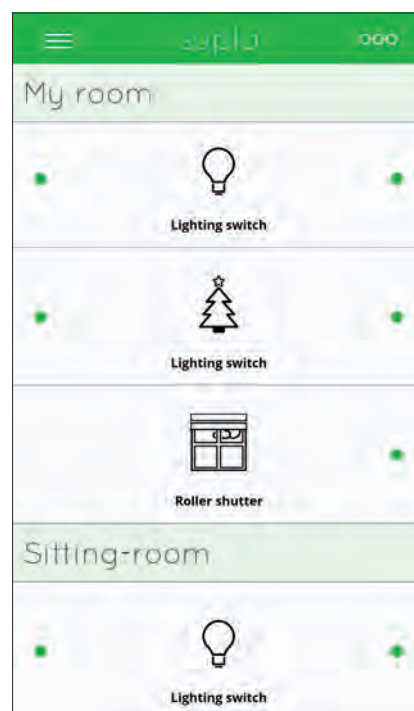
PNW-01
Allows control of electrical equipment via
a smartphone or a tablet.

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Roller blind Wi-Fi controller type: SRW-01

Product description:
The SRW-01 controller allows control of roller blinds in your home, remotely via an app and locally by means of roller blind buttons. Users can check the positions of the roller blinds. They can also be closed and opened remotely. Schedules enable automatic control of the device at selected time and day of the week.

Features:
• Wi-Fi 2,4 GHz radio communication,
• Cloud communication,
• Roller blinds can be controlled manually with roller blind buttons,
• Works with 230 V AC roller drives,
• Free controller management app,
• No need to use additional controlling components, such as a controller,
• Wireless communication with a Wi-Fi access point,
• Remote control access without the need to redirect the connection.
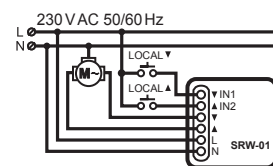
Modular Wi-Fi roller blind controller type: SRW-02M

Product description:
The SRW-02M roller blind controller enables control of two roller blinds by means of roller blind buttons and an app. Modular body enables mounting of the device in a switch cabinet. It can also be closed and opened remotely. Schedules saved in a cloud enable automatic control of the roller blinds at selected time and day of the week.

Features:
• Wi-Fi 2,4 GHz radio communication,
• cloud communication,
• 2-module body,
• Roller blinds can be controlled manually with roller blind buttons,
• Works with 230 V AC roller drives or ones with lower voltage – voltage free contacts,
• Free controller management app,
• No need to use additional controlling components, such as a controller,
• Wireless communication with a Wi-Fi access point,
• Remote control access without the need to redirect the connection.
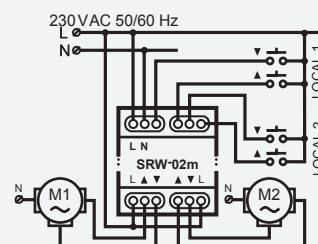
Technical data:

Symbol:	SRW-01	SRW-02M
Rated supply voltage:	230 V AC	
Rated mains frequency:	50 / 60 Hz	
Rated power consumption:	1,2 W	4,6 W
Transmission:	Wi-Fi 2,4 GHz b/g/n	
Transmission range:	Wi-Fi range	
Number of inputs:	2	4
Compatible connectors:	monostable (bell buttons), bistable (standard light switches without backlight function)	
Number of output channels:	2 switchable top / bottom	2 x 2 switchable top / bottom
Relay contact ratings: (normally open contact)	2 x NO 5 A / 250 V AC	4 x NO 5 A / 250 V AC
Number of terminals:	6 (conductor cross-section up to 2,5 mm²)	12 (conductor cross-section up to 2,5 mm²)
Enclosure installation:	installation box Ø 60 mm	TH35 bar
Operating temperature range:	-10 ÷ +55 °C	
Enclosure protection rating:	IP20	
Dimensions:	47,5 x 47,5 x 23 mm	2-module body 90 x 35 x 66 mm
Weight:	0,046 kg	0,13 kg
Maximum output current-carrying capacity:	2 x 5 A / 250 V AC: roller blind drives – 350 W	4 x 5 A / 250 V AC: roller blind drives – 350 W
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17	

SRW-01, SRW-02M
The controllers enable raising and lowering roller blinds
by means of standard buttons
or a smartphone, no matter if the user is at home or away.
The controllers also enable automatic roller blind
opening/closing, at scheduled times
and up/down to certain levels.

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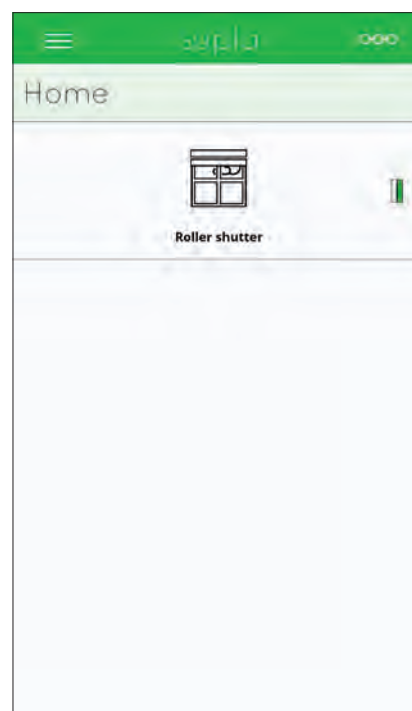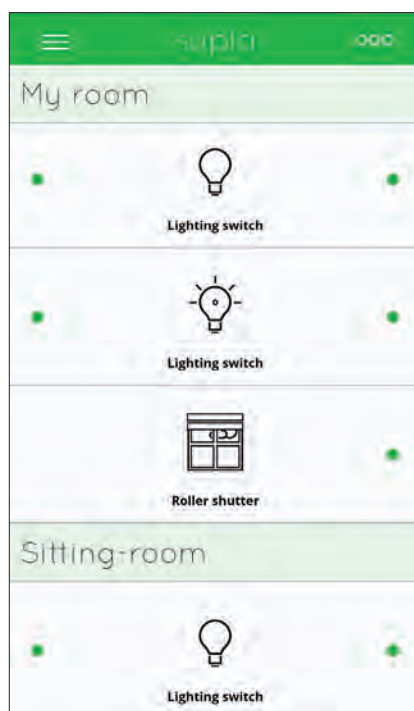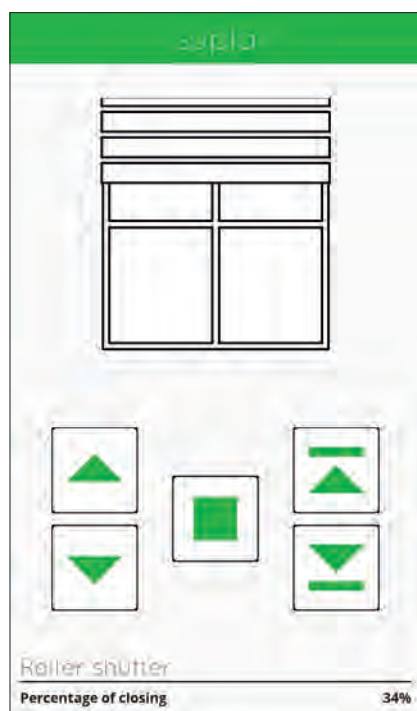
Roller blind Wi-Fi controller 3 roller blinds + 1 channel type: SRW-03

Product description:

The SRW-03 roller blind controller enables remote roller blind control, owing to the integrated Wi-Fi receiver and the utilisation of an external cloud. The user can check the position of the roller blind. It can also be closed and opened remotely. Schedules saved in a cloud enable automatic control of the roller blind at selected time and day of the week. SRW-03 features an additional channel, which enables activation and deactivation of electrical equipment.

Features:
• Wi-Fi 2,4 GHz radio communication,
• Cloud communication,
• No need to use additional controlling components, such as a controller,
• Works with 230 V AC roller drives,
• Free controller management app,
• Wireless communication with a Wi-Fi access point,
• Remote control access without the need to redirect the connection.

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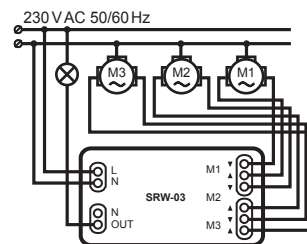
Technical data:

Symbol:	SRW-03
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	3,2 W
Transmission:	Wi-Fi 2,4 GHz b/g/n
Transmission range:	Wi-Fi range
Number of output channels:	7
Relay contact ratings: (normally open voltage contact)	7 x NO 5 A / 250 V AC
Number of terminals:	10 (conductor cross-section up to 2.5 mm²)
Enclosure installation:	surface box
Operating temperature range:	-10 ÷ +55 °C
Enclosure protection rating:	IP20
Dimensions:	167 x 52,5 x 38,5 mm
Weight:	0,177 kg
Maximum output current-carrying capacity:	7 x 5 A / 250 V AC: roller blind drives – 350 W
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17

SRW-03

The controller enables raising and lowering roller blinds by means of standard buttons or a smartphone, no matter if the user is at home or away. The controller also enables automatic roller blind opening/closing, at scheduled times and up/down to certain levels.
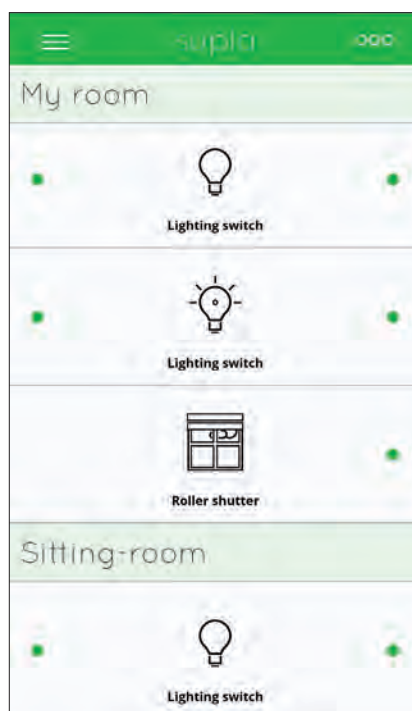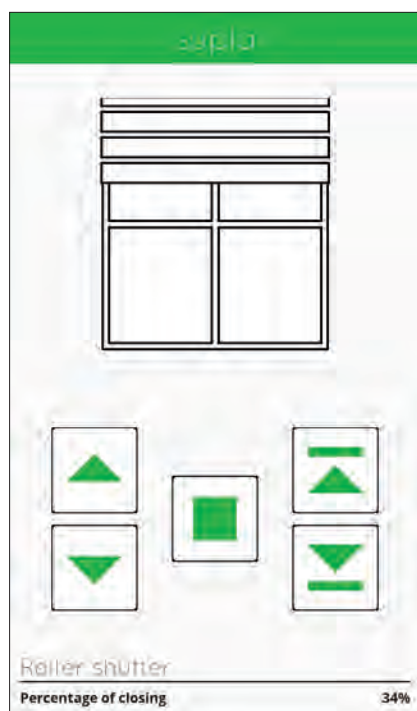
1-channel Wi-Fi gate controller type: SBW-01

Product description:

The gate controller enables integration with any gate drive and enables remote control of the gate by means of the Supla mobile app. The device can be mounted directly in the drive. Owing to the 24 V power supply it is fully safe. When the signals from the limit switches are connected to the input of the controller we receive information about opening and closing of the gate.
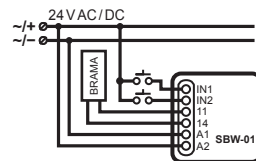
Features:

• Wireless control of the gate drive using Wi-Fi technology,
• The state of the gate can be monitored by means of checking the state of limit switches,
• The controller can be controlled by the Supla mobile app from any place in the world,
• 24 V AC / DC power supply for the controller.

2-channel Wi-Fi gate controller type: SBW-02

Product description:

The gate controller enables integration with any gate drive and walk gate and enables remote control of a gate by means of the Supla mobile app. The device can be mounted directly in the drive. Owing to universal 12 - 24 V AC / DC power supply it can be used in many applications. When the signals from the limit switches are connected to the input of the controller we receive information about opening and closing of the gate / walk gate.
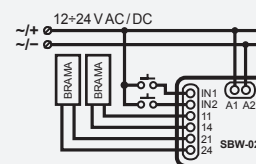
Features:

• Wireless control of the gate drive and walk gate using Wi-Fi technology,
• Universal inputs controlled by the supply potential,
• Two independent NO relay outputs,
• The state of the gate can be monitored by means of checking the state of limit switches,
• The controller can be controlled by the Supla mobile app from any place in the world,
• 12 - 24 V AC / DC power supply for the controller.

Technical data:

Symbol:	SBW-01	SBW-02
Rated supply voltage:	24 V AC / DC	12 - 24 V AC / DC
Rated frequency:	dla AC 50 / 60 Hz	
Rated power consumption:	0,45 W	0,6 W
Transmission:	Wi-Fi 2,4 GHz b/g/n	
Transmission range:	Wi-Fi range	
Number of inputs:	2	
Number of output channels:	1	2
Relay contact ratings: (normally open voltage-free contact)	1 x NO 5 A / 250 V AC (normally open voltage-free contact)	2 x NO 3 A / 24 V AC (normally open voltage-free contact)
Number of terminals:	6 (conductor cross-section up to 2,5 mm^2)	8 (conductor cross-section up to 2,5 mm^2)
Enclosure installation:	gate drive or installation box Ø 60 mm	
Operating temperature range:	- 20 ÷ + 55 °C	
Enclosure protection rating:	IP20	
Dimensions:	47,5 x 47,5 x 20 mm	
Weight:	0,04 kg	
Maximum output current-carrying capacity:	5 A / 250 V AC	3 A / 24 V AC
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17	

SBW-01, SBW-02
Gate or walk gate operated by means of
Supla app and a dedicated controller.

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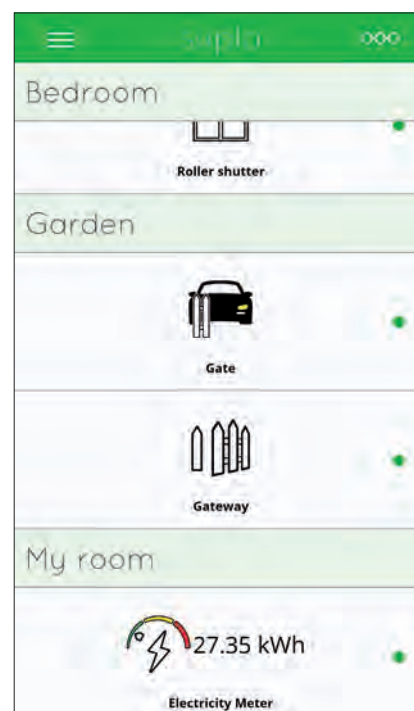
Wi-Fi electricity monitor 3F+N type: MEW-01

Product description:

Smart Electricity Usage Monitor, which enables electricity usage monitoring via Wi-Fi network. The device, easily installed in a switch cabinet, without additional costs arising from development of special electrical wiring and telecommunication cables. With MEW-01 you monitor electricity usage on a current basis.

Features:
- The MEW-01 receiver is designed for installing in switch cabinets on a TH35 (DIN) bar,
- Two modules receiver's body,
- Correct operation requires connection to an antenna. If you need to install the antenna outside the switch cabinet (applies mainly to metal switchboards), you can use an external antenna. The antenna has an SMA type connection.

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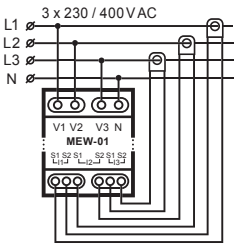
Technical data:

Symbol:	MEW-01
Voltage rating:	3 x 230 / 400 V AC
Voltage tolerance:	-20% ÷ 15%
Rated power consumption:	1,5 W
Frequency:	50 / 60 Hz
Measurement accuracy:	Class 2 (±2%)
Current transformer specifications:	0.1 – 33.3 mA / 100 A
Operating temperature range:	-10 to +55°C
Supply voltage ON indicator:	1 LED per each supply voltage phase
Ingress protection rating:	IP 20
Maximum wiring size:	10 (conductor cross-section up to 2,5 mm²)
Enclosure installation:	TH-35 mounting rails, clearance for 2 modules
Transmission:	Wi-Fi 2,4 GHz 802.11 b/g/n
Transmission range:	Wi-Fi range
Dimensions:	90 x 35 x 66 mm
Weight:	0,4 kg
Power input terminals:	L1, L2, L3, N
CT terminals:	S1 S2 - I1, S1 S2 - I2, S1 S2 - I3
Reference standards:	EN 61010-1, EN 50470-1, EN 50470-3, EN 301 489-17, ETSI EN 300 328, ETSI EN 301 489-1

MEW-01
The monitor enables electricity usage
measurement by means of a smartphone
at home and away.
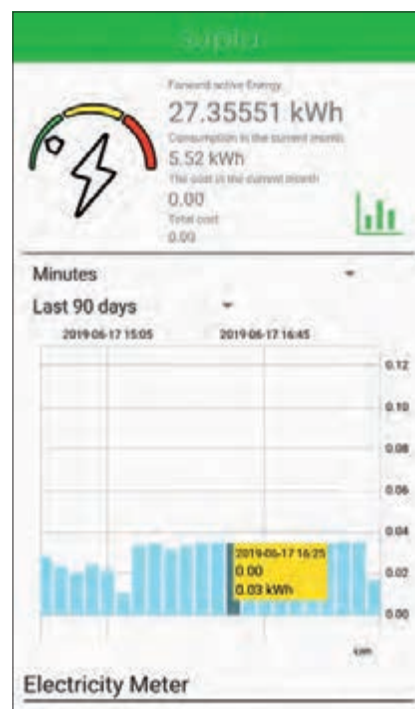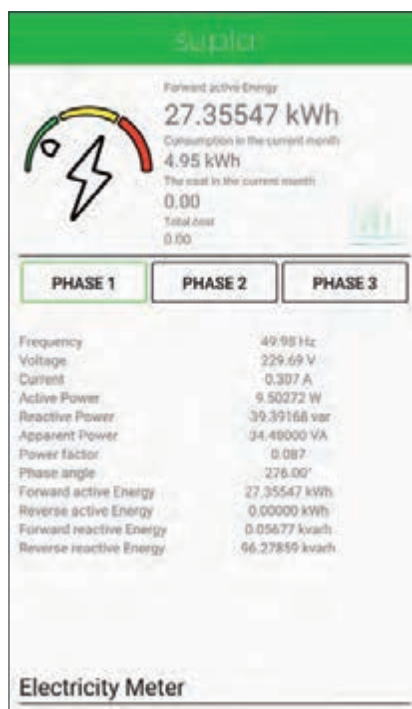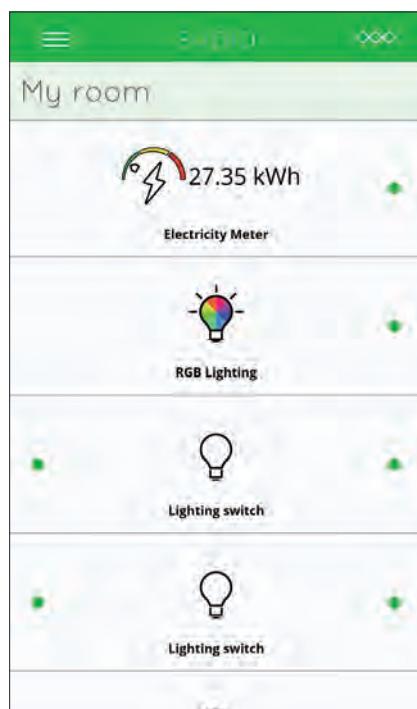
Graphic Wi-Fi controller type: GKW-01

Product description:

Graphic Wi-Fi controller is a device allowing control of temperature and additional functions implemented from the cloud level. The device features a 230 V power supply unit with a 16 A relay and an input for an NTC probe. The controller allows to control temperature in accordance with the defined programme.

Features:

• Wi-Fi temperature controller,
• Supla app level control,
• 16 A relay enabling electric mat control.
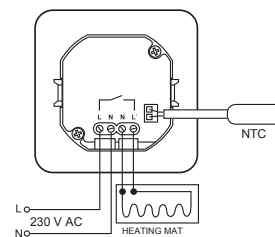
Technical data:

Symbol:	GKW-01
Rated supply voltage:	230 V AC
Rated mains frequency:	50 / 60 Hz
Rated power consumption:	2 W
Transmission:	Wi-Fi 2,4 GHz b/g/n
Transmission range:	Wi-Fi range
Number of inputs:	10 kΩ NTC probe
Control:	3 touch buttons (+/-/OK)
Number of output channels:	1 voltage relay
Relay contact ratings: (normally open voltage-free contact)	16 A AC1
Number of terminals:	4
Enclosure installation:	flush mounted power supply unit mounted in a Ø 60 box, surface mounted controller
Operating temperature range:	-10 to +55°C
Enclosure protection rating:	IP20
Protection class:	II
Dimensions:	90 x 90 x 45 mm
Weight:	0,15 kg
Reference standards:	EN 60669-1, EN 60669-2-1, ETSI EN 300 328, ETSI EN 301 489-1, EN 301 489-17

GKW-01
The controller allows to control temperature in accordance with the defined programme.
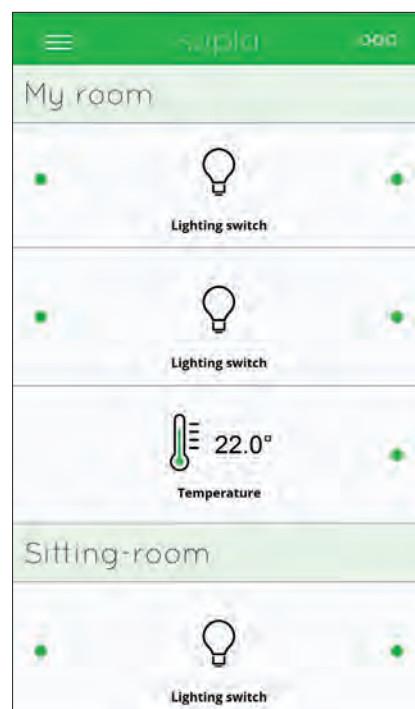
Surface mounted 7-channel Wi-Fi controller type: ROW-07EL

Product description:

The controller enables control of lighting and other electrical equipment. Integrated Wi-Fi module enables remote control of the receivers from the app. The device co-operates with the Exta Life system transmitters, which enables local control. Automatic activation and deactivation of devices according to the schedule recorded in the cloud is also possible.

Features:
• Wi-Fi 2,4 GHz radio communication,
• seven channels can be controlled via a smartphone and automatically via a schedule,
• independent 7-channel control option,
• local control is also possible with the use of Exta Life transmitters.
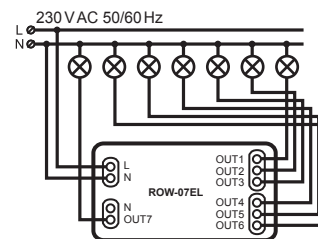
Flush mounted Wi-Fi light dimmer type: DIW-01

Product description:

The dimmer is intended for adjustment of light intensity of lamps fitted with traditional 230 V AC filament and halogen bulbs. The dimmer also co-operates with the light sources supplied by an electronic or toroidal transformer. A change in light intensity is also possible for selected dimmable LED lights and dimmable fluorescent CFL tubes. The dimmer can be controlled wirelessly from the Supla app or by wire from a monostable or bistable connector.

Features:
• Wi-Fi 2,4 GHz radio communication,
• Control component: 2 x MOSFET transistor,
• Works with filament and halogen lights,
• Works with the light sources supplied by an electronic or toroidal transformer,
• Light level memory,
• Programmable brightening and dimming time.

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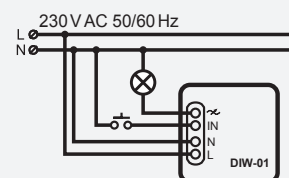
Surface mounted Wi-Fi roller blind 433 MHz controller type: RIW-01

230 V AC 50/60 Hz
L
N

N
L   RIW-01
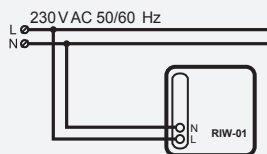
Product description:

433 MHz roller blind controller enables integration with the radio roller blind control systems available on the market. The device uses a transmitting and receiving system operating at the frequency of 433 MHz. This solution enables app-level control of installed radio roller blinds. The app enables individual and group management of the roller blinds. For selected roller blinds it is possible to set time schedules.

Features:
• Wi-Fi 2,4 GHz radio communication,
• Works with 433 MHz roller drives,
• Cloud communication,
• Free controller management app,
• Individual / group / time-based control.

Flush mounted Wi-Fi 4-input interface type: RNW-01

230 V AC 50/60 Hz
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IN2
IN1
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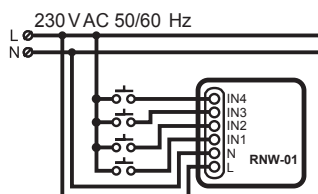
Product description:

Designed to implement such functions as turning on/off the lighting, adjusting illumination, closing/opening roller shutters and garage doors. It is designed for installation in flush mounting boxes (min. Ø 60 mm) under existing equipment. It enables using electrical installation equipment of any manufacturer and causes no restrictions for the interior design and nature. The transmitter has four inputs triggered with 230 V AC voltage. The triggering is achieved by applying phase voltage to the right input. The transmitter enables independent control of up to four circuits / channels.

Features:
• Wi-Fi 2,4 GHz radio communication,
• 4 opto-isolated inputs,
• Application of the "direct links" technology to the control of the Supla devices.

Pictograms description

entry gate	thermometer	roller blinds
walk gate	lighting	household appliances
garage gate	Christmas tree lighting	energy measurement

Building automation EXTA

EXTA building automation is a comprehensive solution created by the ZAMEL constructors that allows you to control lighting, heating, ventilation and all elements of the building installation. EXTA is perfect for both single-family and multi-family housing, it is also successfully used in public utilities, hotels, hospitals and industrial facilities. EXTA is a comfortable installation, high intuitiveness of solutions and easy operation. Each device performs programmed functions independently. An extensive range of lighting control equipment makes it possible to: turn on lighting from many points, adjust the level of light intensity and allow automatic switching off the light sources after the set time has elapsed. EXTA building automation allows the implementation of any lighting scene, while time and astronomical programmers allow you to run any application at the indicated time on a given day of the week or automatically calculate the time of sunrise and sunset. A separate area of application of EXTA building automation is the control of network parameters possible due to, among others: voltage relays, power limiters, priority relays and electric energy meters. EXTA is also a large selection of transformers, impulse power supplies and roller blind controllers. The controllers can be mounted on a TH-35 rail or in a junction box. The ZAMEL offer includes both controllers adapted to operate 230 V drives, as well as controllers adapted to low voltage motors.

117

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

The staircase lighting time delay switches are used to control lighting devices on staircases and corridors. After releasing the system (by a normally open lighting switch) they switch on the lighting for the time adjusted by a user. After that, it switches off automatically. The operation time can be adjusted fluently by means of a potentiometer. Apart from standard versions, there are staircase lighting time delay switches equipped with an anti-blocking function, power limiter and operation mode switch ON-AUTO-OFF.

Staircase time delay switch ASH-01
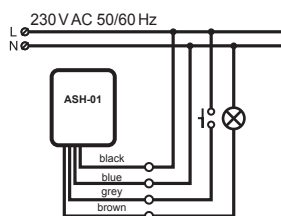
Features
- operating time: 10 sec. ÷ 10 min,
- hermetic casing IP65,
- cable connection 0,5 m long,
- cooperation with 3 or 4 wire installation.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASH-01/U
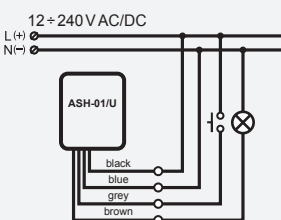
Features
- operating time: 10 sec. ÷ 10 min,
- universal supply voltage: 12 ÷ 240 V AC / DC,
- hermetic casing IP65,
- cable connection 0,5 m long.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASN-01
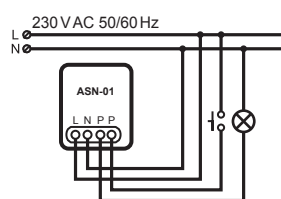
Features
- operating time: 10 sec. ÷ 10 min,
- surface casing IP20.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASN-01/U
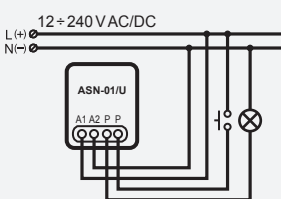
Features
- operating time: 10 sec. ÷ 10 min,
- universal supply voltage: 12 ÷ 240 V AC / DC,
- surface casing IP20.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

exta free

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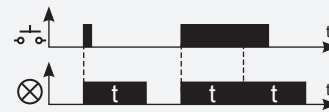
Technical data

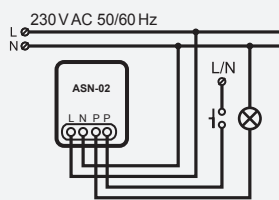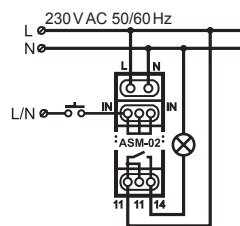| Symbol:	ASH-01	ASH-01/U	ASN-01	ASN-01/U
Nominal supply voltage:	230 V AC	12 ÷ 240 V AC / DC	230 V AC	12 ÷ 240 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10%	-5 ÷ +10%	-15 ÷ +10%	-5 ÷ +10%
Nominal frequency:	50 / 60 Hz			
Nominal power consumption:	48 mA	8 mA	48 mA	8 mA
Time adjustment range:	10 sec. ÷ 10 min			
Time adjustment accuracy:	± 10%			
Switch on time measuring repeatability:	± 5%			
Switch on time adjustment:	fluent (rotary potentiometer)			
Relay contact parameters:	1 NO 16 A / 250 V AC1 4000 VA (voltage contact)			
Cross-section of connection cables:	4			
Cross-section of the connecting cables:	4 x 0,75 mm²		0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +45°C			
Casing protection degree:	IP65		IP20	
Protection class:	II			
Overvoltage category:	II			
Dimensions:	69 x 56 x 27 mm			
Weight:	0,101 kg		0,076 kg	
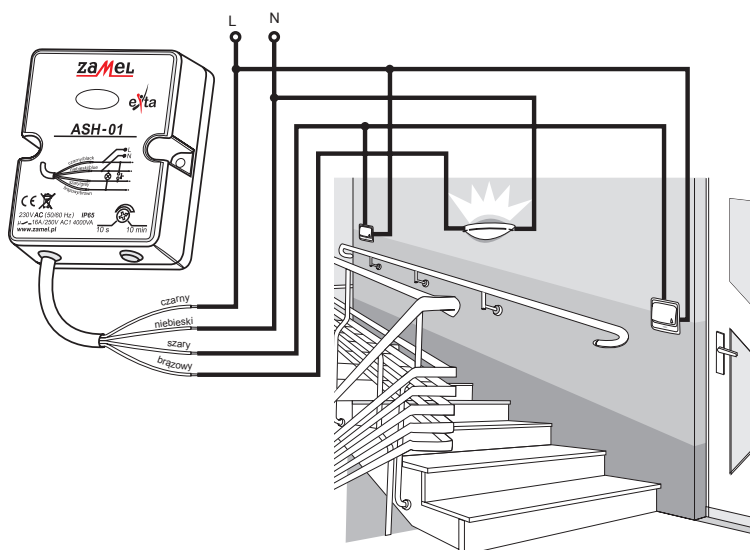
ASH-01 - APPLICATION

The staircase lighting time delay switch ASH-01 operating the staircase lighting works in 3-wire installation. Monostable pushbutton (equipped with illumination) can be connected parallely.

Staircase time delay switch ASM-01

230 V AC 50/60 Hz

L
N
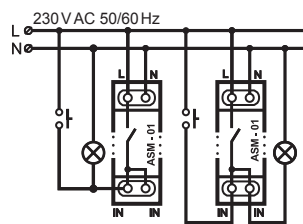
ASM-01

Features
- operating time: 10 sec. ÷ 10 min,
- cooperation with 3 or 4 wire instal-
  lation.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASM-01/U

12 ÷ 240 V AC/DC

L (+)
N (−)

A1   A2

ASM-01/U

IN   IN   IN   IN
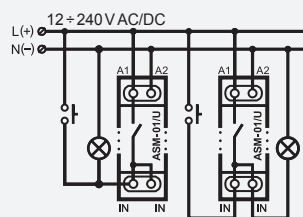
Features
- operating time: 10 sec. ÷ 10 min,
- universal supply voltage:
  12 ÷ 240 V AC / DC.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASP-01

230 V AC 50/60 Hz

L
N

IN   ASP-01
L

black
red
brown
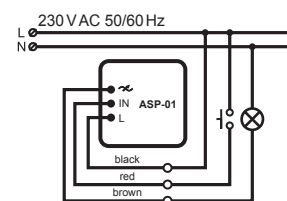
Features
- operating time: 10 sec. ÷ 16 min,
- „soft" lighting brightening and dim-
  ming (0,8 sec.),
- flush casing mounting (junction box
  Ø60 mm),
- does not require connecting a neutral
  wire (N) to the device,
- only works with incandescent
  sources.

Capacity
- 15 ÷ 350 W AC5b

Time courses

t   t

0,8 s   0,8 s 0,8 s   0,8 s 0,8 s   0,8 s
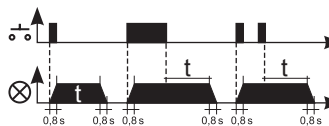
ASM-01 - APPLICATION
Staircase automat operates in a 3 wire system realizing the the
staircase lighting control function. Unipolar push buttons (e.g. also
with backlight) can be connected in a parallel way.

L N

zamel

t [min]

ASM - 01

IN IN
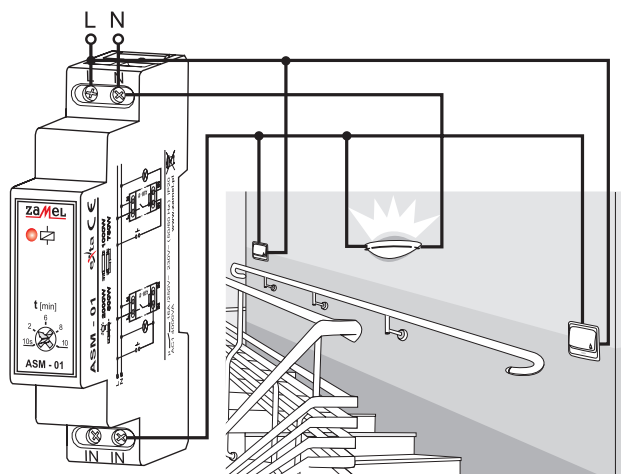
Technical data

Symbol:	ASM-01	ASM-01/U	ASP-01
Nominal supply voltage:	230 V AC	12 ÷ 240 V AC / DC	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%	-5 ÷ +10%	-15 ÷ +10%
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	48 mA	8 mA	8 mA
Optical signalling of supply voltage:	red LED diode		-
Time adjustment range:	10 sec. ÷ 10 min		10 sec. ÷ 16 min
Time adjustment accuracy:	± 10%		± 3%
Switch on time measuring repeatability:	± 5%		
Switch on time adjustment:	fluent (rotary potentiometer)		
Relay contact parameters:	1 NO 16A / 250 V AC1 4000 VA (voltage contact)		-
Permissible load capacity:	-		15 ÷ 350 W
Cross-section of connection cables:	4		3
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		3 x 1 mm²
Connection cable length:	-		0,10 m
Operating temperature range:	-20 ÷ +45°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		50 x 50 x 26 mm
Weight:	0,073 kg	0,078 kg	0,028 kg
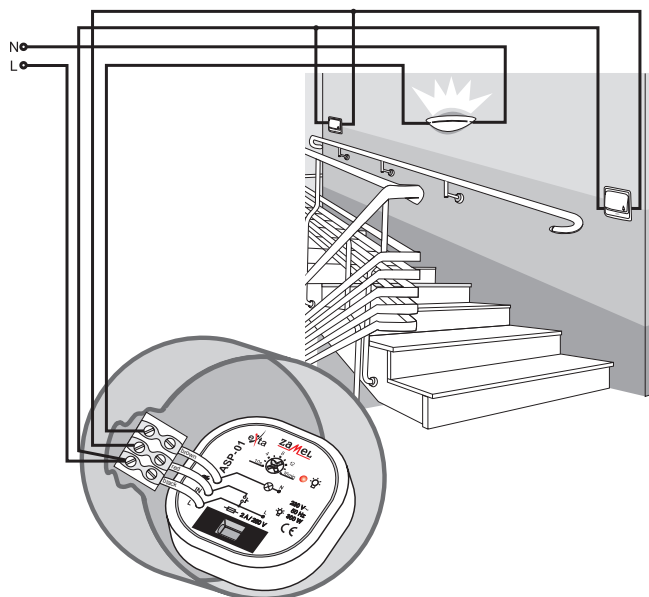
ASP-01 - APPLICATION

Staircase automat realizes the staircase lighting control function.
It operates in a system by fluent brightening / dimmimg the incandescent lighting. To operate, the device does not require a neutral wire (N). ASP-01 only works with incandescent lighting.

Staircase time delay switch ASH-02

230 V AC 50/60 Hz
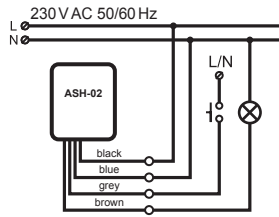
Features
- operating time: 10 sec. ÷ 14 min,
- anti-blocking function,
- hermetic casing IP65,
- cable connection 0,5 m long.

Capacity

- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASN-02

230 V AC 50/60 Hz

Features
- operating time: 10 sec. ÷ 14 min,
- anti-blocking function,
- protection degree: IP20.

Capacity

- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASM-02

230 V AC 50/60 Hz

Features
- operating time: 2 sec. ÷ 10 min,
- anti-blocking function,
- protection degree: IP20.

Capacity

- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASM-02/24V

24 V AC/DC

DC: +/−
AC: ~/~

Features
- operating time: 2 sec. ÷ 10 min,
- anti-blocking function,
- protection degree: IP20.

Capacity

- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Staircase time delay switch ASP-02

230 V AC 50/60 Hz

Features
- operating time: 10 sec. ÷ 14 min,
- anti-blocking function,
- flush casing mounting (junction box Ø60 mm).

Capacity

- 375 W AC5b   **LED** 60 W
- 90 W AC5a
- 180 W AC5a   150 W AC5a

Time courses

Technical data

Symbol:	ASH-02	ASN-02	ASM-02	ASM-02/24V	ASP-02
Nominal supply voltage:	230 V AC			24 V AC / DC	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%				
Nominal frequency:	50 / 60 Hz				
Nominal power consumption:	33 mA		35 mA	55 mA	10,5 mA
Time adjustment range:	10 sec. ÷ 14 min		2 sec. ÷ 10 min		10 sec. ÷ 14 min
Time adjustment accuracy:	± 10%				
Switch on time measuring repeatability:	± 5%				
Switch on time adjustment:	fluent (rotary potentiometer)				
Relay contact parameters:	1 NO 16 A / 250 V AC1 4000 VA (voltage contact)				1 NO 5 A / 250 V AC1 1250 VA
Cross-section of connection cables:	4		8		4
Cross-section of the connecting cables:	4 x 0,75 mm²	0,2 ÷ 2,50 mm²			
Connection cable length:	0,5 m	-			
Operating temperature range:	-20 ÷ +45°C				
Casing protection degree:	IP20				
Protection class:	II				
Overvoltage category:	II				
Dimensions:	69 x 56 x 27 mm		90 x 17,5 x 66 mm		50 x 50 x 15 mm
Weight:	0,106 kg	0,067 kg	0,076 kg	0,027 kg	0,028 kg
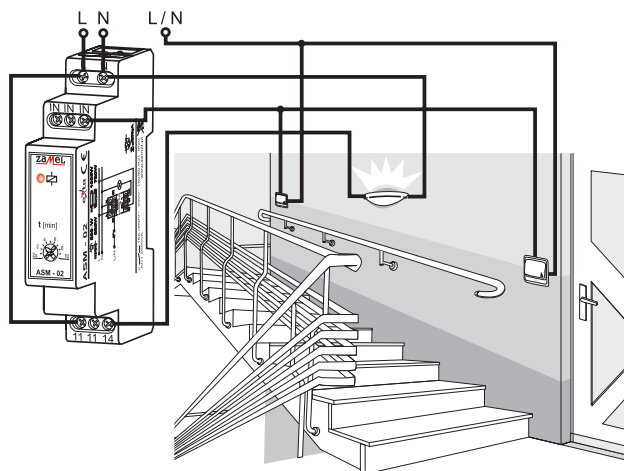
ASM-02 - APPLICATION

Staircase automat operates in a 4 wire system controlling the staircase lighting. Unipolar push buttons (e.g. with backlight) can be connected in a parallel way. The device has an anti-locking function.

Staircase time delay switch ASM-03
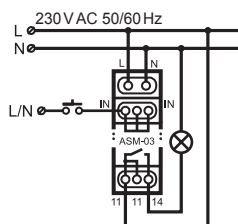
Features
- operating time: 3 ÷ 30 min,
- operation modes: ON, AUTO, OFF,
- anti-blocking function.

Capacity

☼ 2000 W AC5b **LED** 250 W

▭ 500 W AC5a

▭ 1000 W AC5a   ▭ 750 W AC5a

Time courses
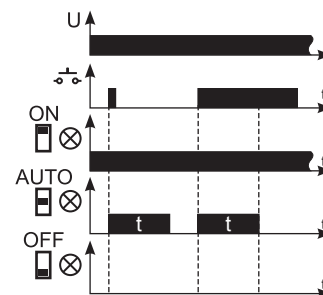
Staircase time delay switch with power limiter function ASM-04
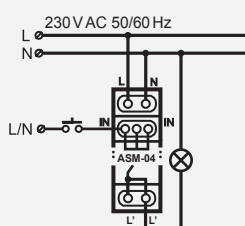
Features
- functional combination of a power limiter and staircase automatic unit,
- the device prevents electricity theft in staircases,
- lighting control in the range from 10 s to 10 min.
- the range of settings of the built-in power limiter from 100 W to 2 kW,
- indication of the operating mode of the device.

Capacity

☼ 2000 W AC5b **LED** 250 W

▭ 500 W AC5a

▭ 1000 W AC5a   ▭ 750 W AC5a

Time courses
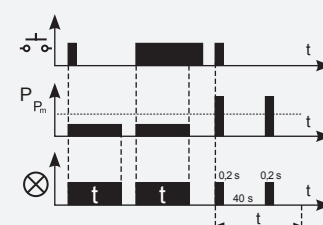
Multifunctional staircase time delay switch ASM-05
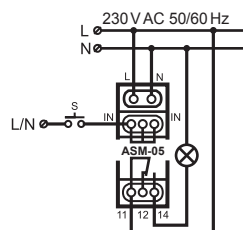
Features
- operating time: 0,1 s ÷ 10 d,
- 10 operation modes,
- anti-blocking function,
- permanent switching function,
- signaling function of deactivation,

Capacity

☼ 2000 W AC5b **LED** 250 W

▭ 500 W AC5a

▭ 1000 W AC5a   ▭ 750 W AC5a

Time courses

125

exta free

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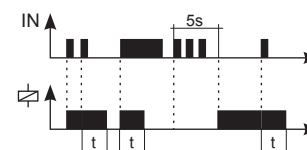
Dane techniczne

Symbol:	ASM-03	ASM-04	ASM-05
Nominal supply voltage:	230 V AC		
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	25 mA	26 mA	
Time adjustment range:	3 ÷ 30 min (rotary potentiometer)	10 s ÷ 10 min (rotary potentiometer)	0,1 s ÷ 10 d (rotary potentiometer)
Dimming delay setting:	-	0 ÷ 60 s (rotary potentiometer)	-
Time adjustment accuracy:	± 5%	± 10%	10%
Switch on time measuring repeatability:	± 10%	± 5%	5%
Power threshold setting:	-	0,1 ÷ 2kW	-
Power threshold trip off delay:	-	40 s	-
Relay contact parameters:	1NO - 16 A / 250 V AC1 4000 VA		
Cross-section of connection cables:	8	7	8
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Connection cable length:	-		
Operating temperature range:	-20 ÷ +45°C		
Casing protection degree:	IP20		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm	90 x 17,5 x 66 mm	
Weight:	0,029 kg	0,079 kg	0,077 kg

ASM-04 - APPLICATION

The staircase lighting timer supports 4-wire power voltage systems. Single-pole switches (also backlit models) can be wired in parallel with this product.
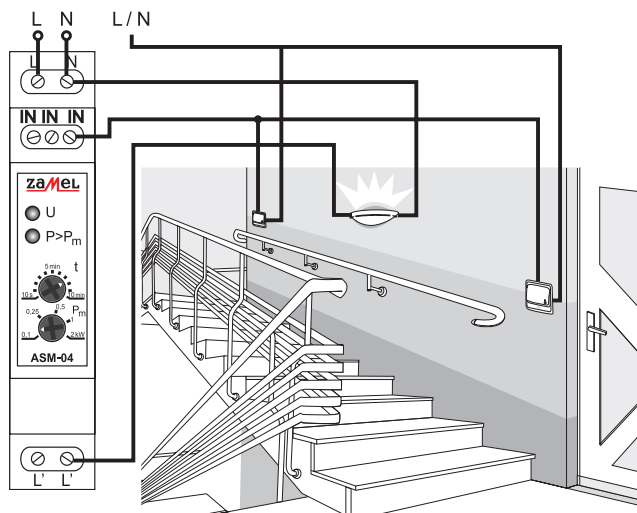
The twilight switches are used to control lighting devices depending on natural (external) light intensity. Their main function is to switch on the lighting at dusk and switch them off at dawn. The switching on threshold can be fluently adjusted by a potentiometer. The twilight switches are available in sets with a light intensity sensor (WZN-01/S1, WZM-01/S1, WZM-01/SOS, WZM-02/S1, WZM-02/SOS), with an built-in external light intensity sensor (WZH-01, WZS-01) or without a light sensor.

Twilight switch WZH-01
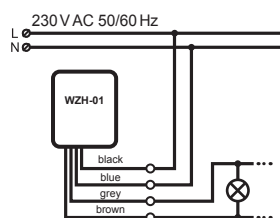
Features
- built-in luminous flux intensity sensor,
- protection against temporary changes of luminous flux intensity level,
- hermetic casing IP65,
- cable connection 0,5 m long.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

$\Delta \approx 5 \div 60$ lx $T \approx 30$ s
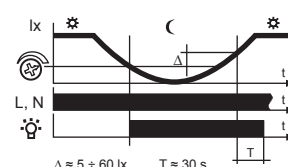
Twilight switch WZS-01
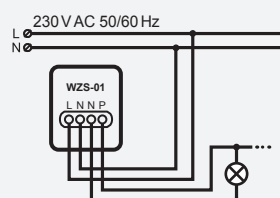
Features
- built-in luminous flux intensity sensor,
- protection against temporary changes of luminous flux intensity level,
- hermetic casing IP54.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

$\Delta \approx 5 \div 60$ lx $T \approx 30$ s
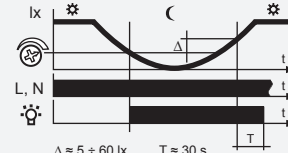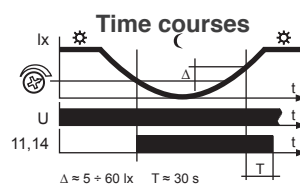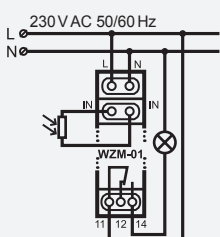
Twilight switch WZN-01
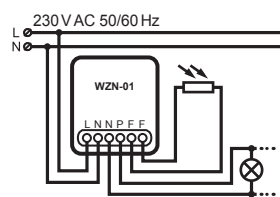
Features
- twilight switch without luminous flux intensity sensor (built-in or in set) - separate light sensor purchase is required,
- protection against temporary changes of luminous flux intensity level,
- cooperation with SOS-01 and SOH-01 sensors.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

$\Delta \approx 5 \div 60$ lx $T \approx 30$ s
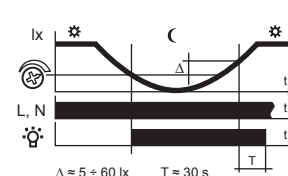
Twilight switch WZN-01/S1
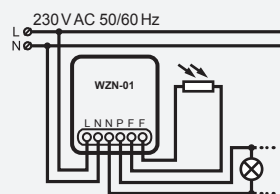
Features
- a set including twilight switch WZN-01 and luminous flux intensity sensor SOH-01,
- protection against temporary changes of luminous flux intensity level.

Capacity
- 2000 W AC5b   **LED** 250 W
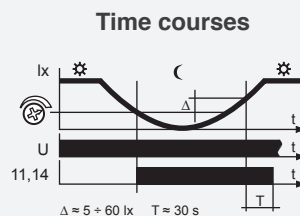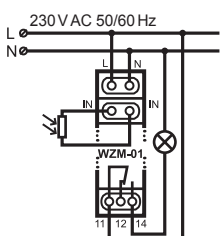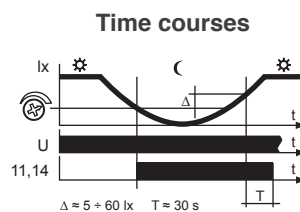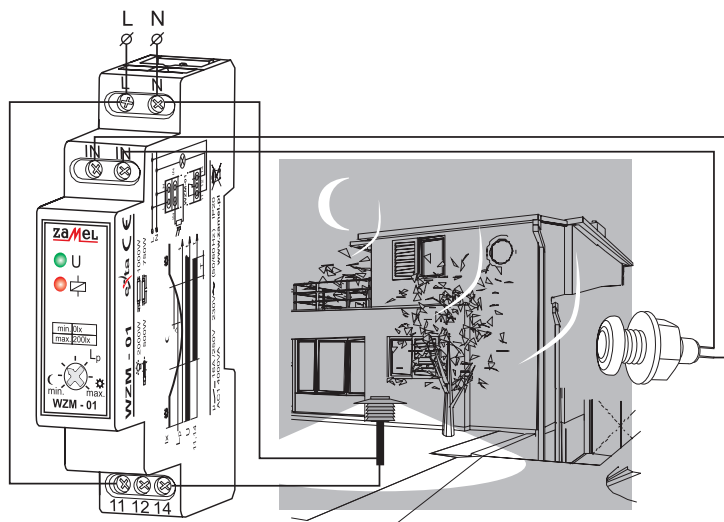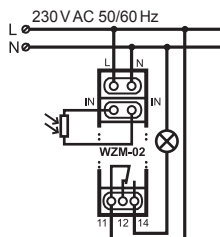- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

$\Delta \approx 5 \div 60$ lx $T \approx 30$ s

127

exta free

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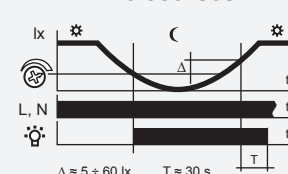
Technical data

Symbol:	WZH-01	WZS-01	WZN-01	WZN-01/S1
Nominal supply voltage:	230 V AC			
Nominal supply voltage tolerance:	-15 ÷ +10%			
Nominal frequency:	50 / 60 Hz			
Nominal power consumption:	24 mA			
Optical signalling of supply voltage:	-		green LED diode	
Optical signalling of relay status:	-		red LED diode	
Time adjustment range:	0 ÷ 200 lx (rotary potentiometer)			
Maximum length of sensor cable:	-		50 m (min. cross-section 2 x 0,50 mm²)	
Relay contact parameters:	1 NO 16 A / 250 V AC1 4000 VA (voltage contact)			
Cross-section of connection cables:	4		6	
Cross-section of the connecting cables:	4 x 0,75 mm²	0,2 ÷ 2,50 mm²		
Connection cable length:	0,5 m	-		
Operating temperature range:	-20 ÷ +45°C			
Casing protection degree:	IP65	IP54	IP20	
Protection class:	II			
Overvoltage category:	II			
Dimensions:	69 x 56 x 27 mm	84 x 68 x 43 mm	69 x 56 x 27 mm	
Weight:	0,120 kg	0,100 kg	0,073 kg	0,130 kg

WZS-01 - APPLICATION

The twilight switch realizes the lighting control function (e.g. garden lighting). The device must be mounted in a place not directly illuminated by the switched on lamps.

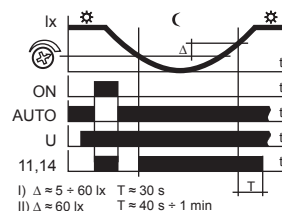## Twilight switch WZM-01

230 V AC 50/60 Hz

L
N

IN   IN

WZM-01

11 12 14

Features

- twilight switch without a light sensor (built-in or in a set) – separate light sensor purchase is required,
- protection against temporary changes of luminous flux intensity level.

Capacity

- ☼ - 2000 W AC5b   **LED** 250 W
- ⊏⊐ - 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

lx   ☼   ☾   ☼
                    Δ
U   t
11,14   t
Δ ≈ 5 ÷ 60 lx   T ≈ 30 s

Twilight switch WZM-01/S1

230 V AC 50/60 Hz

L
N

IN   IN

WZM-01

11 12 14

Features

- the set includes SOH-01 light sensor,
- protection against temporary changes of luminous flux intensity level.

Capacity

- ☼ - 2000 W AC5b   **LED** 250 W
- ⊏⊐ - 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

lx   ☼   ☾   ☼
                    Δ
U   t
11,14   t
Δ ≈ 5 ÷ 60 lx   T ≈ 30 s

Twilight switch WZM-01/SOS

230 V AC 50/60 Hz

L
N

IN   IN

WZM-01

11 12 14

Features

- the set includes SOS-01 light sensor,
- protection against temporary changes of luminous flux intensity level.

Capacity

- ☼ - 2000 W AC5b   **LED** 250 W
- ⊏⊐ - 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

lx   ☼   ☾   ☼
                    Δ
U   t
11,14   t
Δ ≈ 5 ÷ 60 lx   T ≈ 30 s

Technical data

Symbol:	WZM-01	WZM-01/S1	WZM-01/SOS
Nominal supply voltage:	230 V AC		
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	24 mA		
Optical signalling of supply voltage:	green LED diode		
Optical signalling of relay status:	red LED diode		
Time adjustment range:	0 ÷ 200 lx (rotary potentiometer)		
Maximum length of sensor cable:	50 m (min. cross-section 2 x 0,50 mm²)		
Relay contact parameters:	1 NO / NC 16A / 250 V AC1 4000 VA (voltage contact)		
Number of connection cables / terminals:	7		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +45°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,075 kg	0,126 kg	0,120 kg

WZM-01 - APPLICATION

WZM-01 twilight switch is mounted in the distribution board supplying controlled circuits. Lighting sensor is led outdoor.

129

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Twilight switch WZM-02

230 V AC 50/60 Hz

Features
- twilight switch without a light sensor (built-in or in a set) – separate light sensor purchase is required,
- 2 luminous flux intensity ranges: 0 ÷ 200 lx, 100 ÷ 20 000 lx,
- operating mode switch: ON / AUTO,
- protection against temporary changes of luminous flux intensity level.

Time courses

I) $\Delta \approx 5 \div 60$ lx $T \approx 30$ s
II) $\Delta \approx 60$ lx $T \approx 40$ s ÷ 1 min

Capacity

- 1250 W AC5b   **LED** 150 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

Twilight switch WZM-02/S1

230 V AC 50/60 Hz

Features
- the set includes SOH-01 light sensor,
- 2 luminous flux intensity ranges: 0 ÷ 200 lx, 100 ÷ 20 000 lx,
- operating mode switch: ON / AUTO,
- protection against temporary changes of luminous flux intensity level.

Time courses

I) $\Delta \approx 5 \div 60$ lx $T \approx 30$ s
II) $\Delta \approx 60$ lx $T \approx 40$ s ÷ 1 min

Capacity

- 1250 W AC5b   **LED** 150 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

Twilight switch WZM-02/SOS

230 V AC 50/60 Hz

Features
- the set includes SOS-01 light sensor,
- 2 luminous flux intensity ranges: 0 ÷ 200 lx, 100 ÷ 20 000 lx,
- operating mode switch: ON / AUTO,
- protection against temporary changes of luminous flux intensity level.

Time courses

I) $\Delta \approx 5 \div 60$ lx $T \approx 30$ s
II) $\Delta \approx 60$ lx $T \approx 40$ s ÷ 1 min

Capacity

- 1250 W AC5b   **LED** 150 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

131

exta free

exta life

supla

exta

ledix

konekto

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gardi

ynsta

expo

Technical data

Symbol:	WZM-02	WZM-02/S1	WZM-02/SOS
Nominal supply voltage:	230 V AC		
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	35 mA		
Optical signalling of supply voltage:	green LED diode		
Optical signalling of relay status:	red LED diode		
Time adjustment range:	two ranges: 1) 0 ÷ 200 lx; 2) 100 ÷ 20 000 lx		
Maximum length of sensor cable:	50 m (min. cross-section 2 x 0,50 mm²)		
Relay contact parameters:	1 NO / NC 10 A / 250 V AC1 1250 VA		
Number of connection cables / terminals:	7		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +45°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,076 kg	0,126 kg	0,120 kg

WZM-02 - APPLICATION

The twilight switch WZM-02 operates in the range of 100 ÷ 20 000 lx and can detect the excessive insolation and control roller blind operations. Operation in the range of 100 ÷ 20 000 lx allows to activate lighting at twilight automatically.
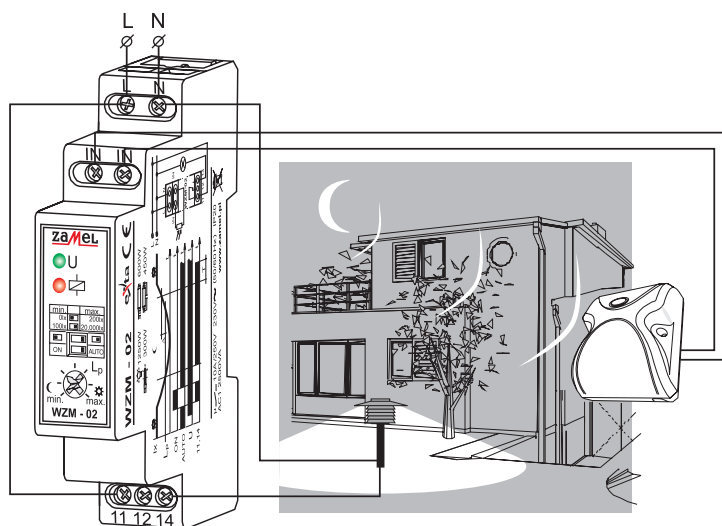
Bistable relays are home automation devices used to a bistable lighting control. The relays can be released by one or more "light" push buttons (NO contacts) paralelly connected, or they can be released remotely by other devices like motion sensors, time relays, etc. The following types of bistable relays (PBM-02, PBM-02/24V, PBM-05, PBM-05/12-24V) in connection with input separator SEM-01 allow to build local, group and central lighting operation systems. PBM-03 and PBM-03/24V bistable relays are additionally equipped with a time limit system. ECOLINE series of energy-saving bistable dry contact relays are new products on the market. The relays are characterised by zero electric energy consumption during operation and stand-by mode. The electric energy consumption is only during the release time. This solution allows for savings (cost of electric energy consumption) and for the increase of the relays' durability (longer operation time).

Bistable (impulse) relay PBM-01
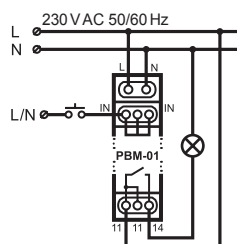
Features
- TEST function,
- LED diodes signalling presence of the supply voltage and relay status.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

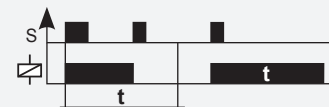## Bistable (impulse) relay PBM-01/24V
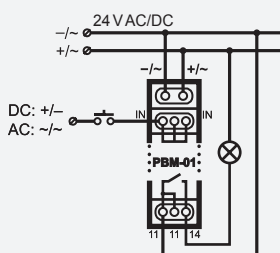
Features
- TEST function,
- LED diodes signalling presence of the supply voltage and relay status.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Bistable (impulse) relay PBM-02
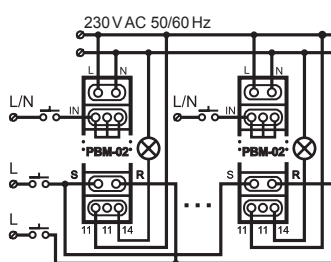
Features
- SET and RESET control inputs,
- a possibility of creating local, group and central lighting control systems,
- relay state memory,
- TEST function.
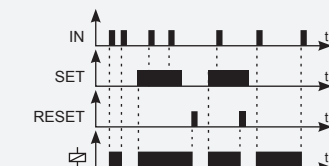
Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses
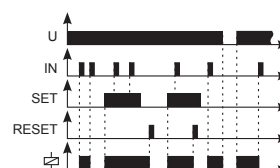
Bistable (impulse) relay PBM-02/24V
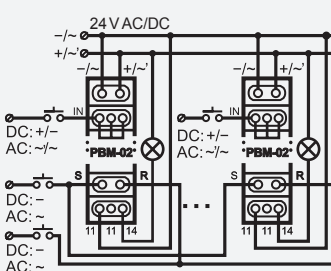
Features
- SET and RESET control inputs,
- a possibility of creating local, group and central lighting control systems,
- relay state memory,
- TEST function.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

exta free

exta life

supla

exta

ledix

konekto

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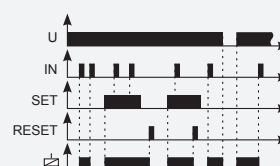
Technical data

Symbol:	PBM-01	PBM-01/24V	PBM-02	PBM-02/24V
Nominal supply voltage:	230 V AC	24 V AC / DC	230 V AC	24 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10%			
Nominal frequency:	50 / 60 Hz			
Nominal power consumption:	24 mA	20 mA	24 mA	
Optical signalling of supply voltage:	green LED diode			
Optical signalling of relay status:	red LED diode			
Release control current:	930 µA	200 µA	930 µA	
Central control inputs:	-		SET, RESET	
Relay contact parameters:	1 NO 16 A / 250 V AC1 4000 VA			
Number of connection cables / terminals:	8		10	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²			
Operating temperature range:	-20 ÷ +45°C			
Casing protection degree:	IP20			
Protection class:	II			
Overvoltage category:	II			
Dimensions:	90 x 17,5 x 66 mm			
Weight:	0,078 kg		0,080 kg	

PBM-01 - APPLICATION

Bistable relays realise the lighting control function (e.g. interior lighting) are controlled by means of single-pole push buttons that can be connected in a parallel way. The buttons can be placed in different places which gives a possibility to create a universal lighting control system. The bistable relays can cooperate with time relay PCM-04 (operating with the following settings: MODE=F, TIME=3, RANGE=2) and the same can offer an additional function of the central bistable relay switch off (reset) by momentary power cut.
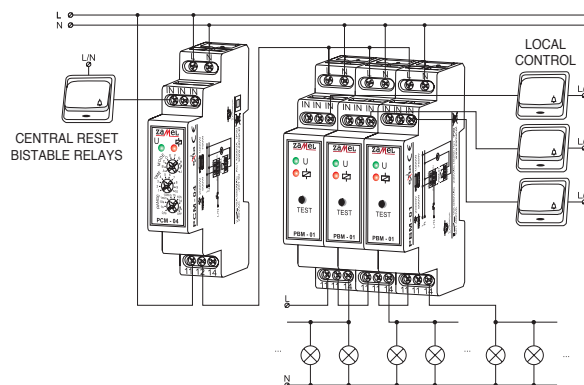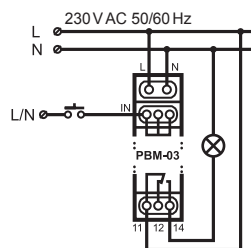
CENTRAL RESET
BISTABLE RELAYS

LOCAL
CONTROL

Bistable (impulse) relay PBM-03

230 V AC 50/60 Hz

Features
• time limit function.

Capacity
- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Bistable (impulse) relay PBM-03/24V

24 V AC/DC

DC: +/−
AC: ~/~
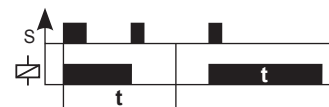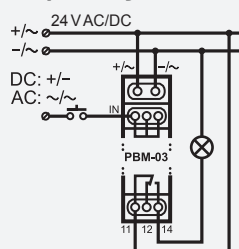
Features
• time limit function.

Capacity
- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Bistable (impulse) relay PBM-04/U
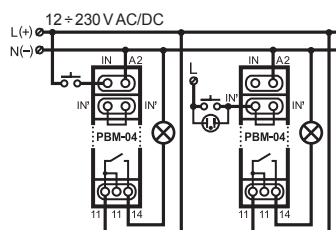
12 ÷ 230 V AC/DC

Features
• universal supply voltage:
  12 ÷ 230 V AC / DC,
• zero current consumption,
• relay status memory.

Capacity
- 1250 W AC5b **LED** 150 W
- 300 W AC5a   600 W AC5a   450 W AC5a

Time courses

Bistable (impulse) relay PBM-05

230 V AC 50/60 Hz
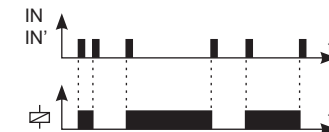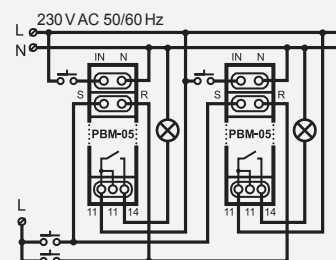
Features
• zero current consumption,
• SET and RESET control inputs,
• a possibility of creating local, group and
  central lighting control systems,
• relay status memory.

Capacity
- 1250 W AC5b **LED** 150 W
- 300 W AC5a   600 W AC5a   450 W AC5a

Time courses

Bistable (impulse) relay PBM-05/12-24 V
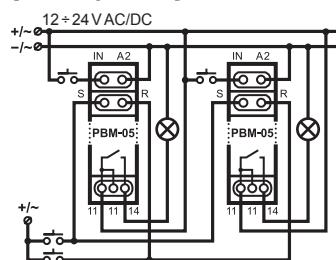
12 ÷ 24 V AC/DC

Features
• universal supply voltage:
  12 ÷ 24 V AC / DC,
• zero current consumption,
• SET and RESET control inputs,
• a possibility of creating local, group and
  central lighting control systems,
• relay status memory.

Capacity
- 1250 W AC5b **LED** 150 W
- 300 W AC5a   600 W AC5a   450 W AC5a

Time courses
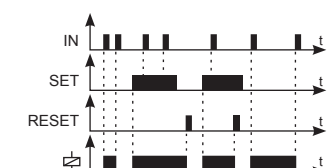
Technical data

Symbol:	PBM-03	PBM-03/24V	PBM-04/U	PBM-05	PBM-05/12-24V
Nominal supply voltage:	230 V AC	24 V AC / DC	12 ÷ 230 V AC / DC	230 V AC	12 ÷ 24 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10%				
Nominal frequency:	50 / 60 Hz				
Nominal power consumption:	24 mA	25 mA	0 mA		
Time adjustment range:	0,1 sec. ÷ 10 days		-		
Time measuring accuracy:	0,2%		-		
Switch on time adjustment:	2 x potentiometer (rotary + step)		-		
Optical signalling of supply voltage:	green LED diode		-		
Optical signalling of relay status:	red LED diode		-		
Release control current:	510 µA	-			
Nominal release power consumption:	-		11 mA		
Relay contact parameters:	1 NO 16 A / 250 V AC1 4000 VA		1 NO 10 A / 250 V AC1 2500 VA		
Number of connection cables / terminals:	8		7		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²				
Operating temperature range:	-20 ÷ +45°C				
Casing protection degree:	IP20				
Protection class:	II				
Overvoltage category:	II				
Dimensions:	90 x 17,5 x 66 mm				
Weight:	0,075 kg		0,065 kg	0,068 kg	

PBM-03 - APPLICATION

The bistable relay controls the staircase lighting and operates in three-conductor wiring configuration. It is possible to connect the single pole push buttons (e.g. with backlight) in parallel.
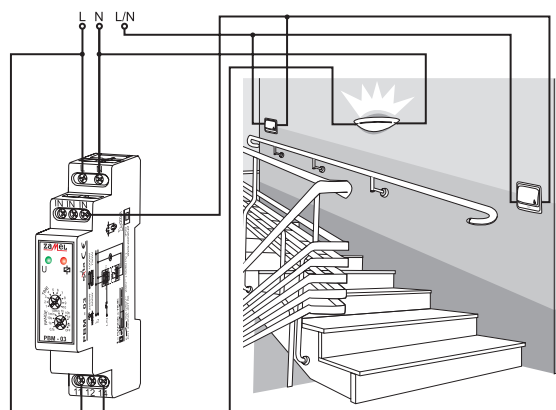
Bistable (impulse) relay PBM-06

230 V AC 50/60 Hz
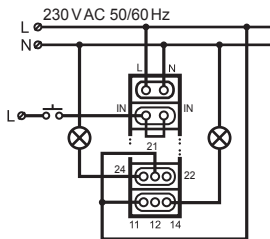
Features
- choice of 1 out of 5 operation modes (sequences) through a potentiometer,
- activation of the system only from „L" line,
- ability to cooperate with single-pole, backlit buttons,
- two independent relay outputs, volt free 2 x NO/NC, with load capacity 16 A.

Capacity
- 2000 W AC5b
- 500 W AC5a
- **LED** 250 W
- 1000 W AC5a
- 750 W AC5a

Time courses

Mode A

Mode B

Mode C

Mode D

Mode E
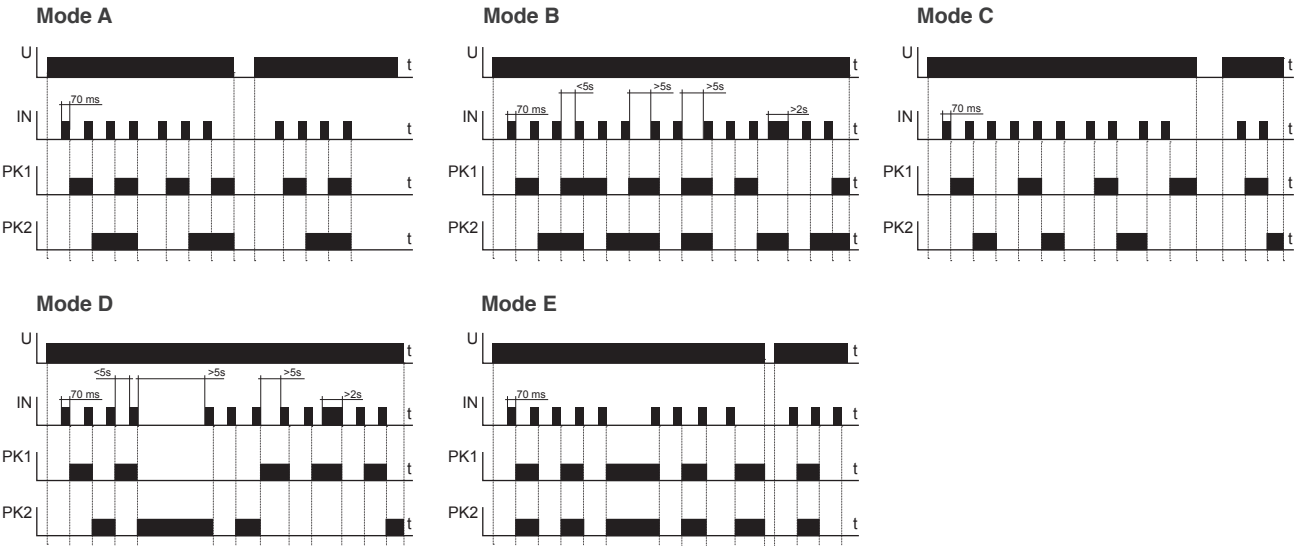
Bistable (impulse) relay PBM-07

230 V AC 50/60 Hz
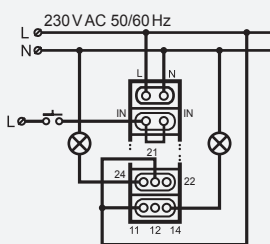
Features
- activation of the system only from „L" line,
- ability to cooperate with single-pole, backlit buttons,
- two independent relay outputs, volt free 2 x NO/NC, with load capacity 16 A.

Capacity
- 2000 W AC5b
- 500 W AC5a
- **LED** 250 W
- 1000 W AC5a
- 750 W AC5a

Time courses

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

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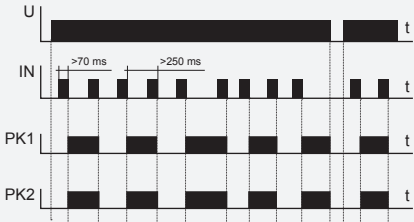
Technical data

Symbol:	PBM-06	PBM-07
Nominal supply voltage:	230 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10 %	
Nominal frequency:	50 Hz	
Nominal power consumption:	standby mode: 0,4 W 1 output switched on: 0,7 W outputs switched on: 1,1 W	standby mode: 0,4 W 2 outputs switched on: 1,1 W
Optical indication of supply voltage:	green LED diode	
Indication of receiver status:	2 x red LED diode	
Release control current:	7,5 mA	
Relay contact parameters:	2 x NO/NC – 16 A / 250 V AC	
Number of connection terminals:	10	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +45°C	
Ingress protection rating of the casing:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 17,5 x 66 mm	
Weight:	0,090 kg	

Bistable (impulse) relay with modular button function PBM-08
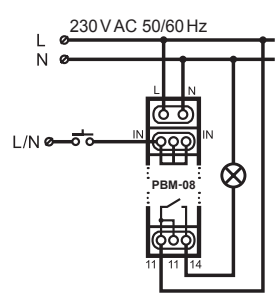
Features
- bistable (binary) lighting control,
- power supply voltage control – green LED, relay status control red LED, - triggering the circuit from the L or N cable,
- operation with multiple single-pole backlit buttons,
- integrated modular button,
- two-wire control system,
- relay output - one a-contact with a maximum load capacity of 16 A.

230 V AC 50/60 Hz
L
N
L/N
PBM-08
11 11 14

Capacity
- 2000 W AC5b
- 500 W AC5a
- **LED** 250 W
- 1000 W AC5a
- 750 W AC5a

exta free

exta life

supla

exta

ledix

konekto

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expo

Technical data

Symbol:	PBM-08
Nominal supply voltage:	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10 %
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	24 mA
Optical signalling of supply voltage:	green LED diode
Optical signalling of relay status:	red LED diode
Release control current:	930 µA
Relay contact parameters:	1NO - 16 A / 250 V AC1 4000 VA
Cross-section of connection cables:	8
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²
Operating temperature range:	-20 ÷ +45°C
Casing protection degree:	IP20 (PN-EN 60529)
Protection class:	II
Overvoltage category:	II
Dimensions:	90 x 17,5 x 66 mm
Weight:	78 g

Bistable (impulse) relay PBP-01
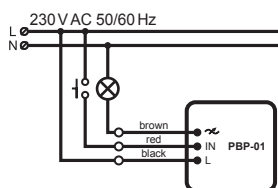
Features
- „soft" lighting brightening and dimming (0,8 sec.),
- flush casing mounting (junction box Ø60 mm),
- does not require connecting a neutral wire (N) to the device,
- only works with incandescent sources.

Time courses
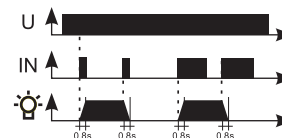
Capacity

- 15 ÷ 350 W AC5b

Bistable (impulse) relay PBP-03
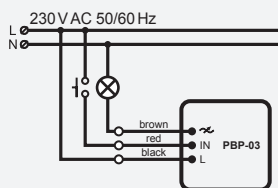
Features
- time limit function,
- „soft" lighting brightening and dimming (0,8 sec.),
- flush casing mounting (junction box Ø60 mm),
- does not require connecting a neutral wire (N) to the device,
- only works with incandescent sources.

Time courses
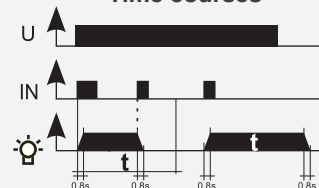
Capacity

- 15 ÷ 350 W AC5b

Bistable (impulse) relay PBP-04
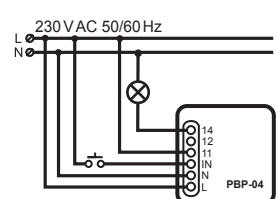
Features
- operation with single-pole backlit buttons,
- bistable (binary) lighting or other device control,
- two-wire control system,
- triggering the circuit only from the L cable,
- relay output, dry contact 1x NO/NC with capacity of 10 A.

Time courses
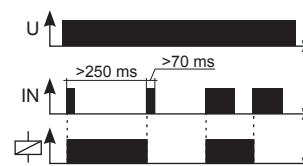
Capacity

- 1200 W AC5b **LED** 60 W
- 600 W AC5a
- 450 W AC5a
- 300 W AC5a

Bistable (impulse) 2-channel relay PBP-05
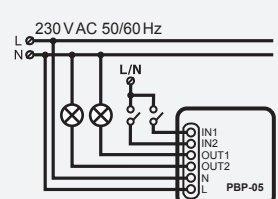
Features
- 2-channel, bistable, junction box mounted relay PBP-05,
- small dimensions of the device,
- possibility to independently control 2 circuits,
- operation with single-pole backlit buttons,
- circuit tripping with L or N line signals,
- selecting the operating mode:
  with / without status memory after power outage and recovery.

Time courses
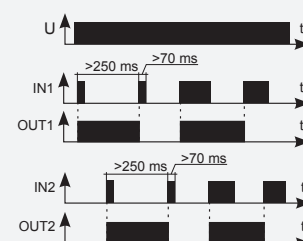
Capacity

- 750 W AC5b **LED** 60 W
- 250 W AC5a
- 200 W AC5a
- 150 W AC5a

Technical data

Symbol:	PBP-01	PBP-03	PBP-04	PBP-05
Nominal supply voltage:	230 V AC			
Maximum voltage range:	-			
Maximum separator current:	-			
Nominal supply voltage tolerance:	-15 ÷ +10 %			
Nominal frequency:	50 / 60 Hz			
Nominal power consumption:	8 mA		standby mode: 0,2 W operation mode: 0,7 W	standby mode: 6 mA operation mode: 10/14 mA
Time adjustment range:	-	10 s ÷ 16 min	-	
Time adjustment accuracy:	-	± 3 %	-	
Switch on time adjustment:	-	fluent (rotary potentiometer)	-	
Optical signalling of switching on a receiver:	red LED diode			
Release control current:	220 µA	-	5,2 mA	0,5 mA
Permissible load capacity:	15 ÷ 350 W		-	
Relay contact parameters:	-		1 x NO/NC 10 A 250 V	2 x NO 5 A 250 V
Cross-section of connection cables:	3		6	6
Cross-section of the connecting cables:	1 mm²		0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +45°C			-10 ÷ +55°C
Casing protection degree:	IP20			
Protection class:	II			-
Overvoltage category:	II			
Dimensions:	50 x 50 x 26 mm		47,5 x 47,5 x 20 mm	
Weight:	0,025 kg		0,025 kg	0,043 kg

Input separator SEM-01
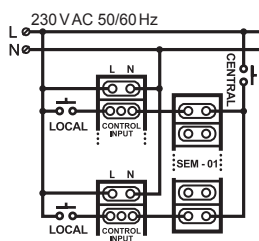
Features

- element of local, group and central lighting control systems,
- cooperation with devices equipped with external release inputs,
- 4 independent separation elements (separation of control signals).

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	SEM-01
Maximum voltage range:	300 V AC
Maximum separator current:	1 A
Nominal supply voltage tolerance:	-15 ÷ +10%
Nominal frequency:	50 / 60 Hz
Cross-section of connection cables:	8
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²
Operating temperature range:	-20 ÷ +45°C
Casing protection degree:	IP20
Protection class:	II
Overvoltage category:	II
Dimensions:	90 x 17,5 x 66 mm
Weight:	0,047 kg
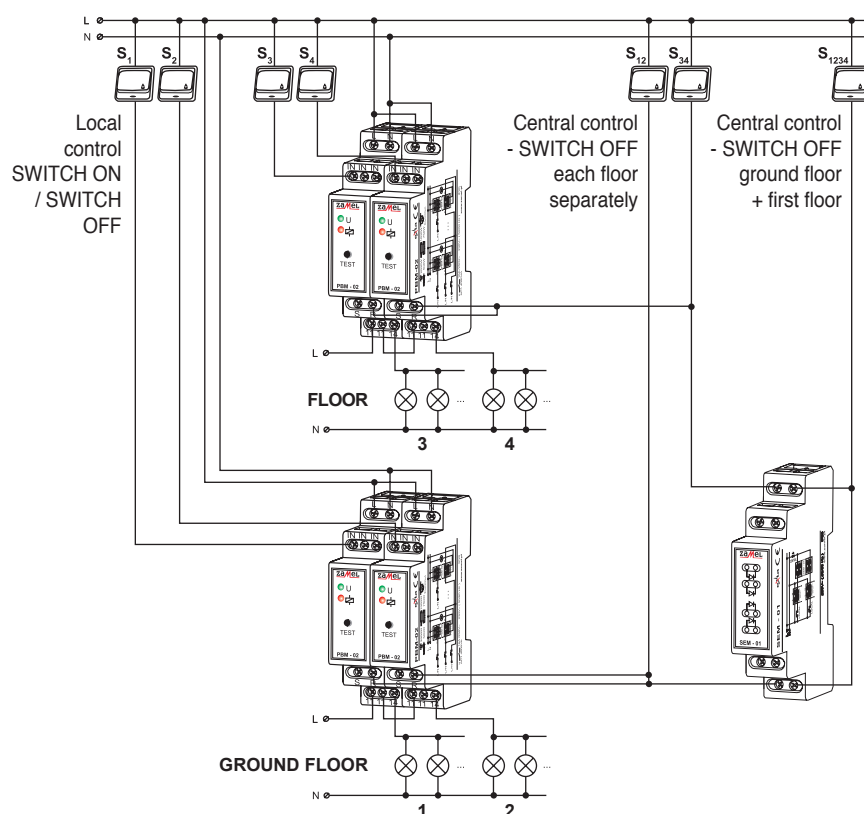
SEM-01 - APPLICATION

In the control system SEM-01 separator has the function to filter control signals and to direct or cut them from or to appropriate systems.

Lighting dimmers have a function of fluent luminous flux intensity adjustment by means of "light" push buttons (NO contacts). The push buttons connected in a parallel way allow for lighting control from different places of a building. DIP-02 dimmer is equipped with the function to remember the luminous flux intensity level whereas dimmer DIM-20 allows for a connection of halogen lamp light sources supplied by electronic transformers, dimming fluorescent lamps or 230 V AC dimming LED light sources.

Dimmer DIM-20
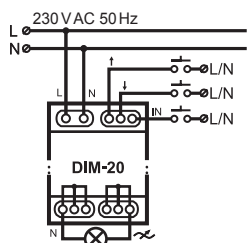
Features
- fluent adjustment of lighting level of halogen lamps supplied by a toroidal or electronic transformer and of dimming energy saving flourorescent lamps,
- lighting level memory,
- energy saving in the stand-by mode.

Capacity
- 500 W AC5b
- 300 W AC5b DIMMABLE
- 500 W AC5b 12V
- 500 W AC5b 12V
- **LED** DIMMABLE 60 W

Time courses
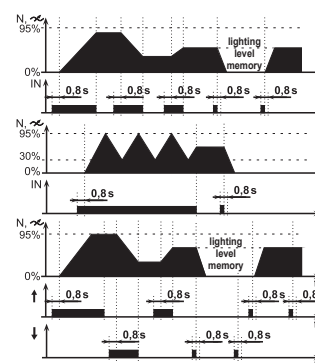
Dimmer DIM-30
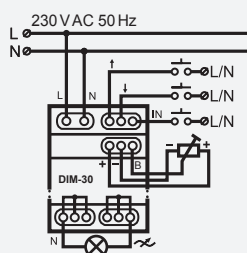
Features
- control of any type of lighting,
- adaptation of parameters to any light source,
- possibility of control through single and double button as well as a rotary potentiometer.

Capacity
- 500 W AC5b
- 300 W AC5b DIMMABLE
- 500 W AC5b 12V
- 500 W AC5b 12V
- **LED** DIMMABLE 60 W

Time courses
available on sites 146-147

Dimmer DIP-11
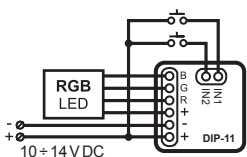
Features
- control of RGB strips and Ledix lighting fittings,
- fluent colour change and lighting dimming,
- supply voltage: 10 ÷ 14 V DC.

145

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	DIM-20	DIM-30	DIP-11
Nominal supply voltage:	230 V AC		10 ÷ 14 V DC
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 Hz		-
Nominal power consumption:	10 mA	15 mA	0,22 W
Optical indication of supply voltage:	green LED diode		-
Optical indication of receiver operation mode:	red LED diode		
Maximum load capacity:	30 ÷ 500 W		-
Permissible load capacity:	-	-	2,5 A
Number of connection cables:	11	14	8
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		up to 2,5 mm²
Operating temperature range:	-20 ÷ +45°C		-10 ÷ +55°C
Ingress protection rating of the casing:	IP20		
Protection class:	II		III
Overvoltage category:	II		
Dimensions:	90 x 35 x 66 mm		47,5 x 47,5 x 20 mm
Weight:	0,135 kg	0,135 kg	0,027 kg

DIM-20 - APPLICATION

The device is used to control lighting with a total power that does not exceed 500 W. Monostable "light" push-buttons are responsible for the control. The push buttons can be connected in a parallel way to allow for lighting control from different places. Short pressing and releasing the push button (for about <0,8 sec.) causes the light switches on or off. Pressing the push button for a longer time (>0,8 sec.) causes fluent light dimming or brightening. DIM-20 has the function to memorize the adjusted luminous flux intensity level.

In order to memorize the brightness level, press the control push button (control input IN or ⬆) and press it for a longer time to obtain the demanded brightness level. In order to memorize the lowest brightness level, again push the button (control input IN or ⬇) and press it for a longer time to obtain a new demanded brightness level.

The adjusted brightness level is remembered in the inner memory of the device and it will operate with the next switching on / off the light. Even in case of power supply failure the adjusted brightness level is remembered.
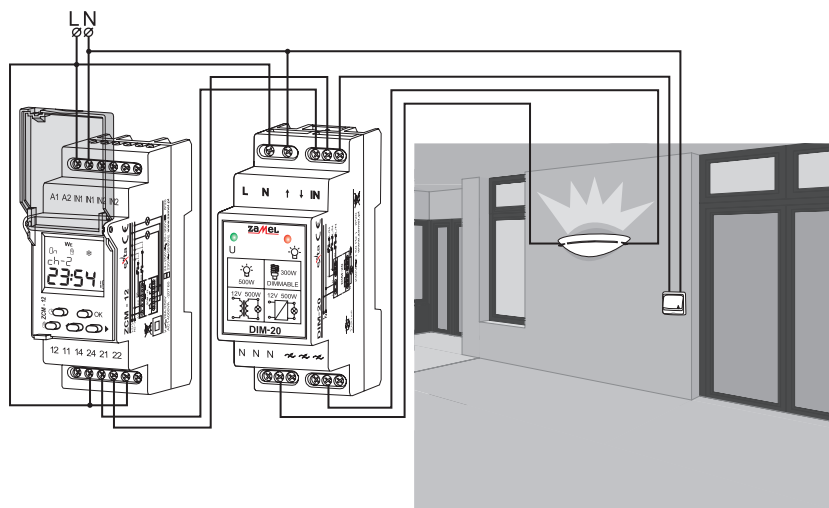
DIM-30 FUNCTIONING

CONTROL BY MEANS OF A DOUBLE MONOSTABLE PUSH BUTTON CONNECTED TO ↑, ↓ INPUTS

- Giving a short impulse (<0,8 second) to ↑ input, causes the dimmer switches on according to the last memorised level with time t_2.
- If a dimmer's output is switched on, then pressing the push button connected to the ↑ input longer (>0,8 second) will cause an increase in luminous flux intensity (brightening) up to the maximum level with time t_2.
- Giving a short impulse (<0,8 second) to ↓ input, causes the dimmer switches off with time t_2.
- If a dimmer's output is switched on, then pressing the push button connected to ↓ input longer (>0,8 second) will cause a decrease in luminous flux intensity (dimming) up to the minimum level. It is also realised with time t_2.

If the switch off impulse is given to dimmer's input while it is switched on (before time t_2 is finished), then the dimmer is switched off with time t including Lmem value corresponding to the luminous flux intensity value of the switch off impulse moment.

During switching off (just before time t2 is finished), short switching on impulses given to input are ignored.

t_2 - time calculated on the basis of current luminous flux intensity value and P1 potentiometer adjustment
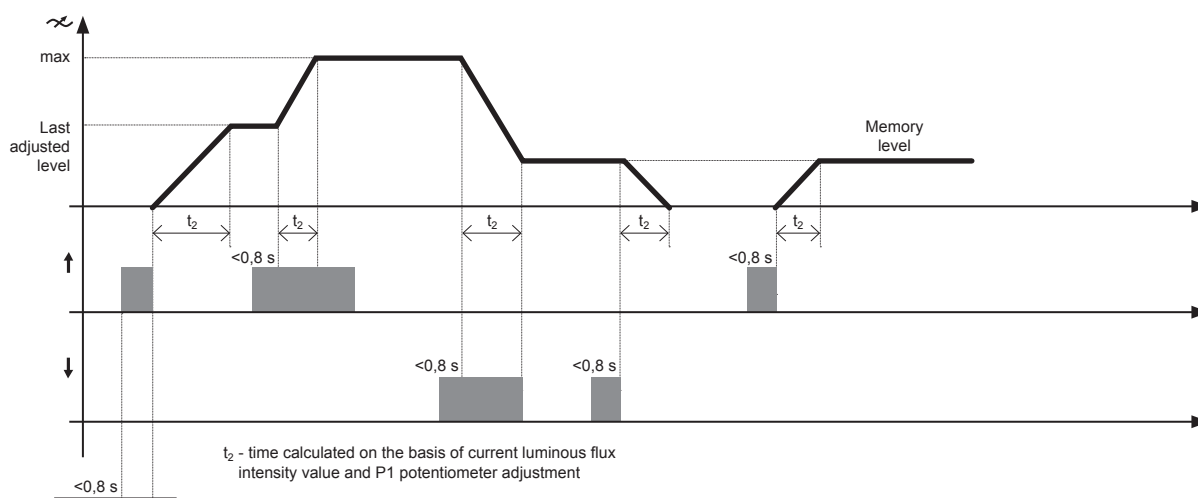
CONTROL BY MEANS OF A SINGLE MONOSTABLE PUSH BUTTON CONNECTED TO THE (IN) INPUT

- Giving a short impulse (<0,8 second) to the (IN) input, causes the dimmer switches on referring to to the last memorised level with time t_2.
- Giving a subsequent short impulse (<0,8 second) to the (IN) input, causes the dimmer switches off with time t_2.
- Press the push button connected to the (IN) input longer (>0,8 second) to enter the luminous flux intensity adjustment. The adjustment is carried out until you release the button. Luminous flux intensity is adjusted continuously in the following sequence: minimum – maximum – minimum – etc. This applies to a situation when dimmer's output is switched on or switched off. The adjustment from the last set level to the maximum level is carried out with time t_2. In case of a transition from the maximum to the minimum level and inversely, the adjustment is realised with time t_1.

If the switch off impulse is given to dimmer's input (IN) during switching on (before time t2 is finished), then the dimmer is switched off with time t including Lmem value corresponding to the luminous flux intensity value of the switch off impulse moment.

During switching off (just before time t2 is finished), short switching on impulses given to the (IN) input are ignored.

t_2 - time calculated on the basis of current luminous flux intensity value and P1 potentiometer adjustment
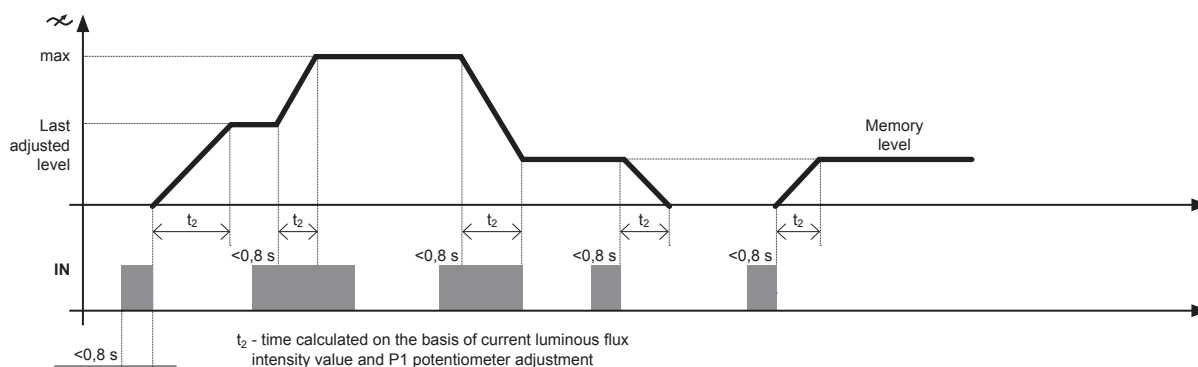
ADJUSTING DIMMER AND THE LOAD

Five subsequent impulses of <0,8 second each given to the (IN) input at intervals shorter than 2 seconds cause the dimmer (DIM-30) to enter the load adjustment mode. It results in a repeated dimmer's input switch on and switch off.

t_1 - time adjusted at P1 potentiometer
min – minimum level adjusted at P2 potentiometer
t_2 - time calculated on the basis of current luminous flux intensity value and P1 potentiometer adjustment
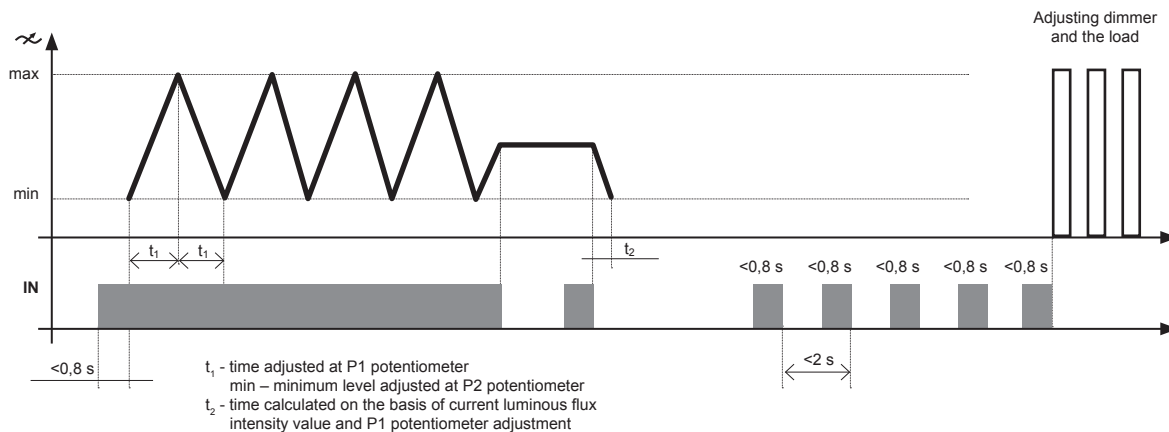
CONTROL BY MEANS OF A 1-10 V POTENTIOMETER

The dimmer can cooperate with a rotational potentiometer (1-10 V) or other automatic control systems equipped with 1-10 V outputs. Its casing enables the connection of push button potentiometers. The dimmer is switched off at 0 V. Its activation starts at 1 V. The 1 -10 V range enables to change the luminous flux intensity, where the bottom value corresponds to 1 V and is adjusted by P2 potentiometer. The below presented table depicts P2 technical data adjusted to the minimum.

Potentiometer's adjustment 1÷10 V [V]	Dimmer's output voltage [V]
0	0
1	8
2	33,5
3,2	70,5
4,2	106,5
5	139
6,1	176
7,2	203
8,2	216
9,2	223
10	225

Dependency of dimmer's output voltage on (1-10 V) potentiometer's output voltage
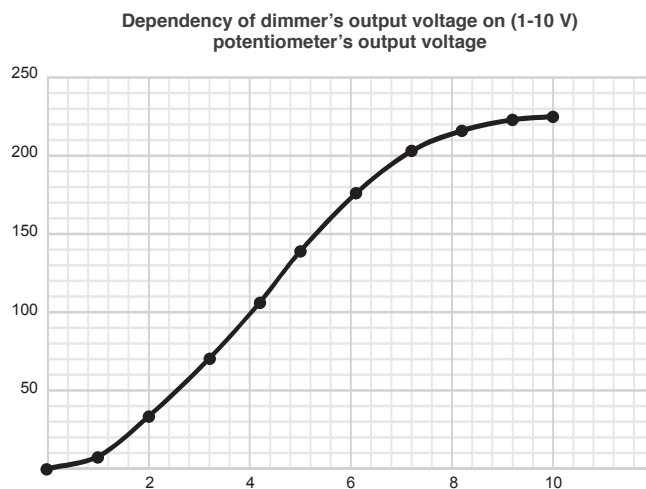
DIM-30 dimmer cooperates also with traditional logarithmic potentiometers 100 kΩ. It is connected then under (+), (-) terminals.

CAUTION: The adjusted luminous flux intensity level is memorised even after supply voltage decay.

Microwave motion sensors are active motion detectors - the integrated measuring element sends electromagnetic waves of high frequency and receives their echo. The sensor detects changes in the echo caused even by the smallest motion in the specified area range. The device is equipped with a high operating frequency, little power output emission (< 10 mW) and a very good motion detection toward and backward the motion sensor.

Microwave motion sensor MCR-01
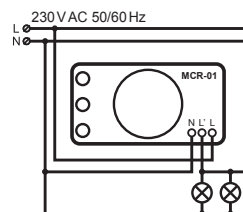
Features
- microwave motion detection sensor is used to be built in lighting fittings, plastic fittings, false ceilings, behind light partition walls, etc,
- high sensitivity,
- no temperature influence on detection,
- built-in twilight sensor and time relay.

Microwave motion sensor MCR-02
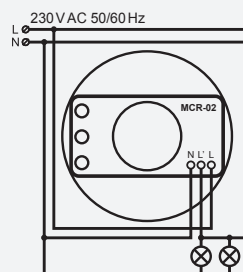
Features
- surface mounting,
- high sensitivity,
- no temperature influence on detection,
- built-in twilight sensor and time relay,
- PCV covering shield.

PIR 360° motion sensor for building into suspended ceiling MCR-07
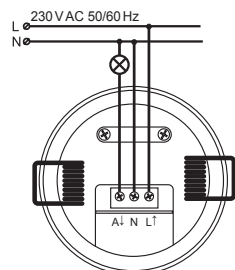
Features
- 360° device detection angle,
- device installation in suspended ceiling slab.

IP65 PIR 120/360° miniature motion sensor with probe on the MCR-08 wire
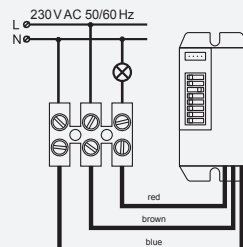
Features
- 120°/360° device detection angle,
- device installation is only possible in the enclosure, terminal box or on the surface, with an external sensor routed on the wire.

PIR 180° motion sensor, IP65 surface installation MCR-09
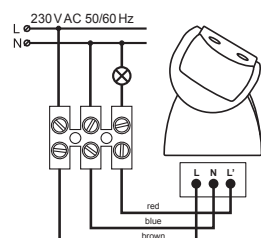
Features
- 180° device detection angle,
- surface installation of the device with flush installation connection wires inside the sensor enclosure,
- IP65 sealed enclosure for operation outdoors or in areas exposed to dampness.

Dane techniczne

Symbol:	MCR-01	MCR-02	MCR-07	MCR-08	MCR-09
Nominal supply voltage:	220 ÷ 240 V AC		230 V AC		
Nominal frequency:	50 / 60 Hz		50 Hz		
Operation frequency:	5,8 GHz		-		
Nominal power consumption:	0,9 W		-		
Minimum operation zone:	a circle with 3 m diameter		-		
Maximum operation zone:	a circle with 10 m diameter		6 m	3/6 m	12 m
Operation zone adjustment:	fluent (rotary potentiometer)			DIP Switch selection	
Time measuring accuracy:	0,2 %		Depending on the delivery, approx.: 10 s ±3 s 15 min. ± 2 min.	+/1 15 % of the selected value	Depending on the setting, approx.: 10 s ± 3 s 15 min. ± 2 min.
Motion detection angle:	360°, with an open angle of 160°		360°	120° / 360°	180°
Emission power:	< 10 mW		-		
Switch on time adjustment range:	8 s ÷ 12 min (rotary potentiometer)		3 s ÷ 15 min	5 s, 30 s, 1 min, 3 min, 5 min, 8 min	3 s ÷ 15 min
Permissible load capacity:	1200 W		1200 W Ac5b		
Lighting intensity sensor:	internal		-		
Lighting sensor adjustment range:	2 ÷ 2000 lx (rotary potentiometer)		3-2000 lux	10 lux / 2000 lux	3 – 2000 lux
Casing protection degree:	IP20			IP20 + sensor IP65	IP65
Protection class:	II				
Overvoltage category:	II				
Dimensions:	90 x 41,5 x 41,5 mm	Ø 96 x 43 mm	75,6 x 76 mm	55,5 x 55,5 mm	200 x 52 mm
Weight:	0,070 kg	0,130 kg	0,5 kg	0,4 kg	0,79 kg

Detection zones (range 3 ÷ 10 m)

ceiling mounting

2,5m
Ø3÷10m

wall mounting

Ø3÷10m
1,75m

ceiling mounting

3m   10m

wall mounting

3m   10m
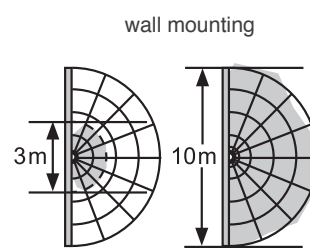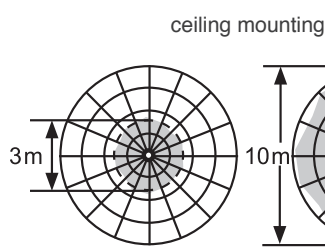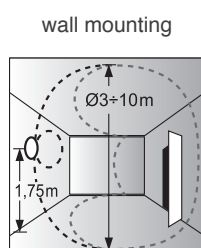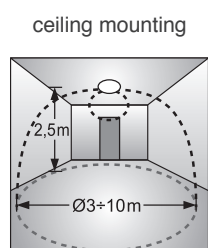
Time relays are universal elements in home and industrial automation installations, which realise different time control functions. The group of time relays includes one mode devices (switch off delay, switch on delay, cyclic change over, time impulse released by rising edge with switch off delay - PCM-01, PCM-01/24V, PCM-01/U, PCM-02, PCM-02/24V, PCM-02/U, PCM-03, PCM-03/24V,PCM-03/U, PCP-03), two mode devices (switch off delay, switch on delay - PCM-06/U) and multifunctional devices (8, 10 or 25 operation modes - PCP-04, PCP-04/24V, PCM-04, PCM-04/24V, PCM-10, PCM-10/24V, PCM-07/U). Other possible group division is into one time adjustment or multi time adjustment range or into time relays without and with external release.

