



The electricians' guide

2013-2014

For domestic
and commercial
applications



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Today, there is a practical and viable alternative to the traditional way of controlling domestic and commercial lighting.

Economy and flexibility

Achieving the control of lighting where there is more than one control switch, particularly where they are located some distance from one another, has always been complicated and costly. A second control switch requires 3 additional wires, whilst every intermediate switching location requires no less than 4 wires. In such cases, utilising an impulse (or step) relay has many advantages; designing the system is simpler – it is more easily expanded – installation costs are noticeably reduced.

Simplicity

Using 2-wire pushbuttons to control the coil of a centrally located impulse relay, which in turn controls the lights, greatly simplifies the wiring normally associated with one-way, two-way and intermediate switches. The 2-wire coil “command circuit” is easily extended to as many lighting control locations as needed, and can use smaller and neater conductors (0.5 mm^2 - CEI 64-8), since they need only to carry the load of the relay coil (typically $20\div 600 \text{ mA}$).

The power circuit to the lights should of course be of sufficient capacity, but instead of following the usual

route of a traditional system to all the switches, it needs to run only to the impulse relay and then to the lights.

Safety

Where necessary, and particularly for safety reasons, a transformer can be used to power the command circuit at a voltage lower than the supply voltage - impulse relay coils being available in several AC or DC voltages. No other component offers this enhanced safety through separating the command from the power circuit, nor the savings derived from added versatility and simplification of the system.

Versatility

In addition to the technical advantages already described, a number of versatile mounting modes for the relay are possible; ranging from a normal junction box, screw fixing, and 35 mm rail (EN 60715) mounting systems.

Conforming to International Standards

In Europe, EU Directive 46/90 and successive amendments state that, as well as using recognised technicians to carry out the installation, the materials and components used in the system should adhere to International and National standards. It is particularly important that this can be verified with Declarations of Conformity citing the appropriate standards, and certification documents from the appropriate National certification organisation.

FINDER impulse relays are designed and constructed in compliance to CEI regulations and, depending on type, have been officially certified by the appropriate standards authorities with respect to performance and quality, being subject to both Type Testing and ongoing periodic QC testing. (Refer to page 13 of this Guide)

APPROPRIATE STANDARDS

EN 61810-1:

Electromechanical Elementary Relays – Part 1:
General and safety requirements

EN 60669-1:

Switches for household and similar fixed electrical installations. General requirements

64 - 8: Electrical Systems.

Noise level

FINDER is engaged in continual research into the reduction of the acoustic noise generated by the mechanical action of operating the contacts.

Improved with respect to earlier versions of impulse relay, the current 20, 26 Series and 27 series create no more noise than a normal switch (about 20 dB), whilst the SILENT IMPULSE RELAY “13.81” and “13.91” generates no noise noticeable above the general background noise where it is installed.

The Switching Function fundamentally defines the particular sequence in which the step relay contacts open and close, and the number of “steps” before this sequence repeats itself. The digit in the fourth position of the Finder part number denotes the Switching Function.

Relay type	Number of Steps	Switching Sequence			
		1	2	3	4
xx.x1	2				
xx.x2	2				
xx.x3	2				
xx.x4	4				
xx.x5	4				
xx.x6	3				
xx.x8	4				

Switching function code

The 1 pole 2 step switching function xx.x1 will allow the On/Off control of a single lighting zone.

The 2 pole types allow the independent control of 2 lighting zones. The specific lighting sequence will depend on the specific Switching Function code chosen.

Note:

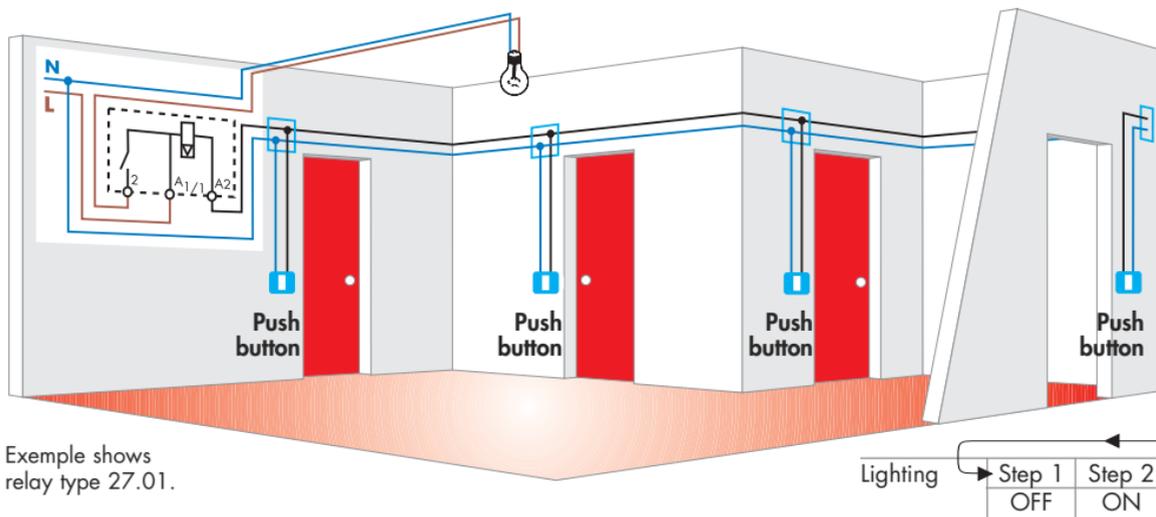
- Not all Finder Step relays are available with all the possible alternative Switching functions.
- The Switching function code generally has the same meaning for all Finder step relays, although there are a few minor anomalies – so in practice refer carefully to the data sheet for the specific relay.

For example:

The Switching Function code “6” (2 pole, 3-step sequence) can be implemented with relay types 20.26 – 26.06 – 27.06, but the latter has coil and contact circuits that are common to each other.

Comparison between relay system and traditional system

Relay System Wiring – Single Zone On/Off control
 Using single relay (Function code "1") and simple wiring
 Possible relay types, 20.21 - 26.01 - 27.01 - 27.21 - 13.81 - 13.91



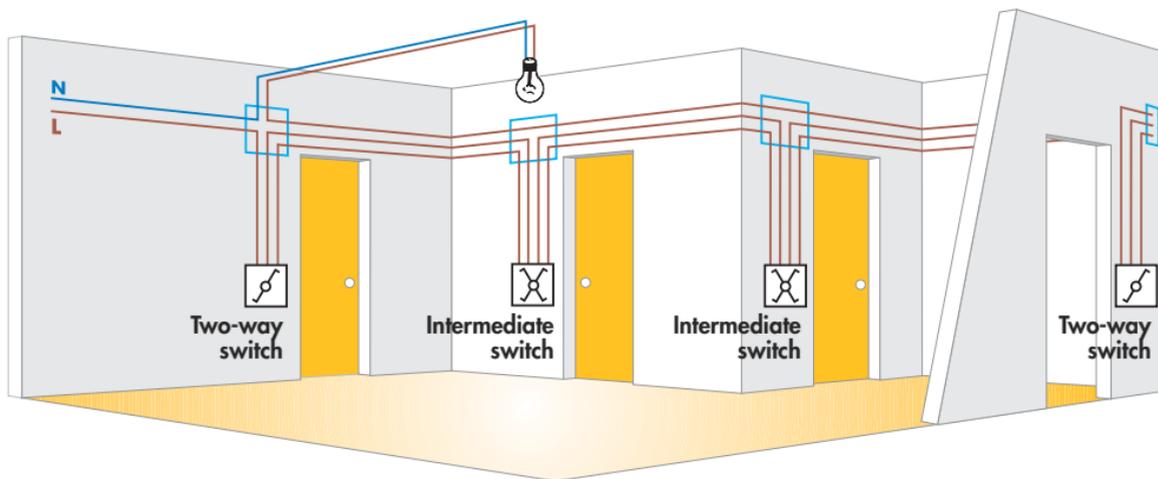
Comparing both systems, even for the simplest uses, the relay system offers advantages.

Only two wires are required for the "command circuit", and they can be of a smaller cross section (0.5 mm). Whereas, in a traditional system the conductors have to be

sized to take the load current and are far more numerous. From an economic viewpoint, not only are there savings in material costs, but also less time is taken by the electrician to install the relay system. This system is also much easier to modify or extend.

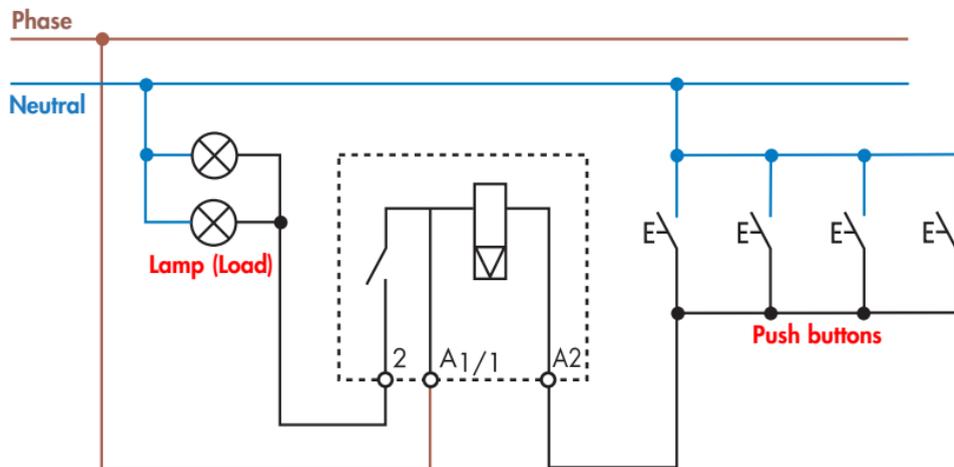
Comparison between relay system and traditional system

Traditional System Wiring – Single Zone On/Off control
Using multi-pole switches and multiple wiring



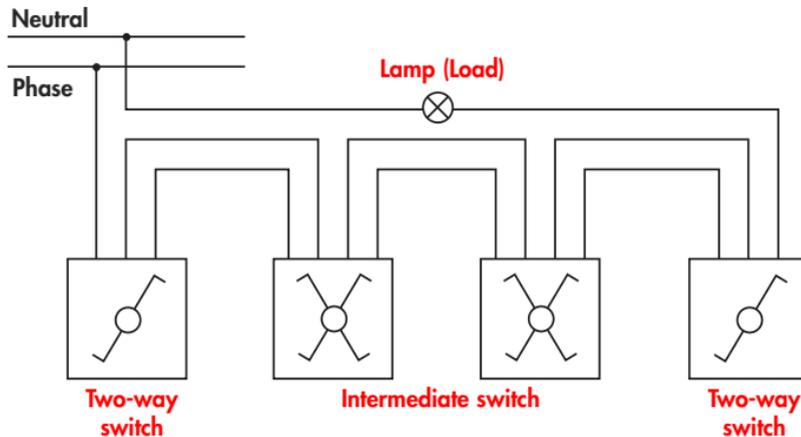
Comparison between relay system and traditional system

Wiring Schematic - Relay system
 Single Zone On/Off control - Function code "1" (1 pole 2 step sequence) relay



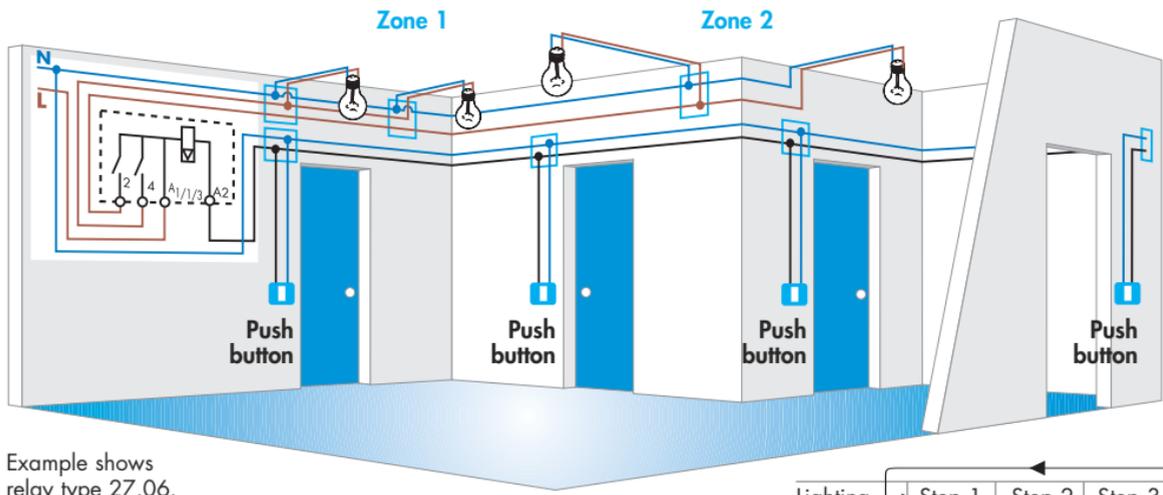
Example shows relay type 27.01.

Wiring Schematic - Traditional system Single Zone On/Off switching - Multi-pole switches and wiring



Comparison between relay system and traditional system

Relay System Wiring – 2 Lighting Zones, 3 sequence On/Off control
 Using single relay (Function code "6") and simple wiring
 Possible relay types, 20.26 - 26.06 - 27.06 - 27.26



Example shows relay type 27.06.

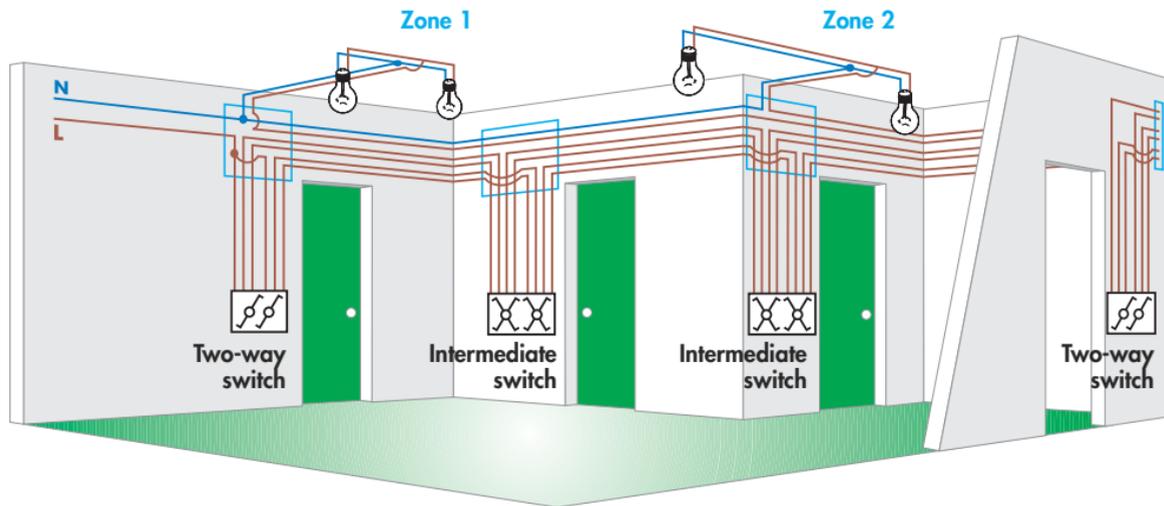
Lighting	Step 1	Step 2	Step 3
Zone 1	OFF	OFF	ON
Zone 2	OFF	ON	ON

For more complex functions such as the one above, the relay system is self evidently simpler and more economical to install. Savings of typically 40% can be achieved. The function of this particular application is to offer 3-step

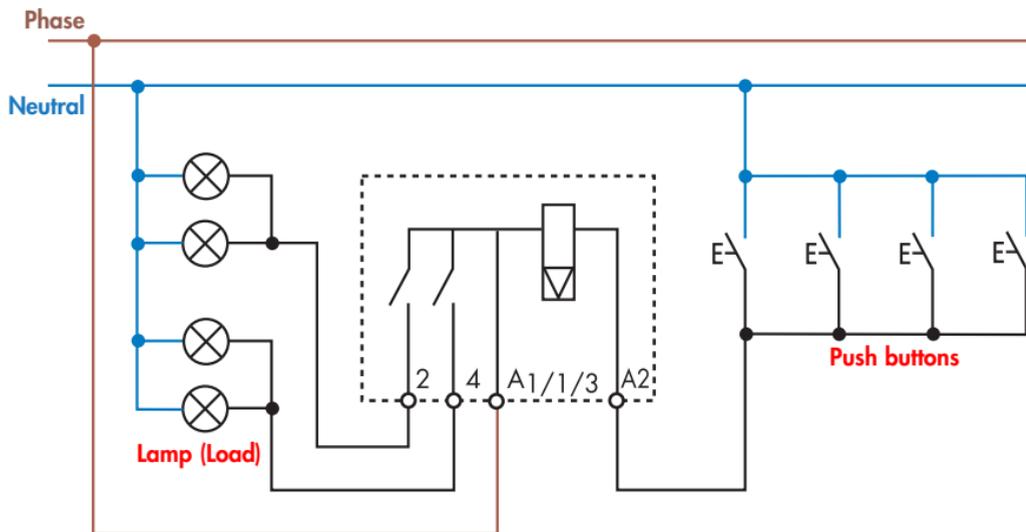
sequence control over two circuits, or lighting "zones", using a single impulse relay with 2 independent contacts. Successive operation of any of the push buttons sequences the lighting through all three permutations.