Time relay (switch on delay) PCM-01
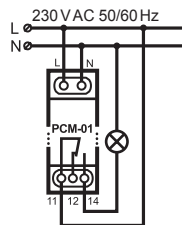
Features
- switch on delay function (reversible relay),
- release by means of supply voltage.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

## Time relay (switch on delay) PCM-01/24V
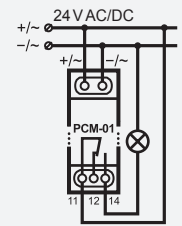
Features
- switch on delay function (reversible relay),
- release by means of supply voltage.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

Time relay (switch on delay) PCM-01/U
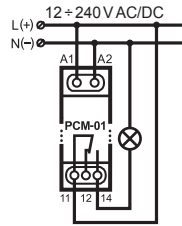
Features
- universal supply voltage: 12 ÷ 240 V AC / DC,
- switch on delay function (reversible relay),
- release by means of supply voltage.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

exta free

exta life

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expo

Technical data

Symbol:	PCM-01	PCM-01/24V	PCM-01/U
Nominal supply voltage:	230 V AC	24 V AC / DC	12 ÷ 240 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10%		-5 ÷ +10%
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	25 mA	36 mA	15 mA
Optical signalling of supply voltage:	green LED diode		
Optical signalling of relay status and time measuring:	red LED diode		
Operation mode number:	1 (switch on - delay)		
Time adjustment range:	0,1 sec. ÷ 10 days		
Time measuring accuracy:	0,2%		
Switch on time adjustment:	2 x potentiometer (rotary + step)		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		
Number of connection cables / terminals:	5		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,080 kg	0,070 kg	0,090 kg

PCM-01/24V - APPLICATION

Warning system before the motor starts up.

PCM-01/24V time relay works in the system where after pushing the START/STOP button a warning acoustic signal is heard to inform the motor is just to start up. This relay cooperates with PCM-04 in bistable relay mode with limited time (MODE=I), it enables to switch on/off the engine by means of one button as well as to set max possible working time.
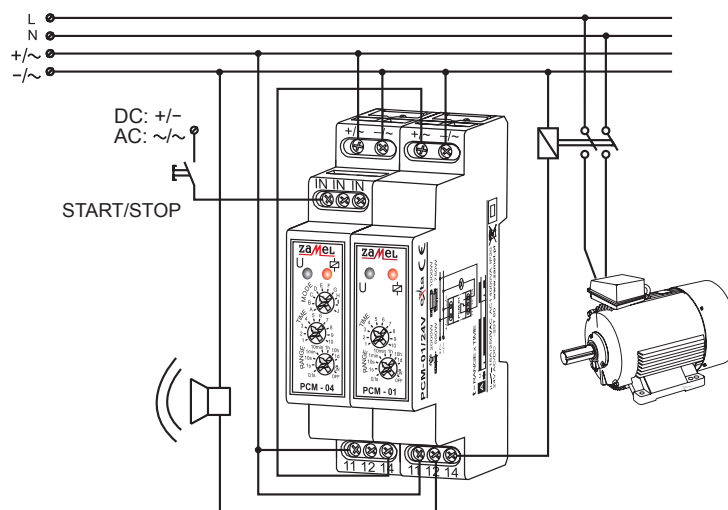
Time relay (switch off delay) PCM-02
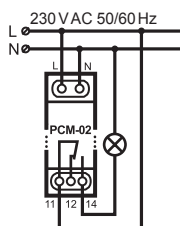
230 V AC 50/60 Hz

Features
- switch off delay (aversive relay),
- release by means of supply voltage.

Capacity

- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a 750 W AC5a

Time courses

Time relay (switch off delay) PCM-02/24V
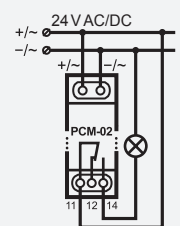
24 V AC/DC

Features
- switch off delay (aversive relay),
- release by means of supply voltage.

Capacity

- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a 750 W AC5a

Time courses

Time relay (switch off delay) PCM-02/U
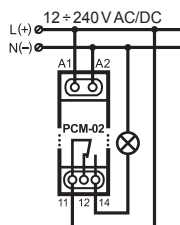
12 ÷ 240 V AC/DC

Features
- universal supply voltage:
  12 ÷ 240 V AC / DC,
- switch off delay (aversive relay),
- release by means of supply voltage.

Capacity

- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a 750 W AC5a

Time courses

Technical data

Symbol:	PCM-02	PCM-02/24V	PCM-02/U
Nominal supply voltage:	230 V AC	24 V AC / DC	12 ÷ 240 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10%		-5 ÷ +10%
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	25 mA	36 mA	15 mA
Optical signalling of supply voltage:	green LED diode		
Optical signalling of relay status and time measuring:	red LED diode		
Operation mode number:	1 (switch off - delay)		
Time adjustment range:	0,1 sec. ÷ 10 days		
Time measuring accuracy:	0,2%		
Switch on time adjustment:	2 x potentiometer (rotary + step)		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		
Number of connection cables / terminals:	5		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,080 kg	0,070 kg	0,090 kg

PCM-02 - APPLICATION

Time relay PCM-02 cooperates with WZM-01 twilight switch and SRM-10 roller blind controller and must generate an impulse after detecting twilight. This impulse is a signal for roller blind controllers (central closing input) to lower all roller blinds operating within one group.
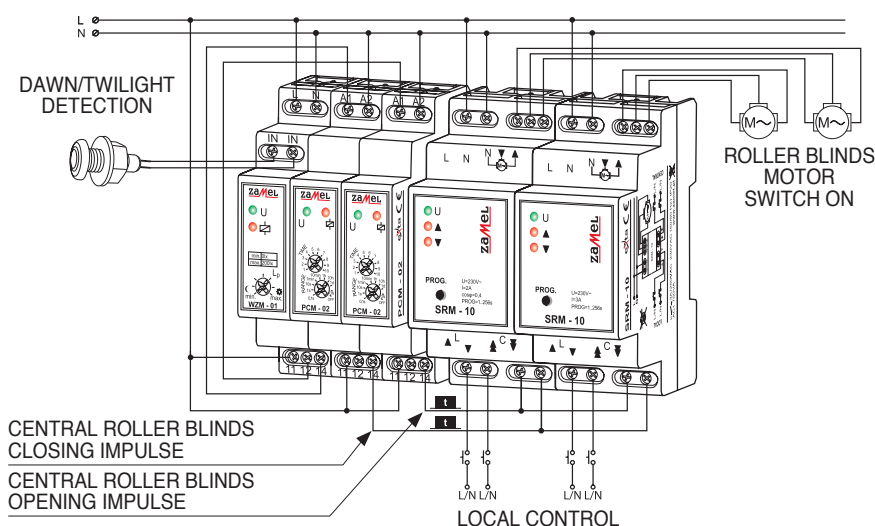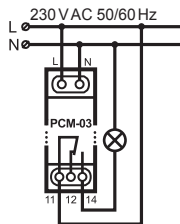
exta free
exta life
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gardi
ynsta
expo

Time relay (cyclic switch) PCM-03

230 V AC 50/60 Hz
L
N
L   N
PCM-03
11 12 14

Features
• cyclic switch ('switch off' start),
• release by means of supply voltage.

Capacity

- 2000 W AC5b   **LED** 250 W

- 500 W AC5a

1000 W AC5a   750 W AC5a

Time courses

C   U
    t t t t   t

Time relay (cyclic switch) PCM-03/24V

24 V AC/DC
+/~
−/~
+/~   −/~
PCM-03
11 12 14

Features
• cyclic switch ('switch off' start),
• release by means of supply voltage.

Capacity

- 2000 W AC5b   **LED** 250 W

- 500 W AC5a

1000 W AC5a   750 W AC5a

Time courses

C   U
    t t t t   t
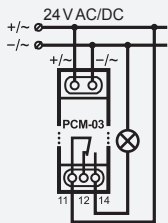
Time relay (cyclic switch) PCM-03/U
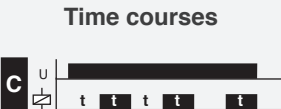
12 ÷ 240 V AC/DC
L (+)
N (−)
A1   A2
PCM-03
11 12 14
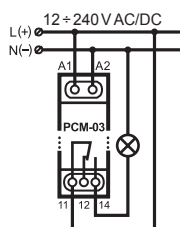
Features
• universal supply voltage:
  12 ÷ 240 V AC / DC,
• cyclic switch ('switch off' start),
• release by means of supply voltage.

Capacity

- 2000 W AC5b   **LED** 250 W

- 500 W AC5a

1000 W AC5a   750 W AC5a

Time courses

C   U
    t t t t   t

155

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	PCM-03	PCM-03/24V	PCM-03/U
Nominal supply voltage:	230 V AC	24 V AC / DC	12 ÷ 240 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10%		-5 ÷ +10%
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	25 mA	36 mA	15 mA
Optical signalling of supply voltage:	green LED diode		
Optical signalling of relay status and time measuring:	red LED diode		
Operation mode number:	1 (cyclic switch)		
Time adjustment range:	0,1 sec. ÷ 10 days		
Time measuring accuracy:	0,2%		
Switch on time adjustment:	2 x potentiometer (rotary + step)		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		
Number of connection cables / terminals:	5		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,080 kg	0,070 kg	0,090 kg

PCM-03 - APPLICATION

PCM-03 time relay operates as an IMPULSE GENER-ATOR FOR THE ALARM SYSTEM. It cooperates with flooding relay system PZM-10 and switches on cycli-cally the alarm system in case of water detection at the sensor mounting level.
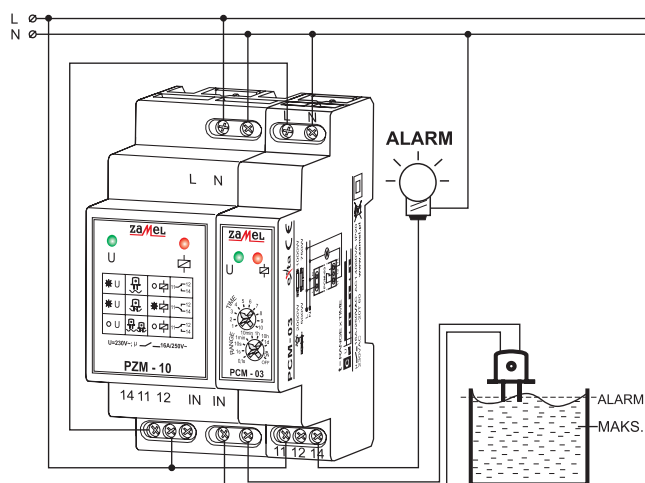
Time relay (multifunctional) PCM-04
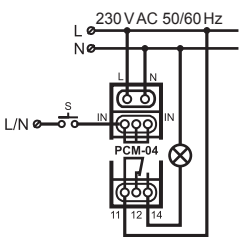
Features
- 10 operation modes,
- release by means of supply voltage,
- external release possible from line L or N.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Time relay (multifunctional) PCM-04/24V
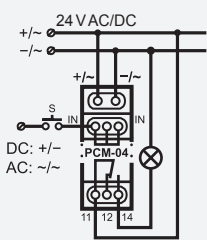
Features
- 10 operation modes,
- release by means of supply voltage,
- external release possible from line 24 V (AC) or from line + or - (DC).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Technical data

Symbol:	PCM-04	PCM-04/24V
Nominal supply voltage:	230 V AC	24 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	25 mA	36 mA
Optical signalling of supply voltage:	green LED diode	
Optical signalling of relay status and time measuring:	red LED diode	
Release control current:	510 µA	1,1 µA
Operation mode number:	10	
Time adjustment range:	0,1 sec. ÷ 10 days (step + fluent)	
Time measuring accuracy:	0,2%	
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA	
Number of connection cables / terminals:	8	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +60°C	
Casing protection degree:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 17,5 x 66 mm	
Weight:	0,080 kg	

exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

Operation modes of PCM-04

U	⊏⊐	Diode signal description
☀	O	Relay switched off, time is not counted down
☀	☀	Relay switched on, time is not counted down
☀	☼	Relay switched off, time is counted down
☀	☼	Relay switched on, time is counted down

Time t adjustment examples

TIME 8	RANGE 1d	t = TIME x RANGE, t = 8 x 1 d = 8 d
TIME 3	RANGE 1h	t = TIME x RANGE, t = 3 x 1 h = 3 h

Power supply voltage release:

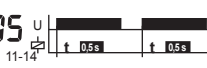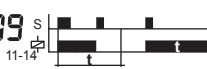| MODE A	A	SWITCH ON DELAY - after the supply voltage [U] has been applied the time measure t starts. After the time is over the relay switches on (pos. 11-14). The next switch on interval appears after power supply voltage reset.
MODE B	B	SWITCH OFF DELAY - after the supply voltage [U] has been applied, the output relay [R] switches on immediately (pos.11-14), and the adjusted time [t] is measured. After the adjusted time [t] has been measured, the output relay [R] returns to the initial state (pos.11-12).
MODE C	C	FLASHER STARTING WITH OFF - (Starting from the switch off position). After the supply voltage [U] has been applied, the preset time [t] measurement starts. After the time [t] is over, the relay switches on (pos.11-14) and the preset time [t] is measured once more. After the adjusted time [t] is over, the output relay [R] returns to the initial state (pos.11-12), and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.
MODE D	D	FLASHER STARTING WITH ON - (Starting from the switch on position). After the supply voltage [U] has been applied, the relay is switched on immediately (pos.11-14) and the adjusted time [t] measurement starts. After the time [t] is over, the relay switches off (pos.11-12) and the adjusted time [t] is measured once more. After the preset time [t] is over, the output relay [R] returns to the initial state, and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.
MODE E	E	DELAY IMPULSE GENERATION 0,5 sec. - after the supply voltage [U] has been applied the time measure t starts. After the time is over the relay switches on (pos. 11-14) for 0,5 sec., next the relay is switched off (pos.11-12). The next switch on interval appears after power supply voltage reset.

External signal release:

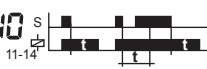| MODE F	F	GROWING MODULATED VOLTAGE VALUE – after the impulse release has been applied to the powered system (growing value) it switches on the relay (pos. 11-14), and starts to measure the adjusted time. After the time t is over the relay switches off (pos.11-12). Impulse time duration is not important here.
MODE G	G	FALLING MODULATED VOLTAGE VALUE - powered system switches on the relay after impulse release fades (pos. 11-14) and time measurement starts. The relay is switched off after time t is finished (pos. 11-12). The following time release fades during time measurement does not cause time measure starts from the beginning (no retriggerable).
MODE H	H	SWTCH ON/OFF DELAY - after the impulse release has been applied to the powered system (growing value) it leaves the relay in a switched off position (pos.11-12), the same, starts the adjusted time t measurement. After the time is over the relay is switched on (pos. 11-14). After the impulse release fade is detected (falling modulated voltage), the system starts the adjusted time measurement again after it is finished the relay is switched off (pos.11-12). In case impulse duration is longer than the adjusted time t the relay is switched on for the t time only.
MODE I	I	BISTABLE RELAY WITH TIME LIMIT - after the impulse release has been applied to the powered system (growing value) it switches on the relay (pos. 11-14), and starts to measure the adjusted time. The relay is switched off during the next impulse release (growing modulated voltage) or after time t is over if there was no such impulse occurrence. Impulse time duration is not important for system operating.
MODE J	J	GROWING MODULATED VOLTAGE VALUE WITH SWTCH OFF DELAY (RETRIGGERABLE) - after the impulse release has been applied to the powered system (growing value) it switches on the relay (pos. 11-14). After the impulse release fade is detected (falling modulated voltage), the system starts the adjusted time measurement again and when it is finished the relay is switched off (pos.11-12). In case impulse duration is longer than the adjusted time t the relay is switched on for the t time only.

PCM-04 - APPLICATION

PCM-01 time relay operates in a system where after pushing the START/STOP push button a warning acoustic signal is heard to inform the motor is just to start up. This relay cooperates with PCM-04 in bistable relay mode with limited time (MODE=I), due to the above there is a possibility to switch on / switch off the engine by means of one push button and to adjust a maximum permissible operation time.
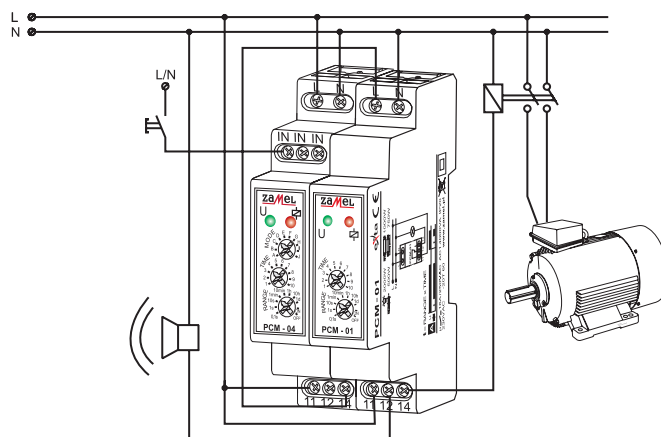
Time relay (delay switch on, delay switch off) PCM-06/U

12 ÷ 240 V AC/DC

L(+)
N(−)

A1 A2

24 21 22

14 11 12
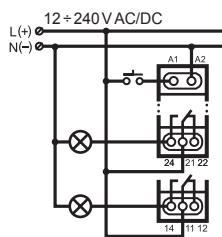
Features
- 2 operating modes (delayed switch on, delayed switch off),
- 2 output relays NO/NC,
- release by supply voltage,
- relay operation backup after power supply failure up to 10 min (A mode).

Capacity
- 1000 W AC5b
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a

LED 250 W

MODE A SWITCH OFF DELAY:

A U

t max 10min

MODE B SWITCH ON DELAY:

B U

t   t

After supply voltage of 12 ÷ 240 V AC/DC is applied to terminals A1-A2, the relay short circuits the contacts 11-14 and 21-24. After power supply failure the contacts remain shorted until timing circuit counts down time t. After the adjusted time is over the device sets itself in the initial position and the terminals 11-12 and 21-22 are short circuited whereas the terminals 11-14 and 21-24 are pulled apart.

After supply voltage of 12÷240 V AC/DC is applied to terminals A1-A2, the device starts measuring time t. When it is over the device shot circuits the terminals 11-14 and 21-24, and pulls apart terminals 11-12 and 21-22. The relay remains in this position until supply voltage failure. Then the terminals 11-14 and 21-24 will be pulled apart and terminals 11-12 and 21-22 will be short-circuited.

Time relay (digital, multifunctional) PCM-07/U

24 ÷ 250 V AC, 30 ÷ 300 V DC

L(+)
N(−)

A1 A2 S

IN

PCM-07

12 11 14   24 21 22
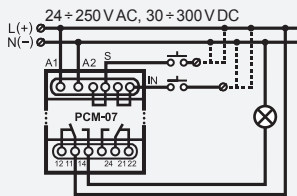
Features
- digital multimode time relay (25 operating modes),
- 2 adjustable operating time ranges,
- 2 control inputs: S (start) and IN (permanent switch on/ switch off function),
- external release possible from line L or N (AC) or from line + or - (DC),
- permanent switch on / switch off function.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Displayed elements and messages description:

On OFF - relay mode
🕐 - automatic mode
✋ - manual mode
▲ - external input S
▶ - external input IN
☀ - backlight   End - operating mode end

Pro6 - t1 and t2 time adjustment
MmodE - operating mode adjustment
L I6Ht - backlight (LCD illumination) level adjustment
InPut - permanent switch on / switch off input
wWA It - waiting for releasing signal
On OFF - switch on/switch off

OFF 🕐✋
wWA It ▶
P-07

PCM-07

🕐   OK
✋ ◀ ▶
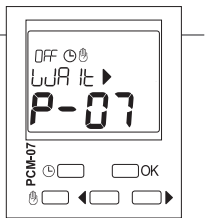
Push button description:

🕐 • main window – automatic mode entry,

✋ • main window – manual mode entry or relay mode change if the clock is already in the manual mode,

OK • main window – main menu entry,
   • different windows - submenu entry or adjusted value confirmation,

◀ ▶ • windows / options menu change or decreasing / increasing the adjusted value.

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	PCM-06/U	PCM-07/U
Nominal supply voltage:	12 ÷ 240 V AC / DC	24 ÷ 250 V AC, 30 ÷ 300 V DC
Nominal supply voltage tolerance:	-5 ÷ +10%	-15 ÷ +10%
Nominal frequency:	50 / 60 Hz	
Nominal current / power consumption:	6 mA	2 W / 14 VA
Optical signalling of supply voltage:	green LED diode	LCD display
Optical signalling of relay status and time measuring:	red LED diode	LCD display
Operation mode number:	2 (A, B)	25
Time adjustment range:	0,1 sec. ÷ 1 h (step + fluent)	-
Time adjustment range t1:	-	0,1 sec. ÷ 100 h
Time adjustment range t2:	-	0,1 sec. ÷ 100 h
Time measuring accuracy:	-	max. ± 3 sec. / 24 h for 25°C
Program battery backup:	-	10 years
Time measuring accuracy:	0,2%	-
Time adjustment accuracy:	5%	-
Relay contact parameters:	2 NO / NC 8 A / 250 V AC1 2000 VA	2 NO / NC 16 A / 250 V AC1 4000 VA
Number of connection cables / terminals:	8	12
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +60°C	
Casing protection degree:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 17,5 x 66 mm	90 x 35 x 66 mm
Weight:	0,072 kg	0,130 kg

PCM-06/U - APPLICATION

PCM-06/U relay operating in A mode keeps the voltage on the fan after power supply failure for the adjusted time - up to 10 minutes. In mode B the relay operates as a typical time delay with circuit switch on delay.

MODE A

12 ÷ 240 V AC/DC

MODE B

L(+)
N(-)
12 ÷ 240 V AC/DC
Main switch off
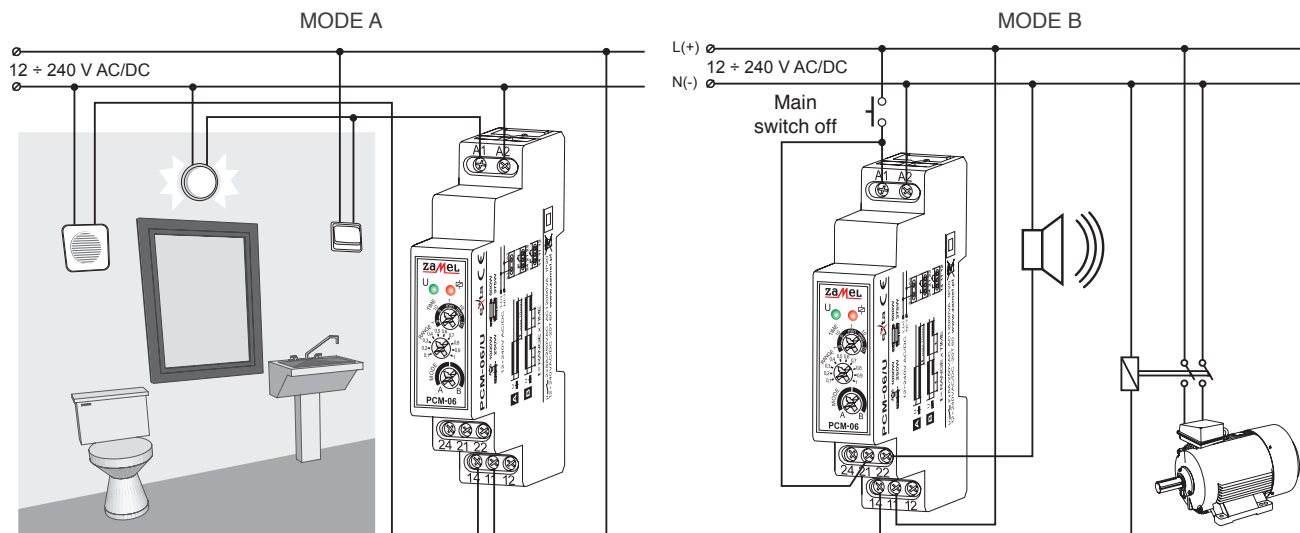
PCM-07/U Power supply voltage release:

for t 1

P-01 SWITCH ON DELAY - after the supply voltage has been applied the time t measuring starts. After the time is over the relay switches on (pos. 11-14). The next switch on interval appears after power supply voltage reset.

P-02 SWITCH OFF DELAY - after the supply voltage has been applied, the relay switches on immediately (pos.11-14), and the adjusted time t is measured. After the adjusted time is measured, the relay is switched off (pos.11-12). The next switch on interval appears after power supply voltage reset.

P-03 FLASHER STARTING WITH OFF – (Starting from the switch off position). After the supply voltage has been applied, the adjusted time t is measured. After the time is over, the relay switches on (pos. 11-14). Again with the adjusted time t interval, the relay is switched off (pos.11-12) and switched on (pos. 11-14). The next switch on interval appears after power supply voltage reset.

P-04 FLASHER STARTING WITH ON – (Starting from the switch on position). After the supply voltage has been applied, the relay is immediately switched on (pos. 11-14) the adjusted time t is measured. After the time t is over, the relay switches off (pos. 11-12). Again with the adjusted time t interval the relay is switched on (pos. 11-14) and switched off (pos. 11-12). The next switch on interval appears after power supply voltage reset.

P-05 IMPULSE GENERATOR DELAY 0,5 sec. - After the supply voltage has been applied the adjusted time t measuring starts. After the time t is over the relay switches on (pos. 11-14) for 0,5 second and switches off (pos. 11-12). The next switch on interval appears after power supply voltage reset.

PCM-07/U External signal S release:

for t 1

P-06 TIME IMPULSE RELEASED BY RISING EDGE – after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos. 11-14) and starts to measure the adjusted time. After the time t is over the relay is switched off (pos. 11-12). Impulse time duration is not important here.

P-07 TIME IMPULSE RELEASED BY FALLING EDGE – power- supply system switches on the relay after impulse release fades (falling edge) (pos.11-14) and time measurement starts. After time t is over the relay is switched off (pos. 11-12). The following impulse release fades during time measurement does not cause time measuring starts from the beginning (non- retriggerable).

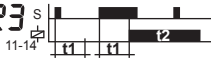**P-08** SWITCH ON/OFF DELAY – after the impulse release has been applied to the power-supply system (rising edge), it leaves the relay in a switched off position (pos.11-12) and at the same time starts the adjusted time t measurement. After the time is over the relay is switched on (pos.11-14). After the impulse release fade is detected (falling edge), again the system starts the adjusted time measurement. When it is over the relay is switched off (pos. 11-12). In case the impulse duration time is shorter than the adjusted time t, the relay is switched on only for time t.

P-09 BISTABLE RELAY WITH TIME LIMITER – after the impulse release has been applied to the power-supply system (rising edge), it switches on the relay (pos.11-14) and starts to measure the adjusted time t. The relay is switched off during the next impulse release (rising edge) or after time t is over in case there was no such impulse occurrence. Impulse time duration is not important for system operating.

**P-10** TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos.11-14). After the impulse release fade is detected (rising edge), the system starts the adjusted time t measurement and when the time is over the relay is switched off (pos. 11-12). The following impulse release fade during time measurement causes time measure from the beginning (retriggerable).

P-11 TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (non-retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos.11-14). After the impulse release fade is detected (falling modulated voltage), the system starts the adjusted time t measurement and when the time is over the relay is switched off (pos. 11-12).
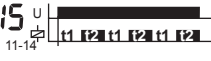
P-12 SWITCH ON DELAY RELEASED BY IMPULSE - after the impulse release has been applied to the power-supply system (rising edge) it keeps the relay in a switched off position (pos.11-12) and simultaneously starts the adjusted time t measurement. After the time t is over the relay is switched on (pos. 11-14). The relay is switched on as long as there is power supply voltage on, the next release impulses do not affect operation of the relay.

Operation modes of PCM-07/U

P- 13 SWITCH ON DELAY - after the supply voltage has been applied the t1 time measuring starts. After the time is over the relay switches on (pos. 11-14) for t2 time. The next switch on interval appears after power supply voltage reset.

P- 14 SWITCH OFF DELAY - after the supply voltage has been applied, the output relay switches on immediately (pos.11-14), and the adjusted time t1 is measured. After the adjusted time is over, the relay is switched off (pos.11-12) for the adjusted t2 time and it is switched on again. The next switch on interval appears after power supply voltage reset.

P- 15 FLASHER STARTING WITH OFF – (Starting from the switch off position). After the supply voltage has been applied, the adjusted time t1 is measured. After the time is over, the relay switches on (pos. 11-14) for the adjusted t2 time and again switches off (pos.11-12) for the adjusted t1 time. The next switch on interval appears after power supply voltage reset.

P- 16 FLASHER STARTING WITH OFF – (Starting from the switch on position). After the supply voltage has been applied, the output relay switches on immediately (pos.11-14) for the adjusted time t1. After the time is over, the relay is switched off (pos.11-12) for the adjusted t2 time and it is switched on for t1 time. The next (cyclic) switch on interval appears after power supply voltage reset.

P- 17 PERMANENT SWITCH ON MODE - After the supply voltage has been applied the relay is switched on permanently. When choosing this mode t1 and t2 time adjustments do not matter.

P- 18 PERMANENT SWITCH OFF MODE - After the supply voltage has been applied the relay is switched off permanently. When choosing this mode t1 and t2 time adjustments do not matter.

P- 19 SWITCH ON/OFF DELAY- (retriggerable) – after the impulse release has been applied to the power-supply system (rising edge), it leaves the relay switched off (pos. 11-12) and at the same time, starts the adjusted time t1 measurement. After the time is over the relay is switched on (pos. 11-14). After the impulse release fade is detected (falling modulated voltage), the system starts the adjusted t2 time measurement and after it is over the relay is switched off (pos. 11-12). In case the impulse release duration is shorter than the adjusted time t1, the relay is not switched on. Applying the impulse release during the adjusted t2 time measurement does not cause switching off the relay but it starts time measurement after the impulse fade (falling modulated voltage).

P- 20 SWITCH ON/OFF DELAY- (non-retriggerable) – after the impulse release has been applied to the power supply system (rising edge), it leaves the relay switched off (pos. 11-12), at the same time, starts the adjusted time t1 measurement. After the time is over the relay is switched on (pos. 11-14). After the impulse release fade is detected (falling modulated voltage), the system starts the adjusted time t2 measurement and after it is over the relay is switched off (po. 11-12).The release input state can change during the time t2 measurement and does not affect functioning of the system In case the impulse release duration is shorter than the adjusted time t1, the relay is not switched on.

P-21 IMPULSE GENERATION WITH AN ALTERNATE TIME DURATION - after the impulse release has been applied to the power-supply system (growing value), it switches on the relay for the adjusted time t1, and switches it off. The next impulse release causes the relay switches on for t2 time. Another one switches on the relay for t1 time, etc. The impulse release time duration does not influence the relay switching on time.

P-22 SWITCH OFF DELAY RELEASED BY FALLING EDGE - after the impulse release has been applied to the power-supply system, it switches on the relay (pos. 11-14). Impulse release fade causes the adjusted time t1 measurement, after it is over the relay is switched off (pos. 11-12) for the adjusted time t2. During the t2 time the system is resistant to signals' release. After the t2 time is over the relay is switched on again in the moment of applying impulse release (growing value).

P-23 TIME IMPULSE RELEASED BY IMPULSE WITH SPECIFIC TIME DURATION - after the impulse release has been applied and lasts continuously for the adjusted time t1, it switches on the relay (pos.11-14) for time t2. If the release impulse is shorter than the adjusted time t1, the relay is not switched on - during switching on the relay the releasing impulses are ignored.

P-24 STAR-DELTA SWITCH - after the supply voltage has been applied the relay 1 is switched on (pos. 11-14) for the adjusted time t1. After the time is over the relay is switched off and the adjusted time t2 is measured. After time t2 is over the relay 2 is switched on permanently (pos. 21-24).

P-25 TIME IMPULSE RELEASED BY TIME SPECIFIED IMPULSE - after the impulse release (lasting continuously for time t1) has been applied, it switches on the relay (pos. 11-14) for time t2. If the release impulse is shorter than time t1, the relay will not be switched on. During switching on the relay the release impulses are ignored.

Time relay motor start (star/delta) PCM-08

230 V AC 50/60 Hz
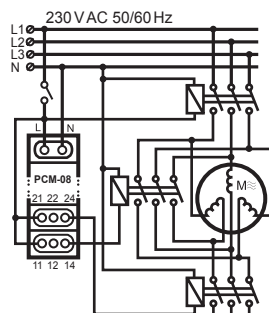
Time courses

Features
- starting time adjustment (STAR system),
- interval time adjustment of STAR to DELTA switching.
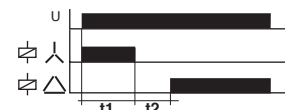
Digital time relay, universal, single module PCM-09

230 V AC 50/60 Hz
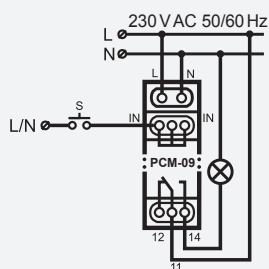
Features
- 26 different operating modes,
- independent setting of 3 operating times (on/off time and total time),
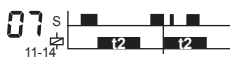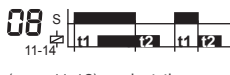- triggering via control signal or power supply voltage,
- 16 A NO/NC type relay,
- digital display,
- single module casing.

Time courses
available on sites 166-167

Capacity
- 2000 W AC5b
- 500 W AC5a
- **LED** 250 W
- 1000 W AC5a
- 750 W AC5a

Time relay (multifunctional) PCM-10
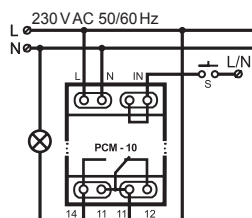
230 V AC 50/60 Hz

Features
- multifunctional time relay (10 operating modes),
- 2 adjustable operating time ranges,
- external release possible from line L or N,
- permanent switch on / switch off function.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
- **LED** 250 W

Time relay (multifunctional) PCM-10/24V
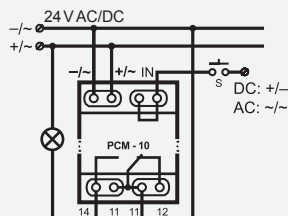
24 V AC/DC

Features
- multifunctional time relay (10 operating modes),
- 2 adjustable operating time ranges,
- external release possible from line L or N (AC) or + or – (DC),
- permanent switch on / switch off function.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
- **LED** 250 W
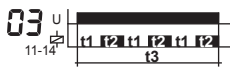
Technical data
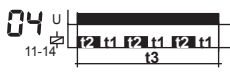
Symbol:	PCM-08	PCM-09	PCM-10	PCM-10/24V
Nominal supply voltage:	230 V / 400 V AC	230 V AC		24 V AC / DC
Nominal supply voltage tolerance:	-15 ÷ +10 %			
Nominal frequency:	50 / 60 Hz			
Nominal power consumption:	31 mA	13 mA	35 mA	36 mA
Optical signalling of supply voltage:	green LED diode			
Optical signalling of output relay status and time measuring:	red LED diode	coloured LED diode	red LED diode	
Release control current:	-	-	510 µA	900 µA
Operation mode number:	1	26	10	
LED Display:	-	double, 7 - segment, red	-	
Time adjustment range t1:	8 ÷ 250 ms	0,1 s ÷ 99 h 59 m 59,9 s	0,1 s ÷ 100 days (rotary potentiometer - step + fluent)	
Time adjustment range t2:	1 ÷ 1000 s	0,1 s ÷ 99 h 59 m 59,9 s	0,1 s ÷ ∞ (rotary potentiometer - step + fluent)	
Time adjustment range t3:	-	0,1 s ÷ 99 h 59 m 59,9 s	-	
Time measuring accuracy:	1 %	max. ±3 s / 24h at temp. of 25ºC	0,2 %	
Relay contact parameters:	2 NO / NC 10 A / 250 V AC1 2500 VA	1 NO / NC 16 A / 250 V AC1 4000 VA		
Number of connection cables / terminals:		8	8	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²			
Operating temperature range:	20 ÷ +60°C			
Casing protection degree:	IP20			
Protection class:	II			
Overvoltage category:	II			
Dimensions:	90 x 17,5 x 66 mm		90 x 35 x 66 mm	
Weight:	0,072 kg	0,080 kg	0,110 kg	
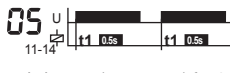
PCM-09 relay operation modes

01 SWITCH ON DELAY - after the supply voltage has been applied the time measure t1 starts. After the time is over the relay switches on (pos. 11-14). The next switch on interval appears after power supply voltage reset.

02 SWITCH OFF DELAY - after the supply voltage has been applied, the relay switches on immediately (pos.11-14), and the time t2 is measured. After the time is over the relay switches off (pos. 11-12). The next switch on interval appears after power supply voltage reset.

03 GENERATION OF THE DETERMINED NUMBER OF IMPULSES (starting from switch off) - after the supply voltage has been applied, the time measure t1 starts. After the time is over the relay switches on (pos. 11-14) for t2 time, after which the relay switches off. This sequence is repeated for time t3 and then the relay switches off.
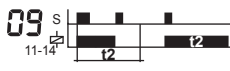
04 GENERATION OF THE DETERMINED NUMBER OF IMPULSES (starting from switch on) - after the supply voltage has been applied, the relay switches on immediately (pos. 11-14) and t2 time measure starts. After the time is over the relay switches off (pos. 11-12) for t1 time, after which the relay switches on again. This sequence is repeated for time t3 and then the relay switches off.
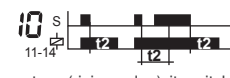
05 IMPULSE GENERATOR DELAY 0,5 sec. - after the supply voltage has been applied, the adjusted t1 time measure starts. After the time t is over, the relay switches on (pos. 11-14) for 0,5 second and switches off (pos. 11-12). The next switch on interval appears again after power supply voltage reset.
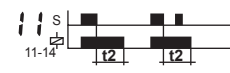
06 TIME IMPULSE RELEASED BY RISING EDGE – after the impulse release has been applied to the power supply system (rising edge) it switches on the relay (pos. 11-14) and starts to measure the adjusted time. After t2 time is over, the relay switches off (pos. 11-12). Impulse time duration is not important here.
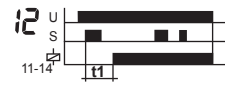
07 TIME IMPULSE RELEASED BY FALLING EDGE – power supply system switches on the relay after impulse release fades (falling edge) (pos. 11-14) and time measurement starts. After t2 time is over, the relay switches off (pos. 11-12). The following impulse release fades during time measurement does not cause time measuring start from the beginning (non-retriggerable).
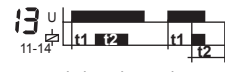
08 SWITCH ON/OFF DELAY – after the impulse release has been applied to the power supply system (rising edge), it leaves the relay in a switched off position (pos. 11-12) and at the same time starts the adjusted t1 time measurement. After the time is over the relay switches on (pos. 11-14). After the impulse release fade is detected (falling edge), again the system starts the adjusted t2 time measurement. When it is over the relay is switched off (pos. 11-12). In case the impulse duration time is shorter than the adjusted t1 time, the relay is switched on only for t2 time.
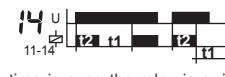
09 BISTABLE RELAY WITH TIME LIMITER – after the impulse release has been applied to the power-supply system (rising edge), it switches on the relay (pos. 11-14) and starts to measure the adjusted time t2. The relay is switched off during the next impulse release (rising edge) or after time t2 is over in case there was no such impulse occurrence. Impulse time duration is not important for system operating.

10 TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos.11-14). After the impulse release fade is detected (rising edge), the system starts the adjusted time t2 measurement and when the time is over the relay is switched off (pos. 11-12). The following impulse release fade during time t2 measurement causes time measure from the beginning (retriggerable).

11 TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (non-retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos. 11-14). After the impulse release fade is detected (rising edge), the system starts the adjusted time t2 measurement and when the time is over the relay is switched off (pos. 11-12).

12 SWITCH ON/OFF DELAY BY IMPULSE – after the impulse release has been applied to the power supply system (rising edge), it leaves the relay in a switched off position (pos. 11-12) and at the same time starts the adjusted t1 time measurement. After the time is over the relay switches on (pos. 11-14). The relay is switched on as long as there is power supply voltage is on, the next release impulses do not affect operation of the relay.

13 SWITCH ON DELAY - after the supply voltage has been applied the t1 time measuring starts. After the time is over the relay switches on (pos. 11-14) for t2 time. The next switch on interval appears after power supply voltage reset.

14 SWITCH OFF DELAY - after the supply voltage has been applied, the relay switches on immediately (pos. 11-14), and the time t2 is measured. After the adjusted time is over, the relay is switched off (pos. 11-12) for the adjusted t2 time and it is switched on again. The next switch on interval appears after power supply voltage reset.

15 FLASHER STARTING WITH OFF – (Starting from the switch off position) - after the supply voltage has been applied, the adjusted time t1 is measured. After the time is over, the relay switches on (pos. 11-14) for the adjusted t2 time and again switches off (pos. 11-12) for the adjusted t1 time. The (cyclic) switch on interval appears until the supply voltage is switched off.
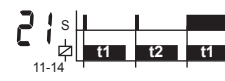
16 FLASHER STARTING WITH OFF – (Starting from the switch on position) - after the supply voltage has been applied, the output relay switches on immediately (pos. 11-14) for the adjusted time t2. After the time is over, the relay is switched off (pos. 11-12) for the adjusted t1 time and it is switched on for t2 time. The (cyclic) switch on interval appears until the supply voltage is switched off.
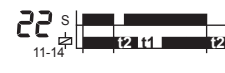
17 PERMANENT SWITCH ON MODE - after the supply voltage has been applied the relay is switched on permanently. When choosing this mode t1, t2 and t3 time adjustments do not matter.

18 PERMANENT SWITCH OFF MODE - After the supply voltage has been applied the relay is switched off permanently. When choosing this mode t1, t2 and t3 time adjustments do not matter.

19 SWITCH ON/OFF DELAY (retriggerable) – after the impulse release has been applied to the power supply system (rising edge), it leaves the relay in a switched off position (pos. 11-12) and at the same time starts the adjusted t1 time measurement. After the time is over the relay switches on (pos. 11-14). After the impulse release fade is detected (falling edge), again the system starts t2 time measurement. When it is over the relay is switched off (pos. 11-12). In case the release impulse duration time is shorter than the adjusted t1 time, the relay is not switched on. Applying the impulse release during the adjusted t2 time measurement does not cause switching off the relay, but it starts time measurement after the impulse fade (falling edge).

20 SWITCH ON/OFF DELAY (non-retriggerable) – after the impulse release has been applied to the power supply system (rising edge), it leaves the relay in a switched off position (pos. 11-12) and at the same time starts the adjusted t1 time measurement. After the time is over the relay switches on (pos. 11-14). After the impulse release fade is detected (falling edge), again the system starts t2 time measurement. When it is over the relay is switched off (pos. 11-12). The release input state can change during the time t2 measurement and does not affect functioning of the system. In case the impulse release duration is shorter than the adjusted time t1 the relay is not switched on.

21 IMPULSE 0 GENERATION WITH AN ALTERNATE TIME DURATION - after the impulse release has been applied to the power-supply system (raising edge), it switches on the relay for the time t1, and switches it off. The next impulse release causes the relay switches on for t2 time. Another one switches on the relay for t1 time, etc. The impulse release time duration does not influence the relay switching on time.

22 SWITCH OFF DELAY RELEASED BY FALLING EDGE - after the impulse release has been applied to the power-supply system, it switches on the relay (pos. 11-14). Impulse release fade causes the adjusted time t2 measurement, after it is over the relay is switched off (pos. 11-12) for the adjusted time t1. During the t1 time the system is resistant to signals' release. After the t1 time is over the relay is switched on again at the moment of applying impulse release (raising edge).

165

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

23 — TIME IMPULSE RELEASED BY IMPULSE 0 WITH SPECIFIC TIME DURATION - after the impulse release has been applied and lasts continuously for the adjusted time t1, it switches on the relay (pos. 11-14) for time t2. If the release impulse is shorter than the adjusted time t, the relay is not switched on. During switching on the relay, the releasing impulses are ignored.

24 — TIME IMPULSE RELEASED BY RISING AND FALLING EDGE - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos. 11-14) for time t1, after that time is over, the relay is switched off. Impulse release fade (falling edge) switches on the relay (pos. 11-14) for time t2, after that time is over it is switched off. During switching on the relay, the rising and falling edges are ignored.

25 — GENERATION OF THE DETERMINED NUMBER OF IMPULSES (starting from switch off) - after the release impulse has been applied to the supplied system (raising edge), t1 time measure starts. After the time is over the relay switches on (pos. 11-14) for t2 time, after which the relay switches off. This sequence is repeated for time t3 and then the relay switches off. During measuring t3 time, the release impulses are ignored.

26 — GENERATION OF THE DETERMINED NUMBER OF IMPULSES (starting from switch on) - after the release impulse has been applied to the supplied system (raising edge), it switches on the relay (pos. 11-14) and t1 time measure starts. After the time is over the relay switches off (pos. 11-12) for t1 time, after which the relay switches on again. This sequence is repeated for time t3 and then the relay switches off. During measuring t3 time, the release impulses are ignored.

Operation modes of PCM-10

Power supply voltage release:

Mode		Description
A	A	SWITCH ON DELAY - after the supply voltage has been applied the t1 time measuring starts. After the time is over the relay switches on for t2 time (pos. 11-14). The next switch on interval appears after power supply voltage reset.
B	B	SWITCH OFF DELAY - after the supply voltage has been applied, the output relay switches on immediately (pos.11-14), and the adjusted time t1 is measured. After the adjusted time is measured, the relay is switched off (pos.11-12) for t2 time and it is switched on again. The next switch on interval appears after power supply voltage reset.
C	C	FLASHER STARTING WITH OFF - (Starting from the switch off position). After the supply voltage has been applied, the adjusted time t1 is measured. After the time is over, the relay switches on (pos.11-14) for t2 time and it switches off again for t1 time (pos.11-12). The next switch on interval appears after power supply voltage reset.
D	D	FLASHER STARTING WITH ON - (Starting from the switch on position). After the supply voltage has been applied, the relay is switched on immediately (pos.11-14) for time t1. After the time is over, the relay switches off (pos.11-12) for t2 time and it is switched on again for t1 time. The next switch on interval appears after power supply voltage reset.
ON	ON	PERMANENT SWITCH ON MODE - After the supply voltage has been applied the relay is switched on permanently. When choosing the mode t1 and t2 time adjustment does not matter.
OFF	OFF	PERMANENT SWITCH OFF MODE - After the supply voltage has been applied the relay is switched off permanently. When choosing the mode t1 and t2 time adjustment does not matter.

External signal release:

Mode		Description
E	E	SWITCH ON/OFF DELAY - (retriggerable) after the impulse release has been applied to the powered system (growing value) it leaves the relay in a switched off position (pos.11-12) and starts the adjusted time t1 measurement. After the time is over the relay is switched on (pos. 11-14). After the impulse release fade is detected (falling modulated voltage), the system starts the adjusted t2 time measurement and after it is finished the relay is switched off (pos.11-12). In case impulse duration is longer than the adjusted time t1 the relay is not switched on. Applying impulse release during the adjusted t2 time measurement does not cause switching off the relay but it starts time measurement after the impulse fade (falling modulated voltage).
F	F	SWITCH ON/OFF DELAY - (non-retriggerable) - after the impulse release has been applied to the powered system (growing value) it leaves the relay in a switched off position (pos.11-12) and starts the adjusted time t1 measurement. After the time is over the relay is switched on (pos. 11-14). After the impulse release fade is detected (falling modulated voltage), the system starts the adjusted t2 time measurement and after it is finished the relay is switched off (pos.11-12). Release input state can change during the time t2 measurement and does not influence system functioning. In case impulse duration is shorter than the adjusted time t1 the relay is not switched on.
G	G	IMPULSE GENERATION WITH AN ALTERNATE TIME DURATION - powered system switches on the relay after impulse release (growing value) and switches on the relay for t1 time, and then switches it off. The next impulse release causes the relay switches on for t2 time. Another one switches on the relay for t1 time, etc. The impulse release time duration does not influence switches on relay time.
H	H	SWITCH OFF DELAY RELEASED BY FALLING MODULATED VOLTAGE - powered system switches on the relay after impulse release (pos.11-14). Impulse release fade causes adjusted t1 time measurement starts, after it is over the relay is switched off for t2 time (pos. 11-12). During t2 time the system is resistant to signals release. After the t2 time is finished the relay is switched on again in the moment of applying impulse release (growing value).

Simulation modes:

In order to cause simulation mode, one of the release terminals (IN) with L or N line must be externally connected. Simulation mode can operate in MODE=C or MODE=D cycle. Time courses analogical to C and D mode. RANGE must be adjusted for every t1 and t2 time whereas multiplier (TIME) is changed (randomly) by the system.

Time relay (2 time settings) PCM-11

230 V AC 50/60 Hz

L

N

PCM-11

12 11   14
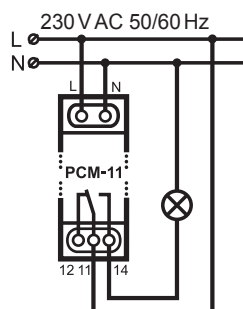
Features
- possibility to set independent switching on and off times,
- wide range of time settings from 0,1 s to 10 days,
- permanent switch on and switch off function,
- possibility to generate impulse of defined duration,
- mounting on TH-35 rail - 1 module device,
- NO/NC type relay with a maximum load capacity of 16 A.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
- **LED** 250 W

Technical data

Symbol:	PCM-11
Nominal supply voltage:	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10 %
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	10 mA
Number of operation mode:	5
Time adjustment range t1:	0,1 s ÷ 10 days
Time adjustment range t2:	0,1 s ÷ 10 days
Time measuring accuracy:	± 3 sec. / 24 h for 25°C
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA
Number of connection cables / terminals:	5
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²
Operating temperature range:	-10 ÷ +55°C
Casing protection degree:	IP20
Overvoltage category:	II
Dimensions:	90 x 17,5 x 66 mm
Weight:	0,076 kg

t1 = RANGE 1 x TIME 1
t2 = RANGE 2 x TIME 2

CYCLIC SWITCHING (from the switch on operation) — once the supply voltage has been applied to the inputs, the relay switches on immediately (make outputs 11-14), and t2 countdown begins. Afterwards the time relay is switched OFF (make outputs 11-12) for the duration of t1, after which the time relay is ON again (make outputs 11-14). This cycle is repeated until the supply voltage is isolated.

CONTINUOUS SWITCH ON MODE — once the supply voltage has been applied, the time relay remains switched ON (make outputs 11-14). The settings of t1 and t2 are ignored when enabling this operating mode.

CONTINUOUS SWITCH OFF MODE — once the supply voltage has been applied, the time relay remains switched OFF (make outputs 11-12). The settings of t1 and t2 are ignored when enabling this operating mode.

t1 = RANGE 1 x TIME 1

DELAYED SWITCH ON — once the supply voltage has been applied to the inputs, t1 countdown begins. When the time is counted down to zero, the time relay is ON (make outputs 11-14). The current mode starts again when the power supply voltage is cycled.

t1 = RANGE 1 x TIME 1
t2 = 1 s x TIME 2

DELAYED PULSE GENERATION — once the supply voltage has been applied to the inputs, t1 countdown begins. When the time is counted down to zero, the time relay is ON (make outputs 11-14) for the duration of t2. The cycle is repeated when the supply voltage is cycled.

Examples of time t settings

t = TIME x RANGE,

t = 8 x 1 d = 8 d

t = TIME x RANGE,

t = 3 x 1 h = 3 h

Time relay (multifunctional) PCP-04
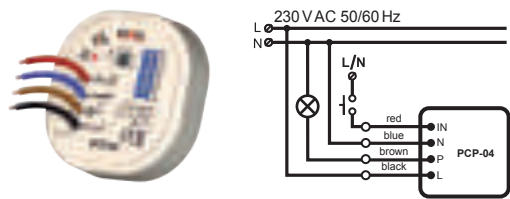
230 V AC 50/60 Hz
L
N
L/N
red IN
blue N
brown P
black L
PCP-04

Features
- multifunctional time relay (8 operation modes),
- external release possible from line L or N,
- flush casing mounting (junction box Ø60 mm).

Capacity
- 375 W AC5b
- 90 W AC5a
- 180 W AC5a
- 150 W AC5a
- **LED** 60 W

Time relay (multifunctional) PCP-04/24V
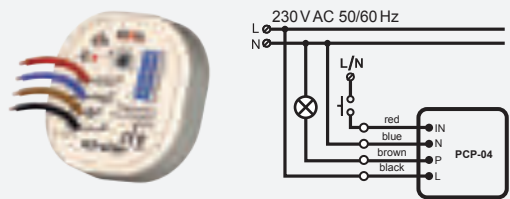
230 V AC 50/60 Hz
L
N
L/N
red IN
blue N
brown P
black L
PCP-04

Features
- multifunctional time relay (8 operation modes),
- external release possible from line L or N (AC) or + or - (DC),
- flush casing mounting (junction box Ø60 mm).

Capacity
- 375 W AC5b
- 90 W AC5a
- 180 W AC5a
- 150 W AC5a
- **LED** 60 W

Time relay (delayed contact closure) PCP-06

230 V AC 50 Hz
L
N
red IN
blue N
brown P
black L
M
PCP-06
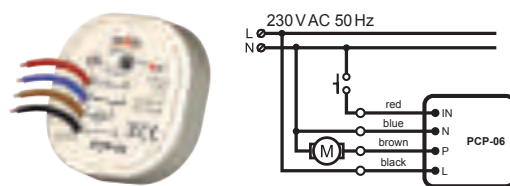
Features
- mounting in junction box directly under the switch,
- maintaining the power supply for a preset period of time,
- bathroom fan control - the fan operates for a preset period of time after switching off the lighting.
-

Time courses

Capacity
- 375 W AC5b
- 90 W AC5a
- 180 W AC5a
- 150 W AC5a
- **LED** 60 W

Technical data

Symbol:	PCP-04	PCP-04/24V	PCP-06
Nominal supply voltage:	230 V AC	24 V AC / DC	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	15,5 mA	20 mA	10,5 mA
Optical signalling of supply voltage:	red LED diode		-
Release control current:	510 µA	900 µA	-
Operation mode number:	8		-
Time adjustment range:	0,1 sec. ÷ 10 days (rotary potentiometer - step + fluent)		10 s ÷ 16 min
Time measuring accuracy:	0,2%		±10%
Relay contact parameters:	1 NO 5 A / 250 V AC1 1250 VA (voltage contact)		5 A / 250 V AC1 1250 VA
Number of connection cables / terminals:	4		4
Cross-section of the connecting cables:	1 mm²		
Operating temperature range:	-20 ÷ +60°C		-20 ÷ +45°C
Casing protection degree:	IP20		
Protection class:	II		-
Overvoltage category:	II		
Dimensions:	50 x 50 x 15 mm		50 x 50 x 18 mm
Weight:	0,030 kg		0,029 kg

Operation modes of PCP-04, PCP-04/24V
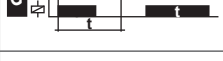
Multiplier:

0,1 sec.   1 sec.   10 sec.   1 min
10 min   1 h   10 h   1 day

Power supply voltage release:

A SWITCH ON DELAY - after the supply voltage has been applied the time t measuring starts. After the time is over the relay switches on. The next switch on interval appears after power supply voltage reset.

B SWITCH OFF DELAY - after the supply voltage has been applied, the output relay switches on immediately, and the adjusted time t is measured. After the adjusted time t has been measured, the output relay returns to the initial state.

C FLASHER STARTING WITH OFF - (Starting from the switch off position). After the supply voltage has been applied, the adjusted time measurement starts. After the time t is over, the relay switches on and the preset time t is measured once more. After the preset time t is over, the output relay returns to the initial state, and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.

External signal release:

D TIME IMPULSE TRIGGERED WITH RISING EDGE – when supplied, the module will switch on the relay when trigger impulse rising edge comes. Then the adjusted time will be measured. When t time is over, the relay will be switched off. Trigger impulse duration is irrelevant.

E TIME IMPULSE TRIGGERED WITH TRAILING EDGE – when supplied, the module will switch on the relay when trigger impulse trailing edge comes. Then the adjusted time will be measured. When t time is over, the relay will be switched off. Successive trigger impulse decays during t time duration will not cause time counting reset (non-retriggerable circuit).

F DELAYED SWITCHING ON / OFF – when supplied, the module will not switch on the relay and will start t time measuring when trigger impulse rising edge comes. When t time is over, the relay will be switchedon, t time will be counted once again when trigger impulse trailing edge comes. When t time is over, the relay will be switched off. If the impulse duration is shorter than time t, the relay will be switched on for t time only.

G BISTABLE RELAY WITH TIME LIMITER – when supplied, the module will switch on the relay and start t time measuring when trigger impulse rising edge comes. The relay will be switched off when the next trigger impulse rising edge comes or after t time has been over if the trigger impulse does not come. The impulse duration is irrelevant for the circuit operation.

H TIME IMPULSE TRIGGERED WITH RISING EDGE WITH DELAYED SWITCH OFF (retrigerrable) – when supplied, the module will switch on the relay when trigger impulse rising edge comes. When trigger impulse trailing edge comes, t time will be measured and when the time is over, the relay will be switched off. Successive trigger impulse trailing edge will cause time t counting reset and measure from the beginning (retrigerrable).

Digital time programmers are used to realize time functions in automation and control systems. They are available in 1 or 2-channel version and in two versions of supply voltage: 230 V AC and 24 ÷ 250 V AC and 30 ÷ 300 V DC. Weekly digital programmable time relays (1 or 2-channel) ZCM-11, ZCM-11/U, ZCM-12, ZCM-12/U realize the function of control depending on time adjustment in day or week mode. Annual digital programmable time relays ZCM-21, ZCM-21/U - realize the function of control depending on current date and astronomical time relays ZCM-31, ZCM-32, ZCM-31P/U and ZCM-32P/U realize the function of control depending on sunset and sunrise time, on coordinates of the relay place, on current date, and on time shift, additionally they have the function of a "night break" and they match the device operation to its installation place by giving the coordinates or time zone. Models labelled with "P" symbol are equipped with additional external memory that makes programming easier.

1-channel, weekly digital time programmer ECONO ZCM-11E
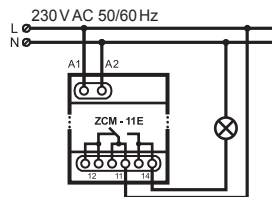
Features
- control depending on current time in day and week mode,
- 400 operating modes (200 pairs ON / OFF),
- 16 combinations of weekdays division,
- impulse mode operation (impulse from 1 to 99 sec.),
- random mode operation,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
- **LED** 250 W
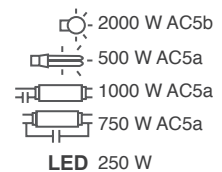
1-channel, weekly digital time programmer ZCM-11
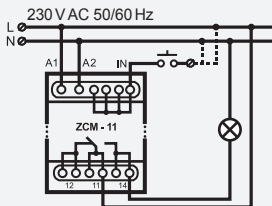
Features
- control depending on current time in day and week mode,
- 400 operating modes (200 pairs ON / OFF),
- 16 combinations of weekdays division,
- impulse mode operation (impulse from 1 to 99 sec.),
- random mode operation,
- external control input independently programmed,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
- **LED** 250 W
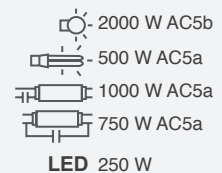
1-channel, weekly digital time programmer ZCM-11P/U
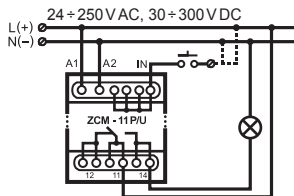
Features
- universal supply voltage: 24 ÷ 250 V AC, 30 ÷ 300 V DC,
- control depending on current time in day and week mode,
- 400 operating modes (200 pairs ON / OFF),
- 16 combinations of weekdays division,
- impulse mode operation (impulse from 1 to 99 sec.),
- random mode operation,
- external control input independently programmed,
- a possibility to copy the programmes set in the clock to the external memory for an easy transfer to other programmers,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
- **LED** 250 W

171

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo
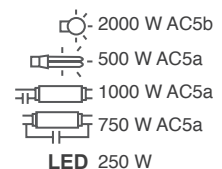
Technical data

Symbol:	ZCM-11E	ZCM-11	ZCM-11P/U
Nominal supply voltage:	230 V AC		24 ÷ 250 V AC, 30 ÷ 300 V DC
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	1,45 W	2 W	
Number of channels:	1		
Number of programmes:	400 (200 pairs ON / OFF)		
Programme mode:	daily, weekly		
Operation mode:	manual, automatic, random, impulse		
Summer/winter time change:	automatic, manual		
External memory:	no		yes
LCD display backlight colour:	-	amber	
External input:	yes		
Time measuring accuracy:	max. ± 1 sec. / 24 h for 25°C		
Clock battery backup:	3 years		
Program battery backup:	10 years		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		
Number of connection cables / terminals:	8	12	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 35 x 66 mm		
Weight:	0,140 kg		

Displayed elements and messages description:

Mo Tu We Th Fr Sa Su - days of the week   dAY - day, YEAR - year

On OFF - relay mode   ProG - program setting

🕐 - automatic mode   tim E - actual time setting and summer/winter time change

👆 - manual mode   dAtE - current date setting

⊠ - random mode   rAnd - random mode setting

▲ - impulse mode   InPut - external input setting

▶ - external input   PULSE - impulse mode setting

❄ - winter time   Auto - automatic, USEr - user

☀ - summer time   On OFF - switch on/switch off

Push button description

🕐 • main window – automatic mode entry or relay status change, if programmer is already in the automatic mode;

    • main window (3 seconds) – random mode entry / exit,

    • random mode – randomizing active/inactive manual change;

    • other windows – exit to the upper level without saving changes;

👆 • main window – manual mode entry or relay status change, if programmer is already in the manual mode;

    • random mode – relay status change and randomizing switch off;

    • other windows - exit to the upper level without saving changes;

OK • main window – main menu entry;

    • other windows – submenu entry or confirmation of the adjusted value;

◀ ▶ • windows / options menu change or decreasing / increasing the adjusted value.

## 2-channel, weekly digital time programmer ZCM-12
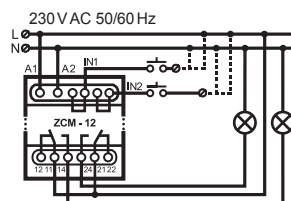
Features
- control depending on current time in day and week mode,
- 2 independent output channels (relays),
- 400 operating modes (200 pairs ON / OFF),
- 16 combinations of weekdays division,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

2-channel, weekly digital time programmer ZCM-12P/U
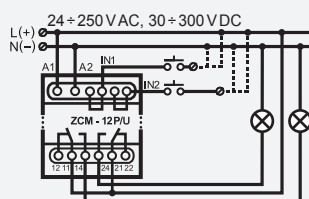
Features
- universal supply voltage: 24 ÷ 250 V AC, 30 ÷ 300 V DC,
- control depending on current time in day and week mode,
- 2 independent output channels (relays),
- 400 operating modes (200 pairs ON / OFF),
- 16 combinations of weekdays division,
- a possibility to copy the programmes set in the clock to the external memory for an easy transfer to other programmers,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Technical data

Symbol:	ZCM-12	ZCM-12P/U
Nominal supply voltage:	230 V AC	24 ÷ 250 V AC, 30 ÷ 300 V DC
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	1,45 W	2 W
Number of channels:	2	
Number of programmes:	200 + 200 (100 pairs ON / OFF per channel)	
Programme mode:	daily, weekly	
Operation mode:	manual, automatic, random, impulse	
Summer/winter time change:	automatic, manual	
External memory:	no	yes
LCD display backlight colour:	amber	
External input:	yes	
Time measuring accuracy:	max. ± 1 sec. / 24 h for 25°C	
Clock battery backup:	3 years	
Program battery backup:	10 years	
Relay contact parameters:	2 NO / NC 16 A / 250 V AC1 4000 VA	
Number of connection cables / terminals:	12	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +60°C	
Casing protection degree:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 35 x 66 mm	
Weight:	0,140 kg	

Displayed elements and messages description:

Mo Tu We Th Fr SA Su - days of the week
On OFF - relay mode
🕐 - automatic mode
👆 - manual mode
⊠ - random mode
▲ - impulse mode
▶ - external input
❄ - winter time
☀ - summer time
ch-1 ch-2 - channel

dAY - day, YEAR - year
Prog - program setting
timE - actual time setting and summer/winter time change
dAtE - current date setting
PULSE - impulse mode setting
InPut - external input setting
rAnd - random mode setting
Auto - automatic, USEr - user
On OFF - switch on/switch off

Push button description

🕐 • main window – automatic mode entry or relay status change, if programmer is already in the automatic mode;
  • main window (3 seconds) – random mode entry / exit,
  • random mode – randomizing active/inactive manual change;
  • other windows – exit to the upper level without saving changes;

👆 • main window – manual mode entry or relay status change, if programmer is already in the manual mode;
  • random mode – relay status change and randomizing switch off;
  • other windows - exit to the upper level without saving changes;

OK • main window – main menu entry;
  • other windows – submenu entry or confirmation of the adjusted value;

◀ ▶ • windows / options menu change or decreasing / increasing the adjusted value.

1-channel, annual digital time programmer ZCM-22
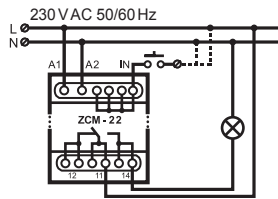
230 V AC 50/60 Hz

L
N

A1 A2 IN

ZCM - 22

12 11 14

Features
- control depending on current time in year mode (including hours),
- 400 operating modes (200 pairs ON / OFF),
- LCD display backlight,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).
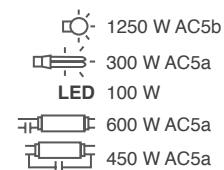
Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

1-channel, annual digital time programmer ZCM-22P/U
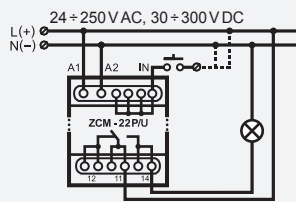
24 ÷ 250 V AC, 30 ÷ 300 V DC

L (+)
N (−)

A1 A2 IN

ZCM - 22P/U

12 11 14

Features
- universal supply voltage: 24 ÷ 250 V AC, 30 ÷ 300 V DC,
- control depending on current time in year mode (including hours),
- 400 operating modes (200 pairs ON / OFF),
- a possibility to copy the programmes set in the clock to the external memory for an easy transfer to other programmers,
- LCD display backlight,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

175

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	ZCM-22	ZCM-22P/U
Nominal supply voltage:	230 V AC	24 ÷ 250 V AC, 30 ÷ 300 V DC
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	1,45 W	2 W
Number of channels:	1	
Number of programmes:	400 (200 pairs ON / OFF)	
Programme mode:	daily, weekly	
Operation mode:	manual, automatic	
Summer/winter time change:	manual, automatic	
External memory:	no	yes
LCD display backlight colour:	amber	
External input:	yes	
Time measuring accuracy:	max. ± 1 sec. / 24 h for 25°C	
Clock battery backup:	3 years	
Program battery backup:	10 years	
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA	
Number of connection cables / terminals:	12	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +60°C	
Casing protection degree:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 35 x 66 mm	
Weight:	0,140 kg	

Displayed elements and messages description:

Mo Tu We Th Fr SA Su - days of the week
On OFF - relay mode
🕑 - automatic mode
✋ - manual mode
▶ - external input
❄ - winter time
☀ - summer time

dAY - day, YEAR - year
Pro6 - program setting
ti m E - actual time setting and summer/winter time change
dAtE - current date setting
InPut - external input setting
Auto - automatic, USEr - user
On OFF - switch on/switch off
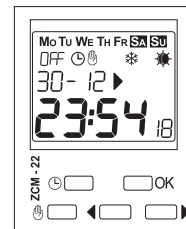
Push button description:

🕑 • main window – automatic mode entry or relay status change, if programmer is already in the automatic mode;
  • other windows – exit to the upper level without saving changes;

✋ • main window – manual mode entry or relay status change, if programmer is already in the manual mode;
  • other windows - exit to the upper level without saving changes;

OK • main window – main menu entry,
  • different windows - submenu entry or adjusted value confirmation,

◀ ▶ • windows / options menu change or decreasing / increasing the adjusted value.

1-channel, astronomical digital time programmer ZCM-31
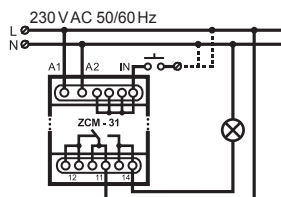
Features

- control depending on sunrise and sunset time including coordinates of the relay place, current date and time shift according to the universal time
- programmable "night break",
- entry of coordinates or time zone of the digital time programmer installation place,
- manual shift possibility of calculated sunrise and sunset time,
- external control input independently programmed,
- LCD display backlight,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity

- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a
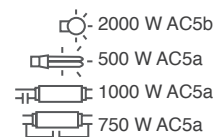
LED 250 W

1-channel, astronomical digital time programmer ZCM-31P/U
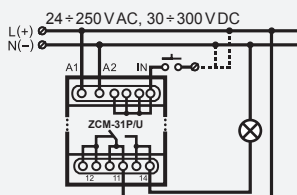
Features

- universal supply voltage: 24 ÷ 250 V AC, 30 ÷ 300 V DC,
- control depending on sunrise and sunset time including coordinates of the relay place, current date and time shift according to the universal time
- programmable "night break",
- entry of coordinates or time zone of the digital time programmer installation place,
- manual shift possibility of calculated sunrise and sunset time,
- external control input independently programmed,
- LCD display backlight,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity

- 2000 W AC5b
- 500 W AC5a
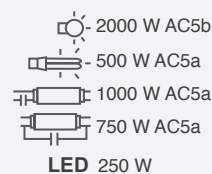- 1000 W AC5a
- 750 W AC5a
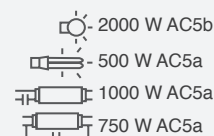
LED 250 W

2-channel Wi-Fi multifunctional digital time programmer ZCM-42
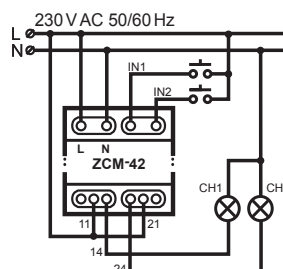
Features

- control depending on sunrise and sunset time including coordinates of the programmer place, current date and time shift according to the universal time,
- 2 independent input and output channels,
- parameter setting by website – by Wi-Fi module,
- manual shift possibility of calculated sunrise and sunset time,
- battery-free device settings backup after supply voltage loss,
- replaceable / easily accessible battery (no device disassembly required).

Capacity

- 1250 W AC5b
- 300 W AC5a

LED 100 W

- 600 W AC5a
- 450 W AC5a

177

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	ZCM-31	ZCM-31/U	ZCM-42
Nominal supply voltage:	230 V AC	24 ÷ 250 V AC, 30 ÷ 300 V DC	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%		-15 ÷ +10%
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	1,45 W	2 W	
Number of channels:	1		2
Programme mode:	astronomical		astronomic, monostable, bistable, weekly, annual, random
Operation mode:	manual, automatic		
Summer / winter time change:	manual, automatic		
LCD display backlight colour:	amber		-
External memory:	no	yes	no
External input:	yes		
Time measuring accuracy:	max. ± 1 sec. / 24 h for 25°C		
Clock battery backup:	3 years		24 h
Program battery backup:	5 years		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		2 NO / NC 16 A / 250 V AC1 4000 VA
Number of connection cables / terminals:	12		10
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		-
Overvoltage category:	II		
Dimensions:	90 x 35 x 66 mm		
Weight:	0,170 kg		

Displayed elements and messages description:

Mo Tu We Th Fr Sa Su - days of the week

On OFF - relay mode

🕒 - automatic mode

✋ - manual mode

❄ - winter time

☀ - summer time

▶ - external input

dAY - day

YEAR - year

PAUSE - night break setting

dELAY - time correction setting

tim E - actual time setting and summer/winter time change

dAtE - current date setting

Coord - coordinates setting

InPut - external input setting

Sr ISE / S SEt - sunrise/ sunset time

LAt It / LonG - latitude / longtitude

Auto - automatic, USEr - user

On OFF - switch on/switch off

Push button description:

🕒 • main window – automatic mode entry or relay status change, if programmer is already in the automatic mode;
   • other windows – exit to the upper level without saving changes;

✋ • main window – manual mode entry or relay status change, if programmer is already in the manual mode;
   • other windows - exit to the upper level without saving changes;

OK • main window – main menu entry,
   • different windows - submenu entry or adjusted value confirmation,

◀ ▶ • windows / options menu change or decreasing / increasing the adjusted value,
   • right arrow (▶) in the main window – sunrise and sunset time display.

2-channel, astronomical digital time programmer ZCM-32
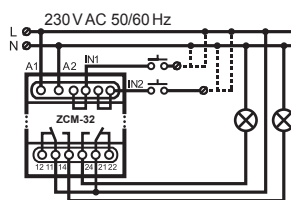
Features
- control depending on sunrise and sunset time including coordinates of the programmer place, current date and time shift according to the universal time,
- programmable night break,
- entry of coordinates or time zone of the digital time programmer installation place,
- manual shift possibility of calculated sunrise and sunset time,
- 2 independent programmable external control inputs,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- **LED** 250 W
- 1000 W AC5a
- 750 W AC5a

2-channel, astronomical digital time programmer ZCM-32P/U

Features
- universal supply voltage: 24 ÷ 250 V AC, 30 ÷ 300 V DC,
- control depending on sunrise and sunset time including coordinates of the programmer place, current date and time shift according to the universal time,
- programmable night break,
- entry of coordinates or time zone of the digital time programmer installation place,
- manual shift possibility of calculated sunrise and sunset time,
- 2 independent programmable external control inputs,
- a possibility to copy the programmes set in the clock to the external memory for an easy transfer to other programmers,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- **LED** 250 W
- 1000 W AC5a
- 750 W AC5a

Programming module for external memory PPZ-01

Features
- programming programmer's memory via PC software.

Technical data

Symbol:	ZCM-32	ZCM-32P/U
Nominal supply voltage:	230 V AC	24 ÷ 250 V AC, 30 ÷ 300 V DC
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	1,45 W	2 W
Number of channels:	2	
Programme mode:	astronomical	
Operating mode:	manual, automatic	
Summer/winter time change:	manual, automatic	
LCD display backlight colour:	amber	
External memory:	no	yes
External input:	yes	
Time measuring accuracy:	max. ± 1 s / 24 h for 25°C	
Clock battery backup:	3 years	
Program battery backup:	5 years	
Relay contact parameters:	2 NO / NC 16 A / 250 V AC1 4000 VA	
Number of connection cables / terminals:	12	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Operating temperature range:	-20 ÷ +60°C	
Casing protection degree:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 35 x 66 mm	
Weight:	0,170 kg	

Displayed elements and messages description:

Mo Tu We Th Fr Sa Su - days of the week

On OFF - relay mode

🕐 - automatic mode

✋ - manual mode

❄ - winter time

☀ - summer time

▶ - external imput

dAY - day

YEAR - year

ch-1 ch-2 - channels

PAUSE - night break setting

dELAY - time correction setting

tim E - current time setting and summer/winter time change

dAtE - current date setting

Coord - coordinates setting

InPut - external input setting

Sr ISE / S SEt - sunrise/ sunset time

LAt It / LonG - latitude / longitude

Auto - automatic, USEr - user
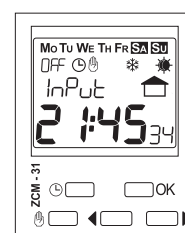
On OFF - switch on/switch off

Push button description:

🕐 • main window - automatic mode entry or relay status change, if the clock is already in the automatic mode;
   • other windows - exit to the upper level without saving changes;

✋ • main window - manual mode entry or relay status change, if the clock is already in the manual mode;
   • other windows - exit to the upper level without saving changes;

OK • main window - main menu entry,
   • different windows - submenu entry or adjusted value confirmation,

◀ ▶ • windows / options menu change or decreasing / increasing the adjusted value,
   • right arrow (▶) in the main window - sunrise and sunset time display.

The SDM-10 and SDM-10/U school bell controllers are designed to control acoustic signalling at schools and industrial buildings (e.g. with the use of school bell alarms). The EW-01 Electronic School Bell device is fully wired and equipped with additional devices designed for a direct mounting in a building.

School bell controller SDM-10
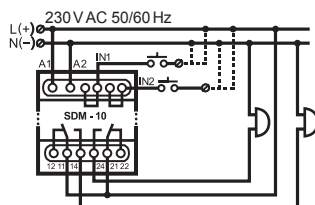
Features
- acoustic signalling control used in schools and industrial buildings,
- lesson time length adjustment, breaks length and first lesson adjustment,
- ALERT control input (acoustic signalling remote switch on),
- BANK2 control input (second set of programmed lessons - e.g. shortened lessons),
- 2 output relays,
- replaceable / easily accessible battery (replacement does not require disassembly of the device).

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W
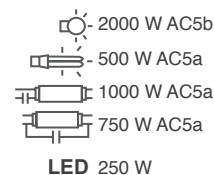
Electronic school janitor EW-01

Features
- acoustic signalling control set with digital school bell controller SDM-10,
- acoustic signalling control used in schools and industrial buildings,
- lesson time length adjustment, breaks length and fi rst lesson adjustment,
- ALERT control input (acoustic signalling remote switch on),
- BANK2 control input (second set of programmed lessons - e.g. shortened lessons),
- 2 ways of connection.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	SDM-10	EW-01
Nominal supply voltage:	230 V AC	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal current / power consumption:	2 W / 14 VA	66 mA / 130 mA
Number of channels:	1	
Programme mode:	annual bell control	
Operation mode:	manual, automatic	
Summer/winter time change:	automatic, manual	
LCD display backlight colour:	amber	
External input:	yes	-
Time measuring accuracy:	max. ± 1 sec. / 24 h for 25°C	
Clock battery backup:	3 years	
Program battery backup:	10 years	
Relay contact parameters:	2 NO / NC 16 A / 250 V AC1 4000 VA	bell output (L', N'): 1 NO / NC 16 A / 250 V AC1 4000 VA push button input (IN, IN): 1 NO / NC 16 A / 250 V AC1 4000 VA
Number of connection cables / terminals:	12	3 x 2 x 1,50 mm²
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	1,50 mm²
Operating temperature range:	-20 ÷ +60°C	-20 ÷ +45°C
Casing protection degree:	IP20	IP40
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 35 x 66 mm	197 x 227 x 93 mm
Weight:	0,150 kg	1,600 kg

Electronic school janitor connected to paralelly connected bells

Output: school bell
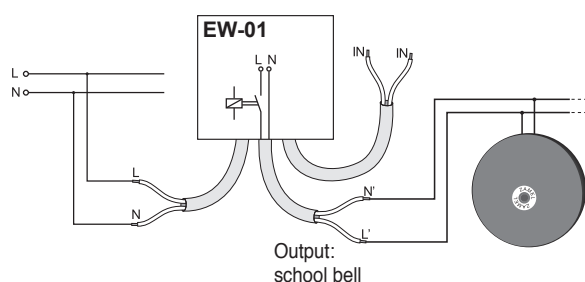
Electronic school janitor connected to existing school bell installation

Existing school bell installation

Dismounted push button should be replaced by EW-01 output connection

Input: bell installation control (push button)
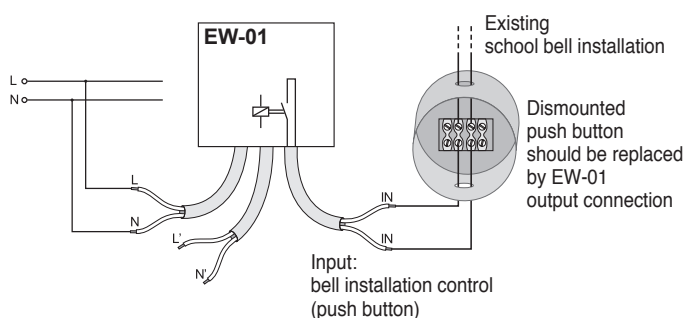
Electromagnetic relays are universal home and industrial automation devices, which allow to separate control systems and loads to increase current-carrying capacity of other automation devices and to switch on receivers remotely, etc. These devices have a wide range of control supply voltage: 12 V AC/DC, 24 V AC/DC, 48 V AC/DC, 110 V AC/DC, 230 V AC and two versions of dry contact output relays NO/NC: 16 A or 2 x 8 A.

Electromagnetic relay PEM-01/012
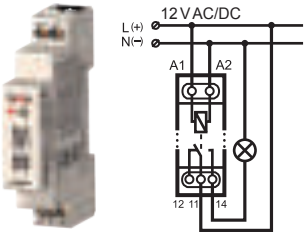
Features
- load increasing of other home automation devices,
- output relay NO/NC 16 A (dry contact),
- galvanic separation between supply and output circuits.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Time courses
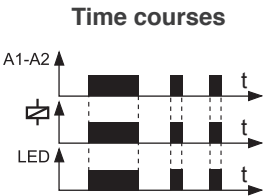
Electromagnetic relay PEM-01/024
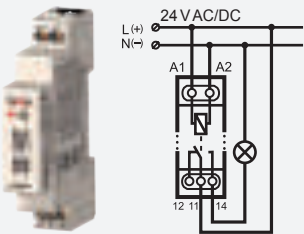
Features
- load increasing of other home automation devices,
- output relay NO/NC 16 A (dry contact),
- galvanic separation between supply and output circuits.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Time courses
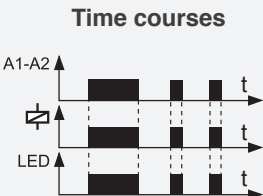
Electromagnetic relay PEM-01/230
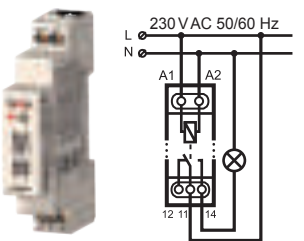
Features
- load increasing of other home automation devices,
- output relay NO/NC 16 A (dry contact),
- galvanic separation between supply and output circuits.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Time courses

exta free

exta life

supla

exta

ledix

konekto

sundi

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matec

entra

etero

gardi

ynsta

expo
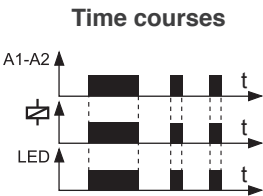
Technical data

Symbol:	PEM-01/012	PEM-01/024	PEM-01/230
Nominal supply voltage:	12 V AC / DC	24 V AC / DC	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	33 mA AC	15 mA AC	23,2 mA AC
Optical signalling of relay status:	red LED diode		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		
Number of connection cables / terminals:	5		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +45°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,070 kg		

PEM-01 - APPLICATION

PEM-01 electromagnetic relays allow for galvanic separation of automation systems and actuation circuits. Due to their application, power implemented in a circuit can be extended. In the arrangement presented in the illustration above the street lighting is controlled by a twilight switch WZM-01/S1. It gives power to PEM-01 relays separating the output circuit from lighting sources. By means of parallel connection of PEM-01 relays, multiplication of power is possible to be connected in each of the lighting circuit.

Electromagnetic relay PEM-02/012

12 V AC/DC

L(+)
N(−)

A1 A2

22 21 24

12 11 14

Features
- load increasing of other home auto-mation devices,
- 2 output relay NO/NC 8 A (dry con-tact),
- galvanic separation between supply and output circuits,

Capacity
- 1000 W AC5b
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a
- **LED** 100 W

Time courses

A1-A2 t

LED t

t

Electromagnetic relay PEM-02/024

24 V AC/DC

L(+)
N(−)

A1 A2

22 21 24

12 11 14

Features
- load increasing of other home auto-mation devices,
- 2 output relay NO/NC 8 A (dry con-tact),
- galvanic separation between supply and output circuits.

Capacity
- 1000 W AC5b
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a
- **LED** 100 W

Time courses

A1-A2 t

LED t

t

Electromagnetic relay PEM-02/230

230 V AC 50/60 Hz

L
N

A1 A2

22 21 24

12 11 14

Features
- load increasing of other home auto-mation devices,
- 2 output relay NO/NC 8 A (dry con-tact),
- galvanic separation between supply and output circuits.

Capacity
- 1000 W AC5b
- 250 W AC5a
- 500 W AC5a
- 375 W AC5a
- **LED** 100 W

Time courses

A1-A2 t

LED t

t

Technical data

Symbol:	PEM-02/012	PEM-02/024	PEM-02/230
Nominal supply voltage:	12 V AC / DC	24 V AC / DC	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	33 mA AC	15 mA AC	23,2 mA AC
Optical signalling of relay status:	red LED diode		
Relay contact parameters:	2 NO / NC 8 A / 250 V AC		
Number of connection cables / terminals:	5		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +45°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,070 kg		

PEM-02 - APPLICATION

The DC motor is supplied by means of two PEM-02 relays. The first one controls power supply and the second controls voltage polarity changing. The two bistable relays are controlled by two bistable control modules PBM-08. Pressing the push button on the first PBM-08 module causes e.g. clockwise motor rotation and switch on interlock of the second PBM-08 module. In order to change motor rotation direction it is necessary to release the button of the first PBM-08 module. The motor will stop. Then it is necessary to press the second module button which will cause switching the motor in anticlockwise direction. An additonal PEM-01 relay is required to supply the relay cntrolling the motor power supply correctly when the second PBM-08 module is ON.

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo
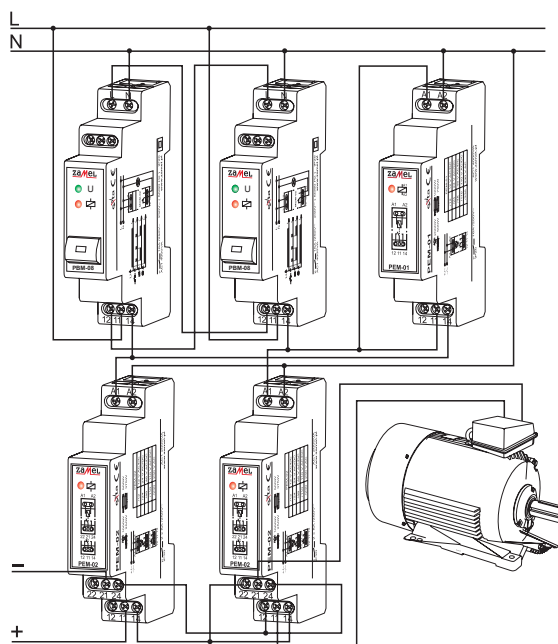
The electromagnetic relays help increase the current capacity of power loads. The electromagnetic relays provide galvanic separation between their trip/control circuitry and the power loads wired to them. The NO/NC dry contact outputs support 0 ÷ 250 V AC supply voltage. The devices are available in different voltage versions: 12 V, 24 V and 230 V.

Flush-mounted electromagnetic relay PEP-01/12V
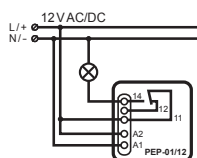
Features
- small dimensions of the device,
- can be installed in a junction box, suspended ceiling, freestanding enclosure or surface box,
- galvanic isolation of systems
- coil voltage 12 V AC / DC,
- relay contact with a maximum current of 10 A.

Capacity
- 1200 W
- 600 W
- **LED** 60 W
- 450 W
- 300 W

Time courses
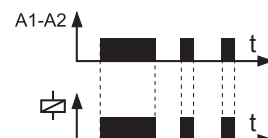
Flush-mounted electromagnetic relay PEP-01/24V
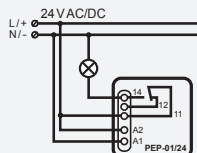
Features
- small dimensions of the device,
- can be installed in a junction box, suspended ceiling, freestanding enclosure or surface box,
- galvanic isolation of systems
- coil voltage 24 V AC / DC,
- relay contact with a maximum current of 10 A.

Capacity
- 1200 W
- 600 W
- **LED** 60 W
- 450 W
- 300 W

Time courses
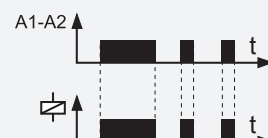
Flush-mounted electromagnetic relay PEP-01/230V
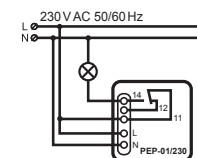
Features
- small dimensions of the device,
- can be installed in a junction box, suspended ceiling, freestanding enclosure or surface box,
- galvanic isolation of systems
- coil voltage 230 V AC,
- relay contact with a maximum current of 10 A.

Capacity
- 1200 W
- 600 W
- **LED** 60 W
- 450 W
- 300 W

Time courses

exta free

exta life

supla

exta

ledix

konekto

sundi

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matec

entra

etero

gardi

ynsta

expo
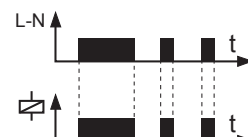
Technical data

Symbol:	PEP-01/12	PEP-01/24	PEP-01/230
Power input terminals:	A1, A2	A1, A2	L, N
Rated supply voltage:	12 V AC / DC	24 V AC / DC	230 V AC
Supply voltage tolerance:	-15 ÷ +10 %		
Rated mains frequency:	50 / 60 Hz		
Rated current load:	33 mA AC	15 mA AC	23,2 mA AC
Relay output terminals:	11, 12, 14		
Control module:	1 NO/NC - 10 A / 250 V AC / 30 V DC		
Number of terminals:	5		
Wiring size:	0,2 ÷ 2,50 mm²		
Operating temperature:	-10 ÷ +55°C		
Installation orientation:	any		
Enclosure mounting:	inside a Ø 60 box (recessed)		
Enclosure protection rating:	IP20		
Overvoltage category:	II		
Pollution class:	2		
Dimensions:	47,5 x 47,5 x 20 mm		
Weight:	0,031 kg		0,036 kg

Power supply indicators are devices used to be built in distribution boards on TH-35 rail and are used to optically signal the presence of voltage in one or three-phase supply systems. It is realized by means of LED diodes with increased light emission in different light colour.

Voltage presence indicator LKM-01-10
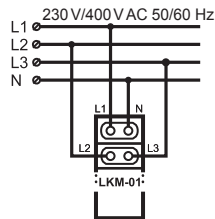
Features
- voltage presence optical signalling in 3-phase installations with neutral (N) line,
- 3 red LED diodes.

Time courses

Voltage presence indicator LKM-01-20
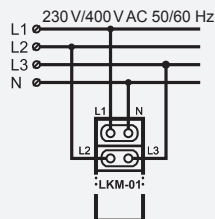
Features
- voltage presence optical signalling in 3-phase installations with neutral (N) line,
- 3 green LED diodes.

Time courses

Voltage presence indicator LKM-01-30
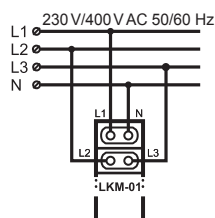
Features
- voltage presence optical signalling in 3-phase installations with neutral (N) line,
- 3 yellow LED diodes.

Time courses

Voltage presence indicator LKM-01-40
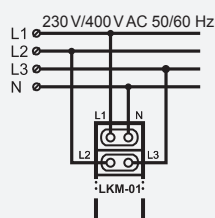
Features
- voltage presence optical signalling in 3-phase installations with neutral (N) line,
- 3 LED diodes: yellow, green and red.

Time courses

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	LKM-01-10	LKM-01-20	LKM-01-30	LKM-01-40
Nominal supply voltage:	3 x 230 V AC			
Nominal supply voltage tolerance:	-15 ÷ +10%			
Nominal frequency:	50 / 60 Hz			
Nominal power consumption:	1,50 mA	6 mA	0,9 mA	2,8 mA
Voltage presence indicator:	3 x red LED diode	3 x green LED diode	3 x yellow LED diode	3 LED diodes: yellow, green, red
Number of connection cables / terminals:	4			
Operating temperature range:	-20 ÷ +45°C			
Casing protection degree:	IP20			
Protection class:	II			
Overvoltage category:	II			
Dimensions:	90 x 17,5 x 66 mm			
Weight:	0,047 kg			

LKM-01 - APPLICATION

LKM-01 power supply indicator signals voltage presence or absence in the supply system. In case there is a phase failure , LED diode indicating voltage presence in this particular phase is switched off.

Voltage presence indicator LKM-03-10
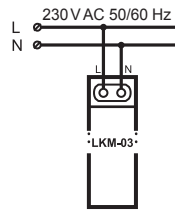
230 V AC 50/60 Hz
L
N

LKM-03

Features
• voltage presence optical signalling in 1-phase AC installations,
• high-brightness red LED diode.

Time courses

Voltage presence indicator LKM-03-20
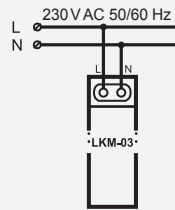
230 V AC 50/60 Hz
L
N

LKM-03

Features
• voltage presence optical signalling in 1-phase AC installations,
• high-brightness green LED diode.

Time courses

Voltage presence indicator LKM-03-30
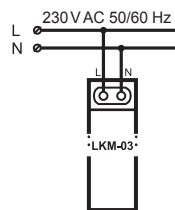
230 V AC 50/60 Hz
L
N

LKM-03

Features
• voltage presence optical signalling in 1-phase AC installations,
• high-brightness yellow LED diode.

Time courses
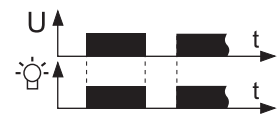
Voltage presence indicator LKM-04-40
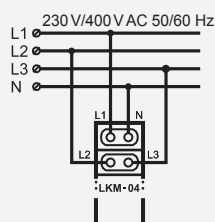
230 V/400 V AC 50/60 Hz
L1
L2
L3
N

LKM-04

Features
• voltage presence optical signalling in 3-phase installations with neutral (N) line,
• high-brightness LED diodes,
• low power consumption,
• high-brightness 3 LED diodes: yellow, green and red.

Time courses

Voltage presence indicator LKM-05-40
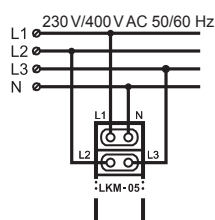
230 V/400 V AC 50/60 Hz
L1
L2
L3
N

LKM-05

Features
• voltage presence optical signalling in 3-phase installations with neutral (N) line,
• high-brightness LED diodes,
• low power consumption,
• high-brightness 3 LED diodes: yellow, green and red.

Time courses

191

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Technical data

Symbol:	LKM-03-10	LKM-03-20	LKM-03-30	LKM-04-40	LKM-05-40
Nominal supply voltage:	230 V AC			3 x 230 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10%				
Nominal frequency:	50 / 60 Hz				
Nominal current / power consumption:	3,5 mA	15 mA		0,59 W / 1,09 VA	
Voltage presence indicator:	red LED diode	green LED diode	yellow LED diode	3 LED diodes: yellow, green, red	
Number of connection cables / terminals:	2			4	
Operating temperature range:	-20 ÷ +45°C				
Casing protection degree:	IP20				
Protection class:	II				
Overvoltage category:	II				
Dimensions:	90 x 17,5 x 66 mm				
Weight:	0,045 kg			0,060 kg	
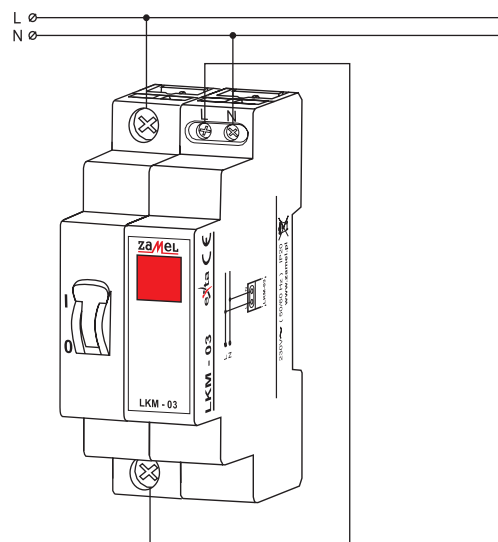
LKM-03 - APPLICATION

LKM-03 flooding indicator signals the voltage presence or it absence in a one-phase supply system.

Power supply indicators are devices used to signal the presence of voltage in one or three-phase supply systems. Signallization is realized by means of LED diodes in a form of a diode line which gives current value of power supply with accuracy of ± 2,5 V.

Voltage presence indicator LDM-10
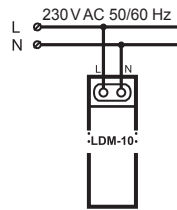
Features
- supply voltage value indication in 1-phase circuits
- indication stability
- indicated voltage value accuracy: ± 2,5 V.
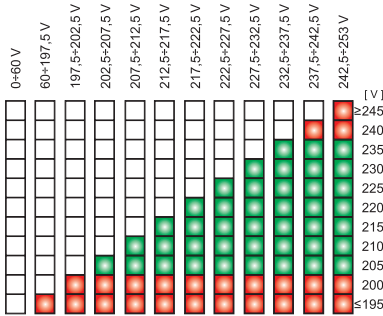
OPERATION

Voltage presence indicator LDM-30
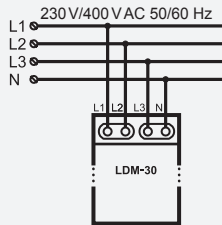
Features
- supply voltage value indication in 3-phase circuits
- indication stability
- indicated voltage value accuracy: ± 2,5 V.

OPERATION
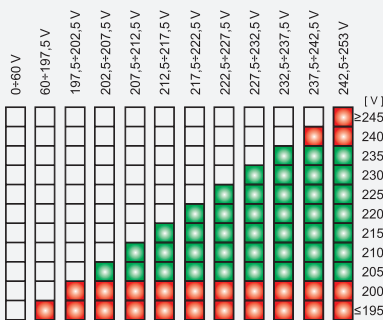
Technical data

Symbol:	LDM-10	LDM-30
Nominal supply voltage:	230 V AC	3 x 230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	24 mA	68 mA
Voltage presence indicator:	11 LED diodes	3 x 11 LED diodes
Voltage presence indication accuracy:	± 2,5 V	
Number of connection cables / terminals:	2	4
Operating temperature range:	-20 ÷ +45°C	
Casing protection degree:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 17,5 x 66 mm	90 x 35 x 66 mm
Weight:	0,056 kg	0,102 kg

LDM-30 - APPLICATION

Three-phase voltage indicator LDM-30 incorporated in the output circuit overload protection or a disconnector shows the values of voltages of each phase. LED lines in the system signal the following:
• line L1, L3 - voltage presence on wires of L1 and L3 phases,
• line L2 - switched off - no voltage on the wire of L2 phase.
Number of switched on LED diodes on the line points directly to the voltage level. The level's value can be read from the scale placed next to the LED lines. The system can be used in a single-phase network by connecting L1, N terminals.
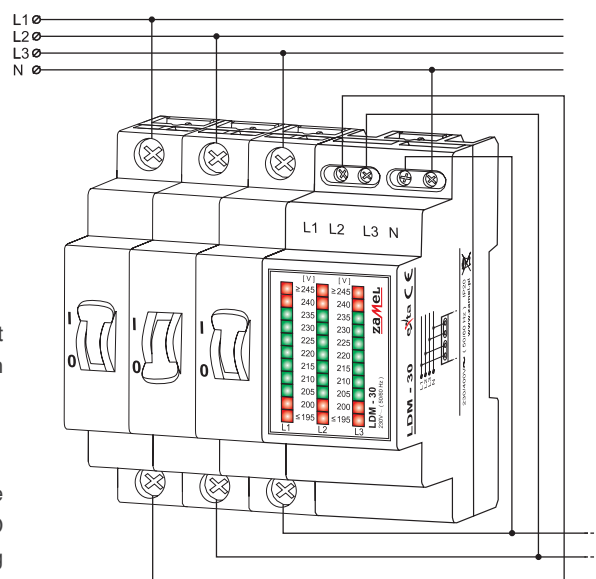
Voltage relays are devices used to control selected voltage value in one-phase (PNM-10) or three-phase (PNM-31, PNM-32) circuits. The devices allow for adjustment of minimum and maximum voltage value, protection against voltage hesitations and voltage drop or wrong phase sequence (PNM-31, PNM-32). They also detect voltage asymmetry. Voltage relay PNM-32 allows to read voltage value from the LCD display.

Voltage relay PNM-10
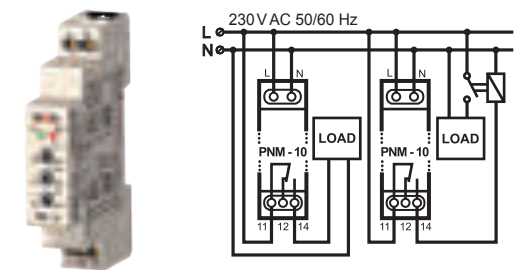
Features
- protection of receivers connected to 1-phase installation against voltage instability,
- minimum and maximum voltage value adjustment,
- delay switch off time adjustment from 0 to 12 sec.

Capacity
- 1250 W AC5b
- 300 W AC5a
- 600 W AC5a
- 450 W AC5a

LED 100 W

Voltage relay PNM-31
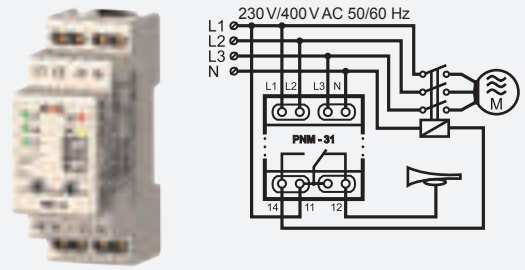
Features
- protection of receivers connected to 3-phase installation against voltage instability,
- minimum and maximum voltage value adjustment,
- voltage asymmetry and wrong phase sequence protection,
- constant switch off delay time 5 sec.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

Voltage relay PNM-32
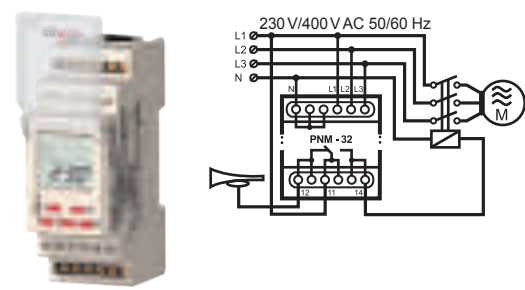
Features
- protection of receivers connected to 3-phase installation against voltage instability,
- minimum and maximum voltage value adjustment,
- voltage asymmetry and wrong phase sequence protection,
- switch on / switch off delay time range adjustment and voltage histeresis and voltage asymmetry level adjustment.

Capacity
- 2000 W AC5b
- 500 W AC5a
- 1000 W AC5a
- 750 W AC5a

LED 250 W

195

exta free

exta life

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Technical data

Symbol:	PNM-10	PNM-31	PNM-32
Nominal supply voltage:	230 V AC	230 / 400 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal current / power consumption:	35 mA	10 mA	2 W / 14 VA
Optical signalling of voltage measuring level:	green LED diode	3 x green LED diode	LCD display
Optical signalling of relay status and „soft net":	red LED diode		LCD display
Optical signalling of voltage asymmetry and wrong phase sequence:	-	yellow LED diode	LCD display
Voltage threshold value adjustment:	2 x rotary potentiometer		keypad
U_{min} voltage threshold adjustment range:	170 ÷ 225 V		
U_{max} voltage threshold adjustment range:	235 ÷ 290 V		
Switch off time t_{off} adjustment	0 ÷ 12 sec. rotary potentiometer	5 s	2÷15 sec. keypad
Switch on time t_{on} adjustment:	-		2÷ 5 sec. keypad
Voltage histeresis range adjustment	-		1 ÷ 4 V
Voltage asymmetry level adjustment	-		10 ÷ 60 V
Voltage / time adjustment accuracy:	± 1,5 / ± 5%	± 2%	max. ± 1 sec. / 24 h for 25°C
Voltage measuring accuracy (50 Hz sinus):	-		± 1,5%
Switch off time after „soft net" detection:	10 min (red LED diode)	-	
Relay contact parameters:	1 NO / NC 10 A / 250 V AC1 2500 VA	1 NO / NC 16 A / 250 V AC1 4000 VA	
Number of connection cables / terminals:	5	8	12
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm	90 x 35 x 66 mm	
Weight:	0,073 kg	0,110 kg	0,120 kg

PNM-10 - APPLICATION

PNM-10 voltage relay cooperates with LDM-10 voltage indicator. Voltage value in a one phase net is measured in the relay system whose outputs cut off the supply of the protected system (e.g. motor) in situation voltage value is exceeded. The voltage relay enables permanent visualization of supply voltage value of the protected system.

Voltage relays functioning

PNM-10

$\Delta U \approx 3V$

PNM-31

L2 and L3 phase sequence change
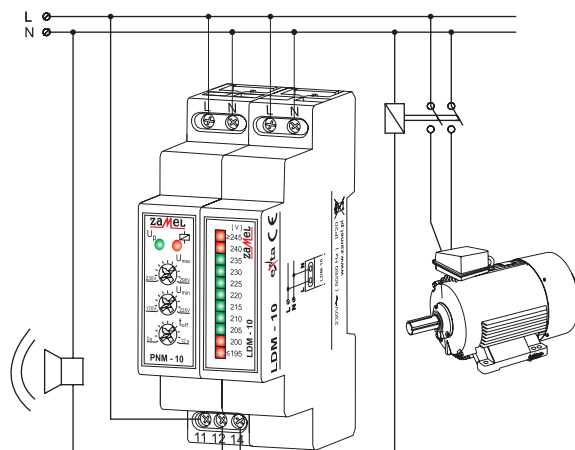
U_p		Mode
☀	☀	Voltage in the adjusted range, relay switched on.
☼	○	Voltage higher than Umax, relay switched off.
☼	○	Voltage lower than Umin, relay switched off.
☀	☼	"Soft net" effect detected.
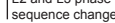
LED signalling		
Diodes	L1, L2, L3	
☀	Voltage (phase) in the adjusted range	
☼	Monitored phase voltage higher than Umax	
☼	Monitored phase voltage lower than Umin	
☼	No monitored phase	

☀	Relay switched on
○	Relay switched off
☀	Wrong phase sequence
☼	Voltage asymmetry

PNM-31 - APPLICATION

The PNM-31 voltage relay cooperates with LDM-30 voltage indicator. Voltage value is measured in a tree-phase system in the relay circuit. The relay outputs cut OFF load power supply (e.g. the motor) in case the adjusted voltage range is exceeded. The voltage indicator enables continuous voltage visualization for the controlled circuit.

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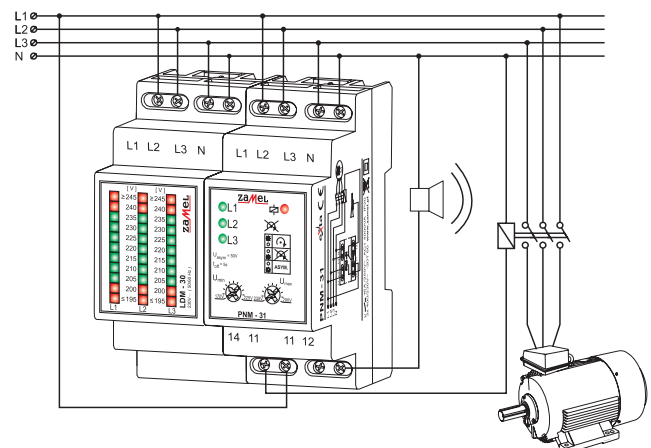
PNM-32

Displayed elements and messages description:

On OFF - relay mode

▶◀ - voltage asymmetry

L1, L2, L3 - phase description

L1-L2, L2-L3 - change phase sequence

Err - wrong phase sequence

H1 - measured voltage is higher than 300 V
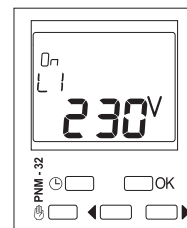
Push button description:

⏲ • exit from edit mode and menu;

✋ • exit from edit mode and menu;

• entry to main menu and submenu (adjustment edition);

OK • main window - displayed phase change;

◀ ▶ • navigation in main menu, parameters' change in submenu.
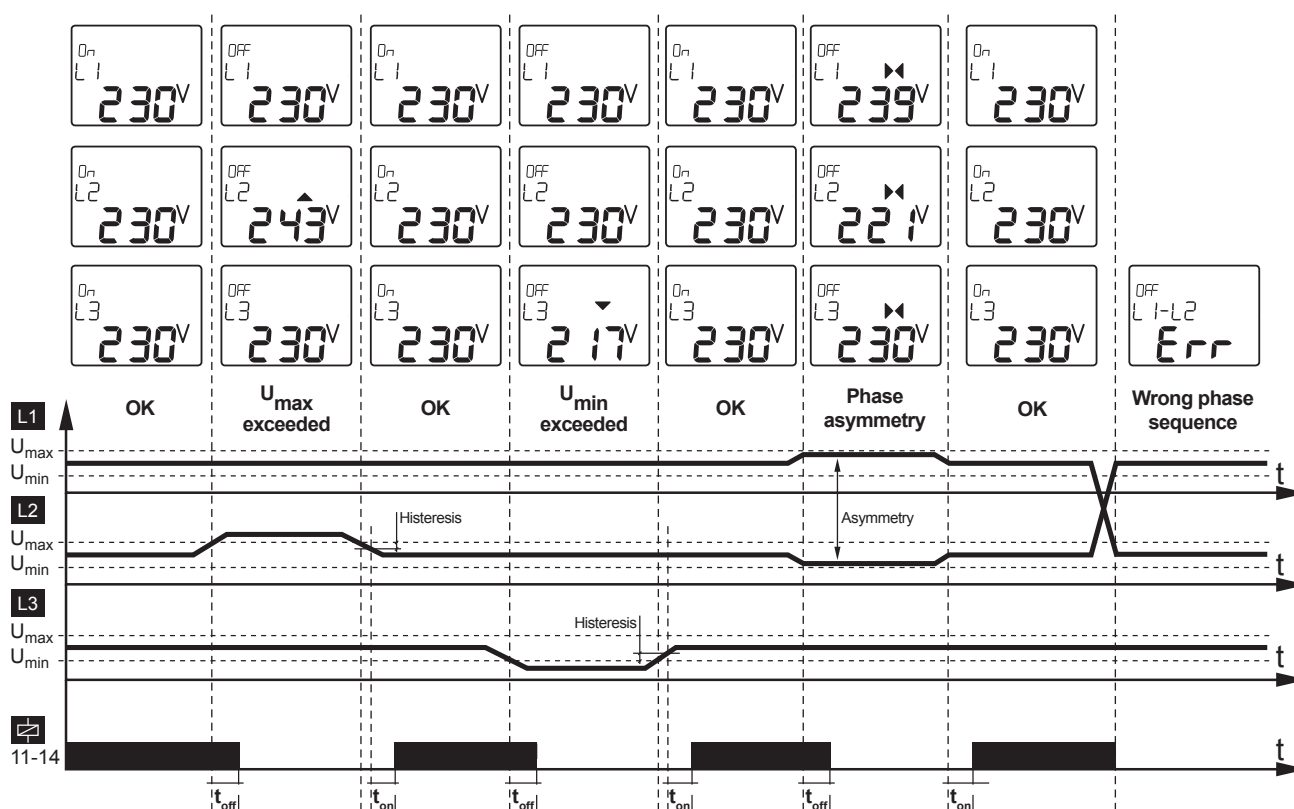
Phase sequence sensors are used to protect devices powered from a three-phase installation (e.g. motors) from phase voltage switch off, phase voltage asymmetry or wrong phase sequence. The sensors do not protect from symmetrical voltage drop. The switch off delay and voltage hysteresis cause the system is resistant to momentary voltage changes

Phase sequence sensor CKH-01
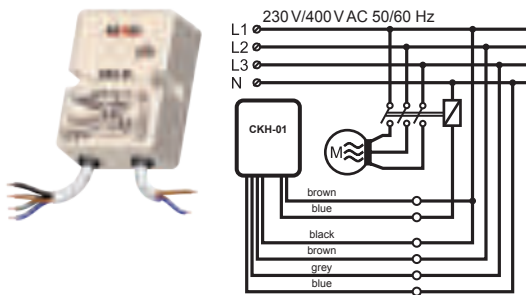
Features
- phase lack protection,
- voltage asymmetry protection,
- wrong sequence protection,
- constant voltage asymmetry level 185 V,
- hermetic casing IP65.

Capacity
- 1250 W AC5b **LED** 100 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

Time courses
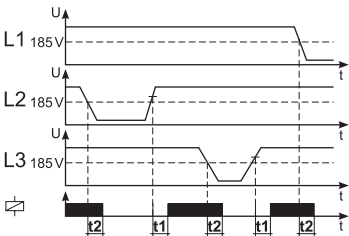
Phase sequence sensor CKM-01
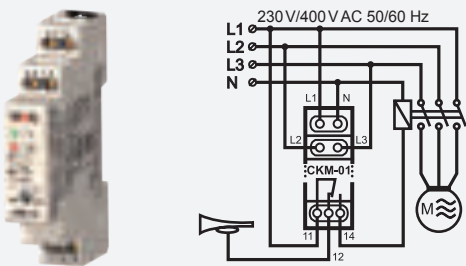
Features
- phase lack protection,
- voltage asymmetry protection,
- wrong sequence protection,
- voltage asymmetry level adjustment 170 ÷ 200 V,
- correct / wrong phase sequence optical signalling.

Capacity
- 1250 W AC5b **LED** 100 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

Time courses
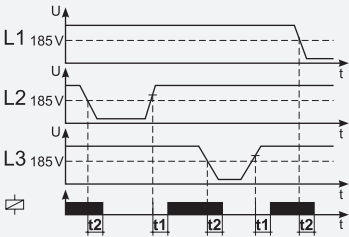
Optical signalling	
○ ○	Voltage asymmetry
☀ ○	Correct phase sequence
○ ☀	Wrong phase sequence

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Technical data

Symbol:	CKH-01	CKM-01
Nominal supply voltage:	230 / 400 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	34 mA	
Optical signalling of correct phase sequence:	-	green LED diode
Optical signalling of wrong phase sequence:	-	red LED diode
Voltage asymmetry level:	185 V	170 V ÷ 200 V rotary potentiometer
Voltage histeresis:	app. 10 V	
Time t1 switch on delay:	5 ÷ 10 sec.	
Time t2 switch on delay:	1 ÷ 5 sec.	
Relay contact parameters:	1 NO 10 A / 250 V AC1 2500 VA	
Number of connection cables / terminals:	6	7
Cross-section of the connecting cables:	4 x 0,75 mm² and 2 x 1,50 mm²	0,2 ÷ 2,50 mm²
Connection cable length:	0,5 m	-
Operating temperature range:	-20 ÷ +60°C	
Casing protection degree:	IP65	IP20
Protection class:	II	
Overvoltage category:	II	
Dimensions:	69 x 56 x 27 mm	90 x 17,5 x 66 mm
Weight:	0,098 kg	0,077 kg
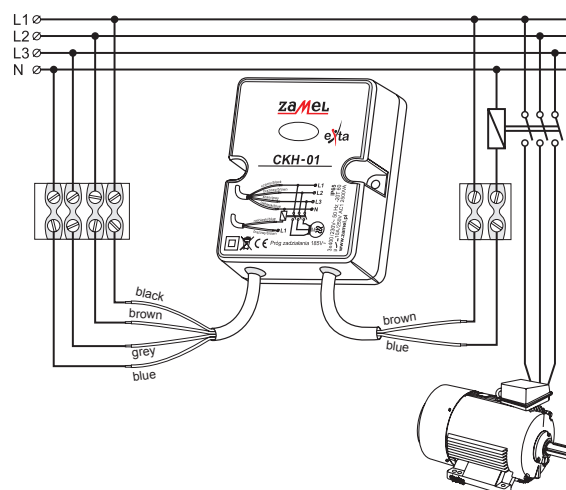
CKH-01 - APPLICATION

Phase sequence sensor protects the motor from operation during power failure. The sensor will allow the engine to operate only with the correct phase sequence.

Phase sequence and cancellation sensor CKM-10
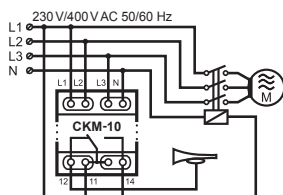
Features

- voltage asymmetry protection,
- wrong sequence protection,
- voltage asymmetry level adjustment: CKM-10 40 ÷ 80 V,
- switch off delay time range adjustment: CKM-10 0,5 ÷ 5 s,
- correct / wrong phase sequence optical signalling.

Time courses
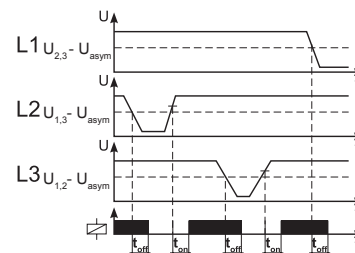
Phase sequence and cancellation sensor CKM-11
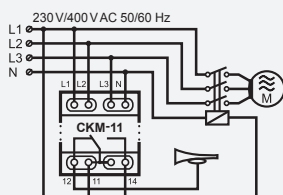
Features

- voltage asymmetry protection,
- wrong sequence protection,
- voltage asymmetry level adjustment: CKM-11 55 V,
- switch off delay time range adjustment: CKM-11 4 s,
- correct / wrong phase sequence optical signalling.

Time courses
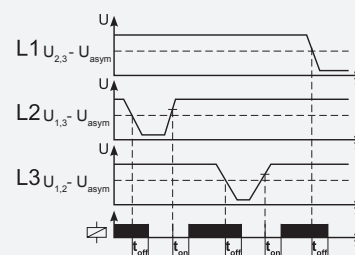
Technical data

Symbol:	CKM-10	CKM-11
Nominal supply voltage:	230 / 400 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10%	
Nominal frequency:	50 / 60 Hz	
Nominal power consumption:	12 mA	
Optical signalling of correct phase sequence:	green LED diode	
Optical signalling of wrong phase sequence:	yellow LED diode	
Voltage asymmetry level:	40 ÷ 80 V rotary potentiometer	55 V
Voltage histeresis:	app. 10 V	
Time t1 switch on delay:	2 sec.	
Time t2 switch on delay:	0,5 ÷ 5 s	4 s
Relay contact parameters:	1 NO 10 A / 250 V AC1 2500VA	
Number of connection cables / terminals:	8	
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Connection cable length:	-	
Operating temperature range:	-20 ÷ +60°C	
Casing protection degree:	IP20	
Overvoltage category:	II	
Dimensions:	90 x 35 x 65 mm	
Weight:	0,11 kg	

Visual indication CKM-10 / CKM-11

LEDs	L1, L2, L3
☀	Proper voltage at the given phase
☼	Phase voltage below the set threshold, but above 150 V AC
☼	Phase voltage within 50 V AC to 150 V AC
☼	Phase voltage bellow 50 V AC

LEDs	
☀ O	Proper phase sequence
O ☀	Wrong phase sequence
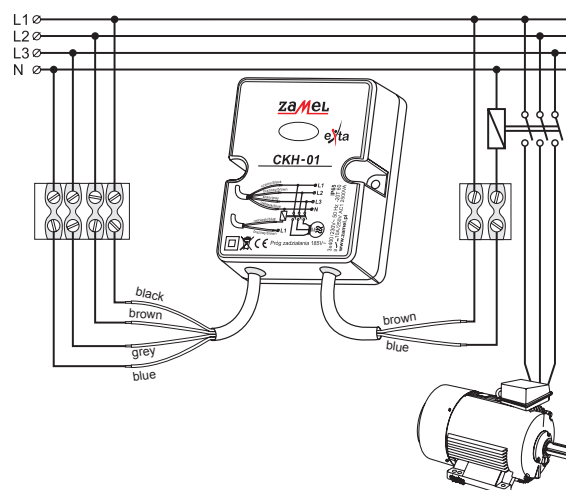
CKH-01 - APPLICATION

Phase sequence sensor protects the motor from operation during power failure. The sensor will allow the engine to operate only with the correct phase sequence.

Voltage asymmetry sensors are used to protect devices powered from a three-phase installation from being damaged in case of phase voltage switch off or phase voltage asymmetry. The devices do not protect from symmetrical voltage drop. The switch off delay and voltage hysteresis cause the system is resistant to momentary voltage changes.

Voltage asymmetry sensor CAH-01
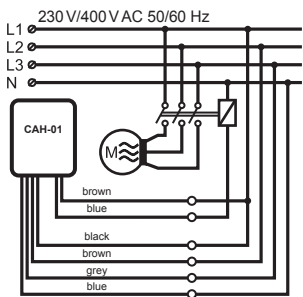
Features
- phase lack protection,
- voltage asymmetry protection,
- constant voltage asymmetry level 185 V,
- hermetic casing IP65.

Capacity
- 1250 W AC5b **LED** 100 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

Time courses
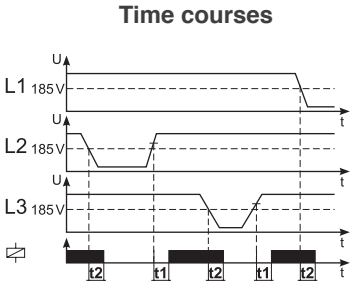
Voltage asymmetry sensor CAM-01
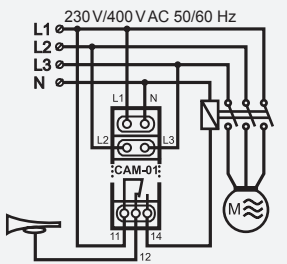
Features
- phase lack protection,
- voltage asymmetry protection,
- voltage asymmetry level adjustment 170 ÷ 200 V,
- phase presence optical signalling.

Capacity
- 1250 W AC5b **LED** 100 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

Time courses
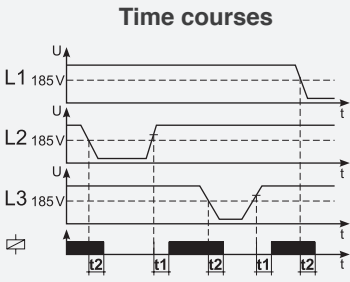
Phase sequence and phase drop sensor with contact control of the contactor CAM-10
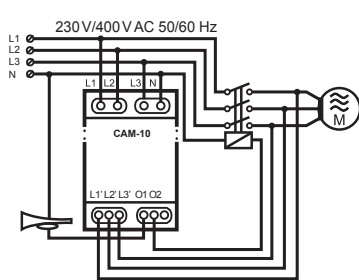
Features
- asymmetry and voltage drop sensor,
- contactor contact control.

Capacity
- 1250 W AC5b **LED** 100 W
- 300 W AC5a
- 600 W AC5a   450 W AC5a

Time courses
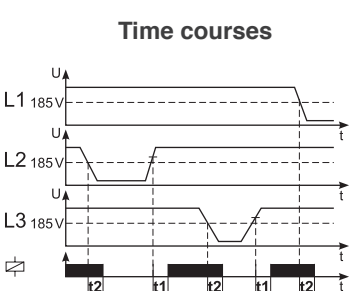
Phase cancellation sensor CAM-11
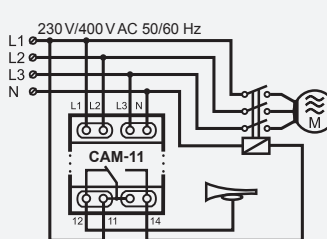
Features
- protection from phase cancellation,
- asymmetrical voltage protection,
- fixed asymmetry threshold: 55 V
- visual indication of phase presence.

Time courses

exta free

exta life

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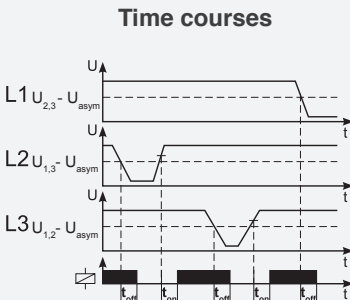
Technical data

Symbol:	CAH-01	CAM-01	CAM-10	CAM-11
Nominal supply voltage:	230 / 400 V AC			
Nominal supply voltage tolerance:	-15 ÷ +10%			
Nominal frequency:	50 / 60 Hz			
Nominal current / power consumption:	33 mA	34 mA	40 mA	11 mA
Optical signalling of phase presence:	-	3 x red LED diode	3 x green LED diode	3 x LED diode
Voltage asymmetry level:	185 V	170 ÷ 200 V rotary potentiometer		-
Smart level of asymmerty detection:	-	-		55 V
Voltage histeresis:	ok. 10 V		-	ok. 10 V
Time t1 switch on delay:	5 ÷ 10 s		5 s	2 s
Time t2 switch on delay:	1 ÷ 5 s		0 ÷ 9 s	4 s
Relay contact parameters:	1 NO 10 A / 250 V AC1 2500 VA		NO/NC 16 A / 250 V AC1 4000 VA	
Number of connection cables / terminals:	6	7	11	8
Cross-section of the connecting cables:	4 x 0,75 mm² 2 x 1,50 mm²	0,2 ÷ 2,50 mm²		
Connection cable length:	0,5 m	-		
Operating temperature range:	-20 ÷ +60°C			
Casing protection degree:	IP65	IP20		
Overvoltage category:	II			
Dimensions:	69 x 56 x 27 mm	90 x 17,5 x 66 mm	90 x 35 x 65 mm	
Weight:	0,097 kg	0,076 kg	0,20 kg	0,10 kg
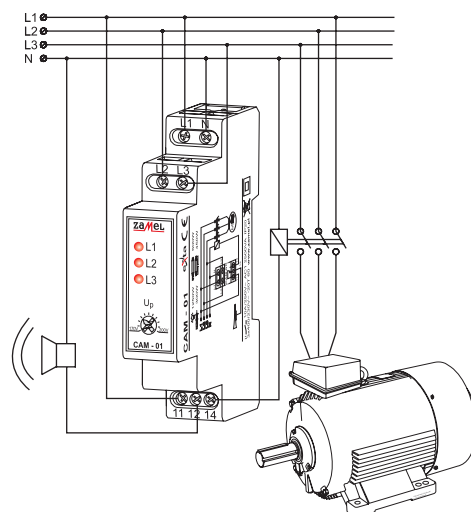
CAM-01 - APPLICATION

Voltage asymmetry sensor CAM-01 protects the engine from voltage asymmetry or lack of supply phase.

Phase automatic switch APM-10
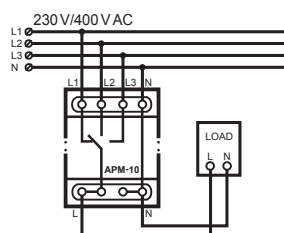
Features
- supply voltage variation protection,
- quick switching between phases,
- precise digital structure,
- providing power supply for single-phase receivers.

Phase automatic switch APM-20
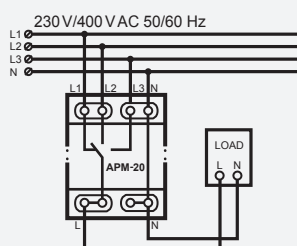
Features
- providing power supply for single-phase receivers,
- simple installation not requiring device adjustment.

exta free

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Technical data

Symbol:	APM-10	APM-20
Nominal supply voltage:	230 / 400 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10 %	
Nominal frequency:	45 ÷ 55 Hz	50 / 60 Hz
Nominal current / power consumption:	not higher than 1 VA	30 mA
Optical indication of phase presence:	3 x green LED diode	
Voltage histeresis:	5 ÷ 7 V	-
Relay contact parameters:	-	3 x 16 A NO
Umin activation range:	170 ÷ 220 V	180 V
Umax activation range:	240 ÷ 290 V	-
Switch on time (t_{on}) adjustment range:	1 ÷ 600 s	-
Switch on time of backup phases:	not longer than 0,2 s	150 ms
Maximum commutated current:	not less than 16 A	16 A
Number of connection cables / terminals:	12	8
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²	
Connection cable length:	-	
Operating temperature range:	-35 ÷ +55°C	
Ingress protection rating of the casing:	IP20	
Protection class:	II	
Overvoltage category:	II	
Dimensions:	90 x 70 x 65 mm	90 x 35 x 65 mm
Weight:	0,20 kg	0,27 kg

Energy meters are non-approved measurement devices for measuring the consumption of single-phase (LEM-01, LEM-02) and three-phase power (LEM-30). LEM-02LM and LEM-30 meters are MID-certified.

Digital 1-phase energy meter LEM-02
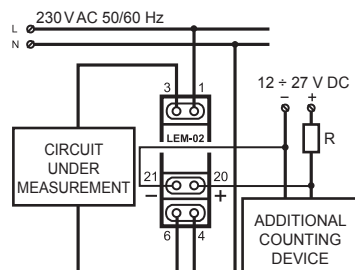
Features
- 1-phase meter,
- digital counter (LCD display),
- optical impulse counting signal,
- impulse output,
- terminal covers, sealing possibility.

Digital 1-phase energy meter with MID Certificate LEM-02LM
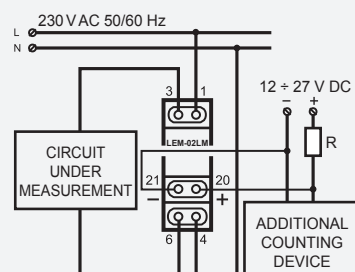
Features
- MID Certificate,
- optical indication of impulse counting,
- LCD display,
- additional impulse output,
- sealable terminal covers,
- single module casing,
- mounting on TH 35 rail.

Digital 3-phase energy meter LEM-30
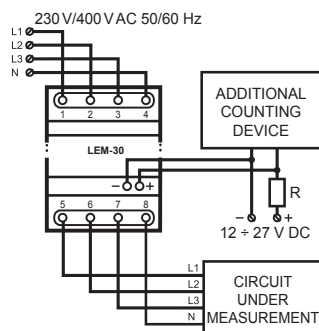
Features
- three-phase meter,
- direct measurement,
- digital counting board - 5 + 2 digits LCD display,
- class 1 measurement accuracy,
- impulse output,
- impulse counting indication,
- terminal covers, sealing possibility.

Digital 3-phase energy meter with MID Certificate LEM-30M
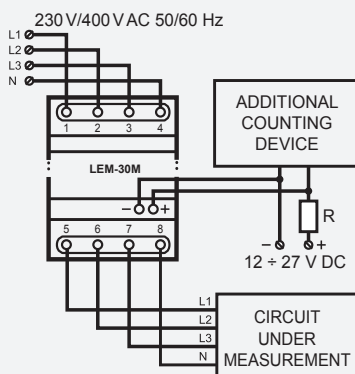
Features
- MID Certificate,
- 100A maximum current, kWh measurement and display,
- LCD display,
- additional impulse output,
- four module casing,
- mounting on TH 35 rail.

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exta free

exta life

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Technical data

Symbol:	LEM-02	LEM-02LM	LEM-30	LEM-30M
Nominal supply voltage:	230 V AC		3 x 230 V / 400 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10%			
Nominal frequency:	50 / 60 Hz			
Basic / maximum current:	5 A / 45 A		3 x 10 A / 100 A	
Measuring accuracy(IEC61036):	class 1		class 1	
Display:	digital counting board 5+2 digits			
Power supply indication:	red LED diode			
Optical signaling of impulse counting:	red LED diode			
Impulse output SO+ SO-:	OC type			
Impulse output voltage SO+ SO-:	12 ÷ 27 V DC			
Impulse output current SO+ SO-:	< 27 mA			
Constant SO+ SO-:	1000 impulses per kW/h			
Impulse duration SO+ SO-:	90 ms			
Nominal meter current/power consumption:	8 VA / 0,4 W		10 VA / 2 W	
Number of connection cables / terminals:	6		10	
Cross-section of the connecting cables:	0,2 ÷ 6 mm²		main connection: 4 ÷ 25 mm² impulse output: minimum 0,2 mm²	
Operating temperature range:	-20 ÷ +45°C		-25 ÷ +55°C	
Casing protection degree:	IP20			
Protection class:	II			
Overvoltage category:	II			
Dimensions:	90 x 17,5 x 66 mm		72 x 100 x 66 mm	
Weight:	0,080 kg		0,700 kg	

LEM-02 - APPLICATION

LEM-02 device is used as an additional watt-hour meter in a building occupied by two families.
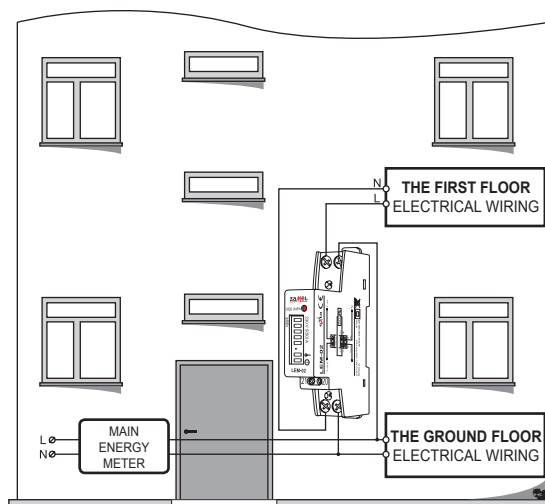
Power limiters control the power output in the monitored circuit. These devices detect the excess of a set power threshold and disconnect the power supply for a set time. Next the circuit is checked and the device decides to restore the power supply or keep it disconnected. These devices are used in protection from theft or excessive power consumption.

Power absorption limiter PMH-01
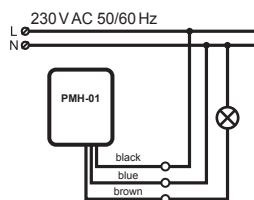
Features
- adjusted power value overload protection,
- electric installation overload protection,
- fluent power threshold adjustment,
- hermetic casing IP65.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses
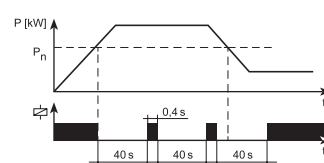
Power absorption limiter PMM-01
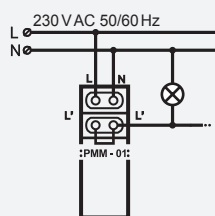
Features
- adjusted power value overload protection,
- electric installation overload protection,
- fluent power threshold adjustment,
- overload optical signalling.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses
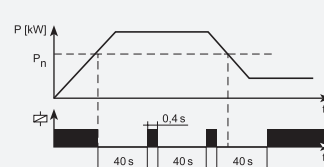
Power absorption limiter PMM-02
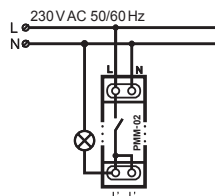
Features
- smooth power setting in the range of 100 W - 3 kW
- works with low-power LED lighting for staircases,
- smooth adjustment of the unit response time from 0 to 90 s,
- indication of the power supply and the operating mode of the relay.

Capacity
- 2000 W AC5b   **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo
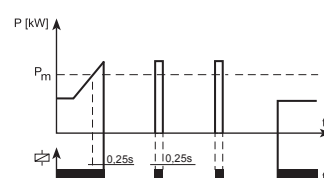
Technical data

Symbol:	PMH-01	PMM-01	PMM-02
Nominal supply voltage:	230 V AC		
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	35 mA	34 mA	26 mA
Power threshold adjustment:	0,2 ÷ 2 kW (rotary potentiometer)		0,1 ÷ 3 kW (rotary potentiometer)
Off-delay time:	approx. 2 s		approx. 250 ms
Measure frequency:	40 s		10 ÷ 90 s (rotary potentiometer)
Relay contact parameters:	1 NO 16 A / 250 V AC1 4000 VA (voltage contact)		1 NO 16 A / 250 V AC1 4000 VA
Number of connection cables / terminals:	3	4	
Cross-section of the connecting cables:	3 x 0,75 mm²	0,2 ÷ 2,50 mm²	
Connection cable length:	0,5 m	-	-
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP65	IP20	
Protection class:	II		
Overvoltage category:	II		
Dimensions:	69 x 56 x 27 mm	90 x 17,5 x 66 mm	
Weight:	0,120 kg	0,080 kg	0,077 kg

PMH-01 - APPLICATION

The power limiter system cooperates with staircase lighting time delay switch and it creates staircase lighting control system with limited power absorption. When the absorbed power value in the system is defined as well as the proper value adjustment on the power limiter, the system protects the lighting circuit against illegal connections of additional output loads. If power consumption is above the adjusted value, the power limiter switches off the controlled circuit and checks its power value every 40 seconds.
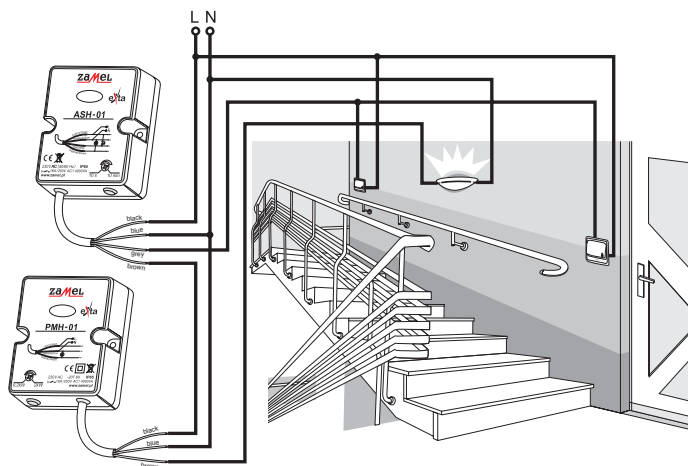
Priority relays (current relays) are devices used to control current value in a circuit with priority loads or/ and non priority loads. In case the adjusted current value is exceeded in the measure terminals, the device switches off the non-priority load with the adjusted time delay. Current threshold values and switch off time delay can be adjusted by the user.

Priority relay (current relay) PPM-05/5
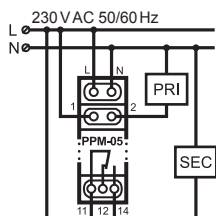
Features

- priority and non priority loads controlling,
- fluent current threshold adjustment 0,5 ÷ 5 A,
- fluent switch off-delay time regulation,
- current threshold exceeding optical signalling.

Capacity

- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses
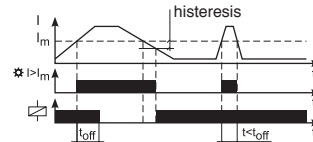
Priority relay (current relay) PPM-05/8
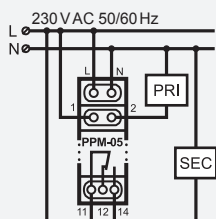
Features

- priority and non priority loads controlling,
- fluent current threshold adjustment 0,8 ÷ 8 A,
- fluent switch off-delay time regulation,
- current threshold exceeding optical signalling,

Capacity

- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses
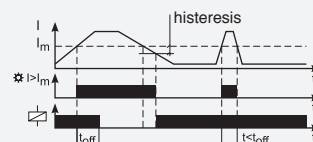
Priority relay (current relay) PPM-05/16
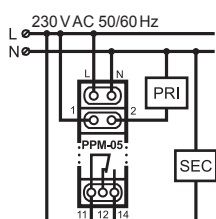
Features

- priority and non priority loads controlling,
- fluent current threshold adjustment 1,6 ÷ 16 A,
- fluent switch off-delay time regulation,
- current threshold exceeding optical signalling.

Capacity

- 2000 W AC5b **LED** 250 W
- 500 W AC5a
- 1000 W AC5a   750 W AC5a

Time courses

211

exta free

exta life

supla

exta

ledix

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entra

etero

gardi

ynsta

expo

Technical data

Symbol:	PPM-05/5	PPM-05/8	PPM-05/16
Nominal supply voltage:	230 V AC		
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	34 mA		
Current threshold adjustment:	0,5 ÷ 5 A (histeresis ~5%)	0,8 ÷ 8 A (histeresis ~5%)	1,6 ÷ 16 A (histeresis ~5%)
Current measuring tolerance:	≤ 20%		
Current measuring tolerance:	0,5 ÷ 20 s		
Optical signalling of supply voltage:	green LED diode		
Optical signalling of current threshold exceeding:	red LED diode		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		
Number of connection cables / terminals:	7		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Operating temperature range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,080 kg		

PPM-05 - APPLICATION

There is a running water heater in the circuit. The heater is a priority receiver. A water boiler is set as a non-priority receiver. The PPM-05 device controls power and current level for the adjusted values. The boiler operates continuously and heats water reserve. When the water heater is switched on, the boiler is switched off for the time of water usage.
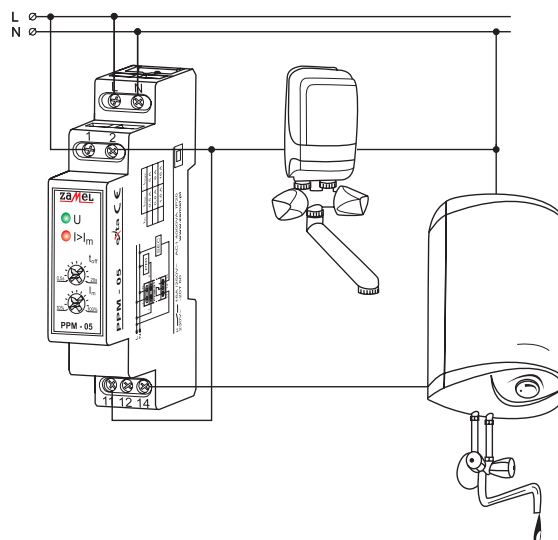
Temperature relays are used to control heating devices (e.g. heaters, floor heating) depending on current temperature in the external NTC sensor area. These devices cooperate with external temperature sensors of NTC type: (RTM-01, RTM-02, RTM-03 and RTM-20) or KTY 81-210 (RTM-30), which are required for proper device operation. There are several types of devices: RTM-01 (temperature range adjustment: from +5 to +40°C), RTM-02 (temperature range adjustment: from -10 to +40°C), RTM-03 (temperature range adjustment: from -10 to +90°C with adjustable hysteresis 0,25 ÷ 2,5°C), RTM-20 (temperature range adjustment: from +5 to +60°C, 10 operating modes in day and week modes) and RTM-30 (temperature range adjustment: from -10 to +90°C, two temperatures measuring, realisation of heating characteristics adjusted by a user, differential adjustment, universal module power supply). The RTM-02 regulator due to its temperature range adjustment can be applied in anti-icing systems.

Temperature regulator RTM-01
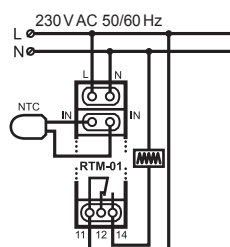
Features
- temperature adjustment range: +5 ÷ +40°C,
- output relay optical signalling.
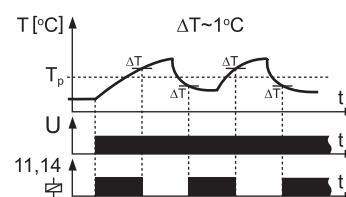
Time courses

Temperature regulator RTM-02
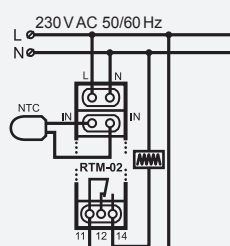
Features
- temperature adjustment range: -10 ÷ +40°C,
- output relay optical signalling.

Time courses
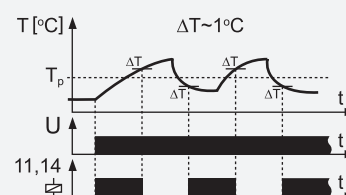
Temperature regulator RTM-03
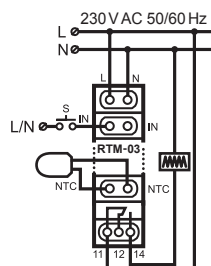
Features
- binary temperature regulation from -10 to +90°C,
- cooperation with 10 kohm NTC type temperature sensors,
- selection of temperature hysteresis from 0,25 to 2,5°C,
- control input for lowering the temperature through an external signal (e.g. via an external digital time programmer ZCM-11),
- measuring system resistant to interference induced in the measuring probe cable.

Time courses

exta free

exta life

supla

exta

ledix

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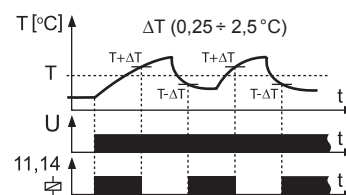
Technical data

Symbol:	RTM-01	RTM-02	RTM-03
Nominal supply voltage:	230 V AC		230 V
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	33 mA		26 mA
Optical signalling of supply voltage:	green LED diode		
Temperature adjustment range:	+5 ÷ +40°C	-10 ÷ +40°C	-10 ÷ +90°C
Hysteresis:	± 1°C		0,25°C ÷ 2,5°C
Night-mode inputs (temperature decreased 5°C):	-		IN IN
NTC probe inputs:	IN IN		NTC NTC
Optical signalling of receiver's switching on:	red LED diode		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		16A NO/NC 4000 VA AC1
Number of connection cables / terminals:	7		9
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Temperature operating range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 17,5 x 66 mm		
Weight:	0,080 kg		0,077 kg

RTM-01 - APPLICATION

Floor heating system. The regulator keeps the adjusted temperature value with hysteresis of ± 1°C.

Temperature regulator RTM-20

230 V AC 50/60 Hz
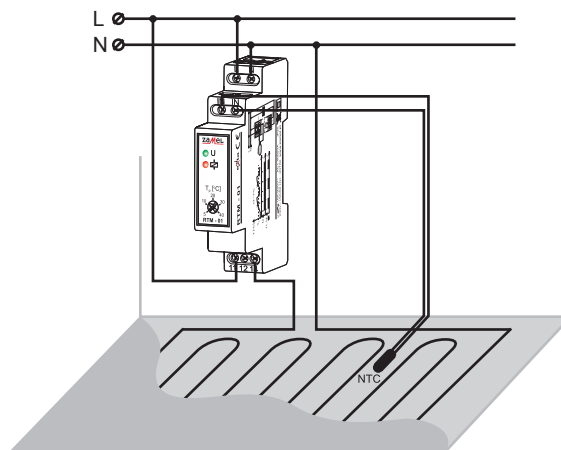
RTM - 20
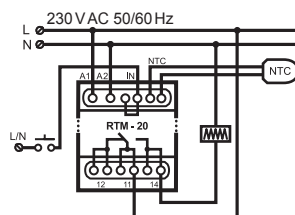
Features
- temperature adjustment range:
  +5 ÷ +60°C,
- 10 operating modes (daily and weekly
  programme mode),
- LCD display,
- display of the adjusted temperature valu
  and ambient temperature of sensor's
  surruonding,
- external control input.

Time courses
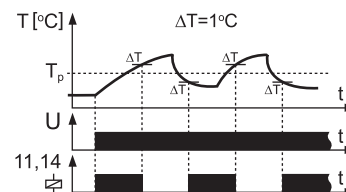
$T [°C]$
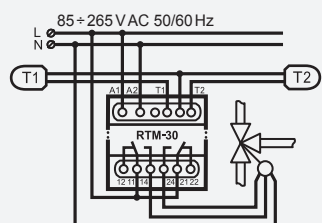
$\Delta T = 1°C$

T_p

U

11,14

Temperature regulator RTM-30

85 ÷ 265 V AC 50/60 Hz

RTM-30

Features
- temperature adjustment range:
  +5 ÷ +95°C,
- cooperation with external STZ-01 and
  STZ-02 sensors,
- keeping loads temperature depend-
  ing on reference temperature and on
  temperature difference,
- economic heating source adjustment,
- simultaneous control possibility of heat-
  ing and cooling sources.

Heating curve

expected temperature
(of a heater) T2 [°C]

Point

reference temperature
(outer) T1 [°C]

Temperature regulator RTM-30/S

85 ÷ 265 V AC 50/60 Hz
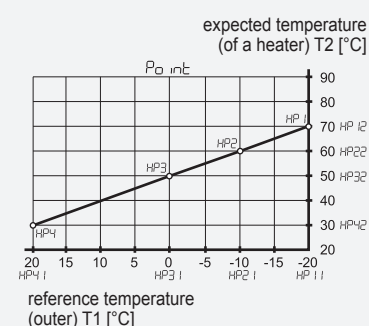
RTM-30
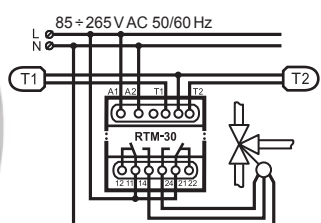
Features
- temperature adjustment range:
  +5 ÷ +95°C,
- cooperation with external STZ-01 and
  STZ-02 sensors (sensors included in
  the set),
- keeping loads temperature depend-
  ing on reference temperature and on
  temperature difference,
- economic heating source adjustment,
- simultaneous control possibility of heat-
  ing and cooling sources.

Heating curve

expected temperature
(of a heater) T2 [°C]

Point

reference temperature
(outer) T1 [°C]

215

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo
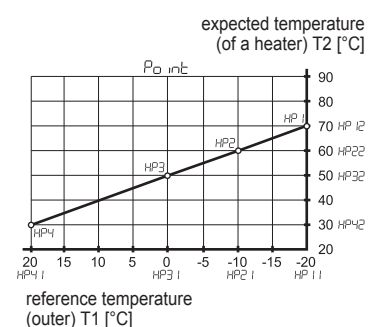
Technical data

Symbol:	RTM-20	RTM-30	RTM-30/S
Nominal supply voltage:	230 V AC	85 ÷ 265 V AC	
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	2 W / 14 VA	<1,5 W	
Optical signalling of supply voltage:	LCD display		
Temperature adjustment range:	+5 ÷ +60°C	+5 ÷ +95°C	
Histeresis:	± 1°C	± 0,5°C	
Optical signalling of receiver's switching on:	LCD display		
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA	2 NO / NC 16 A 250 V AC1 4000 VA	
Number of connection cables / terminals:	12		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Temperature operating range:	-20 ÷ +60°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 35 x 66 mm		
Weight:	0,130 kg		

RTM-20 - APPLICATION
RTM-20 temperature regulator is used to control floor heating in cooperation with NTC-03 temperature sensor by ZAMEL.
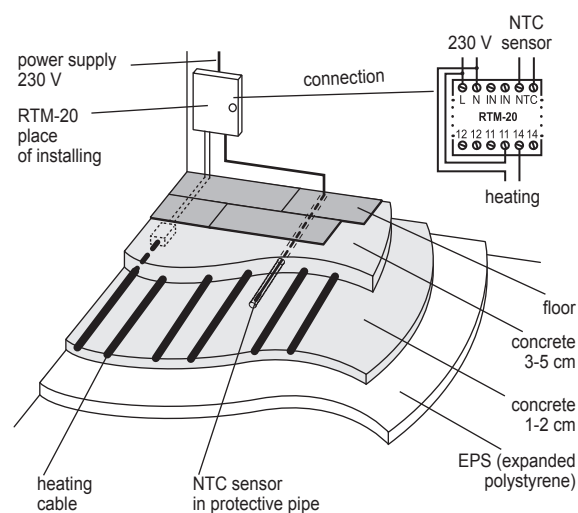
RTM-30 - APPLICATION
RTM-30 regulator operates in heating and air-conditioning systems coordinating the operation of both subsystems depending on the external temperature and indoor building temperature.
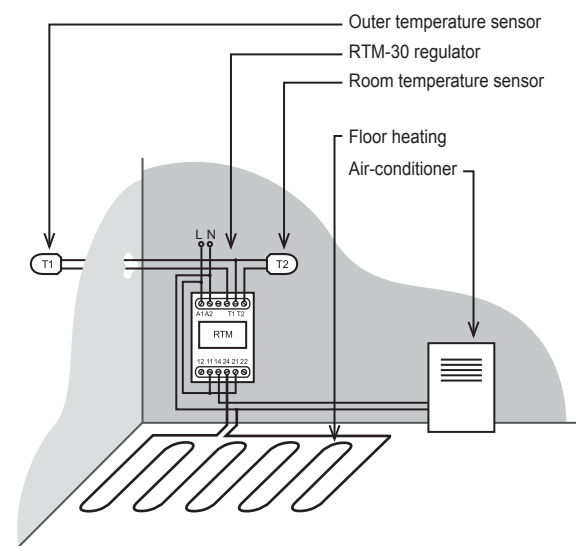
RTM-20
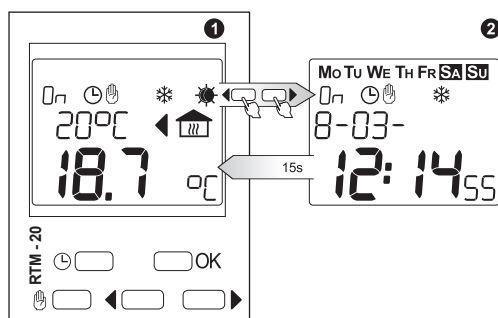
RTM-30, RTM-30/S
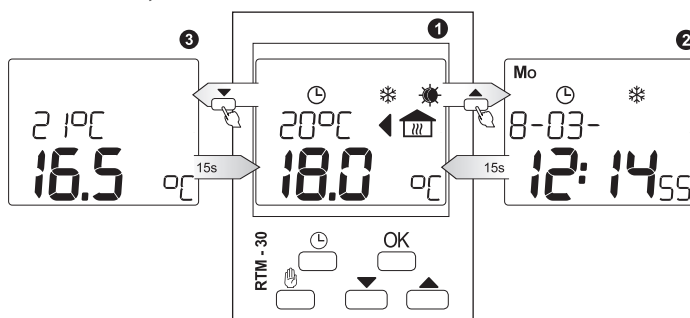
Displayed elements and messages description:

From the main window ❶ it is possible to enter the window of current time and date information ❷ by means of pressing the ◀ or ▶button. The return is automatical after 15 seconds.

For window ❶
On ⌂, OFF ⌂ - relay mode
🕐 - automatic mode
✋ - manual mode
◀ - output temperature
❄ - anti-freezing temperature
☀ - comfort temperature
☾ - economic temperature
20°C - adjusted temperature
18.7 °C - current temperature

For window ❷
Mo Tu We Th Fr SA Su - days of the week
On OFF - relay mode
🕐 - automatic mode
✋ - manual mode
❄ - winter time
8-03- - current date
12:14ss - current time

For other windows:
dAY - day
YEAR - year
Auto - automatic
USEr - user
On OFF - switch on/switch off
Error - NTC sensor mistake (short-circuit or break)

From the main window ❶ it is possible to enter the information window with current time and data ❷ after pressing the ▶ key or it is possible to enter the information window with the calculated and expected temperature ❸ after pressing the ◀. There is an automatic return after 15 seconds.

For window ❶
🕐 - automatic mode,
✋ - manual mode
◀ - reference temperature
❄ - anti-freezing temperature
☀ - comfort temperature
☾ - economic temperature
20°C - adjusted temperature
18.0°C - expected temperature (NTC2)

For window ❷
Mo Tu We Th Fr SA Su - days of the week
🕐 - automatic mode
✋ - manual mode
❄ - winter time
8-03- - current date
12:14ss - current time

For window ❸
21°C - calculated temperature
16.5 °C - reference temperature (NTC1)

Push button description:

🕐 • main window - enter to automatic mode
  • other windows - exit to higher level without saving entered data;

✋ • main window - enter to manual mode or adjusted temperature change if the regulator is in a manual mode
  • other windows - exit to higher level without saving entered data;

OK • main window - enter to main menu
  • other windows - enter to submenu or confirmation of the adjusted value;

◀ ▶ • windows / options menu change or decreasing / increasing the adjusted value.

🕐 • main window - enter to automatic mode
  • other windows - exit to higher level without saving entered data;

✋ • main window - enter to manual mode
  • other windows - exit to higher level without saving entered data;

OK • main window - enter to main menu
  • other windows - enter to submenu or confirmation of the adjusted value;

◀ ▶ • menu windows change or decreasing/increasing the adjusted value.

RTM-20, RTM-30, RTM-30/S

temperature

Prog 0	Non-editable programme: 24 hours anti-freezing temperature ❄
Prog 1	00:00 - 06:00 - economic temperature ☾ 06:00 - 23:00 - comfort temperature ☀ 23:00 - 00:00 - economic temperature ☾
Prog 2	00:00 - 06:00 - economic temperature ☾ 06:00 - 08:00 - comfort temperature ☀ 08:00 - 16:00 - output temperature ◀ 16:00 - 23:00 - comfort temperature ☀ 23:00 - 00:00 - economic temperature ☾
Prog 3	00:00 - 06:00 - economic temperature ☾ 06:00 - 08:00 - comfort temperature ☀ 08:00 - 10:00 - output temperature ◀ 10:00 - 12:00 - comfort temperature ☀ 12:00 - 16:00 - output temperature ◀ 16:00 - 23:00 - comfort temperature ☀ 23:00 - 00:00 - economic temperature ☾
Prog 4	00:00 - 06:00 - comfort temperature ☀ 06:00 - 13:00 - economic temperature ☾ 13:00 - 15:00 - comfort temperature ☀ 15:00 - 22:00 - economic temperature ☾ 22:00 - 00:00 - comfort temperature ☀
Prog 5	24 hours economic temperature ☾
Prog 6-9	Empty programmes - for user's edition - comfort temperature ☀ default setting

exta free

exta life

supla

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ledix

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expo

SRM-10 and SRM-11 roller shutter controllers enable controlling a window or door roller shutter driven by a 2-phase AC motor. Roller shutters can be activated locally or centrally, by phase signal input (for SRM-10, phase meeting the power supply phase) or neutral (N) signal (for SRM-11), using roller shutter switches or normally open buttons. The switches cannot be equipped with backlit components. One roller shutter controller can be connected to one roller shutter drive. The application of roller shutter controllers with the SEM-01 input separator enables building local, group and central roller shutter operation control systems. The SRM-12 roller shutter controller enables controlling 12-24 V DC drives.

Roller blind controller SRM-10
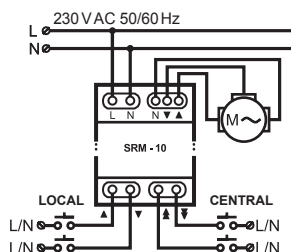
Features
- local and central roller blind control,
- roller blind movement time adjustment range from 1 to 256 seconds,
- roller blind activation from L or N line,
- roller blind movement optical signalling.

Time courses

D - movement down
G - movement up
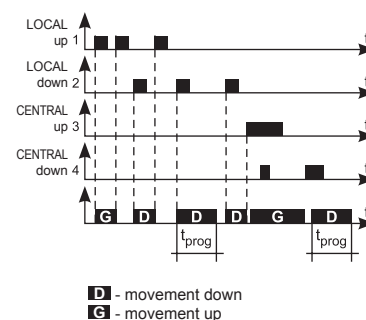
Roller blind controller SRM-11
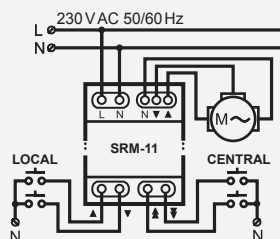
Features
- control of other devices powered with single-phase motors 230 V AC,
- local and central roller blind control,
- ability to work independently or connect in sections (grouping),
- local control performed from the level of single and double roller blind buttons,
- central control performed only from double roller blind buttons,
- possibility to block a roller blind in closed or open position from the level of central inputs,
- energy-saving device, designed for continuous operation,
- modes comfort – up and down – ability to save the position of the roller blind,
- programmed maximum movement time of a roller blind.

Time courses

D - movement down
G - movement up
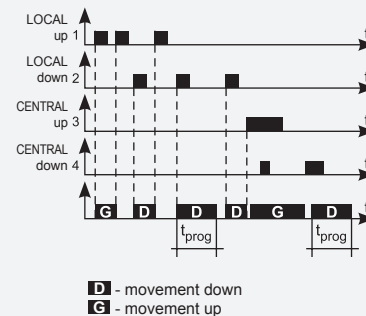
Roller blind controller SRM-12
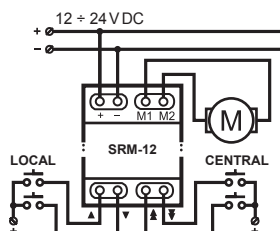
Features
- control of other devices powered with single-phase motors 12 V DC or 24 V DC,
- local and central roller blind control,
- ability to work independently or connect in sections (grouping),
- local control performed from the level of single or double roller blind buttons,
- central control performed only from double roller blind buttons,
- energy-saving device, designed for continuous operation,
- modes comfort – up and down – ability to save the position of the roller blind,
- programmed maximum movement time of a roller blind.

Time courses

D - movement down
G - movement up

219

exta free

exta life

supla

exta

ledix

konekto

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matec

entra

etero

gardi

ynsta

expo
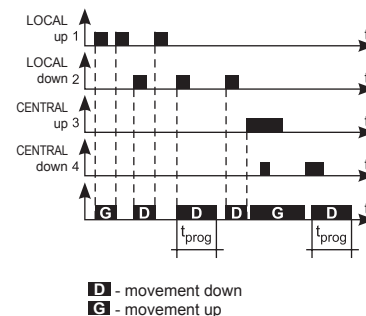
Technical data

Symbol:	SRM-10	SRM-11	SRM-12
Nominal supply voltage:	230 V AC		12 ÷ 24 V DC
Nominal supply voltage tolerance:	± 10 %	+10 ÷ -15 %	-
Nominal frequency:	50 / 60 Hz		-
Nominal current / power consumption:	35 mA	0,22 W (standby mode) 0,55 W (during roller blind movement)	standby: 0,07 W (by UIN=12 V DC) 0,24 W (by UIN=24 V DC) work: 0,42 W (by UIN=12 V DC) 0,58 W (by UIN=24 V DC)-
Optical indication of supply voltage:	green LED diode		
Optical indication of roller shutter movement:	2 x red LED diode		
Roller shutter movement time adjustment:	1 ÷ 256 s	1 s ÷ 10 min.	
Local control terminals:	▲ (up), ▼ (down)	LOCAL ▲ (up), LOCAL ▼ (down)	
Central control terminals:	▲ (up), ▼ (down)	CENTRAL (▲), (▼)	
Motor Input (supply) terminals:	N (neutral), ▲ (up), ▼ (down)		M1, M2
Relay contact parameters:	3 A / 250 V AC 85 W	2NO 10A / 250 V AC AC3 2500 VA (voltage contact)	-2 NO 8 A / 30 V DC (voltage contact)
Number of connection cables / terminals:	9		8
Cross-section of the connecting cables:	0,2 ÷ 2,5 mm²		
Temperature operating range:	-20 ÷ +45°C	-10 ÷ +55°C	
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 35 x 66 mm		
Weight:	0,100 kg	0,090 kg	0,040 kg

SRM-10 - APPLICATION

A complete roller blind control system is realised by means of roller blind controllers SRM-10. One controller can be used for one roller blind only. Each controller has local control push buttons and connected central control inputs allowing for opening and closing a group of roller blinds by means of one central push button. Unipolar push buttons can not be equipped with backlight.
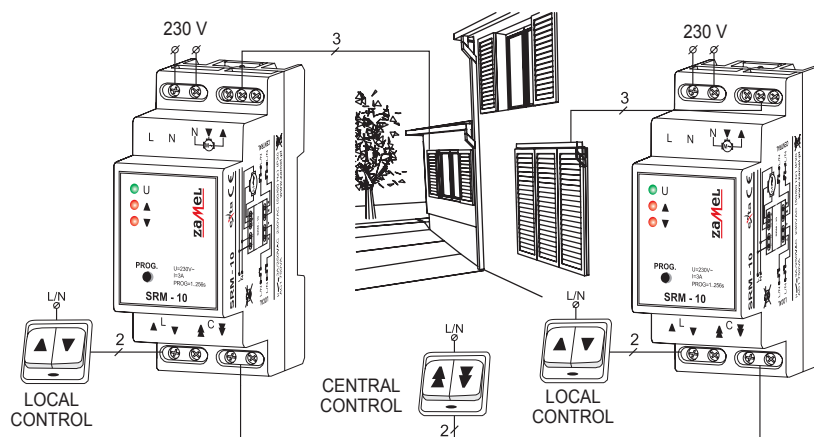
Roller blind controller SRP-01
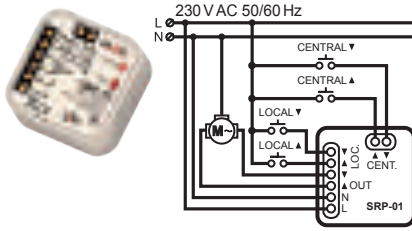
Features
- designed for wired control of roller blind drives, awnings, gates (electrical 230 V AC 1-phase motors)
- local and central control inputs
- easy to mount in a Ø60 mm junction box
- energy-saving device, designed for continuous operation
- comfort modes - upper and lower - a possibility of storing the roller blind position (e.g. halfway)
- cooperation possibility with any roller blind control switch (without backlight elements.

Time courses

D - movement down
G - movement up
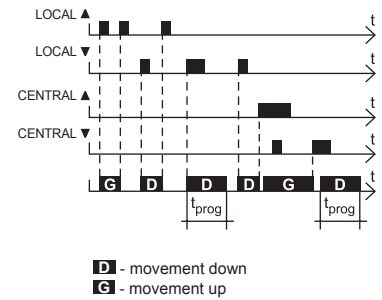
Roller blind controller SRP-04
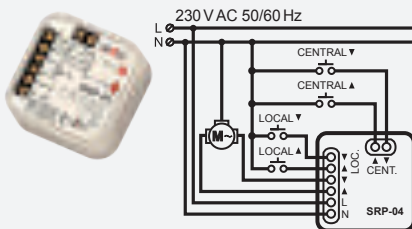
Features
- designed for wired control of roller blind drives, awnings, gates
- control of other devices powered with electrical 230 V AC single-phase motors,
- ability to work independently or connect in sections (grouping),
- local control performed from the level of single or double roller shutter buttons,
- central control performed only from double roller shutter buttons,
- easy to mount in a Ø60 mm junction box
- possibility of powering the controllers from different phases with extensive central control,
- energy-saving device, designed for continuous operation
- comfort modes - upper and lower - possibility to save the roller shutter position,
- programmed maximum movement time of a roller shutter,
- possibility of cooperation with the EXTA FREE system through application of central lines controller SRP-03.

Time courses

D - movement down
G - movement up
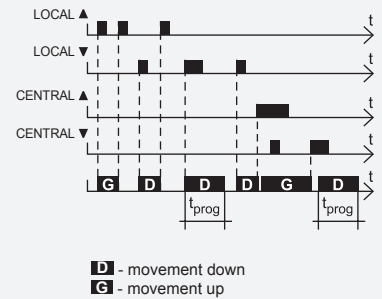
Roller blind controller SRP-05
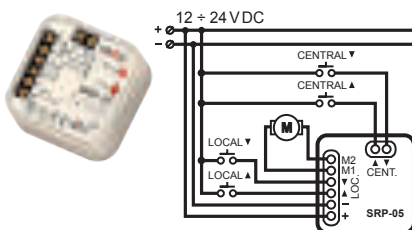
Features
- designed for wired control of roller blind drives, awnings, gates,
- controls other devices powered by electric DC motors 12 V DC or 24 V DC,
- in case of local control, double and single buttons can be used.
- only double buttons can be used for central control,
- the function of the central control inputs allows the blind to be locked in a closed or open position,
- energy-saving device, designed for continuous operation,
- comfort modes - upper and lower - a possibility of storing the roller blind position,
- programmable maximum blind movement time.

Time courses

D - movement down
G - movement up

exta free

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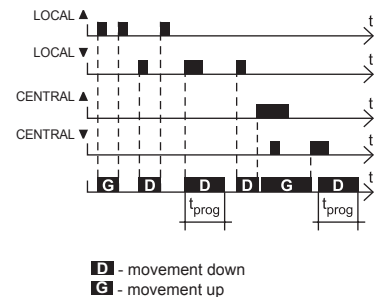
Technical data

Symbol:	SRP-01	SRP-04	SRP-05
Nominal supply voltage:	230 V AC		12 ÷ 24 V DC
Nominal supply voltage tolerance:	-15 ÷ +10 %		-
Nominal frequency:	50 / 60 Hz		-
Nominal current / power consumption:	0,19 W standby mode, 0,58 W during roller blind movement	0,22 W standby mode, 0,55 W during roller blind movement	0,21 W standby mode, 0,51 W during roller blind movement
Optical signalling of roller blind movement:	red LED diode		
Roller blind movement time adjustment:	1 s ÷ 10 min (120 s)		
Local control terminals:	LOCAL ▲ (up), LOCAL ▼ (down)		
Central control terminals:	CENTRAL ▲ (up), CENTRAL ▼ (down)		
Motor Input (supply) terminals:	N (neutral), ▲ (up), ▼ (down)		
Relay contact parameters:	2 NO 5 A / 250 V AC 1250 VA AC3 (voltage contact)	2 NO 8 A / 250 V AC 2000 VA AC3 (voltage contact)	2 NO 8 A / 30 V DC (voltage contact)
Number of connection cables / terminals:	8		
Cross-section of the connecting cables:	0,2 ÷ 2,5 mm²		
Temperature operating range:	-10 ÷ +55°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	47,5 x 47,5 x 20 mm		
Weight:	0,040 kg	0,038 kg	0,035 kg

SRP-01 - APPLICATION

Roller blinds control system is realised by means of SRP-01 roller blinds controllers. One controller can be used only for one roller blind. Every controller can be connected to blind switches of local control and has central control inputs connections, which enable closing or opening a group of roller blinds by means of SRP-03 central flush roller blinds controller operated by wireless P-256/8 remote control. Blind switches can not be equipped with backlight.
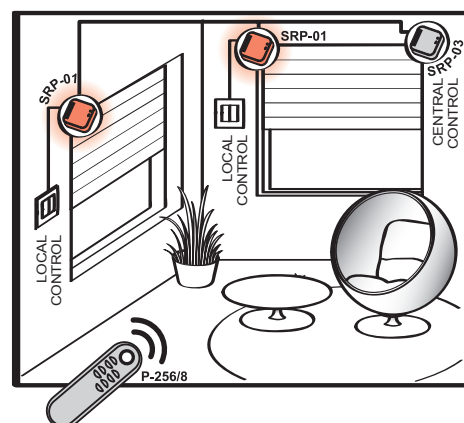
Resistance relay PRM-10 is used to protect electrical devices (e.g. motors) against dangerous high temperature increase. The temperature is measured by external PTC temperature sensors which can be connected in series. The increased temperature on the sensor causes the output relay switches on.

Flooding relays PZM-10 and PZM-20 are used to detect the presence of conductive liquids (e.g. water) which are on the level of flood sensor mounting (SZH-03). The device can be used to alarm there is water in undiserable places, it can also be used in liquid level control systems. The external flood sensor is galvanically separated, which makes the device operation safe and indefective.

Resistance relay PRM-10
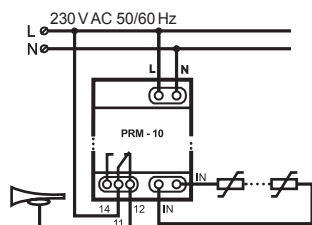
Features

- thermal protection of devices,
- temperature sensor galvanically separated from supply installation (1 m long cable),
- a possibility of sensor serial connection,
- resistance of PTC sensor loop - 1500 Ω (cold state).

Time courses
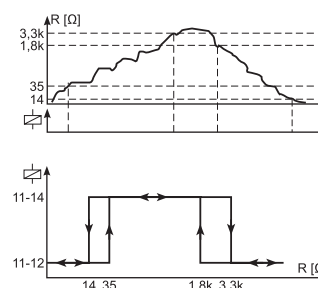
Flooding relay PZM-10
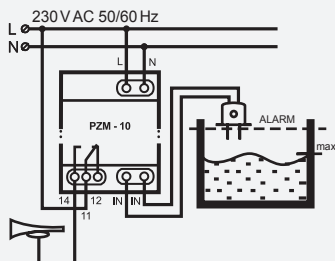
Features

- flooding protection,
- flooding sensor SZH-03 galvanically separated included in the set,
- a possibility of sensor serial / parallel connection,
- a possibility of sensor cable length extension.

The relay operates if all sensors are flooded

The relay operates in case any off looding any of the sensors
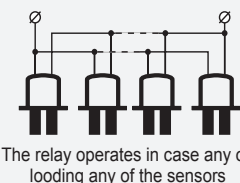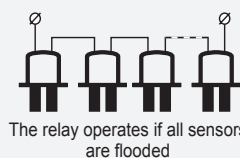
Flooding relay PZM-20
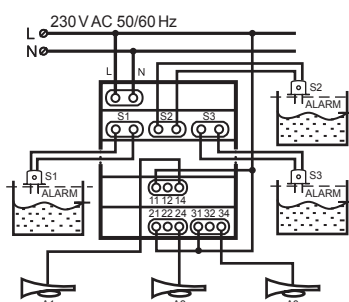
Features

- application in liquid level control systems,
- 3 x external flooding sensor galvanically separated included in the set
- 3 relay outputs,
- adjustable sensitivity of inputs.

Time courses

223

exta free

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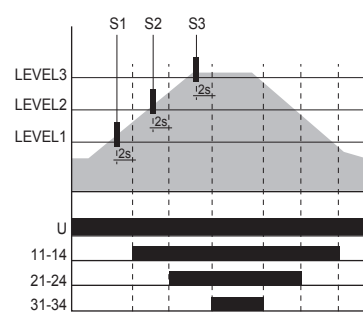
Technical data

Symbol:	PRM-10	PZM-10	PZM-20
Nominal supply voltage:	230 V AC		
Nominal supply voltage tolerance:	-15 ÷ +10 %		
Nominal frequency:	50 / 60 Hz		
Nominal power consumption:	11 mA	10 mA	30 mA
Optical indication of supply voltage:	green LED diode		
Resistance of PTC sensor loop:	1500 Ω (cold state)	-	-
Maximum length of sensor's cable:	500 m		
Optical indication of relay status:	red LED diode		3 x red LED diode
Relay contact parameters:	1 NO / NC 16 A / 250 V AC1 4000 VA		3 NO / NC 16 A / 250 V AC1 4000 VA
Number of connection terminals:	7		17
Cross-section of the connecting cables:	0,2 ÷ 2,5 mm²		
Temperature operating range:	-20 ÷ +60°C		
Ingress protection rating of the casing:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 35 x 66 mm		90 x 52 x 66 mm
Weight:	0,230 kg	0,290 kg	0,450 kg
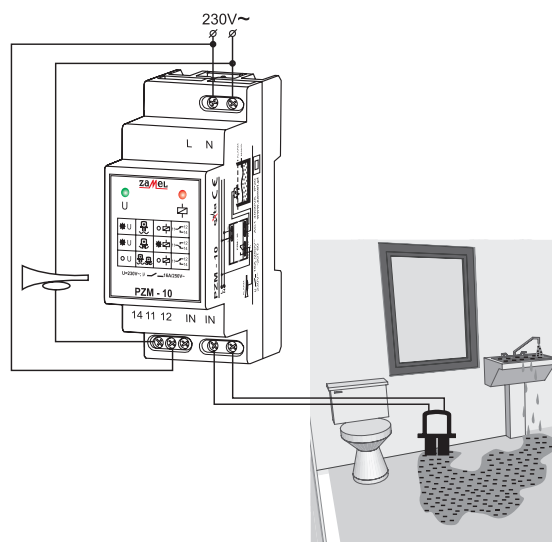
PZM-10 - APPLICATION

Flooding relay operates as an alarm system informing about the danger of uncontrolled water leakage that can cause flooding.

The signal and control modules are used in automation and control systems as well as acoustic signalling. The acoustic signal modules are made in three versions: ED-1 - electromechanical bell, EDM-01 - electronic bell. The PIM-03 installation switch allows you to switch between two electrical circuits (for example, measuring or control).

Signalling bell ED-1
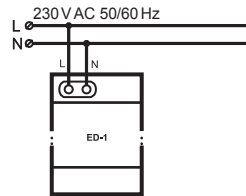
Features
· electromechanical bell,
· buzzer type sound,
· sound intensity 85 dB.

Time courses

Acoustic signal module EDM-01
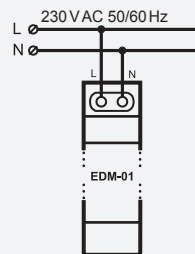
Features
· electronic bell,
· sound intensity 65 dB.

Time courses
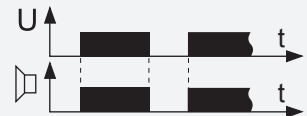
Installation changeover switch PIM-03
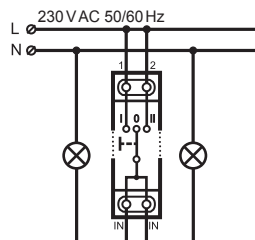
Features
· 3-position changeover switch: I-0-II.

exta free

exta life

supla

exta

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Technical data

Symbol:	ED-1	EDM-01	PIM-03
Nominal supply voltage:	230 V AC		
Nominal supply voltage tolerance:	-15 ÷ +10%		
Nominal frequency:	50 / 60 Hz		
Nominal current / power consumption:	4,5 VA	15 mA	-
Signalling of switching on a receiver:	electromechanical bell	piezoelectrical loudspeaker	-
Sound intensity:	85 dB	65 dB	-
Permissible current:	-		10 A AC 21
Contact resistance:	-		< 100 mΩ (dla 12 V AC)
Number of connection cables / terminals:	2		4
Cross-section of the connecting cables:	0,2 ÷ 2,5 mm²		
Temperature operating range:	0 ÷ +35°C	-20 ÷ +45°C	
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 35 x 66 mm	90 x 17,5 x 66 mm	
Weight:	0,092 kg	0,051 kg	0,068 kg

ED-1 - APPLICATION

Control and signalling system of voltage drop on L1 phase. Alarm signal (electromechanical bell ED-1) is switched on by the system after voltage drop on L1 phase has been detected and it is lower than the adjusted value on the voltage relay PNM-10 (e.g. 200 V).

CAUTION: The bell is supplied form L2 phase with 230 V (voltage value that allows for proper operation of the alarm bell.
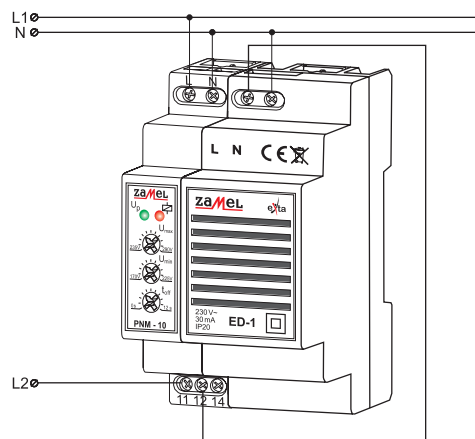
Transformers TRM-358, TRM-8, TRM-12 and TRM-24 are used to lower the supply voltage 230 V AC to the required supply voltage level of receivers. They are also used as a galvanic separation of 230 V AC and receivers' supply circuits. Sinusoidal alternative power supply of reduced value is used for automation equipment, door entry systems, monitoring, etc. The devices are short circuits resistant and are made in protection level II. They are also equipped with inner thermal protection.

Transformer TRM-358
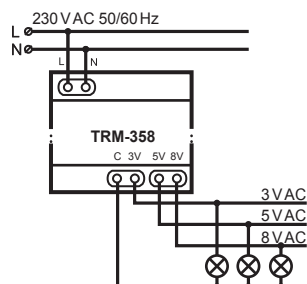
Features
• 3 output voltages: 3 V AC, 5 V AC, 8 V AC.

Transformer TRM-8
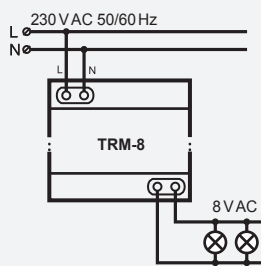
Features
• output voltage: 8 V AC.

Transformer TRM-12
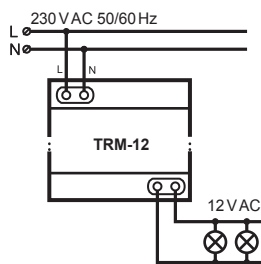
Features
• output voltage: 12 V AC.

Transformer TRM-24
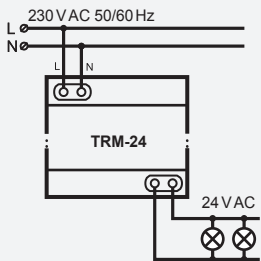
Features
• output voltage: 24 V AC.

Technical data

Symbol:	TRM-358	TRM-8	TRM-12	TRM-24
Nominal supply voltage:	230 V AC			
Nominal frequency:	50 / 60 Hz			
Nominal power consumption:	15 VA			
No-load state current:	max. 36 mA AC (U=230 V AC, f=50 Hz)			
No-load state secondary voltage:	3,9 V AC or 6,3 V AC or 9,8 V AC	9,6 V AC	14,4 V AC	28,7 V AC
No-load state secondary voltage tolerance:	± 5%			
Nominal secondary current:	5 A AC or 3 A AC or 1,88 A AC	1,88 A AC	1,25 A AC	0,625 A AC
Nominal secondary voltage:	3 V AC or 5 V AC or 8 V AC	8 V AC	12 V AC	24 V AC
Nominal secondary voltage tolerance:	± 10%	± 5%		
Nominal ambient temperature range:	+40°C			
Average permissible increase coil temperature:	80°C			
Thermal insulation class:	B (120°C)			
Operation mode:	continuous			
Number of connection cables / terminals:	6	4		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²			
Casing protection degree:	IP20			
Protection class:	II			
Overvoltage category:	II			
Dimensions:	90 x 53 x 66 mm			
Weight:	0,474 kg			

Protections

Safety transformer resistant to short-circuit (directly and indirectly).

Doorbells and chimes transformer resistant to short circuits (conditionally and non-conditionally).

Internal thermal transformer protection against overload and short circuits.

Construction made according to protective class II.

Stabilized power supplies ZSM-11, ZSM-12, ZSM-24 have a high output voltage stability in current consumption. They are short circuit resistant and they are made in protective class II.

Stabilized power supply ZSM-11
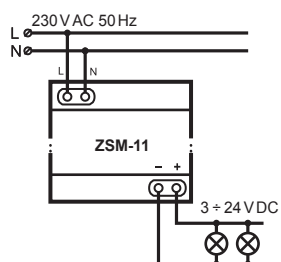
Features
• regulated output voltage: 3 ÷ 24 V DC.

Stabilized power supply ZSM-12
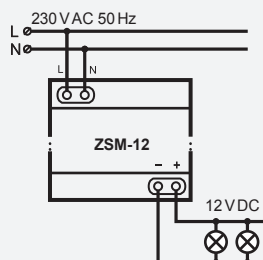
Features
• output voltage: 12 V DC.

Stabilized power supply ZSM-24
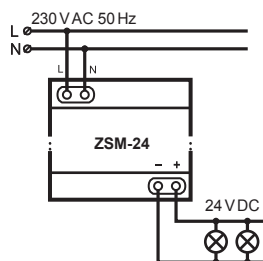
Features
• output voltage: 24 V DC.

Technical data

Symbol:	ZSM-11	ZSM-12	ZSM-24
Nominal supply voltage:	230 V AC		
Nominal frequency:	50 Hz		
Nominal output voltage:	3 ÷ 24 V DC	12 V DC	24 V DC
Output ripple voltage:	< 3 mVpp		
Maximum continuous output current:	125 mA	250 mA	125 mA
Optical signalling of output voltage:	red LED diode		
Nominal ambient temperature range:	+40°C		
Operation mode:	continuous		
Number of connection cables / terminals:	4		
Cross-section of the connecting cables:	0,2 ÷ 2,50 mm²		
Temperature operating range:	-20 ÷ +45°C		
Casing protection degree:	IP20		
Protection class:	II		
Overvoltage category:	II		
Dimensions:	90 x 53 x 66 mm		
Weight:	0,320 kg		

Protections

⊖ Safety transformer resistant to short-circuit (directly and indirectly).

☐ Construction made according to protective class II.

Switched-mode power supply ZIM-12/08

Features
- input voltage: 190 ÷ 260 V AC,
- output voltage: 12 V DC,
- output current: 0,8 A.

190 ÷ 260 V AC 50/60 Hz
ZIM-12/08
12 V DC
0,8 A
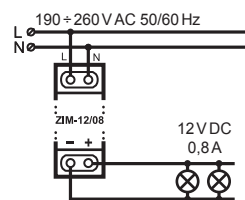
Switched-mode power supply ZIM-12/12

Features
- input voltage: 190 ÷ 260 V AC,
- output voltage: 12 V DC,
- output current: 1,2 A.

190 ÷ 260 V AC 50/60 Hz
ZIM-12/12
12 V DC
1,2 A
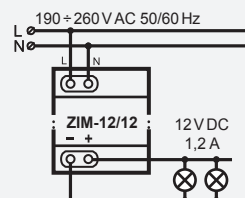
Switched-mode power supply ZIM-12/25

Features
- input voltage: 190 ÷ 260 V AC,
- output voltage: 12 V DC,
- output current: 2 A.

190 ÷ 260 V AC 50/60 Hz
ZIM-12/25
12 V DC
2 A
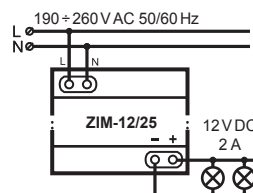
Switched-mode power supply ZIM-24/04

Features
- input voltage: 190 ÷ 260 V AC,
- output voltage: 24 V DC,
- output current: 0,4 A.

190 ÷ 260 V AC 50/60 Hz
ZIM-24/04
24 V DC
0,4 A
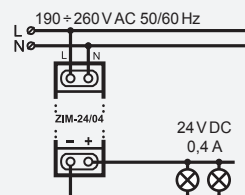
Switched-mode power supply ZIM-24/06

Features
- input voltage: 190 ÷ 260 V AC,
- output voltage: 24 V DC,
- output current: 0,6 A.

190 ÷ 260 V AC 50/60 Hz
ZIM-24/06
24 V DC
0,6 A
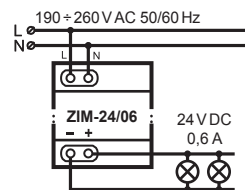
Switched-mode power supply ZIM-24/12

Features
- input voltage: 190 ÷ 260 V AC,
- output voltage: 24 V DC,
- output current: 1 A.

190 ÷ 260 V AC 50/60 Hz
ZIM-24/12
24 V DC
1 A
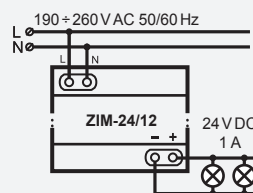
Technical data

Symbol:	ZIM-12/08	ZIM-12/12	ZIM-12/25	ZIM-24/04	ZIM-24/06	ZIM-24/12
Nominal supply voltage:	190 ÷ 260 V AC					
Nominal frequency:	50 / 60 Hz					
Efficiency:	79%	81%	82%	79%	81%	82%
Primary (input) current:	0,12 A	0,25 A	0,30 A	0,12 A	0,25 A	0,30 A
Starting current (cold start):	20 A	25 A	30 A	20 A	25 A	30 A
Nominal power consumption:	0,8 A	1,2 A	2 A	0,4 A	0,6 A	1 A
Nominal power consumption:	10 W	15 W	24 W	10 W	15 W	24 W
Nominal output voltage:	12 V DC			24 V DC		
Output ripple and noise voltage (max):	63 mVpp		100 mVpp	63 mVpp	100 mVpp	
Voltage tolerance:	3%					
Voltage tolerance in voltage change:	1%					
Voltage tolerance in load change:	1%					
Transient response, rise time:	100 ms, 30 ms					
Backup time:	100 ms					
Breakdown voltage:	3 kV AC					
Insulation resistance:	100 MΩ / 500 V DC					
EMI - conducted and radiated:	according to PN-EN 55022					
Current harmonic:	according to PN-EN 61000-3-2-3					
Nominal ambient temperature range:	+40°C					
Humidity:	10 ÷ 95%					
Temperature operating range:	-20 ÷ +85°C					
Casing protection degree:	IP20					
Protection class:	II					
Overvoltage category:	II					
Dimensions:	90 x 17,5 x 66 mm	90 x 35 x 66 mm	90 x 53 x 66 mm	90 x 17,5 x 66 mm	90 x 35 x 66 mm	90 x 53 x 66 mm
Weight:	0,083 kg	0,130 kg	0,160 kg	0,083 kg	0,130 kg	0,160 kg

Protections

Safety transformer resistant to short-circuit (directly and indirectly).

Construction made according to protective class II.

exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

Switched-mode power supply ZPM-30/12

Features
- input voltage: 200 ÷ 240 V AC,
- output voltage: 12 V DC,
- output current: 2,5 A.
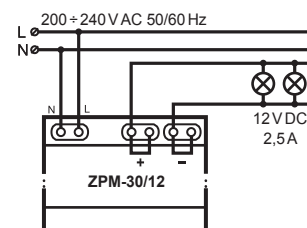
witched-mode power supply ZPM-30/24

Features
- input voltage: 200 ÷ 240 V AC,
- output voltage: 12 V DC,
- output current: 1,25 A.
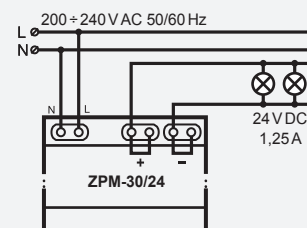
Switched-mode power supply ZPM-60/12

Features
- input voltage: 200 ÷ 240 V AC,
- output voltage: 12 V DC,
- output current: 5 A.
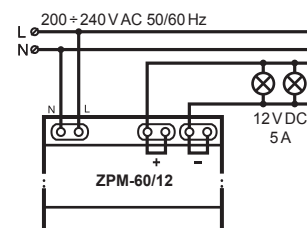
Switched-mode power supply ZPM-60/24

Features
- input voltage: 200 ÷ 240 V AC,
- output voltage: 24 V DC,
- output current: 2,5 A.
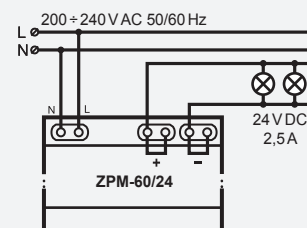
Switched-mode power supply ZPM-100/12

Features
- input voltage: 200 ÷ 240 V AC,
- output voltage: 12 V DC,
- output current: 8,33 A.
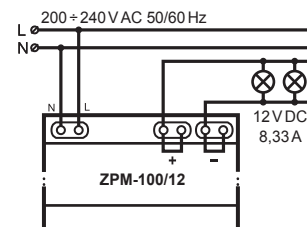
Switched-mode power supply ZPM-100/24

Features
- input voltage: 200 ÷ 240 V AC,
- output voltage: 24 V DC,
- output current: 4,16 A.

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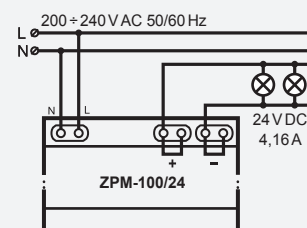
Technical data

Symbol:	ZPM-30/12	ZPM-30/24	ZPM-60/12	ZPM-60/24	ZPM-100/12	ZPM-100/24
Nominal supply voltage:	200 ÷ 240 V AC					
Nominal frequency:	50 / 60 Hz					
Efficiency:	81 %	83 %	81 %	83 %	81 %	83 %
Primary (input) current:	2,5 A	1,25 A	5 A	2,5 A	8,33 A	4,16 A
Power rating:	30 W		60 W		100 W	
Output voltage:	12 V DC	24 V DC	12 V DC	24 V DC	12 V DC	24 V DC
Ripple and noise (max):	120 mVpp	150 mVpp	120 mVpp	150 mVpp	120 mVpp	150 mVpp
Voltage tolerance:	1 %					
EMI - conducted and radiated:	according to PN-EN 55011; PN-EN 55022					
Current harmonic:	according to PN-EN 61000-3-2-3					
Humidity:	20 ÷ 90 %					
Operating temperature range:	-20 ÷ +85°C					
Casing protection degree:	IP20					
Protection class:	II					
Overvoltage category:	II					
Dimensions:	93 x 62,5 x 56 mm		93 x 77,4 x 56 mm		93 x 98,9 x 56 mm	
Weight:	0,083 kg	0,130 kg	0,160 kg	0,083 kg	0,130 kg	0,160 kg

Protections

Safety transformer resistant to short-circuit (directly and indirectly).

Construction made according to protective class II.

Light sensor SOH-01, SOH-03, SOH-05

Features
- sensor cable length: SOH-01 - 1 m, SOH-03 - 3 m, SOH-05 - 5 m,
- coordination with twilight switches WZM-01, WZM-02, WZN-01,
- sensor cable extension possibility.
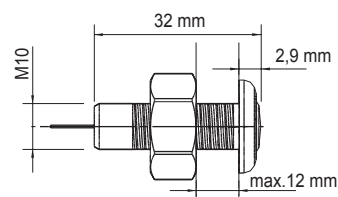
Light sensor SOS-01

Features
- surface mounting,
- coordination with twilight switches WZM-01, WZM-02, WZN-01,
- hermetic casing IP54.
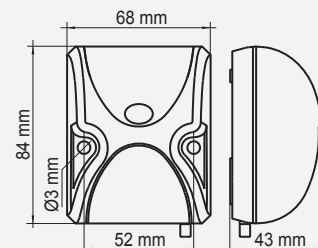
Flooding sensor SZH-03

Features
- serial and parallel sensor connection possibility,
- coordination with flooding relay PZM-10.
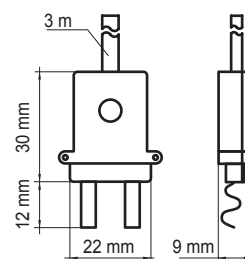
Flooding sensor SZH-04

Features
- serial and parallel sensor connection impossible,
- coordination with flooding relays.
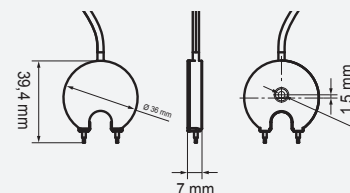
Temperatures sensor NTC-03

Features
- serial and parallel sensor connection impossible,
- coordination with temperature regulators RTM-01, RTM-02, RTM-20.
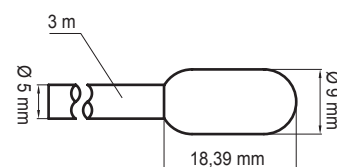
Temperatures sensor NTS-01

Features
- serial and parallel sensor connection impossible,
- coordination with temperature regulators RTM-01, RTM-02, RTM-20.
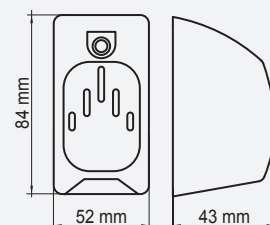
Temperatures sensor STZ-01, STZ-02

Features
- sensor cable length: STZ-01 - 1,5 m, STZ-02 - 3 m,
- serial and parallel sensor connection impossible,
- coordination with temperature regulator RTM-30.
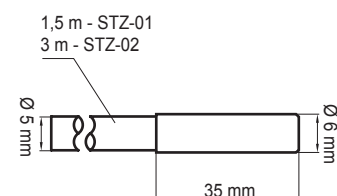
Dane techniczne

Symbol:	SOH-01	SOH-03	SOH-05	SOS-01	SZH-03	SZH-04	NTC-03	NTS-01	STZ-01	STZ-02
Sensor cable length:	1 m	3 m	5 m	-	3 m			-	1,5 m	3 m
Sensor cable maximum length:	50 m				-		50 m		30 m	
Minimum cross-section of sensor cable:	0,5 mm²			-	0,5 mm²	0,35 mm²	0,5 mm²			
Cross-section of the connecting cables:	-			0,2 ÷ 2,5 mm²	-					
Light sensor:	-			internal	-					
Measuring element:	-						NTC		KTY 81-210	
Contact material:	-						polyethylene	-	brass	
Temperature operating range:	-			-20 ÷ +45°C	-					
Casing protection degree:	-			IP54	-		IP67	-		
Protection class:	-			II	-		II			
Overvoltage category:	-			II	-					
Weight	0,039 kg	0,100 kg	0,170 kg	0,050 kg	0,090 kg		0,083 kg		0,130 kg	0,160 kg

Wired
Home System
EXTA SMART

The Exta Smart System is a warranty of top quality solutions. Every module is fitted with best components with top technical capabilities only. This guarantees failure-free system operation.

The Exta Smart Home System work with any traditional wall switch, but it is recommended to use bell buttons — then every switch can operate many different functions, depending e.g. on the pressing time.

The Exta Smart System controls outdoor roller shutters. The user can control each roller shutter separately or freely combine roller shutters in functional groups. The central button closes all roller shutters at the same time. By controlling roller shutters with rotary lath control, the system can control the relative position of every lath in any manner. The control can be operated by wall buttons or mobile app.

Exta Smart devices can assist temperature control for each section independently. By using temperature sensors and solenoid valves on the distributor, you can adjust the room temperature to the value set in the mobile app. The temperature value is shown in the app and can be changed remotely from any place worldwide.

System operation is supplemented by the control of recovery device shifts and integration with other HVAC equipment.

The lighting control, with the smart technology in use, enables automatic activation at a given time, remote monitoring and fulfilment of planned scenarios. You can easily dim the lighting throughout the house using a single button.

A single-circuit design facilitates the device integration and connection process. If a larger project is to be completed, the system is equipped with expansion modules with twin architecture. Thus, the selection of necessary components is very easy.

Exta Smart adjusts to the home system. Invisible, it merges into the surroundings. Concealed, it supports and helps controlling the building. It lowers temperature, enables and disables the lighting, controls roller shutters and gate drives. It supports HVAC systems to provide comfort and cost optimisation. By monitoring the property all the time, it warns of danger. Exta Smart becomes an invisible friend for the entire family.

54 digital inputs
The modules have as many as 54 digital inputs for connecting any traditional switches, motion sensors, temperature sensors or other additional components.

Consitent design
All devices have a consistent design that facilitates the installation and integration. They provide the distribution board with the prestige of smart solutions.

39 relay outputs
Every main module has as many as 39 top quality relays hidden inside the device.

Independent logic module
The module responsible for the Exta Smart System reliability operates independently of other system components.

CANbus
The bus used in vehicles ensures the highest efficiency of communication between modules and external devices.

Diverse inputs/ outputs
The devices have a full range of inputs and outputs to enable communication with other equipment, e.g. via RS-485, CANbus, I/O: 1-10 V and PWM.

Any switches
The Domu Exta Smart Home System works with any traditional wall switch. With our modules, it is recommended to use bell buttons — then each switch can operate many different functions, depending e.g. on the pressing time. Our system is also very simple to configure — just press the given witch to display it directly on the screen of our app and assign a specific function to it.

Roller shutter, awning and façade louvre control
The Exta Smart System controls outdoor roller shutters. The user can control each roller shutter separately or freely combine roller shutters in functional groups. The central button closes all roller shutters at the same time. By controlling roller shutters with rotary lath control, the system can control the relative position of every lath in any manner. By connecting the system with a wind sensor, the awning can be collapsed automatically, when the wind would threaten it structure.

Heating control
To control heating is a basic function of a smart home system. The device can control temperature of each section independently, using the data from the app, sensors and touch panels. With the connection to the recovery and air conditioning control, the system can optimise HVAC system maintenance costs.

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Recovery control

The purpose of the Exta Smart System is to control the recovery so as to ensure optimum air exchange at minimum power consumption. With consistent control of the entire HVAC systems, Exta Smart maintains optimum conditions, while additionally reducing the maintenance cost of the entire system.

MODBUS protocol

MODBUS protocol enables connecting outdoor equipment, like energy meters, ventilation systems and heat pumps. With duplex data exchange, fully scalable building automation system management is possible.

The app

A comfortable and intuitive app is foundational for controlling a smart system. Exta Smart enables both controlling individual circuits and fulfilling planned scenarios. With the Cloud service, everything can be managed from any place worldwide. The mobile app also displays video from IP cameras and the status of the alarm system.

Monitoring view

The view from the IP cameras enables checking on the house, while being out. With remote access, you can log into the system from any place, see what is happening through the IP cameras and make necessary changes.

User scenes

Planning and triggering automatic scenarios is undoubtedly comfortable. With the intuitive Exta Smart app, triggering events is quick and very intuitive. The system enables flexible programming of any scenarios related to the control of roller shutters, lighting, heating, alarm and other home subsystems integrated through Exta Smart.

Safe home

The Exta Smart System enables integration with alarm systems, IP monitoring and access control systems. By integrating all the subsystems into a consistent whole, you can increase the safety and comfort of the home system.

Presence simulation

The Exta Smart System enables simulating the presence of household members. It automatically closes and opens window roller shutters, enables and disables the lighting to pretend that the household members are inside. Presence simulation can be connected with the arming of the alarm system, while the view from the IP cameras enables monitoring the property from any place worldwide.

Lighting control

Exta Smart enables enabling and disabling any light sources. By integrating the system with smart dimmers type DIM-30, you can smoothly dim and brighten 230 V AC light sources. LED and RGBW LED strip control enables adjusting the lighting to the requirements of the user. The entirety is operated manually using any buttons and switches, motion sensors, as well as the mobile app — from any place worldwide.

Garden system control

Exta Smart has a series of built-in algorithms for controlling garden lighting and watering. By connecting all components into one whole, you can easily change the mood in the garden by pressing a single key and triggering the right scene. The system also remembers to water plants automatically. Discover a new standard of garden watering with us and see how beautiful it can be, when cared for on a regular basis. With watering schedules and rain sensors, you can relax, while your law will be watered properly.

The Cloud

Remote access to the Exta Smart System is achieved through a Cloud. It controls encrypted connections between the user and the MASTER central unit. The Cloud solution also enables the system integrator to maintain the equipment remotely from any place worldwide. After the completion of works, the access to the installer is disabled. A unique Exta Smart Cloud technology prevents unauthorised access to the system.

The EXTA SMART Home System enables controlling all electrotechnical equipment in the building. By default, it includes: the lighting, roller shutters, entrance and garage gates, heating, alarm, watering, ventilation and sound system. The device works with motion sensors, temperature sensors and switches. With the connection to LAN, EXTA SMART can be controlled from a tablet or mobile phone. The EXTA SMART mobile app enables the user to monitor the condition and see, what is happening inside the building, from any place worldwide.

Smart Home module MASTER MCM-01 / MASTER LED MCM-02

Features
• up to 10 watering sections (1 section takes 1 output),
• up to 39 230 V sockets (1 section takes 1 output),
• up to 4 gates and wickets (1 gate takes 1 output),
• up to 10 heating zones (1 zone takes 1 output),
• up to 19 roller shutters (1 roller shutter takes 2 outputs),
• up to 39 lights (1 light takes 1 output),
• power, water etc. consumption charts,
• alarm control,
• up to 4 dimmable LED lights,
• up to 6 motion sensors,
• RGBW output,
• 55 switch keys,
• control via Internet,
• expandable by MRM-01 or MRM-02 modules.

Specification
• MCM-01 / MCM-02 MASTER
• Processor ARM® 454 MHz
• Memory1024 Mb DDR2 RAM
• Memory 4 Gb NAN Flash SLC
• Ethernet 100 Mbit
• USB 2.0
• Interface RS485
• ExtaSmartCore
• ExtaSmart Cloud
• ARM®Cortex®-M4
• 32-bit RISC 180 MHz
• 4096 kb of Flash memory
• SPIMemory
• CAN Bus
• Exta Smart Firmware

Technical data

Symbol:	MCM-01	MCM-02
Number of digital inputs:	54	33
Maximum number of 0-10 V inputs:	up to 10	up to 10
Maximum number of operated 0-10 V outputs:	up to 4	up to 16
Maximum number of operated temperature sensors:	up to 10	up to 10
Number of 16 A relay outputs (80 A /20 ms):	39	39
Number of LED outputs with brightness adjustment (12 V / 24 V, max. 4 A):	4	16
Number of operated recovery devices:	up to 8	up to 8
Number of operated heating zones:	up to 20	up to 20
Number of operated fan-coils:	up to 5	up to 5
Number of operated watering sections:	up to 10	up to 10
Number of operated roller shutters/awnings:	up to 19	up to 19
Number of operated meter inputs:	up to 12	up to 12
Operated communication buses:	RS 485 MODBUS TCP RTU CANbus, TCP IP, UDP	RS 485 MODBUS TCP RTU CANbus, TCP IP, UDP

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Smart home expansion module EXPANDER MRM-01 / EXPANDER LED MRM-02

Features
- up to 10 watering sections (1 section takes 1 output),
- up to 39 230 V sockets (1 section takes 1 output),
- up to 4 gates and wickets (1 gate takes 1 output),
- up to 10 heating zones (1 zone takes 1 output),
- up to 19 roller shutters (1 roller shutter takes 2 outputs),
- up to 39 lights (1 light takes 1 output),
- power, water etc. consumption charts,
- alarm control,
- up to 4 dimmable LED lights,
- up to 6 motion sensors,
- RGBW output,
- 55 switch keys,
- control via Internet,
- requires the MCM-01 or MCM-02 module for proper operation.