Comparison between relay system and traditional system

Traditional System Wiring – 2 Lighting Zones
Using multi-pole switches and complex wiring

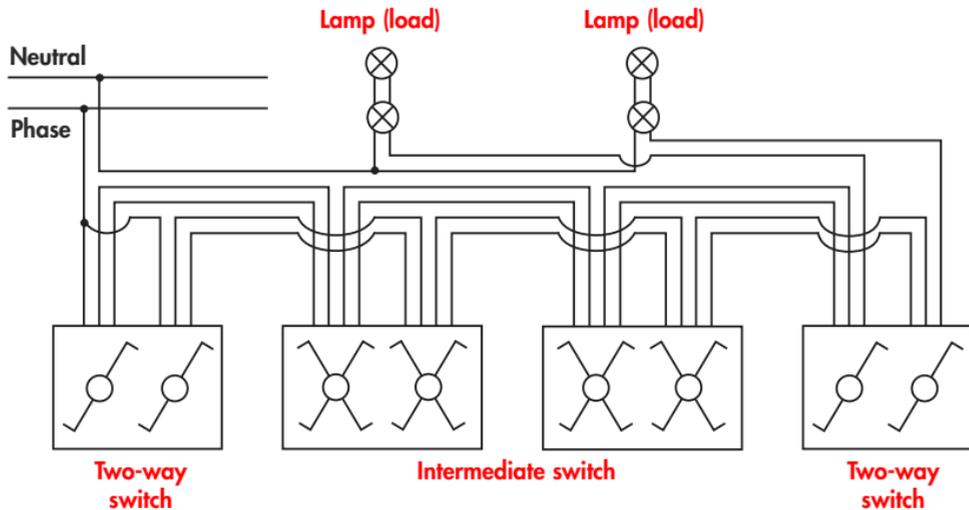


Wiring Schematic - Relay system 2 Zone On/Off switching - Function code "6" (2 pole 3 step sequence) relay



Example shows relay type 27.06.

Wiring Schematic - Traditional system
2 Zone On/Off switching - Multi-pole switches and complex wiring





Manufacturers Declaration of Conformity



Finder has the widest range of quality approvals of any relay manufacturer.



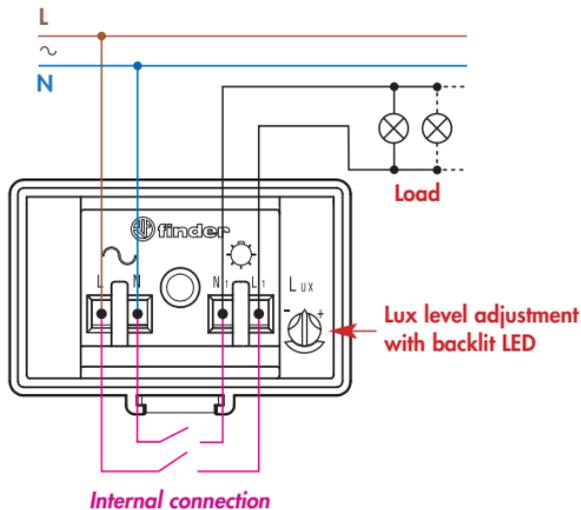
Quality products;
respecting the environment.



Type 10.32 "Powerful"
Double output - 2 NO 16A
for Live and Neutral switching

Italian Patent "light feedback compensation"
innovative principle

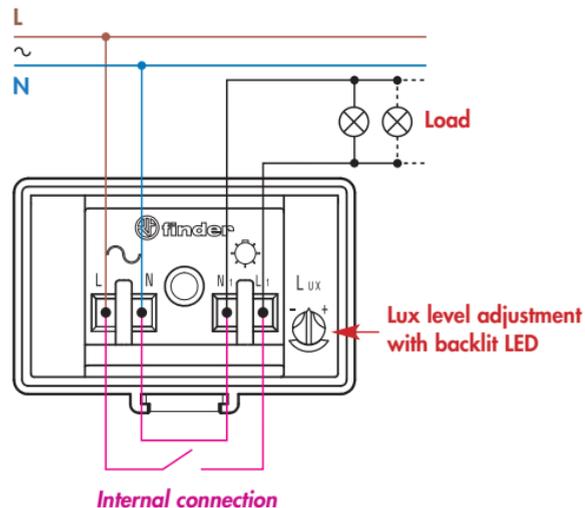
- 2 NO, 16 A 230 V AC
- Supply voltage: AC
- For pole or wall mounting





Type 10.41 "Universal"
Single output - 1 NO 16A for Live switching
Italian Patent "light feedback compensation"
innovative principle

- 1 NO, 16 A 230 V AC
- Supply voltage: AC
- For pole or wall mounting





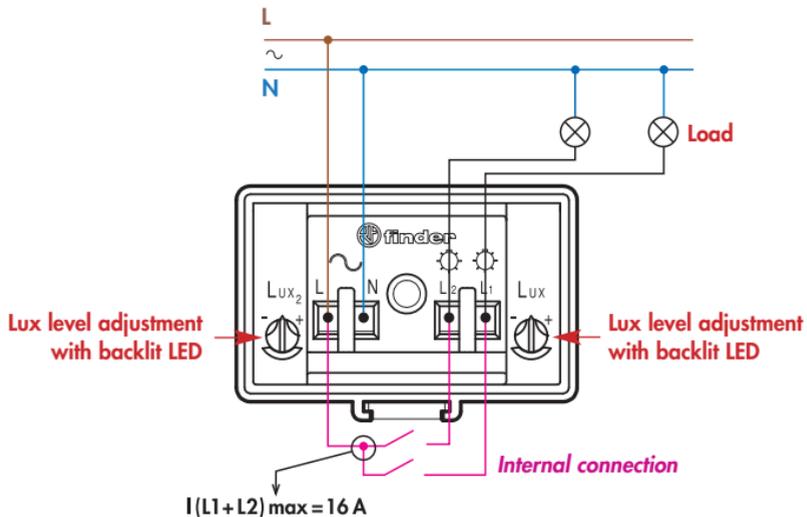
Type 10.42 "Double"

Two independent outputs - 2 NO 16A

- 2 NO, 16 A 230 V AC

- Supply voltage: AC

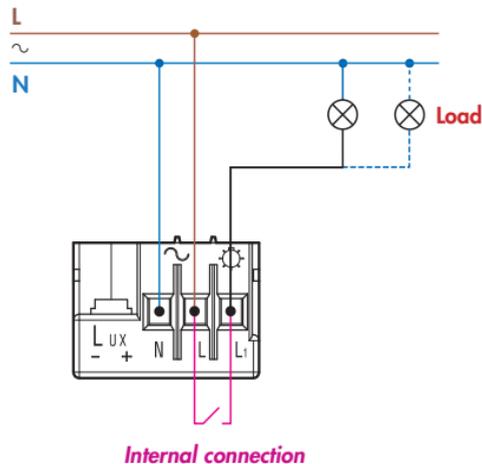
- For pole or wall mounting





Type 10.51 "Small"
Single output - 1 NO 12A
Italian Patent "light feedback compensation" innovative principle

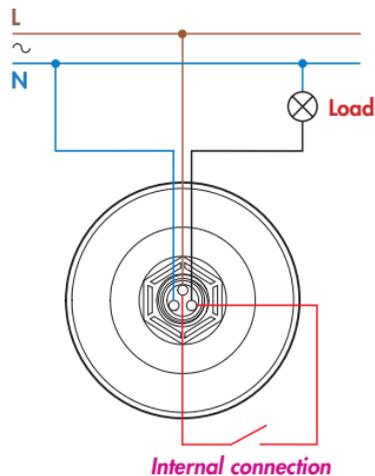
- 1 NO, 12 A 230 V AC
- Supply voltage: AC
- For pole or wall mounting





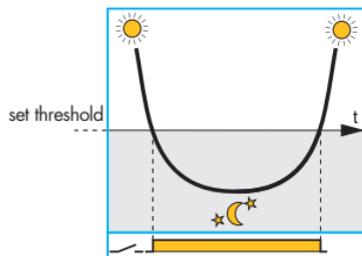
Type 10.61

- Fixed sensitivity 10 lux ($\pm 20\%$)
- Prewired with silicone wire, 500 mm length
- 1 NO, 16 A 230 V AC
- Supply voltage: AC
- Mounting on street light body



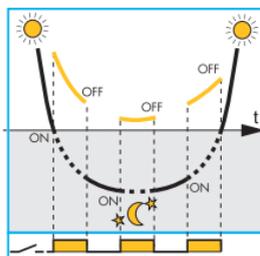
Advantage of the "light feedback compensation" principle

Light dependent relay where the lighting being controlled does not influence the light level seen by the sensor



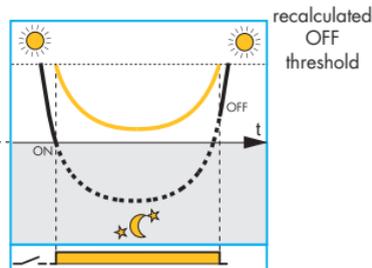
Correct functioning - provided the sensor can be shielded from the effects of the controlled lighting switching On and Off

Traditional light dependent relay where the lighting being controlled influences the light level seen by the sensor



Incorrect functioning where the lamps cycle between On and Off, because their effect is being detected by the sensor

Type 10.32, 10.41 and 10.51 light dependent relay with "light feedback compensation"



The innovative principle of "light feedback compensation" avoids the annoying and damaging effects of the lamps repeatedly "hunting" between On and Off, due to poor installation



Ambient light level as measured by the light dependent relay's integral sensor.

Ambient light + controlled light level as measured by the light dependent relay's integral sensor.

Notes

1. It is good practice to try to achieve a correct installation where the light emitted from the lamp(s) does not influence the light level seen by the sensor, although the "light feedback compensation" principle will help when this is not fully achievable. In this case it should be appreciated that the "light feedback compensation" principle may delay slightly the time of Switch Off - beyond the ideal.
2. The compensation principle is not effective where the combined effect of the ambient light and the controlled lighting exceeds 120 lux.
3. The 10.32 and 10.41 types are compatible with gas discharge lamps that attain full output within 10 minutes, since the electronic circuit monitors lamps' light output over a 10 minutes period to achieve a true assessment of its contribution to the overall lighting level.



Energy saving in a new light !



11 Series. Light dependent relays 12 - 16 A

- *Innovative Finder patent simplifies installation*
- *Totally Cadmium free (contacts and photosensor)*
- *Double insulation between supply and light sensor*





Type 11.31 "Small" 17.5 mm width

- 1 NO, 16 A 250 V AC
- Supply voltage: AC
- 35 mm rail (EN 60715) mount

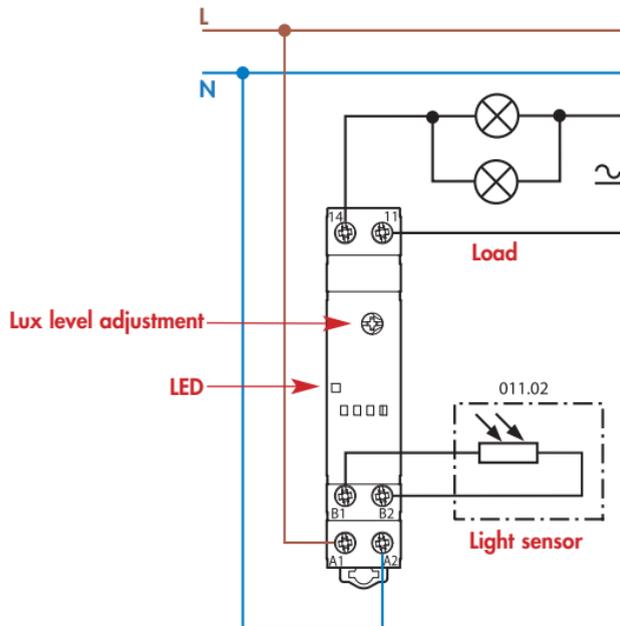


Accessories

Light sensor Type 011.02



- Protection category: IP 54
- Cadmium free
- Non polarized
- Double insulated with respect to light dependent relay supply





Type 11.41 "Classic"
"zero hysteresis", 4 position selector
 European patent "Zero hysteresis"
 for energy saving
 Italian patent "Light feedback compensation"
 principle

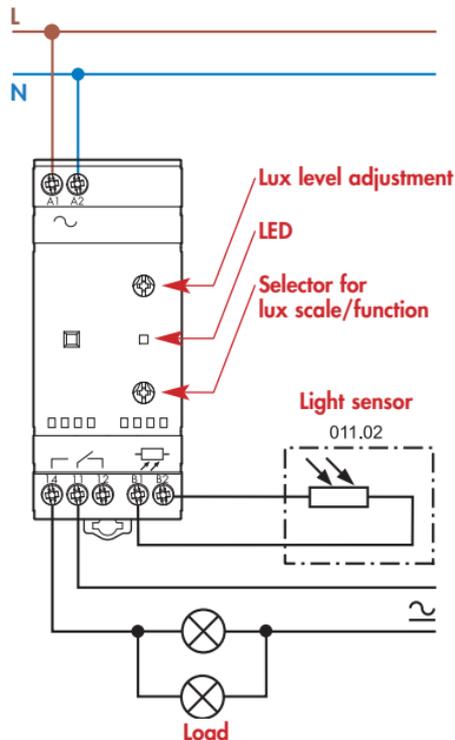
- 1 CO, 16 A 250 V AC
- Supply voltage: 230 V AC
- 35 mm rail (EN 60715) mount

Accessories

Light sensor Type 011.02

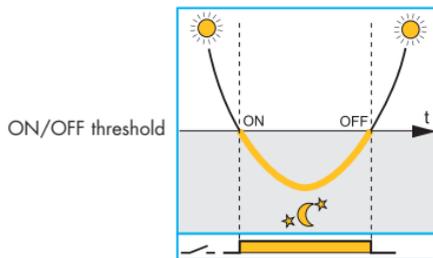


- Protection category: IP 54
- Cadmium free
- Non polarized
- Double insulated with respect to light dependent relay supply



Advantage of the "Zero hysteresis" patented circuit:
ensures reliable switching without wasting energy

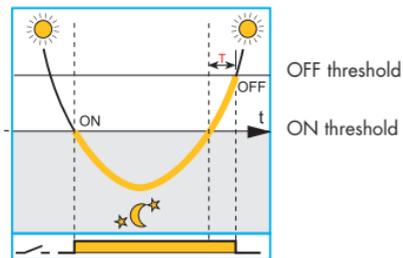
TYPE 11.41 "ZERO HYSTERESIS"
LIGHT DEPENDENT RELAYS



Switch OFF level = Switch ON level.
Patented "Zero Hysteresis" circuitry
ensures reliable switching without
wasting energy.