Specification
- MCM-01 / MCM-02 MASTER
- Processor ARM® 454 MHz
- Memory1024 Mb DDR2 RAM
- Memory 4 Gb NAN Flash SLC
- Ethernet 100 Mbit
- USB 2.0
- Interface RS485
- ExtaSmartCore
- ExtaSmart Cloud
- ARM®Cortex®-M4
- 32-bit RISC 180 MHz
- 4096 kb of Flash memory
- SPIMemory
- CAN Bus
- Exta Smart Firmware

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Technical data

Symbol:	MRM-01	MRM-02
Number of digital inputs:	54	33
Maximum number of 0-10 V inputs:	up to 10	up to 10
Maximum number of operated 0-10 V outputs:	up to 4	up to 16
Maximum number of operated temperature sensors:	up to 10	up to 10
Number of 16 A relay outputs (80 A /20 ms):	39	39
Number of LED outputs with brightness adjustment (12 V / 24 V, max. 4 A):	4	16
Number of operated recovery devices:	up to 8	up to 8
Number of operated heating zones:	up to 20	up to 20
Number of operated fan-coils:	up to 5	up to 5
Number of operated watering sections:	up to 10	up to 10
Number of operated roller shutters/awnings:	up to 19	up to 19
Number of operated meter inputs:	up to 12	up to 12
Operated communication buses:	CANbus	CANbus

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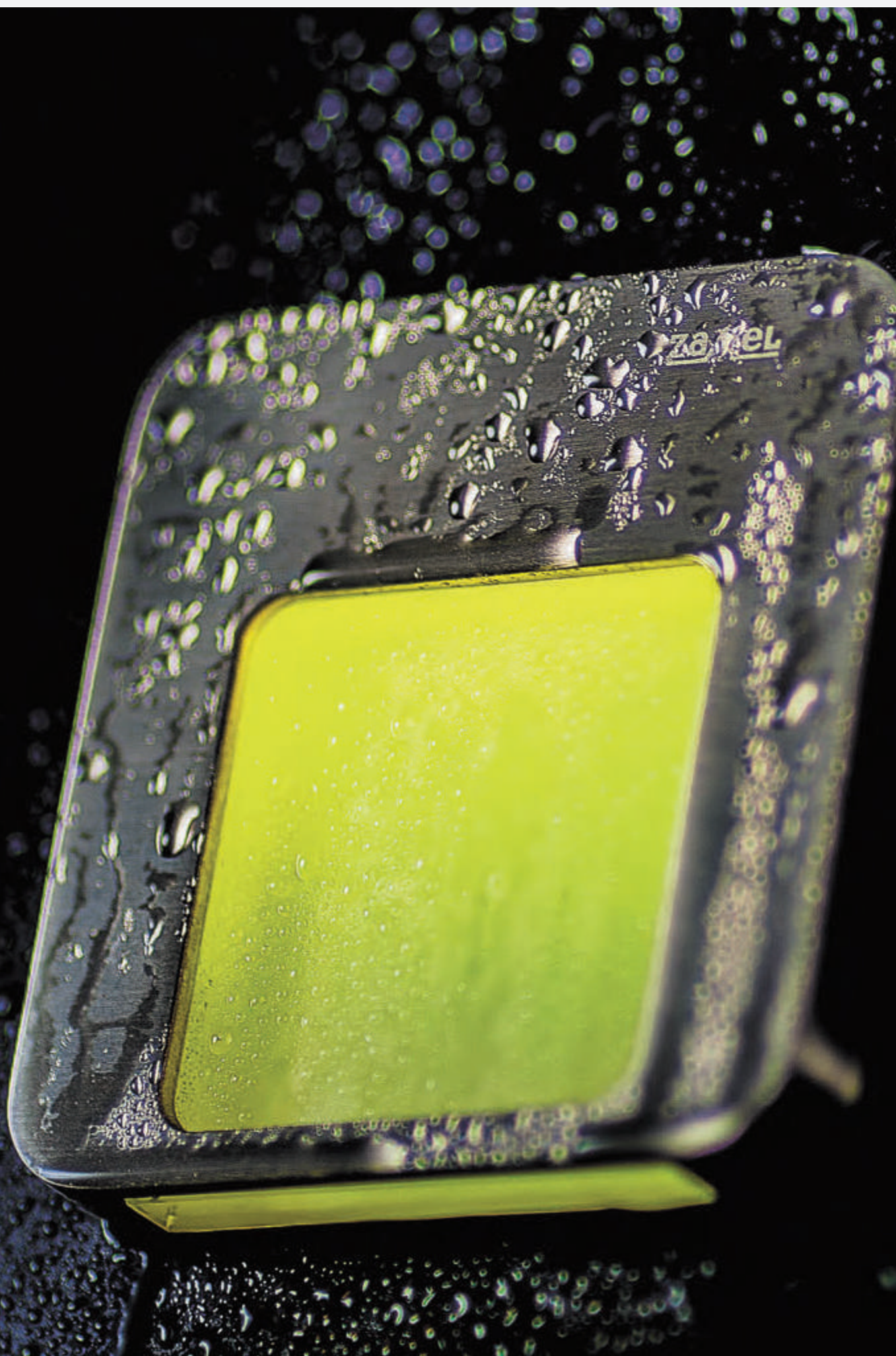
Intelligent LED lighting LEDIX

The LEDIX device group consists of eleven lighting fitting families (MOZA, MUNA, TERA, TICO, TIMO,RUBI, NAVI, SONA, LONG, TETI, LAMI), which differ in design and functionalities. The intelligent LEDIX lighting system includes almost a thousand products of the highest quality. This modern line of LED lighting fittings additionally equipped with a power supply and control devices, allows to create interesting interior designs and non-standard illumination of facades, gardens and bring incomparable light effect to corridors an staircases. A group of modern electronic transform - ers has been added to the LEDIX series. The series of lighting fittings, which is an ideal friend both for people decorating their house or apartment, for interior designers decorating public buildings and office buildings and for HoReCa buildings. Intelligent LED LEDIX lighting was awarded First Prize in the 21st international Fair of Lighting Equipment LIGHT 2013 and a Prize of Polish Chamber of Civil Engineers.

The connection of control devices with selected LED lighting fittings allows to design applications to the individual requirements of users. LEDIX enables an automatic switching on and switching off the light by means of built-in motion sensors, a radio control of light colour and luminous flux intensity by means of a remote control or a push-button transmitter, light battery backup after power failure and many other functionalities specific to intelligent lighting control systems.

Diversified LEDIX lighting fittings are an excellent offer for demanding people who want to create their surrounding with light. Among the lighting fittings there are products which emit light in two directions (MOZA, MUNA, TERA), there are lighting fittings with an elegant design (TIMO, TICO) and products

emitting a delicate light down (SONA, RUBI, NAVI, LONG). Metal lighting fittings are available in six colours: aluminum, stainless steel, graphite, old gold, black and white. Plastic lighting fittings are available in four colours: white, black, beige and silver. As for the light colour, the customers can select lighting fittings with RGB diodes or optionally a lighting fitting with a diode: white cold, white warm and white neutral.

LEDIX series lighting fittings can be supplied with 12 V DC , 14 V DC, 24 V DC or 230 V AC. They are available for surface and flush mounting. LEDIX series devices have the protection rating IP20, IP44 or IP56, so some of them can be used in moist rooms, and they can also be used to create non-standard illumination of building facades, gardenhouses, etc.

LEDIX operational reliability and energy saving are not only a gentle form, but also reliability thanks to the application of the highest quality LED diodes and anodized aluminum sheets that guarantee the suitable quality of lighting fittings. The major advantage of LEDIX series lighting fittings is undoubtedly the energy efficiency due to the low power consumption and a long lifetime of up to 40 thousand hours of continuous light.

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MOZA

Dimensions [mm]:

73 × 73
80 × 73

Light colour

- Cold white
- Warm white
- Neutral white
- RGB | RGB

Lighting fitting colour

- Aluminum
- Stainless steel
- Graphite
- Old gold
- White
- Black

4xLED | I const | CE | PIR | LUX | (remote) | (remote RGB)

Type:	9	ø60 9
Mounting:	→ (wall)	ø60
Power supply:	14V	14V
Power consumption [W]:	0,56 | 0,42 | 0,4 | 0,84	0,56 | 0,42 | 0,4 | 0,84
Light colour:	○ | ○ | ○ | RGB ⊠RGB	○ | ○ | ○ | RGB ⊠RGB
Functionality:	-	-
Features:	⌂ IP44 ◁III▷	⌂ IP44 ◁III▷
Weight:	0,108 kg	0,108 kg

Lighting fitting colour		Article number			
	Aluminum	○ 01-111-11		○ 01-211-11	
		○ 01-111-12	RGB 01-111-16	○ 01-211-12	RGB 01-211-16
		○ 01-111-17		○ 01-211-17	
	Stainless steel	○ 01-111-21		○ 01-211-21	
		○ 01-111-22	RGB 01-111-26	○ 01-211-22	RGB 01-211-26
		○ 01-111-27		○ 01-211-27	
	Graphite	○ 01-111-31		○ 01-211-31	
		○ 01-111-32	RGB 01-111-36	○ 01-211-32	RGB 01-211-36
		○ 01-111-37		○ 01-211-37	
	Old gold	○ 01-111-41		○ 01-211-41	
		○ 01-111-42	RGB 01-111-46	○ 01-211-42	RGB 01-211-46
		○ 01-111-47		○ 01-211-47	
	White	○ 01-111-51		○ 01-211-51	
		○ 01-111-52	RGB 01-111-56	○ 01-211-52	RGB 01-211-56
		○ 01-111-57		○ 01-211-57	
	Black	○ 01-111-61		○ 01-211-61	
		○ 01-111-62	RGB 01-111-66	○ 01-211-62	RGB 01-211-66
		○ 01-111-67		○ 01-211-67	

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Photometric data

h=0,2 m

[m]	0	0,1	0,2	0,3	0,4	0,5	0,6	0,7
[lx]	121	39	21	11	6	4	3	2

0° - 180°
90° - 270°

		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	82
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	19	13	17
Luminous efficiency	[lm/W]	34	31	43

ø60			ø60									
14V⎓			230V~			230V~						
0,78	0,64	0,62	1,4	1,23	1,2	1,1	0,93	0,9	1,3	1,12	1,1	1,65
○	○	○	○	○	○	○	○	○	○	○	○	RGB
PIR LUX			-						⟨remote⟩ DIM			⟨remote⟩ DIM
⌂ IP20 ⟨III⟩			⌂ IP20 □			⌂ IP20 □						
0,165 kg			0,174 kg			0,152 kg			0,158 kg			0,159 kg

Article number				
○ 01-212-11	○ 01-222-11	○ 01-221-11	○ 01-224-11	RGB 01-225-16
○ 01-212-12	○ 01-222-12	○ 01-221-12	○ 01-224-12	
○ 01-212-17	○ 01-222-17	○ 01-221-17	○ 01-224-17	
○ 01-212-21	○ 01-222-21	○ 01-221-21	○ 01-224-21	RGB 01-225-26
○ 01-212-22	○ 01-222-22	○ 01-221-22	○ 01-224-22	
○ 01-212-27	○ 01-222-27	○ 01-221-27	○ 01-224-27	
○ 01-212-31	○ 01-222-31	○ 01-221-31	○ 01-224-31	RGB 01-225-36
○ 01-212-32	○ 01-222-32	○ 01-221-32	○ 01-224-32	
○ 01-212-37	○ 01-222-37	○ 01-221-37	○ 01-224-37	
○ 01-212-41	○ 01-222-41	○ 01-221-41	○ 01-224-41	RGB 01-225-46
○ 01-212-42	○ 01-222-42	○ 01-221-42	○ 01-224-42	
○ 01-212-47	○ 01-222-47	○ 01-221-47	○ 01-224-47	
○ 01-212-51	○ 01-222-51	○ 01-221-51	○ 01-224-51	RGB 01-225-56
○ 01-212-52	○ 01-222-52	○ 01-221-52	○ 01-224-52	
○ 01-212-57	○ 01-222-57	○ 01-221-57	○ 01-224-57	
○ 01-212-61	○ 01-222-61	○ 01-221-61	○ 01-224-61	RGB 01-225-66
○ 01-212-62	○ 01-222-62	○ 01-221-62	○ 01-224-62	
○ 01-212-67	○ 01-222-67	○ 01-221-67	○ 01-224-67	

MUNA

Dimensions [mm]:

Ø 73

76,5

Ø 73

Light colour

- Cold white
- Warm white
- Neutral white
- RGB

Lighting fitting colour

- Aluminum
- Stainless steel
- Graphite
- Old gold
- White
- Black

4xLED | I const | CE | PIR | LUX

Type:								
Mounting:						ø60		
Power supply:	14V				14V			
Power consumption [W]:	0,56	0,42	0,4	0,84	0,56	0,42	0,4	0,84
Light colour:	○	○	○	RGB	○	○	○	RGB
Functionality:	-				-			
Features:	IP44				IP44			
Weight:	0,108 kg				0,108 kg			

		Article number			
Lighting fitting colour	**Aluminum**	○ 02-111-11		○ 02-211-11	
		○ 02-111-12	RGB 02-111-16	○ 02-211-12	RGB 02-211-16
		○ 02-111-17		○ 02-211-17	
	Stainless steel	○ 02-111-21		○ 02-211-21	
		○ 02-111-22	RGB 02-111-26	○ 02-211-22	RGB 02-211-26
		○ 02-111-27		○ 02-211-27	
	Graphite	○ 02-111-31		○ 02-211-31	
		○ 02-111-32	RGB 02-111-36	○ 02-211-32	RGB 02-211-36
		○ 02-111-37		○ 02-211-37	
	Old gold	○ 02-111-41		○ 02-211-41	
		○ 02-111-42	RGB 02-111-46	○ 02-211-42	RGB 02-211-46
		○ 02-111-47		○ 02-211-47	
	White	○ 02-111-51		○ 02-211-51	
		○ 02-111-52	RGB 02-111-56	○ 02-211-52	RGB 02-211-56
		○ 02-111-57		○ 02-211-57	
	Black	○ 02-111-61		○ 02-211-61	
		○ 02-111-62	RGB 02-111-66	○ 02-211-62	RGB 02-211-66
		○ 02-111-67		○ 02-211-67	

251

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Photometric data

[m]	0	0,1	0,2	0,3	0,4	0,5	0,6	0,7
[lx]	114	38	23	13	7	4	3	2

		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	81
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	18	12	18
Luminous efficiency	[lm/W]	32	29	45

ø60			ø60									
14V⎓			230V~			230V~						
0,78	0,64	0,62	1,4	1,23	1,2	1,1	0,93	0,9	1,3	1,12	1,1	1,65
○	○	○	○	○	○	○	○	○	○	○	○	RGB
PIR LUX			-						📶 DIM			📶 DIM
⌂ IP20 Ⅲ			⌂ IP20 ▫			⌂ IP20 ▫						
0,165 kg			0,174 kg			0,152 kg			0,158 kg			0,159 kg

Article number				
○ 02-212-11	○ 02-222-11	○ 02-221-11	○ 02-224-11	RGB 02-225-16
○ 02-212-12	○ 02-222-12	○ 02-221-12	○ 02-224-12	
○ 02-212-17	○ 02-222-17	○ 02-221-17	○ 02-224-17	
○ 02-212-21	○ 02-222-21	○ 02-221-21	○ 02-224-21	RGB 02-225-26
○ 02-212-22	○ 02-222-22	○ 02-221-22	○ 02-224-22	
○ 02-212-27	○ 02-222-27	○ 02-221-27	○ 02-224-27	
○ 02-212-31	○ 02-222-31	○ 02-221-31	○ 02-224-31	RGB 02-225-36
○ 02-212-32	○ 02-222-32	○ 02-221-32	○ 02-224-32	
○ 02-212-37	○ 02-222-37	○ 02-221-37	○ 02-224-37	
○ 02-212-41	○ 02-222-41	○ 02-221-41	○ 02-224-41	RGB 02-225-46
○ 02-212-42	○ 02-222-42	○ 02-221-42	○ 02-224-42	
○ 02-212-47	○ 02-222-47	○ 02-221-47	○ 02-224-47	
○ 02-212-51	○ 02-222-51	○ 02-221-51	○ 02-224-51	RGB 02-225-56
○ 02-212-52	○ 02-222-52	○ 02-221-52	○ 02-224-52	
○ 02-212-57	○ 02-222-57	○ 02-221-57	○ 02-224-57	
○ 02-212-61	○ 02-222-61	○ 02-221-61	○ 02-224-61	RGB 02-225-66
○ 02-212-62	○ 02-222-62	○ 02-221-62	○ 02-224-62	
○ 02-212-67	○ 02-222-67	○ 02-221-67	○ 02-224-67	

TERA

Dimensions [mm]:
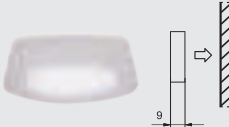
35,5

65

Light colour

- Cold white
- Warm white
- Neutral white
- RGB

Lighting fitting colour

- Aluminum
- Stainless steel
- Graphite
- Old gold
- White
- Black

4xLED | I const | CE

Type:	
Mounting:	
Power supply:	14V
Power consumption [W]:	0,56	0,42	0,4	0,84
Light colour:	○	○	○	RGB
Functionality:	-
Features:	IP44
Weight:	0,058 kg

		Article number	
Lighting fitting colour	Aluminum	○ 03-111-11	RGB 03-111-16
		○ 03-111-12	
		○ 03-111-17	
	Stainless steel	○ 03-111-21	RGB 03-111-26
		○ 03-111-22	
		○ 03-111-27	
	Graphite	○ 03-111-31	RGB 03-111-36
		○ 03-111-32	
		○ 03-111-37	
	Old gold	○ 03-111-41	RGB 03-111-46
		○ 03-111-42	
		○ 03-111-47	
	White	○ 03-111-51	RGB 03-111-56
		○ 03-111-52	
		○ 03-111-57	
	Black	○ 03-111-61	RGB 03-111-66
		○ 03-111-62	
		○ 03-111-67	

Photometric data
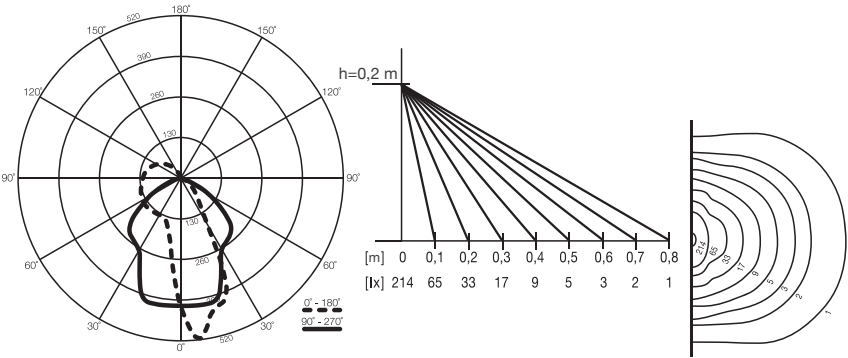
		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	83
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	22	14	22
Luminous efficiency	[lm/W]	39	33	55
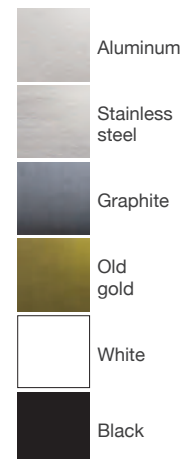
exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

TICO

Dimensions [mm]:

60
60
38,5
38,5

Light colour

- Cold white
- Warm white
- Neutral white
- RGB RGB

Lighting fitting colour

- Aluminum
- Stainless steel
- Graphite
- Old gold
- White
- Black

2xLED | I const | CE
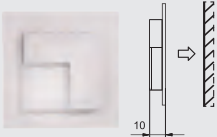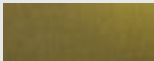
Type:	9			10		
Mounting:						
Power supply:	14V					
Power consumption [W]:	0,28	0,42	0,4	0,28	0,42	0,4
Light colour:	○	○	○	○	○	○
Functionality:	-					
Features:	IP44					
Weight:	0,046 kg			0,055 kg		
	Article number					

Lighting fitting colour			
Aluminum	○ 04-111-11		○ 05-111-11
	○ 04-111-12		○ 05-111-12
	○ 04-111-17		○ 05-111-17
Stainless steel	○ 04-111-21		○ 05-111-21
	○ 04-111-22		○ 05-111-22
	○ 04-111-27		○ 05-111-27
Graphite	○ 04-111-31		○ 05-111-31
	○ 04-111-32		○ 05-111-32
	○ 04-111-37		○ 05-111-37
Old gold	○ 04-111-41		○ 05-111-41
	○ 04-111-42		○ 05-111-42
	○ 04-111-47		○ 05-111-47
White	○ 04-111-51		○ 05-111-51
	○ 04-111-52		○ 05-111-52
	○ 04-111-57		○ 05-111-57
Black	○ 04-111-61		○ 05-111-61
	○ 04-111-62		○ 05-111-62
	○ 04-111-67		○ 05-111-67

Photometric data
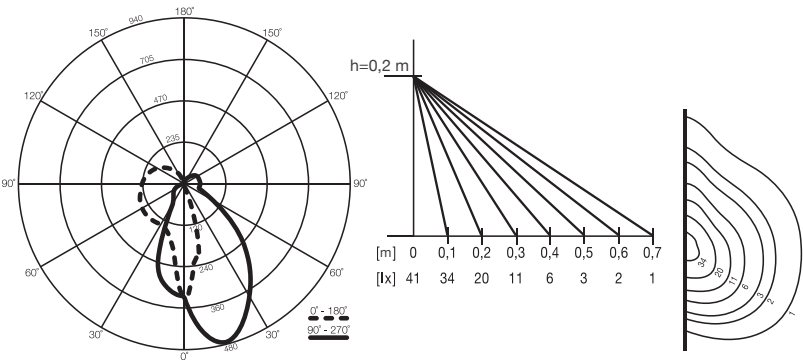
		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	83
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	10	7	9
Luminous efficiency	[lm/W]	36	17	23

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

TIMO

Dimensions [mm]:

73 × 73
50 × 50

Light colour
- Cold white
- Warm white
- Neutral white
- RGB

Lighting fitting colour
- Aluminum
- Stainless steel
- Graphite
- Old gold
- White
- Black

4xLED | I const | CE | (remote icons)
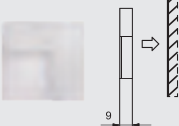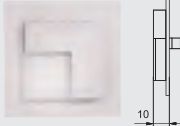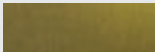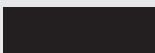
Type:						
Mounting:	→		→		→ ø60	
Power supply:	14V		14V		14V	
Power consumption [W]:	0,56 / 0,42 / 0,4 / 0,84		0,56 / 0,42 / 0,4 / 0,84		0,56 / 0,42 / 0,4 / 0,84	
Light colour:	○ ○ ○ RGB		○ ○ ○ RGB		○ ○ ○ RGB	
Functionality:	-					
Features:	IP44		IP44		IP44	
Weight:	0,074 kg		0,086 kg		0,088 kg	
Article number						

Lighting fitting colour		RGB		RGB		RGB
Aluminum	06-111-11 / 06-111-12 / 06-111-17	06-111-16	07-111-11 / 07-111-12 / 07-111-17	07-111-16	07-211-11 / 07-211-12 / 07-211-17	07-211-16
Stainless steel	06-111-21 / 06-111-22 / 06-111-27	06-111-26	07-111-21 / 07-111-22 / 07-111-27	07-111-26	07-211-21 / 07-211-22 / 07-211-27	07-211-26
Graphite	06-111-31 / 06-111-32 / 06-111-37	06-111-36	07-111-31 / 07-111-32 / 07-111-37	07-111-36	07-211-31 / 07-211-32 / 07-211-37	07-211-36
Old gold	06-111-41 / 06-111-42 / 06-111-47	06-111-46	07-111-41 / 07-111-42 / 07-111-47	07-111-46	07-211-41 / 07-211-42 / 07-211-47	07-211-46
White	06-111-51 / 06-111-52 / 06-111-57	06-111-56	07-111-51 / 07-111-52 / 07-111-57	07-111-56	07-211-51 / 07-211-52 / 07-211-57	07-211-56
Black	06-111-61 / 06-111-62 / 06-111-67	06-111-66	07-111-61 / 07-111-62 / 07-111-67	07-111-66	07-211-61 / 07-211-62 / 07-211-67	07-211-66

exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

Photometric data

h=0,2 m

[m]	0	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9
[lx]	83	67	40	22	12	7	4	3	2	1

		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	82
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	20	14	17
Luminous efficiency	[lm/W]	36	33	43

Ø60

11

230V~						
1,1	0,93	0,9	1,3	1,12	1,1	1,65
○	○	○	○	○	○	RGB
-			remote DIM	remote DIM		remote RGB DIM
⌂ IP20 ▢						
0,138 kg			0,144 kg			0,145 kg

Article number		
○ 07-221-11	○ 07-224-11	RGB 07-225-16
○ 07-221-12	○ 07-224-12	
○ 07-221-17	○ 07-224-17	
○ 07-221-21	○ 07-224-21	RGB 07-225-26
○ 07-221-22	○ 07-224-22	
○ 07-221-27	○ 07-224-27	
○ 07-221-31	○ 07-224-31	RGB 07-225-36
○ 07-221-32	○ 07-224-32	
○ 07-221-37	○ 07-224-37	
○ 07-221-41	○ 07-224-41	RGB 07-225-46
○ 07-221-42	○ 07-224-42	
○ 07-221-47	○ 07-224-47	
○ 07-221-51	○ 07-224-51	RGB 07-225-56
○ 07-221-52	○ 07-224-52	
○ 07-221-57	○ 07-224-57	
○ 07-221-61	○ 07-224-61	RGB 07-225-66
○ 07-221-62	○ 07-224-62	
○ 07-221-67	○ 07-224-67	

RUBI

Dimensions [mm]:

Ø 73

40,5

51

Ø 73

Light colour

- Cold white
- Warm white
- Neutral white
- RGB

Lighting fitting colour

- Aluminum
- Stainless steel
- Graphite
- Old gold
- White
- Black

4xLED | I const | CE | PIR | LUX

Type:			
	13,5	15,5	15,5 Ø60
Mounting:	→		→ ø60 / ø60
Power supply:	14V ⎓		
Power consumption [W]:	0,56 | 0,42 | 0,58 | 0,84	0,56 | 0,42 | 0,58 | 0,84	0,56 | 0,42 | 0,58 | 0,84
Light colour:	○ | ○ | ○ | RGB	○ | ○ | ○ | RGB	○ | ○ | ○ | RGB
Functionality:	-		
Features:	IP56	IP56	IP56
Weight:	0,058 kg	0,071 kg	0,073 kg

Lighting fitting colour		Article number					
	Aluminum	○ 08-111-11		○ 09-111-11		○ 09-211-11	
		○ 08-111-12	RGB 08-111-16	○ 09-111-12	RGB 09-111-16	○ 09-211-12	RGB 09-211-16
		○ 08-111-17		○ 09-111-17		○ 09-211-17	
	Stainless steel	○ 08-111-21		○ 09-111-21		○ 09-211-21	
		○ 08-111-22	RGB 08-111-26	○ 09-111-22	RGB 09-111-26	○ 09-211-22	RGB 09-211-26
		○ 08-111-27		○ 09-111-27		○ 09-211-27	
	Graphite	○ 08-111-31		○ 09-111-31		○ 09-211-31	
		○ 08-111-32	RGB 08-111-36	○ 09-111-32	RGB 09-111-36	○ 09-211-32	RGB 09-211-36
		○ 08-111-37		○ 09-111-37		○ 09-211-37	
	Old gold	○ 08-111-41		○ 09-111-41		○ 09-211-41	
		○ 08-111-42	RGB 08-111-46	○ 09-111-42	RGB 09-111-46	○ 09-211-42	RGB 09-211-46
		○ 08-111-47		○ 09-111-47		○ 09-211-47	
	White	○ 08-111-51		○ 09-111-51		○ 09-211-51	
		○ 08-111-52	RGB 08-111-56	○ 09-111-52	RGB 09-111-56	○ 09-211-52	RGB 09-211-56
		○ 08-111-57		○ 09-111-57		○ 09-211-57	
	Black	○ 08-111-61		○ 09-111-61		○ 09-211-61	
		○ 08-111-62	RGB 08-111-66	○ 09-111-62	RGB 09-111-66	○ 09-211-62	RGB 09-211-66
		○ 08-111-67		○ 09-111-67		○ 09-211-67	

Photometric data
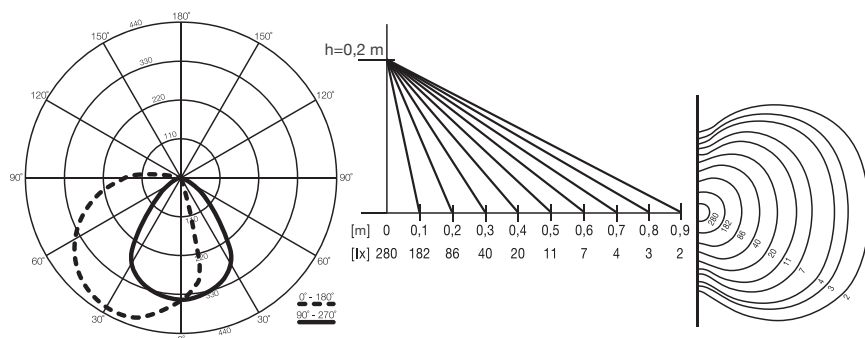
			Cold white	Warm white	Neutral white
Colour Rendering Index		R_a	71	80	76
Colour temperature		T_C [K]	5900	3100	4200
Luminous flux		Ø [lm]	28	25	28
Luminous efficiency		[lm/W]	68	60	48

230V~							14V⎓			230V~		
1,1	0,93	1,13	1,3	1,12	1,32	1,65	0,78	0,64	0,8	1,4	1,23	1,43
○	○	○	○	○	○	RGB	○	○	○	○	○	○

0,118 kg		0,124 kg		0,125 kg	0,117 kg		0,126 kg	

Article number					
○ 09-221-11	○ 09-224-11		○ 09-212-11	○ 09-222-11	
○ 09-221-12	○ 09-224-12	RGB 09-225-16	○ 09-212-12	○ 09-222-12	
○ 09-221-17	○ 09-224-17		○ 09-212-17	○ 09-222-17	
○ 09-221-21	○ 09-224-21		○ 09-212-21	○ 09-222-21	
○ 09-221-22	○ 09-224-22	RGB 09-225-26	○ 09-212-22	○ 09-222-22	
○ 09-221-27	○ 09-224-27		○ 09-212-27	○ 09-222-27	
○ 09-221-31	○ 09-224-31		○ 09-212-31	○ 09-222-31	
○ 09-221-32	○ 09-224-32	RGB 09-225-36	○ 09-212-32	○ 09-222-32	
○ 09-221-37	○ 09-224-37		○ 09-212-37	○ 09-222-37	
○ 09-221-41	○ 09-224-41		○ 09-212-41	○ 09-222-41	
○ 09-221-42	○ 09-224-42	RGB 09-225-46	○ 09-212-42	○ 09-222-42	
○ 09-221-47	○ 09-224-47		○ 09-212-47	○ 09-222-47	
○ 09-221-51	○ 09-224-51		○ 09-212-51	○ 09-222-51	
○ 09-221-52	○ 09-224-52	RGB 09-225-56	○ 09-212-52	○ 09-222-52	
○ 09-221-57	○ 09-224-57		○ 09-212-57	○ 09-222-57	
○ 09-221-61	○ 09-224-61		○ 09-212-61	○ 09-222-61	
○ 09-221-62	○ 09-224-62	RGB 09-225-66	○ 09-212-62	○ 09-222-62	
○ 09-221-67	○ 09-224-67		○ 09-212-67	○ 09-222-67	
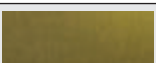
exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

NAVI

Dimensions [mm]:

73 × 73 × 51, 40,5 — 73 × 73

Light colour

Cold white	
Warm white	
Neutral white	
RGB	RGB

Lighting fitting colour

Aluminum	
Stainless steel	
Graphite	
Old gold	
White	
Black	

Icons: 4xLED | I const | CE | PIR | LUX | remote | remote RGB

Type:			
	12,5	14,5	⌀60 / 14,5
Mounting:	→	→	→⌀60 ⌀60
Power supply:	14V		
Power consumption [W]:	0,56 | 0,42 | 0,58 | 0,84	0,56 | 0,42 | 0,58 | 0,84	0,56 | 0,42 | 0,58 | 0,84
Light colour:	○ | ○ | ○ | RGB	○ | ○ | ○ | RGB	○ | ○ | ○ | RGB
Functionality:	-		
Features:	⌂ | IP56 | III	⌂ | IP56 | III	⌂ | IP56 | III
Weight:	0,058 kg	0,071 kg	0,073 kg

Article number

Lighting fitting colour							
Aluminum	10-111-11		11-111-11		11-211-11	
	10-111-12	10-111-16	11-111-12	11-111-16	11-211-12	11-211-16
	10-111-17		11-111-17		11-211-17	
Stainless steel	10-111-21		11-111-21		11-211-21	
	10-111-22	10-111-26	11-111-22	11-111-26	11-211-22	11-211-26
	10-111-27		11-111-27		11-211-27	
Graphite	10-111-31		11-111-31		11-211-31	
	10-111-32	10-111-36	11-111-32	11-111-36	11-211-32	11-211-36
	10-111-37		11-111-37		11-211-37	
Old gold	10-111-41		11-111-41		11-211-41	
	10-111-42	10-111-46	11-111-42	11-111-46	11-211-42	11-211-46
	10-111-47		11-111-47		11-211-47	
White	10-111-51		11-111-51		11-211-51	
	10-111-52	10-111-56	11-111-52	11-111-56	11-211-52	11-211-56
	10-111-57		11-111-57		11-211-57	
Black	10-111-61		11-111-61		11-211-61	
	10-111-62	10-111-66	11-111-62	11-111-66	11-211-62	11-211-66
	10-111-67		11-111-67		11-211-67	

Photometric data
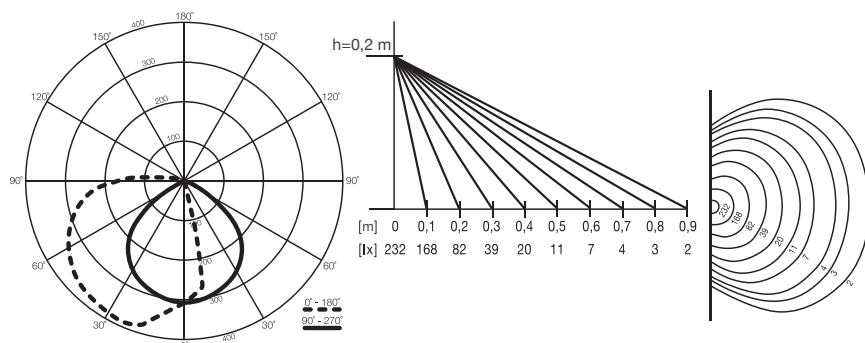
		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	77
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	28	24	28
Luminous efficiency	[lm/W]	66	57	48

230V~							14V⎓			230V~		
1,1	0,93	1,13	1,3	1,12	1,32	1,65	0,78	0,64	0,8	1,4	1,23	1,43

0,118 kg	0,124 kg	0,125 kg	0,117 kg	0,126 kg

Article number				
○ 11-221-11	○ 11-224-11	11-225-16	○ 11-212-11	○ 11-222-11
○ 11-221-12	○ 11-224-12		○ 11-212-12	○ 11-222-12
○ 11-221-17	○ 11-224-17		○ 11-212-17	○ 11-222-17
○ 11-221-21	○ 11-224-21	11-225-26	○ 11-212-21	○ 11-222-21
○ 11-221-22	○ 11-224-22		○ 11-212-22	○ 11-222-22
○ 11-221-27	○ 11-224-27		○ 11-212-27	○ 11-222-27
○ 11-221-31	○ 11-224-31	11-225-36	○ 11-212-31	○ 11-222-31
○ 11-221-32	○ 11-224-32		○ 11-212-32	○ 11-222-32
○ 11-221-37	○ 11-224-37		○ 11-212-37	○ 11-222-37
○ 11-221-41	○ 11-224-41	11-225-46	○ 11-212-41	○ 11-222-41
○ 11-221-42	○ 11-224-42		○ 11-212-42	○ 11-222-42
○ 11-221-47	○ 11-224-47		○ 11-212-47	○ 11-222-47
○ 11-221-51	○ 11-224-51	11-225-56	○ 11-212-51	○ 11-222-51
○ 11-221-52	○ 11-224-52		○ 11-212-52	○ 11-222-52
○ 11-221-57	○ 11-224-57		○ 11-212-57	○ 11-222-57
○ 11-221-61	○ 11-224-61	11-225-66	○ 11-212-61	○ 11-222-61
○ 11-221-62	○ 11-224-62		○ 11-212-62	○ 11-222-62
○ 11-221-67	○ 11-224-67		○ 11-212-67	○ 11-222-67

exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

SONA

Dimensions [mm]:

73

73

25

50

Ø 73

Light colour

Cold white

Warm white

Neutral white

RGB RGB

Lighting fitting colour

Aluminum

Stainless steel

Graphite

Old gold

White

Black

4xLED | I const | CE

Type:			
Mounting:			
Power supply:	14V		
Power consumption [W]:	0,56	0,42	0,3	0,84	0,56	0,42	0,4	0,84	0,56	0,42	0,4	0,84
Light colour:	○	○	○	RGB RGB	○	○	○	RGB RGB	○	○	○	RGB RGB
Functionality:	-
Features:	IP44
Weight:	0,038 kg	0,058 kg	0,066 kg

		Article number					
	Aluminum	○ 12-111-11 ○ 12-111-12 ○ 12-111-17	RGB 12-111-16	○ 13-211-11 ○ 13-211-12 ○ 13-211-17	RGB 13-211-16	○ 14-211-11 ○ 14-211-12 ○ 14-211-17	RGB 14-211-16
	Stainless steel	○ 12-111-21 ○ 12-111-22 ○ 12-111-27	RGB 12-111-26	○ 13-211-21 ○ 13-211-22 ○ 13-211-27	RGB 13-211-26	○ 14-211-21 ○ 14-211-22 ○ 14-211-27	RGB 14-211-26
	Graphite	○ 12-111-31 ○ 12-111-32 ○ 12-111-37	RGB 12-111-36	○ 13-211-31 ○ 13-211-32 ○ 13-211-37	RGB 13-211-36	○ 14-211-31 ○ 14-211-32 ○ 14-211-37	RGB 14-211-36
	Old gold	○ 12-111-41 ○ 12-111-42 ○ 12-111-47	RGB 12-111-46	○ 13-211-41 ○ 13-211-42 ○ 13-211-47	RGB 13-211-46	○ 14-211-41 ○ 14-211-42 ○ 14-211-47	RGB 14-211-46
	White	○ 12-111-51 ○ 12-111-52 ○ 12-111-57	RGB 12-111-56	○ 13-211-51 ○ 13-211-52 ○ 13-211-57	RGB 13-211-56	○ 14-211-51 ○ 14-211-52 ○ 14-211-57	RGB 14-211-56
	Black	○ 12-111-61 ○ 12-111-62 ○ 12-111-67	RGB 12-111-66	○ 13-211-61 ○ 13-211-62 ○ 13-211-67	RGB 13-211-66	○ 14-211-61 ○ 14-211-62 ○ 14-211-67	RGB 14-211-66
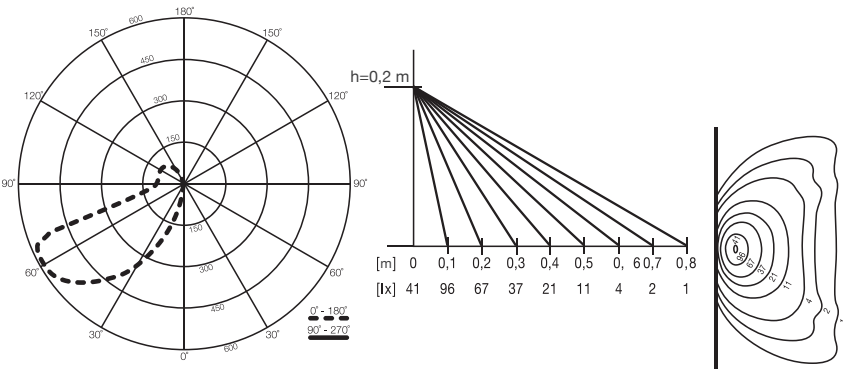
Lighting fitting colour

Photometric data

[m]	0	0,1	0,2	0,3	0,4	0,5	0, 6	0,7	0,8
[lx]	41	96	67	37	21	11	4	2	1

0° - 180°
90° - 270°

h=0,2 m

		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	83
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	23	15	19
Luminous efficiency	[lm/W]	41	36	48

LONG-02

Dimensions [mm]:

Light colour
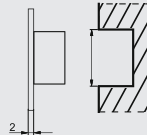
- Cold white
- Warm white

Lighting fitting colour

Stainless steel

Type:				
Mounting:				
Power supply:	10 V= ÷ 14 V=		24 V=	
Power consumption [W]:	1,44 W		2,16 W	
Light colour:	○	○	○	○
Functionality:	-			
Features:	PV ⌂ IP56		⌂ IP56	
Weight:	0,129 kg			
	Article number			
Lighting fitting colour — Stainless steel	○ 15-211-21		○ 15-231-21	
	○ 15-211-22		○ 15-231-22	

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

LONG-03

Dimensions [mm]:

240

50

200

2

100

Light colour

☐ Cold white
☐ Warm white

Lighting fitting colour

Stainless
steel

| const | CE |

		Type:			
Mounting:					
Power supply:		10 V⎓ ÷ 14 V⎓		24 V⎓	
Power consumption [W]:		1,44 W		2,16 W	
Light colour:		○	○	○	○
Functionality:		-			
Features:		☼ PV ⌂→ IP56 ⬦		⌂→ IP56 ⬦	
Weight:		0,110 kg			
		Article number			
Lighting fitting colour Stainless steel		○ 16-211-21		○ 16-231-21	
		○ 16-211-22		○ 16-231-22	

TETI

Dimensions [mm]:
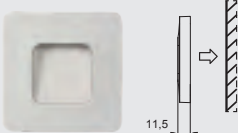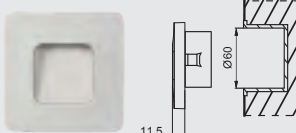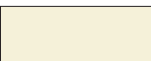
80

80

Light colour

- Cold white
- Warm white
- Neutral white

Lighting fitting colour

- White
- Black
- Beige
- Silver

		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	82
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	22	16	18
Luminous efficiency	[lm/W]	31	23	26

6xLED | I const | CE

Type:						
	11,5			11,5	ø60	
Mounting:				ø60		
Power supply:	12V⎓			230V~		
Power consumption [W]:	0,7	0,7	0,7	1,1	1,1	1,1
Light colour:	○	○	○	○	○	○
Functionality:	-					
Features:	IP44			IP20		
Weight:	0,174 kg			0,174 kg		
	Article number					

Lighting fitting colour				
	White	○ 17-141-51	○ 17-221-51	
		○ 17-141-52	○ 17-221-52	
		○ 17-141-57	○ 17-221-57	
	Black	○ 17-141-61	○ 17-221-61	
		○ 17-141-62	○ 17-221-62	
		○ 17-141-67	○ 17-221-67	
	Beige	○ 17-141-71	○ 17-221-71	
		○ 17-141-72	○ 17-221-72	
		○ 17-141-77	○ 17-221-77	
	Silver	○ 17-141-81	○ 17-221-81	
		○ 17-141-82	○ 17-221-82	
		○ 17-141-87	○ 17-221-87	

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

LAMI

Dimensions [mm]:

Light colour

- Cold white
- Warm white
- Neutral white

Lighting fitting colour

- White
- Black
- Beige
- Silver

		Cold white	Warm white	Neutral white
Colour Rendering Index	R_a	71	80	82
Colour temperature	T_C [K]	5900	3100	4200
Luminous flux	Ø [lm]	22	16	18
Luminous efficiency	[lm/W]	31	23	26

6xLED | I const | CE

Type:						
Mounting:	→			ø60		
Power supply:	12V⎓			230V~		
Power consumption [W]:	0,7	0,7	0,7	1,1	1,1	1,1
Light colour:	○	○	○	○	○	○
Functionality:	-					
Features:	⌂ IP44 �III			⌂ IP20 ▣		
Weight:	0,174 kg			0,174 kg		
Article number						

Lighting fitting colour		Article number	
White		○ 18-141-51	○ 18-221-51
		○ 18-141-52	○ 18-221-52
		○ 18-141-57	○ 18-221-57
Black		○ 18-141-61	○ 18-221-61
		○ 18-141-62	○ 18-221-62
		○ 18-141-67	○ 18-221-67
Beige		○ 18-141-71	○ 18-221-71
		○ 18-141-72	○ 18-221-72
		○ 18-141-77	○ 18-221-77
Silver		○ 18-141-81	○ 18-221-81
		○ 18-141-82	○ 18-221-82
		○ 18-141-87	○ 18-221-87

11,5   11,5

One colour LED controller SLR-01

Dimensions [mm]:
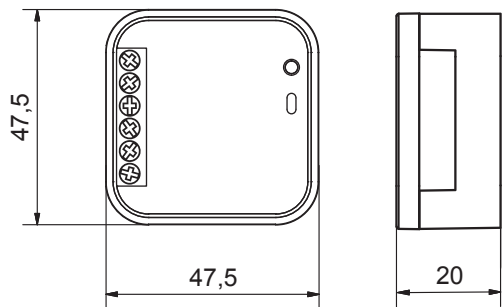
SLR-01 controller is designed for cooperation with a light sources equipped with LED diodes and supplied with 12 ÷ 24 V DC. The device carries out simple functions connected with lighting control such as: switching on/ switching off, brightening / dimming, bistable and time mode. There is a wired control system and a possibility of wireless control by means of any EXTA FREE system transmitter. The controller's output is based on MOSFET transistor with a maximum current capacity of 4A. Its small casing dimensions allow for an easy mounting in a Ø60 junction box. The product belongs to the ECOLINE group with the characteristic feature of low power consumption.

Technical data

Type:	SLR-01
Power supply:	12 ÷ 24 V DC
Power consumption:	0,22 W
Number of channels:	1
Maximum current in the channel:	4 A
Controlling signal:	PWM
Programs:	• switch on/switch off • bistable • time function with dimming • brightening/dimming
Control	• monostable push buttons • EXTA FREE transmitters
Wired inputs:	2 (IN1, IN2)
Transmission:	radio 868,32 MHz
Transmission way:	one-way
Coding:	yes
Maximum number of transmitters:	32
Range:	up to 230 m in the open area
Time adjustment:	1 s ÷ 18 h
Cross-section of connection cables:	up to 2,5 mm^2
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	III
Dimensions:	47,5 x 47,5 x 20 mm
Weight:	0,025 kg
Reference standard:	PN-EN 60669, PN-EN 60950, PN-EN 61000

269

exta free

exta life

supla

exta

ledix

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etero

gardi

ynsta

expo

Wireless / Wired RGB controller SLR-11 / SLR-12

Dimensions [mm]:

47,5

47,5

20

| 10 V ÷ 14 V | 12 V ÷ 24 V | DIM − + | III | CE | | ø60 | SERIA F | IP20 |
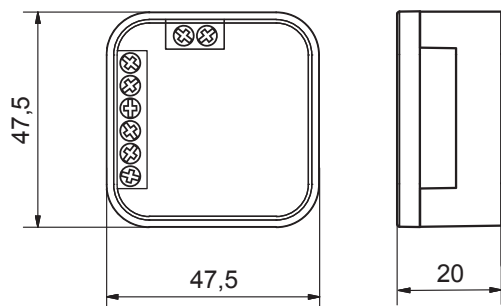
SLR-11 controller is designed to control LED RGB diodes in the circuit with common "+" potential (RGB LEDIX series standard fittings, RGB strips and modules). The control is carried out wireless on 868,32 MHz frequency. The device has a default setting of 5 LED diode control programmes, and the user can select one out of 10 LED diode colours. Colour control is done by means of PWM modulation with 9-bit resolution. Its small casing dimensions allow for an easy mounting in a Ø60 junction box. FLOATING and STROBE modes enable to stop the device on a chosen light colour which is remembered by the controller. SLR-11 in cooperation with P-260 remote control enables to change the lighting colour by means of the touch field.

Technical data

Type:	SLR-11	SLR-12
Power supply:	12 ÷ 24 V DC	10 ÷ 14 V DC
Power consumption:	0,22 W	0,06 W
Number of channels:	3	
Maximum current in the channel:	2,5 A	
Controlling signal:	PWM	
Colour resolution:	9-bit	
Programs:	• colour selection • brightening / dimming • fluent colour change (FLOATING) • step by step colour change - only for P-260 (STROBE) • rainbow - only for P-260 (RAINBOW)	
Colours:	10 (default setting), fluent selection for P-260	
Steps (FLOATING, STROBE):	10 (do 50 min)	
Control:	selected EXTA FREE transmitters, P-260 remote control*	monostable push buttons
Transmission:	radio 868,32 MHz	-
Transmission way:	one-way	-
Coding:	yes	-
Maximum number of transmitters:	32	-
Range:	up to 230 m in the open area	-
Cross-section of connection cables:	up to 2,5 mm^2	
Ambient temperature range:	-10° ÷ +55°C	
Protection degree:	IP20	
Protection class:	III	
Dimensions:	47,5 x 47,5 x 20 mm	
Weight:	0,027 kg	
Reference standard:	PN-EN 60669, PN-EN 60950, PN-EN 61000	PN-EN 60669, PN-EN 61000

* cooperation refers to two push-button transmitters

RGB amplifier WLN-01

Dimensions [mm]:

52,5

167

38,5

10 V⎓ ÷ 14 V⎓ | III | CE | ⌂ | IP20
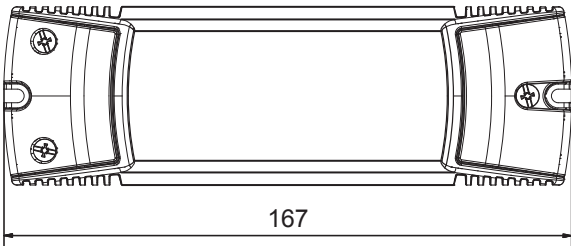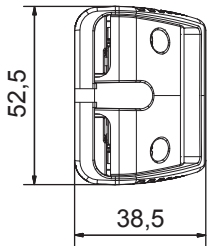
The RGB amplifier is dedicated for cooperation with RGB controllers. It is used when the load output of RGB products exceeds the maximum current output load of the RGB controller. The amplifiers are used also in very long RGB installations to synchronise all RGB modules. The device has got the three MOSFET outputs with a maximum continuous capacity of 4 A. All connections are done by means of terminal clamps. The amplifier allows to create a serial and parallel RGB installations. The surface mounting allows the device to be mounted in gypsum-carton board structures, furniture and niches.

Technical data

Type:	WLN-01
Power supply:	10 ÷ 14 V DC
Power consumption:	0,155 W
Number of inputs/outputs:	4 (+RGB)
Output loading capacity – maximum	4 A
Cross-section of connection cables:	up to 2,5 mm^2
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	III
Dimensions:	52,5 x 167 x 38,5 mm
Weight:	0,120 kg
Reference standard:	PN-EN 60669, PN-EN 61000

271

exta free

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Flush RGB amplifier WLP-01

Dimensions [mm]:

47,5

47,5

20

10 V⎓ ÷ 14 V⎓ | ⟨III⟩ | CE | ⌂ | ø60 | IP20
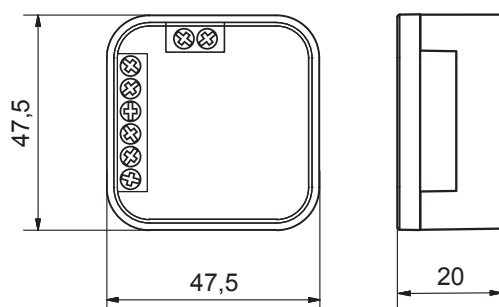
The WLP-01 amplifier is dedicated for cooperation with RGB controllers. It is used when load output of lighting RGB products exceeds the maximum current output load of RGB controller. The amplifiers are used also in very long RGB installations to synchronise all RGB modules. The device has got the three MOSFET outputs with a maximum continuous capacity of 2,5 A. All connections are done by means of terminal clamps. The amplifier allows to create a serial and parallel RGB installations. The small size flush casing allows the device to be mounted easily in Ø60 mm junction boxes.

Technical data

Type:	WLP-01
Power supply:	10 ÷ 14 V DC
Power consumption:	0,1 W
Number of inputs/outputs:	3 (RGB)
Supply terminals:	2 (+, -)
Output loading capacity – maximum	2,5 A
Cross-section of connection cables:	up to 2,5 mm^2
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	III
Dimensions:	47,5 x 47,5 x 20 mm
Weight:	0,027 kg
Reference standard:	PN-EN 60669, PN-EN 61000

Radio flush receiver ROP-03

Dimensions [mm]:

47,5

47,5

20
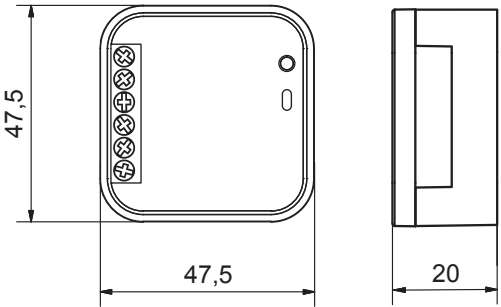
ROP-03 receiver is designed to carry out simple control functions in the low-voltage installations from 10 ÷ 14 V DC. In connection with EXTA FREE (www.extafree.pl) system transmitters, it enables the realisation of the switch on / switch off function, the monostable mode, the bistable and time modes. The receiver is recommended for use especially with LED lighting. The device has 2 relay potential free outputs (NO) with a maximum capacity of 5 A and its small casing size allows the device to be directly mounted in Ø60 mm junction box. The product belongs to the ECOLINE product group with a characteristic feature of low power consumption.

Technical data

Type:	ROP-03
Power supply:	10 ÷ 14 V DC
Power consumption:	• 0,15 W stand-by • 0,7 W work 2 channels
Number of channels:	2
Maximum current in the channel:	5 A / 250 V AC
Relay contact:	2 NO 5 A / 250 V AC1 1250 VA
Programs:	• switch on/switch off • monostable • bistable • time
Control:	EXTA FREE transmitters
Transmission:	radio 868,32 MHz
Transmission way:	one-way
Coding:	yes
Maximum number of transmitters:	32
Range:	up to 230 m in the open area
Time adjustment:	1 s ÷ 18 h
Cross-section of connection cables:	up to 2,5 mm²
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	III
Dimensions:	47,5 x 47,5 x 20 mm
Weight:	0,036 kg
Reference standard:	PN-EN 60669, PN-EN 60950, PN-EN 61000

273

exta free

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exta

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Radio flush receiver ROP-04

Dimensions [mm]:

47,5

47,5

20

10 V⎓ ÷ 14 V⎓ | III | CE | ⌂ | ø60 | SERIA F | IP20
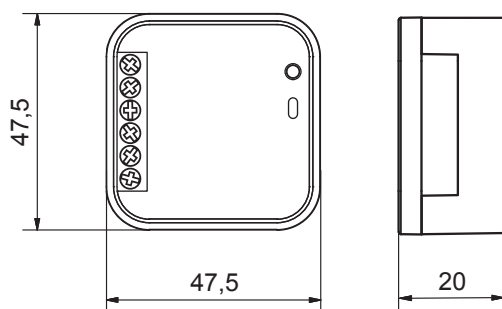
ROP-04 receiver similarly to ROP-03 is designed to carry out simple control functions in low voltage installations of 10 ÷ 14 V. The device in connection with EXTA FREE system transmitters (www.extafree.pl) enables the realisation of the switch on / switch off function, the monostable mode, the bistable and time modes. It is designed to a direct cooperation with any 10 ÷ 14 V power supply LED diode lighting. The receiver has three MOSFET type transistor outputs with a maximum capacity of 2,5 A. Small dimensions of the casing allow for a direct mounting of the receiver in the Ø60 mm junction box. The product belongs to the ECOLINE product group with a characteristic feature of low power consumption.

Technical data

Type:	ROP-04
Power supply:	10 ÷ 14 V DC
Power consumption:	0,22 W
Number of channels:	3 X MOSFET
Maximum current in the channel:	2,5 A
Programs:	• switch on/switch off • monostable • bistable • time
Control:	EXTA FREE transmitters
Transmission:	radio 868,32 MHz
Transmission way:	one-way
Coding:	yes
Maximum number of transmitters:	32
Range:	up to 230 m in the open area
Time adjustment:	1 s ÷ 18 h
Cross-section of connection cables:	up to 2,5 mm²
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	III
Dimensions:	47,5 x 47,5 x 20 mm
Weight:	0,025 kg
Reference standard:	PN-EN 60669, PN-EN 60950, PN-EN 61000

Touch switch 10 ÷ 14 V DC WDN-01

Dimensions [mm]:

1500

108

| 10 V⎓ ÷ 14 V⎓ | DIM − + | ⟨III⟩ | F | C E | ⌂ | → | IP20 |
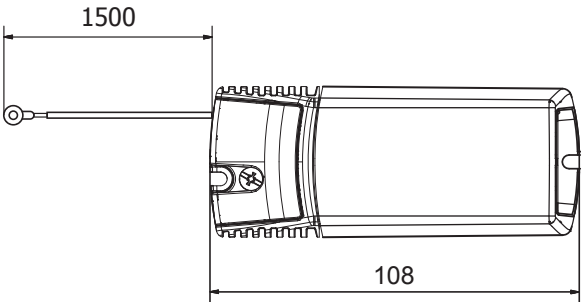
The WDN-01 device is used to switch on or switch off the light by means of a touch. The switch has a sensor with 1,5 m long wire, which is connected to conductive components of lighting fittings. The WDN-01 switch is supplied with 1 ÷ 14V DC. It has a PWM output for a direct connection of LED diodes and the output of NO free relay with a maximum load of 5 A. It is possible to switch on / switch off any receiver (conventional light bulbs, halogens) by means of the relay output. Using the PWM output the brightening / dimming function is also available, apart from switching on / switching off. The relay output operates in parallel way with the PWM output. WDN-01 has small casing dimensions and is designed for surface mounting. It is recommended to use WDN-01 to control lighting in the kitchen and bathroom furniture. The device can also be installed on flammable materials, e.g. wood, furniture boards and plasterboard.

Technical data

Type:	WDN-01
Power supply:	10 ÷ 14 V DC
Power consumption:	0,25 W
Number of channels:	1
Maximum current in the PWM output:	2,5 A
PWM output resolution:	9-bit
Maximum current in the relay output:	5 A / 250 V AC
Relay contact:	1 x NO 5 A / 250 V AC 1250 VA AC1
Relay output type:	volt free - NO
Sensor's length:	1,5 m
Cross-section of connection cables:	up to 2,5 mm²
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	III
Dimensions:	44 x 108 x 33 mm
Weight:	0,055 kg
Reference standard:	PN-EN 60669, PN-EN 61000

1,5 meter long sensor is connected to conducting elements such as metal lamp casings, handles and door handles, etc. These elements must be ground insulated and their surface should be the smallest. The sensor's cable can be maximum extended up to 3 meters with the cross section of 1 mm².

exta free

exta life

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Touch switch 230 V AC WDN-03

| 230V~ | □ | F | CE | ⌂ | → | IP20 |
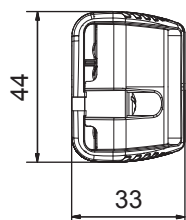
The WDN-03 switch is used to switch on or switch off the light by means of a touch. The switch have a sensor with 1,5 m long wire, which is connected to conductive components of lighting fittings. The switch have a 230 V AC output with a maximum load of 5 A. It is possible to connect any 230 V AC receiver to the output such as: conventional light bulbs, halogens, transformers and power supplies. The device is designed for sur-face mounting. It is recommended to use the switch to control lighting in the kitchen and bathroom furniture. The device can also be mounted on flammable materials, e.g. wood, furniture boards and plasterboard. WDN-03 is the most economical solution assuring the basic function of a touch switch.

Technical data

Type:	WDN-03
Power supply:	230 V AC
Supply voltage tolerance:	-15 ÷ +10 %
Nominal frequency:	50 Hz
Power consumption:	0,9 W
Number of channels:	1
Type of output:	voltage 230 V AC
Output circuit nominal load:	300 W
Relay contact:	1 x NO 5 A / 250 V AC 1250 VA AC1
Sensor's length:	1,5 m
Cross-section of connection cables:	up to 2,5 mm^2
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	II
Dimensions:	44 x 108 x 33 mm
Weight:	0,060 kg
Reference standard:	PN-EN 60669; PN-EN 61000

1,5 meter long sensor is connected to conducting elements such as metal lamp casings, handles and door handles, etc. These elements must be ground insulated and their surface should be the smallest. The sensor's cable can be maximum extended up to 3 meters with the cross section of 1 mm^2.

Proximity switch 230 V AC WDN-04

Dimensions [mm]:
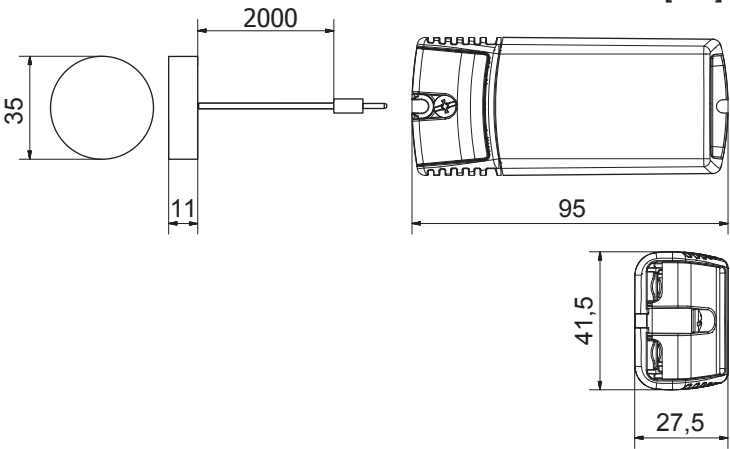
WDN-04 switch is used for hands free switching on and switching off the light. The switch is on by putting a hand close to the surface with a sensor installed beneath it. The surface above sensor should not exceed 10 mm. It can be wood, glass, stone and mineral elements (excluding metal elements or elements containing metal). The switch cooperates with a circular sensor which is mounted in a hole with a diameter of 35 mm. The sensor's cable length is 2 m. WDN-04 has one 230 V AC output with a maximum load of 5 A. It is possible to connect any 230 V AC receiver to the output such as: conventional light bulbs, halogens, transformers and power supplies. The device is designed for a surface mounting and it is recommended to be used in the kitchen and bathroom furniture as well as in places where it should be invisible for the user. WDN-04 meets all safety standards, therefore it can be mounted on flammable surfaces such as wood furniture boards and plasterboard.

Technical data

Type:	WDN-04
Power supply:	230 V AC
Supply voltage tolerance:	-15 ÷ +10 %
Nominal frequency:	50 Hz
Power consumption:	0,8 W
Number of channels:	1
Type of output:	voltage 230 V AC
Output circuit nominal load:	300 W
Relay contact:	1 x NO 5 A / 250 V AC 1250 VA AC1
Sensor's length:	2 m
Sensor's dimensions:	Ø 35 mm, thickness 11 mm
Cross-section of connection cables:	up to 2,5 mm^2
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	II
Dimensions:	95 x 41,5 x 27,5 mm
Weight:	0,050 kg
Reference standard:	PN-EN 60669; PN-EN 61000
Application:	hands free switching on of the 230 V AC lighting fittings

max 10 mm

Ø35 mm

277

exta free
exta life
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Touch remote control P-260

Dimensions [mm]:

Brightening
ON/OFF

RAINBOW/FLOATING mode

Dimming

Touch field

White colour light temperature

STROBE mode

113

55

21
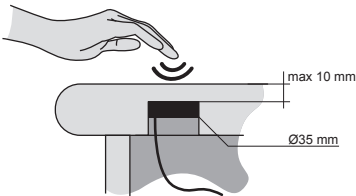
3xAAA   DIM   III   CE   IP20
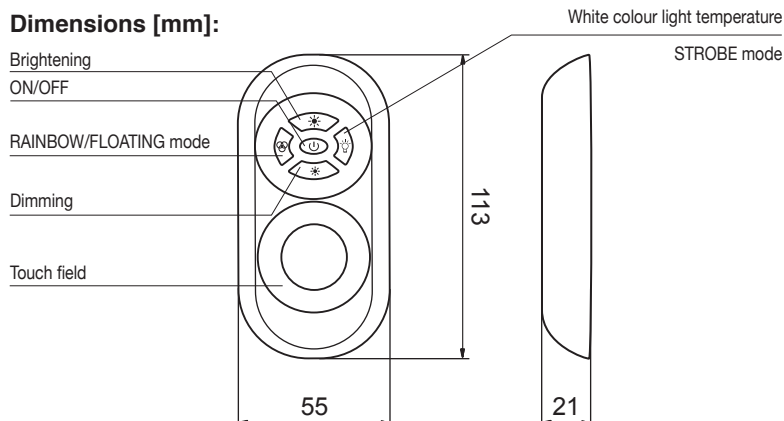
P-260 touch remote control is used to operate with LEDIX series lamps with a built-in RGB controller and to operate with SLR-11 RGB radio controller. The remote control has 5 mechanical keys and a round touch field used to fluently select a diode lighting colour. P-260 operates on the frequency of 868 MHz and realizes the following functions: switching on / switching off, brightening / dimming, floating or strobe change of colours.

The remote control is also equipped in radio transmission and a battery discharge signal. P-260 remote control in connection with the SLR-11 controller makes the control of RGB tapes and other products with RGB diodes possible. Its characteristic feature is a modern design and a great operational range. The remote control operates only with SLR-11 controller and with LEDIX series lighting fittings with a built-in RGB controller.

Technical data

Type:	P-260
Power supply:	4,5 V
Battery type:	3 x AAA battery
Number of push-buttons:	5 + touch field
Transmission:	radio 868,32 MHz
Transmission way:	one-way
Coding:	yes – addressing
Range:	up to 230 m in the open area
Programs:	• fluent colour change (FLOATING) • step colour change (STROBE)
Functions:	• switch on / switch off • brightening / dimming • select a colour from the colour palette (RAINBOW) • white colour temperature adjustment
Steps (FLOATING, STROBE):	10 (do 50 min)
Ambient temperature range:	-10° ÷ +55°C
Protection degree:	IP20
Protection class:	III
Dimensions:	113 x 55 x 21 mm
Weight:	0,100 kg
Reference standard:	PN-ETSI EN 300 220-1, PN-ETSI EN 300 220-2, ETSI EN 301 489-1,3

Wireless RGB control set - RGB SLR-11P

Dimensions [mm]:
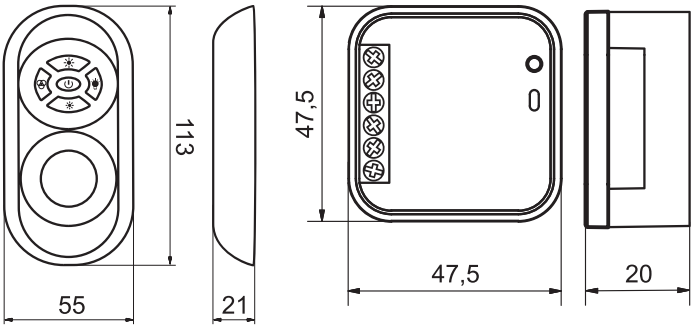
SLR-11P set consists of a wireless controller SLR-11 and a touch remote control P-260. The set is designed to cooperate with RGB products such as the RGB standard lamps of LEDIX series, RGB bands and modules with voltage supply of 10 to 14V DC. A set together with RGB products enables smooth adjustment of the colour of light and the intensity of the selected colour by means of remote touch-field P-260. In addition SLR-11P realises automatic fluent and strobe colour change programs with the possibility to stop the program in the selected colour and which is remembered by the controller. The white colour temperature adjustment is also possible by means of the touch field. The remote control included in the set is added (a factory-default setting) to the SLR-11 controller - immediately after mounting the set is ready for use. The advantage of the set is a possibility of adding other P-260 remote controls and selected EXTA FREE system transmitters to the controller. In this way users are not restricted to a single transmitter as it is in competing solutions. Small controller dimensions allow for a direct mounting in a Ø60 junction box.

Technical data

Type:	SLR-11P	
	SLR-11	**P-260**
Power supply:	12 ÷ 24 V DC	4,5 V DC - 3 x AAA battery
Number of channels:	3 x PWM 9-bit	-
Maximum current in the channel:	2,5 A	-
Programs:	• fluent colour change (FLOATING) • step colour change (STROBE)	
Steps (FLOATING, STROBE):	10 (up to 50 min)	
Functions:	• switch on / switch off • brightening / dimming • select a colour from the colour palette (RAINBOW) • white colour temperature adjustment	
Transmission:	radio 868,32 MHz	
Transmission way:	one-way	
Coding:	yes – addressing	
Range:	up to 230 m in the open area	
Ambient temperature range:	-10° ÷ +55°C	
Protection degree:	IP20	
Protection class:	III	
Dimensions:	47,5 x 47,5 x 20 mm	113 x 55 x 21 mm
Weight:	0,027 kg	0,100 kg

exta free
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One-colour DALI controller SDL-01, SDL-12 / RGB DALI controller SDL-11, SDL-13

Dimensions [mm]:

47,5

47,5

47,5

47,5

20

66

90

35

10 V⎓ ÷ 48 V⎓   DIM −+   III   CE   ⌂   ø60   IP20
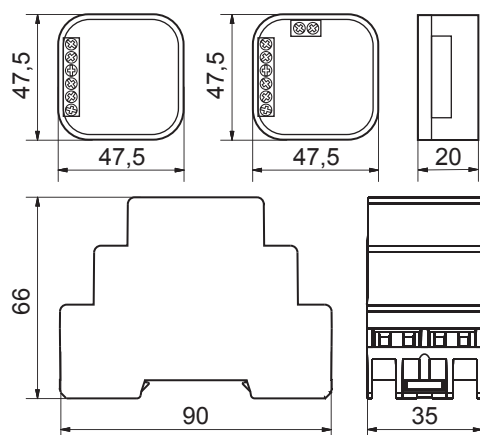
LED controllers DALI are designed to control LED diodes (one-colour and RGB diodes) by means of the DALI interface bus. LEDIX series low-voltage lamps, LED tapes and diode modules can be connected to controllers as the finishing elements. Dali protocol massages are converted by the LED controllers into PWM output signal controlling the lighting level of (SDL-01, SDL-12) one- colour diodes and, addition-

ally, the colour in the case of RGB (SDL-11, SDL-13) diodes. The control bus includes two wires that can be led together with power supply wires. DALI controllers also allow for easy LED products implementation in complex lighting systems whose operating is based on DALI interface. SDL-01 and SDL-11 can also have a function of controllers in the autonomous LED lighting systems. LED Controllers are available in

two housing versions which allow for easy mounting in the Ø60 junction box or in a switchboard on TH35 rail).

Technical data

Type:	SDL-01	SDL-11	SDL-12	SDL-13
Power supply:	10 ÷ 48 V DC		10 ÷ 48 V DC	
Power consumption:	0,22 W		< 0,3 W in stand-by mode	
Number of channels:	1	3	1	3
Maximum current in the channel:	2,5 A		6 A	2,5 A
Input signal:	DALI interface			
Output signal:	PWM 9-bit		PWM 16-bit	
Cross-section of connection cables:	up to 2,5 mm²			
Ambient temperature range:	-10° ÷ +55°C			
Protection degree:	IP20			
Protection class:	III			
Dimensions:	47,5 x 47,5 x 20 mm		90 x 35 x 66 mm	
Weight:	0,024 kg	0,027 kg	0,025 kg	
Reference standard:	PN-EN 60669, PN-EN 61000		PN-EN 62386-102, PN-EN 62386-207	

Junction box power supplies ZNP-02 / ZNP-08 / ZNP-15

Dimensions [mm]:

230V~ | □ | ⊕ | ⊕ | ø60 | ⌂ | CE | IP20
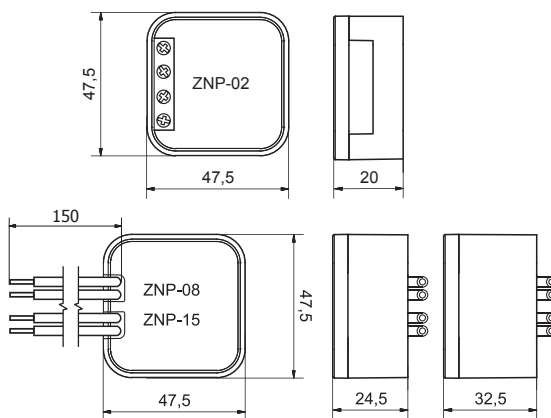
The ZNP series power supplies are professional impulse power supplies with voltage regulation of 12 V or 14 V for direct mounting in the Ø60 mm junction box. The 12 V version is recommended to supply the standard LED products, while the 14 V version is recommended to cooperate with LEDIX series products. As regards the output power, the ZNP power supplies are available in 2 W, 8 W and 15 W versions. These devices have a very low power consumption in the stand-by mode, high efficiency of about 79%, high stability of the output voltage and long-term reliability.

Technical data

Type:	ZNP-02-12	ZNP-08-12	ZNP-15-12	ZNP-02-14	ZNP-08-14	ZNP-15-14
Output						
Voltage U_{out}:	12 V DC			14 V DC		
Nominal current:	0,165 A	0,65 A	1,25 A	0,14 A	0,57 A	1,07 A
Current range:	0 ÷ 0,165 A	0 ÷ 0,65 A	0 ÷ 1,25 A	0 ÷ 0,14 A	0 ÷ 0,57 A	0 ÷ 1,07 A
Nominal power:	2 W	8 W	15 W	2 W	8 W	15 W
Voltage tolerance:	5%					
Voltage pulsation:	80 mVpp					
Increase time U_{out}:	10 ms					
Transient response U_{out}:	20 ms					
Input						
Input rated voltage:	230 V AC					
Nominal frequency:	50 Hz					
Voltage tolerance:	-15% ÷ +10%					
Efficiency:	79 ÷ 80%					
Power consumption (stand-by):	0,25 W					
Starting current:	20 A					
Other						
Protections:	short circuit, overload					
Ambient temperature range:	-10 ÷ +50°C					
Protection degree:	IP20					
Protection class:	II					
Dimensions:	47 x 47 x 20 mm	47 x 47 x 24,5 mm	47 x 47 x 32,5 mm	47 x 47 x 20 mm	47 x 47 x 24,5 mm	47 x 47 x 32,5 mm
Weight:	0,030 kg	0,074 kg	0,100 kg	0,030 kg	0,074 kg	0,100 kg
Reference standard:	PN-EN 61204-3, PN-EN 55022, PN-EN 61000					

exta free

exta life

supla

exta

ledix

konekto

sundi

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Power supplies for surface mounting ZNN-08 / ZNN-15

Dimensions [mm]:

150
1mm²
0,75mm²
ZNN-08
41,5
73,5
27,5

150
1,5mm²
0,75mm²
ZNN-15
44
81
33

230V~ □ IP56 CE
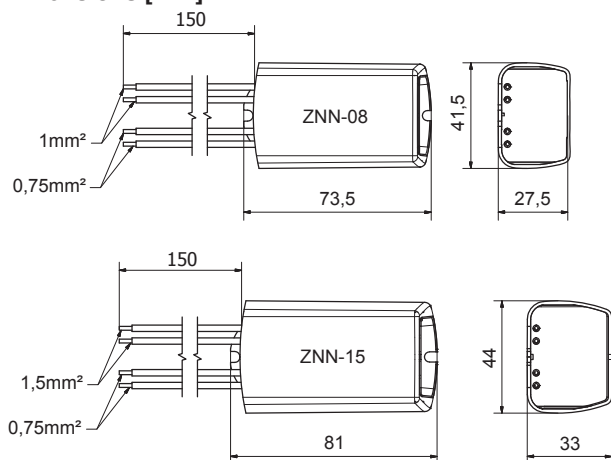
The ZNN series power supplies are professional impulse power supplies with voltage regulation of 12 V or 14 V for surface mounting. The 12 V version is recommended to supply the standard LED products while the 14 V version is dedicated to cooperate with LEDIX series products. As regards the output power, the ZNN power supplies are available in the 8 W and 15 W versions. These devices have a very low power consumption in the stand-by mode, high efficiency of about 79%, high stability of the output voltage and long-term reliability. The power supplies are additionally protected with polyurethane resin. They are recommended for the installation in a plaster-cardboard panels and directly on the furniture.

Technical data

Type:	ZNN-08-12	ZNN-15-12	ZNN-08-14 14V⎓	ZNN-15-14 14V⎓
Output				
Voltage U_out:	12 V DC		14 V DC	
Nominal current:	0,66 A	1,25 A	0,57 A	1,07 A
Current range:	0 ÷ 0,66 A	0 ÷ 1,25 A	0 ÷ 0,57 A	0 ÷ 1,07 A
Nominal power:	8 W	15 W	8 W	15 W
Voltage tolerance:	5%			
Voltage pulsation:	80 mVpp			
Increase time U_out:	10 ms			
Transient response U_out:	20 ms			
Input				
Input rated voltage:	230 V AC			
Nominal frequency:	50 Hz			
Voltage tolerance:	-15% ÷ +10%			
Efficiency:	79 ÷ 80%			
Power consumption:	0,25 W			
Starting current:	20 A			
Other				
Protections:	short circuit, overload			
Ambient temperature range:	-10 ÷ +50°C			
Protection degree:	IP56			
Protection class:	II			
Dimensions:	41,5 x 73,5 x 27,5 mm	44 x 81 x 33 mm	41,5 x 73,5 x 27,5 mm	44 x 81 x 33 mm
Weight:	0,105 kg	0,143 kg	0,105 kg	0,143 kg
Reference standard:	PN-EN 61204-3, PN-EN 55022, PN-EN 61000			

Modular power supplies ZNM-08 / ZNM-15

Dimensions [mm]:

The ZNM series power supplies are professional impulse power supplies with voltage regulation of 12 V or 14 V. The 12 V version is recommended to supply the standard LED products while the 14 V version is recommended to cooperate with the LEDIX series products. The ZNM power supplies are designed to be mounted on a TH-35 DIN rail. The devices are available in a 1, 2 or 3 modular casings depending on the output power (10 W, 8 W, 15 W). The ZNM power supplies have a very low power consumption in the stand-by mode, high efficiency of about 79%, high stability of the output voltage and a long-term reliability.

Technical data

Type:	ZNM-08-12	ZNM-15-12	ZNM-08-14	ZNM-15-14
Output				
Voltage Uout:	12 V DC		14 V DC	
Nominal current:	0,66 A	1,25A	0,57A	1,07 A
Current range:	0 ÷ 0,66 A	0 ÷ 1,25 A	0 ÷ 0,57 A	0 ÷ 1,07 A
Nominal power:	8 W	15 W	8 W	15 W
Voltage tolerance:	5%	5%	5%	5%
Voltage pulsation:	80 mVpp	80 mVpp	80 mVpp	80 mVpp
Increase time Uout:	10 ms	10 ms	10 ms	10 ms
Transient response Uout:	20 ms	20 ms	20 ms	20 ms
Input				
Input rated voltage:	230 V AC			
Nominal frequency:	50 Hz			
Voltage tolerance:	-15% ÷ +10%			
Efficiency:	79 ÷ 80%			
Power consumption – stand-by:	0,25 W			
Starting current:	20 A			
Other				
Protections:	short circuit, overload			
Ambient temperature range:	-10 ÷ 50°C			
Protection degree:	IP20			
Protection class:	II			
Dimensions:	66 x 90 x 35 mm	66 x 90 x 53 mm	66 x 90 x 35 mm	66 x 90 x 53 mm
Weight:	0,075 kg	0,098 kg	0,075 kg	0,098 kg
Reference standard:	PN-EN 61204-3, PN-EN 55022, PN-EN 61000			

LED electronic power supplies ZSL-25 / ZSL-35 / ZSL-60 / ZSL-100 / ZSL-150

Dimensions [mm]:
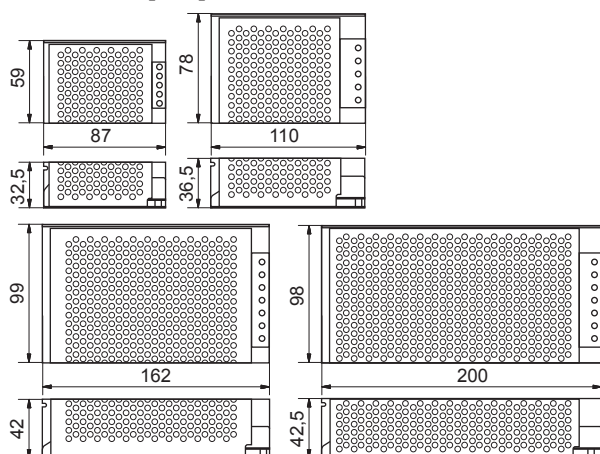
LED impulse power supplies ZSL series are intended to be used in household LED lighting installations. The modular design makes it easy and convenient for mounting on horizontal and vertical indoor surfaces. LED Power supplies are characterized by output voltage 12 V DC . They are offered in a wide range of output power (25 ÷ 150 W). Built-in safety features guarantee uninterrupted operation of all connected LED elements. LED Power supplies are equipped with a control unit for output voltage in the range of minimum ±10% with a potentiometer. The metal housing provides a suitable cooling of the PSU and extends its lifespan.

Technical data

Type:	ZSL-25-12	ZSL-35-12	ZSL-60-12	ZSL-100-12	ZSL-150-12
Output					
Voltage U$_{out}$:	12 V DC				
Nominal current:	2,5 A	3 A	5 A	8,5 A	12,5 A
Current range:	0 ÷ 2,5 A	0 ÷ 3 A	0 ÷ 5 A	0 ÷ 8,5 A	0 ÷ 12,5 A
Nominal power:	25 W	35 W	60 W	100 W	150 W
Ripples and noises (max):	200 mVpp				
Adjustment range U$_{out}$:	10,5 ÷ 13,5 V	8,5 ÷ 13 V	11,3 ÷ 13,2 V	11,5 ÷ 12,8 V	10,8 ÷ 15 V
Voltage tolerance:	1 %				
Increase time U$_{out}$:	~15 ms				
Output backup time (max):	~80 ms				
Input					
Input rated voltage:	110 ÷ 260 V AC				
Nominal frequency:	50 / 60 Hz				
Input current:	0,3 A	0,38 A	0,65 A	0,85 A	1,05 A
Power consumption – stand-by:	~0,5 W	~0,6 W	~1,5 W	~0,9 W	~3,9 W
Efficiency:	85 %	75 %	80 %	83 %	83 %
Power factor:	0,5				
Other					
Protections:	short circuit, overload				
Ambient temperature range:	-20 ÷ 60 °C				
Protection degree:	IP20				
Protection class:	I				
Dimensions:	87 x 59 x 32,5 mm	87 x 59 x 32,5 mm	110 x 78 x 36,5 mm	162 x 99 x 42 mm	200 x 98 x 42,5 mm
Weight:	100 g	115 g	195 g	340 g	385 g
Reference standard:	PN-EN 55015, PN-EN 61547, PN-EN 6100-3-2, PN-EN 6100-3-3, PN-EN 61347-1				

LED power supplies ZNS-12-12, ZNS-20-12, ZNS-30-12, ZNS-50-12, ZNS-75-12
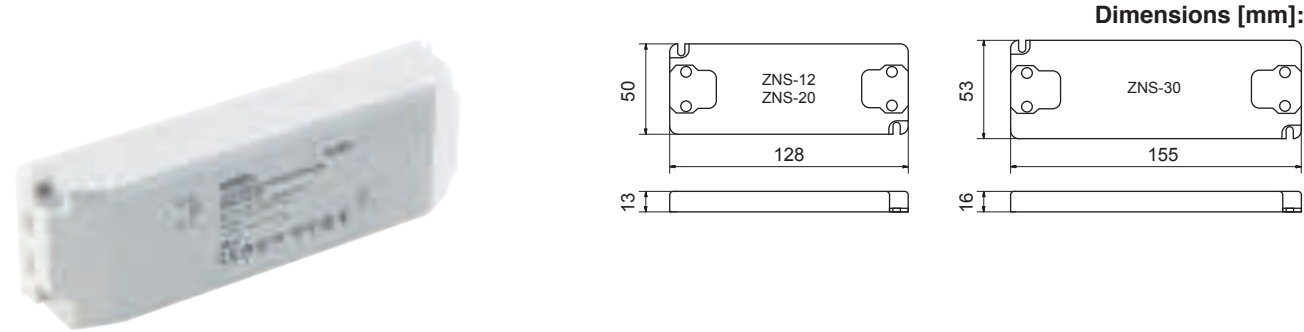
Dimensions [mm]:

LED impulse power supplies ZNS series are intended to be used in household LED lighting installations. The modular design makes it easy and convenient for mounting on horizontal and vertical indoor surfaces. LED Power supplies are characterized by 12 V DC output voltage. They are offered in a wide range of output power (12 ÷ 75 W). Built-in safety features guarantee uninterrupted operation of all connected LED elements.

Technical data

Type:	ZNS-12-12	ZNS-20-12	ZNS-30-12	ZNS-50-12	ZNS-75-12
Output					
Voltage U$_{out}$:	12 V DC				
Nominal current:	1,0 A	1,67 A	2,5 A	4,10 A	6,25 A
Nominal power:	12 W	20 W	30 W	50 W	75 W
Voltage tolerance:	5%	5%	5%	5%	5%
Voltage pulsation:	600 mV	700 mV	700 mV	800 mV	500 mV
Transient response U$_{out}$:	500 ms				
Input					
Input rated voltage:	220 ÷ 240 V AC				
Rated current:	0,13 A	0,21 A	0,18 A	0,30 A	0,45 A
Nominal frequency:	50 / 60 Hz				
Efficiency:	78 %	82 %	88 %	88 %	86 %
Power consumption – stand-by:	0,5 W				
Starting current:	10 A	8 A	10 A	15 A	10 A
Other					
Protections:	short circuit, overload				
Ambient temperature range:	-20 ÷ 50°C		-20 ÷ 40°C	-20 ÷ 50°C	
Protection degree:	IP20				
Protection class:	II				
Dimensions:	128 x 50 x 13 mm		155 x 53 x 16 mm	184 x 61 x 32 mm	
Weight:	0,070 kg	0,075 kg	0,105 kg	0,270 kg	0,270 kg
Reference standard:	PN-EN 61204-3, PN-EN 55022, PN-EN 61000				

LED power supplies ZNS-12-24, ZNS-20-24, ZNS-30-24, ZNS-50-24, ZNS-75-24
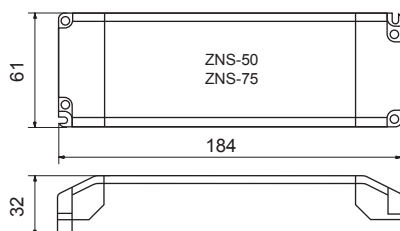
ZNS-50
ZNS-75

61

184

32

LED impulse power supplies ZNS series are intended to be used in household LED lighting installations. The modular design makes it easy and convenient for mounting on horizontal and vertical indoor surfaces. LED Power supplies are characterized by 24 V DC output voltage. They are offered in a wide range of output power (12 ÷ 75 W). Built-in safety features guarantee uninterrupted operation of all connected LED elements.

Technical data

Type:	ZNS-12-24	ZNS-20-24	ZNS-30-24	ZNS-50-24	ZNS-75-24
Output					
Voltage U$_{out}$:	24 V DC				
Nominal current:	0,5 A	0,83 A	1,25 A	2,10 A	3,10 A
Nominal power:	12 W	20 W	30 W	50 W	75 W
Voltage tolerance:	5%	5%	5%	5%	5%
Voltage pulsation:	600 mV	700 mV	700 mV	800 mV	500 mV
Transient response U$_{out}$:	500 ms				
Input					
Input rated voltage:	220 ÷ 240 V AC			100 ÷ 240 V AC	220 ÷ 240 V AC
Rated current:	0,13 A	0,13 A	0,18 A	0,60 A	0,45 A
Nominal frequency:	50 / 60 Hz				
Efficiency:	78 %	82 %	88 %	88 %	86 %
Power consumption – stand-by:	0,5 W				
Starting current:	10 A	8 A	10 A	15 A	10 A
Other					
Protections:	short circuit, overload				
Ambient temperature range:	-20 ÷ 50°C		-20 ÷ 40°C	-20 ÷ 50°C	
Protection degree:	IP20				
Protection class:	II				
Dimensions:	128 x 50 x 13 mm		155 x 53 x 16 mm	184 x 61 x 32 mm	
Weight:	0,070 kg	0,075 kg	0,105 kg	0,270 kg	0,270 kg
Reference standard:	PN-EN 61204-3, PN-EN 55022, PN-EN 61000				

ETZ50 / 60 / 70 / 105 / 150 / 210 / 250

Dimensions [mm]:

ETZ-150/210/250 52,5 167 38,5

ETZ-105 44 108 33

ETZ-50/60/70 41,5 95 27,5

230V~ IP20 CE SELV 110
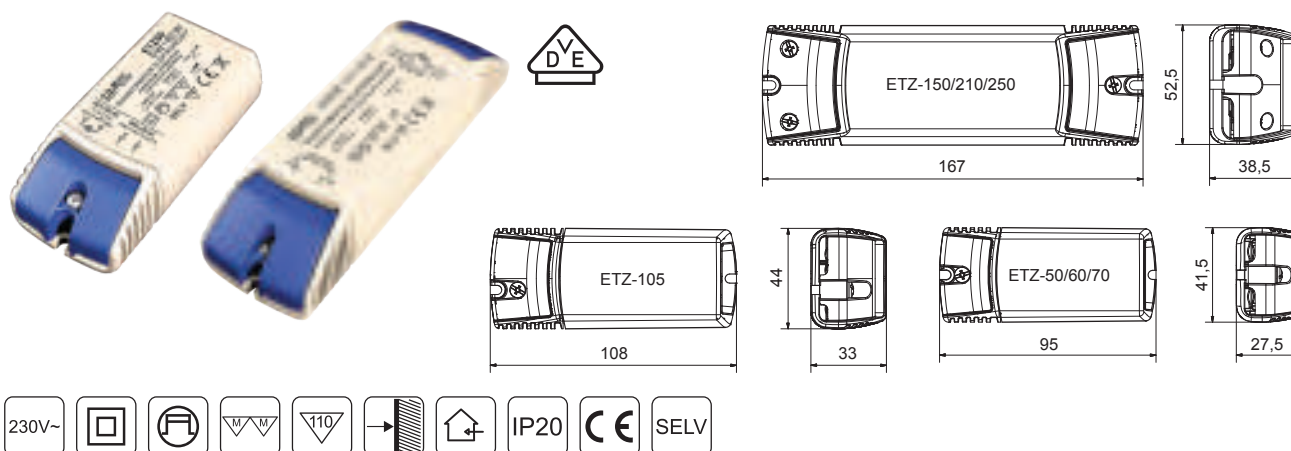
The transformers of the ETZ series are designed to cooperate with halogen light sources supplied with 12 V AC voltage. They are made in few versions depending on the nominal output power. A characteristic feature of ETZ series transformers is the possibility of supplying very low loads (0 W). These devices have a range of protections (against short circuit, overload, thermal) and patented solutions that prolong the lifespan of halogen bulbs cooperating with these transformers and improve the safe use of the devices. The ETZ series is designed for surface mounting. The connection is done by means of screw joints. This transformers can cooperate with intelligent types of light-ing dimmers and have a range of certificates including German VDE certificate.
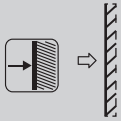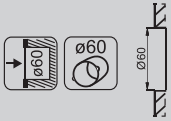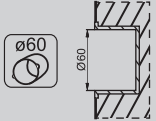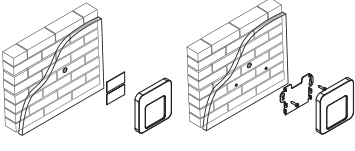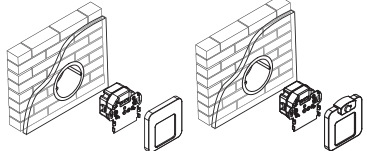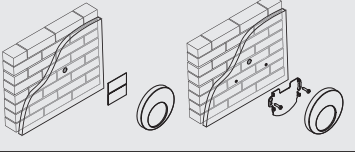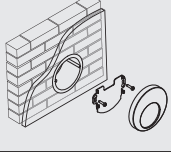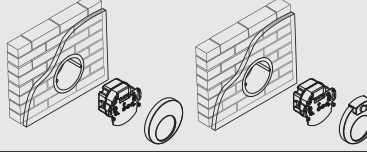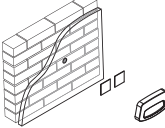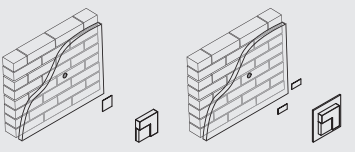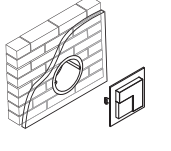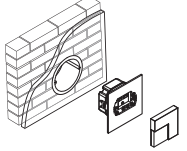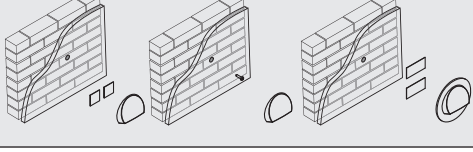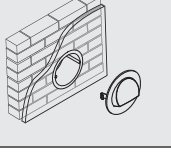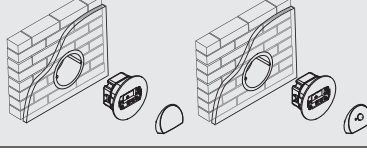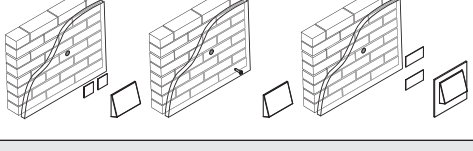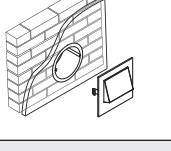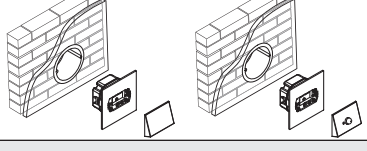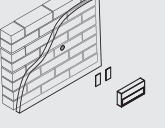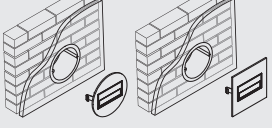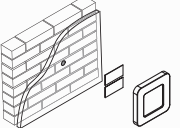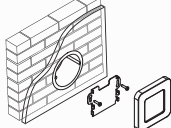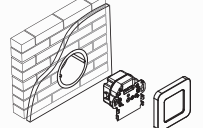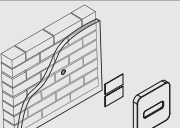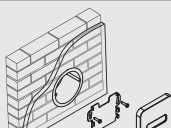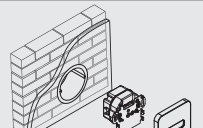
Technical data

Type:	ETZ50	ETZ60	ETZ70	ETZ105	ETZ150	ETZ210	ETZ250
Output							
Voltage U$_{out}$:	11,5 V AC						
Output power range:	0 ÷ 50 W	0 ÷ 60 W	0 ÷ 70 W	0 ÷ 105 W	0 ÷ 150 W	0 ÷ 210 W	0 ÷ 250 W
Nominal output current:	4,3 A	5,2 A	6 A	9,1 A	13 A	18,2 A	22 A
Power factor:	0,99						
Input							
Input rated voltage:	230 V AC						
Nominal frequency:	50 / 60 Hz						
Voltage tolerance:	-15% ÷ +10%						
Nominal input current:	0,22 A	0,27 A	0,32 A	0,46 A	0,65 A	0,93 A	1,1 A
Other							
Protections temperature:	yes - returning ≥100°C						
Short circuit protection:	yes - returning						
Overload protection:	yes > 200% nominal power						
Protection degree:	IP20						
Protection class:	II						
Ambient temperature range:	0 ÷ 40°C						
Cooperation with light dimmers:	yes – recommended types						
Weight:	100 g	100 g	100 g	125 g	212 g	225 g	225 g
Reference standard:	EN 61347-1, EN 61347-2-2, EN 61547, EN 55015, EN 61000-3-2, EN 60598						

Mounting examples of LED lighting fittings

MOZA			
MUNA			
TERA			
TICO			
TIMO			
RUBI			
NAVI			
SONA			
TETI			
LAMI			

LED lighting fitting with motion and twilight sensors
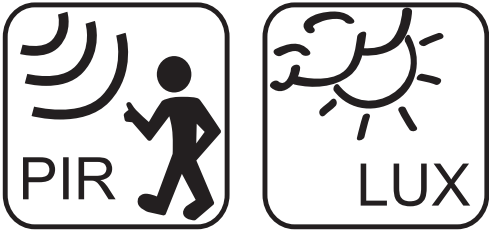
Some lighting fittings of the MUNA, MOZA, RUBI and NAVI series are equipped with a motion and a twilight sensor. The motion sensor is based on a PIR type component and enables to switch on the lighting fitting after motion has been detected in the sensor's detection field. It is switched on as long as the object remains in the operation field of the motion sensor. After the object has left the sensor's detection field, the lamp is still switched on for t=2÷35 seconds, it depends on the potentiometer's time adjustment. The twilight sensor switches on the fitting only at a specified luminous intensity. The twilight switch sensitivity can be adjusted in the range of 2÷20 lx by means of a Lux potentiometer, which enables to adjust precisely the „ twilight level". The selected lens is placed in a fitting in such a way, to ensure optimal motion detection and especially when we yese into account the specific mounting of lighting fittings in corridors and staircases. Motion is detected from the distance of 2÷3 meters off the lamp at the angle of 120º. The lighting fittings with a motion sensor are equipped with an additional dry contact normal open with a maximum capacity of 3 A. This makes the mounting of simple lighting control systems easy in corridors.

PIR sensor detection field

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo
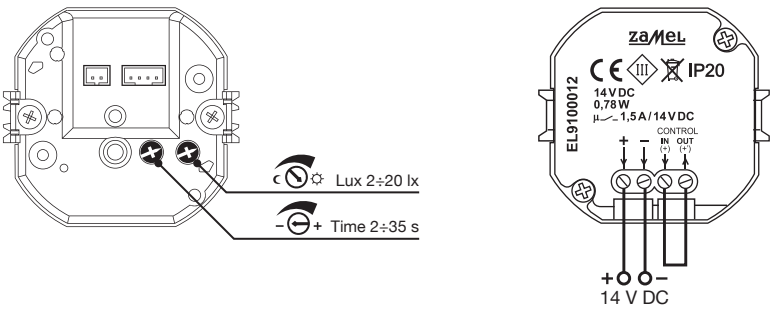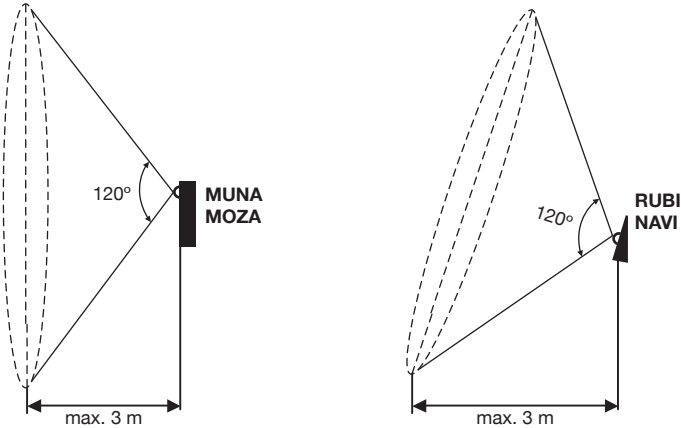
LED lighting fittings with motion sensor

This application presents the use of the LEDIX series lighting fittings with a built-in motion sensor. The fitting with a motion sensor is mounted by the entrance door. After movement is detected, the light switches on in this and other fittings, which are supplied by an output contact normally open of a lighting fitting with a built-in motion sensor.

Fittings can be supplied directly from the mains 230 V AC 50/60 Hz or by a 14 V DC power supply. The lighting is switched on as long as there is movement detection in the fittings' detection range. After there is no movement detected in its operation range the lighting is switched off after t=2÷35 s. time (dependent on the potentiometer's

adjustment). The operation threshold of a twilight switch is adjusted between 2 ÷ 20 lx. It allows to adjust the dimming level the lighting switching will be switched on. Operation rule of two lighting fittings with motion sensor in one circuit on page 293.
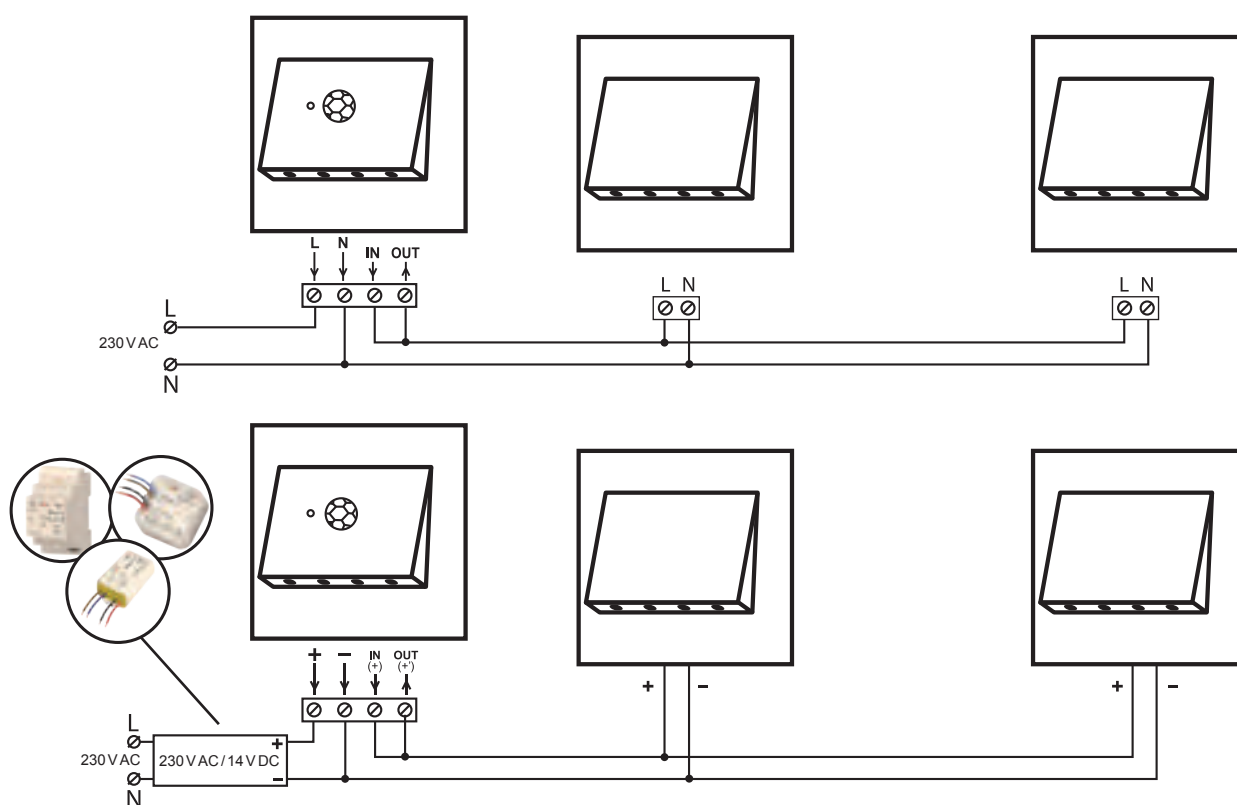
SLR-12 wired RGB controller
+ RGB LED lighting fittings of LEDIX series
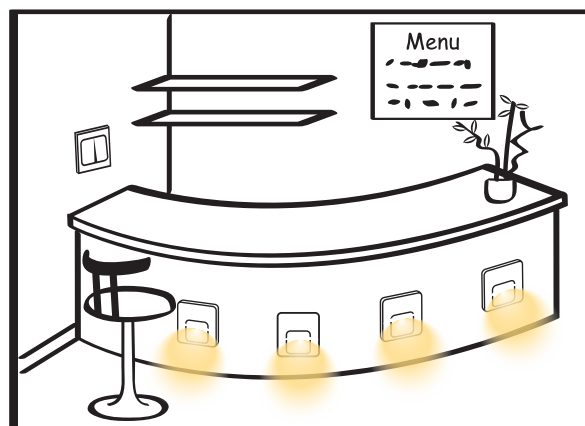
This application presents applications of the LEDIX lighting fittings with RGB diodes cooperating with a wired SLR-12 controller. 2 NO push button is connected to the controller. The push-button realizes the following functions: switching on/switching off the light, choosing 1 out of 10 colours included in the table range, brightening / dimming of a chosen colour. Additionally, it is possible to start the mode of a floating colour change (FLOATING). The RGB controller is supplied by means of ZNP-08-14 (14 V / 8 W) junction box power supply.

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

RNK-02

P-257/4
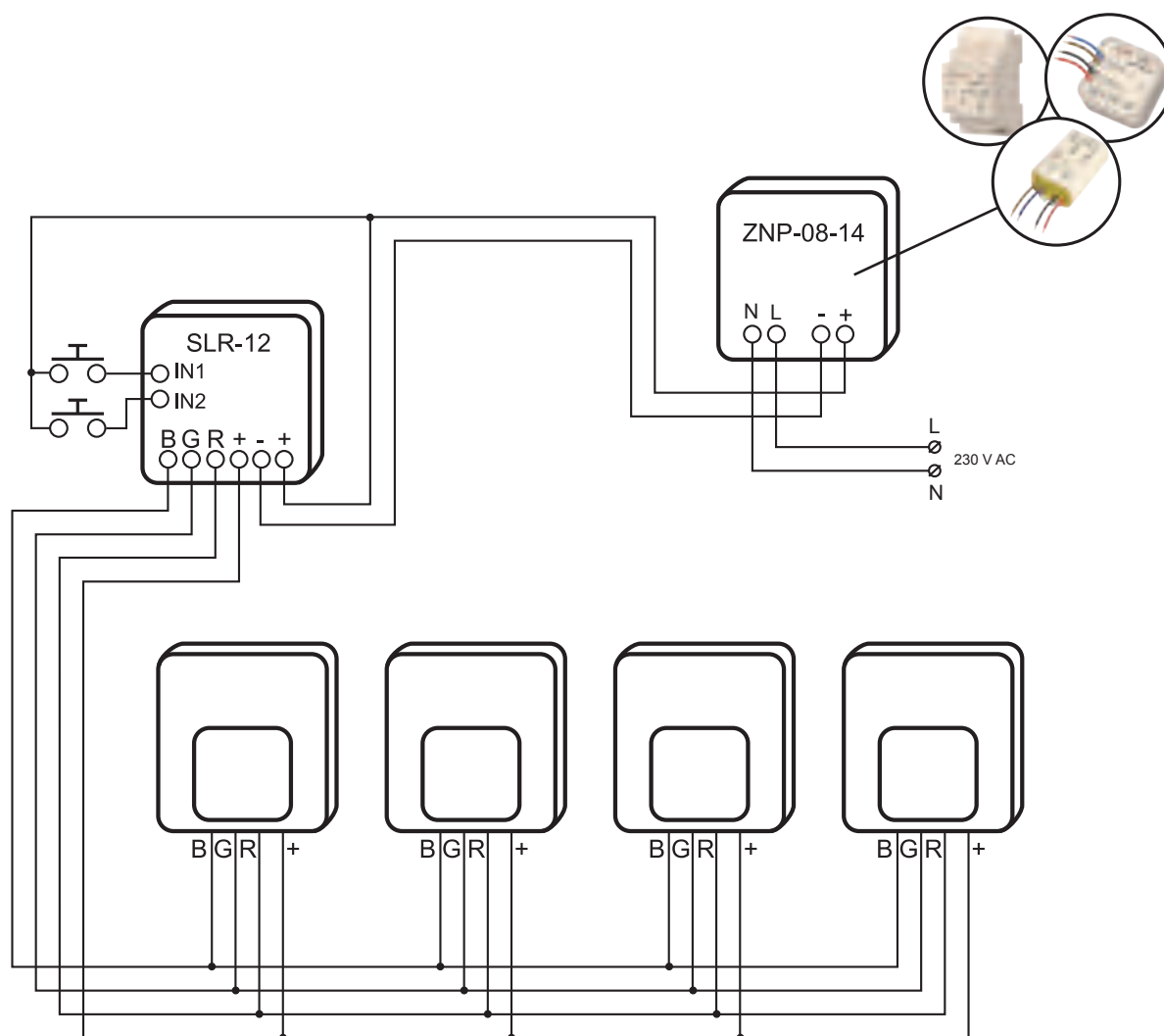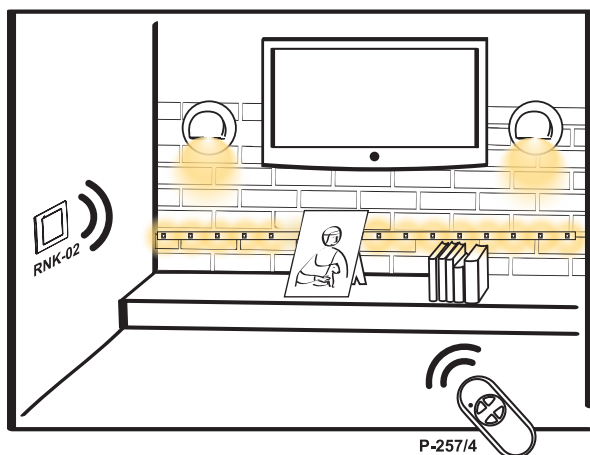
LED lighting fittings with a built-in radio receiver + SLR-01 controller

This application presents the use of the LEDIX series lighting fittings with a radio receiver and SLR-01 one-colour controller. The fittings (dependent on type) are supplied with voltage of 230 V AC 50/60 Hz or 14 V DC. They are switched on by means of RNK-02 wireless transmitter or by means of P-257/4 remote control (push buttons „1" and „2"). Push buttons „3" and „4" are added to SLR-01 controller and are used to control one-colour LED flexible strip supplied with 12 V DC voltage. The following functions are possible with the use of RNK-02 transmitter and P-257/4 remote control: switching on / switching off, brightening / dimming or time mode.

230 V AC

L
N

ZNP-15-12

N L   - +

SLR-01

IN1 IN2   OUT   INPUT
- +   - +

P-257/4

L N   L N   L N   L N

RNK-02
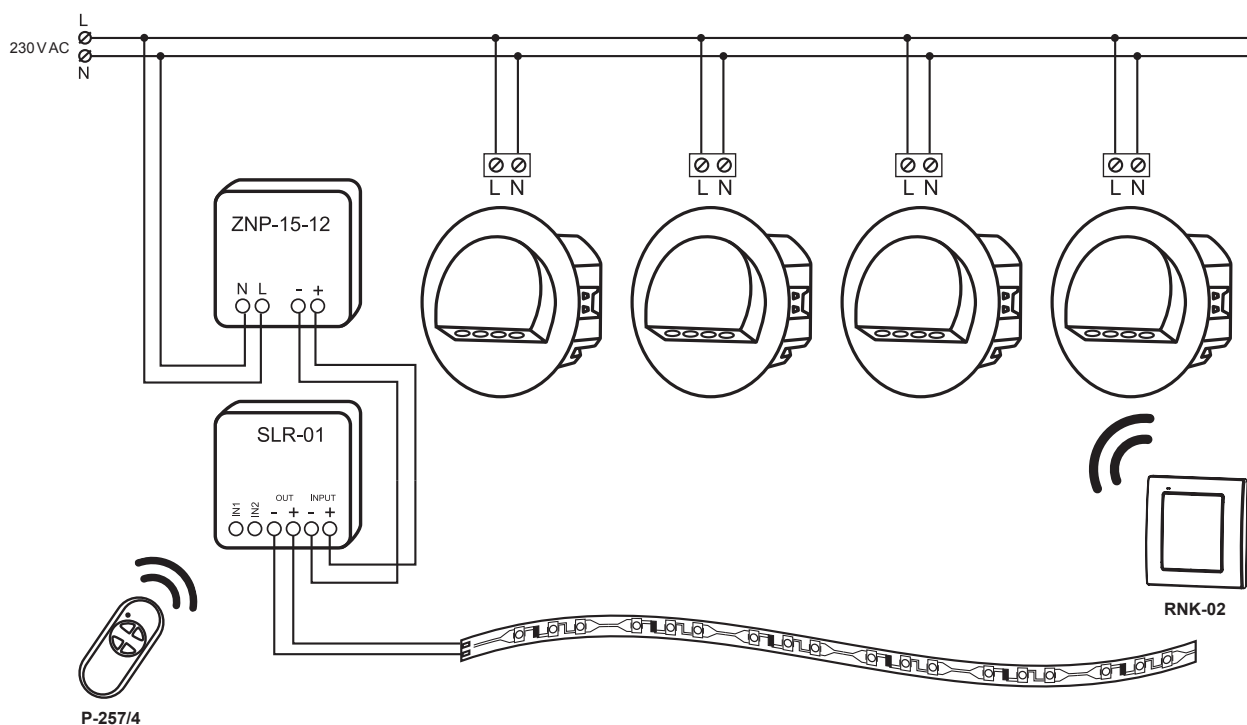
LED lighting fittings with RGB radio controller + SLR-11 controller
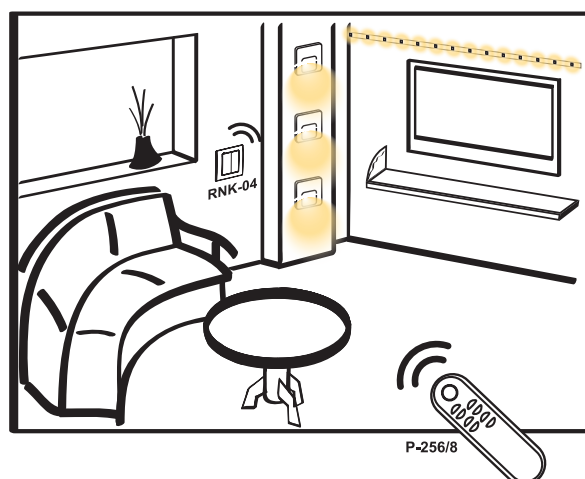
RNK-04

P-256/8

This application presents the use of the LE-DIX series lighting fittings with RGB radio controller and RGB SLR-11 wireless controller. The lamps cooperate with P-256/8 remote control. It is possible by means of the remote control to switch on / switch off 1 out of 8 colours added to push-buttons 1÷8 or start the mode of floating (FLOAT-ING) or strobe (STROBE) colour change. The fittings (dependent on type) can be supplied directly from the mains 230 V AC or by means of 14 V DC. RGB strip with 12 V DC voltage supply is connected to SLR-11 controller. The controller cooperates with RNK-04 push button transmitter, which enables to switch on / switch off, brighten / dim the RGB strip or start one out of two modes: FLOATING or STROBE. The controller is used to be mounted in a typical junction box Ø60 mm.

L
230 V AC
N

230 V AC / 14 V DC

L   N

230 V AC / 12 V DC

+   −

+ − + R G B

SLR-11

RNK-04

P-256/8

293

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

RNK-04

P-257/2
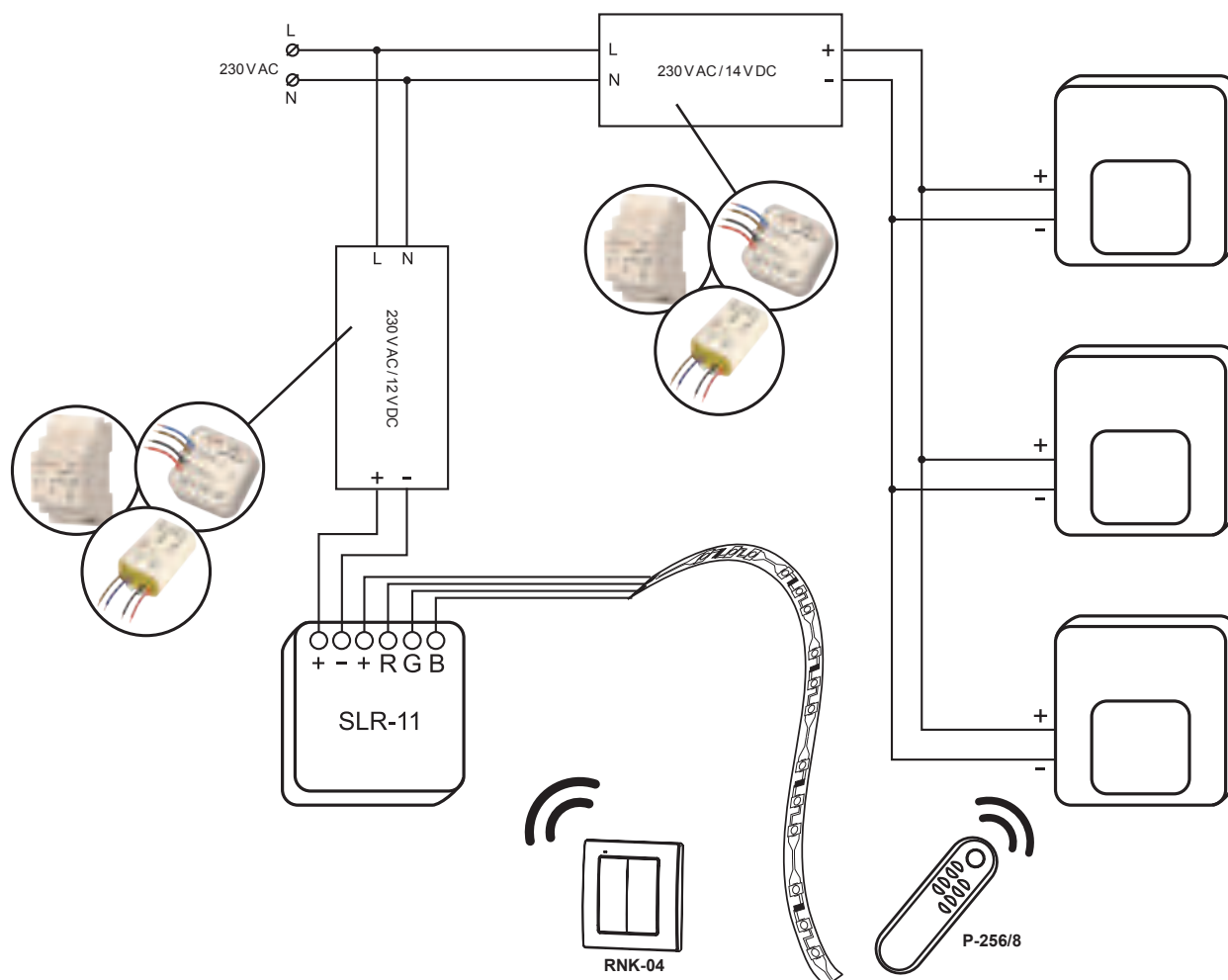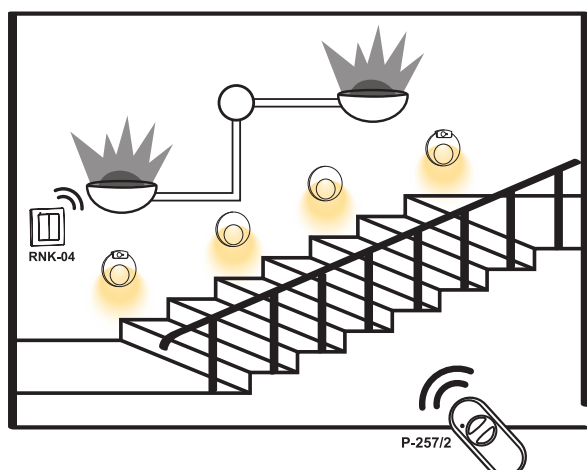
LED lighting fitting with motion sensor + ROP-04

This application presents the use of the LEDIX series lighting fittings with a motion sensor and ROP-04 radio receiver. LED lighting lighting fittings with motion sensors are mounted at the beginning and at the end of staircases, whereas the other fittings in the staircases are supplied by the output contact (NO) lighting fitting with a motion sensor. If the luminous flux intensity is in accordance with the preset level, the motion detection in the detection field of "A" lighting fitting will cause its switching

on as well as all other standard fittings. "B" lighting fitting is switched on after motion is detected in its operation field. After there is no more movement detection in "B" lighting fitting operation range the lighting remains switched on for a preset time (2 ÷ 35 sec.). Analogical and reversed sequence of steps will take place in case there is movement from lighting fitting "B" towards "A". Two LED lighting fittings (12 V DC) are directly connected to ROP-04 radio receiver. Independent switching on /switching off of

each is realised by means of RNK-04 wall transmitter or P-257/2 remote control. The receiver can be easily programmed for instance in time mode, with time 1 sec. ÷ 18 h, and at the same time obtain implementation of a staircase time delay switch function. The LEDIX series lighting fittings are supplied with 230 V AC 50/60Hz voltage. The ROP-04 receiver is supplied by means of a flush junction box power supply ZNP-08-12 (12 V/8 W).
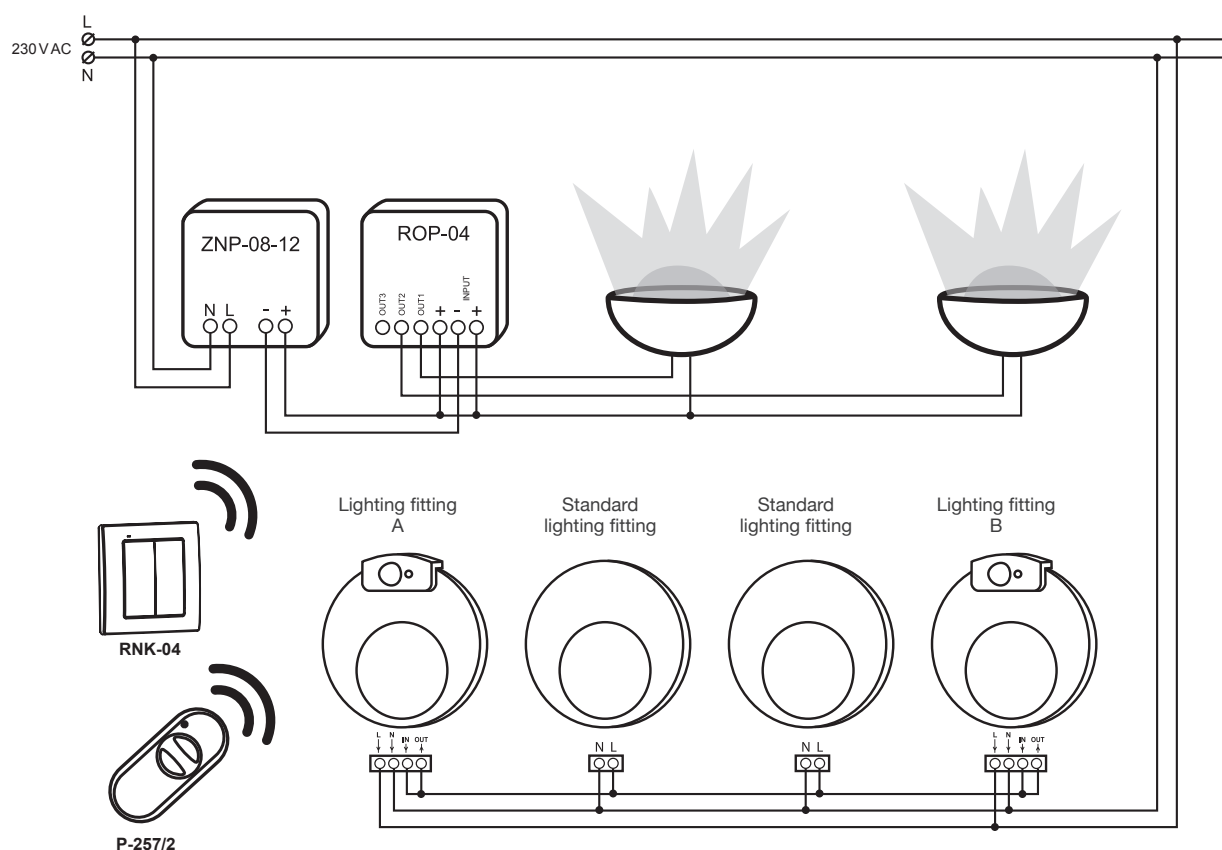
WDN-03 touch switch + SLR-01
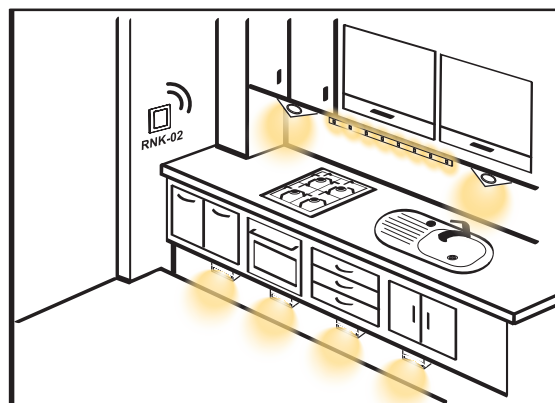
This application presents the use of WDN-03 touch switch and SLR-01 radio controller. The touch switch sensor is connected to a LED aluminium strip mounted under the upper kitchen wall cupboards. The LED tape is placed in the LED strip connected directly to LED power output (12 V DC). WDN-03 relay output switches on the spot-lighting of a halogen, which is supplied from an electronic transformer (ETZ or ETW series or LED power supply). Lighting switching on /switching off is realised by touching the LED aluminium strip. SLR-01 controller cooperates with LEDIX series lighting fittings placed under the furniture pedestal. Switching on/switching off is realised from RNK-02 radio transmitter. It is possible to brighten and to dim the light or to realise the time mode function with dimming by means of this transmitter. The fittings are mounted on a double-adhesive tape with 14 V DC voltage.

295

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

P-260   P-256/8
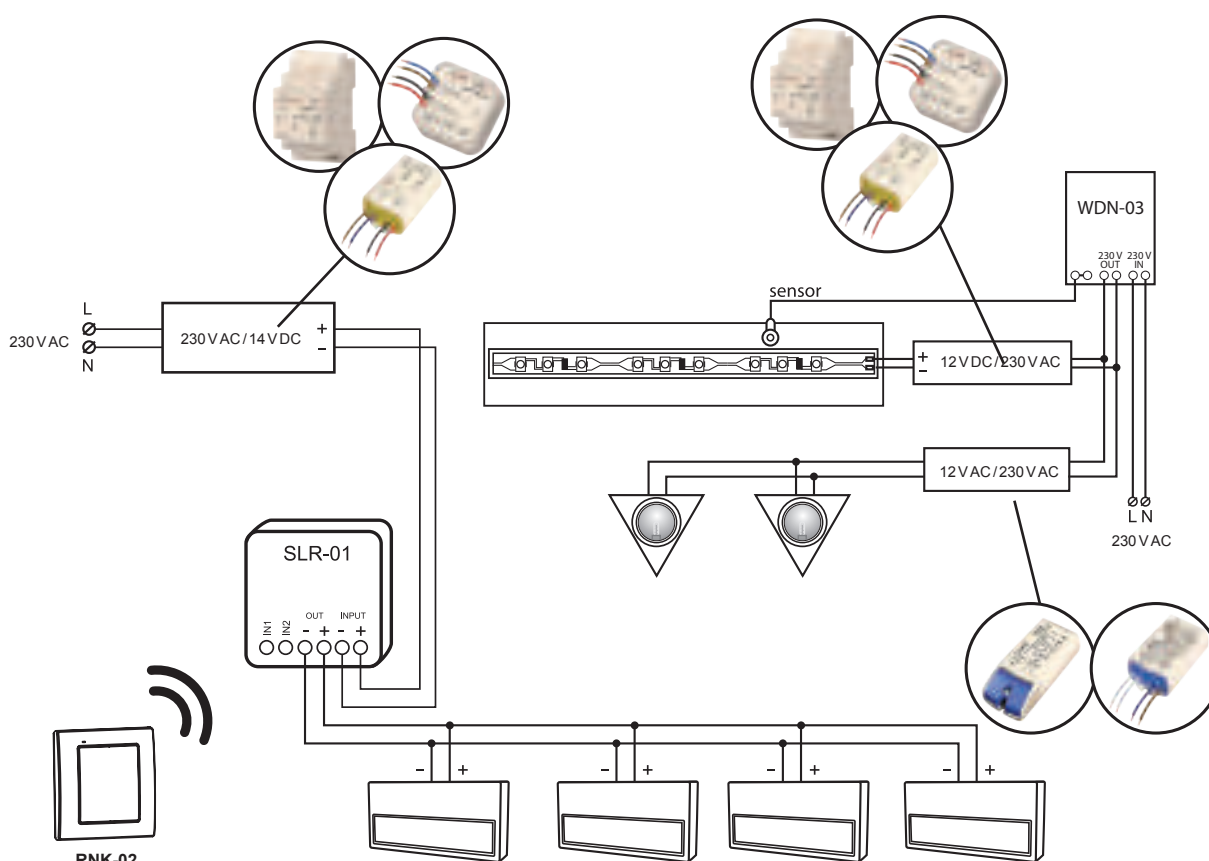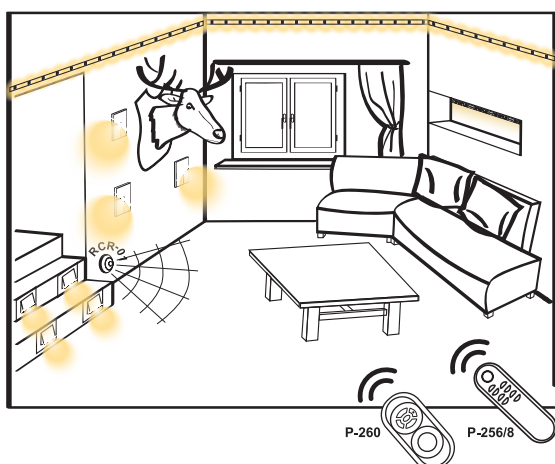
LED lighting fittings with a built-in radio receiver, SLR-01, ROP-04, SLR-11, P-260

This application presents the use of the LE-DIX series lighting fittings and a wide range of devices used to control lighting manufactured by the Zamel Company. The LEDIX fittings with built-in radio receiver are mounted in stair risers. They cooperate with RCR-01 radio motion sensor of the EXTA FREE system. TICO lighting fittings connected with SLR-01 one-colour controller are mounted on a wall. The controller cooperates with P-256/8 remote control - remote switching on/switching off, brightening / dimming, time

mode function with switching off the lighting are possible. The P-256/8 remote control additionally cooperates with ROP-04 receiver. The LED flexible strip placed in a niche is connected to ROP-04. The P-260 remote control cooperates with RGB SLR-11 radio controller with connected RGB LED strip. The strip is placed around the ceiling on the length of several meters, and it is recommended to separate the strip (every 5 meters) by means of RGB amplifiers. Each amplifier has its own power supply system

corresponding to the LED strip power supply. By means of the P-260 remote control it is possible to choose 1 out of 10 colours presented in a table or choose a colour in a floating way by means of a touch pad. It is also possible to choose FLOATING or STROBE modes, brighten / dim the previously chosen colour.
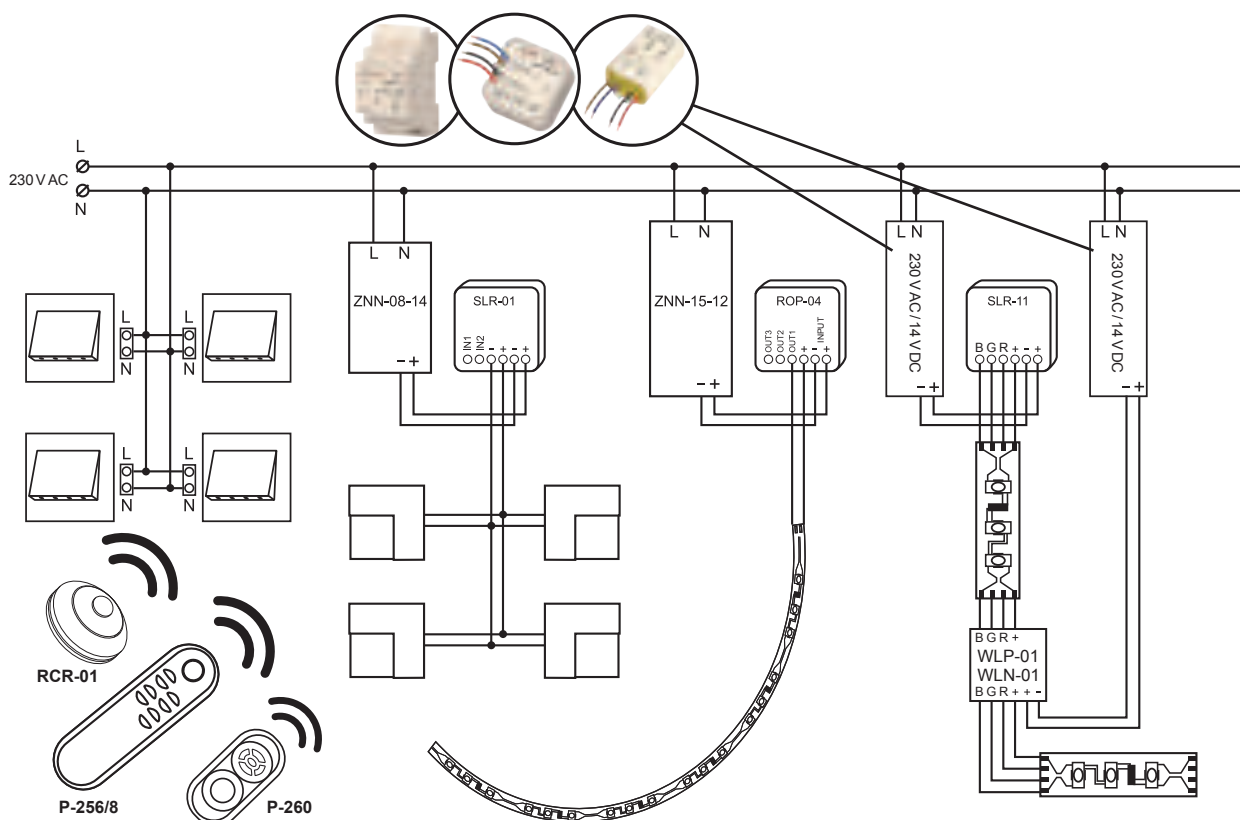
LEDIX LED lighting fittings + ROP-03
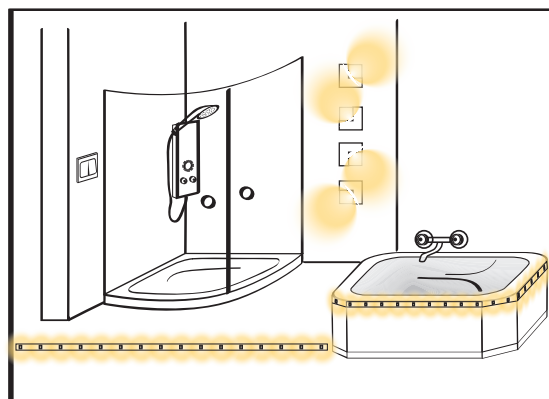
This application presents the use of the LEDIX series lighting fittings and the ROP-03 radio receiver. The LEDIX series fittings, supplied by means of ZNP-08-14 power supply, are connected to OUT1 output. A hermetic LED strip and a flexible LED strip (supplied by means of ZNN-15-12 power supply) are connected to OUT2 output. OUT1 and OUT2 outputs are switched on / switched off by means of 2NO push button cooperating with RNP-02 flush junction box battery transmitter. Time mode can be realized on each output, and this function allows to switch off the lighting automatically after the adjusted time is finished. Each output can be controlled separately. Other transmitters of the EXTA FREE system (e.g., portable remote controls) can be added to this receiver and their number should not exceed 32.
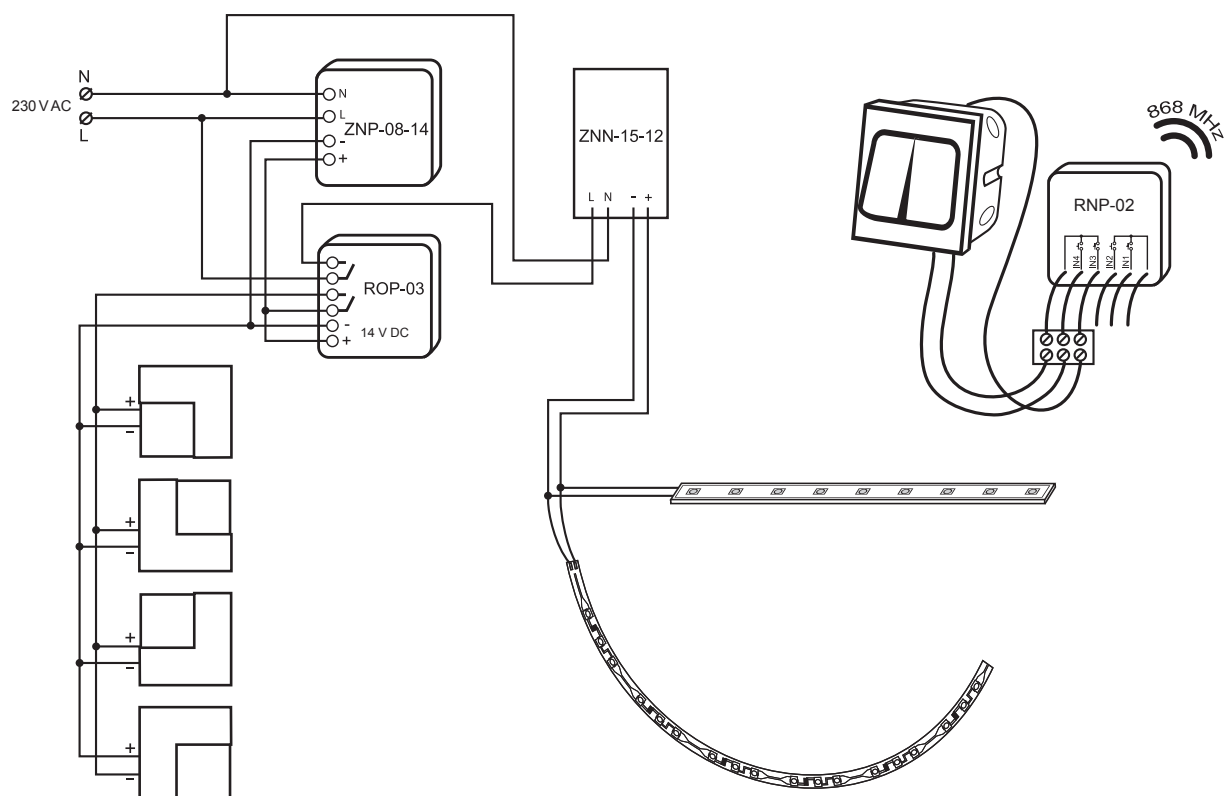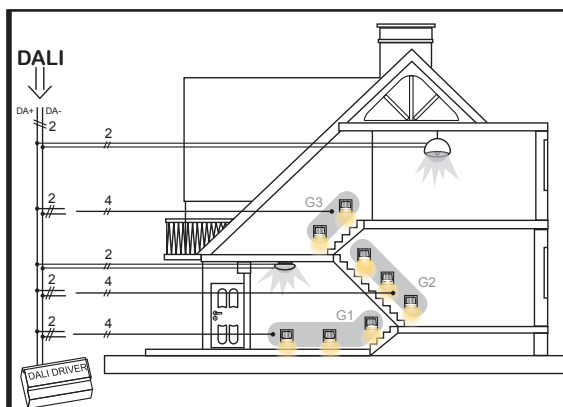
Extended installation - SDL-11 DALI controller

Standard LEDIX series lighting fittings with RGB LED diodes of 14 V DC are connected in following G1, G2, G3 groups. SDL-11 controller is assigned to each group. The controllers with main lighting at staircases and corridors are connected to a common DALI bus and cooperate with the central DALI (DALI DRIVER) control. The central

controller enables the following functions: switching on, switching off, changing the fitting lighting level and control of the LEDIX series fittings. The realised function refers to all lighting fittings from the G1, G2 and G3 group. Additionally, the controller enables the control of other fittings on the bus. The use of SDL-11 (SDL-01) controllers allows

easy integration of LEDIX fittings and other LED products with the already existing, extended installations based on DALI protocol. The above applies mainly to large public buildings: hotels, offices, hospitals.
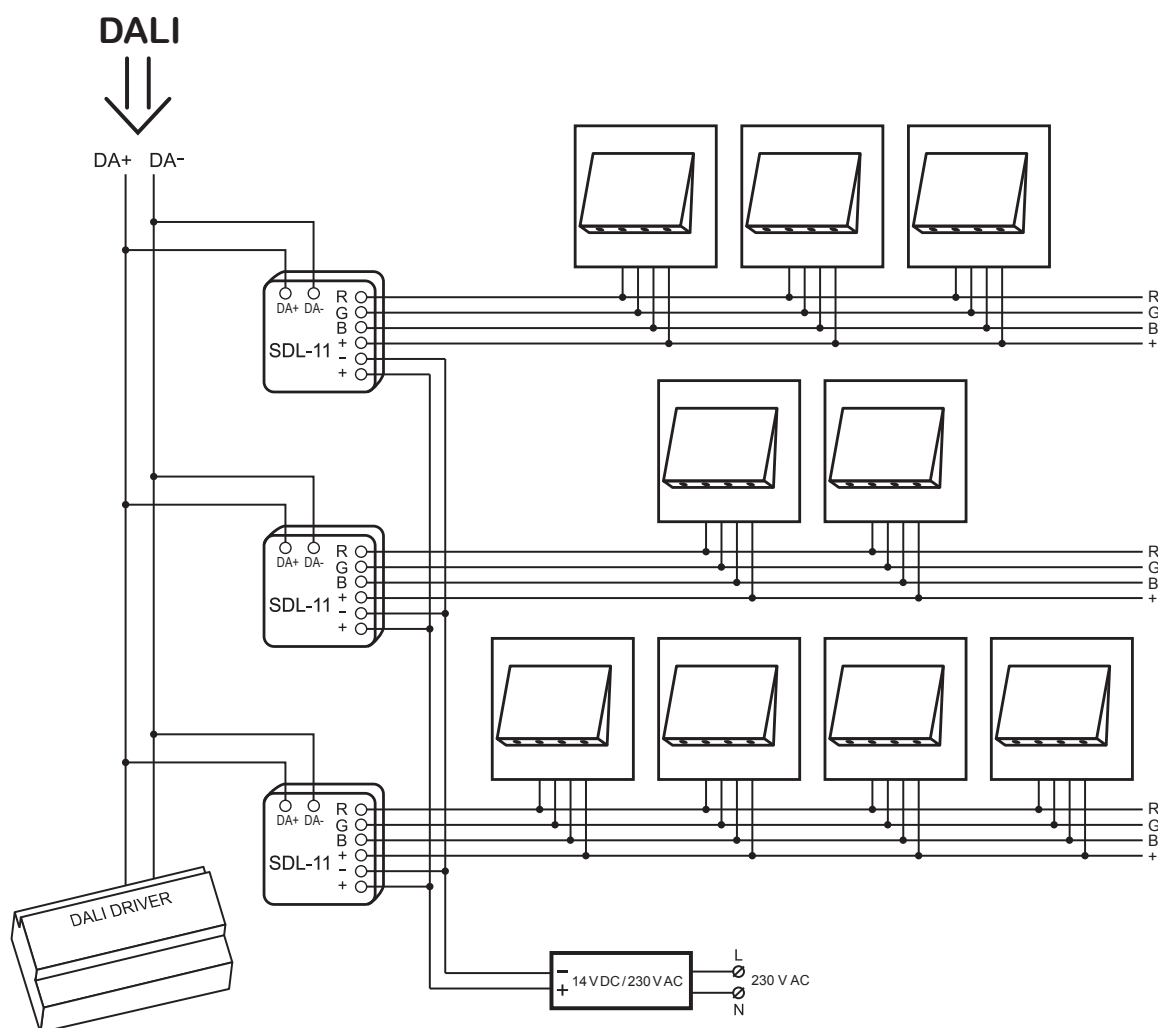
Table of ranges

Cooperation and operation range

Symbol	SLR-01	SLR-11	ROP-03 ROP-04
RNK-02	180 m	180 m	200 m
RNK-04	180 m	180 m	200 m
P-256/8	230 m	230 m	250 m
P-257/2	180 m	180 m	200 m
P-257/4	180 m	180 m	200 m
RNM-10	230 m	230 m	250 m
RNP-01	160 m	160 m	180 m
RNP-02	160 m	160 m	180 m
RNL-01	160 m	-	180 m
RCR-01	160 m	-	180 m
RTI-01	160 m	160 m	180 m
RXM-01	230 m	230 m	250 m
P-260	-	200 m	-
RTN-01*	200 m	200 m	200 m

* It does not cooperate with P-260 remote control

CAUTION: The given range concerns open area – an ideal condition without any natural or artificial obstacles. If there are some obstacles between a transmitter and a receiver, it is advisable to yese into account the range decrease with reference to the following: wood and plaster - from 5 to 20, bricks - from 10 to 40%, reinforced concrete - from 40 to 80 %, metal - from 90 to 100%, glass - from 10 to 20%. Over- and underground medium and high electrical power lines, radio and television transmitters, GSM transmitters set close to a device system have also a negative influence on the range. The operation range can be extended by 200 metres using RTN-01 retransmitter.

Connection examples of RGB controllers and amplifiers

Connection of a single lighting fitting / RGB strip to SLR-11/12 controller.
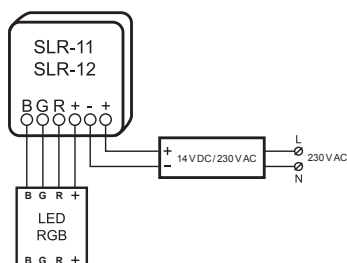
Connection of a lighting fitting / RGB strip to SLR-11/12 controller by means of RGB WLN-01/WLP-01 amplifiers – common supply of a controller and amplifiers.
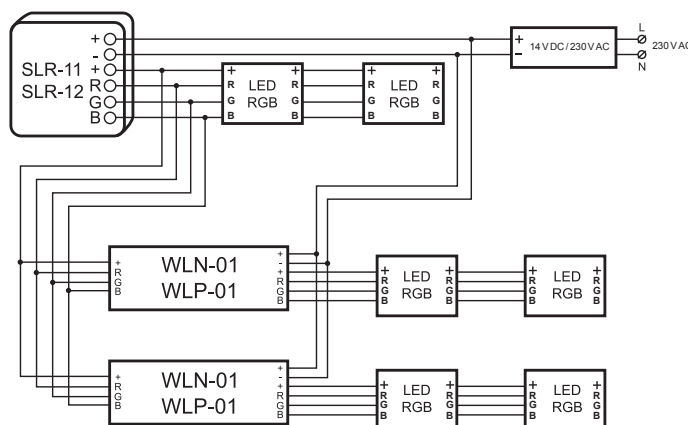
Connection of more than one lighting fitting / RGB item to SLR-11/12 controller.
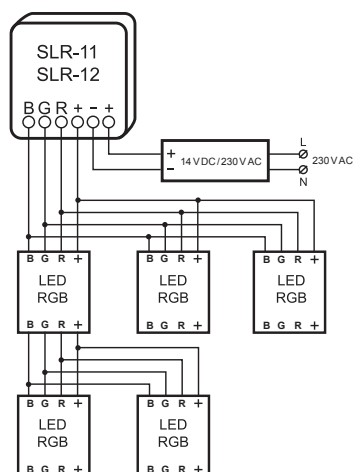
Connection of a lighting fitting / RGB strip to SLR-11/12 controller by means of RGB WLN-01/WLP-01 amplifiers – individual supply of a controller and particular RGB amplifiers.
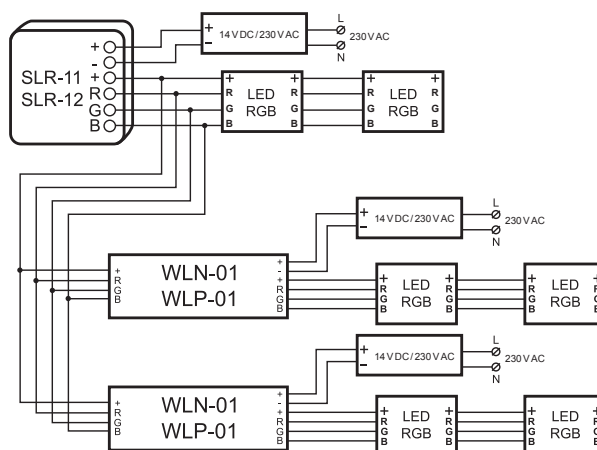
Connection of a lighting fitting / RGB strip to SLR-11/12 controller by means of RGB WLN-01/WLP-01 amplifiers – chain type installation
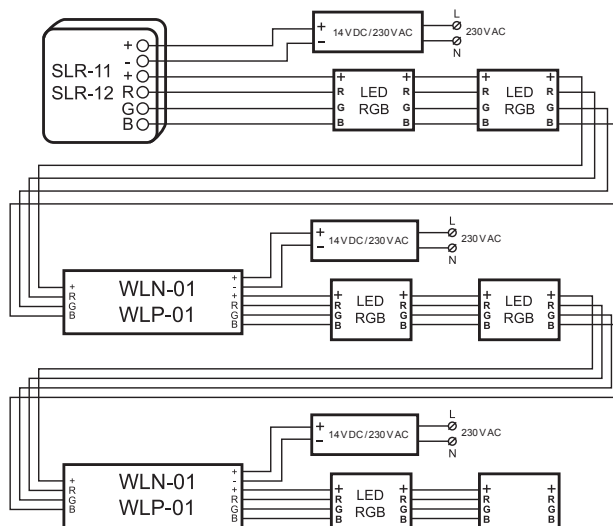
Numeration of articles for LED lighting fittings

X X - X X X - X X

SERIES

01	MOZA
02	MUNA
03	TERA
04 05	TICO
06 07	TIMO
08 09	RUBI
10 11	NAVI
12 13 14	SONA
15 16	LONG
17	TETI
18	LAMI

LIGHT COLOUR

1		Cold white
2		Warm white
7		Neutral white
6	RGB	RGB

LIGHTING FITTINGS COLOUR

1	2	3	4	5	6	7	8
Aluminum	Stainless steel	Graphite	Old gold	White	Black	Beige	Silver

FUNCTIONALITY

1 Standard

2 PIR / LUX Built-in motion sensor

4 Built-in radio receiver

5 Built-in radio RGB controller

POWER SUPPLY

1	14V	14 V DC
2	230V~	230 V AC
3	24V	24 V DC (selected LONG fitings)
4	12V	12 V DC

MOUNTING

1		Surface
2	ø60	Flush
3	ø68	Flush

301

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Pictogram description

14V⎓ — Supply voltage: 14 V DC

10V⎓ ÷ 14V⎓ — Supply voltage: 10 ÷ 14 V DC

12V⎓ ÷ 24V⎓ — Supply voltage: 12 ÷ 24 V DC

10V⎓ ÷ 48V⎓ — Supply voltage: 10 ÷ 48 V DC

24V⎓ — Supply voltage: 24 V DC

230V~ — Supply voltage: 230 V AC

3xAAA — Battery powered: 3 x AAA battery

Protection class: I

Protection class: II

Protection class: III

Installation allowed on materials with unknown flammability

110 — Thermal protection against temperature above 110°C

I const — Casing equipped with built-in LED power stabilization system

Independent converter - an electronic transformer with a possibility to use without the lighting set

Safety transformer resistant to short-circuit (direct or indirect)

SELV — Voltage present in the circuit, supplied from safety voltage source without PE (ground)

Mounting– indoor only

Mounting – protection level suitable for outdoor application

TH35 — The device is mounted on a TH-35 DIN rail

Surface installation

ø60 — Recessed installation in a hole of Ø60 mm

ø60 — Installation in a junction box of Ø60 mm

maks. 2,5mm² — Maximum cross-section of connecting cables: up to 2,5 mm²

2xLED **4xLED** **6xLED** — LED number making up light source two, four, six

RGB — Casing with RGB diodes

RGB — Casing with no RGB controller

PIR — Built-in PIR motion sensor

LUX — Built-in twilight switch

Built-in radio receiver co-operating with EXTA FREE transmitters

Built-in radio controller RGB

DIM − + — Brightening/dimming functions

CE — Device tested in accordance with electromagnetic compatibility

SERIA F — Cooperation with EXTA FREE transmitters

IP20 — Protection degree IP20 – no protection against water penetration, protection against solid penetration of 12,5 mm diameter or bigger

IP44 — Protection degree IP44 - protection against rain

IP56 — Protection degree IP56 – protection against dust and heavy water jets - minimum IP56 connection is required

Applications

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo
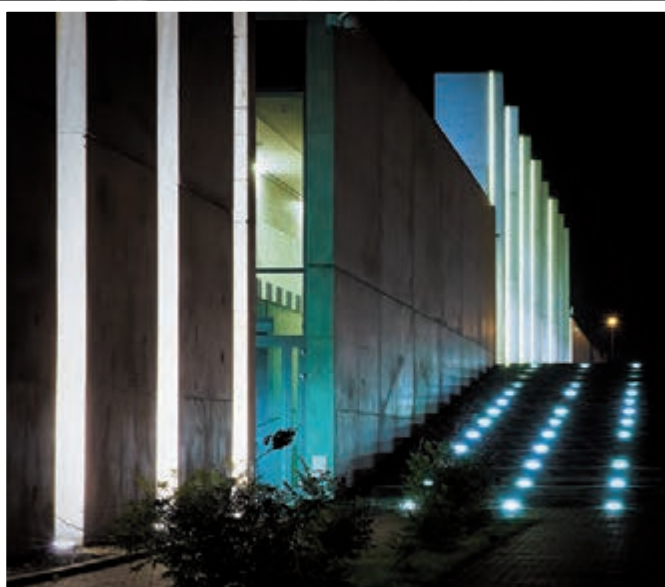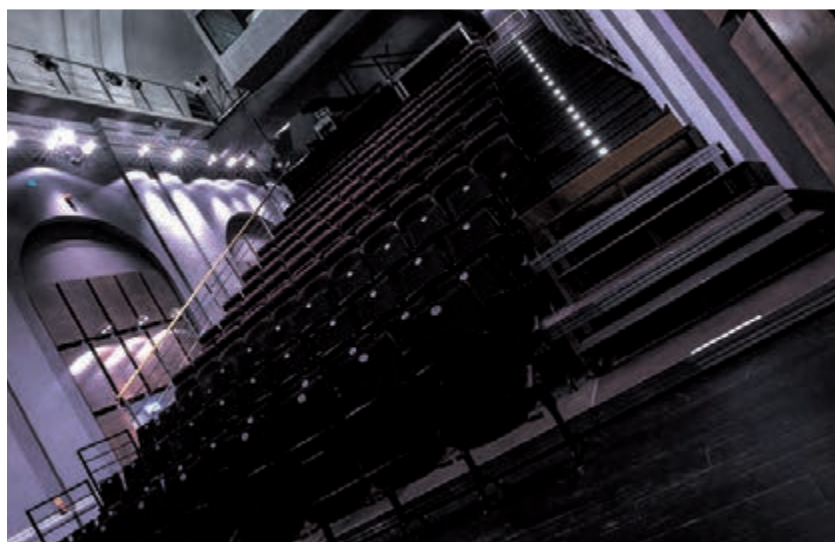
LED
downlight system
KONEKTO

KONEKTO is the latest line of LED ceiling luminaires created by Zamel. Innovative option of connecting KONEKTO frames allows to create lighting luminaires according to the user's expectations.

Basic features:
- possibility of creating all types of light patterns on the ceiling through the option of connecting square plastic frames,
- easy mounting of luminaires in suspended ceilings up to 42 mm thick (profile 30 mm and k/g panel 12,5 mm),
- possibility of creating a light source tailored to individual user requirements thanks to a wide range of interchangeable frames,
- possibility of choosing the light colour: warm 3000 K, neutral 4000 K, cool 5700 K,
- dimming of LED light sources only for 24 V DC and 230 V luminaires DIMM (dimmable).

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

LED light sources 350 lm

A++

Light colour
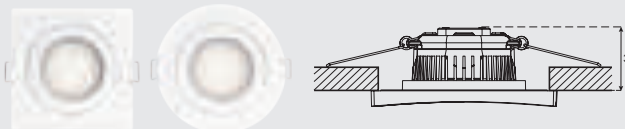
- Cool white
- Warm white
- Neutral white

Dimensions [mm]:

81,1 mm
50,5 mm
39,3 mm
ø 73,6 mm

Technical data

DIM | Ø75-80 | 18xLED | 120°

38

Type:	LSP-35C-24	LSP-35N-24	LSP-35Z-24	LSP-35N-230D	LSP-35N-230D	LSP-35Z-230D	LSP-35N-230	LSP-35N-230	LSP-35Z-230
Supply voltage:	24 V⎓			230V~					
Rated power:	3,3 W								
Luminous flux power:	350 lm								
Light colour:	3000 K	4000 K	5700 K	3000 K	4000 K	5700 K	3000 K	4000 K	5700 K
Luminous efficacy:	approx. 100 lm/W								
IP rating:	IP44								
Dimming option:	Dimmers PWM 24 V			Selected triac and transistor dimmers			-		
Mounting hole:	75÷80 mm								

Colours of mounting rings

White

Grey

Black

exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

Photometric data

180°
440
330
220
110
C0-C180 / C90-C270
cd/1000lm

LED light sources 500 lm

A++

Technical data

DIM | Indoor | Ø75-80 | 18xLED | 120°

38
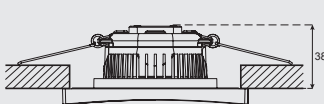
Type:	LSP-50C-24	LSP-50N-24	LSP-50Z-24	LSP-50N-230D	LSP-50N-230D	LSP-50Z-230D	LSP-50N-230	LSP-50N-230	LSP-50Z-230
Supply voltage:	24 V⎓			230V~					
Rated power:	5,5 W								
Luminous flux power:	500 lm								
Light colour:	⬤ 3000 K	◯ 4000 K	⬤ 5700 K	⬤ 3000 K	◯ 4000 K	⬤ 5700 K	⬤ 3000 K	◯ 4000 K	⬤ 5700 K
Luminous efficacy:	approx. 100 lm/W								
IP rating:	IP44								
Dimming option:	Dimmers PWM 24 V			Selected triac and transistor dimmers			-		
Mounting hole:	75÷80 mm								

Pictogram description

Mounting – indoor only	
DIM	Brightening/dimming functions
18xLED	LED number making up light source: 18
Ø75-80	Mounting hole: 75÷80 mm
120°	Angle of light: 120˚

Square frame
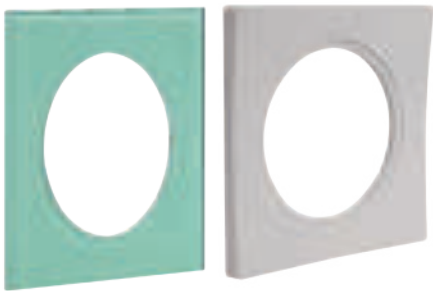
Dimensions [mm]:
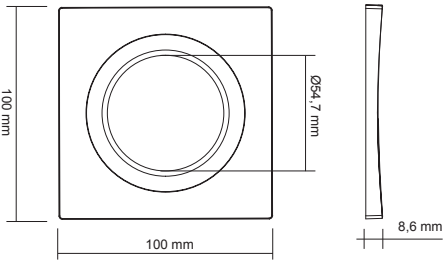
100 mm

100 mm

Ø54,7 mm

8,6 mm

Colours of plastic frames

White   Grey   Black   Silver   Graphite

Colours of glass frames

White   Mint   Black

Colours of metal frames

Aluminium   Inox
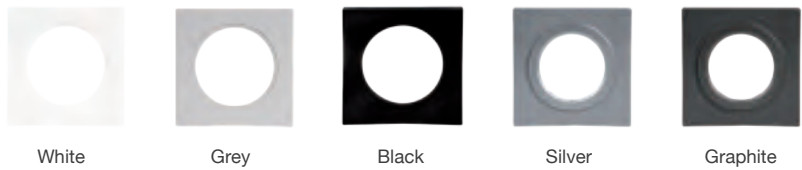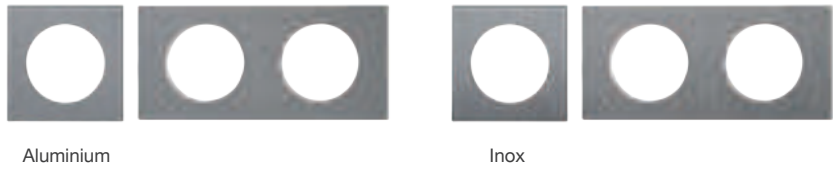
Square, plastic frames, thanks to hooks, can be freely combined with each other to create interesting arrangements.
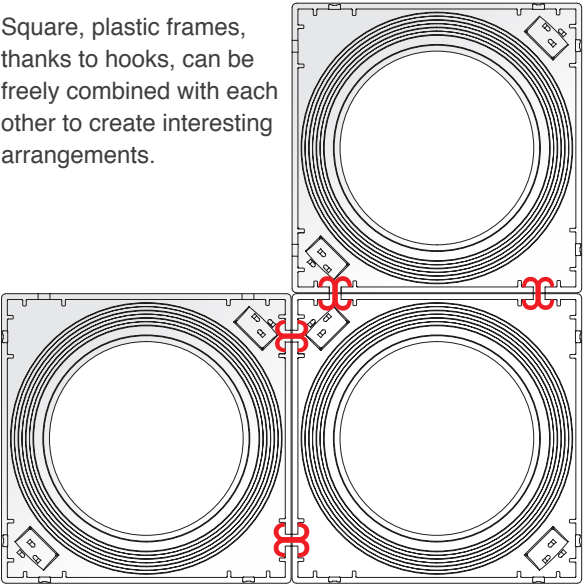
Examples of connecting square frames
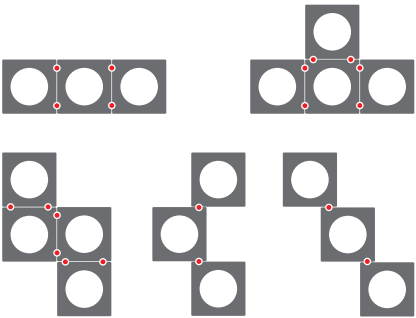
Dimensions [mm]:
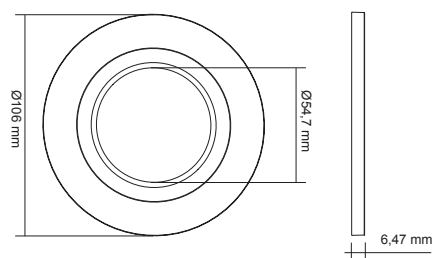
Round frame

Ø106 mm
Ø54,7 mm
6,47 mm

Colours of plastic frames

White   Grey   Black   Silver   Graphite

Colours of glass frames

White   Mint   Black

Colours of metal frames

Aluminium   Inox
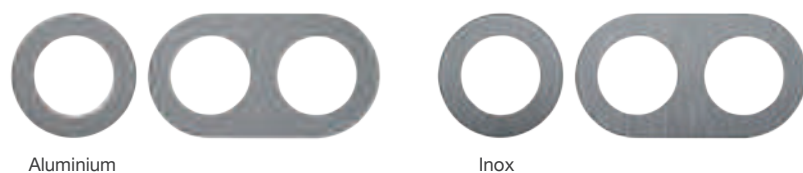
Doorbells and chimes SUNDI

ZAMEL have been producing bells and chimes for 30 years and it does not come as a surprise that SUNDI products signalise the arrival of guests in the majority of Polish homes. ZAMEL's bells and chimes include a wide range of models, shapes, and colours together with a great selection of sounds which offer optimal solutions for those who love modern design as well as for those who prefer a classic style. The high quality and variety of installation methods guarantee universal application, comfort, and safety which are of crucial importance to all users. SUNDI group includes dozens of different products, e.g. wired and wireless chimes or electronic recording devices. The wireless chimes are very popular and particularly interesting as they can form a bell installation without any cables. The devices are perfect for doorbells, internal calling devices, or personal alarms. They can be successfully used in houses, flats, hotels, restaurants, companies, or used as nurse calling equipment for persons who require care. The greatest advantages of ZAMEL's wireless chimes include a wide selection of melodies, volume control, visual signalisation, and long range.

Two-tone chime BIM-BAM
GNS-921 (230 V AC), GNT-921 (8 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (GNS-921),
  app. 78 dB (GNT-921)

Technical data
Power consumption: 11 VA (GNS-921),
5 VA (GNT-921)
Weight [g]: 260 (GNS-921) and 280 (GNT-921)
Dimensions [mm]: 136 x 106 x 42
Colour: white, beige, grey
Bulk package [pcs]: 20

white   beige   grey   silver

Two-tone chime BIM-BAM with pull-switch
GNS-921/N (230 V AC), GNT-921/N (8 V AC)

Description
- electromechanical chime,
- due to the built-in pull-switch ideal for babies'
  parents
  or people who do not want to be disturbed,
- plastic casing,
- sound: two tones – BIM-BAM ,
- volume level: app. 85 dB (GNS-921/N),
  app. 78 dB (GNT-921/N).

Technical data
Power consumption: 11 VA (GNS-921/N),
5 VA (GNT-921/N)
Weight [g]: 260 (GNS-921/N),
280 (GNT-921/N)
Dimensions [mm]: 136 x 106 x 42
Colour: white, beige, grey
Bulk package [pcs]: 20

white   beige   grey

Two-tone chime TURBO
GNS-931 (230 V AC), GNT-931 (8 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM repeated contin-
  uously as long as bell-push is pressed,
- volume level: app. 85 dB (GNS-931), app. 80
  dB (GNT-931).

Technical data
Power consumption: 11 VA (GNS-931),
5 VA (GNT-931)
Weight [g]: 290 (GNS-931),
310 (GNT-931)
Dimensions [mm]: 136 x 106 x 42
Colour: white, beige
Bulk package [pcs]: 20

white   beige

317

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Two-tone chime DUO
GNS-943 (230 V AC), GNT-943 (8 V AC)

Description
- combination of two-tone doorbell and two-tone chime BIM-BAM in one casing,
- makes it possible to recognize the places of call by the sound (e.g. coming from the entrance door or a garden gate),
- plastic casing,
- other data: two-tone doorbell and two-tone chime BIM-BAM,
- volume level: 72 dB / 82 dB (GNS-943), app. 68 dB / 78 dB (GNT-943).

Technical data
Power consumption: 11 VA (GNS-943), 5 VA (GNT-943)
Weight [g]: 280 (GNS-943), 290 (GNT-943)
Dimensions [mm]: 136 x 106 x 42
Colour: white, beige
Bulk package [pcs]: 20

beige   white

Two-tone chime LARGO
GNS-208 (230 V AC), GNT-208 (8 V AC), GNW-208 (230 V AC with a built-in transformer)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM long ringing,
- volume level: app. 85 dB (GNS-208, GNW-208), app.75 dB (GNT-208).

Technical data
Power consumption: 11 VA (GNS-208, GNW-208), 5 VA (GNT-208)
Weight [g]: 490 (GNS-208), 540 (GNT-208), 700 (GNW-208)
Dimensions [mm]: 200 x 145 x 55
Colour: white, beige, silver metallic,
Bulk package [pcs]: 5

silver metallic   beige   white

Two-tone chime FORTE
GNS-223 (230 V AC), GNT-223 (8 V AC), GNW-223 (230 V AC with a built-in transformer)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM, long ringing,
- volume level: app. 85 dB (GNS-223, GNW-223), app. 78 dB (GNT-223).

Technical data
Power consumption: 11 VA (GNS-223, GNW-223), 5 VA (GNT-223)
Weight [g]: 390 (GNS-223), 410 (GNT-223), 570 (GNW-223)
Dimensions [mm]: 205 x 126 x 42
Colour: white, beige
Bulk package [pcs]: 8

beige   white

Two-tone chime VIVO

GNS-224 (230 V AC), GNT-224 (8 V AC)

Decsription
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM repeated continuously as long as bell-push is pressed,
- volume level: app. 85 dB (GNS-224), 80 dB (GNT-224).

Technical data
Power consumption: 11 VA (GNS-224), 5 VA (GNT-224)
Weight [g]: 350 (GNS-224), 360 (GNT-224)
Dimensions [mm]: 166 x 105 x 44
Colour: white
Bulk package [pcs]: 10

Two-tone chime GLASSO

GNS-248 (230 V AC), GNT-248 (8 V AC), GNW-248 (230 V AC with a built-in transformer)

Decsription
- electromechanical chime,
- plastic casing, covered with a sheet of chilled glass (8 mm thick) and decorative silver or white plate,
- modern, elegant design,
- sound: two tones BIM-BAM, long ringing,
- volume level: app. 85 dB (GNS-248), app. 78 dB (GNT-248), app. 77 dB (GNW-248).

Technical data
Power consumption: 11 VA (GNS-248, GNW-248), 5 VA (GNT-248)
Weight [g]: 900 (GNS-248), 930 (GNT-248), 1050 (GNW-248)
Dimensions [mm]: 202 x 131 x 48
Colour: glass + silver; glass + white
Bulk package [pcs]: 5

white   silver

Two-tone chime VETRO

GNS-247 (230 V AC), GNT-247 (8 V AC)

Decsription
- electromechanical chime,
- plastic casing, covered with a sheet of chilled glass (8 mm thick) and decorative silver or white plate,
- modern, elegant design,
- sound: two tones BIM-BAM, repeated continuously as long as bell-push is pressed
- volume level: app. 85 dB (GNS-247), app. 80 dB (GNT-247).

Technical data
Power consumption: 11 VA (GNS-247), 5 VA (GNT-247)
Weight [g]: 900 (GNS-247), 930 (GNT-247)
Dimensions [mm]: 202 x 131 x 48
Colour: glass + white
Bulk package [pcs]: 5

Two-tone chime Type: 77

Type: 77 (230 V AC), Type: 77 (8÷12 V AC), Type: 77 (220/127 V AC)

Decsription
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 83 dB (230 V),
  app. 80 dB (8 V)
  and app. 83 dB (220/127 V),
- power consumption: 16 VA (230 V),
  7 VA (8 V) and 19/15 VA (220/127 V),
- available in power supply versions:
  230 V AC, 8÷12 V AC,
  dual triggering:220/127 V AC.

Technical data
Weight [g]: 235 (230 V), 250 (8 V), 240 (220/127 V)
Dimensions[mm]: 113 x 79 x 40
Colours: white, gray
Bulk package [pcs.]: 20

gray   white

Two-tone chime Type: 85

Type: 85 (230 V AC), Type: 85 (8÷12 V AC), Type: 85 (220/127 V AC),
Type: 85 (9 V DC) – Battery 6LR61

Decsription
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 90 dB (230 V),
  and app. 85 dB (8 V),
- power consumption: 26 VA (230 V), 26 VA
  (230 V), 11 VA (8 V), 37/21 VA (220/127 V),
- available in power supply versions: 230 V
  AC, 8÷12 V AC, dual triggering: 220/127 V
  AC, 9 V DC – battery type: 6LR61.

Technical data
Weight [g]: 220 (230 V), 235 (8 V), 213 (220/127 V)
Dimensions [mm]: 113 x 113 x 42
Colours: white, gray
Bulk package [pcs.]: 18

gray   white

Two-tone chime Type: 880

Type: 880 (230 V AC), Type: 880 (8÷12 V AC), Type: 880 (220/127 V AC),
Type: 880 (9 V DC) – Battery 6LR61

Decsription
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 83 dB (230 V),
  app. 80 dB (8 V) and 83 dB (220/127 V),
- power consumption: 35 VA (230 V),
  16 VA (8 V) and 36/21 VA (220/127 V),
- available in power supply versions:
  230 V AC, 8÷12 V AC, dual triggering:
  220/127 V AC, 9 V DC – battery type: 6LR61

Technical data
Weight [g]: 270 (230 V), 285 (8 V)
and 262 (220/127 V)
Dimensions [mm]: 150 x 150 x 45
Colours: white
Bulk package [pcs.]: 18

Two-tone chime Type: 500

Type: 500 (230 V AC), Type: 500 (8÷12 V AC), Type: 500 (220/127 V AC), Type: 500 (9 V DC) – Battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. dB (230 V), app. 80 dB (8 V) and app. 83 dB (220/127 V),
- power consumption: 35 VA (230 V), 16 VA (8 V) und 36/21 VA (220/127 V),
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Weight [g]: 338 (230 V), 352 (8 V) and 335 (220/127 V)
Dimensions [mm]: 150 x 150 x 45
Colours: white
Bulk package [pcs.]: 10

Bittorf **BiM**
ELEKTROTECHNIK

Two-tone chime Type: 2201

Type: 2201 (230 V AC), Type: 2201 (8÷12 V AC), Type: 2201 (220/127 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 80 dB (230 V), app. 75 dB (8 V) and app. 80 dB (220/127 V),
- power consumption: 14 VA (230 V), 6 VA (8 V) and 17/13 VA (220/127 V),
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC.

Technical Data
Weight [g]: 225 (230 V), 240 (8 V), 230 (220/127 V)
Dimensions [mm]: 119 x 82 x 36
Colours: white, silver
Bulk package [pcs.]: 22

white   silver

Bittorf **BiM**
ELEKTROTECHNIK

Two-tone chime Type: 2250

Type: 2250 (230 V AC), Type: 2250 (8÷12 V AC), Type: 2250 (220/127 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 80 dB (230 V), app. 75 dB (8 V) and app. 80 dB (220/127 V),
- power consumption: 14 VA (230 V), 6 VA (8 V) and 17/13 VA (220/127 V),
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC.

Technical Data
Weight [g]: 265 (230 V), 280 (8 V), 260 (220/127 V)
Dimensions [mm]: 132 x 132 x 43
Colours: white, silver
Bulk package [pcs.]: 18

white   silver

Bittorf **BiM**
ELEKTROTECHNIK

Two-tone chime Type: 660

Type: 660 (230 V AC), Type: 660 (8÷12 V AC), Type: 660 (220/127 V AC), Type: 660 (9 V DC) – Battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 82 dB (230 V), app. 79 dB (8 V) and 82 dB (220/127 V)
- power consumption: 27 VA (230 V), 11 VA (8 V) and 37/21 VA (220/127 V)
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Weight [g]: 374 (230 V), 385 (8 V) and 368 (220/127 V)
Dimensions [mm]: 170 x 170 x 52
Colours: white/anthracite
Bulk package [pcs.]: 10

Bittorf BiM
ELEKTROTECHNIK

Two-tone chime Type: 103

Type: 103 (230 V AC), Type: 103Tr (230 V AC, with integrated transformer), Type: 103 (8÷12 V AC), Type: 103 (9 V DC) – battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V, 9 V),
- power consumption: 25 VA (230 V), 11 VA (8 V),
- available in power supply versions: 230 V AC, 230 V AC with integrated transformer, 8÷12 V AC, 9 V DC – battery type: 6LR61

Technical Data
Weight [g]: 354 (230 V), 369 (8 V, 9 V), 581 (with integrated transformer)
Dimensions [mm]: 168 x 111 x 47
Colours: white/silver metallic, white/blue metallic
Bulk package [pcs.]: 10

white/blue metallic   white/silver metallic

Bittorf BiM
ELEKTROTECHNIK

Two-tone chime Type: 105

Type: 105 (230 V AC), Type: 105Tr (230 V AC, with integrated transformer), Type: 105 (8÷12 V AC), Typ: 105 (9 V DC) – battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V, 9 V),
- power consumption: 25 VA (230 V), 11 VA (8 V),
- available in power supply versions: 230 V AC, 230 V AC with integrated transformer, 8÷12 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Weight [g]: 400 (230 V), 415 (8 V, 9 V), 627 (with integrated transformer)
Dimensions [mm]: 191 x 154 x 45
Colour: white/gold
Bulk package [pcs.]: 10

Bittorf BiM
ELEKTROTECHNIK

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Two-tone chime Type: 106

Type: 106 (230 V AC), Type: 106Tr (230 V AC, (with integrated transformer), Type: 106 (8÷12 V AC)
Type: 106 (220/127 V AC), Type: 106 (9 V DC) – Battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V) and app. 85 dB (220/127 V),
- power consumption: 25 VA (230 V), 11 VA (8 V), 38/22 VA (220/127 V),
- available in power supply versions: 230 V AC, 230 V AC with integrated transformer, 8÷12 V AC, 9 V DC – battery type: 6LR61, dual triggering: 220/127 V AC.

Technical Data
Weight [g]: 354 (230 V), 369 (8 V), 581 (with integrated transformer) and 345 (220/127 V)
Dimensions [mm]: 168 x 111 x 47
Colours: white/silver metallic
Bulk package [pcs.]: 10

Bittorf ELEKTROTECHNIK **BiM**

Two-tone chime Type: 405

Type: 405 (230 V AC), Type: 405Tr (230 V AC, (with integrated transformer), Type: 405 (8÷12 V AC)
Type: 405 (220/127 V AC), Type: 405 (9 V DC) – Battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V) and app.85 dB (220/127 V),
- power consumption: 23 VA (230 V), 10 VA (8 V), 35/21 VA (220/127 V),
- available in power supply versions: 230 V AC, 230 V AC with integrated transformer, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Weight [g]: 535 (230 V), 510 (8 V), 750 (with integrated transformer), 528 (220/127 V)
Dimensions [mm]: 235 x 160 x 47
Colour: white
Bulk package [pcs.]: 10

Bittorf ELEKTROTECHNIK **BiM**

Two-tone chime Type: 411

Type: 411 (230 V AC), Type: 411Tr (230 V AC, (with integrated transformer), Type: 411 (8÷12 V AC)
Type: 411 (220/127 V AC), Type: 411 (9 V DC) – Battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V) and app. 85 dB (220/127 V),
- power consumption: 23 VA (230 V), 10 VA (8 V), 35/21 VA (220/127 V),
- available in power supply versions: 230 V AC, 230 V AC with integrated transformer, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Weight [g]: 505 (230 V), 490 (8 V), 735 (with integrated transformer) and 495 (220/127 V)
Dimensions [mm]: 220 x 160 x 47
Colours: anthracite /silver metallic
Bulk package [pcs.]: 10

Bittorf ELEKTROTECHNIK **BiM**

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Two-tone chime Type: 412

Type: 412 (230 V AC), Type: 412Tr (230 V AC, with integrated transformer), Type: 412 (8÷12 V AC)
Type: 412 (220/127 V AC), Type: 412 (9 V DC) – Battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V) and app.85 dB (220/127 V),
- power consumption: 23 VA (230 V), 10 VA (8 V), 35/21 VA (220/127 V),
- available in power supply versions: 230 V AC, 230 V AC with integrated transformer, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Weight [g]: 505 (230 V), 490 (8 V), 735 (with integrated transformer) and 495 (220/127 V)
Dimensions [mm]: 220 x 160 x 47
Colours: anthracite/silver metallic
Bulk package [pcs.]: 10

Bittorf *BiM*
ELEKTROTECHNIK

Two-tone chime Type: 707

Type: 707 (8÷12 V AC) or battery-powered– 4 batteries type R20, Type: 707 (230 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 86 dB (230 V AC) and app. 83 dB (8÷12 V)
- available in power supply versions: 8÷12 V AC or battery-powered 4 x 1,5 V DC (4 x battery type R20), 230 V AC.

Technical Data
Weight [g]: 650 (8÷12 V AC), 790 (230 V AC)
Dimensions [mm]: 210 x 210 x 55
Colours: gray/yellow
Bulk package [pcs.]: 10

gray/yellow

Bittorf *BiM*
ELEKTROTECHNIK

Two-tone chime Type: 708

Type: 708 (8÷12 V AC) or battery-powered – 4 batteries type R20, Type: 708 (230 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 86 dB (230 V AC) and app. 83 dB (8÷12 V),
- available in power supply versions: 8÷12 V AC or battery-powered 4 x 1,5 V DC (4 x battery type R20), 230 V AC.

Technical Data
Weight [g]: 650 (8÷12 V AC), 790 (230 V AC)
Dimensions [mm]: 210 x 210 x 55
Colours: gray/silver metalic
Bulk package [pcs.]: 10

Bittorf *BiM*
ELEKTROTECHNIK

Two-tone chime Type: 709
Type: 709 (8÷12 V AC) or battery-powered – 4 batteries type R20, Type: 709 (230 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 86 dB (230 V AC) and app. 83 dB (8÷12 V),
- available in power supply versions: 8÷12 V AC or battery-powered 4 x 1,5 V DC (4 x battery type R20), 230 V AC.

Technical Data
Weight [g]: 650 (8÷12 V AC), 790 (230 V AC)
Dimensions [mm]: 210 x 210 x 55
Colours: gray/chrome
Bulk package [pcs.]:10

Two-tone chime Type: 850
Type: 850 (230 V AC), Type: 850 (8÷12 V AC), Type: 850 (220/127 V AC)

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 90 dB (230 V) and app. 85 dB (8 V),
- power consumption: 26 VA (230 V), 11 VA (8 V), 37/21 VA (220/127 V),
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Weight [g]: 220 (230 V), 235 (8 V), 213 (220/127 V)
Dimensions [mm]: 113 x 113 x 43
Colour: white
Bulk package [pcs.]: 18

Two-tone chime Type: 88
Type: 88 (230 V AC), Type: 88 (8÷12 V AC), Type: 88 (220/127 V AC), Type: 88 (9 V DC) – Battery 6LR61

Description
- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app.83 dB (230 V), app. 80 dB (8 V) and app. 83 dB (220/127 V),
- power consumption: 35 VA (230 V), 16 VA (8 V) and 36/21 VA (220/127 V),
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data
Dimensions [mm]: 129 x 113 x 45
Weight [g]: 280 (230 V), 275 (8 V), 276 (220/127 V)
Colours:white/silver
Bulk package [pcs.]: 10

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Two-tone chime Type: 95

Type: 95 (230 V AC), Type: 95Tr (230 V AC, with integrated transformer), Type: 95 (8÷12 V AC)
Type: 95 (220/127 V AC), Type: 95 (9 V DC) – Battery 6LR61

Description

- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V) and app. 85 dB (220/127 V),
- power consumption: 25 VA (230 V), 11 VA (8 V) and 38/22 VA (220/127 V),
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data

Weight [g]: 354 (230 V), 369 (8 V), 581 (with integrated transformer) and 345 (220/127 V)
Dimensions [mm]: 166 x 112 x 45
Colours: white/silver metallic, cream-coloured/gold
Bulk package [pcs.]: 10

Bittorf ELEKTROTECHNIK **BiM**

cream-coloured/gold   white/silver metallic

Two-tone chime Type: 99

Type: 99 (230 V AC), Type: 99 (230 V AC, with integrated transformer), Type: 99 (8÷12 V AC)
Type: 99 (220/127 V AC), Type: 99 (9 V DC) – Battery 6LR61

Description

- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 85 dB (230 V), app. 82 dB (8 V) and app. 85 dB (220/127 V)
- power consumption: 25 VA (230 V), 11 VA (8 V) and 38/22 VA (220/127 V),
- available in power supply versions: 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data

Weight [g]: 354 (230 V), 369 (8 V), 581 (with integrated transformer) and 345 (220/127 V)
Dimensions [mm]: 166 x 112 x 45
Colours: white/silver
Bulk package [pcs.]: 10

Bittorf ELEKTROTECHNIK **BiM**

Two-tone chime Type: 300

Type: 300 (230 V AC), Type: 300 (8÷12 V AC), Type: 300 (220/127 V AC),
Type: 300 (9 V DC) – Battery 6LR61

Description

- electromechanical chime,
- plastic casing,
- sound: two tones – BIM-BAM,
- volume level: app. 83 dB (230 V), app. 80 dB (8 V) and app. 83 dB (220/127 V),
- power consumption: 35 VA (230 V), 16 VA (8 V) and 36/21 VA (220/127 V)
- available in power supply versions 230 V AC, 8÷12 V AC, dual triggering: 220/127 V AC, 9 V DC – battery type: 6LR61.

Technical Data

Weight [g]: 338 (230 V), 352 (8 V) and 335 (220/127 V)
Dimensions [mm]: 160 x 160 x 45
Colours: white/gold
Bulk package [pcs.]: 10

Bittorf ELEKTROTECHNIK **BiM**

ONE-TONE doorbell
DNS-902/N (230 V AC), DNT-902/N (8 V AC)

Description
- electronic bell,
- plastic casing,
- fluent volume adjustment,
- sound: one pulsating tone,
- volume level: app. 91 dB (DNS-902/N),
  app. 85 dB (DNT-902/N).

Technical data
Power consumption: 0,9 VA (DNS-902/N),
0,025 VA (DNT-902/N)
Weight [g]: 170 (DNS-902/N) and 185 (DNT-902/N)
Dimensions [mm]: 160 x 110 x 37
Colour: ecru, green metallic
Bulk package [pcs]: 15

ecru   green-metallic

TWO-TONE doorbell
DNS-911/N (230 V AC), DNT-911/N (8 V AC)

Description
- electronic bell,
- plastic casing,
- fluent volume adjustment,
- sound: two tones sounding alternatively,
- volume level: app. 84 dB (DNS-911/N),
  app. 80 dB (DNT-911/N).

Technical data
Power consumption: 0,9 VA (DNS-911/N),
0,15 VA (DNT-911/N)
Weight [g]: 160 (DNS-911/N), 180 (DNT-911/N)
Dimensions [mm]: 160 x 110 x 35
Colour: white, beige, silver (DNS-911/N)
Bulk package [pcs]: 15

white   beige   silver

TRES doorbell
DNS-972/N (230 V AC), DNT-972/N (8 V AC)

Description
- electronic three-tone bell,
- sound level adjustment,
- plastic casing,
- sound: three tones sounding alternatively,
- volume level: app. 90 dB.

Technical data
Power consumption: 0,9 VA (DNS-972/N),
0,75 VA (DNT-972/N)
Weight [g]: 140 (DNS-972/N),
160 (DNT-972/N)
Dimensions [mm]: 160 x 110 x 42
Colour: white
Bulk package [pcs]: 14

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DI-DO chime
GNS-976/N (230 V AC)

Description
- electronic chime,
- plastic casing,
- sound level adjustment,
- sound: two repeating tones DING-DONG,
- volume level: app. 81 dB.

Technical data
Power consumption: 10 VA
Weight [g]: 180
Dimensions [mm]: 160 x 98 x 35
Colour: white
Bulk package [pcs]: 18

WESTMINSTER chime
GNU-209 (3 batteries 1,5 V, type: AA)

Description
- electronic chime,
- plastic casing,
- battery-operated playing system (3x battery 1,5 V, type AA),
- activated after applying the voltage of 8÷230 V AC to the doorbell terminals,
- sound level adjustment,
- sound: 8 tones (sound of the Westminster Abbey Bell),
- volume level: app. 76 dB.

Technical data
Power consumption: 1,15 VA
Weight [g]: 240
Dimensions [mm]: 140 x 100 x 45
Colour: white
Bulk package [pcs]: 20

THREE-TONE chime
GNU-913/N (3 batteries 1,5 V, type: AA)

Description
- electronic chime,
- plastic casing,
- battery-operated playing system (3x battery 1,5 V, type AA),
- activated after applying the voltage of 8÷230 V AC to the doorbell terminals,
- fluent volume adjustment,
- sound: three tones – BIM-BAM-BOM,
- volume level: app. 83 dB.

Technical data
Power consumption: 1,1 VA
Weight [g]: 250
Dimensions [mm]: 140 x 100 x 47
Colour: ecru, silver
Bulk package [pcs]: 18

silver   ecru

16 MELODIES doorbell
DNU-912/N (2 batteries 1,5 V, type: AA)

Description
- electronic bell,
- plastic casing,
- volume level adjustment,
- battery-operated playing system (2 x battery 1,5 V, type AA),
- activated after applying the voltage of 8÷230 V AC
- sound: any of 16 melodies successively,
- volume level: app. 84 dB.

Technical data
Power consumption: 1,1 VA
Weight [g]: 250
Dimensions [mm]: 140 x 100 x 47
Colour: ecru, silver, green metallic
Bulk package [pcs]: 18

green-metallic   silver   ecru

RECORDER doorbell

DNU-210 (4 batteries 1,5 V, type: AA)

Description
- the doorbell plays back a selected user recorded tune (e.g. the latest hit), sound (e.g. cow's sound, laughter) or voice message (e.g. 'Hello! Nice to see you. I'm opening in a minute'),
- ability to record new messages without time limit and recording quality degradation,
- maximum playback time: 60 seconds,
- sound recording using built-in microphone or AUDIO input,
- the doorbell has a factory-recorded message of approximately 13 sec.,
- battery-operated playing system (4x battery 1.5 V, type AA),
- activated after applying the voltage of 8÷230 V AC to the bell's terminals,
- fluent volume control,
- volume level: max. 80 dB.

Technical data
Power consumption: 1,15 VA
Weight [g]: 290
Dimensions [mm]: 140 x 100 x 47
Colour: ecru
Bulk package [pcs]: 18

Electronic doorbell Type: 900

Type: 900 (230 V AC), Type: 900 (8÷12 V AC)

Description
- electronic three-tone bell,
- volume adjustment,
- 2 loudspeakers (stereo-effect),
- power supply of the melody unit through 9-V-block type: 6LR61,
- available in the following triggering versions: 230 V AC, 8÷12 V AC
- volume level: app. 86 dB.

Technical data
Power consumption: 1 VA
Weight [g]: 330
Dimensions [mm]: 215 x 130 x 92
Colour: white
Bulk package [pcs.]: 10

Bittorf *BiM*
ELEKTROTECHNIK

Electronic doorbell Type: 950

Type: 950 (230 V AC), Type: 950 (220/127 V AC), Type: 950 (8÷12 V AC), Type: 950/N (8÷24 V AC)

Description
- electronic three-tone bell,
- volume and pitch adjustment,
- power supply of the melody unit through 9-V-block type: 6LR61,
- available in the following triggering versions: 30 V AC, 8÷12 V AC, 220/127 V AC, 8÷24 V AC,
- volume level: app. 80 dB.

white   blue   gray

Technical data
Power consumption: 1 VA
Weight [g]: 150
Dimensions [mm]: 125 x 95 x 35
Colours: white, blue, gray
Bulk package [pcs.]: 12

Bittorf *BiM*
ELEKTROTECHNIK

Electronic doorbell Type: 970

Type: 970 (230 V AC), Type: 970 (8÷12 V AC)

Description
- electronic bell,
- volume and pitch adjustment,
- available in power supply versions: 230 V AC, 8÷12 V AC,
- volume level: app. 90 dB.

gray/black   gray/yellow   gray/blue   gray/green

Technical data
Power consumption: 1,9 VA (230 V), 2,7 VA (8 V)
Weight [g]: 160
Dimensions [mm]: 140 x 77 x 55
Colours: gray/black, gray/yellow, gray/blue, gray/green
Bulk package [pcs.]:12

Bittorf *BiM*
ELEKTROTECHNIK

Alarm siren Type: 1400

Description
- electronic alarm siren,
- sound: continuous tone,
- surface mounting in the building,
- resonance chamber for amplifying the volume level,
- tone colour and volume control,
- voltage versions: 12 V, 24 V, 127 V, 230 V,
- volume level: app. 98 dB.

Technical data
Power consumption: 6,3 VA (12 V), 16,6 VA (24 V), 6,13 VA (127 V), 8 VA (230 V).
Weight [g]: 680
Dimensions [mm]: 180 x 87 x 93
Colours: black /red
Bulk package [pcs.]: 10

Bittorf ELEKTROTECHNIK **BiM**

WIRED CHIMES AND DOORBELLS - Electromechanical doorbells

BOWL doorbell
DNS-001/N (230 V AC), DNT-001/N (8 V AC)

Description
- electromechanical bell,
- plastic casing,
- steel bowl, varnished (Ø 54 mm),
- volume level adjustment,
- volume level: app. 85 dB (DNS-001/N), app. 78 dB (DNT-001/N).

Technical data
Power consumption: 15 VA (DNS-001/N), 6 VA (DNT-001/N)
Weight [g]: 142 (DNS-001/N), 160 (DNT-001/N)
Dimensions [mm]: 116 x 71 x 40
Colour: white
Bulk package [pcs]: 30

TRADITIONAL doorbell
DNS-206 (230 V AC), DNT-206 (8 V AC)

Description
- electromechanical bell,
- plastic casing,
- steel bowl, varnished or chromium-plated (Ø 76 mm),
- volume level: app. 90 dB (DNS-206), app. 79 dB (DNT-206).

Technical data
Power consumption: 14 VA (DNS-206), 5 VA (DNT-206)
Bulk package [pcs]: 20
Weight [g]: 156 (DNS-206), 180 (DNT-206)
Dimensions [mm]: 140 x 105 x 60
Colour:
chromium-plated steel + white casing,
gold steel + brown casing,
silver steel + grey casing

beige   white

COMPACT doorbell
DNS-002/N (230 V AC), DNT-002/N (8 V AC)

Description
- electromechanical bell,
- steel bowl, varnished or chromium-plated, enclosed in a plastic casing,
- volume level adjustment,
- volume level: app. 80 dB.

Technical data
Power consumption: 11 VA (DNS-002/N), 5 VA (DNT-002/N)
Weight [g]: 210 (DNS-002/N), 220 (DNT-002/N)
Dimensions [mm]: 160 x 98 x 43
Colour: white
Bulk package [pcs]: 16

MULINO bell

DNS-222 (230 V AC), DNT-222 (8 V AC), DNB-222 (4 baterries 1,5 V, type: R14)

Description

- electromechanical bell,
- wooden mahogany colour of casing,
- brass spring mounted bowl,
- pleasant metallic sound coming from brass bowl,
- volume level: app. 80 dB.

Technical data

Weight [g]: 1400 (DNS-222), 1270 (DNT-222, DNB-222)
Dimensions [mm]: 320 x 110 x 50 (100)
Colour: mahogany
Bulk package [pcs]: 1

Possible connections of MULINO bell:

DNS-222, DNT-222

1. Standard connection (to the existing doorbell system) – Fig.1,
2. Special four-wire connection (enables using low-voltage bell-pushes and brass doorbell pushes e.g. doorbell pushes type PDM-231, PDM-232, PDK-250/1, PDK-250/2, PDK-250/3 by ZAMEL) – Fig. 2.

DNB-222

1. Special two-wire connection – does not require power supply installation due to batteries (enables using low-voltage bell-pushes and brass doorbell pushes e.g. doorbell pushes type PDM-231, PDM-232, PDK-250/1, PDK-250/2, PDK-250/3 by ZAMEL) – Fig. 3.

Universal supply and control solution makes it possible to match the doorbell to various system configurations.
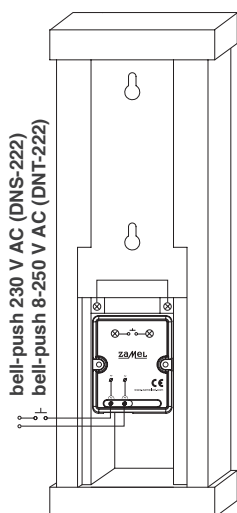
Fig. 1
Traditional doorbell installation
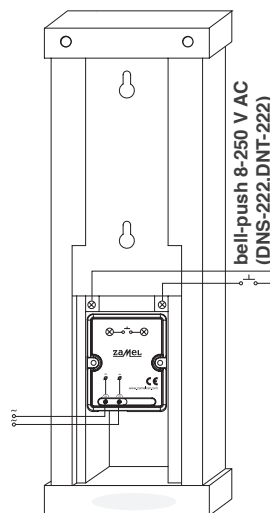
Fig. 2
Special connection, 4-wire
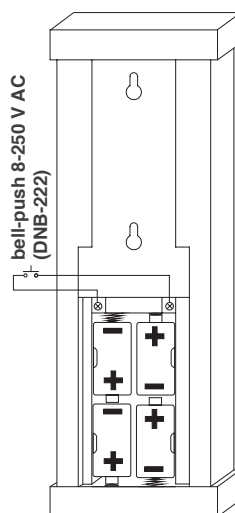
Fig. 3
Special connection, 2-wire

BUZZER chime

DNS-255 (110÷230 V AC), DNT-255 (8 V AC)

Description

- electromechanical bell,
- plastic casing,
- buzzer type sound,
- volume level app. 70 dB.

Technical data

Power consumption: 6 VA (DNS-255), 4,5 VA (DNT-255) Weight [g]: 26
Dimensions [mm]: 40 x 60 x 35
Colour: white
Bulk package [pcs]: 72

RETRO doorbell
DNS-971 (230 V AC), DNT-971 (8 V AC)

Description
- electromechanical bell,
- stained wood casing,
- brass bowl (Ø 52 mm),
- a replica of a 1920 model,
- volume level adjustment,
- volume level: app. 88 dB (DNS-971), app. 86 dB (DNT-971).

Technical data
Power consumption: 35 VA (DNS-971), 4 VA (DNT-971)
Weight [g]: 570 (DNS-971), 580 (DNT-971)
Dimensions [mm]: 168 x 97 x 85
Colour: light wood, dark wood
Bulk package [pcs]: 8

dark wood   light wood

SMALL SCHOOL-ALARM bell
DNS-212M (230 V AC), DNT-212M (24 V AC)

Description
- electromechanical bell,
- plastic casing (PC),
- red-painted steel bowl (Ø 150 mm),
- ideal in schools or as a signalling device,
- protection factor: IP44,
- volume level: app. 102 dB (DNS-212M), app. 93 dB (DNT-212M).

Technical data
Power consumption: 14,5 VA (DNS-212M), 10,3 VA (DNT-212M)
Weight [g]: 1000 (DNS-212M), 1030 (DNT-212M)
Dimensions [mm]: 160 x 150 x 90
Bulk package [pcs]: 4

BIG SCHOOL-ALARM bell
DNS-212D (230 V AC), DNT-212D (24 V AC)

Description
- electromechanical bell,
- plastic casing (PC),
- red-painted steel bowl (Ø 230 mm),
- ideal in schools or as a signalling device,
- protection factor: IP44,
- volume level: app. 104 dB (DNS-212D) and app. 95 dB (DNT-212D).

Technical data
Power consumption: 14,5 VA (DNS-212D), 10,3 VA (DNT-212D)
Weight [g]: 1600 (DNS-212D), 1700 (DNT-212D)
Dimensions [mm]: 240 x 230 x 100
Bulk package [pcs]: 2

SCHOOL-ALARM bell protection
ODS-256D

Description
- an additional school-alarm doorbell protection (DNS-212D or DNT-212D),
- perfect while using the doorbell in nonstandard conditions (e.g. a gym) in order to secure the device from mechanical damages (e.g. a ball stroke),
- made of steel wire, red-painted (Ø 281 mm).

Technical data
Weight [g]: 360
Dimensions [mm]: Ø 281 x 130
Colour: red
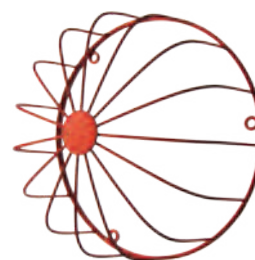
BOWL doorbell Type: 2000

Type: 2000 (8 V AC), Type: 2000 (12 V AC), Type: 2000 (24 V AC), Type: 2000 (230 V AC)

Description
- electromechanical bell,
- double coil,
- sound bowl made of chromium-plated steel (ø 70 mm),
- plastic casing,
- volume level: app. 83 dB (8, 12, 24 V AC), 86 dB (230 V AC),
- power consumption: 5,4 VA (8 V), 6 VA (12 V), 7 VA (24 V), 15 VA (230 V).

Technical data
Weight [g]: 140 (8 V), 145 (12 V), 150 (24 V), 160 (230 V)
Dimensions [mm]: 142 x 70 x 32
Colours: white/chrome
Bulk package [pcs.]: 20

Bittorf **BiM**
ELEKTROTECHNIK

BOWL doorbell Type: 2531

Type: 2531 (8 V AC), Type: 2531 (12 V AC), Type: 2531 (24 V AC), Type: 2531 (230 V AC)

Description
- electromechanical bell,
- double coil,
- sound bowl made of chromium-plated steel (ø 70 mm),
- plastic casing,
- volume level: app. 83 dB (8, 12, 24 V AC), 86 dB (230 V AC),
- power consumption: 5,4 VA (8 V), 6 VA (12 V), 7 VA (24 V), 15 VA 230 V).

Technical data
Weight [g]: 85 (8 V), 90 (12 V), 95 (24 V), 110 (230 V)
Dimensions [mm]: 115 x 70 x 32
Colours: white/chrome
Bulk package [pcs.]: 20

Bittorf **BiM**
ELEKTROTECHNIK

BOWL doorbell Type: 2536

Type: 2536 (8 V AC), Type: 2536 (12 V AC), Type: 2536 (24 V AC), Type: 2536 (230 V AC)

Description
- electromechanical bell,
- sound bowl made of steel (ø 48 mm),
- plastic casing,
- volume level: app. 80 dB (8, 12, 24 V AC), 83 dB (230 V AC),
- power consumption: 5,4 VA (8 V), 6 VA (12 V), 7 VA (24 V), 15 VA 230 V),
- available in the following voltage versions: 8 V AC, 12 V AC, 24 V AC, 230 V AC.

Technical data
Weight [g]: 90 (8 V), 95 (12 V), 100 (24 V), 115 (230 V)
Dimensions [mm]: 97 x 60 x 32
Colour: white
Bulk package [pcs.]: 20

Bittorf **BiM**
ELEKTROTECHNIK

333

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Flush-mounted doorbell Type: 2550

Type: 2550 (8 V AC) – time-controlled bell, Type: 2551 (8 V AC) – doorbell / buzzer

Description

- electromechanical bell,
- sound bowl made of steel (ø 48 mm) – type: 2550,
- bell/buzzer – type: 2551,
- plastic casing for flush mounting in junction box ø 60 mm,
- volume level: app. 75 dB (2550), 70 dB (2551),
- power consumption: 5,5 VA (2550), 5,5 VA (2551).

Technical data

Weight [g]: 70 (2550), 60 (2551)
Dimensions [mm]: 80 x 80 x 42
Colour: white
Bulk package [pcs.]: 20

Bittorf *BiM*
ELEKTROTECHNIK

Bell with integrated transformer Type: 2553

Type: 2553 (230 V AC) – bell, time-controlled, with integrated transformer

Description

- electromechanical bell,
- integrated transformer,
- sound bowl made of steel (ø 70 mm),
- plastic casing for surface mounting,
- installation of an additional doorbell or a door-opener at the transformer outlet possible,
- volume level: app. 83 dB,
- power consumption: 14 VA.

Technical data

Weight [g]: 380
Dimensions [mm]: 137 x 80 x 38
Colour: white
Bulk package [pcs.]: 20

Bittorf *BiM*
ELEKTROTECHNIK

Bell with integrated transformer flush mounting, Type: 2554

Type: 2554 (230 V AC) – bell, time-controlled, with integrated transformer

Description

- electromechanical bell,
- integrated transformer,
- sound bowl made of steel (ø 70 mm),
- plastic casing for flush mounting,
- installation of an additional doorbell at the transformer outlet possible,
- volume level: app. 83 dB,
- power consumption: 14 VA.

Technical data

Weight [g]: 450
Dimensions [mm]: 150 x 90 x 40
Colour: white
Bulk package [pcs.]: 20

Bittorf *BiM*
ELEKTROTECHNIK

Pipe chime MINI

GRS-941M (230 V AC), GRT-941M (8 V AC)

Description

- electromechanical chime,
- plastic casing,
- wooden or wood-like masking frame,
- two sound generation brass pipes,
- sound: two tones – BIM-BAM (a higher pitch than in the pipe chime),
- volume level: app. 71 dB.

Technical data

Power consumption: 11 VA (GRS-941M),
5 VA (GRT-941M)
Weight [g]: 1400
Dimensions [mm]: 364 x 230 x 55
Colour: rustical, classic,
Bulk package [pcs]: 12

rustical   classic

PIPE chime

GRS-941 (230 V AC), GRT-941 (8 V AC)

Description

- electromechanical chime,
- plastic casing,
- wooden or wood-like masking frame,
- two sound generation brass pipes,
- sound: two tones – BIM-BAM,
- volume level: app. 82 dB (GRS-941), app. 68 dB (GRT-941).

Technical data

Power consumption: 11 VA (GRS-941),
5 VA (GRT-941)
Weight [g]: 2250
Dimensions [mm]: 917 x 230 x 55
Colour: rustical, classic,
Bulk package [pcs]: 8

rustical   classic

Chime doorbell Type: 800

Type: 800Tr (230 V AC, with integrated transformer), Type: 800 (8÷12 V AC) o power supply with 4 batteries Type R20

Description

- electromagnetic chime doorbell,
- plastic housing,
- two sound-generating brass pipes,
- double tone sound: bim-bam,
- sound pressure level: ca. 85 dB,
- available in the following supply versions
  230 V AC with integrated transformer,
  8÷12 V AC or power supply with 4
  batteries type R20.

Technical Data

Weight [g]: 836 (8 V AC), 1040
(with integrated transformer)
Dimensions [mm]: 923 x 224 x 51
Colour: white/brass colour
Bulk pack [pcs]: 8

Bittorf ELEKTROTECHNIK **BiM**

Wireless doorbell BULIK

DRS-982, DRS-982K,DRS-982H
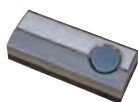
Description
- ideal as a doorbell at home, as a desk doorbell at a restaurant, hotel or as an indoor paging device,
- does not need doorbell installation,
- the wireless doorbell is directly connected to the 230 V AC socket,
- radio transmission (frequency of 433,92 MHz),
- individual user code setting feature (out of 16 channels),
- it can be operated simultaneously by wireless doorbell pushes type PDH-991, PDH-227,
- the number of chimes and doorbell pushes acting simultaneously can be increased as required,
- a possibility of increasing the operation range by means of RT-236 retransmitter RT-236,
- two tones to choose (the place of call recognition feature),
- volume level adjustment,
- additional optic (LED) signalling of an incoming signal,
- sound: DING-DONG or DING – DONG, DING – DONG,
- volume level: app. 85 dB,
- operation range* up to 150 m in an open area (by means of RT-236 retransmitter, range up to 250 m).