TRADITIONAL
LIGHT DEPENDENT RELAYS

set threshold



"Traditional" light dependent relays
incorporate switching hysteresis to
prevent malfunctioning or tripping.
This results in an unnecessary delay in
switching off, and a resulting waste of
energy (over period T).



Brightness of the natural light



The NO of the light dependent relay is closed (light is switched on)



Type 11.42 "Double"

- 2 independent outputs
- 2 individual lux settings
- 4 position selector
- 1 CO + 1 NO, 12 A 250 V AC
- Supply voltage: 230 V AC
- 35 mm rail (EN 60715) mount

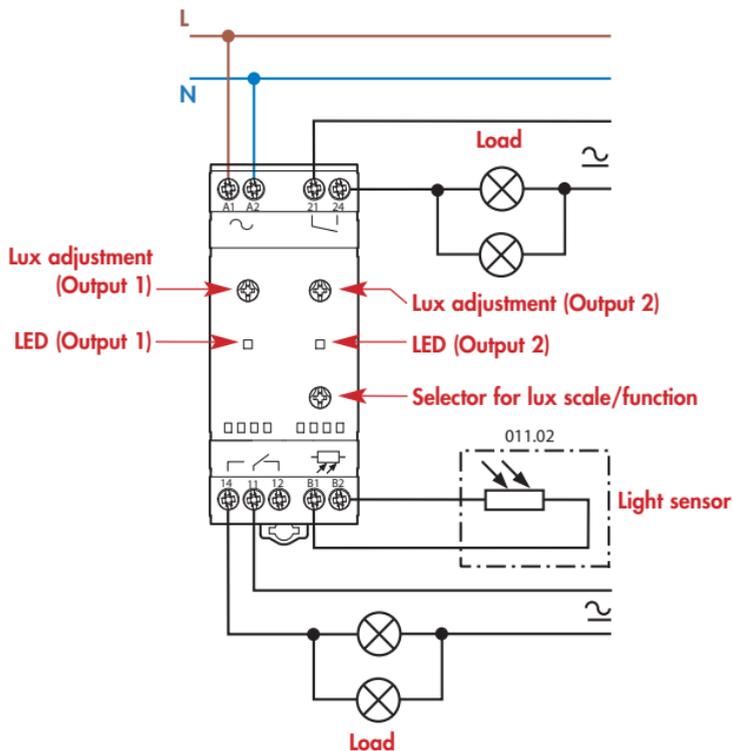


Accessories

Light sensor Type 011.02

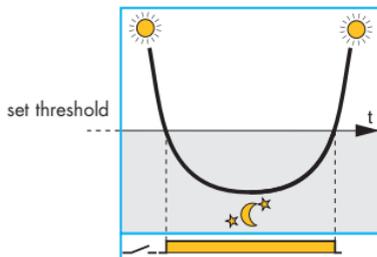


- Protection category: IP 54
- Cadmium free
- Non polarized
- Double insulated with respect to light dependent relay supply



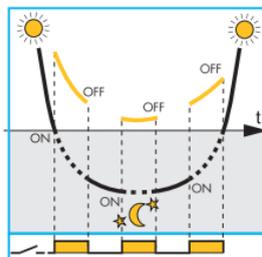
Advantage of the "light feedback compensation" principle (Italian Patent)
avoids the effect of the lamps repeatedly "hunting" between On and Off, due to poor installation

Light dependent relay where the lighting being controlled does not influence the light level seen by the light sensor



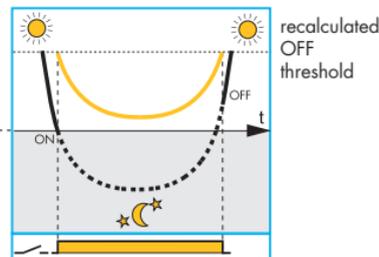
Correct functioning - provided the light sensor can be shielded from the effects of the controlled lighting switching On and Off

Traditional light dependent relay where the lighting being controlled influences the light level seen by the light sensor



Incorrect functioning where the lamps cycle between On and Off, because their effect is being detected by the light sensor

Type 11.41 and 11.91 light dependent relay with "light feedback compensation"



The innovative principle of "light feedback compensation" avoids the annoying and damaging effects of the lamps repeatedly "hunting" between On and Off, due to poor installation



— Ambient light level as measured by the light dependent relay's light sensor

— Ambient light + controlled light level as measured by the light dependent relay's light sensor

Notes

1. It is good practice to try to achieve a correct installation where the light emitted from the lamp(s) does not influence the light level seen by the light sensor, although the "light feedback compensation" principle will help when this is not fully achievable. In this case it should be appreciated that the "light feedback compensation" principle may delay slightly the time of Switch Off - beyond the ideal.
2. The compensation principle is not effective where the combined effect of the ambient light and the controlled lighting exceeds a maximum value (200 lux for the 11.91, 160/2,000 lux for standard/high range of the 11.41).
3. The 11.41 and 11.91 types are compatible with gas discharge lamps that attain full output within 10 minutes, since the electronic circuit monitors lamps' light output over a 10 minute period to achieve a true assessment of its contribution to the overall lighting level.



Type 11.91 "Versatile"
Light dependent relay + time switch
Auxiliary output (light only dependent)
to power optional 19.91 power module
Italian patent "Light feedback compensation" principle

- 1 CO (16 A 250 V AC) + 1 aux output
- Supply voltage: 230 V AC
- 35 mm rail (EN 60715) mount

Accessories

Light sensor Type 011.02

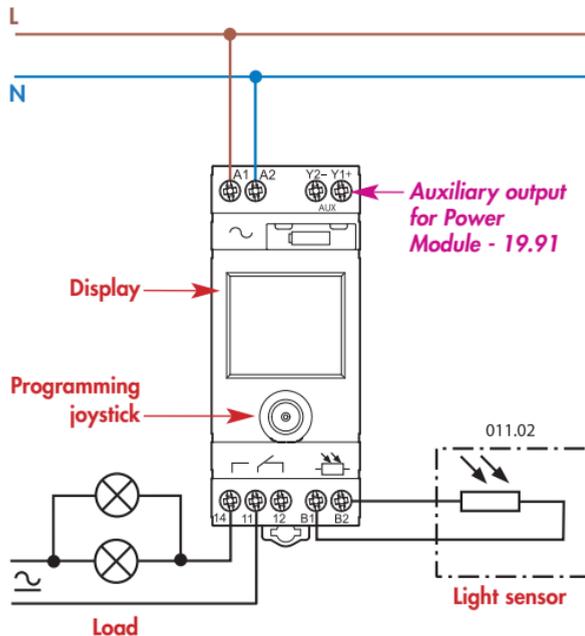


- Protection category: IP 54
- Cadmium free
- Non polarized
- Double insulated with respect to light dependent relay supply

Flush-mounted light sensor Type 011.03



Protection category: IP 66/67





Type 19.91.9.012.4000 - Power module 16 A 17.5 mm width

- 1 CO 16/30 A 250 V AC
- Supply voltage: DC
- 35 mm rail (EN 60715) mount



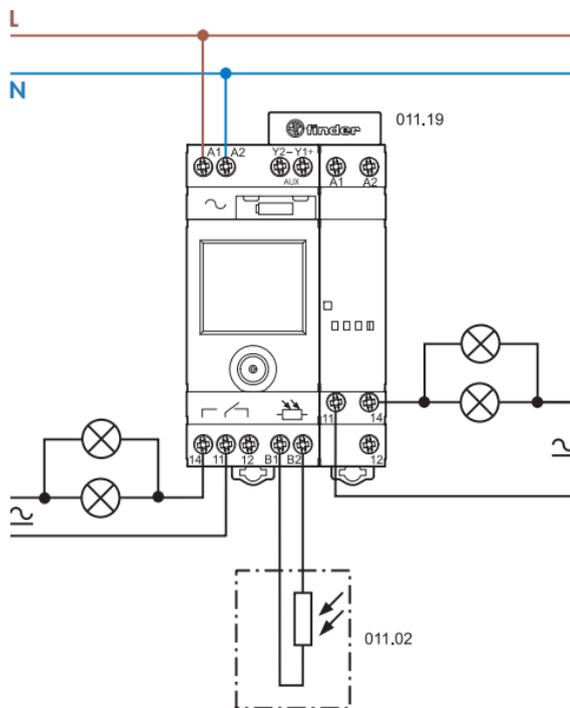
Accessories

2-pole connector Type 011.19



For direct connection of 11.91 auxiliary output (Y1-Y2) to 19.91 supply (A1-A2)

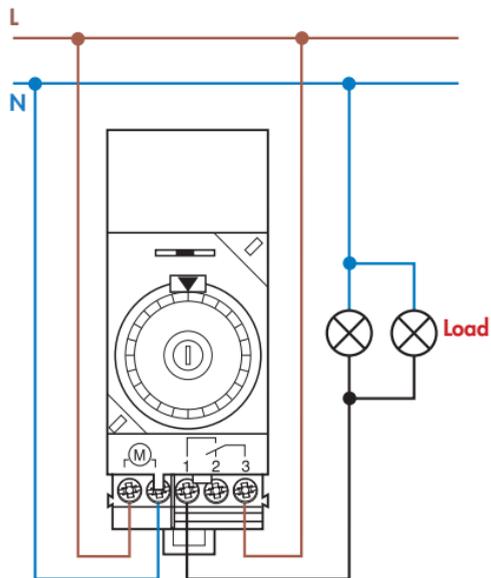
A solid state output at terminals Y1-Y2 is provided (rated 12 V DC, 80 mA 1 W max.): this can be used with the power module **19.91.9.012.4000** connected by the dedicated **011.19** connector.





Type 12.01
Mechanical daily time switch
35.8 mm width

- 1 CO, 16 A 250 V AC
- Supply voltage: AC
- 35 mm rail (EN 60715) mount





Type 12.11

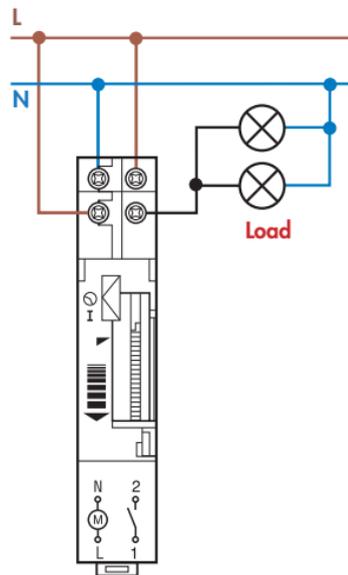
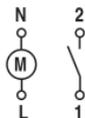
Mechanical daily time switch

17.6 mm width

- 1 NO, 16 A 250 V AC

- Supply voltage: AC

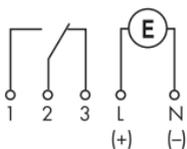
- 35 mm rail (EN 60715) mount



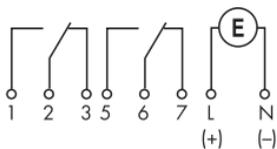


Type 12.21 and 12.22
Electronic digital weekly time switch
35.8 mm width

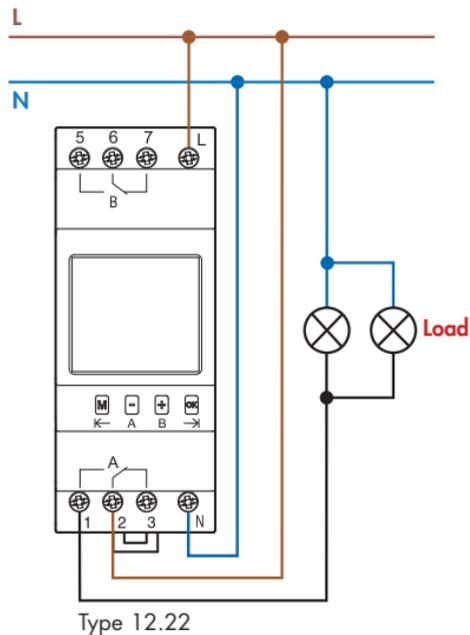
- 1 CO, 16 A 250 V AC (12.21)
- 2 CO, 16 A 250 V AC (12.22)
- Supply voltage: AC or AC/DC
- 35 mm rail (EN 60715) mount



Type 12.21



Type 12.22

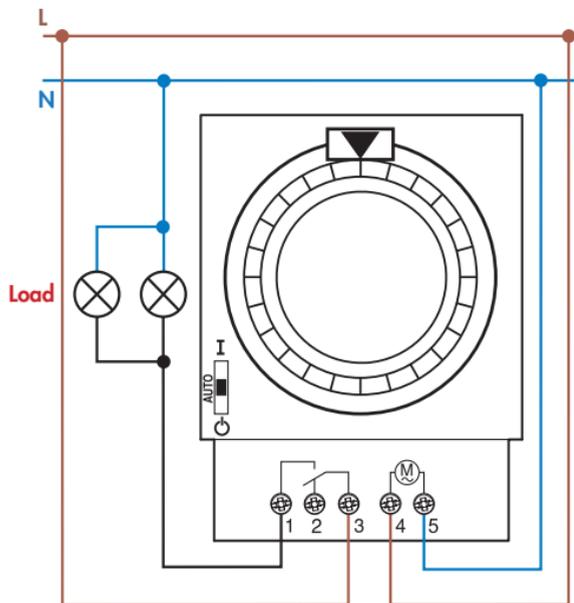
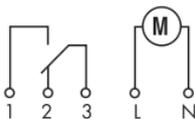


Type 12.22



Type 12.31
Mechanical daily or weekly time switch
72x72 mm

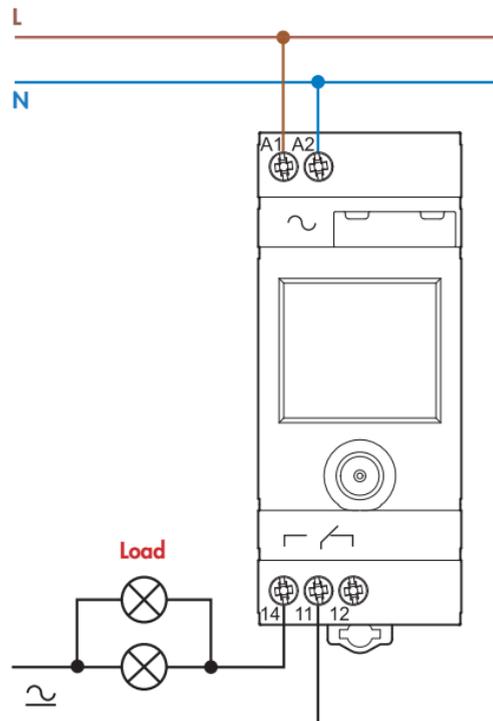
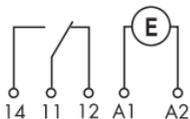
- 1 CO, 16 A 250 V AC
- Supply voltage: AC
- Front panel mounting

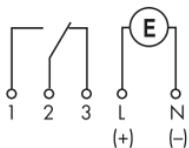




Type 12.51
Digital (analogue-style) time switch,
daily/weekly programming
35.8 mm width

- 1 CO, 16 A 250 V AC
- Supply voltage: 230 AC
- 35 mm rail (EN 60715) mount





Type 12.71

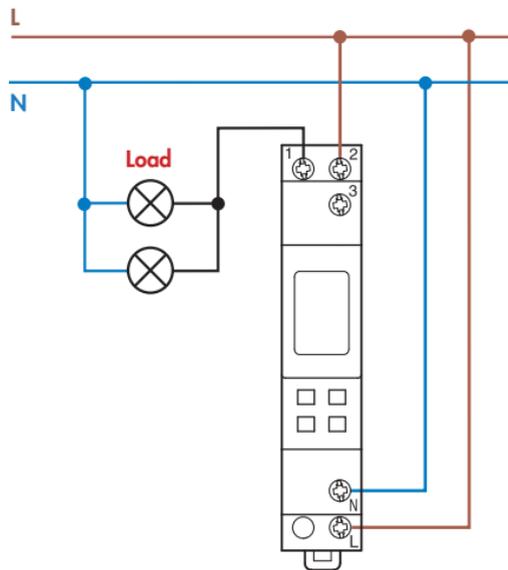
Electronic digital weekly time switch, 17.6 mm width

- 1 CO, 16 A 250 V AC
- Supply voltage: AC or AC/DC
- 35 mm rail (EN 60715) mount



Accessories

PC programming kit Type 012.90





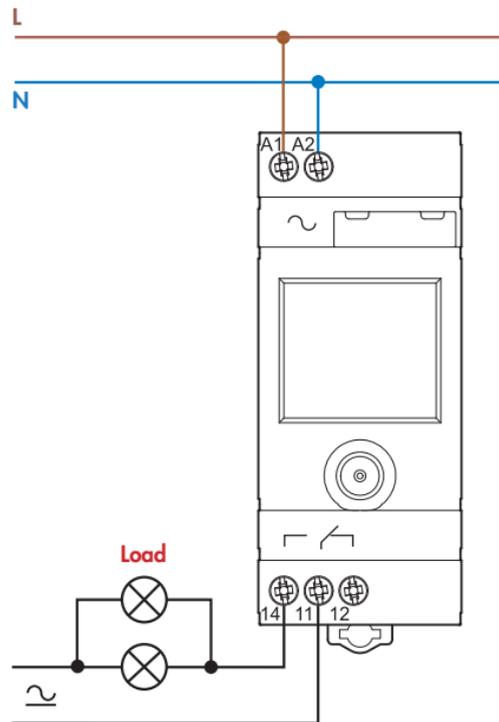
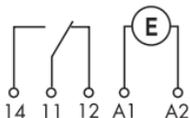
NEW



Type 12.81

Digital astro-switch

- Astro program: calculation of sunrise and sunset times through date, time and location coordinates
- Location coordinates easily settable for most European countries through post codes
- 35.8 mm width
- 1 CO, 16 A 250 V AC
- Supply voltage: 230 V AC
- 35 mm rail (EN 60715) mount





Type 12.91 "Zenith"

- 1 CO, 16 A 250 V AC

Type 12.92 "Zenith"

- 2 CO, 16 A 250 V AC

Electronic digital weekly time switch

"Astro" program

35.8 mm width



Tipi 12.91.x.xxx.0090 "Zenith"

- 1 CO, 16 A 250 V AC

- Version for programming via PC

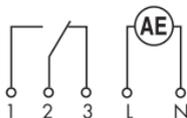
(see page 33)

Electronic digital weekly time switch

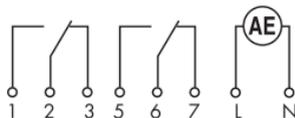
"Astro" program

35.8 mm width

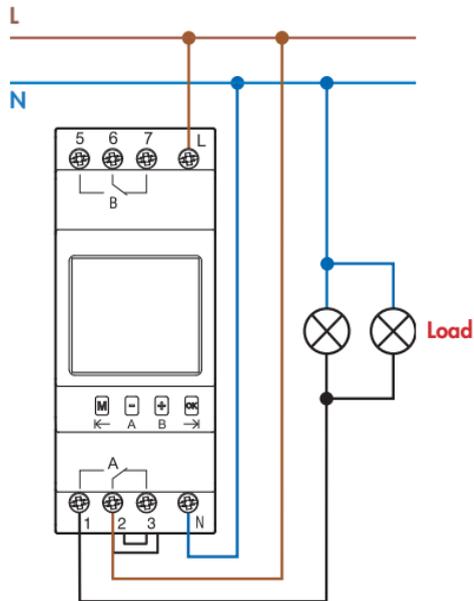
- Supply voltage: AC
- 35 mm rail (EN 60715) mount



Type 12.91 and 12.91...0090



Type 12.92



Type 12.92



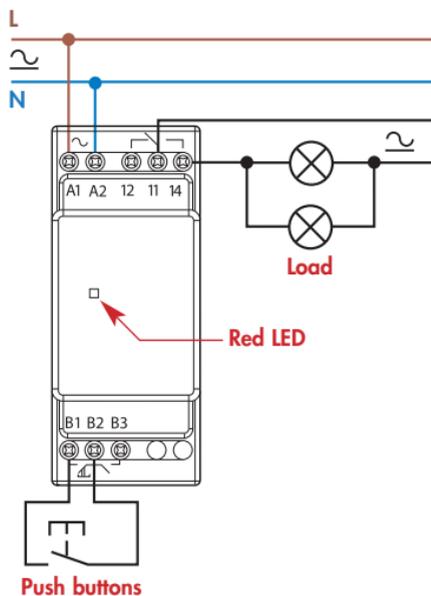
Type 13.01

- 1 CO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount

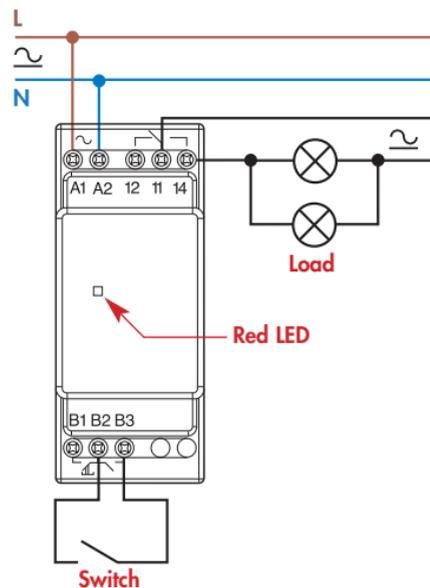


Type	Number of steps	Sequence	
		1°	2°
13.01	2		

Step wiring diagram



Monostable wiring diagram





Type 13.11

1 Pole output contact

Call relay with reset command

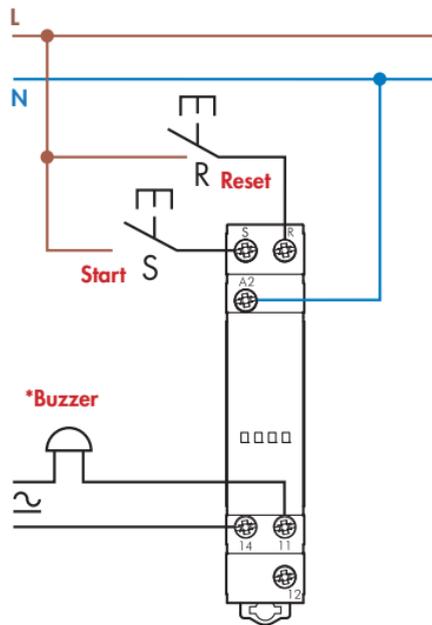
- 1 CO, 12 A 250 V AC

- Supply voltage: AC

- 35 mm rail (EN 60715) mount



* If using a buzzer that is not continuously rated limit the energization period with an additional timer.



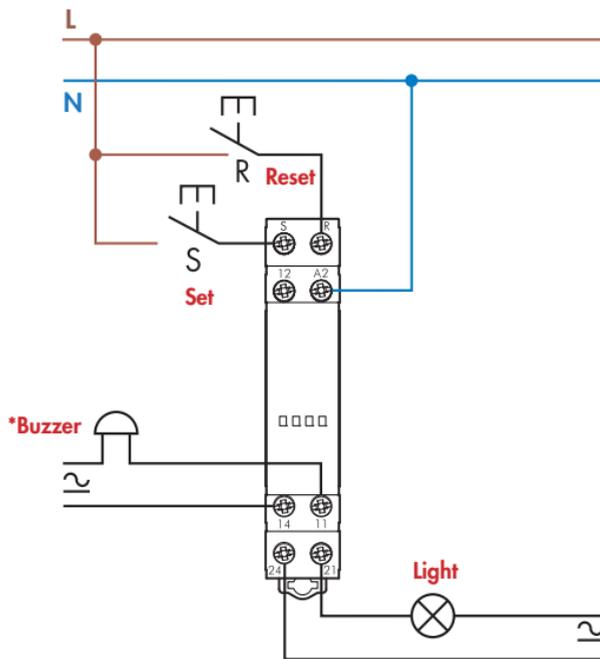
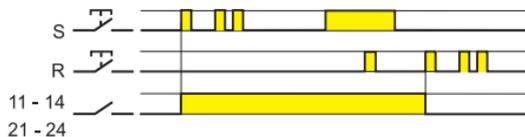


Type 13.12
Call relay with reset command
17.5 mm width

- 1 CO + 1 NO, 8 A 250 V AC
- Supply voltage: AC
- 35 mm rail (EN 60715) mount



* If using a buzzer that is not continuously rated limit the energization period with an additional timer.

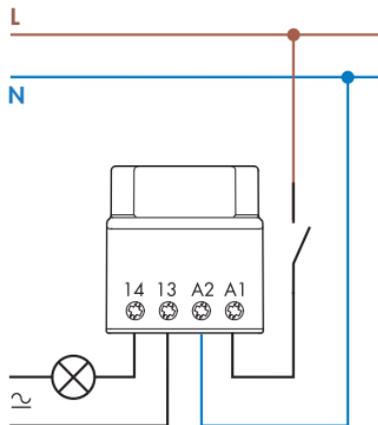




Type 13.31

Interposing monostable relay

- 1 NO, 12 A 250 V AC
- Supply voltage: AC or DC
- For mounting within residential switch boxes





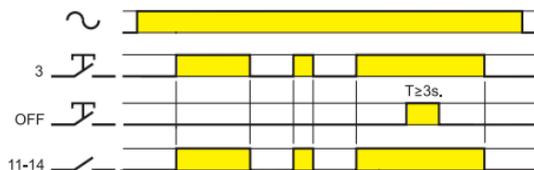
Type 13.61
Multifunction step/monostable relay
with reset command - Rail mount

- 1 NO, 16 A 250 V AC
- Supply voltage: AC
- 35 mm rail (EN 60715) mount

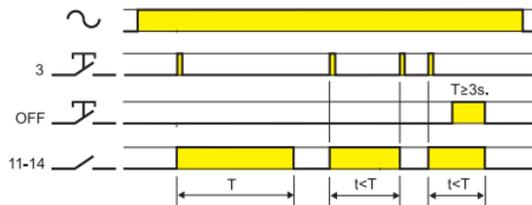


Functions selectable with front rotary selector:

(RM) Monostable



(IT) Timing step relay



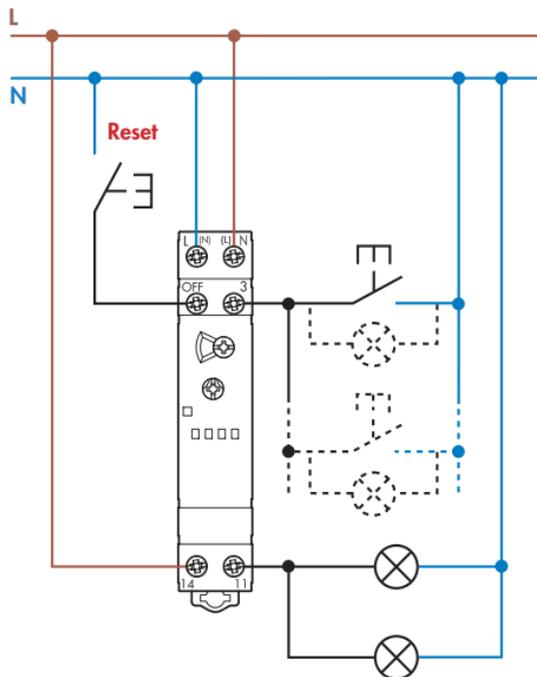
(RI) Step relay



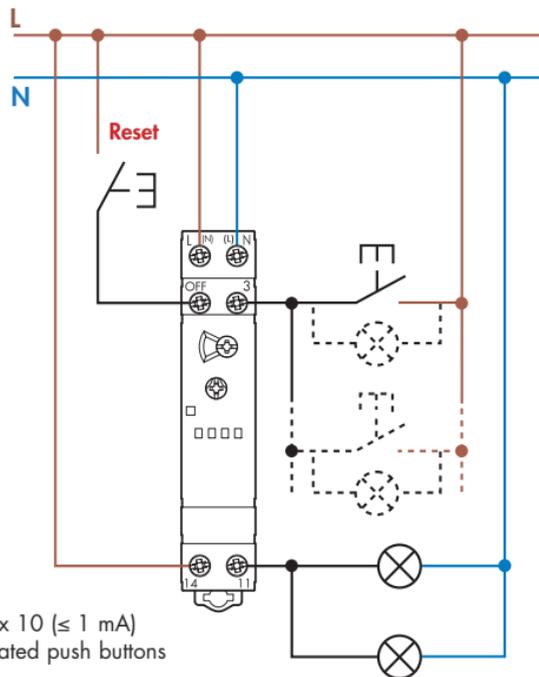
Light ON



Wiring diagram - 3 wire connection



Wiring diagram - 4 wire connection



Max 10 (≤ 1 mA)
illuminated push buttons



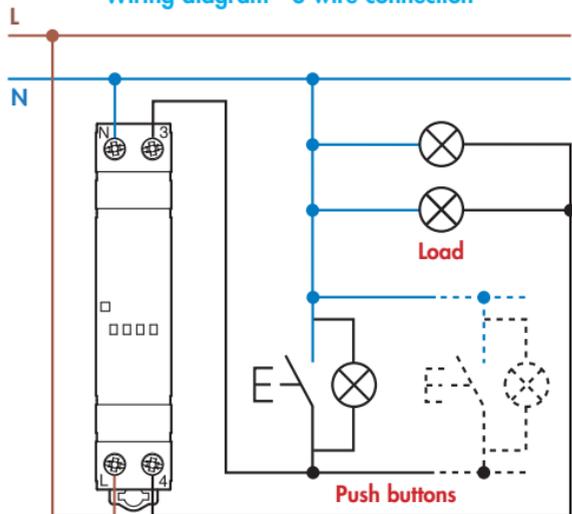
Type 13.81

- 1 NO, 16 A 230 V AC
- Supply voltage: AC
- 35 mm rail (EN 60715) mount

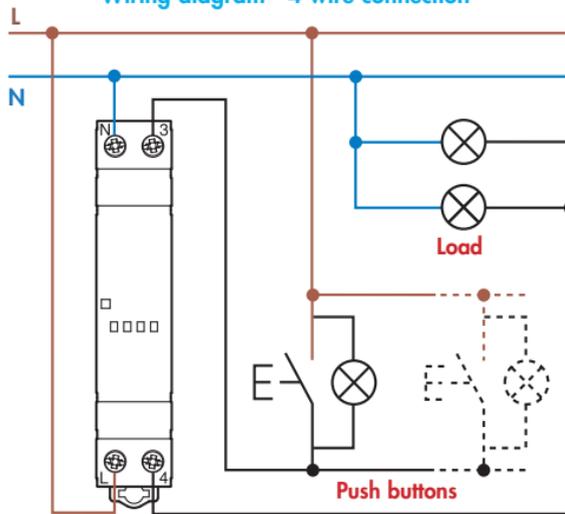
Type	Number of steps	Sequence	
		1°	2°
13.81	2		