PDH-227

PDH-991

Possible options
DRS-982 Bulk package [pcs]: 8
PDH-227 Bulk package [pcs]: 36
PDH-991 Bulk package [pcs]: 20
DRS-982 + PDH-991 = DRS-982H
Bulk package [pcs]: 6
DRS-982 + PDH-227 = DRS-982K
Bulk package [pcs]: 8

Technical data
Power supply: 230 V AC / 50 Hz
Transmission: radio
Frequency: 433,92 MHz
Power consumption, stand-by: 1,8 VA
Maximum power consumption: 2,8 VA
Coding: 16 codes
Protection class: II
Protection level: IP20
Push button protection level: IP44
Weight [g]: 250
Dimensions [mm]: 160 x 66 x 90
Colour: grey

SERIA **X** ZAMEL devices marked with this sign can cooperate with each other.

COOPERATION AND RANGE OF WORK*

Push button	DRS-982	Retransmitter RT-236 + DRS-982
PDH-227	100 m	200 m
PDH-991	150 m	250 m

Wireless doorbell push, hermetic

PDH-227
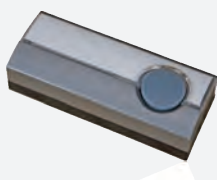
Description
- designed to cooperate with wireless doorbell BULIK and other „X" series products,
- operating range*: 100 m (for BULIK doorbell), 150 m (for SMYK doorbell controller) in an open area,
- designed to operate in changeable weather conditions (e.g. at a gate),
- battery-powered,
- operation optically signalled,
- bell push with a user name card.

Technical data
Power supply: battery 12 V, type 23A
Transmission: radio
Frequency: 433,92 MHz
Transmitter's power: <5 mW
Coding: 16 codes
Transmission signal: optical (red LED)
Protection level: IP44
Operation temperature range: -20°C ÷ +35°C
Bulk package [pcs]: 36
Weight [g]: 39
Dimensions [mm]: 80 x 21 x 33
Colour: grey, silver

SERIA **X** ZAMEL devices marked with this sign can cooperate with each other.

Wireless doorbell push, hermetic

PDH-991

Description

- designed to cooperate with wireless doorbell BULIK and other „X" series products,
- operating range*: 150 m (for BULIK chime), 200 m (for SMYK doorbell controller) in an open area,
- designed to operate in changeable weather conditions (e.g. at a gate),
- battery-powered,
- secured against continuous transmission,
- operation optically signalled.

Technical data

Power supply: battery 12 V, type 23A
Transmission: radio
Frequency: 433,92 MHz
Transmitter's power: <5 mW
Coding: 16 codes
Transmission signal: acoustic (buzzer)
Protection level: IP44
Operation temperature range: -20°C ÷ +35°C
Bulk package [pcs]: 20
Weight [g]: 106
Dimensions [mm]: 62 x 73 x 30
Colour: white

SERIA X ZAMEL devices marked with this sign can cooperate with each other.

exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

Wireless grid-powered BULIK II doorbell

DRS-985, DRS-985H

RANGE 350 m

PDH-240

Description
- new version of the well-known wireless BULIK doorbell,
- modern and interesting design,
- perfect as a doorbell, bar bell, in restaurants and hotel, an internal paging device or a personal alarm device,
- doorbell installation is not required,
- doorbell supplied directly from 230 V power mains socket,
- **operating range: 350 m* in open area,**
- **modern, touch-sensitive button (without movable elements) adapted for operation under variable weather conditions (IP56),**
- possibility to program 96 push buttons for one doorbell by yourself,
- you can assign a melody to each button (to enable recognizing call location)
- 14 different tones and melodies,
- optical signalling,
- adjustable sound level: ca. 80 dB.

Possible options
DRS-985H = DRS-985 + PDH-240
DRS-985

Technical data
Power supply: 230 V AC / 50 Hz
Power consumption, stand-by: 0,5 W
Power consumption, maximum: 2,5 W
Transmission: radio
Frequency: 868 MHz
Operating range*: 350 m
Coding: variable code
Sound level: max. 80 dB
Protection level: IP20
Protection class: II
Operating temperature range: 0°C ÷ +35°C
Weight [g]: 85
Dimensions [mm]: 115 x 70 x 60
Colour: white + black

Wireless battery-operated BULIK II doorbell

DRS-988, DRS-988H

RANGE 350 m

PDH-240

Description
- new version of the well-known wireless BULIK doorbell, now battery-powered,
- modern and interesting design,
- perfect as a doorbell, bar bell, in restaurants and hotel, an internal paging device or a personal alarm device,
- doorbell installation is not required,
- battery-powered push button,
- **operating range: 350 m* in open area,**
- **modern, touch-sensitive button (without movable elements) adapted for operation under variable weather conditions (IP56),**
- possibility to program 96 push buttons for one doorbell by yourself,
- you can assign a melody to each button (to enable recognizing call location)
- 14 different tones and melodies,
- optical signalling,
- adjustable sound level: ca. 80 dB.

Possible options
DRS-988H = DRS-988 + PDH-240
DRS-988

Technical data
Power supply: 3 batteries 1,5 V type AAA
Power consumption, stand-by: 0,3 W
Power consumption, maximum: 2,5 W
Transmission: radio
Frequency: 868 MHz
Operating range*: 350 m
Coding: variable code
Sound level: max. 80 dB
Protection level: IP20
Protection (IP) ratings III
Operating temperature range: 0°C ÷ +35°C
Weight [g]: 120
Dimensions [mm]: 115 x 70 x 20
Colour: white + black

Weather-proof wireless control button

PDH-240

Description
- compatible with BULIK II wireless doorbells (DRS-985 or DRS-988).
- touch-sensitive button, capatitive (without moving elements),
- optical activity signalling,
- **operating range*: 350 m,**
- adapted for operation in harsh and variable weather conditions (e.g. at a gate) - IP56,
- battery-powered.

Technical data
Power supply: 2 x battery 1,5 V type AAA
Transmission: radio
Frequency: 868 MHz
Transmitter power: 20 mW
Coding: variable code
Protection level: IP56
Operating temperature range: -20°C ÷ +55°C
Weight [g]: 50
Dimensions [mm]: 76 x 39 x 19
Colour: white

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Wireless grid-powered BULIK II PRO doorbell
DRS-995, DRS-995H

Max. operating range 1400 m in open areas!

Thanks to using an innovative method for radio signal modulation we managed to achieve very wide bell operation range of as many as 1400 m in open space. Such a wide range means that the bell will work well in difficult conditions such as large number of walls or other obstacles that might significantly reduce radio signal range inside buildings. The Bulik PRO doorbell proves useful everywhere where a regular wireless bell with standard range cannot guarantee correct and reliable operation.

Description
- new version of the well-known wireless BULIK doorbell,
- modern and interesting design,
- perfect as a doorbell, bar bell, in restaurants and hotel, an internal paging device or a personal alarm device,
- doorbell installation is not required,
- doorbell supplied directly from 230 V power mains socket,
- **operating range: 1400 m in the open area,**
- **modern, touch-sensitive button (without movable elements) adapted for operation under variable weather conditions (IP56),**
- possibility to program 96 push buttons for one doorbell by yourself,
- you can assign a melody to each button (to enable recognizing call location)
- the ability to upload any MP3 sound to an microSD memory card,
- optical signalling,
- adjustable sound level: ca. 80 dB.

Available versions
DRS-995H = DRS-995 + PDH-250
DRS-995

Technical data
Power supply: 230 V AC / 50 Hz
Power consumption, stand-by: 0,5 W
Power consumption, maximum: 2,5 W
Transmission: radio
Frequency: 868 MHz
Operating range*: 1400 m
Coding: variable code
Sound level: max. 80 dB
Protection level: IP20
Protection class: II
Operating temperature range: 0°C ÷ +35°C
Weight [g]: 85
Dimensions [mm]: 115 x 70 x 60
Colour: white + black

RANGE 1400 m

PDH-250

Weather-proof wireless control button
PDH-250

Description
- compatible with BULIK II PRO wireless doorbells (DRS-995).
- touch-sensitive button, capatitive (without moving elements),
- optical activity signalling,
- **operating range: 1400 m,**
- adapted for operation in harsh and variable weather conditions (e.g. at a gate) - IP56,
- battery-powered.

Technical data
Power supply: 2 x battery 1,5 V type AAA
Transmission: radio
Frequency: 868 MHz
Transmitter power: 20 mW
Coding: variable code
Protection level: IP56
Operating temperature range: -20°C ÷ +55°C
Weight [g]: 50
Dimensions [mm]: 76 x 39 x 19
Colour: white

RANGE 1400 m

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

Doorbell controller, with a hermetic doorbell push
BSD-202H

PDH-991

Description
- doorbell operation of any sound and supply voltage without expansion of doorbell installation,
- a possibility of a parallel connection to the existing doorbell installation,
- an ideal help for persons who are partially deaf or in increased noise level conditions (due to the possibility of a parallel lighting connection),
- radio transmission (frequency 433,92 MHz),
- operation range*: 200 m in an open area,
- individual user code setting feature (16 codes to select from),
- designed to operate in changeable weather conditions (e.g. at a gate),
- monostable operation mode (device operation time adjustment from 0.5 sec. to 11 sec.),
- receiver directly connected to 230 V power supply,
- wireless battery-operated doorbell push,
- the doorbell can operate with a traditional doorbell push or with wireless doorbell pushes produced by ZAMEL ("X" series),
- the number of doorbell pushes controlling one receiver can be increased according as required.

Possible options
BSD-202 Bulk package [pcs]: 22
PDH-991 Bulk package [pcs]: 20
BSD-202+PDH-991=BSD-202H
Bulk package [pcs]: 10

Technical data
Power supply: 230 V AC /50 Hz
Transmission: radio
Frequency: 433,92 MHz
Coding: 16 codes
Power consumption: 3 VA
Output capacity: 10 A
Output: NO contact
Operation mode: monostable with fluent operation time adjustment from 0,5 sec. to 11 sec.
Protection level: IP20
Operation temperature range: 0°C ÷ +35°C
Weight [g]: 270
Dimensions [mm]: 145 x 36 x 80
Colour: white
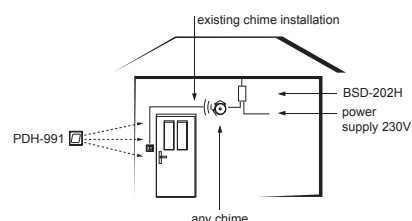
SERIA **X** ZAMEL devices marked with this sign can cooperate with each other.

Wireless doorbell retransmitter Series „X"
RT-236

Description
- used to cooperate with „X" series wireless doorbells,
- used to increase the operation range of „X" series wireless doorbells if not sufficient,
- recommended in buildings with big spaces or complicated spatial arrangement,
- the device receives a signal from a doorbell push and sends an amplified signal to a doorbell,
- it is possible to increase the number of retransmitters operating with the doorbell according to requirements and in order to cover the range of any building space,
- radio transmission (frequency 433,92 MHz),
- operation range*: 100 m in an open area,
- designed to operate in changeable weather conditions,
- supplied from a 12 V DC power supply, the following power supplies are recommended with reference to the installation place:
  a) retransmitter indoor – 4 WZS 12/250 power supply,
  b) retransmitter outdoor – ZSM-12 power supply, designed for the indoor installation (switch board, surface mounting) with wires led out for the device.

Technical data
Power supply: 12 V DC power supply
Power consumption: 100 mA reception
Transmission: radio
Frequency: 433,92 MHz
Transmitter's power: < 5 mW
Coding: 16 codes
Operation range*: 100 m in an open area
Protection level: IP56
Transmitter's sensitivity: 3 uV (super reaction)
Operation temperature range: 0°C ÷ +35°C
Bulk package [pcs]: 12
Weight [g]: 200
Dimensions [mm]: 100 x 100 x 35
Colour: grey

SERIA **X** ZAMEL devices marked with this sign can cooperate with each other.

341

exta free

exta life

supla

exta

ledix

konekto

sundi

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matec

entra

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gardi

ynsta

expo

COOPERATION AND RANGE OF WORK*

Push button	DRS-982	BSD-202	RT-236 + DRS-982	RT-236 + BSD-202
PDH-227	100 m	150 m	200 m	250 m
PDH-991	150 m	200 m	250 m	300 m

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

Wireless grid-powered ROCK doorbell
ST-970

Description
- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- radio transmission (433 MHz frequency),
- **operating range: 150 m in the open area,**
- encoding: 256 codes (automatic learning of the push button code during programming)
- possibility to program 3 push buttons for one chime
- possibility to assign a different melody to each push button (to easily identify the source of the call)
- push button designed to work in variable weather conditions (IP44),
- 55 different tones and melodies,
- loudness level: max. 85 dB,
- 5-level sound volume adjustment.

Technical data
Frequency: 433 Mhz
Coding: 256 codes
Sound level: max. 85 dB
Protection class: II

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Protection level: IP44
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 34 x 74 x 19
Weight [g]: 32
Colour: white

Technical data (DOORBELL)
Power supply: 230 V AC / 50 Hz
Power consumption: stand-by 4mA, sound 8 mA
Protection level: IP20
Operating temperature range: 0°C ÷ 35°C
Dimensions [mm]: 82 x 82 x 68
Weight [g]: 81
Colour: white

RANGE 150 m

Wireless doorbell FOXTROT
ST-925

Description
- ideal as a doorbell or an indoor paging device,
- useful at home, in an office and for people requiring care,
- does not need doorbell installation,
- it is directly connected to the 230 V AC socket,
- battery-operated doorbell push,
- radio transmission (frequency of 433,92 MHz),
- operation range*: 60 m in an open area,
- coding: 256 codes (code default setting, code not possible to be changed by a user),
- bell push is not designed to operate in difficult weather conditions,
- sound: 24 melodies to choose from (polyphonic sound),
- volume level: 80 dB.

Technical data
Transmission: radio
Frequency: 433,92 MHz
Coding: 256 codes (code default setting, code not possible to be changed by a user)
Operation range*: 60 m in an open area
Protection level: IP20
Operation temperature range: 0°C ÷ + 35°C

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Weight [g]: 35
Dimensions [mm]: 77 x 32 x 24
Colour: white + grey

Technical data (DOORBELL)
Power supply: 230 V AC / 50 Hz
Power consumption: stand-by 3 mA, sound 70 mA
Weight [g]: 85
Dimensions [mm]: 100 x 55 x 68
Colour: white + grey

Wireless doorbell DISCO
ST-930

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant, in an office and for people requiring care,
- does not need doorbell installation,
- useful call optical signalling e.g. for persons who are partially deaf,
- it is directly connected to the 230 V AC socket,
- battery-operated doorbell push,
- radio transmission (frequency of 433,92 MHz),
- operation range*: 100 m in an open area,
- bell push is not designed to operate in difficult weather conditions,
- 36 sounds to choose (polyphonic sound),
- 8 level volume adjustment,
- volume level: max. 85 dB.

Technical data
Frequency: 433 MHz
Sound level: max. 85 dB
Protection level: IP20
Protection class: II
Coding: 756 codes
Operation range*: 100 m in an open area

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 75 x 43 x 20
Weight [g]: 36
Colour: white

Technical data (DOORBELL)
Power supply: 230 V AC / 50Hz
Power consumption: stand-by 1 mA, sound 73 mA
Operating temperature range: 0°C ÷ +35°C
Dimensions [mm]: 95 x 60 x 29
Weight [g]: 71
Colour: white

Wireless doorbell POP
ST-940

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant / hotel, in an office and for people requiring care,
- does not need doorbell installation,
- modern and interesting design,
- it is directly connected to the 230 V AC socket,
- battery-operated doorbell push,
- radio transmission (frequency of 433,92 MHz),
- operation range*: 100 m in an open area,
- bell push is not designed to operate in difficult weather conditions,
- 52 sounds to choose (polyphonic sound),
- 4 level volume adjustment,
- volume level: max. 80 dB.

Technical data
Frequency: 433 MHz
Coding: 6561 codes (code with default setting without changing possibility)
Protection level: IP20
Protection class: II
Operation range in an open area: 100 m*

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 41 x 71 x 19
Weight [g]: 28
Colour: white

Technical data (DOORBELL)
Power supply: 230 V AC / 50Hz
Power consumption: stand-by 5 mA, sound 70 mA
Operating temperature range: 0°C ÷ +35°C
Dimensions [mm]: 80 x 80 x 29
Weight [g]: 96
Colour: white

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

exta free
exta life
supla
exta
ledix
konekto
sundi
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matec
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gardi
ynsta
expo

Wireless doorbell with battery-free button SAMBA

ST-950

World's first doorbell with wireless button that needs no power supply!

The doorbell has wireless button in which a mechanical-to-electrical energy transformer has been installed. Such a solution eliminated the need of using batteries or any other sources of power. Lack of battery, wide operating temperature range and water-resistance constitute undoubted advantages of the transmitter guaranteeing its correct operation under harsh weather conditions, also after total immersion in water.

NO BATTERIES REQUIRED

Description

- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- chime supplied directly from 230 V AC power mains socket,
- **wireless transmitter button without any power supply (working without a battery),**
- radio transmission (433 MHz frequency),
- operating range*: 100 m in the open area,
- coding: million codes,
- **button adapted to variable weather conditions, resistant to water (works even after total immersion in water) and low temperatures,**
- 25 tones to chose from (polyphonic tones),
- loudness level: max. 85 dB.

Technical data

Frequency: 433 MHz
Sound level: max. 85 dB
Operating range*: 100 m in open areas
Coding: million codes

Technical data (BELL PUSH)

Power supply: none
Operating temperature range: -25°C ÷ +40°C
Protection: waterproof
Dimensions [mm]: 46 x 88 x 31
Weight [g]: 65
Colour: white

Technical data (DOORBELL)

Power supply: 230 V AC / 50 Hz
Power consumption, stand-by 4 mA, sound 60 mA
Operating temperature range: 0°C ÷ +35°C
Protection level: IP20
Dimensions [mm]: 68 x 86 x 71
Weight [g]: 93
Colour: white

Wireless BLUES doorbell

ST-960

Description

- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- doorbell supplied directly from 230 V power mains socket,
- battery powered push button,
- radio transmission (433 MHz frequency),
- operating range*: 100 m in the open area,
- push button designed to work in variable weather conditions (IP44),
- 36 tones to chose from (polyphonic tones),
- sound level: ca. 80 dB
- 4 sound volume adjustment levels.

Technical data

Transmission: radio
Frequency: 433 MHz
Operating range*: 100 m in open areas
Coding: 256 codes
Sound level: max. 80 dB
Protection class: II

Technical data (BELL PUSH)

Power supply: battery 12 V type 23A
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 60 x 85 x 24
Weight [g]: 48
Colour: black

Technical data (DOORBELL)

Power supply: 230 V AC / 50 Hz
Power consumption, stand-by 7 mA, sound 75 mA
Operating temperature range: 0°C ÷ +35°C
Protection level: IP20
Dimensions [mm]: 60 x 95 x 30
Weight [g]: 65
Colour: black

Wireless battery-operated doorbell ALCANO
ST-338

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant / hotel, in an office and for people requiring care,
- does not need doorbell installation,
- battery-operated doorbell and doorbell push,
- bell push with user name,
- aluminium front cover,
- radio transmission (frequency of 433,92 MHz),
- operating range*: 100 m in an open area,
- a possibility of increasing the operation range, by means of RT-228 retransmitter,
- a possibility of adding two doorbell pushes to one doorbell,
- a possibility of adding any number of doorbells to one doorbell push,
- possible cooperation with doorbell push type ST-400P and ST-300P,
- bell push designed to operate in difficult weather conditions,
- four tones to choose from (e.g. Westminster, Ding Dong, pipe gong, trumpet) – call place recognition function,
- volume level: 73 dB

Technical data
Transmission: radio
Frequency: 433,92 MHz
Operation range*: 100 m in an open area
Coding: 256 codes
Sound level: max. 73 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 3 V, type CR2032
Protection level: IP44
Operating temperature range: -20°C ÷ +35°C
Weight [g]: 40
Dimensions [mm]: 85 x 26 x 32
Colour: silver

Technical data (DOORBELL)
Power supply: 2 x battery 1,5 V, type AA
Power consumption: stand-by 0,65 mA, sound 100 mA
Protection level: IP20
Operating temperature range: 0°C ÷ +35°C
Weight [g]: 100
Dimensions [mm]: 115 x 115 x 30
Colour: silver (aluminium)

SERIA M ZAMEL devices marked with this sign can cooperate with each other.

Wireless battery-operated doorbell ALCALINO
ST-337

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant / hotel, in an office and for people requiring care,
- does not need doorbell installation,
- battery-operated doorbell and doorbell push,
- bell push with user name,
- aluminium front cover,
- radio transmission (frequency of 433,92 MHz),
- operating range*: 100 m in an open area,
- a possibility of increasing the operation range, by means of RT-228 retransmitter,
- a possibility of adding two doorbell pushes to one chime,
- a possibility of adding any number of doorbells to one doorbell push,
- possible cooperation with doorbell push type ST-400P and ST-300P,
- bell push designed to operate in difficult weather conditions,
- four tones to choose from (e.g. Westminster, Ding Dong, pipe gong, trumpet) – call place recognition function,
- volume level: 70 dB.

Technical data
Transmission: radio
Frequency: 433,92 MHz
Operation range*: 100 m in an open area
Coding: 256 codes
Sound level: max.70 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 3 V, type CR2032
Operating temperature range: -20°C ÷ +35°C
Protection level: IP44
Weight [g]: 40
Dimensions [mm]: 85 x 26 x 32
Colour: silver

Technical data (DOORBELL)
Power supply: 2 x battery 1,5 V, type R14
Power consumption: stand-by 0,25 mA, sound 100 mA
Operating temperature range: 0°C ÷ +35°C
Protection level: IP20
Weight [g]: 100
Dimensions [mm]: 120 x 72 x 44
Colour: silver (aluminium)

SERIA M ZAMEL devices marked with this sign can cooperate with each other.

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

Wireless battery-operated doorbell BRILLO
ST-372

Description
- ideal as a doorbell, paging device or personal alarm,
- an ideal help for people who are partially deaf or for babies' parents – additional call optic signalling (blue LED diode),
- useful at home, in an office and for people who require care,
- three modes of operation possible: 1. sound, 2. sound + optic signalling 3. optic signalling,
- does not require doorbell installation,
- battery-operated doorbell and doorbell push,
- bell push with a user name,
- operation range*: 100 m in an open area,
- a possibility of adding two doorbell pushes to one doorbell,
- a possibility of adding any number of chimes to one doorbell push,
- bell push designed to operate in difficult weather conditions (e.g. at a gate),
- a possibility of increasing the operation range, by means of RT-228 retransmitter,
- possible cooperation with doorbell push type ST-300P and ST-400P,
- eight tones to choose (e.g. Westminster, Ding Dong, pipe gong, trumpet and popular melodies) – call place recognition function,
- volume level adjustment,
- volume level: 76 dB.

Possible options
Doorbell BRILLO + Wireless doorbell push ST-300P = ST-372
Bulk package [pcs]: 6
ST-300P Bulk package [pcs]: 8

Technical data
Transmission: radio
Frequency: 433,92 MHz
Operation range*: 100 m in an open area
Coding: 256 codes
Sound level: max. 76 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 3 V, type CR2032
Operating temperature range: -20°C ÷ +35°C
Protection level: IP44
Weight [g]: 40
Dimensions [mm]: 85 x 26 x 32
Colour: silver

ZAMEL devices marked with this sign can cooperate with each other. **SERIA M**

Technical data (DOORBELL)
Power supply: 2 x battery 1,5 V, type R14
Power consumption: stand-by 0,35 mA, sound 100 mA
Operating temperature range: 0°C ÷ +35°C
Protection level: IP20, Weight [g]: 130
Dimensions [mm]: 150 x 73 x 46, Colour: silver + graphite

Wireless battery-operated doorbell SATTINO
ST-230

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant / hotel, in an office and for people requiring care,
- does not need doorbell installation,
- battery-operated doorbell and doorbell push,
- a possibility of 6 V DC power supply connection (2WZN 7,5/150 power supply is recommended),
- bell push with user name card,
- radio transmission (frequency of 433,92 MHz),
- operation range*: 150 m in an open area,
- soft-touch "velvet" casing,
- a possibility to adjust individual user code (256 codes),
- a possibility of adding two doorbell pushes to one doorbell,
- bell push designed to operate in changeable weather conditions,
- a possibility of increasing the operation range, by means of RT-228 retransmitter,
- possible cooperation with doorbell push type ST-400P and ST-300P,
- eight tones to choose (e.g. dog's barking, electronic phone, bim-bam and popular melodies) – call place recognition function,
- volume adjustment ("silent – loud" switch),
- volume level: 80 dB.

Possible options
Doorbell SATTINO + Wireless bell push ST-300P = ST-230 Bulk package [pcs]: 10
ST-300P Bulk package [pcs]: 8

Technical data
Transmission: radio
Frequency: 433,92 MHz
Operation range*: 150 m in an open area
Coding: 256 codes
Sound level: max. 80 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 3 V, type CR2032
Operating temperature range: -20°C ÷ +35°C
Protection level: IP44, Weight [g]: 40
Dimensions [mm]: 85 x 26 x 32, Colour: silver

Technical data (DOORBELL)
Power supply: 4 x battery 1,5 V,
type AA or 6 V DC power supply
Power consumption: stand-by 0,47 mA,
sound 90 mA
Operating temperature range: 0°C ÷ +35°C
Protection level: IP20, Weight [g]: 130
Dimensions [mm]: 125 x 120 x 30,
Colour: graphite + silver

ZAMEL devices marked with this sign can cooperate with each other. **SERIA M**

Wireless battery-operated doorbell, with vibration VIBRO
ST-229/N

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- due to vibration signalling the device is an ideal help for persons who are deaf, for little babies' parents or in increased noise level conditions,
- three operation modes:
  a) sound and optic signalling,
  b) sound and optic signalling + vibration,
  c) vibration,
- does not require doorbell installation,
- battery-operated doorbell,
- the device is equipped with a clip that can be attached to a belt,
- radio transmission (frequency of 433,92 MHz),
- possibility of individual user code adjustment (256 codes to choose from),
- operation range*: 100 m in an open area,
- a possibility of adding two doorbell pushes to one doorbell,
- a possibility of increasing the operation range, by means of RT-228 retransmitter,
- possible cooperation with push button type ST-300P and ST-400P,
- eight tones to choose (e.g. dog's barking, electronic phone, bim-bam and popular melodies) – call place recognition function,
- volume level: max. 75 dB.

Technical data
Frequency: 433,92 MHz
Coding: (256 codes)
Sound: 8 sounds to choose
Sound level: max. 75 dB
Optic signalling: red LED diode
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 3 V, type CR2032
Operating temperature range: -10ºC ÷ +35ºC
Protection level: IP44
Weight [g]: 40
Dimensions [mm]: 85 x 26 x 32
Colour: white

Technical data (DOORBELL)
Power supply: 2 x battery 1,5 V, type AA
Power consumption: stand-by 0,3 mA, sound 70 mA, vibration 90 mA
Operating temperature range: 0ºC ÷ +35ºC
Protection level: IP20
Weight [g]: 130
Dimensions [mm]: 125 x 120 x 30
Colour: white

SERIA (M) ZAMEL devices marked with this sign can cooperate with each other.

Wireless doorbell push, hermetic
ST-300P

Description
- designed to cooperate with wireless M series doorbells (ALCANO, ALCALINO, BRILLO, VIBRO, SATTINO) and with RT-228 retransmitter,
- additionally the doorbell push can cooperate with wireless doorbell LIBERO (limiting it to the functionality of a wireless doorbell),
- operating range*: 100 m (for ALCANO, LIBERO, ALCALINO, LOOPO, BRILLO, VIBRO doorbells), 150 m (for SATTINO chime) in an open area,
- designed to operate in changeable weather conditions (e.g. at a gate),
- battery-powered doorbell push,
- bell push with a user name card.

Technical data
Bulk package [pcs]: 8
Weight [g]: 40
Dimensions [mm]: 85 x 26 x 32
Colour: silver
Power supply: battery 3 V, type CR2032
Transmission: radio
Frequency: 433,92 MHz
Operation range*: to 150 m in an open area
Coding: 256 codes
Protection level: IP44
Operation temperature range: -20°C ÷ +35°C

SERIA (M) ZAMEL devices marked with this sign can cooperate with each other.

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

exta free
exta life
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Wireless „M" series doorbell retransmiter
RT-228

Description
- used to cooperate the wireless "M" series door-bells,
- used to increase the operation range of "M" series doorbells, if it is not sufficient,
- it is recommended in buildings with big spaces or with a complicated spacial structure,
- a possibility to adjust individual user code (256 codes),
- the device receives a signal from a remote control and sends an amplified signal to a door-bell,
- the number of retransmitters cooperating with a doorbell can be increased as required, so that the range covers the building of any dimension,
- radio transmission (frequency of 433,92 MHz),
- operation range*: 35 m in an open area,
- it is not designed to operate in changeable weather conditions,
- additional operation optic signalling.

Technical data
Power supply: 4 x battery 1,5 V, type AA
Transmission: radio
Frequency: 433,92 MHz
Power consumption: stand-by 0,25 mA, max. 8 mA
Coding: 256 codes
Transmission signal: optic (red LED)
Protection level: IP20
Operation temperature range: 0°C ÷ + 35°C
Bulk package [pcs]: 12
Weight [g]: 160
Dimensions [mm]: 125 x 120 x 30
Colour: white + green

SERIA M
ZAMEL devices marked with this sign can cooperate with each other.

Power supply
2 WZN 7,5/150

Description
- power supply as an alternative supply of wireless SATTINO ST-230 doorbell,
- does not charge doorbell batteries.

Technical data
Weight [g]: 180
Dimensions [mm]: 50 x 74 x 78
Input voltage: 230 V AC
Output voltage: 7,5 V DC
Output current: 150 mA
Operation temperature range: 0°C ÷ 40°C
Protection level: IP30

Power supply
4 WZS 12/250

Description
- power supply designed to supply RT-236 retrans-mitter.

Technical data
Weight [g]: 290
Dimensions [mm]: 56 x 84 x 82
Input voltage: 230 V AC
Output voltage:12 V DC
Output current: 250 mA
Protection level: IP30

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

Wireless battery-operated doorbell TECHNO
ST-251

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant, hotel or in an office or for people requiring care,
- does not require doorbell installation,
- useful call optical signalling e.g. for a person who is partially deaf,
- useful complete sound switch off e.g. due to small babies,
- **3 operation modes (1. Sound only; 2. Optical signalling only; 3. Optical signalling and sound),**
- doorbell and doorbell push battery-powered,
- radio transmission (frequency 433 MHz),
- operation range*: 100 m in an open area,
- coding: million codes (automatic push doorbell code remembering during programming),
- possibility of programming 4 doorbell pushes to one doorbell,
- designed to operate in changeable weather conditions,
- 36 sounds and melodies to choose,
- volume level: max. 80 dB,
- 3-step volume level adjustment.

Technical data
Frequency: 433 MHz
Operation range*: 100 m in an open area
Coding: million codes
Sound level: max. 80 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 3 V, type CR2032
Operating temperature range: -20°C ÷ +35°C
Protection level: IP44
Dimensions [mm]: 80 x 31 x 20
Weight [g]: 30
Colour: black + white

Technical data (DOORBELL)
Power supply: 2 x battery 1,5 V, type AA
Power consumption: stand-by 0,5 mA, sound 200 mA
Operating temperature range: 0°C ÷ 35°C
Protection level: IP20
Dimensions [mm]: 109 x 77 x 40
Weight [g]: 82
Colour: black + silver

Wireless battery-operated doorbell JAZZ
ST-260

Description
- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- radio transmission (433 MHz frequency),
- operating range*: 100 m in the open area,
- encoding: 256 codes (automatic learning of the push button code during programming)
- possibility to program 3 push buttons for one chime
- **modern, touch-sensitive button (without movable elements) adapted for operation under variable weather conditions (IP44),**
- 10 different tones and melodies,
- **high loudness level: max. 90 dB,**
- 5-level sound volume adjustment.

Technical data
Frequency: 433 MHz
Coding: 256 codes
Loudness level ca. 90 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: 1 x battery 3 V type: CR2032
Button protection rating: IP44
Operating temperature range: -20°C to +35°C
Dimensions [mm]: 35 x 68 x 20
Weight [g]: 27
Colour: white

Technical data (DOORBELL)
Power supply: 3 x battery 1.5 V type: AA
Power consumption, stand-by: 1 mA, sound 120 mA
Protection level: IP 20
Operating temperature: 0°C to 35°C
Dimensions [mm]: 83 x 132 x 29
Weight [g]: 108
Colour: white

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

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exta free
exta life
supla
exta
ledix
konekto
sundi
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entra
etero
gardi
ynsta
expo

Wireless battery-operated doorbell with battery-free button RUMBA

ST-370

Doorbell with wireless button that needs no power supply!

The doorbell has wireless button in which a mechanical-to-electrical energy transformer has been installed. Such a solution eliminated the need of using batteries or any other sources of power. Lack of battery, wide operating temperature range and water-resistance constitute undoubted advantages of the transmitter guaranteeing its correct operation under harsh weather conditions, also after total immersion in water.

NO BATTERIES REQUIRED

Description
- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- radio transmission (433 MHz frequency),
- operating range*: 100 m in the open area,
- encoding: 256 codes (automatic learning of the push button code during programming)
- possibility to program 3 push buttons for one chime
- **wireless transmitter button without any power supply (working without a battery),**
- **button adapted to variable weather conditions, resistant to water (works even after total immersion in water) and low temperatures,**
- 32 different tones and melodies to choose from
- loudness level: max. 80 dB,
- 4-level sound volume adjustment.

Technical data
Frequency: 433 MHz
Coding: 256 codes
Sound level: ok. 80 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: none
Protection: water-resistant
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 42 x 82 x 29
Weight [g]: 71
Colour: white

Technical data (DOORBELL)
Power supply: 3 x battery 1,5 V type: AA
Power consumption, stand-by: 0,7 mA, sound 53 mA
Protection level: IP 20
Operating temperature: 0°C to 35°C
Dimensions [mm]: 77 x 110 x 40
Weight [g]: 100
Colour: white + anthracite

Wireless battery-operated doorbell SOUL

ST-380

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant, hotel or in an office or for people requiring care,
- does not require doorbell installation,
- useful call optical signalling e.g. for a person who is partially deaf,
- modern and interesting design,
- doorbell and doorbell push battery-powered,
- radio transmission (frequency 433 MHz),
- operation range*: 100 m in an open area,
- coding: 6000 codes (code default setting without changing possibility),
- designed to operate in changeable weather conditions,
- 32 sounds to choose (polyphonic sounds of good quality)
- volume level: max. 75 dB,
- 3-step volume level adjustment.

Technical data
Frequency: 433 MHz
Coding: 6000 codes
Sound level: max. 75 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Protection level: IP44
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 85 x 35 x 20
Weight [g]: 136
Colour: black

Technical data (DOORBELL)
Power supply: 2x battery 1,5V, type AA
Power consumption: stand-by 0,4 mA, sound 25 mA
Protection level: IP20
Operating temperature range: 0°C ÷ 35°C
Dimensions [mm]: 94 x 128 x 33
Weight [g]: 35
Colour: black

Wireless battery-operated doorbell ZUMBA
ST-390

RANGE 150 m

Description
- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- possibility to switch the sound off – e.g., useful for parents with small children
- **3 operation modes (optical signalling only, sound only, optial signalling + sound),**
- battery-operated doorbell and push button
- radio transmission (433 MHz frequency),
- **operating range: 150 m in the open area,**
- encoding: million codes,
- possibility of programming additional buttons on your own,
- push button designed to work in variable weather conditions (IP44),
- 36 tones to chose from (polyphonic tones),
- sound level: ca. 80 dB
- 5 sound volume adjustment levels.

Technical data
Frequency: 433 MHz
Coding: million codes
Operating range*: 150 m in open areas
Optical signalling
Sound level: max. 80 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 3 V type CR2032
Operating temperature range: -20°C ÷ +35°C
Protection level: IP44
Dimensions [mm]: 32 x 80 x 13
Weight [g]: 28
Colour: black

Technical data (DOORBELL)
Power supply: 2 x battery 1.5 V type AA
Power consumption, stand-by 3 mA, sound 170 mA
Operating temperature range: 0°C ÷ 35°C
Protection level: IP20
Dimensions [mm]: 100 x 100 x 28
Weight [g]: 105
Colour: black

Wireless battery-operated doorbell CLASSIC
ST-901

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in a restaurant, hotel or in an office or for people requiring care,
- does not require doorbell installation,
- useful call optical signalling e.g. for a person who is partially deaf,
- doorbell and doorbell push battery-powered,
- radio transmission (frequency 433 MHz),
- operation range*: 100 m in an open area,
- coding: 256 codes (code default setting without changing possibility),
- designed not to operate in changeable weather conditions,
- 3 sounds and melodies to choose,
- volume level: max. 80 dB.

Technical data
Frequency: 433 MHz
Coding: 256 codes
Operation range*: 100 m in an open area
Sound: 3 melodies to choose from
Call optical signalling
Sound level: max. 80 dB
Protection level: IP20
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 84 × 42 × 17
Weight [g]: 30
Colour: white

Technical data (DOORBELL)
Power supply: 2 x battery 1,5 V, type: AAA
Power consumption: stand-by 0,4 mA, sound 75 mA
Operating temperature range: 0°C ÷ 35°C
Dimensions [mm]: 99 × 53 × 32
Weight [g]: 67
Colour: white

*   The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

exta free

exta life

supla

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Wireless battery-operated doorbell DANCE

ST-905

Description

- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- battery-operated doorbell and push button
- radio transmission (433 MHz frequency),
- operating range in open space: 150 m *
- encoding: million codes,
- possibility of programming additional buttons on your own,
- push button designed to work in variable weather conditions (IP44),
- 10 tones to chose from (polyphonic tones),
- **loudness level: max. 90 dB,**
- smooth volume adjustment.

Technical data

Frequency: 433 MHz
Operating range*: 150 m in open areas
Coding: million codes
Sound level: max. 90 dB
Protection class: III

Technical data (BELL PUSH)

Power supply: battery 3 V type CR2032,
Operating temperature range: -20°C ÷ +35°C
Protection level: IP44
Dimensions [mm]: 40 x 78 x 20
Weight [g]: 26
Colour: white

Technical data (DOORBELL)

Power supply: 3 x battery 1.5 V type AA
Power consumption, stand-by 3.5 mA, sound 170 mA
Operating temperature range: 0°C ÷ 35°C
Protection level: IP20
Dimensions [mm]: 80 x 130 x 30
Weight [g]: 123
Colour: white

LOUDNESS 90 dB

Wireless battery-operated doorbell TANGO

ST-910

Description

- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- battery-operated doorbell and push button
- radio transmission (433 MHz frequency),
- operating range: 100 m in the open area,
- encoding: 256 (factory set code, unchangeable)
- push button designed to work in variable weather conditions (IP44),
- 36 tones to chose from (polyphonic tones),
- loudness level: max. 80 dB,
- 4 sound volume adjustment levels.

Technical data

Frequency: 433 MHz
Coding: 256 codes
Sound level: max. 80 dB
Protection class: III

Technical data (BELL PUSH)

Power supply: battery 3 V type CR2032
Protection level: IP44
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 45 x 80 x 23
Weight [g]: 36
Colour: white + black

Technical data (DOORBELL)

Power supply: 3 x battery 1.5 V type AAA
Power consumption, stand-by 0,5 mA, sound 25 mA
Protection level: IP20
Operating temperature range: 0°C to 35°C
Dimensions [mm]: 58 x 100 x 27
Weight [g]: 63
Colour: white + black

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

Wireless battery-operated doorbell PICO
ST-915

Description
- perfect as a doorbell, an internal paging device or a personal alarm device
- useful at home, in a restaurant, a hotel, a company office or for people needing care,
- doorbell installation is not required,
- optical signalling useful for e.g. people with impaired hearing,
- radio transmission (433 MHz frequency),
- operating range*: 80 m in the open area,
- button permanently assigned to a given doorbell,
- push button designed to work in variable weather conditions (IP44),
- 20 different tones and melodies,
- high loudness level: max. 85 dB,
- 2-level sound volume adjustment

Technical data
Frequency: 433 MHz
Loudness level ca. 85 dB
Protection class: III

Technical data (BELL PUSH)
Power supply: 1 x battery 3 V type: CR2032
Button protection rating: IP44
Operating temperature range: -20°C ÷ +35°C
Dimensions [mm]: 34 x 79 x 20
Weight [g]: 39
Colour: black + silver

Technical data (DOORBELL)
Power supply: 2 x battery 1,5 V type: AA
Power consumption, stand-by: 0,5 mA, sound 20 mA
Protection level: IP 20
Operating temperature: 0°C ÷ 35°C
Dimensions [mm]: 75 x 118 x 35
Weight [g]: 79
Colour: black

Wireless battery-operated doorbell TWIST
ST-918

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in an office or for people requiring care,
- does not require doorbell installation,
- easy installation,
- doorbell and doorbell push battery-powered,
- radio transmission (frequency 433 MHz),
- operation range*: 80 m in an open area,
- coding: 256 codes (code default setting without changing possibility),
- designed not to operate in changeable weather conditions,
- sound: 15 melodies to choose (polyphonic sounds),
- volume level: max. 80 dB.

Technical data
Transmission: radio
Frequency: 433,92 MHz
Operation range*: 80 m in an open area
Coding: 256 codes
Sound level: max. 80 dB
Protection level: IP20
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Operating temperature range: -20°C ÷ +35°C
Weight [g]: 30
Dimensions [mm]: 80 x 40 x 17
Colour: white + blue

Technical data (DOORBELL)
Power supply: 3 x battery 1,5 V, type AA
Power consumption: stand-by 0,5 mA, sound 200 mA
Operating temperature range: 0°C ÷ +35°C
Weight [g]: 140
Dimensions [mm]: 98 x 82 x 31
Colour: white + blue

Wireless battery-operated doorbell SUITA
ST-919

Description
- ideal as a doorbell, an indoor paging device or personal alarm,
- useful at home, in an office or for people requiring care,
- does not require doorbell installation,
- easy installation,
- doorbell and doorbell push battery-powered,
- radio transmission (frequency 433 MHz),
- operation range*: 80 m in an open area,
- coding: 256 codes (code default setting without changing possibility),
- designed not to operate in changeable weather conditions,
- sound: 15 melodies to choose (polyphonic sounds),
- volume level: max. 80 dB.

Technical data
Transmission: radio
Frequency: 433,92 MHz
Operation range*: 80 m in an open area
Coding: 256 codes
Sound level: max. 80 dB
Protection level: IP20
Protection class: III

Technical data (BELL PUSH)
Power supply: battery 12 V, type 23A
Operating temperature range: -20°C ÷ +35°C
Weight [g]: 30
Dimensions [mm]: 80 x 40 x 17
Colour: white + blue

Technical data (DOORBELL)
Power supply: 3 x battery 1,5 V, type AA
Power consumption: stand-by 0,5 mA, sound 200 mA
Operating temperature range: 0°C ÷ +35°C
Weight [g]: 140
Dimensions [mm]: 79 x 116 x 32
Colour: white + blue

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* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

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Entry signalling device with wireless motion sensor
NT-320

The NT-320 kit includes a ringtone (receiver) and a wireless motion sensor (transmitter). The sounder notifies about the presence of a person in a given room (e.g. when someone enters the store) or alerts the user when unauthorised persons enter restricted areas. It is a perfect device not only for homes but also for many facilities such as stores, hotel lobbies, warehouses, offices, etc. – any place where staff may be present in a different room than the customers who have just entered. The maximum distance between the transmitter and the receiver is 100 m*. When the sensor detects motion, it sends a radio signal to the receiver. The receiver starts playing the selected sound or melody. The motion sensor has also a second operation mode, in which it operates independently, without the receiver. When the sensor detects motion, it generates a loud sound, acting as a simple mini-alarm.

Description

- ideal as a system for notifying that somebody has entered a given room e.g. in shops, warehouses etc.,
- **wireless movement sensor operating independently (independent mini-alarm function),**
- optical operation indication
- battery-powered transmitter and receiver (transmitter with optional grid power supply),
- 32 tines and melodies to chose from (in the receiver),
- loudness level: max. 85 dB in the receiver and 90 dB in the transmitter,
- 5-level sound volume adjustment in the receiver,
- operating range*: 100 m in open areas.

Technical data

Frequency: 433 MHz
Sound level: 85 dB (transmitter), 90 dB (doorbell)
Protection class: III

Technical data (TRANSMITTER)

Power supply: 3 x battery 1,5 V, type AA
Power consumption: stand-by 0,1 mA,
Transmitting: 18 mA, sound: 110 mA
Protection level: IP20
Operating temperature range: 0°C ÷ +35°C
Dimensions [mm]: 82 x 55 x 57
Weight [g]: 81
Colour: white

Technical data (DOORBELL)

Power supply: 2 x battery 1,5 V, type AA
Power consumption: stand-by 0,5 mA,
sound 40 mA
Protection level: IP20
Operating temperature range: 0°C ÷ 35°C
Dimensions [mm]: 55 x 95 x 23
Weight [g]: 48
Colour: white

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

Doorbell plate

Type:27/10 (10 doorbell pushes, illuminated),
Type: 30/10 (10 doorbell pushes, not illuminated)

Description
- 10-module-doorbell plate for surface mounting,
- possibility to switch off individual modules,
- big nameplates, which simultaneously serve as doorbell pushes,
- for mounting in low-voltage installations (up to 24 V),
- available versions: illuminated (27/10), not illuminated (30/10).

Technical data
Weight [g]: 370
Dimensions [mm]: 320 x 90 x 18
Colours: white, gray
Bulk package [pcs.]: 10

Doorbell plate

Type: 30 (not illuminated), Type: 32 (illuminated)

Description
- doorbell plate for surface mounting,
- big nameplates, which simultaneously serve as doorbell pushes,
- for mounting in low-voltage installations (up to 24 V),
- available versions: not illuminated (30), illuminated (32).

Technical data
Weight [g]: 36
Dimensions [mm]: 90 x 32 x 18
Colours: white, gray
Bulk package [pcs.]: 20

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Doorbell plate
Type: 33/1, Type: 33/2, Type: 33/3

Description
- plastic doorbell plate for surface mounting,
- big nameplates, which simultaneously serve as doorbell pushes,
- for mounting in low-voltage installations (up to 24 V),
- available versions: with 1 doorbell push (33/1), with 2 doorbell pushes (33/2), with 3 doorbell pushes (33/3).

Technical data
Weight [g]: 25 (33/1), 37 (33/2), 51 (33/3)
Dimensions [mm]: 85 x 46 x 17 (33/1),
85 x 70 x 17 (33/2), 85 x 94 x 17 (33/3)
Colours: white, brown
Bulk package [pcs.]: 20

white

brown

Doorbell plate
Type: 25

Description
- plastic doorbell plate for surface mounting,,
- nameplate,
- for mounting in low-voltage installations (up to 24 V),

Technical data
Weight [g]: 25
Dimensions [mm]: 90 x 50 x 15
Colour: white
Bulk package [pcs.]: 20

Contact switch for doors and windows
Type: 1069

Description
- contact switch for closing the respective low voltage circuit (lighting, bell) when opening doors, windows, etc.

Technical data
Weight [g]: 22
Dimensions [mm]: 90 x 30 x 30
Colour: black
Bulk package [pcs.]: 40

Doorbell transformer

Type: 70 (8 V / 1 A), Type: 71 (12 V /0,5 A), Type: 72 (12 V / 1 A)
Type: 74 (8 V / 2 A), Type: 76 (12 V / 1,5 A), Type: 78 (8 V / 1,5 A)

Description

- doorbell transformer for installation on a TH-35 rail,
- integrated thermoelement for short-circuit protection in form of a thermistor,
- sealed inner structure,
- casing height of the rail: 60 mm, width: 2 modules = 35 mm,
- clamps for surface installation included in the scope of delivery.

Technical data

Type:	70	71	72	74	76	78
Nominal supply voltage:	220 ÷ 240 V AC					
Nominal secondary voltage:	8 V AC	12 V AC	12 V AC	8 V AC	12 V AC	8 V AC
Nominal secondary current:	1 A	0,5 A	1 A	2 A	1,5 A	1,5 A
Dimensions:	90 x 35 x 60 mm					
Weight:	0,34 kg	0,33 kg	0,35 kg	0,36 kg	0,36 kg	0,35 kg

Bittorf ELEKTROTECHNIK **BiM**

Doorbell transformer, with switch

Type: 70 Sch (8 V / 1 A), Type: 71 Sch (12 V / 0,5 A), Type: 72 Sch (12 V / 1 A)
Type: 74 Sch (8 V / 2 A), Type: 76 Sch (12 V / 1,5 A), Type: 78 Sch (8 V / 1,5 A)

Description

- doorbell transformer with switch for installation on a TH-35 rail,
- integrated thermoelement for short-circuit protection in form of a thermistor,
- sealed inner structure
- casing height of the rail: 60 mm, width: 2 modules = 35 mm,
- clamps for surface installation included in the scope of delivery.

Technical data

Type:	70 Sch	71 Sch	72 Sch	74 Sch	76 Sch	78 Sch
Nominal supply voltage:	220 ÷ 240 V AC					
Nominal secondary voltage:	8 V AC	12 V AC	12 V AC	8 V AC	12 V AC	8 V AC
Nominal secondary current:	1 A	0,5 A	1 A	2 A	1,5 A	1,5 A
Dimensions:	90 x 35 x 60 mm					
Weight:	0,35 kg	0,34 kg	0,36 kg	0,37 kg	0,37 kg	0,36 kg

Bittorf ELEKTROTECHNIK **BiM**

Doorbell transformer

Type: 90 (4 V / 1 A, 6 V / 1 A, 8 V / 1 A)
Type: 94 (4 V / 1,2 A, 8 V / 1,2 A, 12 V / 0,85 A)

Description

- doorbell transformer for installation on a TH-35 rail,
- integrated thermoelement for short-circuit protection in form of a thermistor,
- sealed inner structure,
- casing height of the rail: 60 mm, width: 3 modules = 52 mm,
- clamps for surface installation included in the scope of delivery.

Technical data

Type:	90			94		
Nominal supply voltage:	220 ÷ 240 V AC					
Nominal secondary voltage:	4 V AC	6 V AC	8 V AC	4 V AC	8 V AC	12 V AC
Nominal secondary current:	1 A	1 A	1 A	1,2 A	1,2 A	0,85 A
Dimensions:	108 x 52 x 60 mm					
Weight:	0,570 kg			0,575 kg		

Bittorf ELEKTROTECHNIK **BiM**

Doorbell transformer, with switch

Type: 90 Sch (4 V, 6 V, 8 V / 1 A)
Type: 94 Sch (4 V / 1,2 A, 8 V / 1,2 A, 12 V / 0,85 A)

Description

- doorbell transformer with switch for installation on a TH-35 rail,
- integrated thermoelement for short-circuit protection in form of a thermistor,
- sealed inner structure
- casing height of the rail: 60 mm, width: 3 modules = 52 mm,
- clamps for surface installation included in the scope of delivery.

Technical data

Type:	90 Sch			94 Sch		
Nominal supply voltage:	220 ÷ 240 V AC					
Nominal secondary voltage:	4 V AC	6 V AC	8 V AC	4 V AC	8 V AC	12 V AC
Nominal secondary current:	1 A	1 A	1 A	1,2 A	1,2 A	0,85 A
Dimensions:	108 x 52 x 60 mm					
Weight:	0,580 kg			0,585 kg		

Bittorf ELEKTROTECHNIK **BiM**

Doorbell transformer
Type: 46 (12 V / 2 A)

Doorbell transformer, with switch
Type: 46 Sch (12 V / 2 A)

Bittorf BiM
ELEKTROTECHNIK

Description
• doorbell transformer with switch for installation on a TH-35 rail,
• integrated thermoelement for short-circuit protection in form of a thermistor,
• sealed inner structure
• casing height of the rail: 60 mm, width: 3 modules = 52 mm,
• clamps for surface installation included in the scope of delivery.

Technical data

Type:	46	46 Sch
Nominal supply voltage:	220 ÷ 240 V AC	
Nominal secondary voltage:	12 V AC	
Nominal secondary current:	2 A	
Dimensions:	108 x 52 x 60 mm	
Weight:	0,570 kg	0,575 kg

Doorbell transformer
Type: 114 (4 V, 6 V, 8 V / 0,5 A)

Description
• doorbell transformer with surface-mounted plastic casing.

Technical data

Type:	114		
Nominal supply voltage:	230 V AC		
Nominal secondary voltage:	4 V AC	6 V AC	8 V AC
Nominal secondary current:	0,5 A		
Dimensions:	117 x 62 x 36 mm		
Weight:	0,420 kg		

Bittorf BiM
ELEKTROTECHNIK

Doorbell transformer
Type: 3548 (4 V / 1 A, 8 V / 1 A, 12 V / 0,63 A)

Description
• doorbell transformer with flush-mounted plastic casing
and enclosed junction box ø 80 mm.

Technical data

Type:	3548		
Nominal supply voltage:	230 V AC		
Nominal secondary voltage:	4 V AC	8 V AC	12 V AC
Nominal secondary current:	1 A	1 A	0,63 A
Dimensions:	100 x 100 x 60 mm		
Weight:	0,655 kg		

Bittorf BiM
ELEKTROTECHNIK

Transformer

Type: 8010 (3 V, 5 V, 8 V / 2 A), Type: 8012 (4 V, 8 V, 12 V / 2 A)
Type: 8013 (8 V, 14 V, 20 V / 2 A), Type: 8024 (8 V, 16 V, 24 V / 2 A)

Description

• transformer with surface-mounted plastic casing.

Technical data

Type:	8010			8012			8013			8024		
Nominal supply voltage:	220 ÷ 240 V AC											
Nominal secondary voltage [V AC]:	3	5	8	4	8	12	8	14	20	8	16	24
Nominal secondary current: 2 A	2 A											
Dimensions:	120 x 70 x 55 mm											
Weight:	0,830 kg						0,910 kg			0,910 kg		

Bittorf **BiM**
ELEKTROTECHNIK

Transformer

Type: 8015 (4 V, 6 V, 8 V / 0,7 A)
Type: 8016 (4 V, 6 V, 8 V / 0,7 A)

Description

• transformer with surface-mounted plastic casing for short-term loads.

Technical data

Type:	8015			8016		
Nominal supply voltage:	110 ÷ 130 V AC			220 ÷ 240 V AC		
Nominal secondary voltage:	4 V AC	6 V AC	8 V AC	4 V AC	6 V AC	8 V AC
Nominal secondary current:	0,7 A					
Dimensions:	78 x 50 x 32 mm					
Weight:	0,240 kg					

Bittorf **BiM**
ELEKTROTECHNIK

Transformer

Type: 8017 (4 V, 6 V, 8 V / 1 A)
Type: 8018 (4 V, 6 V, 8 V / 1 A)

Description

• transformer with surface-mounted plastic casing for short-term loads.

Technical data

Type:	8017			8018		
Nominal supply voltage:	110 ÷ 130 V AC			220 ÷ 240 V AC		
Nominal secondary voltage:	4 V AC	6 V AC	8 V AC	4 V AC	6 V AC	8 V AC
Nominal secondary current:	1 A					
Dimensions:	97 x 60 x 32 mm					
Weight:	0,260 kg					

Bittorf **BiM**
ELEKTROTECHNIK

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Cables
CET

Thirty years' experience in research and production of cables has allowed ZAMEL to offer a wide range of cables and wires for electrotechnical purposes. CET cables and wires guarantee highest quality, reasonable prices, and quick order delivery. ZAMEL offers concentric cables, data cables, indoor and workshop cables, link and single wire installation cables, speaker and microphone cables, CETRONIC control cables, and telecommunication and signalling cables. CET cables include also connection cables with a manual or foot connector, and even foot connectors with a dimmer and presence simulation. ZAMEL also offers gel filled cables which are resistant to adverse weather conditions, in particular humidity, and which can be effectively used in outdoor installations, both on- and under-ground.

Coaxial cables for TV aerials

RG 59-B/U coaxial cable

Symbol	Diameter of the main lead / cable core	Main lead section	Screen structure	Approximate outer diameter	Norm
RG 59-B/U	0,59/3,7 mm	0,27 mm²	oplot Cu 90%	5,64	MIL-C-17/29C

Available insulation colour: white, black*.

Confection: • standard: 100 m (reel),

        • individual*: 200 m, 500 m, 1000 m (reel, spool),

        • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices

Description

Coaxial cable with copper main lead, single wire, lead insulation: physically foamed polyethylene, outer coating: white polyvinyl chloride. Single screen made of copper braiding with an opacity of 90%.

Application

Wires used for TV aerials, satellite TV, computer networks. Indoor installations. Recommended for TV installations used to receive UHD (4K) resolution shows.

KRO	Product offered in short sections 50 m, 75 m with a tolerance of +5 m at special prices.
≥100	Availability in reels of cable lengths longer than 100 m.
	Availability on non-returnable reels.
	Availability on returnable cable reels.
305 m	Availability in cardboard packagings of 305 m.
CPR	CPR - kabel zgodny z normami CPR.
RoHS	RoHS - cable compliant with the RoHS Directives.
REACH	RoHS - cable compliant with the RoHS directives.

UV	UV - UV-resistant cable.
CE	CE - cable meeting the EU directives.
	Cable for outdoor use.
HF	HF - cable in halogen-free coating.
	Cable for laying in the ground.
	Does not spread fire.
	Moisture-resistant.

CESAT - coaxial wires for installation indoors

YWDXpek standard and TRISET coaxial wires

Symbol	Main lead / cable core diameter	Main lead section	Screen structure	Approximate outer diameter	Norm
CESAT YWDXpek 75 1,0/4,8 (33 CuSn)	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,82 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT YWDXpek 75 1,0/4,8 (77 CuSn)	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 77% braiding	6,82 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT YWDXpek 75 1,13/4,8 (33 CuSn) Triset	1,13 / 4,8 mm	1,00 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,88 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT YWDXpek 75 1,13/4,8 (77 CuSn) Triset	1,13 / 4,8 mm	1,00 mm²	Tinfoil/PET foil 100% + CuSn 77% braiding	6,90 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT YWDXpek 75 1,15/5,0 (33 CuSn)	1,15 / 5,0 mm	1,04 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,96 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008

Available insulation colour: white, black**.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 500 m, 1000 m (reel, spool),

• KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Coaxial cable with copper main lead, single wire, lead insulation: physically foamed polyethylene, outer coating: white polyvinyl chloride. Double screen made of tinfoil covering 100% of the core plus copper braiding, tinned with an opacity of 33% or 77%.

Application

Wires used for TV aerials, satellite TV, cable TV, computer networks. For indoor installation. Recommended for TV installations used to receive UHD (4K) resolution shows.

TRISHIELD YWDXpek coaxial wires

Symbol	Main lead / cable core diameter	Main lead section	Screen structure	Approximate outer diameter	Norm
CESAT YWDXpek 75 1,0/4,8 (33 CuSn) Trishield	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding + tinfoil/PET foil 100%	6,88 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT YWDXpek 75 1,0/4,8 (77 CuSn) Trishield	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 77% braiding + tinfoil/PET foil 100%	6,88 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008

Available insulation colour: white, black**.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 500 m, 1000 m (reel, spool),

• KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Coaxial cable with copper main lead, single wire, lead insulation: physically foamed polyethylene, outer coating: white polyvinyl chloride. Triple screen made of tinfoil, covering 100% of the core plus copper braiding, tinned with an opacity of 33% or 77% plus tinfoil covering 100% of the core.

Application

Wires used for TV aerials, satellite TV, cable TV, computer networks. Indoor installations. Recommended for TV installations used to receive UHD (4K) resolution shows.

* Individually prepared production on customer's request.

** Individual order with specified production minimum.

Halogen-free HWDXpek coaxial wires

Symbol	Main lead / cable core diameter	Main lead section	Screen structure	Approximate outer diameter	Norm
CESAT HWDXpek 75 1,0/4,8 (33 CuSn)	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + + CuSn 33% braiding	6,72 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT HWDXpek 75 1,0/4,8 (77 CuSn)	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + + CuSn 77% braiding	6,72 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT HWDXpek 75 1,13/4,8 (33 CuSn) Triset	1,13 / 4,8 mm	1,00 mm²	Tinfoil/PET foil 100% + + CuSn 33% braiding	6,88 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT HWDXpek 75 1,15/5,0 (33 CuSn)	1,15 / 5,0 mm	1,04 mm²	Tinfoil/PET foil 100% + + CuSn 33% braiding	6,86 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008

Available insulation colour: white.

Confection: • standard: 100 m (reel),
 • individual*: 200 m, 500 m, 1000 m (reel, spool),
 • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Halogen-free coaxial cable with copper main lead, single wire, lead insulation: physically foamed polyethylene, outer coating: white polyvinyl chloride. Double screen made of tinfoil, covering 100% of the core plus copper braiding, tinned with an opacity of 33% or 77%. The halogen-free coating prevents the release of toxic and harmful gases released in reaction to fire. The polymers it contains also limit combustion.

Application

Wires used for TV aerials, satellite TV, cable TV, computer networks. Indoor installations. Recommended for TV installations used to receive UHD (4K) resolution shows.

Halogen-free TRISHIELD HWDXpek coaxial wires

Symbol	Main lead / cable core diameter	Main lead section	Screen structure	Approximate outer diameter	Norm
CESAT HWDXpek 75 1,0/4,8 (33 CuSn) Trishield	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding + tinfoil/PET foil 100%	6,78 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT HWDXpek 75 1,0/4,8 (77 CuSn) Trishield	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 77% braiding + tinfoil/PET foil 100%	6,78 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008

Available insulation colour: white.

Confection: • standard: 100 m (reel),
 • individual*: 200 m, 500 m, 1000 m (reel, spool),
 • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Coaxial cable with copper main lead, single wire, lead insulation: physically foamed polyethylene, outer coating: white polyvinyl chloride. Triple screen made of tinfoil, covering 100% of the core plus copper braiding, tinned with an opacity of 33% or 77% plus tinfoil covering 100% of the core. The halogen-free coating prevents the release of toxic and harmful gases released in reaction to fire. The polymers it contains also limit combustion.

Application

Wires used for TV aerials, satellite TV, cable TV, computer networks. Indoor installations. Recommended for TV installations used to receive UHD (4K) resolution shows.

CESAT - coaxial wires for outdoor installation and laying in the ground

XWDXpek coaxial wire (outdoor installations)

Symbol	Main lead / cable core diameter	Main lead section	Screen structure	Approximate outer diameter	Norm
CESAT XWDXpek 75 1,0/4,8 (33 CuSn); black UV	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,82 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008

Available insulation colour: black.

Confection: • standard: 100 m (reel),
        • individual*: 200 m, 500 m, 1000 m (reel, spool),
        • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.
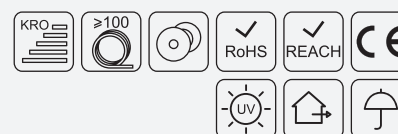
Description
Coaxial cable with copper main lead, single wire, lead insulation: physically foamed polyethylene, outer coating: UV-resistant black polyvinyl chloride. Double screen made of tinfoil, covering 100% of the core plus copper braiding, tinned with an opacity of 33%. The XWDXpek version has black polyethylene coating, resistant to UV and adverse atmospheric conditions.

Application
Wires used for TV aerials, satellite TV, cable TV, computer networks. For indoor installation. Recommended for TV installations used to receive UHD (4K) resolution shows.

XzWDXpekw coaxial wire (for laying in the ground)

Symbol	Main lead / cable core diameter	Main lead section	Screen structure	Approximate outer diameter	Norm
CESAT XzWDXpekw 75 1,0/4,8 (33 CuSn); black UV;	1,0 / 4,8 mm	0,78 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,82 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT XzWDXpekw 75 1,13/4,8 (33 CuSn); black UV;	1,13 / 4,8 mm	1,00 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,82 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008

Available insulation colour: black.

Confection: • standard: 500 m, 1000 m (spool),
        • individual*: 100 m, 150 m, 200 m (reel),
        • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.
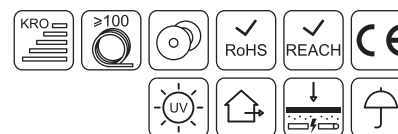
Description
Coaxial cable with copper main lead, single wire, lead insulation: physically foamed polyethylene, outer coating: UV-resistant black polyvinyl chloride. Double screen made of tinfoil, covering 100% of the core plus copper braiding, tinned with an opacity of 33%. The XzWDXpekw version has gel filling that absorbs the moisture from the cable's surroundings.

Application
Wires used for TV aerials, satellite TV, cable TV, computer networks. For indoor installation. The XzWDXpekw version is meant for laying directly in the ground. Recommended for TV installations used to receive UHD (4K) resolution shows.

*   Individually prepared production on customer's request.

** Individual order with specified production minimum.

exta free
exta life
supla
exta
ledix
konekto
sundi
cet
matec
entra
etero
gardi
ynsta
expo

CESAT - Wires for industrial TVs (video surveillance)

Symbol	Main lead / cable core diameter + diameters of power leads	Main lead section	Screen structure	Approximate outer diameter, coaxial / powering part	Norm
CESAT YWDXpek 75 1,0/4,8 + OMY 2x1,0	1,0 / 4,8 mm + 2x2,24 mm	0,78 mm² + 2 x 1,0 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,52 mm / 5,64 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
YWDek 75 0,59/3,7 + OMY 2x0,5	0,59 / 3,7 mm + 2x1,86 mm	0,27 mm² + 2 x 0,59 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,12 mm / 4,89 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
CESAT YWDXpek 75 1,0/4,8 + OMY 2x1,0; black UV	1,0 / 4,8 mm + 2x2,24 mm	0,78 mm² + 2 x 1,0 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,52 mm / 5,64 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008
YWDek 75 0,59/3,7 + OMY 2x0,5; black UV	0,59 / 3,7 mm + 2x1,86 mm	0,27 mm² + 2 x 0,59 mm²	Tinfoil/PET foil 100% + CuSn 33% braiding	6,12 mm / 4,89 mm	PN-EN 50117 PN-EN 60728-4:2008 PN-EN 50083:2008

Available insulation colour: white.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 500 m, 1000 m (reel, spool),

Description

Coaxial wire mechanically connected to the power wire. The concentric wire has a single-wire copper main lead; lead insulation: physically foamed polyethylene; outer insulation: white polyvinyl chloride. Double screen made of tinfoil, covering 100% of the core plus copper braiding, tinned with an opacity of 33%. Powering part made of an OMY 2x0,5 wire with multi-wire leads. The YWDek and YWDXpek versions are also made with black, UV-resistant PVC coating.

Application

For use in industrial TV, video surveillance, etc. The white YWDek and YWDXpek versions are recommended for indoor use. The black YWDek and YWDXpek versions are recommended for outdoor use.

Unshielded data cables

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
UTP kat. 5e 4x2x0,50	4x2x0,5 mm	0,20 mm²	5,17 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: grey.

Confection: • standard: 100 m (reel), 305 m (cardboard packaging),
 • individual*: 500 m, 1000 m, (reel, spool),
 • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Solid copper conductor with pair twisted strands of 0,5 mm diameter each. Conductors' insulation made of polyethylene. The outer sheath made of PVC (grey). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 125 MHz frequency.

Application

The cables are used for connection of telephone, transmission and data processing devices. Data communication networks (structural indoor). Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
UTP kat. 5e 4x2x0,5 LSOH	4x2x0,5 mm	0,20 mm²	5,17 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: grey.

Confection: • standard: 100 m (reel), 305 m (cardboard packaging),
 • individual*: 500 m, 1000 m, (reel, spool),
 • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Solid copper conductor with pair twisted strands of 0,5 mm diameter each. Conductors' insulation is made of polyethylene. The outer sheath is made of PVC (grey) - halogen-free insulation. Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 125 MHz frequency.

Application

The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural indoor). Places with increased fire risk and fire protection installations. Conformity with RoHS, REACH.

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
UTPw kat. 5e 4x2x0,50	4x2x0,5 mm	0,20 mm²	6,44 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: black.

Confection: • standard: 100 m (reel),
 • individual*: 305 m, 500 m, 1000 m, (reel, spool),
 • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.
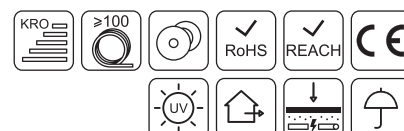
Description

Copper conductors with pair twisted strands of 0,5 mm diameter each. Conductors' insulation is made of polyethylene. The stranding element is filled with sealing gel. The outer sheath is made polyethylene (black). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 125 MHz frequency.

Application

The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural indoor). Places with increased humidity. It can be placed in the ground. Conformity with RoHS, REACH.

* Individually prepared production on customer's request.

** Individual order with specified production minimum.

Unshielded data cables

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
UTP kat. 6 4x2x0,6	4x2x0,6 mm	0,28 mm²	6,7 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: grey.

Confection: • standard: 100 m (reel), 305 m (cardboard packaging),
               • individual*: 500 m, 1000 m (reel, spool),
               • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Single copper conductors with pair twisted strands of 0,6 mm diameter each. Stranding element – PVC rosette separating pair twisted strands. Conductors' insulation is made of polyethylene. The outer sheath is made of PVC (grey). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 250 MHz frequency.

Application

The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural indoor). Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
UTP kat. 6 4x2x0,6 LSOH	4x2x0,6 mm	0,28 mm²	6,7 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: grey.

Confection: • standard: 100 m, 305 m, 500 m, 1000 m (reel, spool, cardboard packaging),
               • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Solid copper conductors with pair twisted strands of 0,6 mm diameter each.

Conductors' insulation is made of polyethylene. The outer sheath is made of PVC (grey) - halogen-free insulation. Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 250 MHz frequency.

Application

The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural indoor). Places with increased fire risk and fire protection installations. Conformity with RoHS, REACH.

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
UTPz kat. 5e 4x2x0,5	4x2x0,5 mm	0,20 mm²	6,00 mm	100 Ω	500 MΩ/km	EN 50173-1

Available insulation colour: black.

Konfekcja: • standard: 100 m, 500 m, 1000 m (reel, spool),
              • individual*: 305 m (reel).

Description

Solid copper conductor with pair twisted strands of 0,5 mm diameter each. Conductors' insulation made of polyethylene. The outer sheath made of polyethylene (black). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, black / black-white. The cable transfers a signal on 125 MHz frequency. The outer sheath is made of PVC resistant to UV radiation, weather conditions.

Application

The cables are used for connection of telephone and transmission devices and data processing. Data communication networks. Exterior application. Conformity with RoHS, REACH.

Shielded data cables

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
FTP kat. 5e 4x2x0,50	4x2x0,5 mm	0,20 mm²	6,1 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: grey.

Confection: • standard: 100 m (reel), 305 m (cardboard packaging),
  • individual*: 500 m, 1000 m (reel, spool),
  • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description
Solid copper conductors with pair twisted strands of 0,5 mm diameter each. The shield common for all pair twisted strands is made of AL/PET foil. Conductors' insulation is made of polyethylene. The outer sheath is made of PVC (grey). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 125 MHz frequency.

Application
The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural indoor). Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
FTP kat. 5e 4x2x0,5 LSOH	4x2x0,5 mm	0,20 mm²	6,1 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: grey.

Confection: • standard: 100 m, 305 m, 500 m, 1000 m (reel, spool, cardboard packaging),
  • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description
Solid copper conductors with pair twisted strands of 0,5 mm diameter each.

The shield common for all pair twisted strands is made of AL/PET foil. Conductors' insulation is made of polyethylene. The outer sheath is made of PVC (grey) - halogen-free insulation. Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 250 MHz frequency.

Application
The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural indoor). Places with increased fire risk and fire protection installations. Conformity with RoHS, REACH.

* Individually prepared production on customer's request.

** Individual order with specified production minimum.

Shielded data cables

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
FTP kat. 6 4x2x0,6	4x2x0,6 mm	0,28 mm²	6,7 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: grey.
Confection: • standard: 100 m (reel), 305 m (cardboard packaging),
            • individual*: 500 m, 1000 m (reel, spool),
            • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description
Solid copper conductors with pair twisted strands of 0,6 mm diameter each. The shield common for all pair twisted strands is made of AL/PET foil. Conductors' insulation is made of polyethylene. The outer sheath is made of PVC (grey). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 250 MHz frequency.

Application
The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural indoor). Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
FTPw kat. 5e 4x2x0,50	4x2x0,5 mm	0,20 mm²	7,08 mm	100 Ω	500 MΩ/km	ISO/IEC 11801:2000

Available insulation colour: black.
Confection: • standard: 100 m, 305 m, 500 m, 1000 m (reel, spool, cardboard packaging),
            • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description
Solid copper conductors with pair twisted strands of 0,5 mm diameter each.
The shield common for all pair twisted strands is made of AL/PET foil. The stranding element is filled with sealing gel. Conductors' insulation is made of polyethylene. The outer sheath is made of polyethylene (black). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 125 MHz frequency.

Application
The cables are used for connection of telephone and transmission devices and data processing. Data communication networks (structural outdoor). Places with increased humidity. It can be placed in the ground. Conformity with RoHS, REACH.

Symbol	Conductor's structure	Conductor cross-section	Outer wire diameter	Impedance	Insulation resistance	Reference standard
FTPz kat. 5e 4x2x0,5	4x2x0,5 mm	0,20 mm²	6,1 mm	100 Ω	500 MΩ/km	EN 50173-1

Available insulation colour: black.
Confection: • standard: 100 m, 500 m, 1000 m (reel, spool),
            • individual*: 305 m (reel).
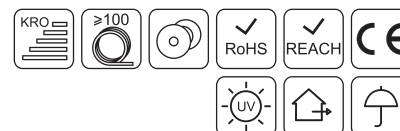
Description
Solid copper conductors with pair twisted strands of 0,5 mm diameter each.
The shield common for all pair twisted strands is made of AL/PET foil. Conductors' insulation is made of polyethylene. The outer sheath is made of polyethylene (grey). Conductors' colours: green / green-white, orange / orange-white, blue / blue-white, brown / brown-white. The cable transfers a signal on 125 MHz frequency. The outer sheath is made of PVC resistant to UV radiation, weather conditions. The shield common for all pair twisted strands is made of AL/PET foil.

Application
The cables are used for connection of telephone and transmission devices and data processing. Data communication networks. Exterior application. Conformity with RoHS, REACH.

* Individually prepared production on customer's request.

exta free

exta life

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Telecommunication cables unshielded

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YTKSY 1x2x0,50	1x2x0,5 mm	0,82 mm	3,09 mm	500 MΩ/km	T-90320:1992
YTKSY 1x4x0,50	1x4x0,5 mm	0,82 mm	3,43 mm	500 MΩ/km	T-90320:1992
YTKSY 2x2x0,50	2x2x0,5 mm	0,82 mm	4,23 mm	500 MΩ/km	T-90320:1992
YTKSY 3x2x0,50	3x2x0,5 mm	0,82 mm	4,44 mm	500 MΩ/km	T-90320:1992
YTKSY 4x2x0,50	4x2x0,5 mm	0,82 mm	4,81 mm	500 MΩ/km	T-90320:1992
YTKSY 5x2x0,50	5x2x0,5 mm	0,82 mm	5,38 mm	500 MΩ/km	T-90320:1992
YTKSY 6x2x0,50	6x2x0,5 mm	0,82 mm	5,82 mm	500 MΩ/km	T-90320:1992
YTKSY 7x2x0,50	7x2x0,5 mm	0,82 mm	5,82 mm	500 MΩ/km	T-90320:1992
YTKSY 10x2x0,50	10x2x0,5 mm	0,82 mm	8,1 mm	500 MΩ/km	T-90320:1992

Available insulation colour: white.

Confection: • standard: 100 m (reel),
    • individual*: 200 m, 500 m, 1000 m (reel, spool),
    • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Telecommunication cable – station with solid copper conductors. Pair twisted conductors. Conductors' insulation and outer sheath made of polyvinyl chloride.

Application

The cables are used for connection of telephone and transmission devices and data processing. Application: indoor. Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YTKSY 1x2x0,80	1x2x0,8 mm	1,39 mm	4,05 mm	500 MΩ/km	T-90320:1992
YTKSY 2x2x0,80	2x2x0,8 mm	1,39 mm	6,03 mm	500 MΩ/km	T-90320:1992
YTKSY 3x2x0,80	3x2x0,8 mm	1,39 mm	6,55 mm	500 MΩ/km	T-90320:1992
YTKSY 5x2x0,80	5x2x0,8 mm	1,39 mm	8,16 mm	500 MΩ/km	T-90320:1992

Available insulation colour: white.

Confection: • standard: 100 m (reel),
    • individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Telecommunication cable – station with solid copper conductors. Pair twisted conductors. Conductors' insulation and outer sheath made of polyvinyl chloride.

Application

The cables are used for connection of telephone and transmission devices and data processing. Application: indoor. Conformity with RoHS, REACH. CPR class: Eca.

Telecommunication cables shielded

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YTKSYekw 1x2x0,50	1x2x0,5 mm	0,82 mm	3,41 mm	500 MΩ/km	T-90320:1992
YTKSYekw 1x4x0,50	1x4x0,5 mm	0,82 mm	3,75 mm	500 MΩ/km	T-90320:1992
YTKSYekw 2x2x0,50	2x2x0,5 mm	0,82 mm	4,55 mm	500 MΩ/km	T-90320:1992
YTKSYekw 3x2x0,50	3x2x0,5 mm	0,82 mm	4,76 mm	500 MΩ/km	T-90320:1992
YTKSYekw 4x2x0,50	4x2x0,5 mm	0,82 mm	5,13 mm	500 MΩ/km	T-90320:1992
YTKSYekw 5x2x0,50	5x2x0,5 mm	0,82 mm	5,8 mm	500 MΩ/km	T-90320:1992
YTKSYekw 6x2x0,50	6x2x0,5 mm	0,82 mm	6,25 mm	500 MΩ/km	T-90320:1992
YTKSYekw 7x2x0,50	7x2x0,5 mm	0,82 mm	6,25 mm	500 MΩ/km	T-90320:1992
YTKSYekw 10x2x0,50	10x2x0,5 mm	0,82 mm	8,52 mm	500 MΩ/km	T-90320:1992

Available insulation colour: white.

Confection: • standard: 100 m (reel),
               • individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Telecommunication cable – station with solid copper conductors. The shield common for all pair twisted strands is made of AL/PET foil. Shield coverage degree 100%. Pair twisted conductors. Conductors' insulation and outer sheath made of polyvinyl chloride.

Application

The cables are used for connection of telephone and transmission devices and data processing. In installations exposed to electromagnetic disturbances. Application: indoor. Conformity with RoHS, REACH. CPR class: Eca.
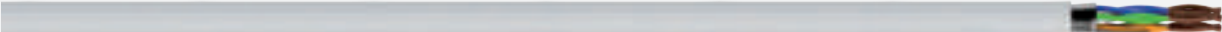
Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YTKSYekw 1x2x0,80	1x2x0,8 mm	1,39 mm	5,13 mm	500 MΩ/km	T-90320:1992
YTKSYekw 2x2x0,80	2x2x0,8 mm	1,39 mm	6,53 mm	500 MΩ/km	T-90320:1992
YTKSYekw 3x2x0,80	3x2x0,8 mm	1,39 mm	7,05 mm	500 MΩ/km	T-90320:1992
YTKSYekw 5x2x0,80	5x2x0,8 mm	1,39 mm	8,25 mm	500 MΩ/km	T-90320:1992

Available insulation colour: white.

Confection: • standard: 100 m (reel),
               • individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Telecommunication cable – station with solid copper conductors. Pair twisted conductors. The shield common for all pair twisted strands is made of AL/PET foil. Shield coverage degree 100%. Conductors' insulation and outer sheath made of polyvinyl chloride.

Application

The cables are used for connection of telephone and transmission devices and data processing. In installations exposed to electromagnetic disturbances. Application: indoor. Conformity with RoHS, REACH. CPR class: Eca.

Unshielded, flame retardant coating telecommunication cables

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YnTKSY 1x4x0,50	1x4x0,5 mm	0,82 mm	2,89 mm	500 MΩ/km	T-90320:1992
YnTKSY 1x2x0,80	1x2x0,8 mm	1,39 mm	4,05 mm	500 MΩ/km	T-90320:1992
YnTKSY 1x4x0,80	1x4x0,8 mm	1,39 mm	4,62 mm	500 MΩ/km	T-90320:1992
YnTKSY 2x2x0,80	2x2x0,8 mm	1,39 mm	6,00 mm	500 MΩ/km	T-90320:1992
YnTKSY 3x2x0,80	3x2x0,8 mm	1,39 mm	6,55 mm	500 MΩ/km	T-90320:1992
YnTKSY 4x2x0,80	4x2x0,8 mm	1,39 mm	7,18 mm	500 MΩ/km	T-90320:1992
YnTKSY 1x2x1,00	1x2x1,0 mm	1,60 mm	4,45 mm	500 MΩ/km	T-90320:1992

Available insulation colour: red.

Confection: • standard: 100 m (reel),

　　　　　　• individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Telecommunication cable – station with solid copper conductors. Pair twisted conductors. Conductors' insulation and outer sheath made of polyvinyl chloride with increased oxygen index in red. Feature: flame retardant.

Application

The cables are used for connection of telephone and transmission devices and data processing. In installations exposed to electromagnetic disturbances. The cable is not designed for fire protection installations. Conformity with RoHS, REACH.

Shielded, flame retardant coating telecommunication cables

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YnTKSYekw 1x4x0,50	1x4x0,5 mm	0,82 mm	3,78 mm	500 MΩ/km	T-90320:1992
YnTKSYekw 1x2x0,80	1x2x0,8 mm	1,39 mm	4,59 mm	500 MΩ/km	T-90320:1992
YnTKSYekw 2x2x0,80	2x2x0,8 mm	1,39 mm	6,53 mm	500 MΩ/km	T-90320:1992
YnTKSYekw 3x2x0,80	3x2x0,8 mm	1,39 mm	7,27 mm	500 MΩ/km	T-90320:1992
YnTKSYekw 4x2x0,80	4x2x0,8 mm	1,39 mm	7,9 mm	500 MΩ/km	T-90320:1992
YnTKSYekw 1x2x1,00	1x2x1,0 mm	1,60 mm	5,4 mm	500 MΩ/km	T-90320:1992

Available insulation colour: red.

Confection: • standard: 100 m (reel),

　　　　　　• individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Telecommunication cable – station with solid copper conductors. Pair twisted conductors. The shield common for all pair twisted strands is made of AL/PET foil. Shield coverage degree 100%. Conductors' insulation and outer sheath made of polyvinyl chloride with increased oxygen index in red. Feature: flame retardant.

Application

The cables are used for connection of telephone and transmission devices and data processing. In installations exposed to electromagnetic disturbances. The cable is not designed for fire protection installations. Conformity with RoHS, REACH.

*　Individually prepared production on customer's request.

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Telecommunication installation cables with solid, unshielded conductors

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YTDY 2x0,50	2x0,5 mm	0,82 mm	2,73 mm	200 MΩ/km	IEC 60 189-1
YTDY 4x0,50	4x0,5 mm	0,82 mm	3,07 mm	200 MΩ/km	IEC 60 189-1
YTDY 6x0,50	6x0,5 mm	0,82 mm	3,55 mm	200 MΩ/km	IEC 60 189-1
YTDY 7x0,50	7x0,5 mm	0,82 mm	3,55 mm	200 MΩ/km	IEC 60 189-1
YTDY 8x0,50	8x0,5 mm	0,82 mm	3,79 mm	200 MΩ/km	IEC 60 189-1
YTDY 10x0,50	10x0,5 mm	0,82 mm	4,46 mm	200 MΩ/km	IEC 60 189-1
YTDY 12x0,50	12x0,5 mm	0,82 mm	4,59 mm	200 MΩ/km	IEC 60 189-1

Available insulation colour: white.

Confection: • standard: 100 m (reel),

　　　　　　• individual*: 200 m, 500 m, 1000 m (reel, spool),

　　　　　　• KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Telecommunication installation cable. Conductors' structure: solid copper conductor. Conductor's internal insulation and outer sheath made of polyvinyl chloride.

Application

Cable used for permanent, internal connections in telecommunication and electronic devices. Alarm and door entry system installations. Conformity with RoHS, REACH. CPR class: Eca.

Telecommunication installation cables with solid, shielded conductors

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YTDYekw 4x0,50	4x0,5 mm	0,82 mm	3,87 mm	200 MΩ/km	IEC 60 189-1
YTDYekw 6x0,50	6x0,5 mm	0,82 mm	4,35 mm	200 MΩ/km	IEC 60 189-1
YTDYekw 8x0,50	8x0,5 mm	0,82 mm	4,6 mm	200 MΩ/km	IEC 60 189-1
YTDYekw 10x0,50	10x0,5 mm	0,82 mm	5,17 mm	200 MΩ/km	IEC 60 189-1

Available insulation colour: white.

Confection: • standard: 100 m (reel),

　　　　　　• individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Telecommunication installation cable. Conductors' structure: solid copper conductor. The shield common for all pair twisted strands is made of AL/PET foil. Shield coverage degree 100%. Conductors' internal insulation and outer sheath made of polyvinyl chloride.

Application

Cable used for permanent, internal connections in telecommunication and electronic devices. In installations exposed to electromagnetic disturbances. Alarm and door entry system installations. Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
TDY 1x0,50**	1x0,5 mm	0,82 mm	0,98 mm	200 MΩ/km	IEC 60 189-1

Available insulation colour: brown, white, black, blue, green***.

Confection: • standard: 100 m (reel),

　　　　　　• individual*: 1000 m, 1500 m (reel, spool).

Description

Telecommunication installation solid conductor cable. Conductor's structure: solid copper conductor. Outer sheath made of polyvinyl chloride.

Application

Cable used for permanent, internal connections in telecommunication and electronic devices. Conformity with RoHS, REACH. CPR class: Eca.

Telecommunication installation cables with multi-stranded conductors

Symbol	Conductor's structure	Outer wire diameter	Insulation resistance	Reference standard
YTLY 2x0,15	2x0,15 mm²	3,18 mm	200 MΩ/km	IEC 60 189-1

Available insulation colour: white

Confection: • standard: 100 m (reel),
• individual*: 200 m, 500 m, 1000 m (reel, spool)

Description

Telecommunication installation double wire conductor cable. Conductor's structure: stranded copper wire. Inner and outer sheath made of polyvinyl chloride.

Application

Cable used for permanent, internal connections in telecommunication and electronic devices. Conformity with RoHS, REACH.

* Individually prepared production on customer's request.

** Individual order with specified production minimum.

*** Possible different insulation colour on customer's request based on a preceded order with specified production minimum.

Loudspeaker cables

Symbol	Supply voltage	Conductor's structure	Outer wire diameter	Insulation resistance	Reference standard
TLYp 2x0,35**	50 V	2x0,35 mm²	1,97 x 3,93 mm	500 MΩ/km	ZN-CET-8/05
TLYp 2x0,50	50 V	2x0,5 mm²	2,08 x 4,15 mm	500 MΩ/km	ZN-CET-8/05
TLYp 2x0,75	50 V	2x0,75 mm²	2,32 x 4,64 mm	500 MΩ/km	ZN-CET-8/05
TLYp 2x1,00	50 V	2x1,0 mm²	2,60 x 5,20 mm	500 MΩ/km	ZN-CET-8/05

Available insulation colour: white, black.

Confection: • standard: 100 m (reel),

   • individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Loudspeaker cable with multi-stranded copper conductors. Insulation made of polyvinyl chloride. Flat cross-section. One wire marked with a red stripe.

Application

Cable used for connection between amplifiers and loudspeakers. Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Supply voltage	Conductor's structure	Outer wire diameter	Insulation resistance	Reference standard
TLgYp 2x0,75	50 V	2x0,75 mm²	2,42 x 4,84 mm	500 MΩ/km	ZN-CET-8/05
TLgYp 2x1,00	50 V	2x1,0 mm²	2,84 x 5,68 mm	500 MΩ/km	ZN-CET-8/05
TLgYp 2x1,50	50 V	2x1,5 mm²	3,13 x 6,26 mm	500 MΩ/km	ZN-CET-8/05
TLgYp 2x2,50	50 V	2x2,5 mm²	3,57 x 7,14 mm	500 MΩ/km	ZN-CET-8/05

Available insulation colour: transparent.

Confection: • standard: 100 m (reel),

   • individual*: 200 m, 500 m, 1000 m (reel, spool),

   • KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Loudspeaker cable with multi-stranded copper conductors of increased flexibility. Insulation made of polyvinyl chloride. Flat cross-section. One wire marked with a black stripe.

Application

Cable used for connection between amplifiers and loudspeakers. Conformity with RoHS, REACH. CPR class: Eca.

Flexible stranded-conductor cables

Symbol	Supply voltage	Conductor's structure	Outer wire diameter	Insulation resistance	Reference standard	Counterpart
LgY 1x0,50 300/500	300/500 V	1x0,5 mm²	2,06 mm	0,013 MΩ/km	PN-HD 21-3	H05V-K
LgY 1x0,75 300/500	300/500 V	1x0,75 mm²	2,26 mm	0,011 MΩ/km	PN-HD 21-3	H05V-K
LgY 1x1,00 300/500	300/500 V	1x1,0 mm²	2,44 mm	0,01 MΩ/km	PN-HD 21-3	H05V-K
LgY 1x1,50 300/500	300/500 V	1x1,5 mm²	2,7 mm	0,0085 MΩ/km	PN-HD 21-3	H05V-K
LgY 1x2,50 300/500	300/500 V	1x2,5 mm²	3,19 mm	0,0071 MΩ/km	PN-HD 21-3	H05V-K
LgY 1x1,00 450/750	450/750 V	1x1,0 mm²	2,84 mm	0,01 MΩ/km	PN-HD 21-3	H07V-K
LgY 1x1,50 450/750	450/750 V	1x1,5 mm²	3,1 mm	0,011 MΩ/km	PN-HD 21-3	H07V-K
LgY 1x2,50 450/750	450/750 V	1x2,5 mm²	3,59 mm	0,01 MΩ/km	PN-HD 21-3	H07V-K

Available insulation colour: white, black, blue, brown, yellow-green.

Confection: • standard: 100 m (reel),

             • individual*: 1000 m, 1500 m (reel, spool).

Description

Solid conductor cable. Conductor's structure: multi-stranded. Insulation made of polyvinyl chloride. Available in harmonized versions: H05V-K, H07V-K.

Application

Cable used for permanent wiring and for installations exposed to vibrations, where wiring conditions require numerous bending. Conformity with RoHS, REACH.

Flexible stranded-conductor, heat-resistant insulation cables

Symbol	Supply voltage	Conductor's structure	Outer wire diameter	Insulation resistance	Reference standard	Counterpart
LgYc 1x0,50 300/500	300/500 V	1x0,5 mm²	2,06 mm	0,01 MΩ/km	PN-HD 21-3	H05V2-K
LgYc 1x0,75 300/500	300/500 V	1x0,75 mm²	2,26 mm	0,011 MΩ/km	PN-HD 21-3	H05V2-K
LgYc 1x1,00 300/500	300/500 V	1x1,0 mm²	2,44 mm	0,01 MΩ/km	PN-HD 21-3	H05V2-K
LgYc 1x1,50 300/500	300/500 V	1x1,5 mm²	2,70 mm	0,01 MΩ/km	PN-HD 21-3	H05V2-K
LgYc 1x2,50 300/500	300/500 V	1x2,5 mm²	3,19 mm	0,01 MΩ/km	PN-HD 21-3	H05V2-K
LgYc 1x0,50 450/750	450/750 V	1x0,5 mm²	2,46 mm	0,011 MΩ/km	PN-HD 21-3	H07V2-K
LgYc 1x0,75 450/750	450/750 V	1x1,75 mm²	2,66 mm	0,011 MΩ/km	PN-HD 21-3	H05V2-K
LgYc 1x1,00 450/750	450/750 V	1x1,0 mm²	2,84 mm	0,01 MΩ/km	PN-HD 21-3	H07V2-K
LgYc 1x1,50 450/750	450/750 V	1x1,5 mm²	3,1 mm	0,01 MΩ/km	PN-HD 21-3	H07V2-K
LgYc 1x2,50 450/750	450/750 V	1x2,5 mm²	3,59 mm	0,01 MΩ/km	PN-HD 21-3	H07V2-K

Available insulation colour: white, black, blue, brown, yellow-green.

Confection: • standard: 100 m (reel),

             • individual*: 1000 m, 1500 m (reel, spool).

Description

Solid conductor cable. Conductor's structure: multi-stranded. Insulation made of polyvinyl chloride resistant to 90°C. Available in harmonized versions: H05V2-K, H07V2-K.

Application

Cable used for permanent wiring and for installations exposed to vibrations, where wiring conditions require numerous bending and the ambient temperature range does not exceed 90°C. Conformity with RoHS, REACH.

*   Individually prepared production on customer's request.

Unshielded control cables 300/300 V

Available insulation colour: grey, black (sunproof)**.
Confection: standard: reel, spool, returnable reel, cable sections within 10 ÷ 1000 m*.

Description

Control cable with white conductors, numbered of multi-stranded structure.
Conductors' insulation and outer sheath made of polyvinyl chloride.
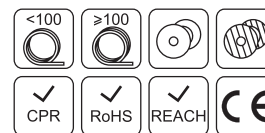
Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
LiYYnr 2x0,50 300/300	300/300 V	2x0,5 mm²	1,73 mm	4,9 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYYnr 2x0,75 300/300	300/300 V	2x0,75 mm²	1,93 mm	5,5 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 2x1,00 300/300	300/300 V	2x1,0 mm²	2,11 mm	5,8 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 2x1,50 300/300	300/300 V	2x1,5 mm²	2,57 mm	6,75 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 3x0,50 300/300	300/300 V	3x0,5 mm²	1,73 mm	5,1 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYYnr 3x0,75 300/300	300/300 V	3x0,75 mm²	1,93 mm	5,8 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 3x1,00 300/300	300/300 V	3x1,0 mm²	2,11 mm	6,1 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 3x1,50 300/300	300/300 V	3x1,5 mm²	2,57 mm	7,13 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 4x0,50 300/300	300/300 V	4x0,5 mm²	1,73 mm	5,8 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYYnr 4x0,75 300/300	300/300 V	4x0,75 mm²	1,93 mm	6,36 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 4x1,00 300/300	300/300 V	4x1,0 mm²	2,11 mm	6,7 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 4x1,50 300/300	300/300 V	4x1,5 mm²	2,57 mm	8 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 5x0,50 300/300	300/300 V	5x0,5 mm²	1,73 mm	6,3 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYYnr 5x0,75 300/300	300/300 V	5x0,75 mm²	1,93 mm	7 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 5x1,00 300/300	300/300 V	5x1,0 mm²	2,11 mm	7,3 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 5x1,50 300/300	300/300 V	5x1,5 mm²	2,57 mm	8,95 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 6x0,50 300/300	300/300 V	6x0,5 mm²	1,73 mm	7 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYYnr 6x0,75 300/300	300/300 V	6x0,75 mm²	1,93 mm	7,6 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 6x1,00 300/300	300/300 V	6x1,0 mm²	2,11 mm	7,9 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 6x1,50 300/300	300/300 V	6x1,5 mm²	2,57 mm	9,72 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 7x0,50 300/300	300/300 V	7x0,5 mm²	1,73 mm	7 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYYnr 7x0,75 300/300	300/300 V	7x0,75 mm²	1,93 mm	7,6 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 7x1,00 300/300	300/300 V	7x1,0 mm²	2,11 mm	8,1 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 7x1,50 300/300	300/300 V	7x1,5 mm²	2,57 mm	9,72 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 10x0,75 300/300	300/300 V	10x0,75 mm²	1,93 mm	9,3 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 10x1,00 300/300	300/300 V	10x1,0 mm²	2,11 mm	10,2 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 10x1,50 300/300	300/300 V	10x1,5 mm²	2,57 mm	12,16 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 12x0,75 300/300	300/300 V	12x0,75 mm²	1,93 mm	10,2 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 12x1,00 300/300	300/300 V	12x1,0 mm²	2,11 mm	11 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 12x1,50 300/300	300/300 V	12x1,5 mm²	2,57 mm	13,09 mm	0,009 MΩ/km	HD 21.1 S4-2004

Application

Cables used for control and protective engineering devices and power supply systems.

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
LiYYnr 14x0,75 300/300	300/300 V	14x0,75 mm²	1,93 mm	11,9 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 14x1,00 300/300	300/300 V	14x1,0 mm²	2,11 mm	12,7 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 14x1,50 300/300	300/300 V	14x1,5 mm²	2,57 mm	14,74 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 16x0,75 300/300	300/300 V	16x0,75 mm²	1,93 mm	11,7 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 16x1,00 300/300	300/300 V	16x1,0 mm²	2,11 mm	12,7 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 16x1,50 300/300	300/300 V	16x1,5 mm²	2,57 mm	15,14 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 18x0,75 300/300	300/300 V	18x0,75 mm²	1,93 mm	12,3 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 18x1,00 300/300	300/300 V	18x1,0 mm²	2,11 mm	13,3 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 18x1,50 300/300	300/300 V	18x1,5 mm²	2,57 mm	15,89 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 20x0,75 300/300	300/300 V	20x0,75 mm²	1,93 mm	13 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 20x1,00 300/300	300/300 V	20x1,0 mm²	2,11 mm	14,1 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 20x1,50 300/300	300/300 V	20x1,5 mm²	2,57 mm	16,79 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 25x0,75 300/300	300/300 V	25x0,75 mm²	1,93 mm	14,4 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 25x1,00 300/300	300/300 V	25x1,0 mm²	2,11 mm	15,7 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 25x1,50 300/300	300/300 V	25x1,5 mm²	2,57 mm	18,62 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYYnr 27x0,75 300/300	300/300 V	27x0,75 mm²	1,93 mm	14,9 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 30x0,75 300/300	300/300 V	30x0,75 mm²	1,93 mm	15,7 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYYnr 34x0,75 300/300	300/300 V	34x0,75 mm²	1,93 mm	16,5 mm	0,01 MΩ/km	HD 21.1 S4-2004

Individual types: oil-resistant, UV resistant and twisted wire structure available on Customer's request preceded by an individual offer.

Conformity with RoHS, REACH. CPR class: Eca.

* Sections with lengths <100 m will be charged with additional fee for cutting service according to the current price list.

** Individual order with specified production minimum.

Due to the large span of structural series, part of cables is done on indivdual order. For further information please contact Zamel Sales Department.

exta free

exta life

supla

exta

ledix

konekto

sundi

cet

matec

entra

etero

gardi

ynsta

expo

Unshielded control cables 300/500 V

Available insulation colour: grey, black (sunproof)**.

Confection: standard: reel, spool, returnable reel, cable sections within 10 ÷ 1000 m*.

Description

Control cable with white conductors, numbered of multi-stranded structure.

The cable includes yellow/green protective conductor. The cable includes ground wire yellow/green.

Conductors' insulation and outer sheath made of polyvinyl chloride.
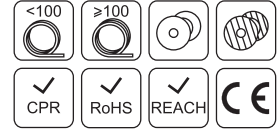
Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YStYżo 3x0,50 300/500	300/500 V	3x0,5 mm²	2,12 mm	6,22 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 3x0,75 300/500	300/500 V	3x0,75 mm²	2,34 mm	6,66 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 3x1,00 300/500	300/500 V	3x1,0 mm²	2,51 mm	7,04 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 3x1,50 300/500	300/500 V	3x1,5 mm²	2,97 mm	8,04 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 3x2,50 300/500	300/500 V	3x2,5 mm²	3,65 mm	9,87 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 4x0,50 300/500	300/500 V	4x0,5 mm²	2,12 mm	6,77 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 4x0,75 300/500	300/500 V	4x0,75 mm²	2,34 mm	7,27 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 4x1,00 300/500	300/500 V	4x1,0 mm²	2,51 mm	7,67 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 4x1,50 300/500	300/500 V	4x1,5 mm²	2,97 mm	8,88 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 4x2,50 300/500	300/500 V	4x2,5 mm²	3,65 mm	10,85 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 5x0,50 300/500	300/500 V	5x0,5 mm²	2,12 mm	7,39 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 5x0,75 300/500	300/500 V	5x0,75 mm²	2,34 mm	7,94 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 5x1,00 300/500	300/500 V	5x1,0 mm²	2,51 mm	8,55 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 5x1,50 300/500	300/500 V	5x1,5 mm²	2,97 mm	9,87 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 5x2,50 300/500	300/500 V	5x2,5 mm²	3,65 mm	11,91 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 6x0,50 300/500	300/500 V	6x0,5 mm²	2,12 mm	8,02 mm	0,013 MΩ/km	HD 21.1 S4-2004
YStYżo 6x0,75 300/500	300/500 V	6x0,75 mm²	2,34 mm	8,84 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 6x1,00 300/500	300/500 V	6x1,0 mm²	2,51 mm	9,36 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 6x1,50 300/500	300/500 V	6x1,5 mm²	2,97 mm	10,76 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 6x2,50 300/500	300/500 V	6x2,5 mm²	3,65 mm	13,01 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 7x0,50 300/500	300/500 V	7x0,5 mm²	2,12 mm	8,02 mm	0,013 MΩ/km	HD 21.1 S4-2004
YStYżo 7x0,75 300/500	300/500 V	7x0,75 mm²	2,34 mm	8,84 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 7x1,00 300/500	300/500 V	7x1,0 mm²	2,51 mm	9,36 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 7x1,50 300/500	300/500 V	7x1,5 mm²	2,97 mm	10,76 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 7x2,50 300/500	300/500 V	7x2,5 mm²	3,65 mm	13,01 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 10x0,75 300/500	300/500 V	10x0,75 mm²	2,34 mm	10,6 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 10x1,00 300/500	300/500 V	10x1,0 mm²	2,51 mm	11,34 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 10x1,50 300/500	300/500 V	10x1,5 mm²	2,97 mm	13,31 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 10x2,50 300/500	300/500 V	10x2,5 mm²	3,65 mm	16,3 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 12x0,75 300/500	300/500 V	12x0,75 mm²	2,34 mm	11,53 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 12x1,00 300/500	300/500 V	12x1,0 mm²	2,51 mm	12,25 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 12x1,50 300/500	300/500 V	12x1,5 mm²	3,65 mm	14,38 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 12x2,50 300/500	300/500 V	12x2,5 mm²	3,65 mm	17,62 mm	0,008 MΩ/km	HD 21.1 S4-2004

Application

Cables used for control and protective engineering devices and power supply systems.

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YStYżo 14x0,75 300/500	300/500 V	14x0,75 mm²	2,34 mm	12,30 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 14x1,00 300/500	300/500 V	14x1,0 mm²	2,51 mm	13,28 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 14x1,50 300/500	300/500 V	14x1,5 mm²	2,97 mm	15,37 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 14x2,50 300/500	300/500 V	14x2,5 mm²	3,65 mm	18,84 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 16x0,75 300/500	300/500 V	16x0,75 mm²	2,34 mm	13,02 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 16x1,00 300/500	300/500 V	16x1,0 mm²	2,51 mm	14,05 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 16x1,50 300/500	300/500 V	16x1,5 mm²	2,97 mm	16,29 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 16x2,50 300/500	300/500 V	16x2,5 mm²	3,65 mm	19,97 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 18x0,75 300/500	300/500 V	18x0,75 mm²	2,34 mm	13,90 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 18x1,00 300/500	300/500 V	18x1,0 mm²	2,51 mm	14,78 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 18x1,50 300/500	300/500 V	18x1,5 mm²	2,97 mm	17,15 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 18x2,50 300/500	300/500 V	18x2,5 mm²	3,65 mm	21,03 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 20x0,75 300/500	300/500 V	20x0,75 mm²	2,34 mm	14,54 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 20x1,00 300/500	300/500 V	20x1,0 mm²	2,51 mm	15,47 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 20x1,50 300/500	300/500 V	20x1,5 mm²	2,97 mm	17,97 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 20x2,50 300/500	300/500 V	20x2,5 mm²	3,65 mm	22,03 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 25x0,75 300/500	300/500 V	25x0,75 mm²	2,34 mm	16,01 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 25x1,00 300/500	300/500 V	25x1,0 mm²	2,51 mm	17,05 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYżo 25x1,50 300/500	300/500 V	25x1,5 mm²	2,97 mm	19,84 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYżo 25x2,50 300/500	300/500 V	25x2,5 mm²	3,65 mm	24,34 mm	0,008 MΩ/km	HD 21.1 S4-2004
YStYżo 27x0,75 300/500	300/500 V	27x0,75 mm²	2,34 mm	16,55 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 30x0,75 300/500	300/500 V	30x0,75 mm²	2,34 mm	17,34 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYżo 34x0,75 300/500	300/500 V	34x0,75 mm²	2,34 mm	18,32 mm	0,011 MΩ/km	HD 21.1 S4-2004

Individual types: oil-resistant, UV resistant and twisted wire structure available on Customer's request preceded by an individual offer. Conformity with RoHS, REACH. CPR class: Eca.

* Sections with lengths <100 m will be charged with additional fee for cutting service according to the current price list.

** Individual order with specified production minimum.

Due to the large span of structural series, part of cables is done on indivdual order. For further information please contact Zamel Sales Department.

exta free

exta life

supla

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ledix

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Shielded control cables 300/300 V

Available insulation colour: grey, black (sunproof)**.

Confection: standard: reel, spool, returnable reel, cable sections within 10 ÷ 1000 m*.

Description

Control cable with white conductors, numbered of multi-stranded structure.

It is equipped with tin-plated, copper braid shield of 80 % coverage.

The cable without protective conductor. Conductors'insulation and outer sheath made of polyvinyl chloride***.

Application

Cables used for control and protective engineering devices and power supply systems.
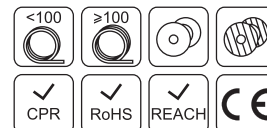
Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
LiYCYnr 2x0,50 300/300	300/300 V	2x0,5 mm²	1,73 mm	5,7 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYCYnr 2x0,75 300/300	300/300 V	2x0,75 mm²	1,93 mm	6,1 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 2x1,00 300/300	300/300 V	2x1,0 mm²	2,11 mm	6,43 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 2x1,50 300/300	300/300 V	2x1,5 mm²	2,57 mm	7,35 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 3x0,50 300/300	300/300 V	3x0,5 mm²	1,73 mm	5,9 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYCYnr 3x0,75 300/300	300/300 V	3x0,75 mm²	1,93 mm	6,4 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 3x1,00 300/300	300/300 V	3x1,0 mm²	2,11 mm	6,75 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 3x1,50 300/300	300/300 V	3x1,5 mm²	2,57 mm	8,13 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 4x0,50 300/300	300/300 V	4x0,5 mm²	1,73 mm	6,4 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYCYnr 4x0,75 300/300	300/300 V	4x0,75 mm²	1,93 mm	6,9 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 4x1,00 300/300	300/300 V	4x1,0 mm²	2,11 mm	7,3 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 4x1,50 300/300	300/300 V	4x1,5 mm²	2,57 mm	8,8 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 5x0,50 300/300	300/300 V	5x0,5 mm²	1,73 mm	6,9 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYCYnr 5x0,75 300/300	300/300 V	5x0,75 mm²	1,93 mm	7,4 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 5x1,00 300/300	300/300 V	5x1,0 mm²	2,11 mm	8,31 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 5x1,50 300/300	300/300 V	5x1,5 mm²	2,57 mm	9,55 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 6x0,50 300/300	300/300 V	6x0,5 mm²	1,73 mm	7,4 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYCYnr 6x0,75 300/300	300/300 V	6x0,75 mm²	1,93 mm	8,4 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 6x1,00 300/300	300/300 V	6x1,0 mm²	2,11 mm	8,94 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 6x1,50 300/300	300/300 V	6x1,5 mm²	2,57 mm	10,32 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 7x0,50 300/300	300/300 V	7x0,5 mm²	1,73 mm	7,4 mm	0,012 MΩ/km	HD 21.1 S4-2004
LiYCYnr 7x0,75 300/300	300/300 V	7x0,75 mm²	1,93 mm	8,4 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 7x1,00 300/300	300/300 V	7x1,0 mm²	2,11 mm	8,94 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 7x1,50 300/300	300/300 V	7x1,5 mm²	2,57 mm	10,32 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 10x0,75 300/300	300/300 V	10x0,75 mm²	1,93 mm	9,9 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 10x1,00 300/300	300/300 V	10x1,0 mm²	2,11 mm	10,62 mm	0,009 MΩ/km	HD 21.1 S4-2004
LiYCYnr 12x0,75 300/300	300/300 V	12x0,75 mm²	1,93 mm	10,6 mm	0,01 MΩ/km	HD 21.1 S4-2004
LiYCYnr 14x0,75 300/300	300/300 V	14x0,75 mm²	1,93 mm	11,3 mm	0,01 MΩ/km	HD 21.1 S4-2004

Individual types: oil-resistant, UV resistant and twisted wire structure available on Customer's request preceded by an individual offer. Conformity with RoHS REACH. CPR class: Eca.

Shielded control cables 300/500 V

Available insulation colour: grey, black (sunproof)**.

Confection: standard: reel, spool, returnable reel, cable sections within 10 ÷ 1000 m*.

Description

Control cable with white conductors, numbered of multi-stranded structure. It is equipped with tin-plated, copper braid shield of 80 % coverage. The cable includes yellow/green protective conductor. Conductors' insulation and outer sheath made of polyvinyl chloride.

Application

Cables used for control and protective engineering devices, power supply systems and in installations exposed to external electromagnetic disturbances.
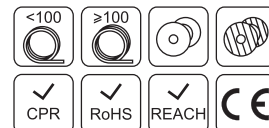
Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YStYekwżo 3x0,50 300/500	300/500 V	3x0,5 mm²	2,12 mm	6,82 mm	0,013 MΩ/km	HD 21.1 S4-2004
YStYekwżo 3x0,75 300/500	300/500 V	3x0,75 mm²	2,34 mm	7,26 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYekwżo 3x1,00 300/500	300/500 V	3x1,0 mm²	2,51 mm	7,64 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYekwżo 3x1,50 300/500	300/500 V	3x1,5 mm²	2,97 mm	8,64 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYekwżo 4x0,50 300/500	300/500 V	4x0,5 mm²	2,12 mm	7,37 mm	0,013 MΩ/km	HD 21.1 S4-2004
YStYekwżo 4x0,75 300/500	300/500 V	4x0,75 mm²	2,34 mm	8,07 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYekwżo 4x1,00 300/500	300/500 V	4x1,0 mm²	2,51 mm	8,49 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYekwżo 4x1,50 300/500	300/500 V	4x1,5 mm²	2,97 mm	9,61 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYekwżo 5x0,50 300/500	300/500 V	5x0,5 mm²	2,12 mm	8,19 mm	0,013 MΩ/km	HD 21.1 S4-2004
YStYekwżo 5x0,75 300/500	300/500 V	5x0,75 mm²	2,34 mm	8,54 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYekwżo 5x1,00 300/500	300/500 V	5x1,0 mm²	2,51 mm	9,21 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYekwżo 5x1,50 300/500	300/500 V	5x1,5 mm²	2,97 mm	10,47 mm	0,009 MΩ/km	HD 21.1 S4-2004
YStYekwżo 6x0,50 300/500	300/500 V	6x0,5 mm²	2,12 mm	8,82 mm	0,013 MΩ/km	HD 21.1 S4-2004
YStYekwżo 6x0,75 300/500	300/500 V	6x0,75 mm²	2,34 mm	9,44 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYekwżo 6x1,00 300/500	300/500 V	6x1,0 mm²	2,51 mm	9,96 mm	0,01 MΩ/km	HD 21.1 S4-2004
YStYekwżo 7x0,50 300/500	300/500 V	7x0,5 mm²	2,12 mm	8,82 mm	0,013 MΩ/km	HD 21.1 S4-2004
YStYekwżo 7x0,75 300/500	300/500 V	7x0,75 mm²	2,34 mm	9,44 mm	0,011 MΩ/km	HD 21.1 S4-2004
YStYekwżo 7x1,00 300/500	300/500 V	7x1,0 mm²	2,51 mm	9,96 mm	0,01 MΩ/km	HD 21.1 S4-2004

Individual types: oil-resistant, UV resistant and twisted wire structure available on Customer's request preceded by an individual offer. Conformity with RoHS, REACH. CPR class: Eca.

* Sections with lengths <100 m will be charged with additional fee for cutting service according to the current price list.

** Individual order with specified production minimum.

Due to the large span of structural series, part of cables is done on indivdual order. For further information please contact Zamel Sales Department.

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Signalling cables 0,6 / 1 kV

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
YKSYżo 7x1,00	0,6/1 kV	7x1,0 mm²	2,66 mm	11,6 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 7x1,50	0,6/1 kV	7x1,5 mm²	2,91 mm	12,21 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 7x2,50	0,6/1 kV	7x2,5 mm²	3,29 mm	13,47 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 10x1,00	0,6/1 kV	10x1,0 mm²	2,66 mm	14,26 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 10x1,50	0,6/1 kV	10x1,5 mm²	2,91 mm	15,24 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 10x2,50	0,6/1 kV	10x2,5 mm²	3,29 mm	16,76 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 14x1,00	0,6/1 kV	14x1,0 mm²	2,66 mm	15,6 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 14x1,50	0,6/1 kV	14x1,5 mm²	2,91 mm	16,43 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 14x2,50	0,6/1 kV	14x2,5 mm²	3,29 mm	18,11 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 19x1,00	0,6/1 kV	19x1,0 mm²	2,66 mm	17,2 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 19x1,50	0,6/1 kV	19x1,5 mm²	2,91 mm	18,15 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 19x2,50	0,6/1 kV	19x2,5 mm²	3,29 mm	20,05 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 24x1,00	0,6/1 kV	24x1,0 mm²	2,66 mm	19,9 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 24x1,50	0,6/1 kV	24x1,5 mm²	2,91 mm	21,06 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 24x2,50	0,6/1 kV	24x2,5 mm²	3,29 mm	23,34 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 30x1,00	0,6/1 kV	30x1,0 mm²	2,66 mm	20,68 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 30x1,50	0,6/1 kV	30x1,5 mm²	2,91 mm	22,25 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 30x2,50	0,6/1 kV	30x2,5 mm²	3,29 mm	24,69 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 37x1,00	0,6/1 kV	37x1,0 mm²	2,66 mm	22,26 mm	36,7 MΩ/km	HD 603 S1
YKSYżo 37x1,50	0,6/1 kV	37x1,5 mm²	2,91 mm	23,97 mm	36,7 MΩ/km	HD 603 S1

Available insulation colour: black.

Confection: standard: reel, spool, returnable reel, cable sections within 10 ÷ 1000 m*

Description

Control cable with white conductors, numbered of multi-stranded structure.

The cable includes protective (yellow/green) conductor.

Conductors' insulation and outer sheath made of polyvinyl chloride.

Application

Cables used for control and protective engineering devices and power supply systems. Conformity with RoHS, REACH.

Solid conductor cables

Symbol	Supply voltage	Conductor's structure	Outer wire diameter	Insulation resistance	Reference standard	Counterpart
DY 0,50 300/500	300/500 V	1x0,5 mm²	1,91 mm	0,013 MΩ/km	HD 21-3	H05V-U
DY 0,75 300/500	300/500 V	1x0,75 mm²	2,09 mm	0,013 MΩ/km	HD 21-3	H05V-U
DY 1,00 300/500	300/500 V	1x1,0 mm²	2,23 mm	0,013 MΩ/km	HD 21-3	H05V-U
DY 1,50 300/500	300/500 V	1x1,5 mm²	2,47 mm	0,013 MΩ/km	HD 21-3	H05V-U
DY 2,50 300/500	300/500 V	1x2,5 mm²	2,89 mm	0,013 MΩ/km	HD 21-3	H05V-U

Available insulation colour: white, black, blue, brown, yellow-green**.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Solid conductor cable. Conductor's structure: solid. Insulation made of polyvinyl chloride. Available in harmonized versions: H05V-U.

Application

Cable used for permanent wiring of receiving, control and supplying devices. Conformity with RoHS, REACH.

Solid heat resistant cables

Symbol	Supply voltage	Conductor's structure	Outer wire diameter	Insulation resistance	Reference standard	Counterpart
DYc 0,50 300/500	300/500 V	1x0,5 mm²	1,91 mm	0,013 MΩ/km	HD 21-3	H05V2-U
DYc 0,75 300/500	300/500 V	1x0,75 mm²	2,09 mm	0,013 MΩ/km	HD 21-3	H05V2-U
DYc 1,00 300/500	300/500 V	1x1,0 mm²	2,23 mm	0,013 MΩ/km	HD 21-3	H05V2-U
DYc 1,50 300/500	300/500 V	1x1,5 mm²	2,51 mm	0,013 MΩ/km	HD 21-3	H05V2-U

Available insulation colour: white, black, blue, brown, yellow-green.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 500 m, 1000 m (reel, spool).

Description

Solid conductor cable. Conductor's structure: solid. Insulation made of polyvinyl chloride resistant to 90°C. Available in harmonized versions: H05V2-U.

Application

Cable used for permanent wiring of receiving, control and supplying devices. It is used in places exposed to higher ambient temperature range not exceeding 90°C. Conformity with RoHS, REACH.

* Sections with lengths <100 m will be charged with additional fee for cutting service according to the current price list.

** Possible different insulation colour on customer's request based on a preceded order with specified production minimum.

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Indoor flat wire cross section cables
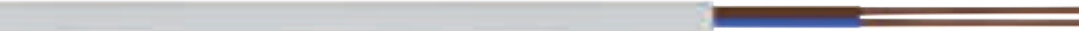
Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
H03VVH2-F 2x0,50	300/300 V	2x0,5 mm²	1,86 mm	3,13 x 5,00 mm	0,012 MΩ/km	DIN VDE 0281
H03VVH2-F 2x0,75	300/300 V	2x0,75 mm²	2,06 mm	3,33 x 5,39 mm	0,01 MΩ/km	DIN VDE 0281
OMYp 2x1,00	300/300 V	2x1,0 mm²	2,24 mm	3,49 x 5,72 mm	0,009 MΩ/km	HD 21-5
OMYp 2x1,50	300/300 V	2x1,5 mm²	2,70 mm	4,33 x 7,05 mm	0,009 MΩ/km	HD 21-5

Available insulation colour: white, brown**, black, silver**, gold**.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 300 m, 500 m, 1000 m (reel, spool),

• KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Indoor cable with copper multi-stranded conductors. Conductors' insulation and outer sheath made of polyvinyl chloride. Flat cross-section. Conductors' colour: brown, blue.

Application

Designed for connection of movable electrical devices and portable general application receivers. Conformity with RoHS, REACH. CPR class: Eca.

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
OMYp 2x0,50c (transparent)	300/300 V	2x0,5 mm²	1,86 mm	3,13 x 5,00 mm	0,012 MΩ/km	HD 21-5
OMYp 2x0,75c (transparent)	300/300 V	2x0,75 mm²	2,06 mm	3,33 x 5,39 mm	0,01 MΩ/km	HD 21-5

Available insulation colour: transparent.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 300 m, 500 m, 1000 m (reel, spool),

• KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Indoor cable with tin-plated copper multi-stranded conductors. Conductors' insulation and outer sheath made of transparent polyvinyl chloride. Flat cross-section. Conductors' colour: transparent.

Application

Designed for connection of movable electrical devices and portable general application receivers. Conformity with RoHS, REACH.

* Individually prepared production on customer's request.

** Individual order with specified production minimum.

Indoor round wire cross section cables

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
H03VV-F 2x0,50	300/300 V	2x0,5 mm²	1,86 mm	4,87 mm	0,012 MΩ/km	DIN VDE 0281
H03VV-F 3G0,50	300/300 V	3x0,5 mm²	1,86 mm	5,15 mm	0,012 MΩ/km	DIN VDE 0281
H03VV-F 4G0,50	300/300 V	4x0,5 mm²	1,86 mm	5,64 mm	0,01 MΩ/km	DIN VDE 0281
H03VV-F 2x0,75	300/300 V	2x0,75 mm²	2,06 mm	5,29 mm	0,01 MΩ/km	DIN VDE 0281
H03VV-F 3G0,75	300/300 V	3x0,75 mm²	2,06 mm	5,56 mm	0,01 MΩ/km	DIN VDE 0281
H03VV-F 4G0,75	300/300 V	4x0,75 mm²	2,06 mm	6,13 mm	0,01 MΩ/km	DIN VDE 0281

Available insulation colour: white, brown**, black, silver**, gold**.

Confection: • standard: 100 m (reel),
- individual*: 200 m, 300 m, 500 m, 1000 m (reel, spool),
- KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Indoor cable with copper multi-stranded conductors. Conductors' insulation and outer sheath made of polyvinyl chloride. Round cross-section. Conductors' colour: brown + blue, brown + blue + yellow/green, brown + grey + black + yellow/green.

Application

Designed for connection of movable electrical devices and portable general application receivers. Conformity with RoHS, REACH.
CPR class: Eca.

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
OMY 2x1,00	300/300 V	2x1,0 mm²	2,24 mm	5,67 mm	0,009 MΩ/km	HD 21-5
OMY 2x1,50	300/300 V	2x1,5 mm²	2,70 mm	7,00 mm	0,01 MΩ/km	HD 21-5
OMYżo 3x1,00	300/300 V	3x1,0 mm²	2,24 mm	6,09 mm	0,01 MΩ/km	HD 21-5
OMYżo 3x1,50	300/300 V	3x1,5 mm²	2,70 mm	7,2 mm	0,01 MΩ/km	HD 21-5

Available insulation colour: white, brown**, black, silver**, gold**.

Confection: • standard: 100 m (reel),
- individual*: 200 m, 300 m, 500 m, 1000 m (reel, spool),
- KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Indoor cable with copper multi-stranded conductors. Conductors' insulation and outer sheath made of polyvinyl chloride.
Round cross-section. Conductors' colour: : brown + blue, brown + blue + yellow/green.

Application

Designed for connection of movable electrical devices and portable general application receivers. Conformity with RoHS, REACH.
CPR class: Eca.

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
MTY 2x0,50c	300/300 V	2x0,5 mm²	1,86 mm	4,87 mm	0,012 MΩ/km	DIN VDE 0281
MTY 2x0,75c	300/300 V	2x0,75 mm²	2,06 mm	5,29 mm	0,01 MΩ/km	DIN VDE 0281

Available insulation colour: transparent.

Confection: • standard: 100 m (reel),
- individual*: 200 m, 300 m, 500 m, 1000 m (reel, spool),
- KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Indoor cable with tin-plated copper multi-stranded conductors. Conductors' insulation and outer sheath made of polyvinyl chloride. Round cross-section. Conductors' colour: transparent.

Application

Designed for connection of movable electrical devices and portable general application receivers. Conformity with RoHS, REACH.

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Workshop round wire cross section cables

Symbol	Supply voltage	Conductor's structure	Insulated conductor diameter	Outer wire diameter	Insulation resistance	Reference standard
H05VV-F 2x0,75	300/500 V	2x0,75 mm²	2,26 mm	6,07 mm	0,011 MΩ/km	HD 21.5 S3:2004
H05VV-F 3G0,75	300/500 V	3x0,75 mm²	2,26 mm	6,41 mm	0,011 MΩ/km	HD 21.5 S3:2004
H05VV-F 4G0,75	300/500 V	4x0,75 mm²	2,26 mm	6,99 mm	0,011 MΩ/km	HD 21.5 S3:2004
H05VV-F 5G0,75	300/500 V	5x0,75 mm²	2,26 mm	7,85 mm	0,011 MΩ/km	HD 21.5 S3:2004
H05VV-F 2x1,00	300/500 V	2x1,0 mm²	2,44 mm	6,41 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 3G1,00	300/500 V	3x1,0 mm²	2,44 mm	6,78 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 4G1,00	300/500 V	4x1,0 mm²	2,44 mm	7,61 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 5G1,00	300/500 V	5x1,0 mm²	2,44 mm	8,32 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 2x1,50	300/500 V	2x1,5 mm²	2,96 mm	7,46 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 3G1,50	300/500 V	3x1,5 mm²	2,96 mm	8,11 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 4G1,50	300/500 V	4x1,5 mm²	2,96 mm	9,08 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 5G1,50	300/500 V	5x1,5 mm²	2,96 mm	10,11 mm	0,01 MΩ/km	HD 21.5 S3:2004
H05VV-F 2x2,50	300/500 V	2x2,5 mm²	3,58 mm	9,15 mm	0,009 MΩ/km	HD 21.5 S3:2004
H05VV-F 3G2,50	300/500 V	3x2,5 mm²	3,58 mm	9,82 mm	0,009 MΩ/km	HD 21.5 S3:2004
H05VV-F 4G2,50	300/500 V	4x2,5 mm²	3,58 mm	10,74 mm	0,009 MΩ/km	HD 21.5 S3:2004
H05VV-F 5G2,50	300/500 V	5x2,5 mm²	3,58 mm	11,99 mm	0,009 MΩ/km	HD 21.5 S3:2004

Available insulation colour: white, black.

Confection: • standard: 100 m (reel),

• individual*: 200 m, 300 m, 500 m, 1000 m (reel, spool),

• KRO: 50 m, 75 m sections with a tolerance of + 5 m at special prices.

Description

Workshop cable with copper multi-stranded conductors. Conductors' insulation and outer sheath made of polyvinyl chloride. Round cross-section. Conductors' colour: : brown + blue, brown + blue + yellow/green, brown + grey + black + yellow/green, brown + blue + black + grey + yellow/green.

Application

Designed for connection of movable electrical devices and portable workshop application receivers. Conformity with RoHS, REACH. CPR class: Eca.

* Individually prepared production on customer's request.

** Individual order with specified production minimum.

Connection cables with foot connector and dimming function

Symbol	Supply voltage	Conductor's structure	Length	Outer wire diameter	Insulation resistance	Reference standard
SP/SN2,0 (2x0,75)	250 V	2x0,75 mm²	2,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/SN2,5 (2x0,75)	250 V	2x0,75 mm²	2,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/SN3,0 (2x0,75)	250 V	2x0,75 mm²	3,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/SN3,5 (2x0,75)	250 V	2x0,75 mm²	3,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/SN4,0 (2x0,75)	250 V	2x0,75 mm²	4,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/SN4,5 (2x0,75)	250 V	2x0,75 mm²	4,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/SN5,0 (2x0,75)	250 V	2x0,75 mm²	5,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006

Available insulation colour: white, brown, black, silver, gold, transparent.

Confection: • standard: 1 pc. (blister).

Description

Connection cable terminated with 230 V plug at one end and with uninsulated tinned conductors at the other end. The cable is equipped with a foot connector with dimming and presence simulation functions. Cable structure: two-wire, copper, multi-stranded. Cable cross-section: flat. Fixed distance of 150 cm between the plug and the connector. It cooperates with incandescent light sources and dimmable fluorescent tube.

Application

Designed for the connection of portable electric receivers to 230 V AC by means of a foot connector with dimming function. Presence simulation function switches on and switches off a receiver in randomly specified time intervals. Conformity with RoHS, REACH.

Connection cables with foot connector

Symbol	Supply voltage	Conductor's structure	Length	Outer wire diameter	Insulation resistance	Reference standard
SP/WN2,0 (2x0,75)	250 V	2x0,75 mm²	2,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/WN2,5 (2x0,75)	250 V	2x0,75 mm²	2,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/WN3,0 (2x0,75)	250 V	2x0,75 mm²	3,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/WN3,5 (2x0,75)	250 V	2x0,75 mm²	3,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/WN4,0 (2x0,75)	250 V	2x0,75 mm²	4,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/WN4,5 (2x0,75)	250 V	2x0,75 mm²	4,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/WN5,0 (2x0,75)	250 V	2x0,75 mm²	5,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006

Available insulation colour: white, brown, black, silver, gold, transparent.

Confection: • standard: bulk or unit packaging.

Description

Connection cable terminated with 230 V plug at one end and with uninsulated tinned conductors at the other end. The cable is equipped with a foot connector, unipolar. Cable structure: two-wire, copper, multi-stranded. Cable cross-section: flat. Fixed distance of 150 cm between the plug and the connector.

Application

Designed for the connection of portable electric receivers to 230 V AC by means of a foot connector. Conformity with RoHS, REACH.

Connection cables without connector

Symbol	Supply voltage	Conductor's structure	Length	Outer wire diameter	Insulation resistance	Reference standard
SP1,00 (2x0,50)	250 V	2x0,5 mm²	1,0 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP1,00 (2x0,75)	250 V	2x0,75 mm²	1,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP1,50 (2x0,50)	250 V	2x0,5 mm²	1,5 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP1,50 (2x0,75)	250 V	2x0,75 mm²	1,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP1,60 (2x0,50)	250 V	2x0,5 mm²	1,6 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP1,60 (2x0,75)	250 V	2x0,75 mm²	1,6 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP1,90 (2x0,50)	250 V	2x0,5 mm²	1,9 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP1,90 (2x0,75)	250 V	2x0,75 mm²	1,9 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP2,00 (2x0,50)	250 V	2x0,5 mm²	2,0 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP2,00 (2x0,75)	250 V	2x0,75 mm²	2,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP2,30 (2x0,75)	250 V	2x0,75 mm²	2,3 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP2,50 (2x0,75)	250 V	2x0,75 mm²	2,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP3,00 (2x0,75)	250 V	2x0,75 mm²	3,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP3,50 (2x0,75)	250 V	2x0,75 mm²	3,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP4,00 (2x0,75)	250 V	2x0,75 mm²	4,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP4,50 (2x0,75)	250 V	2x0,75 mm²	4,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP5,00 (2x0,75)	250 V	2x0,75 mm²	5,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006

Available insulation colour: white, brown, black, silver, gold, transparent.

Description
Connection cable terminated with 230 V plug at one end. Cable structure: two-wire, copper, multi-stranded. Cable cross-section: flat. Uninsulated tinned conductors at the other end.

Application
Designed for the connection of portable electric receivers to 230 V AC. Conformity with RoHS, REACH.

Connection cables with hand switch

Symbol	Supply voltage	Conductor's structure	Length	Outer wire diameter	Insulation resistance	Reference standard
SP/W1,00 (2x0,50)	250 V	2x0,5 mm²	1,0 m	3,13 x 5,0 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W1,50 (2x0,50)	250 V	2x0,5 mm²	1,5 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP/W1,50 (2x0,75)	250 V	2x0,75 mm²	1,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W1,60 (2x0,50)	250 V	2x0,5 mm²	1,6 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP/W1,60 (2x0,75)	250 V	2x0,75 mm²	1,6 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W1,90 (2x0,50)	250 V	2x0,5 mm²	1,9 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP/W1,90 (2x0,75)	250 V	2x0,75 mm²	1,9 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W2,00 (2x0,50)	250 V	2x0,5 mm²	2,0 m	3,13 x 5,0 mm	0,012 MΩ/km	IEC60884-1:2006
SP/W2,00 (2x0,75)	250 V	2x0,75 mm²	2,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W2,50 (2x0,75)	250 V	2x0,75 mm²	2,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W3,00 (2x0,75)	250 V	2x0,75 mm²	3,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W3,20 (2x0,75)	250 V	2x0,75 mm²	3,2 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W3,50 (2x0,75)	250 V	2x0,75 mm²	3,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W4,00 (2x0,75)	250 V	2x0,75 mm²	4,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W4,40 (2x0,75)	250 V	2x0,75 mm²	4,4 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W4,50 (2x0,75)	250 V	2x0,75 mm²	4,5 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006
SP/W5,00 (2x0,75)	250 V	2x0,75 mm²	5,0 m	3,2 x 5,2 mm	0,01 MΩ/km	IEC60884-1:2006

Available insulation colour: white, brown, black, silver, gold, transparent.

Description

Connection cable terminated with 230 V at one end and equipped with hand switch, dipolar. Cable structure: two-wire, copper, multi-stranded. Cable cross-section: flat. Uninsulated tinned conductors at the other end. Fixed distance of 100 cm between the connector and the plug for the lengths 2,5 m and above, and 50 cm from the end of the cable for the lengths up to 2,0 m*.

Application

Designed for the connection of portable electric receivers to 230 V AC with the use of hand switch. Conformity with RoHS, REACH.

*   Different switch location is possible on individual request with specified production minimum in a special offer.

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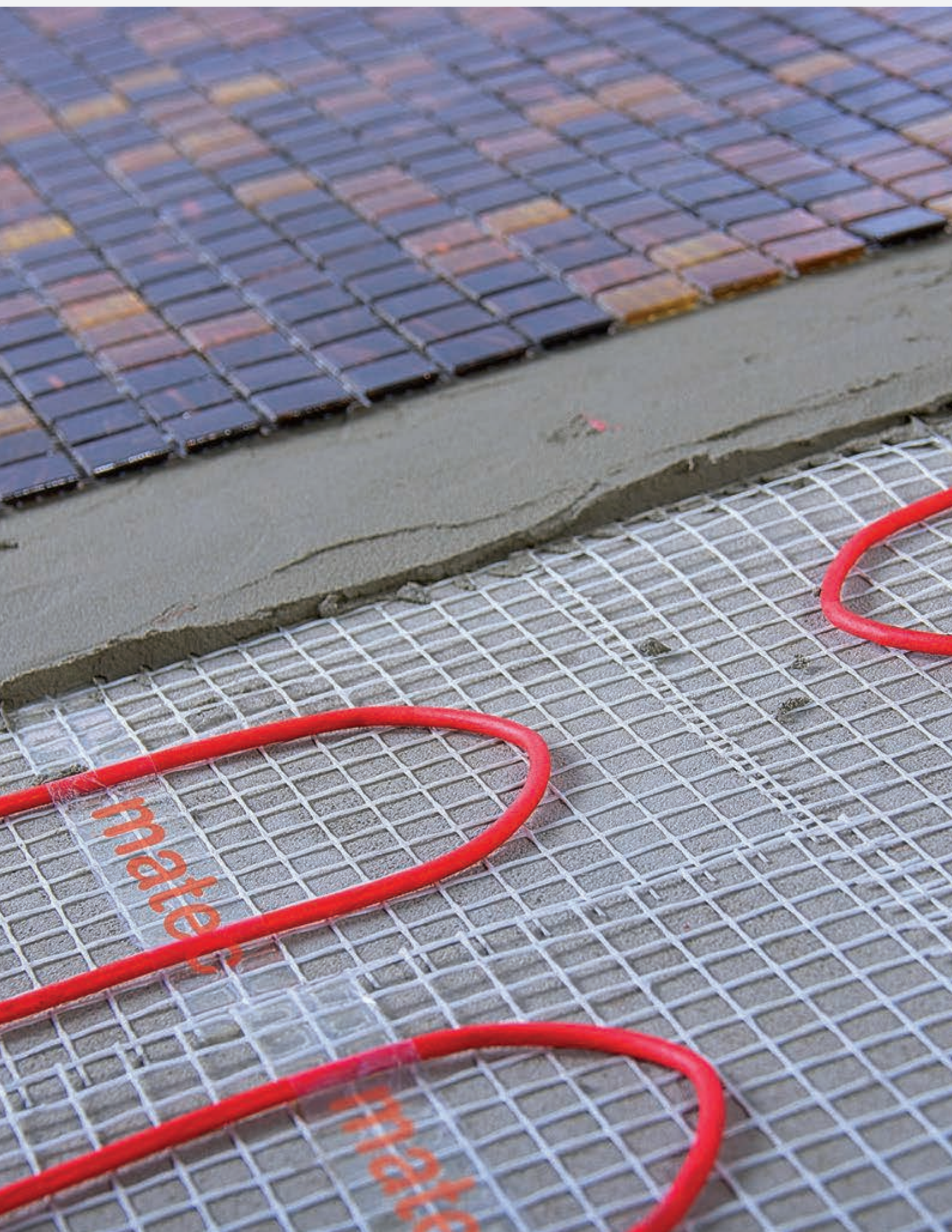
Electric floor heating and anti-icing systems MATEC

MATEC electric heating mats offer very easy installation of underfloor heating systems. They are used in residential and industrial buildings. They provide a relatively fast warmth with even distribution of temperature in heated rooms. The main products are 150 W/m² heating mats, 80 W/m² heating foils and temperature controllers which are compatible with electric and water heating systems.

Main advantages of the underfloor heating:
- thermal comfort in the room achieved with even distribution of heat from the floor,
- low temperature of the heating surface while maintaining appropriate thermal comfort,
- easy and effective control for optimal energy use in relation to the current heating needs,
- low installation cost,
- improving the appearance of rooms and increasing their area by removing wall radiators,
- possibility of mounting under dry laminated panels (heating foils).

MATEC de-icing floor systems create an efficient method of preventing the water pipes from freezing and icing of gutters, loading ramps, vehicles, stairs, and other traffic routes that are exposed to adverse winter weather conditions. The gutter protection against snow and icicles should be designed by taking into consideration heating elements with adequate power that operate together with an appropriate de-icing monitoring and control system. De-icing of various traffic routes or ramps requires specific types of heating cables whose construction guarantees proper operation in various under-surface conditions. MATEC de-icing systems include: heating mats for driveways and other traffic routes, stable resistance heating cables for stairs and ramps, stable resistance heating cables for gutters, heating cables for pipes with a thermostat, self-adjusting cables, one- and dual-zone temperature controllers, ice and snow sensor for open surfaces and gutters, temperature and humidity sensors, and necessary accessories for the installation of the system.

The de-icing systems create an effective protection against:
- icing of drainpipes that forms dangerous icicles and ice covers,
- snow and ice covers on traffic routes, parking lots, driveways, etc.,
- dangerous ice covers on stairs and unloading ramps,
- water freezing in installations.

Designing and technical aspects
useful during floor heating execution

It is necessary to define the rooms' heat demand when designing floor heating. It is done by means of a calculation method including the heat loss through the external barriers such as walls, roofs, windows or by means of a simplified method, in which we follow the below mentioned information, showing the heating power that should be used in specific types of rooms.

The heating power consumption for the following types of rooms is:
• Rooms, halls and kitchens range from 70÷120 W/m²,
• Bathrooms range from about 120÷150 W/m²,
• Cellars, garages, utility rooms range at a level of ~100 W/m².

With these data we can easily calculate the size of the floor heat source in relation to the size of the heated room. For example, if we want to heat a room in a flat with an area of 25 m², we need to generate up to 3000 W of the total heating power, which heats the room to the adjusted temperature in time that is dependent on the insulation level of barriers of this room. If we know the value of the total heating power necessary to heat the room, we choose the heating mats with a unit power in the MATEC system of 150 W/m². An increased unit power of the mat reduces the heating surface and in this case we can mount four mats with the heating surface of 5 m² each, thus achieving a demanded heating surface of 20 m² calculated from

the ratio of the total heating power and unit power of the mat. In this case, the heating mats must be put in the middle of the room with free spaces left near walls that are designed for furniture and devices firmly fixed on the floor.

Another important aspect concerning the choice of electric heating mats for unit power is a cooperation with the base. Generally floor heating shall be installed under a base characterized by a low thermal resistance material it was made. The value of such resistance is calculated in [m²K/W] and it should not be higher than 0,15 [m²K/W]. So, for example, we can define some of the most popular basis under which the floor heating is mounted.

Examples of types flooring with the specified thermal resistance

SURFACE MATERIAL FLOORS	THICKNESS	COEFFICIENT OF HEAT TRANSFER	THERMAL RESISTANCE
	[mm]	[W/mK]	[m²K/W]
Ceramic tile	9	1,05	0,009
Linoleum	2,5	0,17	0,015
Marble	25	2,15	0,012
PVC lining	2	0,2	0,01
Oak wood flooring	25	0,22	0,114

Choosing floor heating power in relation to the floor, we must remember that the recommended average floor temperature should be about 26°C. Bathrooms and places near windows are exceptions, it means the temperature may be increased up to 29°C.

The heating cables distribution in a room's floor must be carefully planned when constructing floor heating installation. In order to arrange cables on any surface in a quick and correct way, the heating mat system is applied. The system's construction ensures the appropriate distance between the cables and reduces the installation time. The mat's mesh (without a heating cable) can be easily cut, which in turn gives an oppor- tunity to move it in any direction on the floor. MATEC offers two types of heating mats, one and two-sided power supply. Moving the mat into two parallel and opposite directions, after cutting the mat's mesh, the beginning and the end of the mat meet at one side of the floor. In such situations, the cheaper, two-sided power supply mats can be used as they are equipped in a single-core heating cable, which is thinner than twisted-pair cable used in one-side power supply mats, and two power supply single-core cables. It is a significant advantage in the floor heating installation that allows to use a thinner layer of adhesive under the tiles.

Heating mats

• Heating mat arrangement. While planning the heating mat arrangement, first of all we must pay attention to construction elements or devices that will be located in the heated room. The mat arrangement must be planned in such a way the heating cables omit these elements and devices. The omitting can be easily done by cutting the mat's mesh (without cutting the heating cable). The layout arrangement of a mat should be done in a physical way, i.e. the mat should be arranged on a dry surface by cutting the mesh in the required places. At this point it is necessary to carry out the first out of two resistance measurements of the heating cable. If the value is in the tol-

erance value shown on the product label, we are sure that the mat was prepared to be arranged without any damage and the product itself does not have any defects.
• After the mat arrangement has been planned it is necessary to make grooves in the floor and in the wall for protective pipes, where the probe and power supply cables will be led. In order to make the installation connecting the heating mat with the temperature controller junction box it is necessary to put the protective pipes with cables into the grooves.
• After the cables have been arranged start to mount the heating mat by placing it in accordance with the previously planned

design. Put regularly the adhesive layer on the mat in order to arrange the tiles. Carry out the second resistance measurement of the heating cable just after laying the tiles in order to compare it with the value on the product label. If the data are equal with the indicated values, we are sure that the mat has not been damaged during tiles' installation.
• Finally, carry out the mat installation with a temperature controller mounted in the electric junction box 120 cm high from the ground. Next plaster the grooves with the previously installed cables.
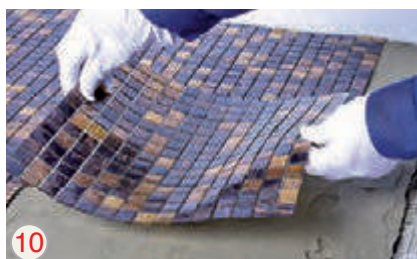
Heating foils

- Plan the layout of the heating foil by minding the structural parts of the installation location and the stationary equipment and/or heavy furniture which may obstruct the heat transfer. The heating foil sheets should be laid by avoiding these obstructions; otherwise, these spots will reduce the heating performance while resulting in excess waste of electrical power and a risk of overheating the obstructions. The obstructions will be easy to avoid since the heating foil sheets can be trimmed to any length or purchased in the required dimensions.
- Remove the heating foil sheet from the packaging and tests its electrical resistance. Verify that the test result matches the nameplate resistance value and record the former on the warranty certificate. Spread the heating foil flat on a dry and clean surface with a gap of 4 to 5 cm from the walls before installation, and mark out the power connection points on the substrate for every heating foil module. Underneath the heating foil laid out according to the installation plan, mark out the lines for the furrows which will accommodate the power supply cables, the connectors, and the flexible conduit for the floor temperature probe. Mark the location for the wiring

junction box and the temperature controller box on the wall. Cut furrows deep enough to install the planned system components flush with the substrate at the market locations and along the marked lines.
- With the wall and floor furrows ready, lay the foam underlay on the floor and make openings in it aligned with the floor furrows. Lay the foam underlay in contact with the walls.
- Feed the flexible conduit with the temperature controller's floor probe through the floor furrows. The probe must be at least 50 cm away from the walls. Feed the probe cable in the flexible conduit within the respective wall furrow and into the temperature controller box.
- With the foam underlay level and smooth and the floor temperature probe in place, cover the underlay with the heating foil modules trimmed and aligned according to the installation plan. Feed the power supply cables from the heating foil modules to the junction box. Now, test the electrical resistance of the system against the nameplate ratings.
- If the test result meets the nameplate rating of electrical resistance, join all adjacent modules with the insulating tape from the

ZM-02 kit. The insulating tape joints will prevent overlapping of the heating foil modules and seal off the gaps in between while laying the insulating foil and flooring panels. Join the heating foil modules with the insulating tape before connecting the power cables to the building power system.
- Connect the heating foil modules laid flat and wired together to the power supply source (via the temperature controller or a switchable contactor). With all the wiring connected, test the operation of the heating foil modules; if the test is positive, record the electrical resistance test results in the warranty certificate.
- Once the heating foil modules have been tested for operation, cover them with plastic vapour barrier, followed by the remainder of the indoor finish work.
- Cover the plastic vapour barrier (the minimum thickness of which shall be 0,25 mm) with the flooring panels according to their installation instructions. With the flooring panel installation complete, do the last electrical resistance test and record its results in the warranty certificate. If the test results are within the nameplate ratings, the installation is correct and no heating foil module is damaged or has failed.
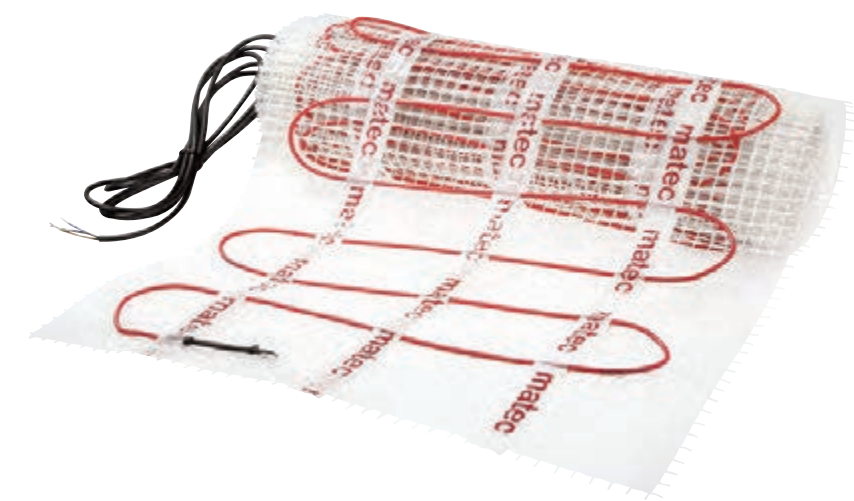
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Heating mat one-sided power supply MOJ

Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 150 W/m²
- operating temperature: 80°C
- protection degree: IPX7
- constant width of the mat: 50 cm

Accessories
- mat with a two-cable, shielded heating cable,
- power supply cables:
  H03VV-F 3G0,75 mm² /
  H05VV-F 3G1,5 mm² (3 m),
- protective pipe for power supply cable,
- flush-mounted electrical junction box Ø60, deepen,
- installation instruction with a Warranty Card.

Application
For indoor heating installations, in rooms such as bathroom, kitchen, hall and others where the same temperature or warm floor is required. It enables an easier connection way to power supply due to one-sided power supply.

The heating mat must be installed with a temperature regulator.

Product name	Type	Surface	Mat thickness	Power
Heating mat one-sided power supply	MOJ-10	1,0 m²	4,08 mm	150 W / 230 V AC
Heating mat one-sided power supply	MOJ-15	1,5 m²	4,25 mm	225 W / 230 V AC
Heating mat one-sided power supply	MOJ-20	2,0 m²	4,23 mm	300 W / 230 V AC
Heating mat one-sided power supply	MOJ-25	2,5 m²	4,48 mm	375 W / 230 V AC
Heating mat one-sided power supply	MOJ-30	3,0 m²	4,18 mm	450 W / 230 V AC
Heating mat one-sided power supply	MOJ-40	4,0 m²	4,38 mm	600 W / 230 V AC
Heating mat one-sided power supply	MOJ-50	5,0 m²	4,58 mm	750 W / 230 V AC
Heating mat one-sided power supply	MOJ-60	6,0 m²	4,15 mm	900 W / 230 V AC
Heating mat one-sided power supply	MOJ-70	7,0 m²	4,18 mm	1050 W / 230 V AC
Heating mat one-sided power supply	MOJ-80	8,0 m²	4,20 mm	1200 W / 230 V AC
Heating mat one-sided power supply	MOJ-105	10,5 m²	4,23 mm	1575 W / 230 V AC
Heating mat one-sided power supply	MOJ-125	12,5 m²	4,40 mm	1875 W / 230 V AC
Heating mat one-sided power supply	MOJ-150	15,0 m²	4,45 mm	2250 W / 230 V AC
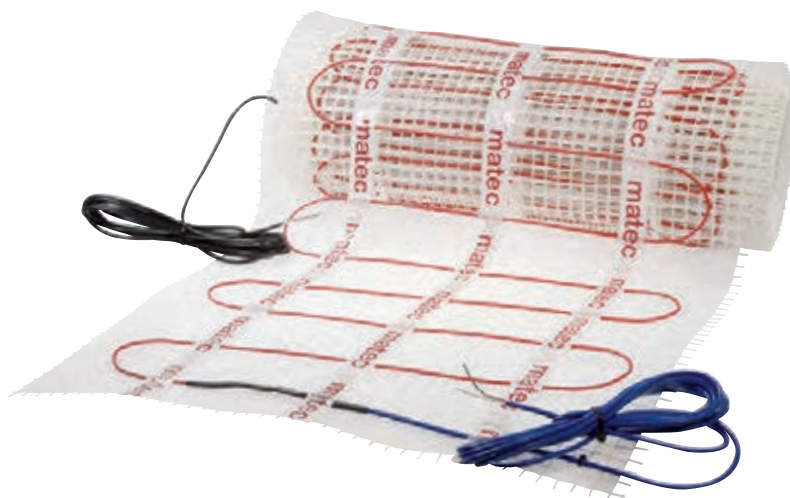
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Heating mat two-sided power supply MOD

Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 150 W/m²
- operating temperature: 80°C
- protection degree: IPX7
- constant width of the mat: 50 cm

Accessories
- mat with a single-wire, shielded heating cable,
- power supply cables:
  YcLXSek 300/500V 1x0,75 mm² (2x4 m),
- protective pipe for power supply cables,
- flush-mounted electrical junction box Ø60, deepen,
- installation instruction with a Warranty Card.

Application
For indoor heating installations in rooms such as bathroom, kitchen, hall and others where the same temperature or warm floor is required. It allows for application of a thinner layer of mortar due to the smaller cross-section of the heating cable.

The heating mat must be installed with a temperature regulator.

Product name	Type	Surface	Mat thickness	Power
Heating mat two-sided power supply	MOD-10	1,0 m²	3,09 mm	150 W / 230 V AC
Heating mat two-sided power supply	MOD-15	1,5 m²	3,22 mm	225 W / 230 V AC
Heating mat two-sided power supply	MOD-20	2,0 m²	3,14 mm	300 W / 230 V AC
Heating mat two-sided power supply	MOD-25	2,5 m²	3,34 mm	375 W / 230 V AC
Heating mat two-sided power supply	MOD-30	3,0 m²	3,39 mm	450 W / 230 V AC
Heating mat two-sided power supply	MOD-40	4,0 m²	3,39 mm	600 W / 230 V AC
Heating mat two-sided power supply	MOD-50	5,0 m²	3,46 mm	750 W / 230 V AC
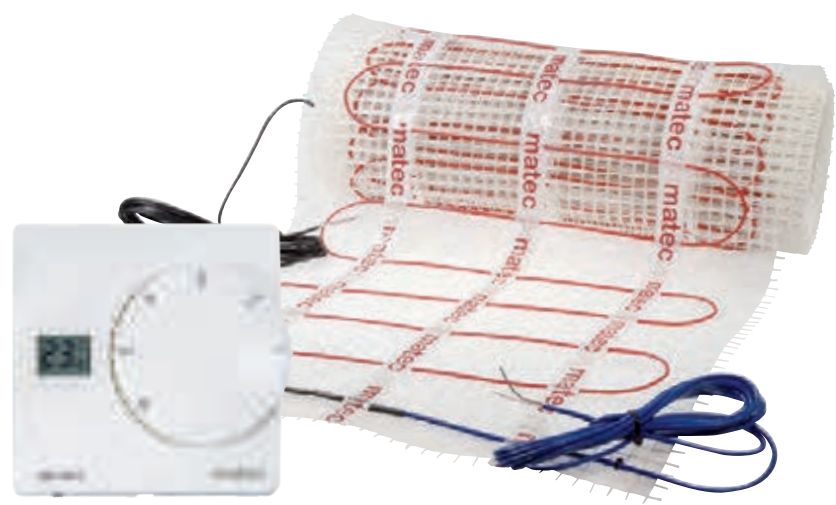
Floor heating set STANDARD

Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 150 W/m²
- operating temperature: 80°C
- protection degree: IPX7
- constant width of the mat: 50 cm

Accessories
- mat with a single-wire, shielded heating cable,
- temperature regulator: manual RTS-01A with a floor temperature sensor,
- power supply cables:
  YcLXSek 300/500 V 1x0,75 mm² (2x4 m),
- protective pipe for power supply cables,
- protective pipe with a shield for the temperature sensor,
- flush-mounted electrical junction box Ø60, deepen,
- installation instruction with a Warranty Card.

Application
For indoor heating installations in rooms such as bathroom, kitchen, hall and others where the same temperature or warm floor is required. It allows for application of a thinner layer of mortar due to the smaller cross-section of the heating cable.

Product name	Type	Surface	Mat thickness	Power
Floor heating set STANDARD	ZOD-10	1,0 m²	3,09 mm	150 W / 230 V AC
Floor heating set STANDARD	ZOD-15	1,5 m²	3,22 mm	225 W / 230 V AC
Floor heating set STANDARD	ZOD-20	2,0 m²	3,34 mm	300 W / 230 V AC
Floor heating set STANDARD	ZOD-25	2,5 m²	3,59 mm	375 W / 230 V AC
Floor heating set STANDARD	ZOD-30	3,0 m²	3,39 mm	450 W / 230 V AC
Floor heating set STANDARD	ZOD-40	4,0 m²	3,39 mm	600 W / 230 V AC
Floor heating set STANDARD	ZOD-50	5,0 m²	3,46 mm	750 W / 230 V AC

Floor heating set STANDARD PLUS

Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 150 W/m²
- operating temperature: 80°C
- protection degree: IPX7
- constant width of the mat: 50 cm

Accessories
- mat with a two-wire, shielded heating cable,
- temperature regulator: programmable RTP-1 device with floor temperature sensor,
- power supply cables: H03VV-F 3G0,75 mm² (3 m) ,
- protective pipe with a shield for the temperature sensor,
- protective pipe with a shield for the temperature sensor,
- flush-mounted electrical junction box Ø60, deepen,
- installation instruction with a Warranty Card.

Application
For indoor heating installations in rooms such as bathroom, kitchen, hall and others where the same temperature or warm floor is required. It allows for an easier power supply connection due to the one-sided power supply.

Product name	Type	Surface	Mat thickness	Power
Floor heating set STANDARD PLUS	ZOJ-10	1,0 m²	4,08 mm	150 W / 230 V AC
Floor heating set STANDARD PLUS	ZOJ-15	1,5 m²	4,48 mm	225 W / 230 V AC
Floor heating set STANDARD PLUS	ZOJ-20	2,0 m²	4,23 mm	300 W / 230 V AC
Floor heating set STANDARD PLUS	ZOJ-25	2,5 m²	4,58 mm	375 W / 230 V AC
Floor heating set STANDARD PLUS	ZOJ-30	3,0 m²	4,18 mm	450 W / 230 V AC
Floor heating set STANDARD PLUS	ZOJ-40	4,0 m²	4,38 mm	600 W / 230 V AC
Floor heating set STANDARD PLUS	ZOJ-50	5,0 m²	4,58 mm	750 W / 230 V AC

Heating foil use under floor panels FGP
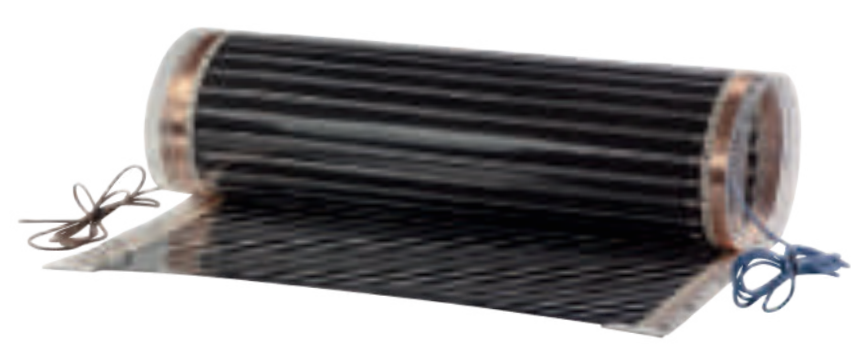
Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 80 W/m²
- protection degree: IPX1
- foil thickness: 0,4 mm
- constant width of the foil: 50 cm

Accessories
- heating foil,
- set of connecting cables,
- mounting kit.

Application
For underfloor heating installed under dry laminated panels. It functions as an additional or basic heating in flats, cottages, public buildings.

Technical data

Product name	Type	Dimensions	Surface of foil	Power
Heating foil use under floor panels	FGP-80/0,5x1	0,5 x 1 m	0,5 m²	40 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x2	0,5 x 2 m	1,0 m²	80 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x3	0,5 x 3 m	1,5 m²	120 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x4	0,5 x 4 m	2,0 m²	160 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x5	0,5 x 5 m	2,5 m²	200 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x6	0,5 x 6 m	3,0 m²	240 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x7	0,5 x 7 m	3,5 m²	280 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x8	0,5 x 8 m	4,0 m²	320 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x9	0,5 x 9 m	4,5 m²	360 W / 230 V AC
Heating foil use under floor panels	FGP-80/0,5x10	0,5 x 10 m	5,0 m²	400 W / 230 V AC

Manual temperature regulator RTS-01A

Description

Surface, manual temperature regulator co-operating with water and electric floor heating. It controls the temperature by means of an inner built-in sensor or an external floor sensor. It is mounted on a wall. A possibility of mounting the regulator in a Ø60 electric junction box . The floor sensor is included in the set.

Accessories

- floor sensor with NTC probe temperature 100 K for 25°C,
- 2,5 m long sensor cable,
- built-in air temperature sensor.

Features

- LCD display show the room's current temperature,
- operating modes: economic or comfort,
- easy, intuitive programming.

Technical data

Power supply voltage:	100 ÷ 240 V AC
Nominal frequency:	50 / 60 Hz
Room temperature adjustment range:	+5 ÷ 30°C
Floor temperature adjustment range:	+5 ÷ 40°C
Temperature measurement accuracy:	±1°C
Operating temperature:	-5 ÷ +50°C
Output type:	relay 16 A for 230 V AC
Nominal power consumption:	0,35 W – Stand-by
Supply terminals:	L(5); N(6)
NTC sensor terminals:	RT+; RT-
Number of connection terminals:	6
Cross-section of connection cables:	0,5 ÷ 1,5 mm²
Casing protection degree:	IP21
Protection class:	II
Overvoltage category:	II
Dimensions height / width / depth:	86 x 86 x 38 mm
Weight:	160 g
Colour:	white

Programmable temperature regulator RTP-01

Description

Flush, programmable temperature regulator cooperating with electric floor heating. It controls and regulates the temperature:
• by means of an inner sensor,
• by means of an external sensor (floor),
• by means of an inner sensor including an external sensor limiting the temperature.
Mounting in a Ø60x60 mm electric junction box.

Accessories

• floor sensor with NTC probe temperature NTC 5 K for 25°C,
• 2 m long sensor cable,
• built-in air temperature sensor.

Features

• LCD display with big, readable signs and blue display backlight,
• indoor or outdoor sensor temperature display,
• time and current operating programme display,
• protection against too high temperature and anti-freezing function
• programming with the use of 4 separate time intervals during a day,
• 7-day programmer.

Technical data

Power supply voltage:	85 ÷ 265 V AC
Nominal frequency:	50 / 60 Hz
Room temperature adjustment range:	+5 ÷ 45°C
Floor temperature adjustment range:	+5 ÷ 45°C
Temperature measurement accuracy:	±1°C
Operating temperature:	-5 ÷ +50°C
Casing protection degree:	IP40
Humidity:	<90% without condensation
Protection class:	II
Output type:	1NO-16 A / 250 V AC1 4000 VA - voltage contact
Nominal power consumption:	6 mA / 0,4 W
Supply terminals:	L(1); N(5)
NTC sensor terminals:	(6); (7)
Number of connection terminals:	7
Cross-section of connection cables:	0,5 ÷ 2,5 mm²
Overvoltage category:	II
Dimensions height / width / depth:	86 x 86 x 46 mm
Weight:	190 g
Colour:	white

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Touch screen, programmable temperature regulator RTD-01

Description

Surface, programmable temperature regulator equipped with resistive touch screen. It controls and regulates the temperature:
• by means of an inner sensor,
• by means of an external sensor (floor),
• by means of an inner sensor including an external sensor limiting the temperature.
Mounting in a Ø60x60 mm electric junction box.

Accessories

• floor sensor with NTC probe temperature 100 K,
• built-in air temperature sensor.

Features

• colour TFT screen with a diagonal of 2,4"
• resistive touch screen,
• consumption of energy monitoring,
• anti-freezing function
• 7-day programmer, 6 presets intervals within day and night,
• language support in Polish, English, German, Russian, Norwegian, Danish, Romanian, French, Swedish,
• cooperates with some floor sensors of other companies.

Technical data

Power supply voltage:	100 ÷ 240 V AC
Nominal frequency:	50 / 60 Hz
Room temperature adjustment range:	+5 ÷ 35°C
Floor temperature adjustment range:	+5 ÷ 45°C
Temperature measurement accuracy:	±0,5°C
Operating temperature:	0 ÷ +50°C
Casing protection degree:	IP21
Protection class:	II
Output type:	relay 16 A for 230 V AC
Nominal power consumption:	0,73 W – Stand-by
Supply terminals:	L(1); N(2)
NTC sensor terminals:	(6); (7)
Heating element terminals:	(3); (4)
Number of connection terminals:	7
Cross-section of connection cables:	0,5 ÷ 1,5 mm²
Overvoltage category:	II
Dimensions height / width / depth:	83,5 x 83,5 x 39,5 mm
Weight:	129 g
Colour:	white

Touch screen, programmable temperature regulator RTD-02

Description

Programmable, flush-mounted regulator equipped with a clear screen controlled by touch buttons. It controls and regulates the temperature:

a) by means of an inner sensor,

b) by means of an external sensor (floor),

c) by means of an inner sensor controlling the temperature inside and an external sensor in the floor which acts as over-heating protection of the floor.

Accessories

- floor sensor with temperature probe 10 K,
- built-in air temperature sensor,
- probe cable, length 2,5 m.

Features

- 3,2" LCD display,
- touch buttons under the screen,
- very clear characters on the screen,
- anti-freezing function;
- 7-day programmer (5+2 or 6+1) with 24 hours temperature and time adjustment,
- easy, intuitive operation in English.

Technical data

Power supply voltage:	100 ÷ 240 V AC
Nominal frequency:	50 / 60 Hz
Room temperature adjustment range:	+5 ÷ 35°C
Floor temperature adjustment range:	+5 ÷ 45°C
Temperature measurement accuracy:	±0,5°C
Operating temperature:	+5 ÷ 45°C
Casing protection degree:	IP20
Protection class:	II
Output type:	relay 16 A for 230 V AC
Nominal power consumption:	0,5 W – Stand-by
Supply terminals:	L (4); N (3)
NTC sensor terminals:	(5); (6)
Heating element terminals:	L1 (1); N1 (2)
Number of connection terminals:	6
Cross-section of connection cables:	0,5 ÷ 2,5 mm²
Overvoltage category:	II
Dimensions height / width / depth:	86 x 86 x 13,3 x 39 mm
Weight:	290 g
Colour:	white or black

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Wi-Fi, touch screen, programmable temperature regulator RTW-01

Description

Programmable, flush-mounted temperature controller for control and monitoring of room temperature. The device works with electric floor heating. Flush-mounting in a deep electrical box. The device has backlit touch buttons underneath the screen. It can work as a floor temperature limiter. Wireless Wi-Fi support.

Accessories

- floor sensor with NTC probe temperature 10 K,
- built-in air temperature sensor,
- probe cable, length 3 m.

Features

- 3" LCD display,
- operation with touch buttons,
- anti-freeze protection,
- protection against floor overheating,
- programmable temperature controller works with internal or floor sensors or with both sensors simultaneously (the floor sensor works here as a floor temperature limiter)
- Wi-Fi works with an Android and iOS application (application in English and Polish). It works only in the cloud.

Technical data

Power supply voltage:	85 ÷ 265 V AC
Nominal frequency:	50 / 60 Hz
Room temperature adjustment range:	+5 ÷ 40°C
Floor temperature adjustment range:	+5 ÷ 40°C
Temperature measurement accuracy:	±0,5°C
Operating temperature:	-5 ÷ +45°C
Casing protection degree:	IP21
Protection class:	II
Output type:	15 A / 230 V
Nominal power consumption:	< 2 W (of Wi-Fi)
Supply terminals:	L, N
NTC sensor terminals:	SENSOR
Heating element terminals:	L1, N1
Number of connection terminals:	6
Cross-section of connection cables:	0,5 ÷ 2,5 mm²
Overvoltage category:	II
Dimensions height / width / depth:	96 x 96 x 15/41 mm
Weight:	160 g
Colour:	white or black

Temperature regulator GKN-01

Description

Programmable, flush-mounted temperature regulator cooperating with electric floor heating. It controls and regulates the temperature:
• by means of an inner sensor,
• by means of an external sensor (floor),
• by means of an inner sensor including an external sensor limiting the temperature.
Mounting in a deep Ø60 mm electric junction box.

Accessories

• temperature regulator module – 2 built-in temperature sensors: air temperature measurement, correction
• power supply module 230 V with relay output 16 A and input to the NTC probe , equipped with w mounting frame
• floor sensor with NTC temperature probe– cable, length 3 m.

Features

• clear 16x16 LED display with automatic brightness adjustment
• intuitive menu allowing quick change of timer programmes,
• 5 touch, backlit buttons,
• 9 operation modes: manual, night, day, work, home, holidays, anti-freezing, OFF
• 7-day timer programmes with hourly intervals,
• protection against too high temperature and anti-freezing function,
• screensaver with possibility to display: temperature, hour, mode,
• alarm clock function.

Technical data

Power supply voltage:	230 V AC
Nominal frequency:	50 / 60 Hz
Clock power supply:	battery CR1220 3V
Temperature adjustment range:	+5 ÷ 50°C
Temperature measurement accuracy:	±0,5°C
Display:	matrix LED 16x16
Control:	5 backlit capacitive buttons
Indication of communication /status:	2 LEDs red/blue
Number of connection terminals:	4
Floor probe connector:	T1, T2
Supply terminals:	L, N
Output voltage terminals:	L', N
Output type:	relay 1 NO 16 A / 250 V AC1 4000 VA – voltage contact
Ingress protection rating of the casing:	IP21
Operating temperature range:	-10 ± 55°C
Protection class:	II
Surge protection category:	II
Dimensions height / width / depth:	90 x 90 x 45 mm
Weight:	0,156 kg

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Modular temperature regulator RTM-01 / RTM-02 / RTM-03

Description

Temperature regulators are used to control heaters, floor heating depending on the ambient temperature close to the external NTC sensor. The devices has a possibility to control the adjusted temperature by means of a potentiometer placed on its front panel. RTM-03 additionally has the option of adjusting the hysteresis value in the range 0,25 ÷ 2,5 ºC.

Accessories

- NTC-03 temperature sensor with 3 m long cable – not included in the set – the sensor can be purchased separately,
- NTS-01 temperature sensor, surface mounted – not included in the set – the sensor can be purchased separately.

Features

- supply voltage signalling,
- relay status signalling.

Technical data

	RTM-01	RTM-02	RTM-03
Power supply voltage:	230 V AC		
Nominal frequency:	50 / 60 Hz		
Nominal current consumption:	33 mA		26 mA
Temperature adjustment range:	+5 ÷ 40°C	-10 ÷ +40°C	-10 ÷ +90°C
Hysteresis:	±1 °C		0,25 ÷ 2,5°C
Regulator operation temperature range:	-20 ÷ +60°C		
Relay current:	16 A		
Casing protection degree:	IP20		
Casing mounting:	TH-35 rail		
Cross-section of connection cables:	0,5 ÷ 2,5 mm²		
Casing type:	monomodular		
Dimensions height / width / depth:	90 x 17,5 x 66 mm		
Overvoltage category:	II		
Protection class:	II		
Weight:	80 g		
Colour:	white		

Modular temperature regulator RTM-20

Description

The RTM-20 digital temperature regulator is used to control heaters, floor heating depending on the ambient temperature close to the external NTC-3 sensor.

Accessories

- NTC-03 temperature sensor with 3 m long cable – not included in the set – the sensor can be purchased separately,
- NTS-01 temperature sensor, surface mounted – not included in the set – the sensor can be purchased separately. .

Features

- 10 operating modes in a day and week cycle,
- LCD display,
- the display shows the adjusted and room ambient temperature close to the sensor,
- maintaining the heating temperature depending on the ambient temperature,
- maintaining the ambient temperature depending on the temperature difference.

Technical data

Power supply voltage:	230 V AC
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	2 W / 14 VA
Temperature adjustment range:	+5 ÷ 60°C
Regulator operation temperature range:	-20 ÷ +60°C
Sensor operating temperature:	-20 ÷ +90°C
Relay current:	16 A
Casing protection degree:	IP20
Casing mounting:	TH-35 rail
Cross-section of connection cables:	0,5 ÷ 2,5 mm²
Casing type:	double-modular construction with a cover
Dimensions height / width / depth:	90 x 35 x 66 mm
Overvoltage category:	II
Protection class:	II
Weight:	140 g
Colour:	white

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Modular temperature regulator RTM-30/S

Description

The RTM-30/S regulator's operation is based on a heating / regulation curve. The regulator keeps the temperature of the heat source corresponding to the reference point. The regulation algorithm helps to reduce heating costs to a great extent but giving a full comfort of room and weather regulation.

Accessories

· temperature sensor STZ-01 (RTM-30/S),
· temperature sensor STZ-02 (RTM-30/S).

Features

· 10 operating modes in a day and week cycle,
· LCD display,
· the display shows the adjusted and room ambient temperature close to the sensor,
· maintaining the heating temperature depending on the ambient temperature,
· maintaining the ambient temperature depending on the temperature difference,
· economic regulation of heat sources giving big savings during heating.

Technical data

Power supply voltage:	230 V AC
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	1,5 W
Temperature adjustment range:	+5 ÷ 60°C
Regulator operation temperature range:	-20 ÷ +60°C
Sensor operating temperature:	-20 ÷ +90°C
Relay current:	2x 16 A
Casing protection degree:	IP20
Casing mounting:	TH-35 rail
Cross-section of connection cables:	0,5 ÷ 2,5 mm²
Casing type:	double-modular construction with a cover
Dimensions height / width / depth:	90 x 35 x 66 mm
Overvoltage category:	II
Protection class:	II
Weight:	180 g
Colour:	white

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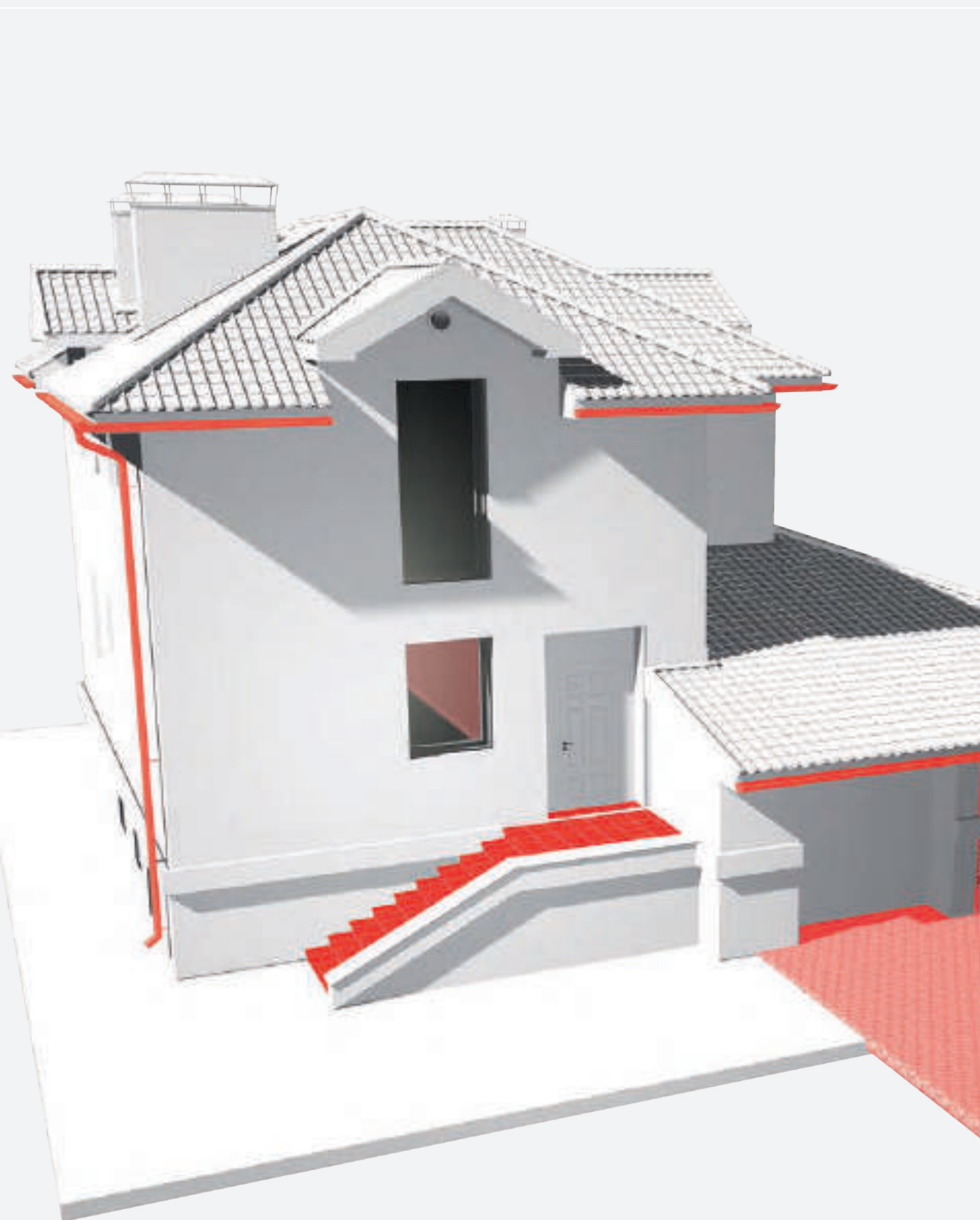
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Anti-icing systems

MATEC anti-icing systems include typical heating systems protecting against the icing of gutters, roofs, ramps, driveways, stairs and other used transport routes exposed to winter weather conditions. Each of these elements requires an individual approach and the application of the most efficient and effective systems protecting against freezing.

When designing the protections for gutters and roofs against lingering snow and the formation of dangerous icicles we need to use heating cables with specified power cooperating with a properly constructed control system verifying the icing. The protection of broadly understood transport routes and ramps requires the application of specific types of heating cables which

by their structure ensure correct operation under various subsurface conditions.

The anti-icing system is an effective protection against:
• the icing of gutters as a consequence leading to the formation of heavy and dangerous icicles and snow covers
• covering transport routes, car parks, vehicle driveways, etc. with snow or their icing
• dangerous icing of stairs and unloading ramps
• freezing of water in water supply systems.
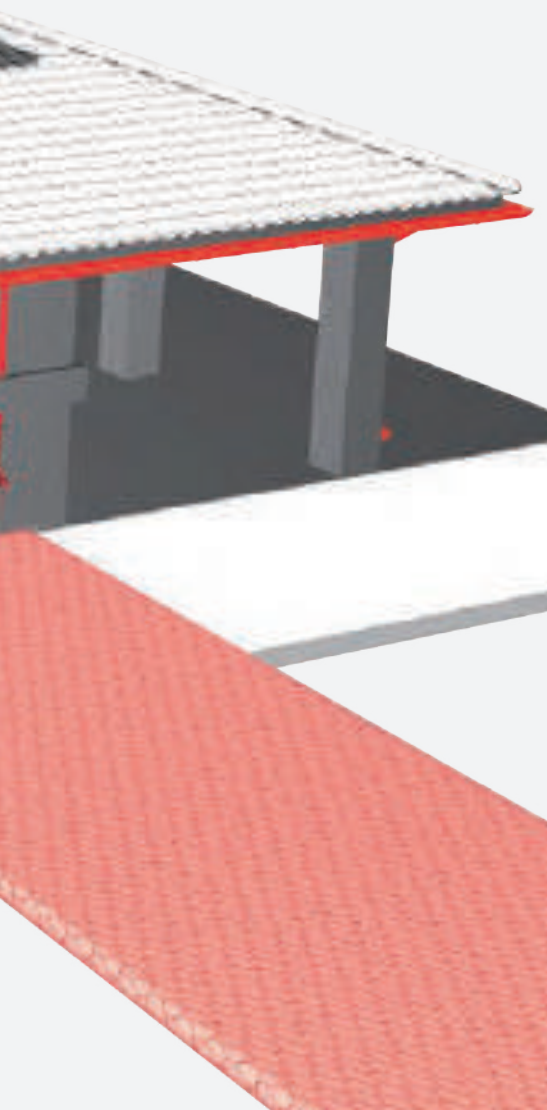
The protection for driveways and other transport routes (non-asphalt ones) against icing

Driveways, exits, in general all inclined road or sidewalk sections, should be protected against the effects of unfavourable winter weather conditions such as icing or covering with snow generating the danger of vehicle slides or pedestrian slips. This type of transport routes vary among themselves with the surface structure and the regional location including the weather zone. These two parameters need to be taken into account when planning and installing the anti-icing system, e.g. to use a proper heat source power. In order to simplify and minimize the problem of selecting the system, MATEC defined one universal power to be used in such places as sidewalks, access road sections, driveways, car parks or ramps, on the basis of experience and calculations. Taking into account the weather zone and the surface material, the power necessary to keep the surface free from ice ranges within 250÷320 W/m². The optimum power proposed by MATEC to keep the surface free from ice is 300 W/m². In this situation, we do not need to debate what power to choose. If we decide to invest, we do not have problems with placing the heating cable in terms of maintaining relevant distances between the routes; the structure coupling the cable into a heating mat ensures a correct placing of the heat source guaranteeing a uniform temperature distribution on the surface.

What remains is the aspect of a proper placement of the mat under the driveway's or the sidewalk's surface. The laminar structure of such places most often is such that the structural layer, namely the hardened base, is laid from the bottom, then a layer of sand or dry concrete and the highest part is concrete or cobblestone. With such structure of the transport route, the heating cables (heating mat) are laid in the layer of sand, or dry concrete, at the top part of its height. When installing heating, thermal insulation should be placed under the layer of sand directly on the hardened layer. The insulation will reduce losses of generated heat penetrating the ground. Styrodur may be used as thermal insulation. It is characterized by appropriate mechanical strength and low water absorbability and, what is the most important, a very small thermal conductivity rate. A temperature sensor is installed in the last upper layer. The sensor will inform about the temperature on the surface of the sidewalk.

The heating mats may also be installed in the concrete. Then, the heating cable are laid directly on the hardened base with thermal insulation unfolded and is poured over with a layer of concrete. The temperature sensor is placed permanently in a drilled trench on the surface of the concrete. The power supply cable with the temperature sensor (probe) wire is conducted in protective pipes directly to the power supply point with the temperature controller.

In places with numerous bends or barriers, MATEC stairway heating cable may be used. They fit perfectly in such situations.
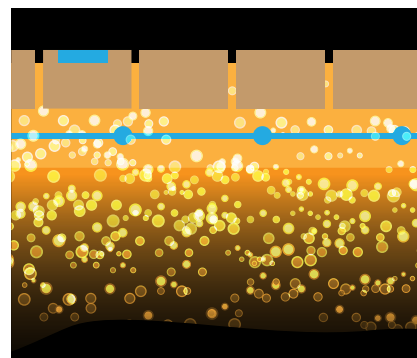
Layer cross-section of a sett driveway
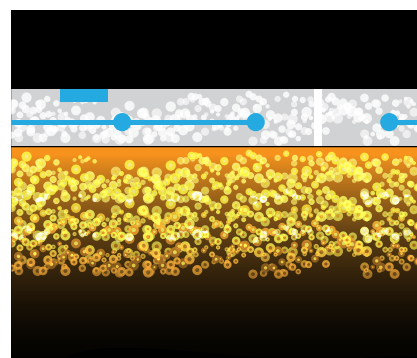
Layer cross-section of a concrete driveway

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Heating mats for driveways and other transport routes GMPD

Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 300 W/m²
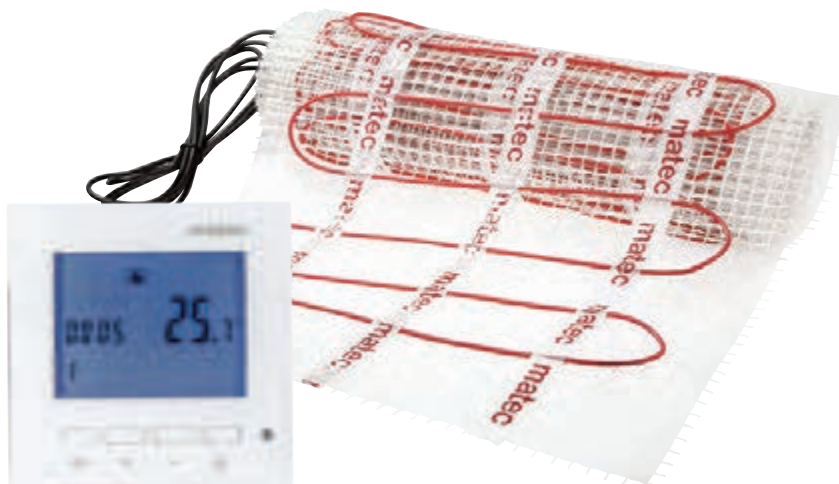- operating temperature: max. 80°C
- protection degree: IPX7
- one-sided power supply
- constant width of the mat: 45 cm

Accessories
- mat with a two-wire, shielded heating cable and a power supply cable: H05VV-F 3G1,5 mm², 5 m long,
- installation instruction with a Warranty Card.

Application
For outdoor installation under driveway, drive, ramp and other surfaces. Arrangement under concrete or sett. It must not be used with asphalt.

Product name	Type	Surface	Wire diameter	Power
Heating mat for driveways and ramps	GMPD-20 / 300	2,0 m²	5,98 mm	600 W / 230 V AC
Heating mat for driveways and ramps	GMPD-30 / 300	3,0 m²	5,63 mm	900 W / 230 V AC
Heating mat for driveways and ramps	GMPD-40 / 300	4,0 m²	5,88 mm	1200 W / 230 V AC
Heating mat for driveways and ramps	GMPD-50 / 300	5,0 m²	6,18 mm	1500 W / 230 V AC
Heating mat for driveways and ramps	GMPD-60 / 300	6,0 m²	6,38 mm	1800 W / 230 V AC
Heating mat for driveways and ramps	GMPD-70 / 300	7,0 m²	7,20 mm	2100 W / 230 V AC
Heating mat for driveways and ramps	GMPD-80 / 300	8,0 m²	7,40 mm	2400 W / 230 V AC
Heating mat for driveways and ramps	GMPD-100 / 300	10,0 m²	8,10 mm	3000 W / 230 V AC

Protection of stairs and ramps against icing

Stairs are one of the elements of transport routes. Because this element is located outside, this results in the probability of the formation of icing as a result of winter weather conditions. To prevent this, MATEC offers heating cables unilaterally powered with power 20 W/m intended for installation on stairs or ramps.

Just like the mats for driveways, the heating cables installed under the step surface should be a heat source with surface thermal power of 300 W/m². Distances between the laid cables should be precisely calculated to obtain this value.

The distance value may be easily calculated from a simple formula:

$$A_{odl} = \frac{20\,W/m \cdot 100\,cm/m}{300\,W/m^2}$$

Where:
Aodl - distance between laid wires

In this manner, the calculated distance for the case above is approx. 6,5 cm. However, that is not all. Each step of the stairs is a limited, strictly defined area, for which an appropriate length of the heating cable should be calculated. For instance, if there are steps to be "managed", dimensions 0.28x1,0 m, the cable length for one step Sind is calculated by multiplying the ratio of the surface thermal power and power assigned to 1 m of the cable by the area of one step.

$$S_{ind} = \frac{300\,W/m^2}{20\,W/m} \cdot 0,28\,m \cdot 1,0\,m$$

In this manner, the value S_{ind} = 4,2 m is obtained on one step. In order to determine the total cable length to be placed on all steps Sck this length is multiplied by the number of steps, e.g. 3, at the same time adding the height of each step increased by the distance of laid cables from the edge of the steps, e.g.

$$0,14\,m + 0,085\,m = 0,225\,m$$

The distance of cables from the edge may be assumed approximately as the difference between the sum of distances between cables placed on the step, in this case equal to 19,5 cm (3x6,5 cm), and the total step depth 28 cm, which gives the result 8,5 cm. This result is also the sum of two cable distances placed on the step from its two edges, the front and the rear one (4,25 + 4,25 cm). However, in practice it is recommended that the cable distance from the external step edge is smaller than the distance from its internal edge. Such a solution provides better protection for the step edge which is more exposed to icing.

$$S_{ck} = 3 \cdot 0,225\,m + 3 \cdot 4,2\,m = 13,275\,m$$

If the stairs have a landing (platform) with sample dimensions 1,0 x 0,85, the cable length needed for its heating amounts to:

$$P_{ck} = 0,85\,m \cdot 1,0\,m \cdot \frac{300\,W/m^2}{20\,W/m} = 12,75\,m$$

Having both values, i.e. S_{ck} and P_{ck}, we determine the total cable length DP_{sum} needed for heating the full stair element in the transport route.

$$DP_{sum} = S_{ck} + P_{ck} = 25,95\,m$$

In this case, specifically, the heating cable MATEC GPSY-26/20 may be used.

In the same manner, the distribution of the heating cable under the ramp surface is
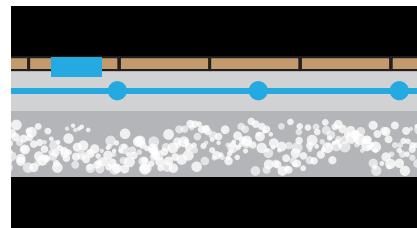
Layer cross-section of stair's surface
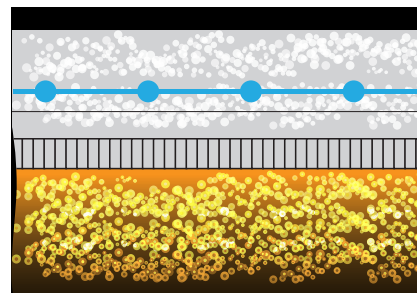
Layer cross-section of a concrete ramp

calculated. However, a different pavement structure may occur here. The structural layer is most often made from a reinforced concrete slab, which should be laid on thermal insulation. A layer of concrete is laid on the slab. In this case, the heating cable is laid directly on the slab and poured over with a layer of concrete. The heating cables should be placed between the expansion joints, namely gaps between structural, reinforced concrete slabs. In other words, one cable module is laid on one ramp slab. Then, without any problems, the power supply cables from all laid modules may be connected in parallel in one place (beyond the slabs).
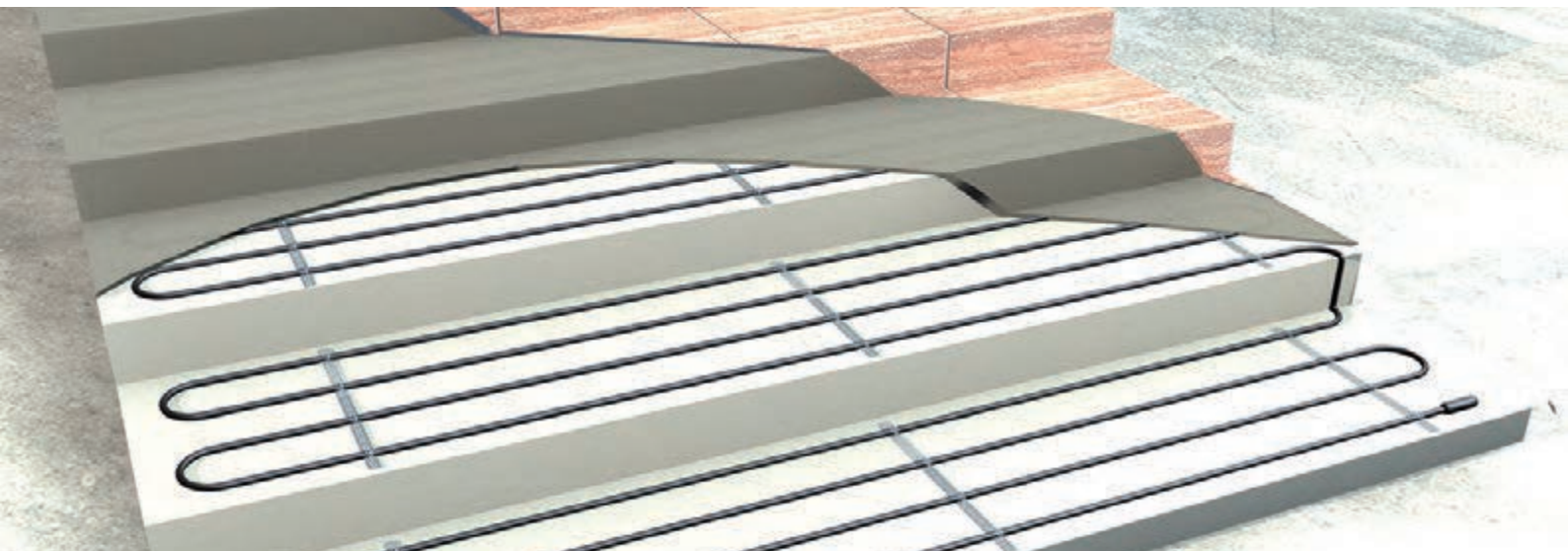
Heating mats for staircases and ramps GPSY

Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 20 W/m
- operating temperature: max. 80°C
- protection degree: IPX7
- one-sided power supply

Accessories
- mat with a two-wire, shielded heating cable and a power supply cable: H05VV-F 3G1 mm², 3 m long,
- installation instruction with a Warranty Card.

Application
For outdoor installation under the surface of stairs, ramp and other surfaces. Arrangement under concrete or sett.
It must not be used with asphalt.

Product name	Type	Length	Wire diameter	Power
Heating mat for stairs and ramps	GPSY-9,5 / 20	9,5 m	5,88 mm	190 W / 230 V AC
Heating mat for stairs and ramps	GPSY-15 / 20	15 m	5,95 mm	300 W / 230 V AC
Heating mat for stairs and ramps	GPSY-22 / 20	22 m	6,20 mm	440 W / 230 V AC
Heating mat for stairs and ramps	GPSY-26,5 / 20	26,5 m	6,18 mm	530 W / 230 V AC
Heating mat for stairs and ramps	GPSY-40,5 / 20	40,5 m	6,30 mm	810 W / 230 V AC
Heating mat for stairs and ramps	GPSY-51 / 20	51 m	6,05 mm	1020 W / 230 V AC
Heating mat for stairs and ramps	GPSY-60 / 20	60 m	6,20 mm	1200 W / 230 V AC
Heating mat for stairs and ramps	GPSY-70 / 20	70 m	6,30 mm	1400 W / 230 V AC
Heating mat for stairs and ramps	GPSY-80 / 20	80 m	6,25 mm	1600 W / 230 V AC
Heating mat for stairs and ramps	GPSY-90 / 20	90 m	6,30 mm	1800 W / 230 V AC
Heating mat for stairs and ramps	GPSY-100 / 20	100 m	6,35 mm	2000 W / 230 V AC

Constant resistance heating cables for gutters

Heating cables for gutters and for the roof need to be equipped with external insulation resistant to UV radiation because of the place where they operate. On the one hand, they may not crumble away after one or two summer seasons, on the other hand, they may not get stuck to the roofing material. Due to their open installation, i.e. on the surface of protected elements, these cables do not need to have very high heating power. However, the minimum power which should be maintained at anti-icing protection for gutters should not be smaller than 15W/m. A similar planning and calculation system as with subsurface cables applies here.

Heating cables for gutters, type GPRN, are equipped with a thermostat controlling the cable's operation depending on the temperature or the degree of icing. They are laid in gutters in pairs or individually depending on the gutter's diameter. If it is smaller than 8 cm, a single cable distribution system may be used, for larger diameters, pairs are recommended. The heating cables are clipped into a clip installed inside the gutter. The clips ensure a parallel and unchanged distribution of two working cables with respect to each other.

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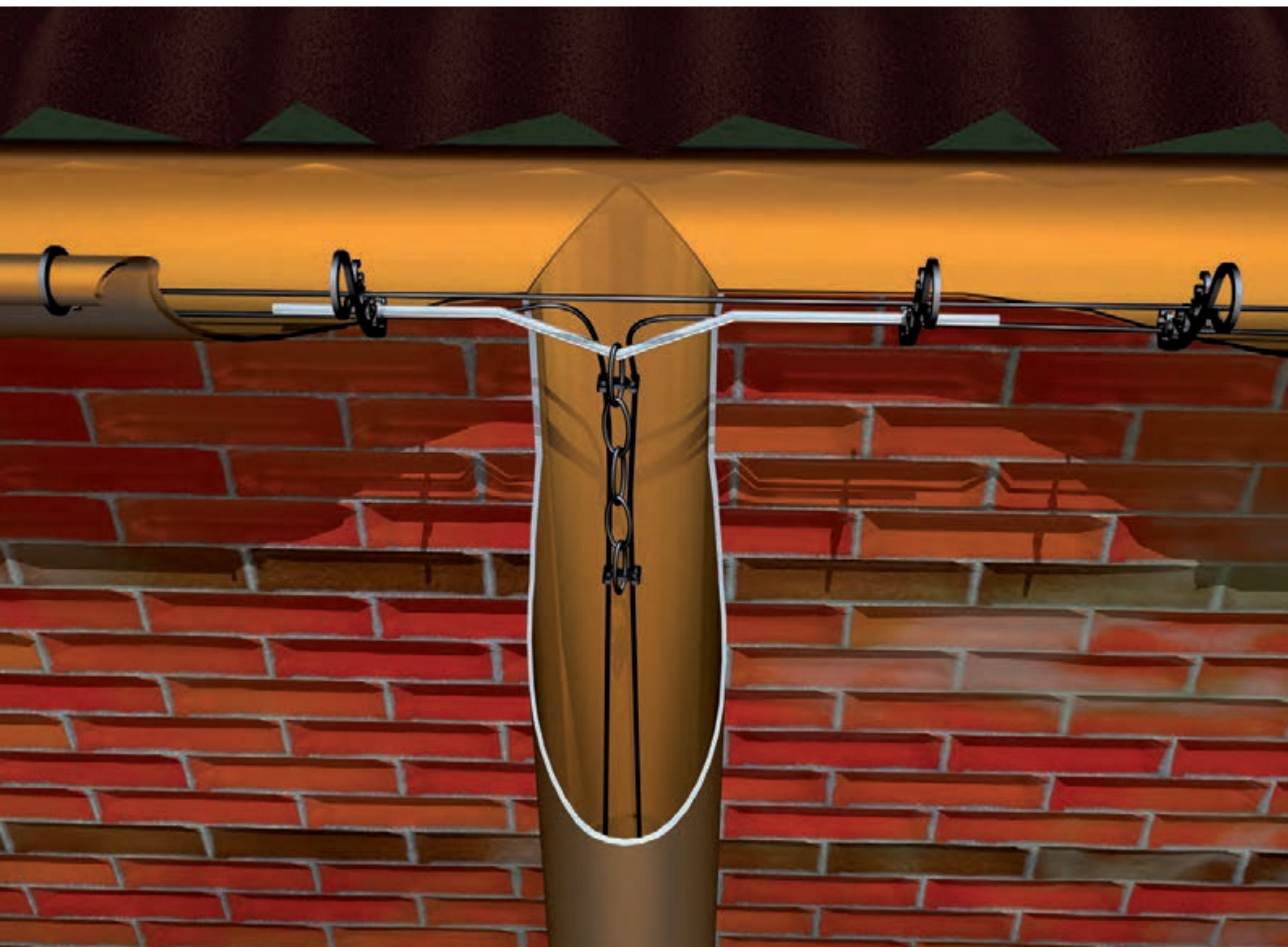
Heating cable for gutters GPRN

Technical data
• power supply voltage: 230 V, 50 Hz
• unit power: 18 W/m
• operating temperature: max. 80°C
• protection degree: IPX7
• one-sided power supply

Accessories
• mat with a two-wire, shielded heating cable and a power supply cable: H05VV-F 3G1 mm², 5 m long,
• installation instruction with a Warranty Card.

Application
Outdoor, for gutters, etc.

Product name	Type	Length	Wire diameter	Power
Heating cable for gutters	GPRN-12 / 18	12 m	5,80 mm	216 W / 230 V AC
Heating cable for gutters	GPRN-18 / 18	18 m	5,98 mm	324 W / 230 V AC
Heating cable for gutters	GPRN-24 / 18	24 m	5,90 mm	432 W / 230 V AC
Heating cable for gutters	GPRN-29 / 18	29 m	5,95 mm	522 W / 230 V AC
Heating cable for gutters	GPRN-36 / 18	36 m	6,25 mm	648 W / 230 V AC
Heating cable for gutters	GPRN-43 / 18	43 m	6,30 mm	774 W / 230 V AC
Heating cable for gutters	GPRN-50 / 18	50 m	6,20 mm	900 W / 230 V AC
Heating cable for gutters	GPRN-60 / 18	60 m	6,30 mm	1080 W / 230 V AC
Heating cable for gutters	GPRN-70 / 18	70 m	6,10 mm	1260 W / 230 V AC
Heating cable for gutters	GPRN-80 / 18	80 m	6,10 mm	1440 W / 230 V AC
Heating cable for gutters	GPRN-90 / 18	90 m	6,30 mm	1620 W / 230 V AC
Heating cable for gutters	GPRN-100 / 18	100 m	6,35 mm	1800 W / 230 V AC

Heating cables with thermostat

The anti-icing systems for pipes are the perfect idea for the protection of water supply systems, sewage pipes and other elements carrying water in places exposed to low temperatures. The heating cables are conducted on a pipe in a manner parallel or coiled towards its axis. In both cases, the cable is fixed with plastic strips or with adhesive tape included in MATEC product offer. The pipe coiling method is suggested due to better heat distribution on the thermally protected element.

The cables cannot cross or touch by their surface with each other. The heating cables for protecting pipes against water freezing are usually equipped with a thermostat automatically controlling the heating element. The thermostat is installed between the heating cable and the power supply cable. A device constructed in such a manner does not require the use of temperature regulators. The thermostat switches the heating on and off depending on the ambient temperature. At +3°C temperature, the heating cable is switched on, at 11°C temperature, it is switched off. The entire device, namely the cable with the thermostat, is connected to the voltage of 230V using

a plug installed at the end of power supply cable. In order to ensure the correctness of the device's response, it is very important for the thermostat's flat surface to be exactly adjacent to the heated surface.
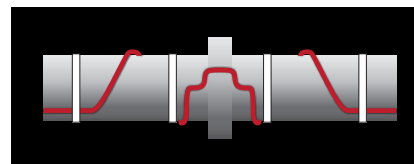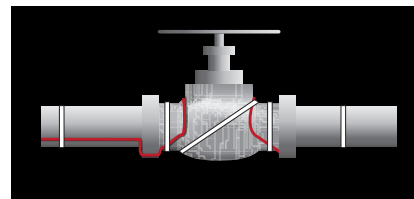
Heating cables with thermostat for pipes GPRU

exta free
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Technical data
- power supply voltage: 230 V, 50 Hz
- unit power: 18 W/m
- operating temperature: max. 80°C
- protection degree: IPX7
- temperature adjustment: +3°C switched on, +11°C switched off

Accessories
- mat with a two-wire, shielded heating cable and a power supply cable: H05VV-F 3G0,75 mm², 2 m long with Unischuko plug,
- installation instruction with a Warranty Card.

Application
For protection of pipes, valves against freeze.

Product name	Type	Length	Wire diameter	Power
Heating cables with thermostat for pipes	GPRU-2 / 15	2 m	9,1 x 6,5 mm	30 W / 230 V AC
Heating cables with thermostat for pipes	GPRU-4 / 18	4 m	5,06 mm	72 W / 230 V AC
Heating cables with thermostat for pipes	GPRU-6 / 18	6 m	5,22 mm	108 W / 230 V AC
Heating cables with thermostat for pipes	GPRU-10 / 18	10 m	5,48 mm	180 W / 230 V AC
Heating cables with thermostat for pipes	GPRU-14,5 / 18	14,5 m	5,78 mm	261 W / 230 V AC
Heating cables with thermostat for pipes	GPRU-20,5 / 18	20,5 m	5,63 mm	369 W / 230 V AC

Self-regulating heating cables

Self-regulating heating cables type GP-SR/17 are used to protect gutters, drain pipes, roofs against icing and in de-icing systems on pipes. These cables are resistant to UV radiation. The cables are laid inside gutters or drain pipes individually or in parallel. They can also be laid on roofs or pipes with liquid. These cables do not require installation with temperature controllers. Due to the fact that even at high temperatures a small current can appear, it is recommended to connect self-regulating and supply cables to the temperature controller, which in turn, disconnects power consumption. These cables can be installed with a temperature controller equipped with a temperature sensor, humidity sensor as well as ice and snow sensors.

The main advantages of self-regulating cables include:
• ensuring an optimal high temperature on any, independent wire operation section,
• no need to use temperature regulators.
• the possibility of cutting the cable at any place without the loss of operation efficiency.

Self-regulating cables are considered one of the most effective and economic heat sources in anti-icing systems. The semi-conductor material used in them is responsible for the self-regulation process.

Due to the material's characteristic properties, namely the variability of resistance in proportion to ambient temperature, the cable automatically collects electricity necessary for heating and, as a result, prevents the formation of ice deposits around. The consumed electricity changes its value in terms of resistance present in the semi-conductor cable core located between the strands conducting electricity. Resistance decreases at low external temperature, increasing its power. When power in the wire's core (between its strands) increases, more and more paths conducting electricity form, thus generating heat. The cable's temperature raised in this manner increases the core's resistance, as a result reducing the power and temperature.
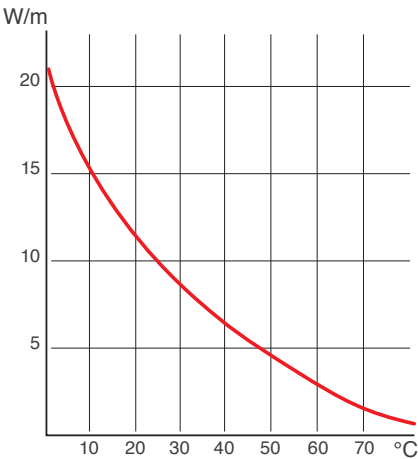
Dependency of output power and cable temperature GP-RS/17 230 V on a pipe

Minimum start-up temperature	GP-SR/17 230 V AC	Current
10°C	110 m	10 A
	143 m	16 A
	167 m	20 A
	167 m	30 A
0°C	101 m	10 A
	140 m	16 A
	158 m	20 A
	159 m	30 A
-20°C	80 m	10 A
	125 m	16 A
	139 m	20 A
	140 m	30 A
-40°C	69 m	10 A
	108 m	16 A
	110 m	20 A
	118 m	30 A

Maximum length of self-regulating wire section and minimum start-up temperature.

Self-regulating heating cables for gutters, roofs, pipes GP-SR / 17

Technical data
- power supply voltage: 230 V, 50 Hz
- operating temperature: 65°C
- supply type: one-sided

Application

For protection gutters, drain pipes, roofs against icing and in de-icing systems on pipes.

Product name	Type	Wire diameter	Power
Self-regulating heating cable for gutters, roofs, pipes	GP-SR / 17	6,0 x 10,6 mm	17 W/m for 10°C

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Two-zone temperature regulator EM 524 90 EBERLE

Application

Ice controller (detector) for electric heating elements. Intended for controlling the defrosting of gutters, driveways, ramps, stairs. Temperature sensors, an ice and snow sensor or a temperature and humidity sensor should be used along with the detector.

Additional accessories

• ice and snow sensor ESF 524 001 (for open spaces)
• ice and snow sensor ESD 524 003 (for roof gutters)
• temperature and humidity sensor TFF 524 002 (for open spaces)
• surface and air temperature sensor TFD 524 004 (for roof gutters)
• *ice and snow sensor ESF 524 011 (for open spaces and for large loads, e.g. trucks). To be used only with sensor casing, type FAG 524 111
• *temperature and humidity sensor TFF 524 012 (for open spaces and for large loads, e.g. trucks). To be used only with sensor casing, type FAG 524 111
• *sensor casing, type FAG 524 111

Features

• LCD display,
• easy, manual service,
• automatic detection and control of connected sensors,
• meter of operation hours for heating system,
• easy and fast installation on rail,
• two-zone; a possibility to be used for two independent zones (e.g. roof and driveway).

Technical data

Power supply voltage:	230 V AC ±10%
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	<25 VA
Temperature adjustment range:	-45 ÷ +78°C
Ambient temperature range:	-20 ÷ +50°C
Relay current:	inductive: 4 A, resistant 16 A
Casing protection degree:	IP20
Casing mounting:	TH-35 rail
Casing dimensions:	159 / 90 / 58 mm (45 mm at the front)
Weight:	780 g
Value adjustment:	0 ÷ +6°C (for the ground and roof)
Heating:	two-zone
Protection class:	II
Colour:	grey
Menu language:	Polish, German, English, French, Finnish, Swedish, Czech, Dutch, Turkish, Hungarian

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One-zone temperature regulator EM 524 89 EBERLE

Application

One-zone ice controller (detector) for electric heating elements. Intended for controlling the defrosting of gutters, driveways, ramps, etc. One of these sensors should be used with the detector: temperature or humidity.