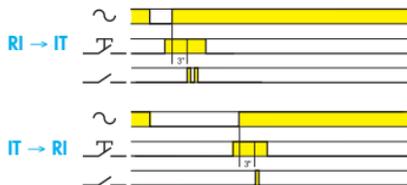


Wiring diagram - 3 wire connection



Wiring diagram - 4 wire connection





Operating mode setup for type 13.91

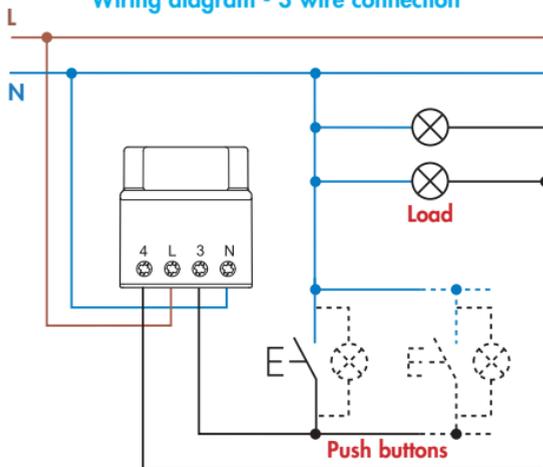
- Remove the supply voltage
- Press the control button
- Apply the supply to the relay, keeping the button closed. After 3 second, the light will flash twice to indicate the selection of the "IT" function, or flash once for "RI" function.



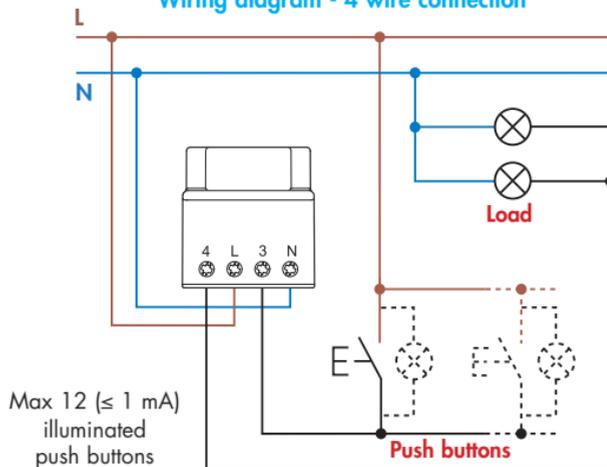
Type 13.91 - Step relay and timing step relay (10 minutes)

- 1 NO, 10 A 230 V AC
- Supply voltage: AC
- Can be mounted behind blanking plates, as widely used in residential wiring systems

Wiring diagram - 3 wire connection



Wiring diagram - 4 wire connection





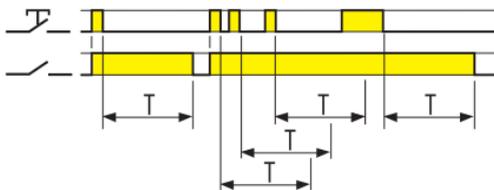
Type 14.01

- 1 NO, 16 A 230 V AC
- Supply voltage: AC
- Time setting from 30 s to 20 min
- 35 mm rail (EN 60715) mount



Functions selectable with front rotary selector:

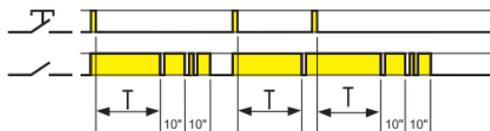
(BE) Staircase relay



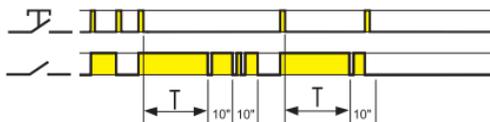
(IT) Timing step relay



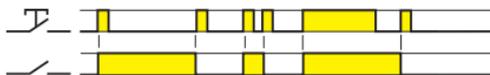
(BP) Staircase relay with early warning



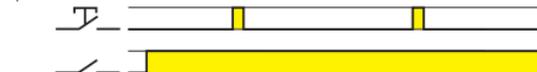
(IP) Timing step relay with early warning



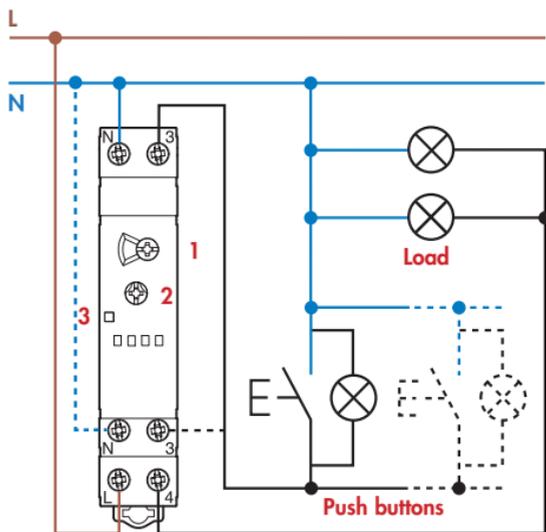
(RI) Step relay



Light ON

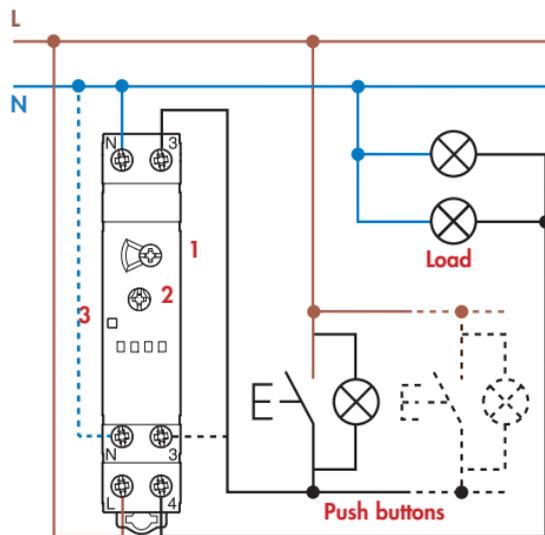


Wiring diagram - 3 wire



- 1 = Functions selector
- 2 = Time delay adjustment potentiometer
- 3 = LED

Wiring diagram - 4 wire



- 1 = Functions selector
- 2 = Time delay adjustment potentiometer
- 3 = LED



Type 14.71

- 1 NO, 16 A 230 V AC
- Supply voltage: AC
- Time setting from 30 s to 20 min
- 35 mm rail (EN 60715) mount

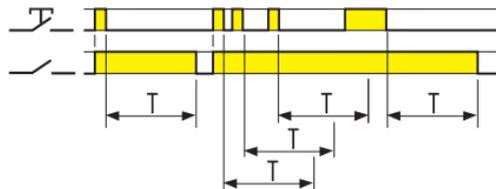


3-function front selector

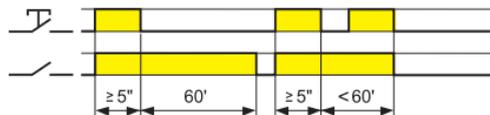
	Staircase relay + Staircase maintenance functions (not compatible with 18 series movement detectors)
	Light ON function
	Staircase relay function (compatible with 18 series movement detectors)

Functions:

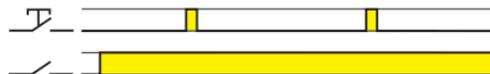
🕒 Staircase relay



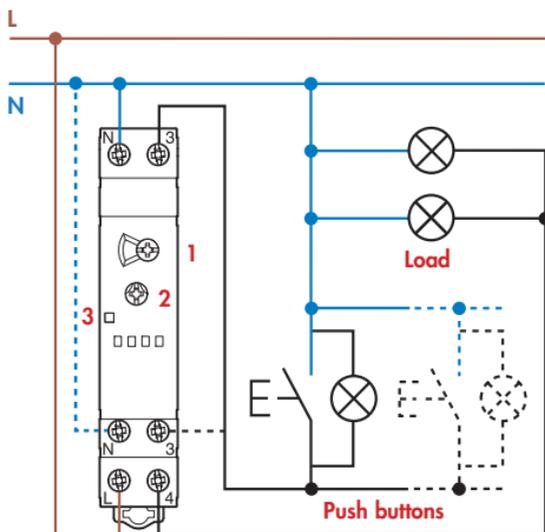
👤 Staircase maintenance (combined with staircase relay function)



⚙️ Light ON

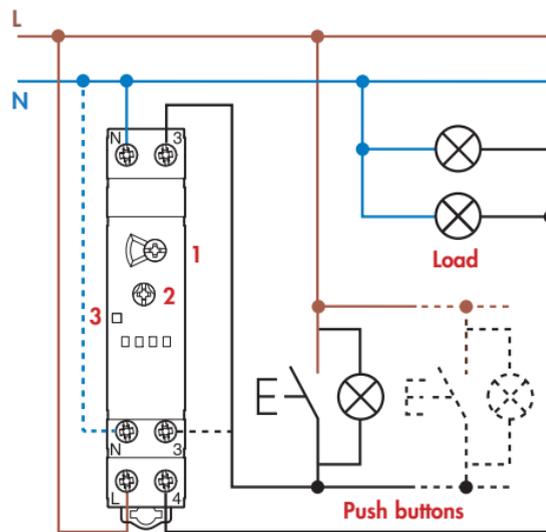


Wiring diagram - 3 wire



- 1 = Functions selector
- 2 = Time delay adjustment potentiometer
- 3 = LED

Wiring diagram - 4 wire



- 1 = Functions selector
- 2 = Time delay adjustment potentiometer
- 3 = LED



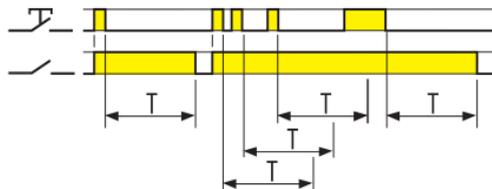
Type 14.81

- 1 NO, 16 A 230 V AC
- Supply voltage: AC
- Time setting from 30 s to 20 min
- All terminals on same side
- 35 mm rail (EN 60715) mount

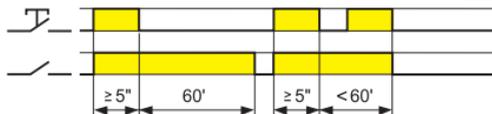


Functions:

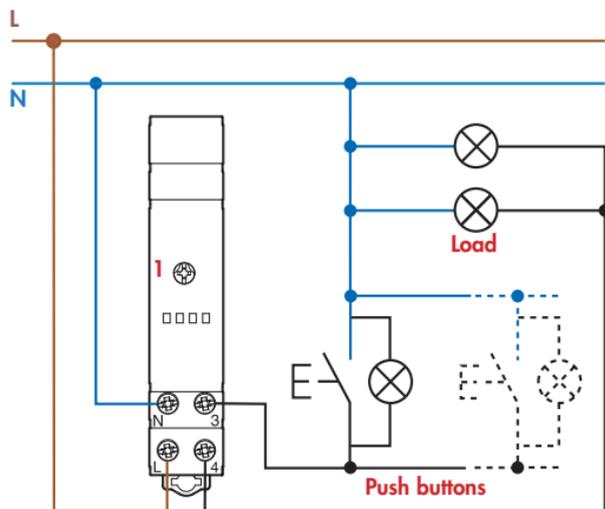
Staircase relay



"Staircase maintenance" function



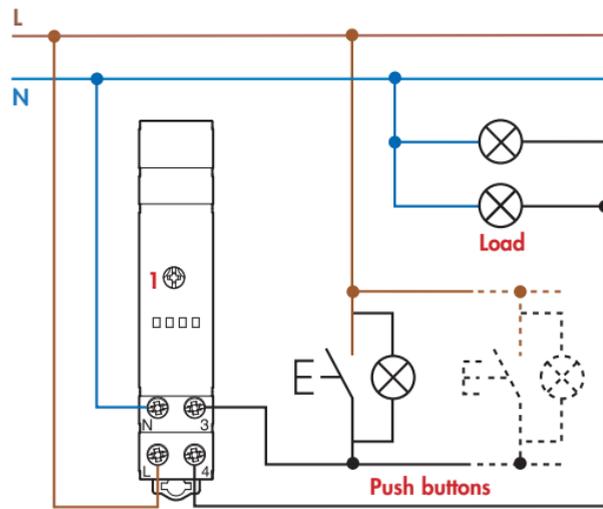
Wiring diagram - 3 wire



(pushbutton configuration required as per the Installation manual)

1 = Time delay adjustment potentiometer

Wiring diagram - 4 wire



1 = Time delay adjustment potentiometer



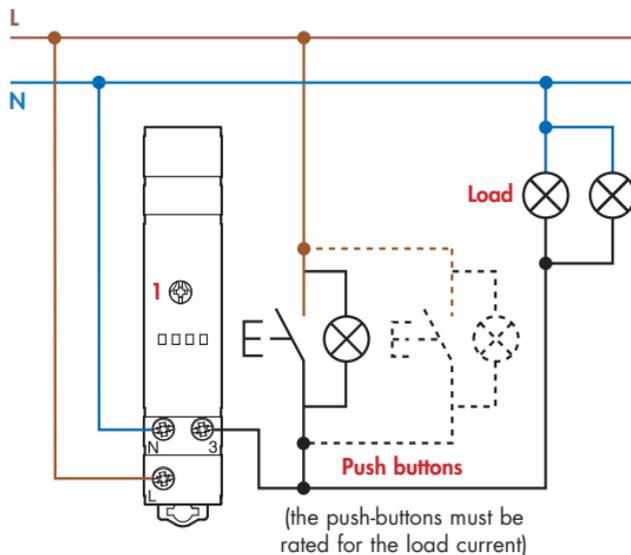
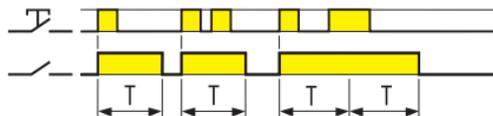
Type 14.91

- 1 NO, 16 A 230 V AC
- Supply voltage: AC
- Time setting from 30 s to 20 min
- 3 terminals, on same side
- 35 mm rail (EN 60715) mount