Additional accessories

- ice and snow sensor ESF 524 001 (for open spaces)
- ice and snow sensor ESD 524 003 (for roof gutters)
- temperature and humidity sensor TFF 524 002 (for open spaces)
- surface and air temperature sensor TFD 524 004 (for roof gutters)
- *ice and snow sensor ESF 524 011 (for open spaces and for large loads, e.g. trucks). To be used only with sensor casing, type FAG 524 111
- *temperature and humidity sensor TFF 524 012 (for open spaces and for large loads, e.g. trucks). To be used only with sensor casing, type FAG 524 111
- *sensor casing, type FAG 524 111

Features

- LCD display,
- easy, manual service,
- automatic detection and control of connected sensors,
- meter of operation hours for heating system,
- easy and fast installation on rail,
- operates only in the case of snowfall, freezing rain or ice risk.
- operation in mode "Measured values" or "Menu".

Technical data

Power supply voltage:	230 V AC ±10%
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	<15 VA
Temperature adjustment range:	-45 ÷ +78°C
Ambient temperature range:	-20 ÷ +50°C
Relay current:	inductive 4 A, resistant 16 A
Casing protection degree:	IP20
Casing mounting:	TH-35 rail
Casing dimensions:	106 / 90 / 58 mm (45 mm at the front)
Weight:	480 g
Value adjustment:	0 ÷ +6°C (for the ground and roof)
Heating:	relay
Protection class:	II
Colour:	grey
Menu language:	Polish, German, English, French, Finnish, Swedish, Czech, Dutch, Turkish, Hungarian

* On customer's request

Universal temperature regulator UTR-20 EBERLE

Application

Temperature controller is used to control the floor heating systems, open spaces.

Accessories

• PTC temperature sensor,
• input for F891000 temperature sensor.

Features

• easy, manual service.

Technical data

Power supply voltage:	207 ÷ 244 V AC
Nominal frequency:	50 / 60 Hz
Nominal power consumption:	<4 VA
Temperature adjustment range:	-40 ÷ +20°C
Ambient temperature range:	-20 ÷ +50°C
Relay current:	inductive 4 A , resistant 16 A
Casing protection degree:	IP65
Mounting:	surface
Casing dimensions:	122 / 120 / 56 mm
Protection class:	II
Weight:	440 g
Colour:	grey

Ice and snow sensor (for open spaces) ESF 524 001 EBERLE

Application

For use in open areas such as ramps and stairs. The sensor has a measuring element NTC for measuring the surface temperature, it has a sensor heater and two metal rings that allow to detect humidity.

Features

• connected to EM 524 90 or EM 524 89 thermoregulator,
• closed casing.

Technical data

Power supply voltage:	8 V AC
Nominal power consumption:	app. 7 W
Casing surface temperature:	app. 40°C
Connection cable:	5 x 0,5 mm², 15 m long
Ambient temperature range:	-30 ÷ +80°C
Identifying ring colour:	yellow
Mounting:	flat
Casing dimensions:	80 / 80 / 50 mm (Ø70 x 40 mm)
Weight:	1450 g
Resistance for 20°C:	12,7 kΩ
Weight:	440 g
Colour:	grey

Caution: alternatively, upon the customer's request, temperature and humidity sensor TFF 524 012 (for open spaces and for large loads, e.g. trucks). To be used only with sensor casing, type FAG 524 111.

Temperature and humidity sensor (in open areas) TFF 524 002 EBERLE

Application

For use in open areas such as ramps and stairs. The sensor has a measuring element NTC for measuring the surface temperature.

Features

• connected to EM 524 90 or EM 524 89 thermoregulator,
• closed casing.

Technical data

Connection cable:	4 x 0,5 mm², 15 m long
Ambient temperature range:	-30 ÷ +80°C
Identifying ring colour:	blue
Connection cable:	5 x 0,25 mm², 4 m long
Mounting:	flat
Casing dimensions:	80 / 80 / 50 mm (Ø70 x 40 mm)
Weight:	1450 g
Resistance for 20°C:	3,4 kΩ

Caution: alternatively, upon the customer's request, temperature and humidity sensor TFF 524 012 (for open spaces and for large loads, e.g. trucks). To be used only with sensor casing, type FAG 524 111.

Ice and snow sensor (for roof gutters) ESD 524 003 EBERLE

Application
For use in roof gutters.
The sensor has a two-wire cable and a built-in NTC measuring element.

Features
• connected to EM 524 90 or EM 524 89 thermoregulator,
• closed casing.

Technical data

Power supply voltage:	8 V AC
Ambient temperature range:	-30 ÷ +80°C
Nominal power consumption:	app.3 W
Casing surface temperature:	app.40°C
Connection cable:	5 x 0,25 mm², 4 m long
Ambient temperature range:	-30 ÷ +80°C
Mounting:	in roof gutters
Dimensions:	225 / 108 / 13 mm
Weight:	230 g
Resistance for 20°C:	12,7 kΩ

Temperature sensor (for roof gutters) TFD 524 004 EBERLE

Application

For use in roof gutters. The sensor has a two-wire cable and a built-in NTC measuring element.

Features

- connected to EM 524 90 or EM 524 89 thermoregulator,
- easy to place.

Technical data

Connection cable:	2 x 0,5 mm², 4 m long
Ambient temperature range:	-30 ÷ +80°C
Weight:	145 g
Resistance for 20°C:	3,4 kΩ

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Temperature sensor (for UTR-20) F891000 EBERLE

Application

For use with UTR-20. The sensor includes two-wire cable and a built-in NTC measurement element.

Features

- connected to EM 524 90 or EM 524 89 thermoregulator,
- easy to place.

Technical data

Connection cable:	2 x 0,5 mm², 4 m long
Ambient temperature range:	-25 ÷ +70°C
Weight:	160 g
Resistance for 20°C:	962 kΩ

Zinc-coated installation tape TMS-01

Application

Zinc-coated installation tape, width 21 mm and thickness 0,5 mm. It is used to mount heating cables in surface heating systems. Take care not to damage the installed heating cable during the installation. The tape in the roll is 7,5 m long.

Reinforced installation tape TMW-01

Application

Tape fixing the heating cable for water supply pipes. The tape is made of reinforced material guaranteeing a firm fixing of the cable to the pipe.

Self-adhesive aluminium tape TAS-01

Application

For installation of heating cables on piping.
Tape width: 50 mm.
Tape length in reel: 50 m.

Clip for gutters KRU-01

Application

KRU-01 clips for gutters are used to install resistance heating cables in horizontal gutters with a diameter up to 120 mm. They ensure distance between the heating cable when it is laid in the gutter in pairs. The recommended distance between the clips in the gutter is 25 cm. One packaging contains 25 pcs.

Clip for outlet pipes KRS-01

Application

KRS-01 clips for outlet pipes are used to install resistance heating cables in outlet pipes. They are clipped into a chain. It ensures a distance between the heating cable when it is laid in the outlet pipe in pairs. The recommended distance between the clips on the chain is 25 cm. One packaging contains 25 pcs.

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Chain for outlet suspension LS-01

Application
Chain for suspension is used in anti-icing systems. It is a load-carrying element for clips for outlet pipes. In the outlet pipe, it is suspended on a suspension to outlet pipes. One meter of the chain contains 22 links. The packaging contains links for 10 m of the chain.

Suspension for outlet pipe ZW-01

Application
The suspension is used to suspend the chain with the heating cable in the outlet pipe. It is made of acid-resistant stainless steel.

Installation set ZM-01

Application
It consists of elements ensuring a hermetic connection of the self-regulating heating cable GP-SR/17 with the power supply cable and the termination of the heating cable. They are used for the operating temperature: -20 ÷ +60 °C, power supply voltage 230 V AC and maximum current intensity: 16 A.

Kit for montage heating foil ZM-02

Application
Mounting kit for electrical heating foil connection for underfloor heating. Contains two connecting wires, connectors and insulating tape. Components of the kit:
• brown wire 2,5 mm² – 5 m,
• blue wire 2,5 mm² – 5 m,
• yellow/green wire 2,5 mm² – 5 m,
• clips – 3 szt,
• sealing tape – 0,3 m.

Door entry systems ENTRA

The ENTRA product group from ZAMEL is a range of voice intercoms and video intercoms.

Here, the VP-800 stands out as an innovative solutions dedicated to singe and twin homes. A clear advantage of the VP-800 series is the custom configurability of the core kit with entrance panels and video monitors. Each core kit can be extended with additional entrance panels and video monitors. This feature is particularly important for large-space buildings and estates with multiple walk gates. To compose your dedicated system, you can group up to four monitors and two entrance panels of choice. Moreover, if you connect additional CCTV cameras, your kit may operate as a video recorder.

With their modern design, the VP-800 video monitors will come as a unique feature in the interior of any single-family home. Each monitor features a clear 7" display. The touchscreen LCD enables easy and convenient use of the entry phone. Aside from the standard and expected functionality, VP-800 video monitors can be used in a number of additional ways, including as a music player, a voice recorder, a calendar and even as a baby monitor. Additionally, VP-800 video monitors come with an image recording feature triggered by motion detection and a snapshot function activated by pressing the button on the entrance panel. The pulsating backlight indicates each new voice message or snapshot in the system.
The entrance panel is made of a zinc alloy and designed for surface installation. The device comes with an infrared illuminator to enable night vision.

The VP-800 series allows you to build a dedicated kit according to custom requirements. To configure your core kit, simply select one of the fourteen video monitors available and one of the eight entrance panels. The basic functionality aside, the solution can unlock driveway and walk gates with an RFID reader or a code pad. The individual system components vary both in their functionalities and in their design and colour.

One family audio door entry kit, for flush mounting
MK-1/A

Technical data

Intercom dimensions:	85 x 218 x 55 mm
Outdoor panel dimensions:	100 x 170 x 40 mm
Power supply:	230 V AC / 12 V AC
Temperature operating range of the outdoor panel:	-20 ÷ 50°C
Temperature operating range of the intercom:	-20 ÷ 50°C
Power consumption - standby / operation:	0,4 W / 7 W
Mounting:	flush
Weight:	1,25 kg

The kit include
• Outdoor panel,
• Intercom,
• Power supply,
• Mounting pins.

Features
• Aluminium outdoor panel with flush mounting box,
• Electromechanical call tone,
• A possibility of attaching an additional intercom,
• Surface mounting possibility (additional casing SMB-M/S).
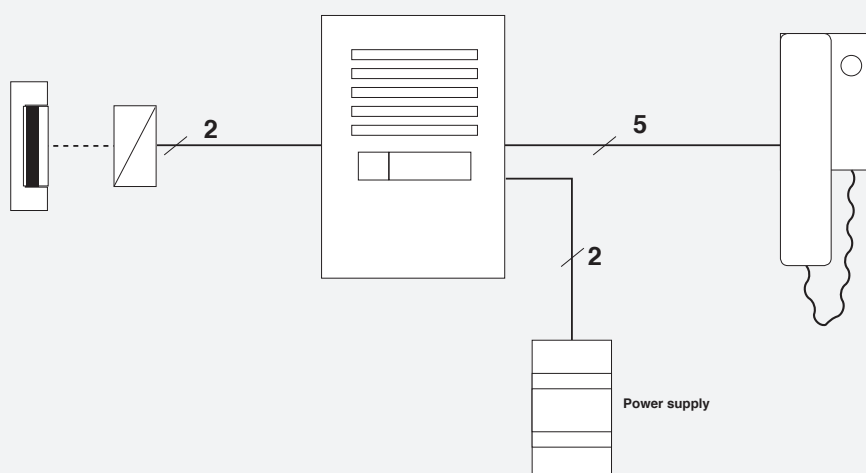
Power supply

Two family audio door entry kit, for flush mounting
MK-2/A

Technical data

Intercom dimensions:	85 x 218 x 55 mm
Outdoor panel dimensions:	100 x 170 x 40 mm
Power supply:	230 V AC / 12 V AC
Temperature operating range of the outdoor panel:	-20 ÷ 50°C
Temperature operating range of the intercom:	-20 ÷ 50°C
Power consumption - standby / operation:	0,4 W / 7 W
Mounting:	flush
Weight:	1,55 kg

The kit include
- Outdoor panel,
- Intercom,
- Power supply,
- Mounting pins.

Features
- Aluminium outdoor panel with flush mounting box,
- Electromechanical call tone,
- A possibility of attaching additional intercoms - 1 piece for every call signal,
- Surface mounting possibility (additional casing SMB-M/S).

Power supply

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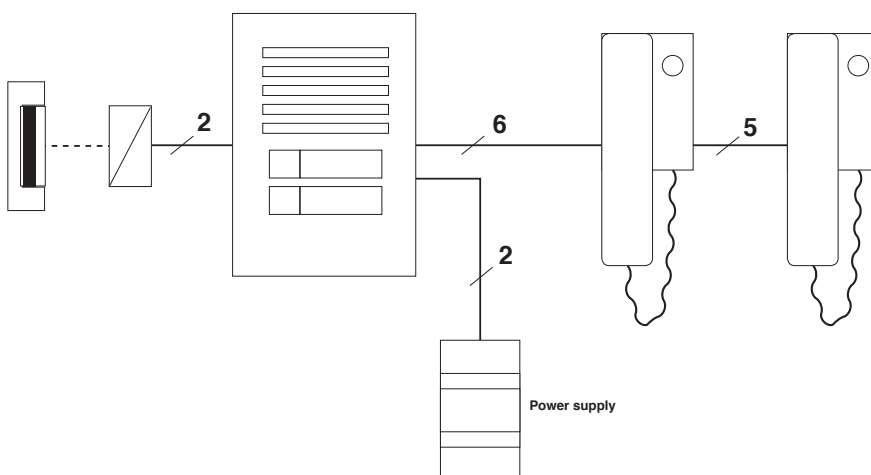
One family "2- wire" audio door entry kit, for flush mounting
ESK-1/A

Technical data

Intercom dimensions:	85 x 218 x 55 mm
Outdoor panel dimensions:	100 x 168,5 x 45 mm
Power supply:	230 V AC / 12 V AC
Temperature operating range of the outdoor panel:	-20 ÷ 50°C
Temperature operating range of the intercom:	-20 ÷ 50°C
Power consumption - standby / operation:	0,7 W / 4 W
Mounting:	flush
Weight:	1,3 kg

The kit include
• Outdoor panel,
• Intercom,
• Power supply,
• Mounting pins.

Features
• 2-wire door entry kit,
• Aluminium outdoor panel with flush mounting box,
• Electromechanical call tone,
• A possibility of call signal adjustment at 3 levels.
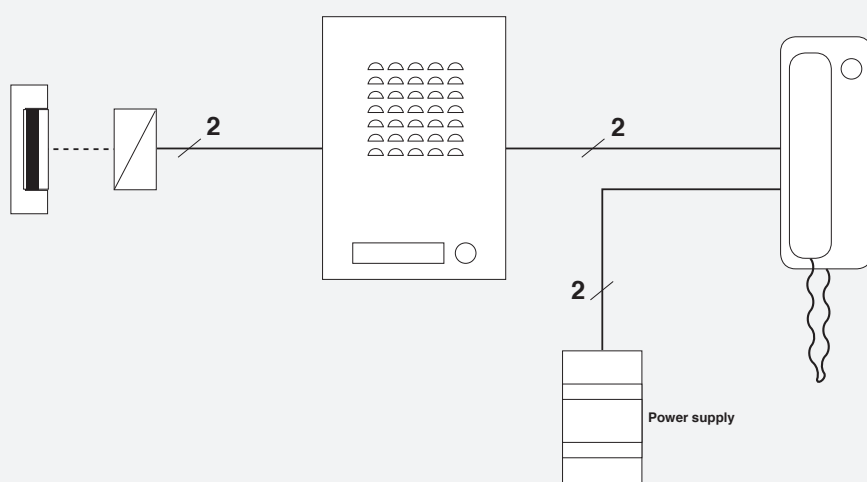
Power supply

One family "2- wire" audio door entry kit, for surface mounting
ESK-1S/A

Technical data

Intercom dimensions:	85 x 218 x 55 mm
Outdoor panel dimensions:	100 x 168,5 x 45 mm
Power supply:	230 V AC / 12 V AC
Temperature operating range of the outdoor panel:	-20 ÷ 50°C
Temperature operating range of the intercom:	-20 ÷ 50°C
Power consumption - standby / operation:	0,7 W / 4 W
Mounting:	surface
Weight:	1,5 kg

The kit include
· Outdoor panel,
· Intercom,
· Power supply,
· Mounting pins.

Features
· 2-wire door entry kit,
· Aluminium outdoor panel with flush mounting box,
· Electromechanical call tone,
· A possibility of call signal adjustment at 3 levels.
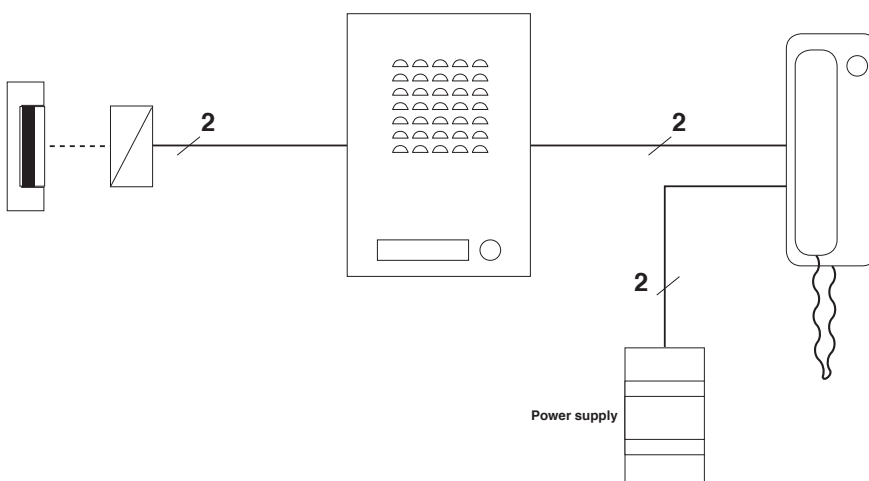
Power supply

Video intercom with 7" touch LCD display, white / black
VP-807W / VP-807B

VP-807W

VP-807B

Technical data

Dimensions:	175 x 115 x 15 mm
Power supply:	110-240 V DC 14,5 V / 0,8 A
Temperature operating range:	-30˚C ÷ +60˚C
Operating humidity range:	0% - 95%
Power consumption:	2,5 W
Mounting:	surface
Weight:	0,43 kg
Maximum installation length:	100 m

Features
- 7" full-colour touchscreen LCD
- 4-core wiring
- Intuitive user interface
- Internal calls (display-to-display intercom mode)
- Public Address mode
- Driveway and walk gate lock control
- Supports up to two CCTV feeds per video monitor
- Supports up to two entrance panels
- On-demand video feed monitoring from entrance panels and all connected CCTV cameras
- Two-way voice communication
- 800 x 480 image resolution
- Handset-free device with a clear sound output
- User interface language selection
- Intuitive control buttons
- 10-step voice volume control
- 10-step brightness, contrast and saturation control
- 10-step ringtone volume control
- 13 polyphonic ringtones

The kit include
- 1 x monitor,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 2 x 5 pin connector,
- 2 x 4 pin connector,
- gate relay NC-06,
- power supply adapter VP-PWRW.

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Video intercom with 7" touch LCD display, white / black
VP-808W / VP-808B

VP-808W

VP-808B

Technical data

Dimensions:	186 x 127 x 19 mm
Power supply:	110-240 V DC 14,5 V / 0,8 A
Temperature operating range:	-30˚C ÷ +60˚C
Operating humidity range:	0% - 95%
Power consumption:	2,5 W
Mounting:	surface
Weight:	390 g
Maximum installation length:	100 m

The kit include

- 1 x monitor,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 2 x 5 pin connector,
- 2 x 4 pin connector,
- gate relay NC-06,
- power supply adapter VP-PWRW.

Features

- 7" full-colour touchscreen LCD
- 4-core wiring
- Intuitive user interface
- DVR for audio/video recording in 320 x 240 and 640 x 480
- Internal calls (display-to-display intercom mode)
- Public Address mode
- Driveway and walk gate lock control
- Supports up to two CCTV feeds per video monitor
- Supports up to two entrance panels
- Calendar
- Alarm clock
- Digital photo frame mode
- Media player
- Internal memory for up to 90 digital photos
- microSD card reader: supports up to 32 GB of storage
- Manual screenshot and video recording from the entrance panel
- Leave Message (voice recorder) mode
- Automatic snapshots from the entrance pan-

el camera triggered by doorbell operation or motion detection
- Motion detection and automatic video feed sequence recording
- Automatic Out-of-Home Reply mode
- On-demand video feed monitoring from entrance panels and all connected CCTV cameras
- Two-way voice communication
- 800 x 480 image resolution
- 10-step voice volume control
- 10-step brightness, contrast and saturation control
- 10-step ringtone volume control
- 13 polyphonic ringtones
- Additional ringtones available from an microSD card

Video intercom with 7" touch LCD display, white / black
VP-809W / VP-809B

VP-809W

VP-809B

Technical data

Dimensions:	186 x 127 x 15 mm
Power supply:	110-240 V AC, 50-60 Hz, 14,5 V DC / 0,8 A
Operating temperature range:	-30˚C ÷ +60˚C
Power consumption:	9 W (max), 0,7 W (stand-by mode)
Mounting:	surface
Operating humidity range:	0% - 95%
Weight:	0,42 kg
Maximum installation length:	100 m

Features
- 7" touch, colour LCD display
- 4-wire installation
- Intuitive interface
- Audio and video recorder (DVR)
- Internal communication
- Broadcasting function
- Garage and gate control
- Connection possibility of 2 CCTV cameras to one monitor
- Connection possibility of two outdoor phone panels
- Calendar
- Clock with alarm
- Electronic frame function
- Media player
- Possibility of saving 90 images in the built-in memory
- Micro SD card reader supports cards with the maximum capacity of 32 GB
- Manual screenshot and video recording functions are possible by means of the outdoor panel
- Audio recording function (voice recorder)
- Automatic image taking by means of the gate outdoor panel just after calling
- Motion detection and automatic recording of video sequences
- Automatic reply function during absence
- Image call possibility by the gate outdoor panel or any CCTV camera on user demand
- Two-way audio communication
- High image resolution 800 x 480
- Hand free device with a clear voice
- Call volume adjustment (10 levels)
- Brightness, contrast and colour saturation adjustment (10 levels)
- Melody volume adjustment (10 levels)
- 13 polyphonic melodies
- Possibility of uploading additional melodies to micro SD card.

The kit include
- 1 x monitor,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 2 x 5 pin connector,
- 2 x 4 pin connector,
- gate relay NC-06,
- power supply adapter VP-PWRW.

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Video intercom with 10,1" touch LCD display, white / black
VP-810WHD / VP-810BHD

VP-810WHD

VP-810BHD

HD

Technical data

Dimensions:	255 x 180 x 21 mm
Power supply:	110-240 V 50-60 Hz DC 14,5 V / 0,8 A
Operating temperature range:	-30 ÷ +60°C
Power consumption:	9 W (max) 2,5 W (stand-by mode)
Mounting:	surface
Weight:	0,77 kg
Operating humidity range:	0% - 95%
Maximum installation length:	100 m

The kit include
• 1 x monitor,
• 1 x user manual,
• 1 x angle bracket,
• 2 x mounting pins,
• 2 x screw M4 x 30
• 1 x 5 pin connector,
• 5 x 4 pin connector,
• gate relay NC-06,
• power supply adapter VP-PWRW.

Features
• 10,1" touch, colour LCD display
• 4-wire installation
• Intuitive interface
• Audio and video recorder (DVR)
• Internal communication
• Broadcasting function
• Garage and gate control
• Connection possibility of 2 CCTV cameras to one monitor
• Connection possibility of two outdoor phone panels
• Calendar
• Clock with alarm
• Electronic frame function
• Media player
• Possibility of saving 90 images in the built-in memory
• Micro SD card reader supports cards with the maximum capacity of 128 GB
• Manual screenshot and video recording functions are possible by means of the outdoor panel

• Audio recording function (voice recorder)
• Automatic image taking by means of the gate outdoor panel just after calling
• Motion detection and automatic recording of video sequences
• Automatic reply function during absence
• Image call possibility by the gate outdoor panel or any CCTV camera on user demand
• Two-way audio communication
• High image resolution 1920 x 1080 in HD quality
• Hand free device with a clear voice
• Call volume adjustment (10 levels)
• Brightness, contrast and colour saturation adjustment (10 levels)
• Melody volume adjustment (10 levels)
• 13 polyphonic melodies
• Possibility of uploading additional melodies to micro SD card.

Video intercom with 4,3" LCD display, white / black
VP-816W / VP-816B

VP-816W

VP-816B

Technical data

Dimensions:	170 x 116 x 16 mm
Power supply:	110-240 V AC 50-60 Hz,14,5 V DC / 0,8 A
Operating temperature range:	-30˚C ÷ +60˚C
Power consumption:	7 W (max), 0,7 W (stand-by mode)
Mounting:	surface
Operating humidity range:	0% - 95%
Weight:	0,206 kg
Maximum installation length:	100 m

Features
- 4,3" colour LCD
- 4-wire installation
- Intuitive interface
- Internal communication
- Broadcasting function
- Garage and gate control
- Connection possibility of 2 CCTV cameras to one monitor
- Connection possibility of two outdoor panels
- Image call possibility by the gate panel or by any CCTV camera on user demand
- Two-way audio communication
- High image resolution 800 x 480
- Hand free device with a clear voice
- Language option change

- Intuitive push buttons
- call volume adjustment (9 levels)
- Brightness, contrast and colour saturation adjustment (10 levels)
- Melody volume adjustment (10 levels)
- 12 polyphonic melodies

The kit include
- 1 x monitor,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 2 x 5 pin connector,
- 2 x 4 pin connector,
- gate relay NC-06,
- power supply adapter VP-PWRW.

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Video intercom, white / black
VP-817W / VP-817B

VP-817W   VP-817B

Technical data

Dimensions:	170 x 116 x 16 mm
Power supply:	110-240 V AC 50-60 Hz; DC 14,5 V / 0,8 A
Operating temperature range:	-30˚C ÷ +60˚C
Power consumption:	9 W (max), 0,7 W (stand-by mode)
Mounting:	surface
Weight:	0,206 kg
Operating humidity range:	0% - 95%
Maximum installation length:	100 m

The kit include

• 1 x monitor,
• 1 x user manual,
• 1 x angle bracket,
• 2 x mounting pins,
• 2 x screw M4 x 30,
• 2 x 5 pin connector,
• 2 x 4 pin connector,
• gate relay NC-06,
• power supply adapter VP-PWRW.

Features

• 4,3" colour LCD
• 4-wire installation
• Intuitive interface
• Audio and video recorder (DVR)
• Internal communication
• Broadcasting function
• Garage and gate control
• Connection possibility of 2 CCTV cameras to one monitor
• Connection possibility of two outdoor panels
• Calendar
• Clock with alarm
• Electronic frame function
• Media player
• Possibility of saving 90 images in the built-in memory
• Micro SD card reader supports cards with the maximum capacity of 32 GB
• Manual screenshot and video recording

functions are possible by means of the outdoor panel
• Audio recording function (voice recorder)
• Automatic image taking by means of the outdoor panel just after calling
• Motion detection and automatic recording of video sequences
• Automatic reply function during absence
• Image call possibility by the outdoor panel or any CCTV camera on user demand
• Two-way audio communication
• High image resolution 800 x 480
• Hand free device with a clear voice
• Call volume adjustment (9 levels)
• Brightness, contrast and colour saturation adjustment (10 levels)
• Melody volume adjustment (10 levels)
• 13 polyphonic melodies
• Possibility of uploading additional melodies to micro SD card.

Video intercom with 7" touch LCD display, white / black
VP-819W / VP-819B

VP-819W

VP-819B

Technical data

Dimensions:	208 x 115 x 25 mm
Power supply:	110-240 V AC, 50-60 Hz;
	14,5 V DC / 0,8A
Operating temperature range:	-30˚C ÷ +60˚C
Power consumption:	7 W (max), 0,7 W (stand-by mode)
Mounting:	surface
Operating humidity range:	0% - 95%
Weight:	0,43 kg
Maximum installation length:	100 m

Features
- 7" colour LCD
- 4-wire installation
- Intuitive interface
- Internal communication
- Broadcasting function
- Garage and gate control
- Connection possibility of 2 CCTV cameras to one monitor
- Connection possibility of two outdoor panels
- Image call possibility by the outdoor panel or any CCTV camera on user demand
- Two-way audio communication
- High image resolution 800 x 480
- Hand free device with a clear voice
- Language option change

- Intuitive push buttons
- Call volume adjustment (9 levels)
- Brightness, contrast and colour saturation adjustment (10 levels)
- Melody volume adjustment (10 levels)
- 13 polyphonic melodies.

The kit include
- 1 x monitor,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 2 x 5 pin connector,
- 2 x 4 pin connector,
- gate relay NC-06,
- power supply adapter VP-PWRW.

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Video intercom, white / black
VP-829W / VP-829B

VP-829W

VP-829B

Technical data

Dimensions:	208 x 115 x 25 mm
Power supply:	110-240 V AC, 50-60 Hz, 14,5 V DC / 0,8 A
Operating temperature range:	-30˚C ÷ +60˚C
Power consumption:	7 W (max), 0,7 W (stand-by mode)
Mounting:	surface
Weight:	0,43 kg
Operating humidity range:	0% - 95%
Maximum installation length:	100 m

The kit include
- 1 x monitor,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 2 x 5 pin connector,
- 2 x 4 pin connector,
- gate relay NC-06,
- power supply adapter VP-PWRW.

Features
- 7" colour LCD
- 4-wire installation
- Intuitive interface
- Audio and video recorder (DVR)
- Internal communication
- Broadcasting function
- Garage and gate control
- Connection possibility of 2 CCTV cameras to one monitor
- Connection possibility of two outdoor panels
- Calendar
- Clock with alarm
- Electronic frame function
- Media player
- Possibility of saving 90 images in the built-in memory
- Micro SD card reader supports cards with the maximum capacity of 32 GB
- Manual screenshot and video recording functions are possible by means of the outdoor panel
- Audio recording function (voice recorder)
- Automatic image taking by means of the outdoor panel just after calling
- Motion detection and automatic video sequence recording
- Automatic reply function during absence
- Image call possibility by the outdoor panel or any CCTV camera on user demand
- Two-way audio communication
- High image resolution 800 x 480
- Hand free device with a clear voice
- Call volume adjustment (10 levels)
- Brightness, contrast and colour saturation adjustment (10 levels)
- Melody volume adjustment (10 levels)
- 13 polyphonic melodies
- Possibility of uploading additional melodies to micro SD card.

Two family outdoor panel, for surface mounting, gray / black
VO-802S / VO-802B

VO-802S
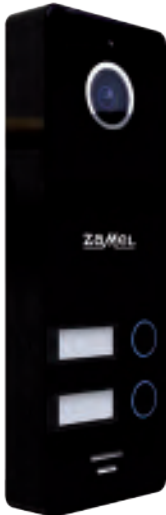
VO-802B

IP66

Technical data

Dimensions:	128 x 43 x 16 mm
Colour video camera:	yes
Power supply voltage:	10 ÷ 15 V DC
Operating temperature range:	-30 ÷ +60°C
Power consumption:	2,5 W
Camera view angle:	110°
Mounting:	surface
Weight:	0,35 kg
Maximum installation length:	100 m

Features
- Two user outdoor panel
- Surface mounting
- Vandal-resistant casing of zinc alloy
- 800 TVL resolution
- Video colour camera ¼" CMOS
- LED backlight
- Dust and water resistant: IP66
- Wide-angle camera 110°
- Video output 1Vp-p75Ω

The kit include
- 1 x outdoor panel,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 1 x name card set.

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Three family outdoor panel, for surface mounting, gray
VO-803S
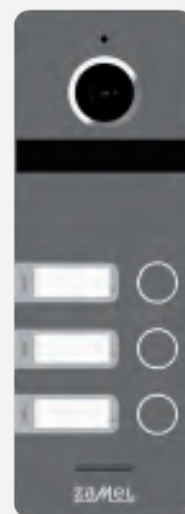
VO-803S   VO-803S

IP66

Technical data

Dimensions:	154 x 55 x 18 mm
Power supply voltage:	10-15 V DC
Operating temperature range:	-30 ÷ +60°C
Power consumption:	2,5 W
Camera view angle:	110°
Mounting:	surface
Weight:	0,35 kg
Maximum installation length:	100 m

Features
- Three user outdoor panel
- Surface mounting
- Vandal-resistant casing of zinc alloy
- 800 TVL resolution
- Video colour camera ¼" CMOS
- LED backlight
- Dust and water resistant: IP66
- Video output 1Vp-p75Ω

The kit include
- 1 x outdoor panel,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 1 x name card set.

Four family outdoor panel, for surface mounting, gray / black
VO-804S / VO-804B

VO-804S   VO-804B

IP66

Technical data

Dimensions:	154 x 55 x 18 mm
Video colour camera	yes
Power supply voltage:	10 ÷ 15 V DC
Operating temperature range:	-30 ÷ +60°C
Power consumption:	2,5 W
Camera view angle:	110°
Mounting:	surface
Weight:	0,35 kg
Maximum installation length:	100 m

Features
- Four user outdoor panel
- Surface mounting
- Vandal-resistant casing of zinc alloy
- 800 TVL resolution
- Video colour camera ¼" CMOS
- LED backlight
- Dust and water resistant: IP66
- Video output 1Vp-p75Ω

The kit include
- 1 x outdoor panel,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 1 x name card set.

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One family outdoor panel, for surface mounting HD, gray / black
VO-811SHD / VO-811BHD
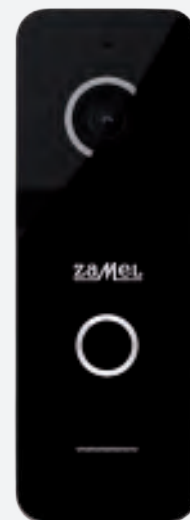
VO-811SHD   VO-811BHD

IP66   HD

Technical data

Dimensions:	130 x 46 x 20 mm
Power supply voltage:	10 ÷ 15 V DC
Operating temperature range:	-30 ÷ +60°C
Power consumption:	2,5 W
Camera view angle:	110°
Mounting:	surface
Weight:	0,35 kg
Maximum installation length:	100 m

Features

- One user outdoor panel
- Surface mounting
- Vandal-resistant casing of zinc alloy
- resolution HD/800 TVL/HD-CVI/HD-TVI
- Video colour camera 1080 P
- LED backlight
- Dust and water resistant: IP66
- Video output 1Vp-p75Ω

The kit include

- 1 x outdoor panel,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30.

One family outdoor panel, for surface mounting, gray / black
VO-811S / VO-811B

VO-811S   VO-811B

IP66

Technical data

Dimensions:	128 x 43 x 16 mm
Power supply voltage:	10-15 V DC
Operating temperature range:	-30 ÷ 60°C
Power consumption:	2,5 W
Camera view angle:	110°
Mounting:	surface
Weight:	0,15 kg
Maximum installation length:	100 m

Features
- One user outdoor panel
- Vandal-resistant casing of zinc alloy
- 800 TVL resolution
- Video colour camera ¼" CMOS
- LED backlight
- Dust and water resistant: IP66
- Wide-angle camera 110°
- Video output 1Vp-p75Ω

The kit include
- 1 x outdoor panel,
- 1 x angle bracket VO-45BB / VO45BS
  (depends on colour version),
- 1 x user manual,
- 1 x bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30.

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One family outdoor panel, for surface mounting, proximity card and pendant reader, gray / black
VO-811IDS / VO-811IDB
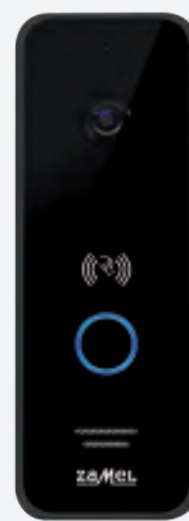
VO-811IDS   VO-811IDB

IP66

Technical data

Dimensions:	128 x 43 x 16 mm
Power supply voltage:	10-15 V DC
Operating temperature range:	-30 ÷ +60°C
Power consumption:	2,5 W
Camera view angle:	110°
Mounting:	surface
Weight:	0,24 kg
Maximum installation length:	100 m

Features
- One user outdoor panel
- Vandal-resistant casing of zinc alloy
- 800 TVL resolution
- Video colour camera ¼" CMOS
- LED backlight
- Dust and water resistant: IP66
- Video output 1Vp-p75Ω
- Build-in card reader ID 125 kHz
- Compatible with Wiegand 26 / ID

The kit include
- 1 x outdoor panel,
- 1 x angle bracket VO-45BB / VO45BS (depends on colour version),
- proximity card VO-125CA,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30.

One family outdoor panel, for surface mounting, proximity card and pendant reader, code pad, gray / black
VO-812IDSP / VO-812IDBP

VO-812IDSP   VO-812IDBP

IP66

Technical data

Dimensions:	157 x 54 x 18 mm
Colour video camera:	yes
Power supply voltage:	10-15 V DC
Operating temperature range:	-30 ÷ +60°C
Power consumption:	2,5 W
Camera view angle:	110°
Mounting:	surface
Weight:	0,35 kg
Maximum installation length:	100 m

Features
- One user outdoor panel
- Four-wire installation
- 800 TVL resolution
- Video colour camera ¼" CMOS
- opening control with a fob or contactless card
- Scrambler
- LED backlight
- Vandal-resistant casing of zinc alloy
- Dust and water resistant: IP66
- Surface mounting with the possibility of using an angle

The kit include
- 1 x outdoor panel,
- proximity card VO-125CA,
- 1 x user manual,
- 1 x angle bracket,
- 2 x mounting pins,
- 2 x screw M4 x 30,
- 1 x name card set.

Stand-alone access control / silver
TD-101IDS / TD-102IDSC / TD-202IDSC

TD-101IDS   TD-102IDSC   TD-202IDSC

IP68

The kit include
- 1 x stand-alone access control
- proximity card VO-125CA
- 1 x user manual,
- 2 x mounting pins,
- 2 x screw M4 x 30.

Dane techniczne

Dimensions:	TD-101IDS 135 x 46 x 22 mm
	TD-102IDSC 135 x 46,4 x 17,5 mm
	TD-202IDSC 130 x 58 x 23,5 mm
Panel type	12 buttons (2x6)
	1 doorbell button (only selected models)
Power supply voltage:	12 V DC
Operating temperature range:	-30 ÷ +70°C
Power consumption:	2,5 W
Mounting:	surface
Weight:	TD-101IDS 0,4 kg
	TD-102IDSC 0,4 kg
	TD-202IDSC 0,5 kg
Operating humidity range:	0% ÷ 100%
Card/fob reading distance:	0 ÷ 4 cm
Relay opening time:	0 ÷ 255 s (adjustable)
Operating/standby mode current:	3 A / ≤50 mA

Features
- Touch screen/pushbuttons
- Possibility of an additional doorbell button
- Possibility of an ID UNIQUE reader for contactless cards and fobs which make the access to the secure area easier
- ID UNIQUE reader supports contactless cards and fobs operating at 125 kHz
- Dust and water resistant: IP68
- Vandal-resistant casing of zinc alloy
- metal vandal-resistant buttons with a mechanical code lock
- Vandal-resistant touch buttons with

- a panel made of organic acrylic glass
- Maximum number of users: 8,000
- Access codes, 4 ÷ 6 digits long
- Possibility of copying settings between code locks of the same series with TXD and RXD connectors
- Anti-tamper alarm
- Can be used independently as a code lock or as an element of a complex installation, e.g. as a card reader
- Possibility of connecting another reader
- Compliance with Wiegand WG26/34

- Possibility of programming administration cards that allow adding and removing user cards
- Output for NO (normally open) and NC (normally closed) latches
- Three possible access modes to the secure area: CARD, PASSWORD, CARD+PASSWORD
- Backlit panel
- Possibility of indoor and outdoor use

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Electromagnetic lock
RE-215

Technical data

Dimensions:	29 x 146 x 22 mm
Power supply:	12 V AC / DC
Weight:	0,27 kg

Features
- cooperation with video and door entry systems,
- cooperation with access control systems (code locks and proximity card readers),
- operation possible by the right- and left-side door.

The kit include
- electromagnetic lock.

Automatic gate driver
NC-06

Technical data

Dimensions:	48 x 15 x 25 mm
Weight:	0,015 kg

Features
- The module enables the transfer of the control signal to the gate driver via the GND and DATA contacts from the monitor's P3 connector to the NC-06 controller and the COM and NO / NC contacts for gate control.

Contactless card 125 kHz
VO-125CA

Technical data

Dimensions:	85 x 54 mm
Frequency:	125 kHz
Weight:	0,0062 kg

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Contactless fob 125 kHz
VO-125PE

Technical data	
Dimensions:	41 x 32 mm
Frequency:	125 kHz
Weight:	0,0035 kg

Angled bracket VO-45BS / VO-45BB gray / black
for outdoor panels VO-802X / VO-812X

VO-45BS   VO-45BB

Technical data	
Dimensions:	159 x 54.5 x 36 mm
Weight:	0,2 kg

Power supply
VP-PWRW

Technical data	
Power supply:	100-240 V ~ 50/60 Hz 0,5 A
Output voltage:	15 V, 800 mA
Dimensions:	57 x 45 x 25 mm (without cables)
Weight:	0,08 kg

Symbol legend

	Touchscreen		**IP66**	Increased ingress protection (IP) ratings
	Gate opening		**IP68**	Increased ingress protection (IP) ratings
	Micro SD card slot		4,3"	4,3" screen size
	Photo function		7"	7" screen size
	Calendar		10,1"	10,1" screen size
	One family user installation		mp3	MP3 player
	Two family user installation			Slide show
	Three family user installation			RFID card reader
	Four family user installation			Code pad
	Additional CCTV cameras			Thin profile
HD	high image resolution, HD quality			

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Wiring connection diagrams

Latch 1

power adapter

Door 1

Door 2

power adapter

Latch 2

NC-06

Driveway gate

Main monitor

Monitor 2

Monitor 3

Monitor 4

Camera 1 / Camera 2

Door 1

power adapter

Latch 1

Camera

NC-06

Driveway gate

Main monitor

Monitor 2

Monitor 3

Monitor 4

Camera 1 / Camera 2
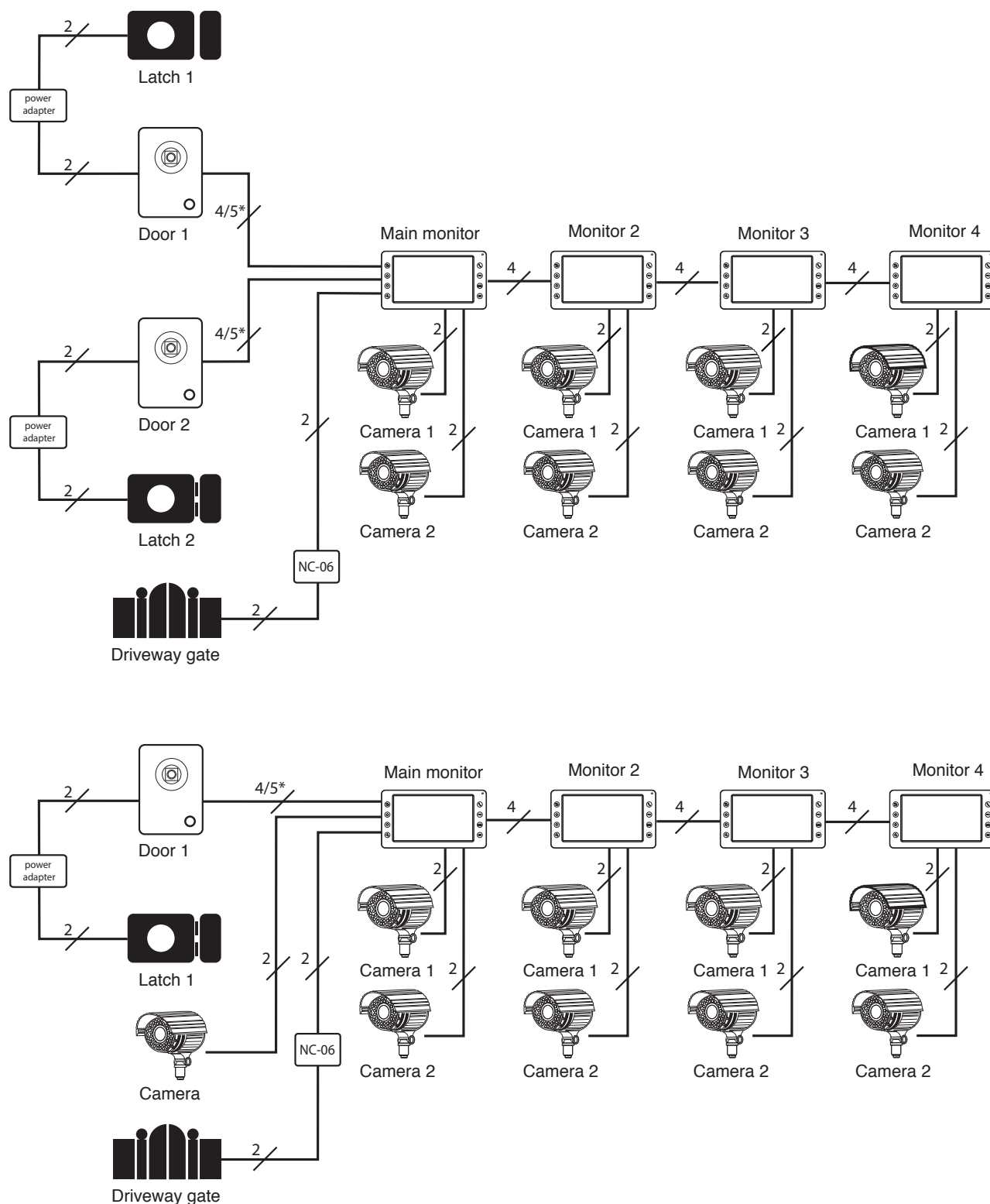
*An additional 5th wire is required if the latch needs power from the video monitor connector P3 wire KEY1. This applies whenever the walk gate is remote from the mains supply.
Then KEY1 wire is connected to the positive pole of the electric door lock.
The negative pole of the electric door lock is connected to the contact of the gate panel.

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Wireless paging system ETERO

The ETERO system is another – next to the wireless control system and wireless doorbells of SUNDI group – achievement of the Zamel Company's group of constructors. An achievement that includes solutions based on wireless communication. The ETERO system has been created for all those people who require care. Currently, the wireless paging system ETERO ensures the safety of patients in hospitals, nursing and private homes not only in Poland but also abroad - that means everywhere a fast assistance to a seriously ill person is a priority. Due to its high production quality, reliability and simplicity in us-

ing, the system quickly gained confidence and popularity among patients and staff of care and medical centers. It is worth remembering that the use of wireless solutions eliminates the costs related to installation in case of traditional - wired - paging systems. Installation of the ETERO system is reduced only to a fast and easy programming of receivers (signalling board, pager) and transmitters (button transmitter, strand transmitter, remote control).

Signalling board
ST-01

Description
This signalling board has a capacity of 100 transmitters and is used in Etero - wireless paging system. This device receives call signals which are sent by NS/K-217 and NS/C-218 stationary transmitters and P-258/2 remote controller. When the call signal is received the user is informed about it by means of optical and acoustic signals (highlighted buttons and a buzzer). The call signal can be deleted by means of buttons.

Features
• basic element of Etero wireless paging system,
• easy to install and service,
• a possibility of adding and deleting transmitters to the board,
• solid, metal casing,
• power backup: built-in battery.

Technical data
Number of transmitters: 100
Power supply:
external power supply 230 / 15 V DC
Power consumption: max 350 mA
Temperature operating range: 0 ÷ +35°C
Protection degree: IP20
Dimensions: 300 x 490 x 100 mm
Weight: 7,6 kg

Signalling board
ST-02

Description
This signalling board has a capacity of 36 transmitters and is used in ETERO - wireless paging system. This device receives call signals which are sent by NS/K-217 and NS/C-218 stationary transmitters and P-258/2 remote controller. When the call signal is received the user is informed about it by means of optical and acoustic signals (highlighted buttons and a buzzer). The call signal can be deleted by means of buttons.

Features
• basic element of Etero wireless paging system,
• easy to install and service,
• a possibility of adding and deleting transmitters to the board,
• solid, metal casing,
• power backup: built-in battery.

Technical data
Number of transmitters: 36
Power supply:
external power supply 230 / 15 V DC
Power consumption: max 200 mA
Temperature operating range: 0 ÷ +35°C
Protection degree: IP20
Dimensions: 300 x 270 x 100 mm
Weight: 5,6 kg

Portable signalling receiver (pager)
POS-216

Description
The portable signalling receiver (pager) is a device used to increase wireless paging system functionality. It enables mobile reception of call signals from NS/K-217 and NS/C-218 stationary transmitters and from P-207/2 remote controller from every place of a building. It makes the care staff work more comfortable as they can receive calls not only in their nursing duty room but also near the patient's bed.

Features
• optic (display) and acoustic (buzzer) call signalling,
• 20 calls memory,
• small size of the device, easily operated,
• casing made from ABS material,
• possibility of adding and deleting transmitters to pager's memory,
• power backup - built-in battery 2x 1,2 V.

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Retransmitter
RT-219

Description
Re-transmitter is used to increase radio signal and as a result the increase in the wireless paging system operation range. The device receives a call signal sent by stationary transmitters such as NS/K-217 and NS/C-218 and remote controller, type P-258/2. After receiving the signal the retransmitter increases it and sends back to the signalling boards, types ST-01 and ST-02 and a POS-216 pager.

Features
• a possibility of unlimited increase of wireless paging system operation range,
• backup power supply – two built-in 1,2V batteries.

Technical data
Number of transmitters: 500
Power supply: NiMH AAA 1,2 V batteries, (external power supply in the set)
Temperature operating range: -20 ÷ +60°C
Protection degree: IP56
Dimensions: 130 x 115 x 30 mm
Weight: 225 g
Colour: grey

Button stationary transmitter
NS-K/217

Description
Button stationary transmitter is used to send call signals from the patient's room to signalling boards (types ST- 01 and ST-02) and to a pager (type POS-216). This device is intended for rooms of everyday use, canteens, etc.

Features
• reset and call buttons,
• signalling of paging signal messaging (LED diode),
• repeated send call signal's function (till reset),
• charge battery signal on pager's screen (type POS-216).

Technical data
Power supply: battery 9 V 6F22
Power consumption: 10 mA
Frequency of sending a call signal:
every 2 minutes
Temperature operating range: 0 ÷ +35°C
Protection degree: IP54
Dimensions: 110 x 60 x 40 mm
Weight: 210 g
Colour: grey

Strand stationary transmitter
NS-C/218

Description
Strand stationary transmitter is intended for sending a call signal from patient's room to signalling boards, type ST-01 and ST-02 and to a pager, type POS-216. This device is used in humid rooms – bathrooms, toilets, launderettes, etc.

Features
• strand call and reset buttons,
• signalling of paging signal messaging (LED diode),
• repeated send call signal's function (till reset),
• charge battery signal on pager's screen (type POS-216).

Technical data
Power supply: battery 9 V 9F22
Power consumption: 10 mA
Frequency of sending a call signal:
every 2 minutes
Temperature operating range: 0 ÷ +35°C
Protection degree: IP54
Dimensions: 110 x 60 x 40 mm
Weight: 200 g
Colour: grey

Radio power switch one-channel receiver
RWS-211J/N

Description

- One-channel remote control switch for electrical domestic devices such as: lighting fittings, heaters, fans, air conditioners, pumps, gates, dams, optic and acoustic signalling,
- operating range*: 300 m ÷ 450 m in an open area,
- designed to work in changeable weather conditions,
- comfort while controlling not easily accessible facilities and appliances,
- efficient help for road maintenance and protection services,
- perfect assistance for the disabled,
- battery-operated remote control,
- a possibility of controlling one, two or four devices (receivers) by means of one remote control,
- a possibility of cooperation of a larger number (up to 113) remote controls with one receiver,
- suitable for a continuous operation,
- a possibility of increasing the operation range by means of the RT-219 retransmitter.

Technical data

Power supply of the receiver: 230 V AC / 50 Hz
Power / Current consumption: 3 VA
One channel load: 16 A / 250 V AC 4000 VA / AC1
Remote control power supply: 12 V, 4 batteries CR2016
Antenna socket: BNC 50
Sensitivity: -105 dBm
Transmission: radio coded
Frequency: 433,92 MHz
Coding: changeable code KEELOQ
Maximum connection power: 2000 W
Number of channels: 1
Ambient temperature operation range: -20 ÷ +35°C
Operation mode: bistable, monostable with fluent operation time regulation from 1 sec. to 2 min.

Technical details RWS-211J/N SOL

Weight [g]: 390
Dimensions [mm]: 127 x 120 x 60
Bulk package [pcs]: 6
Colour: grey

Available options

RWS-211J/N = P-258/2 + RWS-211J/N SOL
Bulk package [pcs]: 6

Radio power switch two-channel receiver
RWS-211D/N

Description

- two-channel remote control switch for electrical domestic devices such as: lighting fittings, heaters, fans, air conditioners, pumps, gates, dams, optic and acoustic signalling,
- operating range*: 300 m ÷ 450 m in an open area,
- designed to work in changeable weather conditions,
- comfort while controlling not easily accessible facilities and appliances,
- efficient help for road maintenance and protection services,
- perfect assistance for the disabled,
- battery-operated remote control,
- a possibility of controlling one, two or four devices (receivers) by means of one remote control,
- a possibility of cooperation of a larger number (up to 113) remote controls with one
- receiver,
- suitable for a continuous operation,
- a possibility of increasing the operation range by means of the RT-219 retransmitter.

Technical data

Power supply of the receiver: 230 V AC / 50 Hz
Power / Current consumption: 3 VA
One channel load: 16 A / 250 V AC 4000 VA / AC1
Remote control power supply: 12 V, 4 batteries CR2016
Antenna socket: BNC 50
Sensitivity: -105 dBm
Transmission: radio coded
Frequency: 433,92 MHz
Coding: changeable code KEELOQ
Maximum connection power: 2000 W
Number of channels: 2
Ambient temperature operation range: -20 ÷ +35°C
Operation mode: bistable, monostable with fluent operation time regulation from 1 sec. to 2 min.

Technical details RWS-211D/N SOL

Weight [g]: 410
Dimensions [mm]: 127 x 120 x 60
Bulk package [pcs]: 6
Colour: grey

Available options

RWS-211D/N = P-258/2 + RWS-211D/N SOL
Bulk package [pcs]: 6

Radio power switch four-channel receiver
RWS-211C/N

Description
- four-channel remote control switch for electrical domestic devices such as: lighting fittings, heaters, fans, air conditioners, pumps, gates, dams, optic and acoustic signalling,
- operating range*: 300 m ÷ 450 m in an open area,
- designed to work in changeable weather conditions,
- comfort while controlling not easily accessible facilities and appliances,
- efficient help for road maintenance and protection services,
- perfect assistance for the disabled,
- battery-operated remote control,
- a possibility of controlling one, two or four devices (receivers) by means of one remote control,
- a possibility of cooperation of a larger number (up to 113) of remote controls with one receiver,
- suitable for a continuous operation,
- a possibility of increasing the operation range by means of the RT-219 retransmitter.

Technical data
Power supply of the receiver: 230 V AC / 50 Hz
Power / Current consumption: 5 VA
One channel load: 16 A / 250 V AC 4000 VA / AC1
Remote control power supply: 12 V, 4 batteries CR2016
Antenna socket: BNC 50
Sensitivity: -105 dBm
Transmission: radio coded
Frequency: 433,92 MHz
Coding: changeable code KEELOQ
Maximum connection power: 2000 W
Number of channels: 4
Ambient temperature operation range: -20 ÷ +35°C
Operation mode: bistable, monostable with fluent operation time regulation from 1 sec. to 2 min.

Technical details RWS-211C/N SOL
Weight [g]: 580
Dimensions [mm]: 157 x 82 x 55
Bulk package [pcs]: 6
Colour: grey

Available options
RWS-211C/N = P-258/4 + RWS-211C/N SOL
Bulk package [pcs]: 6

COOPERATION AND OPERATION RANGE*

Remote control	RWS-211J/N, RWS-211D/N, RWS-211C/N	Retransmitter RT-219 + RWS-211J/N, RWS-211D/N, RWS-211C/N
P-258/2	300 m	500 m
P-258/4	300 m	500 m
P-259/8	450 m	650 m
P-207/2	350 m	550 m

* The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

Remote control
P-258/2

Description
The two-channel remote control P-258/2 controls all Y series devices, radio power switches such as RWS-211 and RWS-211/N, power switches such as WSR-NT, WSR-PT, roller blind controllers such as SR-NT, SR-PT, wireless electric lock controller such as BSR-207 and RT-219 retransmitter. Optic signalling of the remote control operation; "pendant" type remote control - pendant in a form of a chain with a ring.

Technical data
Power supply: 12 V DC (4 x battery CR2016)
Transmission: radio (433,92 MHz)
Transmitter's power: <5 mW
Coding: changeable code KEELOQ
Protection degree: IP20
Ambient temperature operation range: 0 ÷ +35°C
Weight [g]: 25
Dimensions [mm]: 74 x 33 x 11,5
Colour: graphite

Remote control
P-258/4

Description
The four-channel remote control P-258/4 controls all Y series devices, radio power switches such as RWS-211 and RWS-211/N, power switches such as WSR-NT, WSR-PT, roller blind controllers such as SR-NT, SR-PT, wireless electric lock controller such as BSR-207 and RT-219 retransmitter. Optic signalling of the remote control operation; "pendant" type remote control - pendant in a form of a chain with a ring.

Technical data
Power supply: 12 V DC (4 battery CR2016)
Transmission: radio (433,92 MHz)
Transmitter's power: <5 mW
Coding: changeable code KEELOQ
Protection degree: IP20
Ambient temperature operation range: 0 ÷ +35°C
Weight [g]: 75
Dimensions [mm]: 74 x 33 x 11,5
Colour: graphite

Remote control
P-259/8

Description
The eight-channel remote control P-259/8 controls all Y series devices, radio power switches such as RWS-211 and RWS-211/N, power switches such as WSR-NT, WSR-PT, roller blind controllers such as SR-NT, SR-PT, wireless electric lock controller such as BSR-207 and RT-219 retransmitter. Optic signalling of the remote control operation and battery status; magnet is built in a remote control casing, it allows to attach the remote control to a metal surface.

Technical data
Power supply: 12 V DC (battery 23A)
Transmission: radio (433,92 MHz)
Transmitter's power: <5 mW
Coding: changeable code KEELOQ
Protection degree: IP 20
Ambient temperature operation range: 0 ÷ +35°C
Weight [g]: 60
Dimensions [mm]:152 x 43 x 17,5
Colour: graphite

Radio power switch three-channel receiver

RWS-411

Description

- enables remote control over switching electrical loads in home and industrial electrical equipment, including lights, ventilation fans, garage doors, gates, etc.,
- radio-frequency control range: 1300 / 2600 m (depending on the RF remote control) outdoor with LoRa,
- designed for operation in variable weather conditions,
- facilitates control and switching of hardly accessible electrical loads,
- power supply: 230 V AC or 12 V DC,
- 3 independent 16 A voltage-free relay outputs,
- external antenna wire,
- designed for continuous duty,
- up to 20 remote controls addressable,
- remote RF circuit breaker receiver configuration (pairing and unpairing remote controls and operating configuration setting).

Technical data

Power supply: 230 V AC / 50 Hz or 12 V DC

Power input: 2 W in standby, 5 W when switching

Capacity:: 3 x 16 A / 250 V AC 4000 VA AC1

External antenna receptacle: yes

Transmission line: RF, LoRa

Frequency: 868,9 MHz

Encryption: variable encoding, 128-bit encryption key

Channels: 3 x voltage-free contacts

Ingress protection rating: IP65

Perating temperature: -20 to +55°C

Operation modes: On / Off; time-delayed switching

LoRa TECHNOLOGY

*RANGE 50 km**

* The RF range can be increased to 50 km by adding ANT-411. The RF transmission range is specified for ideal conditions (without any obstacles along the transmission line), assuming a direct propagation of RF waves between two antennas in direct line of sight.

Remote control

P-411/M

Description

- dedicated for the RWS-411 RF 3-channel circuit breaker's receiver,
- battery-operated,
- controls 3 channels for On/Off or time-delayed switching,
- output status LED display,
- low battery display,
- robust impact-resistant enclosure,
- transmission power readable from the receiver.

Technical data

Power supply: 3 V (2 x AA 1.5 V batteries)

Current load: 1.2 μA in standby, 100 mA in operation

Transmission line: RF, LoRa

Frequency: 868,9 MHz

Encryption: variable encoding, 128-bit encryption key

Channels: 3 x On / Off

Optical output status indication: 6 x LEDs

Low battery indication: LED

Ingress protection rating: IP65

Operating temperature: -20 ÷ +55°C

RANGE 1300 m

Remote control

P-411/D

Description

- edicated for the RWS-411 RF 3-channel circuit breaker's receiver,
- battery-operated,
- controls 3 channels for On/Off or time-delayed switching,
- output status LED display,
- low battery display,
- robust impact-resistant enclosure,
- transmission power readable from the receiver.

Technical data

Power supply: 3 to 3.6 V (battery type: ½ AA)

Current load: 1.2 μA in standby, 100 mA in operation

Transmission line: RF, LoRa

Frequency: 869,5 MHz

Encryption: variable encoding, 128-bit encryption key

Channels: 3 x On / Off

Optical output status indication: 6 x LEDs

Low battery indication: LED

Ingress protection rating: IP65

Operating temperature: -20 ÷ +55°C

RANGE 2600 m

COOPERATION AND OPERATION RANGE**

Remote control	RWS-411
P-411/M	1300 m
P-411/D	2600 m

**The given range concerns opened area i.e. perfect conditions without obstacles. If between the transmitter and the receiver obstacles are found, range decrease can be expected depending on the following: wood and plaster from 5 to 20%, brick from 20 to 40%, armed concrete from 40 up to 80%. As for metallic obstacles the application of radio system is not recommended due to an enormous operation range decrease. Also overhead and underground power lines have a negative influence on the operation range as well as transmitters of the GSM network placed in a short distance of devices.

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exta life

supla

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Directional RF antenna
ANT-411

Description

- dedicated for the RWS-411 RF 3-channel circuit breaker,
- increases the RF transmission range up to 50 km*,
- installation bracket included,
- weather-resistant.

Technical data

Impedance: 50 Ω
Energy gain: 12 dB
RF radiation pattern: directional
Polarity: vertical
Material: aluminium, PA 38
Mast dia.: 40 to 80 mm
Antenna weight: 1,2 kg

* The RF transmission range is specified for ideal conditions (without any obstacles along the transmission line), assuming a direct propagation of RF waves between two antennas in direct line of sight.

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Security systems GARDI

ZAMEL offers a wide range of carbon monoxide, gas, and smoke detectors which warn against any related hazards that may be present in the building.

Carbon monoxide is a highly toxic colourless and odourless gas that easily spreads in the air. It is produced as a result of incomplete combustion of wood, oil, gas, petrol, paraffin, propane, coal and diesel oil. The incomplete combustion of these substances may result from several factors. For example, it may be caused by the lack of fresh air reaching the appliance where the combustion is taking place. It may also be caused by fouling, wear and tear or improper adjustment of a gas burner, or by closing the furnace or kitchen range too early. Blocked chimneys or air ducts are another factor provoking the accumulation of carbon monoxide in rooms. Carbon monoxide enters the human body through the respiratory system to be then absorbed into the cardiovascular system. When in the respiratory system, carbon monoxide binds with haemoglobin 210 times faster than oxygen, thus obstructing the inflow of air to the body. The consequences of carbon monoxide poisoning may include irreversible damage to the central nervous system, coronary heart failure, infarction or even death. Regular check of appliances that produce carbon monoxide, like ovens, boilers, gas water heaters, etc., and of air duct blockage are basic preventive actions that limit the risk of carbon monoxide poisoning. Carbon monoxide is a highly toxic gas that is also completely imperceptible to people. Therefore it is so important to install appropriate detectors, which are the only way of detecting a dangerous concentration of this gas. ZAMEL's carbon monoxide detectors efficiently detect the associated risk. What is important, all ZAMEL detectors are tested in a special chamber prior to sale. The product is accompanied with a certificate declaring its correct performance, i.e. it successfully detects the hazardous carbon monoxide concentration level of 300 ppm within up to three minutes max.

Another hazardous gas found in household installations is natural gas. It is colourless and has a slight odour and because it is lighter than air, it accumulates in higher areas in rooms. Combined with oxygen, it creates a highly explosive mixture. Therefore, it is crucial to inspect regularly appliances like ovens, boilers, gas water heaters, etc., as well as to check whether air ducts are not blocked. Another dangerous gas is propane/butane (LPG), even though it is heavier than air, it becomes explosive just like natural gas when mixed with oxygen. Therefore, it is essential to use dedicated detectors to alarm the occupants about any gas leaks.

ZAMEL offers detectors for continuous monitoring the presence of explosive gases like natural gas and LPG in air. If the device detects a higher concentration of the gas (about 10% LEL*), it sets off a visual and sound alarm.

*LEL – Lower Explosive Limit

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Smoke, carbon monoxide and gas detectors **484**

Smoke detector, battery operated CDB-01

CDB-01 smoke detectors are used to effeciently alert people in the building where the fire occurred. This makes it possible to extinguish a fire in its initial phase and secure leaving endangered areas safely.

Features
• detection of fire hazard based on the presence of smoke in the air,
• battery operated,
• optical signalling,
• sound signalling,
• low battery signalling,
• button to test the technical condition of the detector and if need be to mute the alarm.

Technical data
Power supply: battery 9 V type: 6F22
Detector: photoelectric
Sound volume: 85 dB
Protection level: IP 20
Temperature operating range: -10 ÷ 40 ˚C
Humidity operating range: up to 90% RH
Weight: 130 g
Dimensions: Ø103 x 32 mm
Colour: white

Carbon monoxide detector CTW-02

CTW-02 sensor is used for continuous monitoring of a dangerous concentration of carbon monoxide in air. Upon detection of a dangerous concentration of device activates audible and visual alarm. It is equipped with advanced electrochemical sensor and a diagnostic system that signals the failure of the sensor and discharging the battery.

Features
• **tested in Poland**, certificate correctly detecting the concentration of 300 ppm in less than 3 minutes,
• optical signalling,
• buzzer alarm,
• signalling the end of life failure or sensor (system diagnostic).

Technical data
Power supply: 230 V AC
Detector: semiconductor
Sound volume: 80 dB
Protection level: IP 20
Temperature operating range: 0 ÷ 40 ˚C
Humidity operating range: 10% ÷ 95% RH
Detection levels of carbon monoxide:
• 50 ppm (in less than 90 minutes)
• 100 ppm (in less than 40 minutes)
• 300 ppm (in less than 3 minutes)
Weight: 287 g
Dimensions: 110 x 40 x 70 mm
Colour: white

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Carbon monoxide detector, battery operated CTW-03

The CTW-03 detector is used for continuous monitoring of dangerous concentration of carbon monoxide in the air. When a dangerous concentration is detected, the device activates an acoustic and visual alarm. Thanks to its battery power supply, the device is easy to place anywhere, because we do not have to lay any installations. It is equipped with an advanced electrochemical sensor with a life span of 10 years and a self-diagnostic system that signals damage to the sensor and a discharging battery. It is additionally equipped with an LCD display showing the concentration of carbon monoxide and information messages. It also has additional functions such as memory of recorded gas concentrations and temperature measurement.

Features
- **tested in Poland**, certificate correctly detecting the concentration of 300 ppm in less than 3 minutes,
- battery operated,
- indication of discharging battery,
- temperature measurement function,
- electrochemical sensor with increased life span (10 years),
- visual alarm signalling,
- indication of damage and the end of life of the detector, (system self-diagnostic),
- an LCD display showing the current level of carbon monoxide concentration, the temperature and information messages,
- alarm sound signalling,
- memory of recorded gas concentrations.

Technical data
Power supply: 3 batteries 1,5 V type: AA
Detector: electrochemical
Sound volume: 85 dB
Protection level: IP 20
Temperature operating range: 0 ÷ 45 ˚C
Humidity operating range: 0 % ÷ 90 % RH
Detection levels of carbon monoxide:
- 50 ppm (in less than 90 minutes)
- 100 ppm (in less than 40 minutes)
- 300 ppm (in less than 3 minutes)
Weight: 130 g
Dimensions: 140 x 65 x 35 mm
Colour: white

Carbon monoxide detector, with built-in battery CTW-04

The CTW-04 detector has been designed for continuous monitoring of the hazardous air concentration of carbon monoxide. When the device detects hazard, it activates audible and optical alarm. The sensor has a built-in battery with 10 years life, eliminating the necessity for its replacement throughout the sensor life and it has a very compact size (it is the smallest carbon monoxide detector in the world!). The detector is equipped with an advanced electrochemical sensor (sensor life – 10 years) and a self-test system, which signalises sensor damage and its end of life.

Features
- electrochemical sensor, sensor life – 10 years,
- built-in, non-removable battery, battery life – 10 years,
- very small, compact size (the smallest carbon monoxide detector in the world),
- visual alarm system,
- audible alarm system,
- sensor damage and end-of-life signal (self-test system).

Technical data
Power supply: built-in, non-removable battery
Battery life: 10 years
Detector: electrochemical
Sound volume: 85 dB
Protection level: IP 20
Temperature operating range: 0 ÷ 45 ˚C
Humidity operating range: 0 % ÷ 90 % RH
Detection levels of carbon monoxide:
- 50 ppm (in less than 90 minutes)
- 100 ppm (in less than 40 minutes)
- 300 ppm (in less than 3 minutes)
Weight: 82 g
Dimensions: 45 x 80 x 30 mm
Colour: white

Gas detector CGZ-01

Gas detector CGZ-01 is used for continuous monitoring of the presence of explosive gases (natural gas and propane-butane) in the air. If an elevated gas concentration (approx. 10% LEL*) is detected, the device activates an acoustic and visual alarm, allowing for an early response from the user to prevent explosion or poisoning. The device is equipped with an advanced semiconductor sensor and an electronic self-diagnostic system indicating sensor failure.

Features
- detection of a dangerous concentration of natural gas and LPG (propane-butane) semiconductor sensor,
- power supply voltage 230 V AC,
- alarm optical signalling,
- alarm sound signalling,
- signalling the end of life failure or sensor (system diagnostic),
- alarm level of gas detection approx. 10 % LEL*.

Technical data
Power supply: 230 V AC
Detector: semiconductor
Sound volume: 85 dB
Protection level: IP 20
Temperature operating range: 0 ÷ 40 ˚C
Humidity operating range: 10% ÷ 95% RH
Weight: 141 g
Dimensions: 120 x 85 x 32 mm
Colour: white / black

Carbon monoxide and gas detector CTG-01

Detector CTG-01 is used for continuous monitoring of dangerous concentration of carbon monoxide and natural gas and propane butane in the air. When dangerous concentrations are detected the device activates an acoustic and visual alarm. The device is powered from the mains but thanks to the emergency battery backup will work even if the primary power supply fails. It is equipped with an advanced electrochemical sensor and semiconductor, as well as a self-diagnostic system which indicates sensor failure. It is additionally equipped with an LCD display showing the concentration of carbon monoxide and gas as well as information messages.

Features

- **tested in Poland**, certificate correctly detecting the concentration of 300 ppm in less than 3 minutes,
- semiconductor and electrochemical sensor,
- LCD screen showing current level of carbon monoxide fumes during an alarm,
- power supply voltage 230 V AC,
- additional battery back-up (9 V battery) in case of power decay,
- alarm optical and sound signalling,
- sensor failure signalling (auto-diagnostic system).

Technical data

Power supply: 230 V AC
Battery back-up: 9 V battery, type: 6F22
Detectors: electrochemical, semiconductor
Sound volume: 85 dB
Protection level: IP 20
Temperature operating range: -10 ˚C ÷ 50 ˚C
Humidity operating range: 20 ÷ 95% RH
Detection levels of carbon monoxide:
- 50 ppm (in less than 90 minutes)
- 100 ppm (in less than 40 minutes)
- 300 ppm (in less than 3 minutes)
Alarm level of gas detection: 10% LEL*
Weight: 237 g
Dimensions: 137 x 90 x 40 mm
Colour: white

*LEL – Lower Explosive Limit

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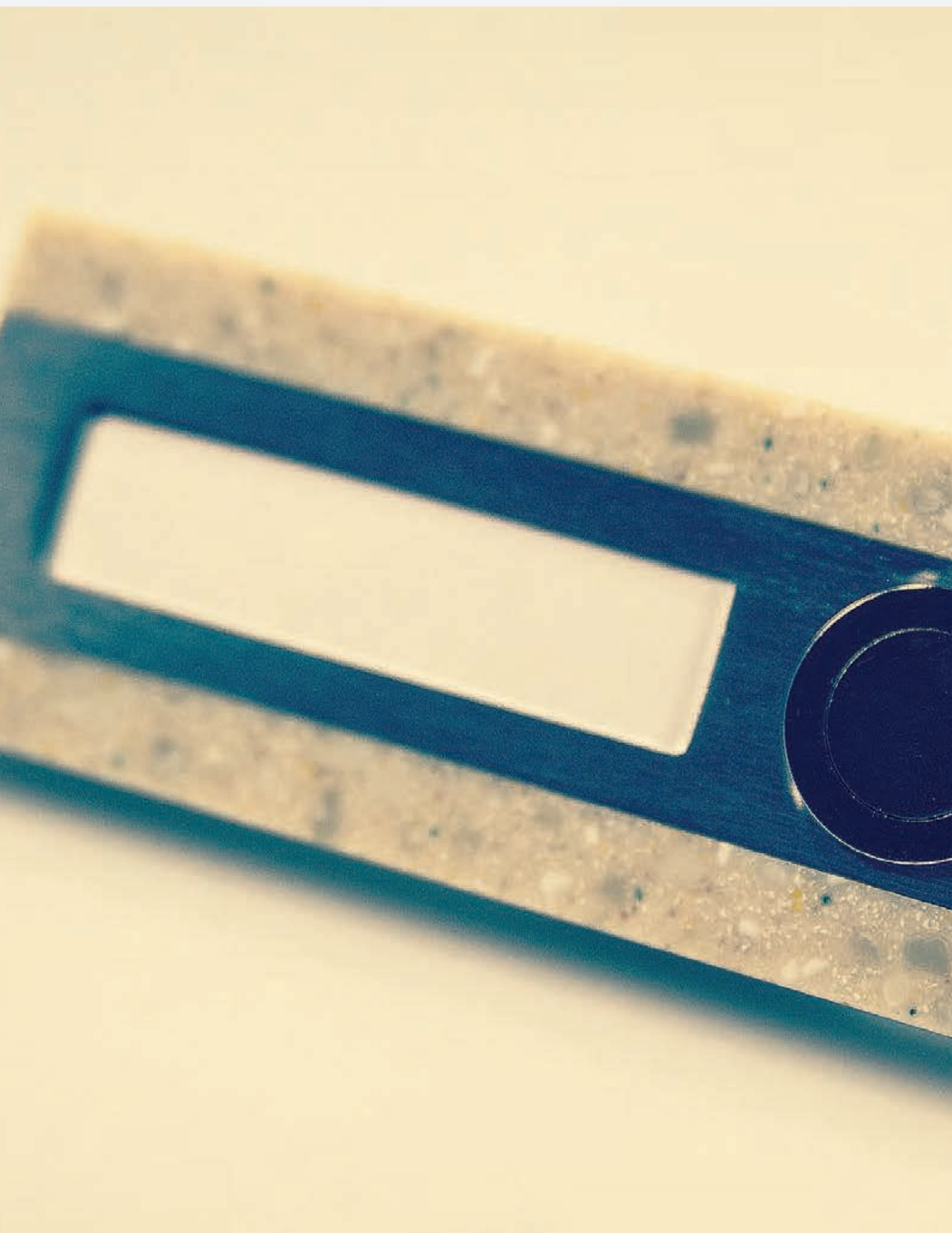
Electrotechnical accessories YNSTA

The electrotechnical product group YNSTA includes an interesting range of accessories completing Zamel product offer. Within the YNSTA group, Zamel offers the following products: an impressive doorbell pushes and a line of door entry systems that play a role of functional and decorative elements. Modern design, solid stone workmanship and a variety of shapes, colours and voltage types, make the customer can easily select the right product. YNSTA group includes also a number of connectors and connecting cables with connectors, which are mostly used in lighting control.

Square, decorative bell push with backlight
PDK-251

Features
- voltage and rated current: 250 V AC / 1 A,
- flush push button,
- designed to be mounted in Ø 60 mm junction box,
- push button with a blue backlight,
- highly endurable casing imitating natural stone,
- designed for doorbell and door-phone installations,
- a possibility of controlling the electromagnetic lock and other low voltage devices (up to 250 V AC),
- not designed to operate in difficult and changeable weather conditions,
- available in a consumer package (blister).

Technical data
Bulk packaging [pcs]: 25
Weight [g]: 180
Dimensions [mm]: 80 x 80 x 10
Colour: brown, beige

Round, decorative bell push with backlight
PDK-252

Features
- voltage and rated current: 250 V AC / 1 A,
- flush push button,
- designed to be mounted in Ø 60 mm junction box,
- push button with a blue backlight
- highly endurable casing imitating natural stone,
- designed for door bell and door-phone installations,
- a possibility of controlling the electromagnetic lock and other low voltage devices (up to 250 V AC),
- not designed to operate in difficult and changeable weather conditions,
- available in a consumer package (blister).

Technical data
Bulk packaging [pcs]: 25
Weight [g]: 170
Dimensions [mm]: Ø 80 x 10
Colour: brown, beige

Oblong, decorative, single bell push
PDK-250/1

Features
- voltage and rated current: 50 V AC / 1 A,
- surface mounted push button with a user name card,
- highly endurable casing imitating natural stone,
- designed for door bell and door-phone installation,
- a possibility of controlling the electromagnetic lock and other low voltage devices (up to 50 V AC),
- not designed to operate in difficult and changeable weather conditions,
- available in consumer package (blister).

Technical data
Bulk packaging [pcs]: 50
Weight [g]: 100
Dimensions [mm]: 100 x 45 x 10
Colour: brown, beige

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Oblong, decorative, double bell push
PDK-250/2

Features
- voltage and rated current: 50 V AC / 2 x 1 A,
- surface mounted push button with a user name card,
- designed for a two apartment building,
- highly endurable casing imitating natural stone,
- designed for door bell and door-phone installation,
- a possibility of controlling the electromagnetic lock and other low voltage devices (up to 50 V AC),
- not designed to operate in difficult and changeable weather conditions,
- available in consumer package (blister).

Technical data
Bulk packaging [pcs]: 28
Weight [g]: 154
Dimensions [mm]: 100 x 80 x 10
Colour: brown, beige

Oblong, decorative, triple bell push
PDK-250/3

Features
- voltage and rated current: 50 V AC / 3 x 1 A,
- surface mounting push button with a user name card,
- designed for a three apartment building,
- highly endurable casing imitating natural stone,
- designed for door bell and door-phone installation,
- a possibility of controlling the electromagnetic lock and other low voltage devices (up to 50 V AC),
- not designed to operate in difficult and changeable weather conditions,
- available in consumer package (blister).

Technical data
Bulk packaging [pcs]: 14
Weight [g]: 212
Dimensions [mm]: 100 x 120 x 10
Colour: brown, beige

Brass bell push with round side plate
PDM-231

Features
- voltage and rated current: 50 V AC / 1 A,
- flush mounted bell push,
- designed for mounting in Ø 60 mm junction box (with mounting holes for screws),
- decorative round side plate,
- brass casting with patinated surface,
- vandal resistant,
- designed for bell and door phone systems,
- a possibility to control the electromagnetic lock and other low voltage devices (up to 50 V AC),
- mounting screws included (2 pcs).

Technical data
Bulk packaging [pcs]: 75
Weight [g]: 75
Dimensions [mm]: Ø 70 x 30

Brass doorbell push with oblong side plate
PDM-232

Features
- voltage and rated current: 50 V AC / 1 A,
- flush mounted bell push,
- decorative oblong side plate,
- brass casting with patinated surface,
- vandal resistant,
- designed for doorbell and door entry systems,
- a possibility to control the electromagnetic lock and other low voltage devices (up to 50 V AC),
- mounting screws included (2 pcs).

Technical data
Bulk packaging [pcs]: 85
Weight [g]: 85
Dimensions [mm]: 87 x 30 x 30

Hermetic doorbell push
PDJ-213

Features
- voltage and rated current: 50 V AC / 1 A,
- surface mounted push button with a user name card,
- plastic casing,
- designed for bell and door entry systems,
- a possibility to control the electromagnetic lock and other low voltage devices (up to 250 V AC),
- designed to operate in difficult and changeable weather conditions (e.g. at a gate) - IP44.

Technical data
Bulk packaging [pcs]: 150
Weight [g]: 30
Dimensions [mm]: 80 x 21 x 33
Colour: white

Hermetic doorbell push with backlight
PDJ-213P

Features
- voltage and rated current: 50 V AC / 1 A,
- surface mounted push button with a backlight name holder,
- plastic casing,
- designed for doorbell and door entry systems,
- a possibility to control the electromagnetic lock and other low voltage devices,
- designed to operate in difficult and changeable weather conditions (e.g. at a gate) - IP44.

Technical data
Bulk packaging [pcs]: 150
Weight [g]: 30
Dimensions [mm]: 80 x 21 x 33
Colour: white

Wall protection single
OSX-910

Features
- plastic plate,
- used with surface switches and socket outlets,
- protects the wall against dirt.

Technical data
Bulk packaging [pcs]: 350
Weight [g]: 15
Dimensions [mm]: 130 x 130 x 1
Colour: white, transparent, beige, brown, red, gold, silver, graphite, satin, cream

Wall protection double
OSX-220

Features
- plastic plate,
- used with surface switches and socket outlets in 2 modular sets,
- protects the wall against dirt.

Technical data
Bulk packaging [pcs]: 300
Weight [g]: 30
Dimensions [mm]: 130 x 200 x 1
Colour: white, transparent, beige, brown, red, gold, silver, graphite, satin, cream

A through-switch
WSR-940

Features
- voltage and rated current: 250 V AC / 2,5 A,
- a bi-polar, demountable plastic through-switch,
- for mounting on a H03VVH2-F 2 x 0,75 mm² conductor,
- available in a carton packaging (30 pcs.) or in a unit packaging (blister).

Technical data
Bulk packaging [pcs]: 450 (carton) or 200 (blister)
Weight [g]: 19
Dimensions [mm]: 65 x 23 x 17
Colour: white, brown, black, red, gold, silver, transparent

Foot switch
WSN-253

Features
- voltage and rated current: 250 V AC / 2,5 A
- unipolar switch, demountable, made of plastic,
- for mounting on a H03VVH2-F cable
  for 2 x 2,5 mm² section,
- available in a carton packaging of 8 pieces or in
  a unit packaging (blister).

Technical data
Bulk packaging [pcs]:
8 (carton) or 20 (blister)
Weight [g]: 44
Dimensions [mm]: 70 x 80 x 40
Colour: white, brown, black,
transparent, silver, gold

Foot switch with dimming function
DIN-254

Features
- power load 15 ÷ 150 W,
- demountable, plastic switch with a dimming
  function,
- designed to control lighting,
- presence simulation function,
- control by means of an in-built push button (flu-
  ent brightening, dimming, switching on, switching
  off and presence simulation function),
- control element – highly efficient MOS transistor,
- for mounting on a H03VV-F cable
  for 2 x 2,5 mm² section,
- available in a carton packaging of 8 pieces or in
  a unit packaging (blister).

Technical data
Bulk packaging [pcs]:
8 (carton) or 20 (blister)
Weight [g]: 105
Dimensions [mm]: 70 x 80 x 40
Colour: white, brown, black,
transparent, silver, gold

Connection cable
SP

Features
- 190 cm long H03VVH2-F 2 x 0,5 mm² cable with
  a flat plug,
- available in bulk (a bundle of 50 pcs.) or in a unit
  packaging (blister),
- other cables available on customers' request
  (length, type of cable, etc.).

Technical data
Bulk packaging [pcs]:
100 (bulk packed) or 20 (blister)
Weight [g]: 70
Length [mm]: 1900
Colour: white, brown, black,
transparent, silver, gold

Connection cable with a through-switch
SP/W

Features
- 190 cm standard long H03VVH2-F
  2 x 0,5 mm² cable,
- a flat plug and a bipolar, plastic through-
  switch of 250 V AC / 2,5 A (50 cm from the
  end of the cable),
- available in bulk (a bundle of 50 pcs.) or in a
  unit packaging (blister),
- other cables available on customers' request
  (length, switch placement, type of cable,
  etc.).

Technical data
Bulk packaging [pcs]:
100 (bulk packed) or 20 (blister)
Weight [g]: 70
Length [mm]: 1900
Colour: white, brown, black,
transparent, silver, gold

Connection cable with a foot switch
SP/WN

Features
- 200 cm long H03VVH2-F cable
  2 x 0,75 mm²,
- flat plug and a foot switch of 250 V AC / 2,5 A
  made of plastic (150 cm from the plug),
- available in bulk (package of 25 pieces) or in
  a unit package (blister),
- others available on customers' request
  (length, switch placement, type of cable,
  etc.).

Technical data
Bulk packaging [pcs]:
25 (bulk packed) or 12 (blister)
Weight [g]: 124
Length [mm]: 2000
Colour: white, brown, black,
transparent, silver, gold

Connection cable with a through-switch and dimming function
SP/SN

Features
- 200 cm long H03VVH2-F cable
  2 x 0,75 mm²,
- flat plug and foot switch made of plastic with
  an built-in dimmer mounted (150 cm from the
  plug),
- presence simulation function,
- power-carrying capacity 15 ÷ 150 W,
- lighting control by means of a built-in push
  button (fluent brightening, dimming, switching
  on and switching off and presence simulation
  function),
- control element – highly efficient MOS
  transistor,
- available in bulk (package of 25 pieces) or in
  a unit package (blister),
- others available on customers' request
  (length, switch placement, type of cable,
  etc.).

Technical data
Bulk packaging [pcs]:
25 (bulk packed) or 12 (blister)
Weight [g]: 185
Length [mm]: 2000
Colour: white, brown, black,
transparent, silver, gold

4-CHANNEL
REMOTE CONTROL
P-257/4

8-CHANNEL
REMOTE CONTROL
P-256/8

Exposition materials EXPO
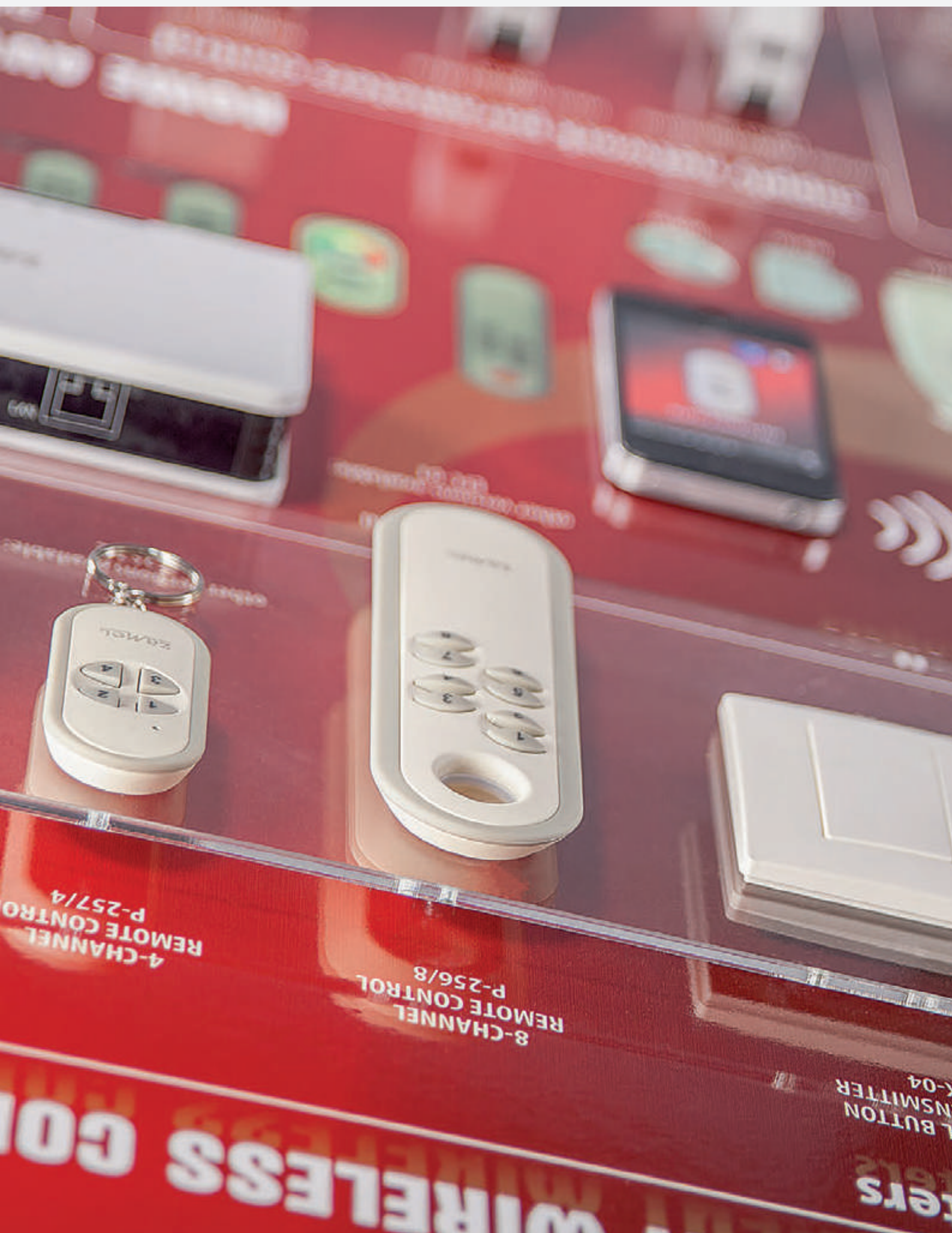
There is a lot to talk and write about Zamel products, but nothing will replace the possibility of a practical familiarizing with the devices. In accordance to the above, the Zamel company designed a range of aesthetic exposition boards or rather presentation boards by means of which a customer looking for an optimal solution can test the product, assess its design and even - in the case of doorbells and door entry systems - hear the sound of the selected device. The exposition materials EXPO constitute a wide range of board of devices of the following groups: EXTA, EXTA FREE, EXTA LIFE, SUPLA, LEDIX, SUNDI, ENTRA, GARDI and CET. The exposition boards are designed in different sizes, so that the presentation of some Zamel products is possible both in stores with large exhibition areas as well as those with limited space.

Exposition boards 502
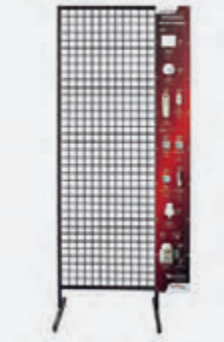
EXTA board
Type: X4

Description
- presents the selected dummy devices of EXTA home automation,
- the board does not require power supply,
- the board is designed to be hung on the wall,
- by means of a stand available on request, the board can be a freestanding structure.

Technical data
Dimensions [mm]: 820 x 1220
Weight [kg]: 10

EXTA FREE board
Type: X5

Description
- a combination of a demonstration board with a metal grid for goods intended for sale,
- a possibility of placing products in blisters on hooks attached to the metal grid,
- attractive design,
- free-standing structure.

Technical data
Dimensions [mm]: 1200 x 2000
Weight [kg]: 13,5

EXTA FREE presentation board
Type: X6

Description
- allows to see the functioning of the EXTA FREE system,
- the board contains active: LED lighting fittings, 2-channel radio receiver, 2-channel remote control and 2-channel radio button transmitter,
- all devices are placed on a transparent plexiglass,
- small dimensions,
- easy and comfortable to carry,
- power supply included in the exposition board kit.

Technical data
Dimensions [mm]: 300 x 210 x 30
Weight [kg]: 0,9

EXTA LIFE/EXTA FREE board
**Type: X14**

Description
- presents the selected dummy devices of EXTA LIFE intelligent home and of EXTA FREE intelligent wireless control system,
- the board does not require power supply,
- the board is designed to be hung on the wall,
- by means of a stand available on request, the board can be a freestanding structure.

Technical data
Dimensions [mm]: 820 x 1220
Weight [kg]: 10

LEDIX board
Type: L1/N
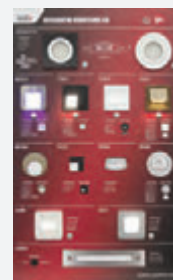
Description
- presents the LED lighting fittings of the LEDIX and KONEKTO group,
- allows to know the fittings' real appearance and lighting qualities,
- presentation in the form of active products,
- small dimensions,
- power supply included with the board,
- designed to be hung on a wall.

Technical data
Dimensions [mm]: 500 x 780
Weight [kg]: 2,5

LEDIX board
Type: L2/N

Description
- presents the LEDIX group products,
- allows to know the fittings' real appearance and lighting qualities,
- presentation in the form of active products (LED lighting fittings) and dummies (relays, power supplies, transformers),
- attractive appearance,
- designed to be hung on a wall,
- by means of a stand available on request, the board can be a freestanding structure,
- power supply included with the board.

Technical data
Dimensions [mm]: 820 x 1220
Weight [kg]: 10,5

LEDIX board
Type: L3
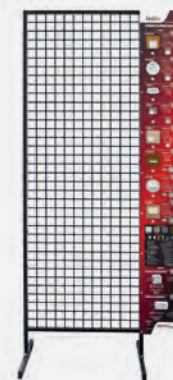
Description
- a combination of a demonstration board with a metal grid for goods intended for sale,
- presents the LED lighting fittings of the LEDIX group,
- allows to know the fittings' real appearance,
- a possibility to hang products on comfortable hooks,
- attractive appearance,
- a free-standing board,
- power supply is included in the set.

Technical data
Dimensions [mm]: 1200 x 2000
Weight [kg]: 13,5

LEDIX presentation board
Type: L4

Description
- presents 4 selected LEDIX lighting fittings,
- allows to know the fittings' real appearance and lighting qualities,
- presentation of LED lighting fittings in the form of active products,
- small dimensions,
- easy and comfortable during transfer,
- battery backup,
- multilingual captions.

Technical data
Dimensions [mm]: 200 x 200 x 50
Weight [kg]: 1

LEDIX presentation board
Type: L9

Description
- presents 4 LEDIX series lighting fittings (LAMI, TETI),
- allows to know the fittings' real appearance and lighting qualities,
- presentation of LED lighting fittings in the form of active products,
- small dimensions, easy and comfortable during transfer,
- battery backup,
- multilingual captions.

Technical data
Dimensions [mm]: 200 x 200 x 50
Weight [kg]: 1

KONEKTO presentation board
Type: L11

Description
- presents 2 KONEKTO series lighting fittings,
- allows to know the fittings' real appearance,
- small dimensions,
- all devices are placed on a plexiglass.

Technical data
Dimensions [mm]: 300 x 16
Weight [kg]: 0,5

SUNDI board
Type: A

Description
- presents 19 active wired doorbells,
- allows to know the product's real appearance and selected doorbells' melodies,
- presentation in the form of active products,
- designed to be hung on a wall,
- by means of a stand available on request, the board can be a freestanding structure,
- power supply included with the board.

Technical data
Dimensions [mm]: 550 x 1220
Weight [kg]: 13,1

SUNDI board
Type: E

Description
- the electronic board presents a full product offer of doorbells, chimes and bell accessories of the Zamel and Bittorf Company,
- it does not include active products,
- product design is presented by means of photos and the sound is reproduced electronically,
- the board is lighter than the one with active products,
- designed to be hung on a wall,
- power supply included with the board.

Technical data
Dimensions [mm]: 550 x 1100
Weight [kg]: 3,9

SUNDI board
Type: K

Description
- presents 16 active wireless doorbells,
- allows to know the product's real appearance and selected doorbells' melodies,
- presentation in the form of active products,
- designed to be hung on a wall,
- by means of a stand available on request, the board can be a freestanding structure,
- power supply included with the board.

Technical data
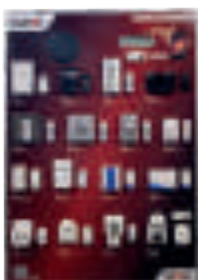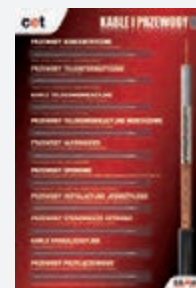Dimensions [mm]: 820 x 1220
Weight [kg]: 12

CET board
Type: C1

Description
- presents the wire and cable product offer of the CET Company,
- does not include active products,
- cross-section of wires and cables are presented by means of product photographs,
- a possibility to hang the board on a wall.

Technical data
Dimensions [mm]: 820 x 1220
Weight [kg]: 9

CET presentation board with cables
Type: C2

Description
- meeting the Customers' requirements, a very comfortable and original cable presentation and sale system referring to cables produced by CET has been developed.
- we offer a cable stand in two sizes,
- the exposition system allows to present effectively numerous cables in a small space and to comfortably and fast unwind and measure them (by means of a scale).
- completion or product offer change take two minutes and do not bear any additional costs (except the purchase of the cable wound on a standard reel),
- the choice of particular types of cables is free within our product offer,
- the stand is additionally equipped with a special description list, here a salesperson can place his "price list" printed according to the electronic template provided by our company (including the cable name, type and its price),
- for an easier salesperson work, there is a table with exemplary applications of particular types of cables on the signboard,
- the offer is for all our Customers and their retailers.

Technical data
Number of reels: 16
Dimensions [mm]: 1750 x 650 x 450
Weight [kg]: 25 (without spools)

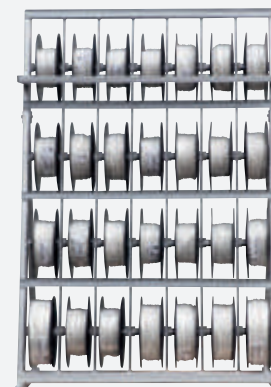# CET presentation board with cables
Type: C3

Description
- meeting the Customers' requirements, a very comfortable and original cable exposition and sale system referring to cables produced by CET has been developed.
- we offer a cable stand in two sizes,
- the exposition system allows to present effectively numerous cables in a small space and to comfortably and fast unwind and measure them (by means of a scale).
- completion or product offer change take two minutes and do not bear any additional costs (except the purchase of the cable wound on a standard reel),
- the choice of particular types of cables is free within our product offer,
- the stand is additionally equipped with a special description list, here a salesperson can place his "price list" printed according to the electronic template provided by our company (including the cable name, type and its price),
- for an easier salesperson work, there is a table with exemplary applications of particular types of cables on the signboard,
- the offer is for all our Customers and their retailers.

Technical data
Number of reels: 28
Dimensions [mm]: 1750 x 1110 x 450
Weight [kg]: 30 (without spools)

MATEC board
Type: M1

Description
- the board presents, in a graphic way, temperature controllers used in floor heating and de-icing systems and an application of different types of heating devices in the de-icing systems,
- shows in a physical way the heating mat used in floor heating indoor,
- designed to be hung on a wall,
- by means of a stand available on request, the board can be a freestanding structure.

Technical data
Dimensions [mm]: 820 x 1220
Weight [kg]: 9

ENTRA board
Type: V1

Description
- presents the product offer of one-family video intercoms by ZAMEL,
- allows to know the intercoms' real appearance and their functionalities,
- a possibility of switching on / switching off the video intercom,
- presentation in the form of active products,
- place for leaflets,
- small dimensions,
- by means of a stand the board can be a freestanding structure or can be hung on a wall,
- power supply included with the board.

Technical data
Dimensions [mm]: 380 x 560
Weight [kg]: 2,5

ENTRA board
Type: V2

Description
- presents the complete offer of the 800-series video intercoms by ZAMEL,
- presentation of the operation of the products,
- allows you to see the design of the intercoms and all their functionalities, including opening gates, unlocking latches with cards and RFID fobs,
- designed to be hung on a wall,
- the board can be presented in a free-standing manner with a special stand available on request,
- the video intercoms can be turned on and off.

Technical data
Dimensions [mm]: 820 x 1220
Weight [kg]: 11

ENTRA board
Type: V3

Description
- presents the complete offer of the 800-series video intercoms by ZAMEL,
- presentation of the operation of the products,
- allows you to see the design of the intercoms and all their functionalities, including opening gates, unlocking latches with cards and RFID fobs,
- designed to be hung on a wall,
- the board can be presented in a free-standing manner with a special stand available on request,
- the video intercoms can be turned on and off.

Technical data
Dimensions [mm]: 820 x 1220
Weight [kg]: 11

SUPLA board
Type: W1

Description
- an interactive board for testing the SUPLA system,
- control with SUPLA app,
- illuminated symbols connected to receivers (ROW-01, ROW-02, SLW-01, SRW-01, SBW-01) show the system operation,
- designed to be hung on a wall,
- small dimensions.

Technical data
Dimensions [mm]: 500 x 780

Weight [kg]: 2

GARDI presentation board
Type: G

Description
- presents a functioning carbon monoxide detector type: CTW-03,
- allows to know the product real appearance and functionality,
- small dimensions,
- device is placed on a plexiglass.

Technical data
Dimensions [mm]: 250 x155 x 90

Weight [kg]: 0,54

Export department

Grzegorz Nowak
Export Sales Director

Tel.: +48 32 210 46 65 ext. 220
Mobil: +48 603 558 007
Fax: +48 32 210 80 04
E-Mail: grzegorz.nowak@zamel.pl

Piotr Zubik
Export Manager

Tel.: +48 32 210 46 65 ext. 128
Fax: +48 32 210 80 04
E-Mail: piotr.zubik@zamel.pl

Tomasz Kroczek
Export Manager

Tel.: +48 32 210 46 65 ext. 225
Mobil: +48 661 300 507
Fax: +48 32 210 80 04
E-Mail: tomasz.kroczek@zamel.pl

Anis Hamrouni
Export Manager

Tel.: +48 32 210 46 65 ext. 371
Mobil: +48 539 953 709
Fax: +48 32 210 80 04
E-Mail: anis.hamrouni@zamel.pl

Zamel Sp. z o.o.
43-200 Pszczyna, ul. Zielona 27, Poland
phone: +48 32 210 46 65
fax: +48 32 210 80 04
e-mail: export@zamel.pl
www.zamel.com