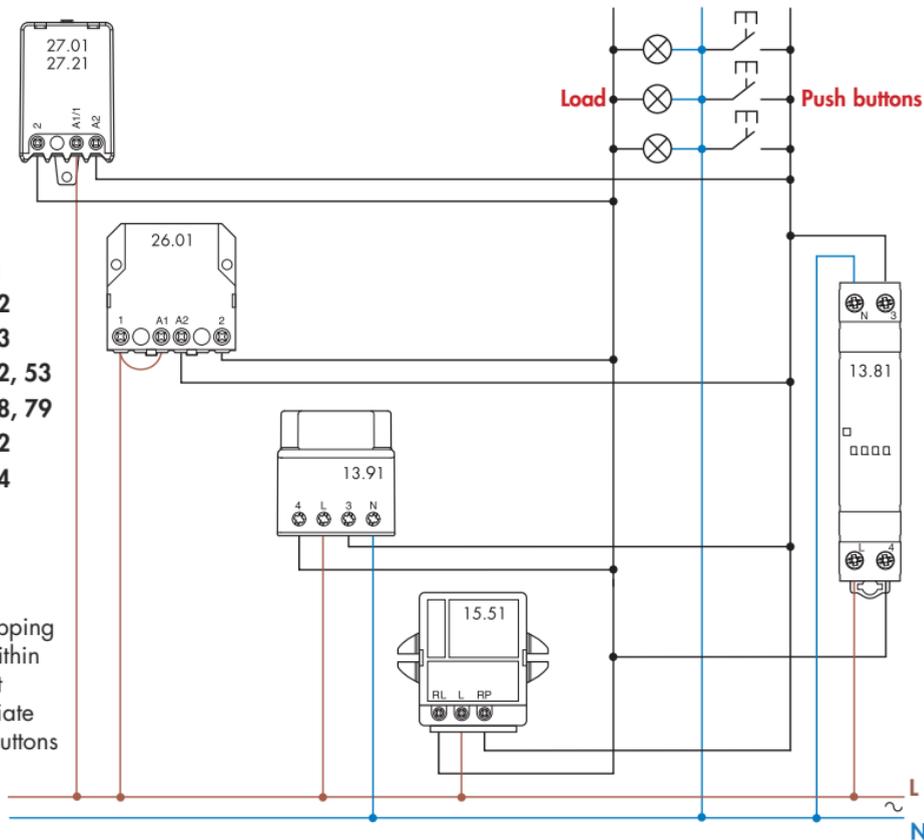
Functions:

Signal ON pulse



1 = Time delay adjustment potentiometer

Wiring diagram showing types: 27.01, 27.21, 26.01, 13.81, 13.91, 15.51



For informations see:

Type 13.81 - page **42**

Type 13.91 - page **43**

Type 15.51 - page **52, 53**

Type 26.01 - page **78, 79**

Type 27.01 - page **82**

Type 27.21 - page **84**

Different types of stepping relay can be used within the same system. Just observe the appropriate wiring for the Push buttons and Loads.



Type 15.51

- Power max.: 400 W 230 V AC
- Supply voltage: AC
- Panel mount

If the lighting load comprises low voltage halogen lamps fed through either electromagnetic or electronic transformers, then do not connect more than one transformer per 15.51 dimmer.

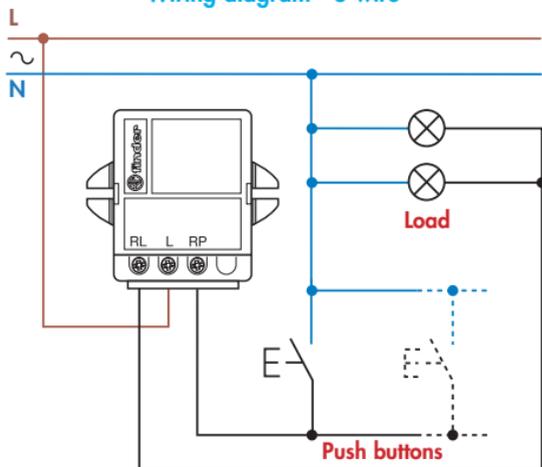
Operating mode setup:

On **15.51** operating mode 1 is preset, but it is possible to change it using the following sequence:

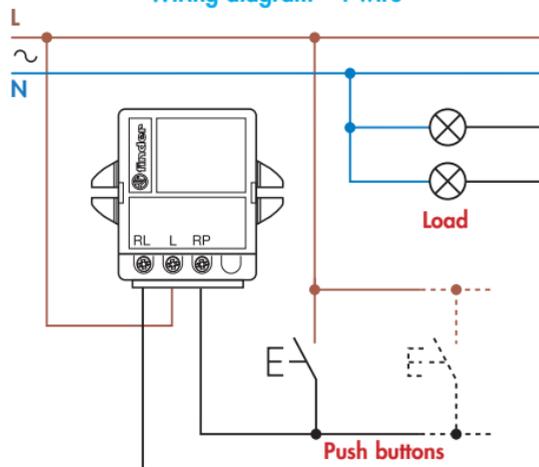
- remove the supply voltage;
- press the control button;
- apply the supply to the relay, keeping the button closed for 3 second;
- On button release, the light will flash twice to indicate the selection of operating mode 2, or flash once for operating mode 1.

Repeating the above steps will alternately change between operating modes.

Wiring diagram - 3 wire

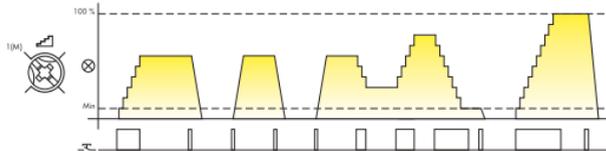


Wiring diagram - 4 wire



Functions (Type 15.51.8.230.0400)

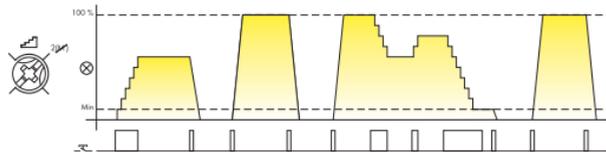
Operating mode 1 (with memory): the previous light level is memorized.



Long control pulse: The light level is progressively raised or lowered through a maximum of 10 incremental steps.

Short control pulse: Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

Operating mode 2 (without memory): on switch off, the light level is not memorized.

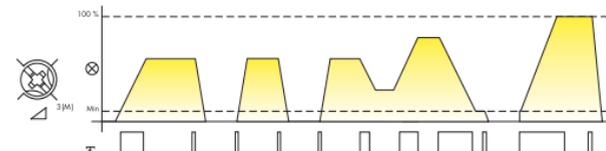


Long control pulse: The light level is progressively raised or lowered through a maximum of 10 incremental steps.

Short control pulse: Alternately switches On or Off between the maximum light level and the off state.

Functions (Type 15.51.8.230.0404)

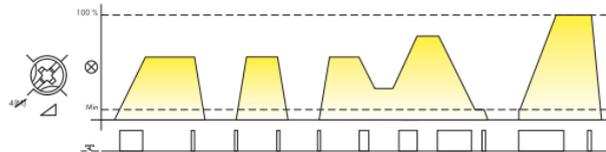
Operating mode 3 (with memory): the previous light level is memorized.



Long control pulse: The light level is progressively raised or lowered.

Short control pulse: Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

Operating mode 4 (without memory): on switch off, the light level is not memorized.



Long control pulse: The light level is progressively raised or lowered.

Short control pulse: Alternately switches On or Off between the maximum light level and the off state.

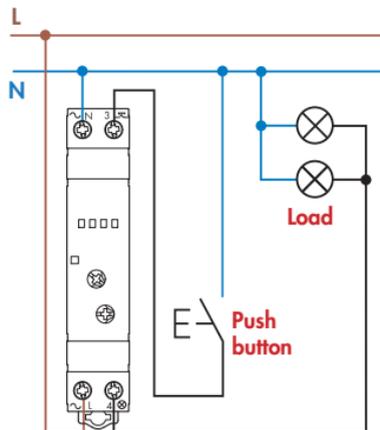


Type 15.81

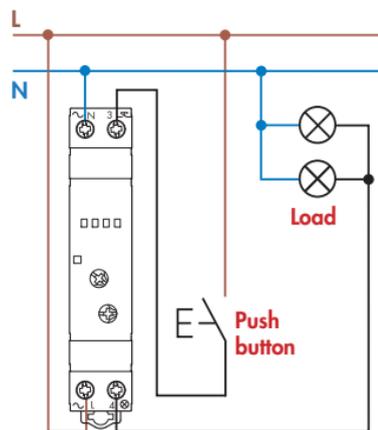
- Power max.: 500 W 230 V AC
- Supply voltage: 230 V AC
- Multi-function
- Compatible with energy saving dimmable lamps
- 35 mm rail (EN 60715) mount

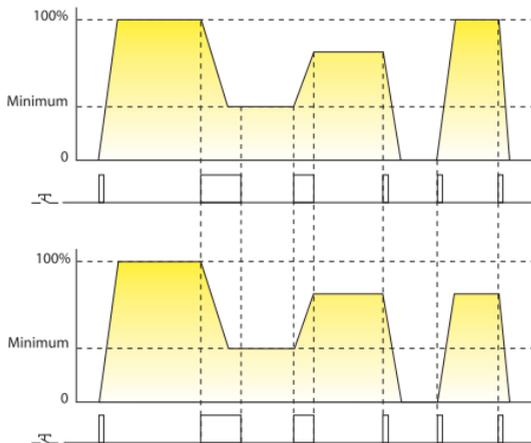


Wiring diagram - 3 wire



Wiring diagram - 4 wire





Operating mode without memory: at switch-off, the light level is not memorized.

Long control pulse: The light level is progressively raised or lowered in linear way. The lowest value depend on the "minimum dimming level" regulator setting.

Short control pulse: Alternately switches between On and Off between the maximum light level and the off state.

Operating mode with memory: the previous light level is memorized.

Long control pulse: The light level is progressively raised or lowered in linear way. The lowest value dependent on the "minimum dimming level" regulator setting.

Short control pulse: Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

Type of load	Selector setting		Regulator setting
	With memory (M)	Without memory (M)	
<ul style="list-style-type: none"> Incandescent lamps 230 V halogen lamps 12/24 V halogen lamps with electronic transformer/ballast 			It is suggested to set the "minimum dimming level" at the lowest value, so that the complete dimming range is available. But if it is necessary to avoid too low a level of illumination, a higher value can be set.
<ul style="list-style-type: none"> Dimmable compact fluorescent lamps (CFL) Dimmable LED lamps 			It is suggested to initially set the "minimum dimming level" at an intermediate value and then if necessary, readjust for a level found to be compatible with the lamp being used.
<ul style="list-style-type: none"> 12/24 V halogen lamps with toroidal or E-core electromagnetic transformer 			It is suggested to set the "minimum dimming level" at the lowest value, so that the complete dimming range is available. But if it is necessary to avoid too low a level of illumination, a higher value can be set.



NEW

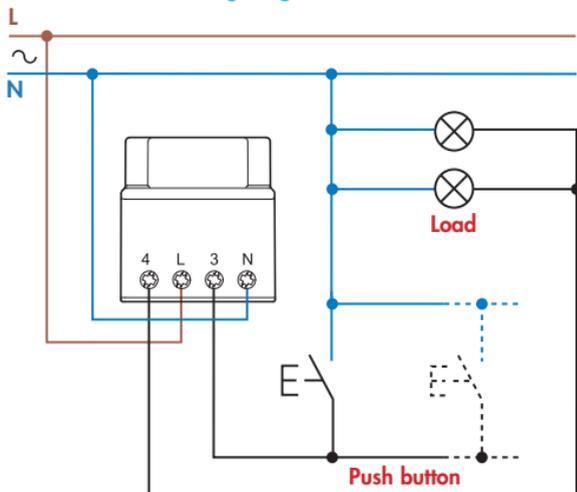


Type 15.91

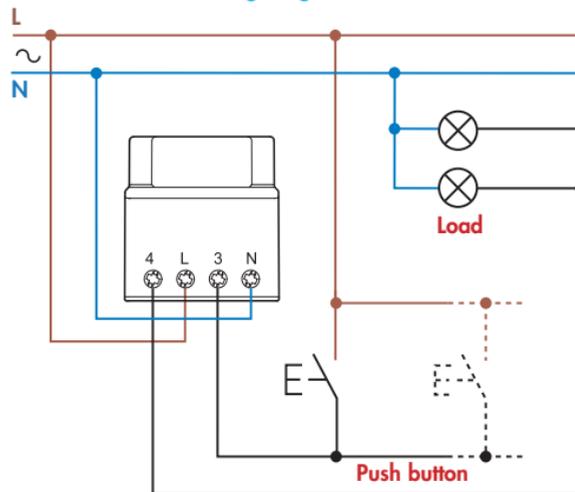
- Power max.: 100 W 230 V AC
- Supply voltage: 230 V AC
- For mounting within residential switch boxes

CE

Wiring diagram - 3 wire



Wiring diagram - 4 wire



Operating mode setup

On **15.91** operating mode 4 (without memory) is preset, but it is possible to change it using the following sequence:

- remove the supply voltage;
- press the control button;
- apply the supply to the relay, keeping the button closed for 3 second;
- on button release, the light will flash twice to indicate the selection of operating mode 3, or flash once for operating mode 4. Repeating the above steps will alternately change between operating modes.

Functions (type 15.91.8.230.0000)

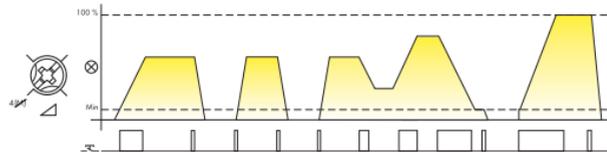
Operating mode 3 (with memory): the previous light level is memorized.



Long control pulse: The light level is progressively raised or lowered.

Short control pulse: Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

Operating mode 4 (without memory): on switch off, the light level is not memorized.



Long control pulse: The light level is progressively raised or lowered.

Short control pulse: Alternately switches On or Off between the maximum light level and the off state.



Type 18.01
Internal installations
Protection category IP 40

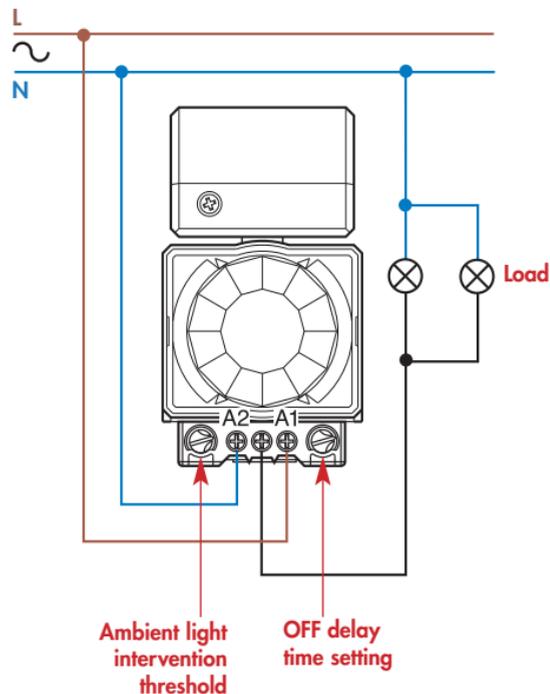
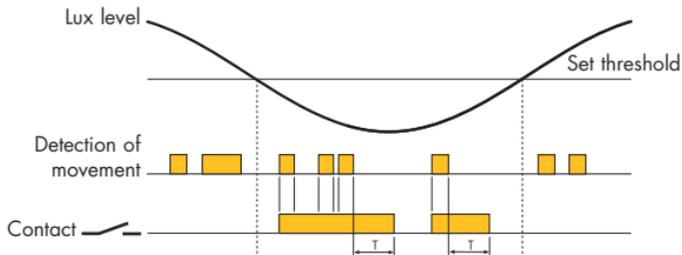


Type 18.11
External installations
Protection category IP 54

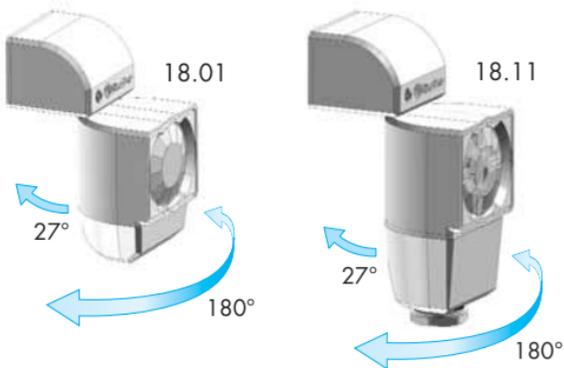
- 1 NO, 10 A 230 V AC
- Supply voltage: AC
- For wall mounting



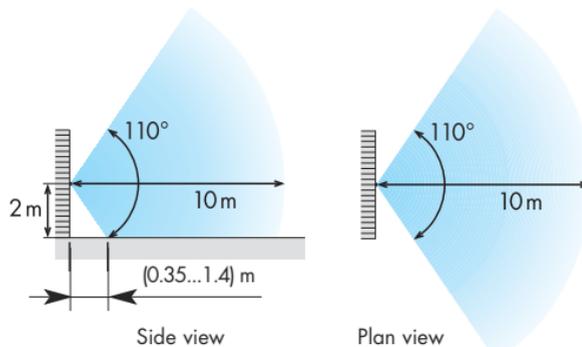
The output relay will remain On for the pre-set time, following the last detection of movement.



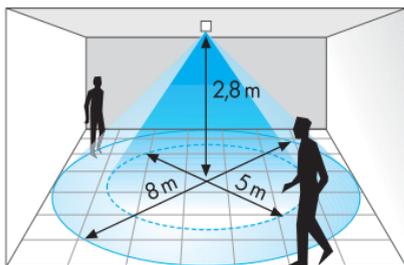
Mounting and orientation



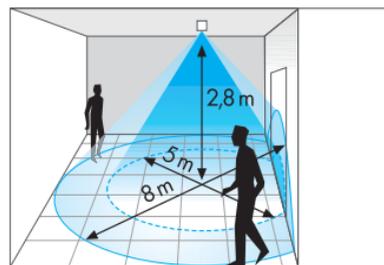
Sensing area - 18.01, 18.11 - Wall mounting



Sensing area



18.01 - Ceiling mounting, internal installations



18.11 - Ceiling mounting, external installations



Tipo 18.21 Output connected to supply voltage

Tipo 18.21.x.xxx.0300 Output with potential free contact
Surface mounting

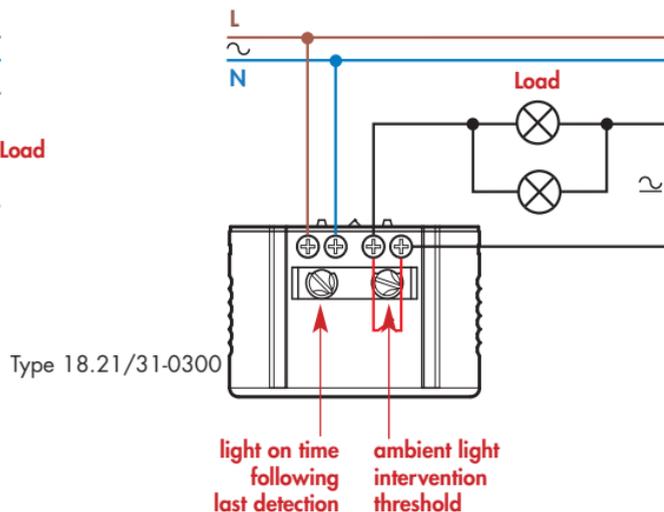
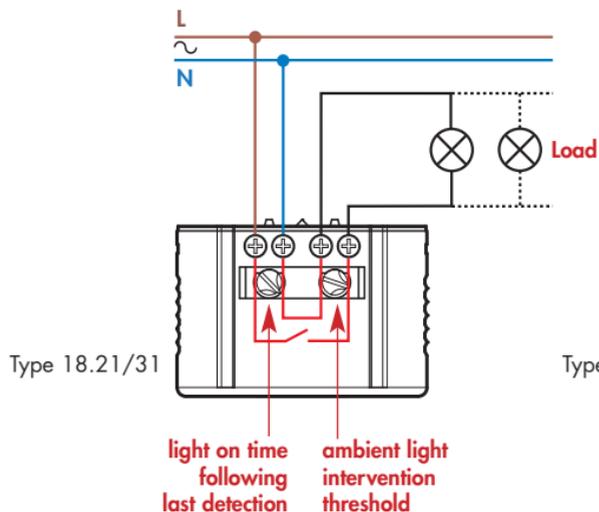


Tipo 18.31 Output connected to supply voltage

Tipo 18.31.x.xxx.0300 Output with potential free contact
Recessed mounting

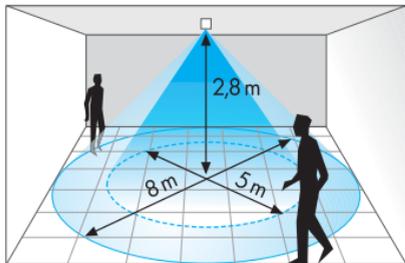
Tipo 18.31.x.xxx.0031 Recommended
for applications with high ceilings (up to 6 meters)
Light ON time after last detection (30 s...35 min)

- 1 NO, 10 A 230 V AC
- Internal ceiling installation
- Protection category IP40
- Supply voltage: 230 V AC

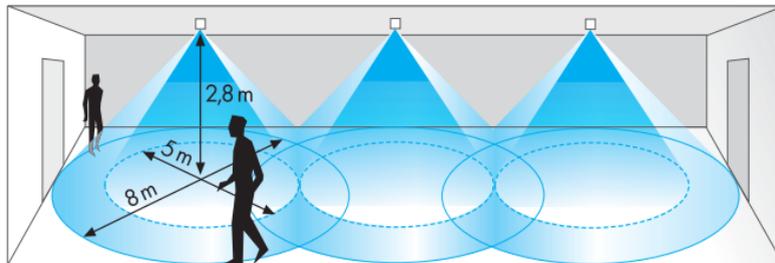


Sensing area

18.21, 18.31 - Internal ceiling installation, surface mounting or recessed mounting.

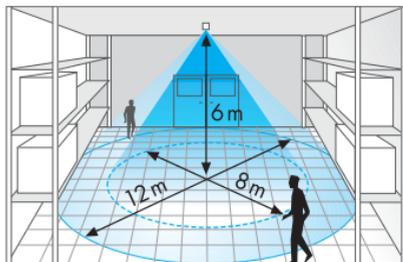


Single installation

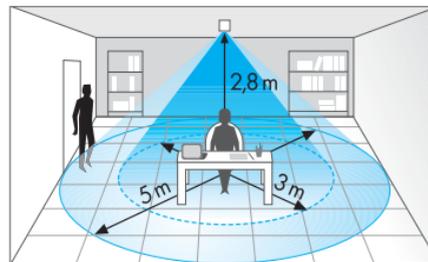


Multiple installation

18.31.x.xxx.0031 - High ceiling installation, for applications with high ceilings (up to 6 meters)



18.31.x.xxx.0031 - Internal ceiling installation, movement and presence detector





Suspended ceiling mounting
and recess mounting version



Surface version

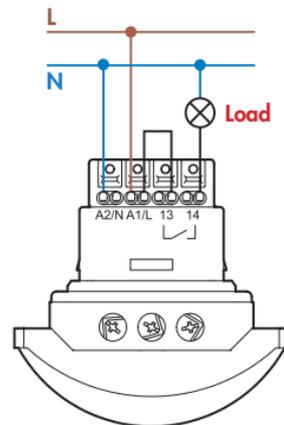
Type 18.41

Ceiling mounted movement detector.

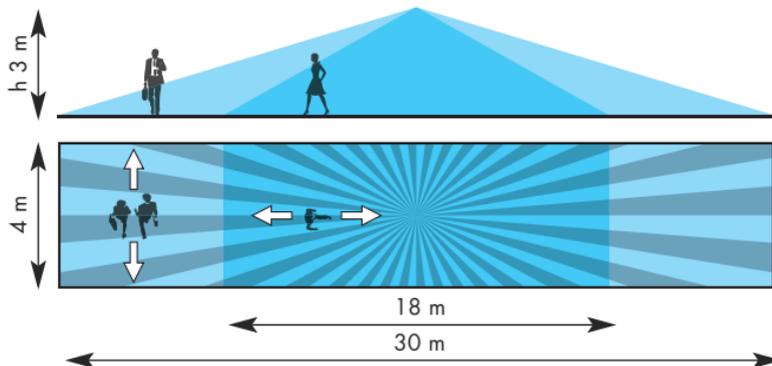
Specifically for corridors up to 30 meters in length

Applications: hotel and office corridors, transit areas

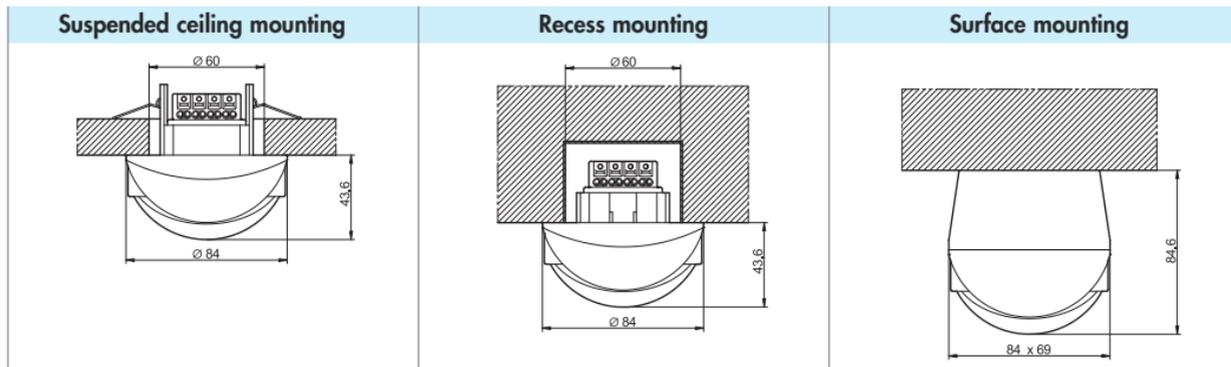
- 1 NO, 10 A 230 V AC
- Internal ceiling installation
- Protection category IP40
- Supply voltage: 230 V AC



Sensing area



Outline drawings



All-in-one: All mounting accessories are included in the packaging – just use the one appropriate for your installation.



**Suspended ceiling mounting
and recess mounting version**



Surface version

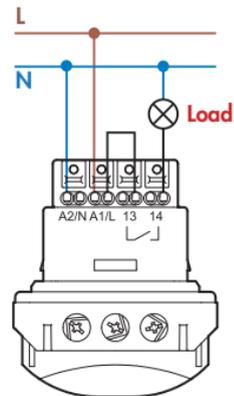
Tipo 18.51

Ceiling mounted presence detector.

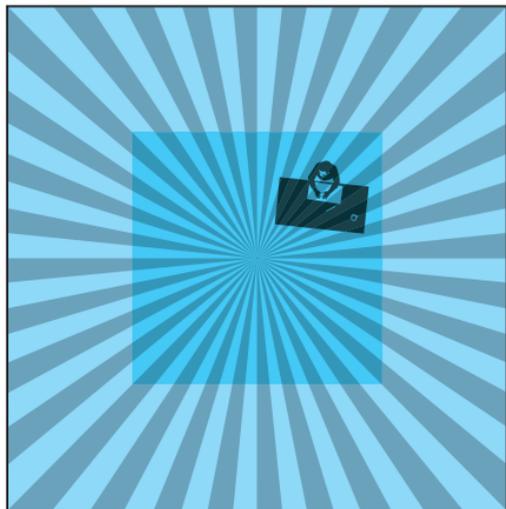
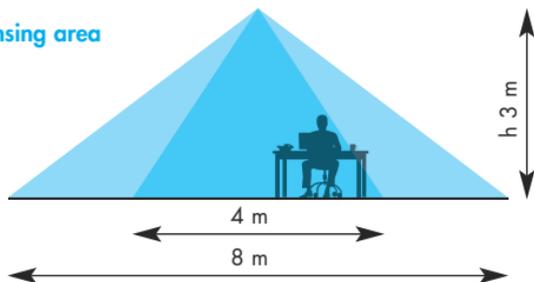
High sensitivity and uniform detection

Applications: offices, schools, zones of low activity

- 1 NO, 10 A 230 V AC
- Internal ceiling installation
- Protection category IP40
- Supply voltage: 230 V AC

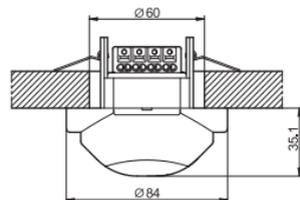


Sensing area

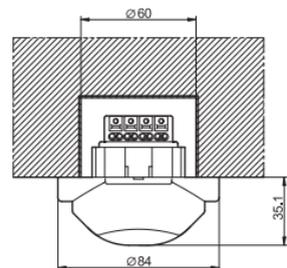


Outline drawings

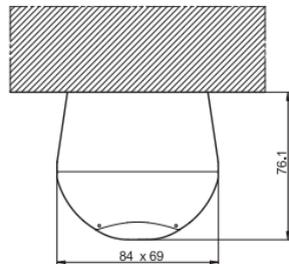
Suspended ceiling mounting



Recess mounting



Surface mounting



All-in-one: All mounting accessories are included in the packaging – just use the one appropriate for your installation.



Flush box version

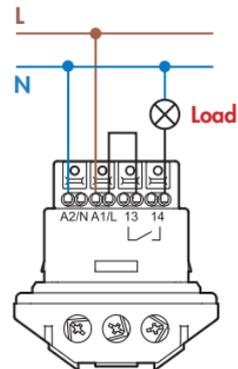
Tipo 18.61

Wall mount movement detector.

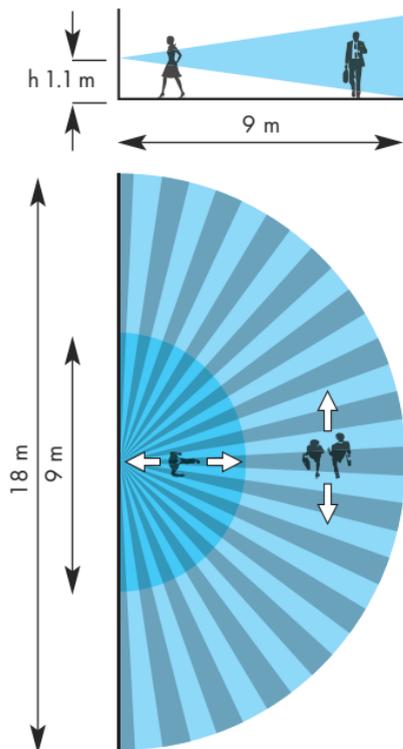
Wide angle of survey (1820°)

Specific product for wall mounting

- 1 NO, 10 A 230 V AC
- Internal ceiling installation
- Protection category IP40
- Supply voltage: 230 V AC

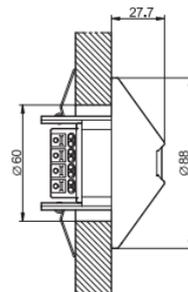


Sensing area

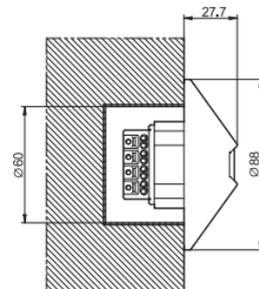


Outline drawings

Recessed wall mounting

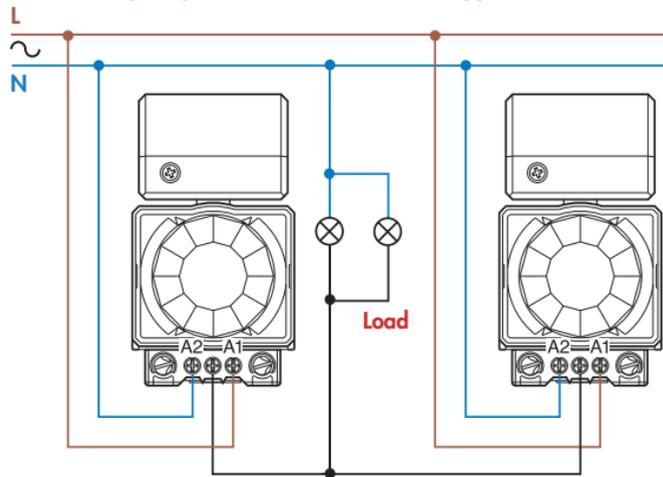


Wall mount box

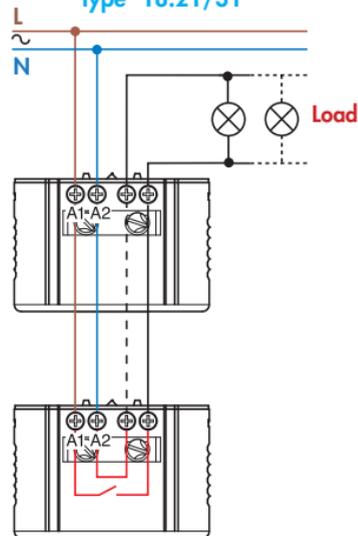


All-in-one: All mounting accessories are included in the packaging – just use the one appropriate for your installation.

Wiring diagram - Parallel connection Type 18.01/11

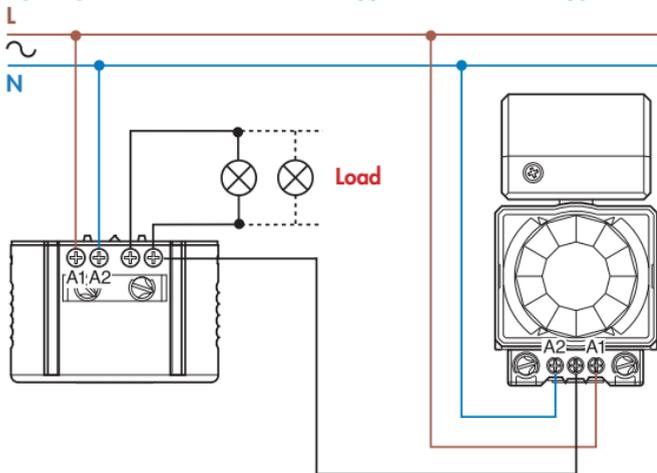


Wiring diagram - Parallel connection Type 18.21/31



Note: keep the polarity indicated for Phase and Neutral

Wiring diagram - Parallel connection Type 18.01/11 and Type 18.21/31



Note: keep the polarity indicated for Phase and Neutral



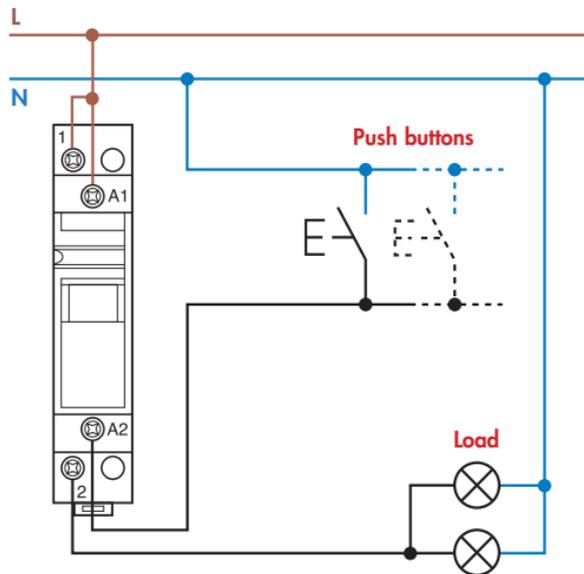
Type 20.21

- 1 NO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount

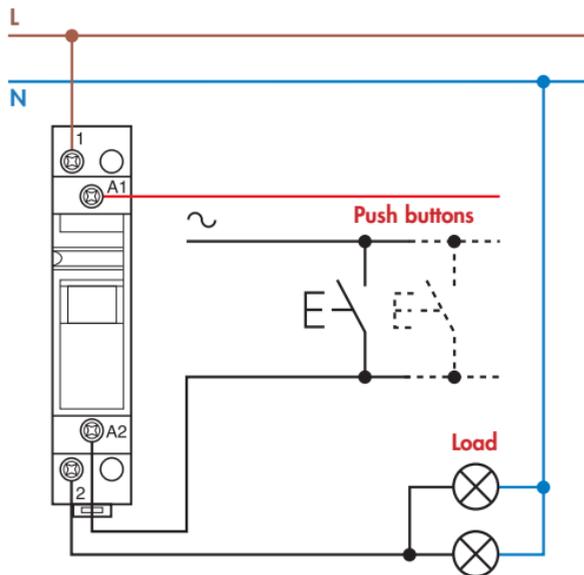


Type	Number of steps	Sequence	
		1°	2°
20.21	2		

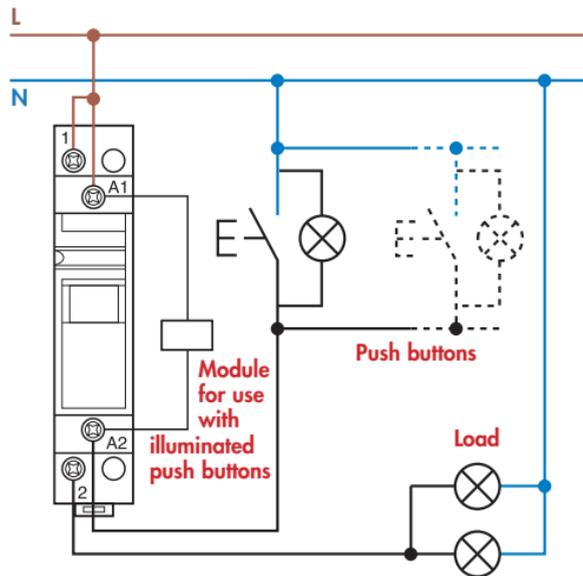
Wiring diagram – Single pole relay
Common supply to relay coil and load



Wiring diagram – Single pole relay
Low voltage command circuit



Wiring diagram – Single pole relay - Common supply
to relay coil and load with illuminated push buttons



Accessory - Module for use with illuminated push buttons

Type 026.00

Sealed construction, 7.5 cm insulated flexible wire termination. This module is necessary when using between 1 and a maximum of 15 illuminated push buttons in the coil circuit (Each 1.5 mA max, 230 V AC). It must be connected in parallel to the coil of the relay.



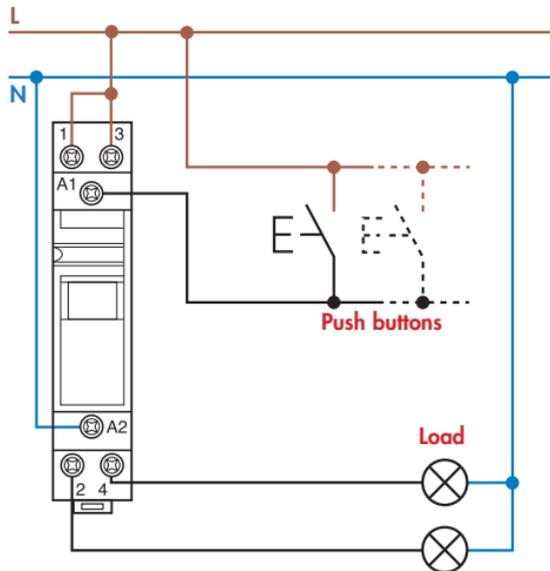
Type 20.22/23/24/26/28

- 2 NO, 16 A 250 V AC
- 1 NO + 1 NC, 16 A 250 V AC (20.23 only)
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



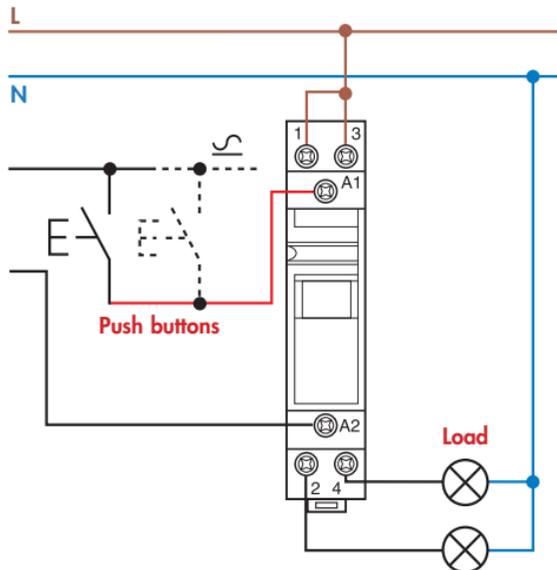
RINA US

Wiring diagram – 2 pole relay
Common supply to relay coil and load

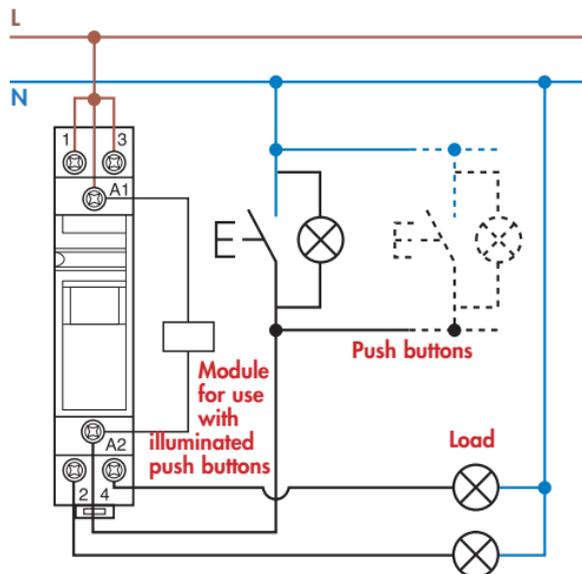


Type	Number of steps	Sequence			
		1°	2°	3°	4°
20.22	2				
20.23	2				
20.24	4				
20.26	3				
20.28	4				

Wiring diagram – 2 pole relay
Low voltage command circuit



Wiring diagram – 2 pole relay - Common supply to
relay coil and load with illuminated push buttons



Accessory - Module for use with illuminated push buttons

Type 026.00

Sealed construction, 7.5 cm insulated flexible wire termination. This module is necessary when using between 1 and a maximum of 15 illuminated push buttons in the coil circuit (Each 1.5 mA max, 230 V AC). It must be connected in parallel to the coil of the relay.



Type 22.32

Type 22.32 with Auxiliary contact module

- Options: - 2 NO or 1 NO + 1 NC or 2 NC, 25 A 250 V AC
 - 12; 24; 48; 60; 120; 230 V AC/DC
 - without selector
 - 35 mm rail (EN 60715) mount



2 NO
(x3x0)



1 NO + 1 NC
(x5x0)



2 NC
(x4x0)

Accessories

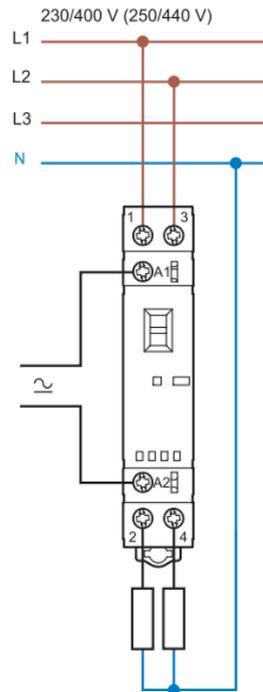
Auxiliary contact module Type 022.33 Type 022.35



2 NO 6 A



1NO+1NC 6 A





Type 22.34

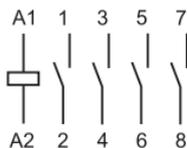
Type 22.34 Auxiliary contact module

Options: - 4NO or 3NO + 1NC or 2NO + 2NC, 25 A 250 V AC

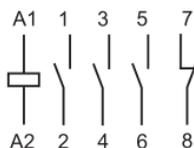
- 12; 24; 48; 60; 120; 230 V AC/DC

- without selector

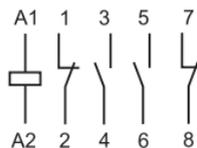
- 35 mm rail (EN 60715) mount



4 NO
(x3x0)



3 NO + 1 NC
(x7x0)



2 NO + 2 NC
(x6x0)

Accessories

Auxiliary contact module

Type 022.33

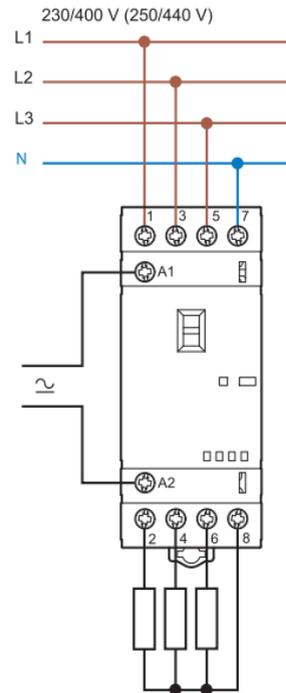
Type 022.35



2 NO 6 A



1NO+1NC 6 A



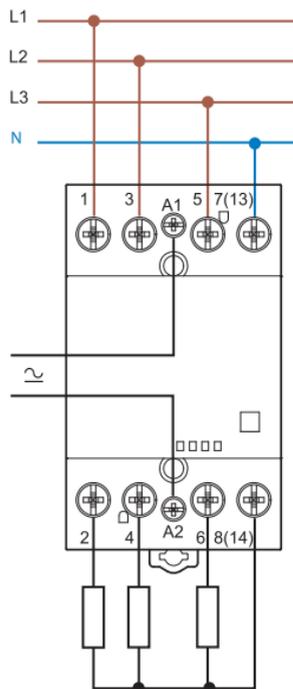


Type 22.44

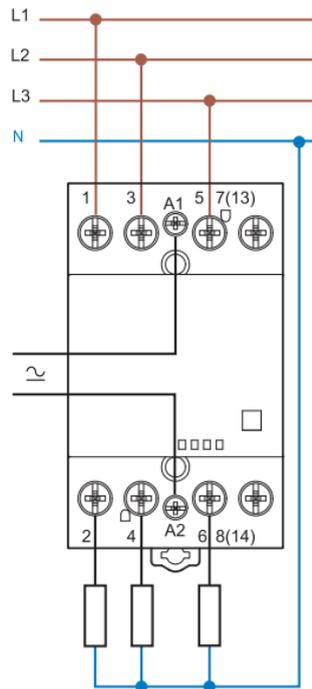
- 4 NO, 3 mm
- (or 3NO + 1NC or 2NO + 2NC)
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Line and neutral switched



Line only switched





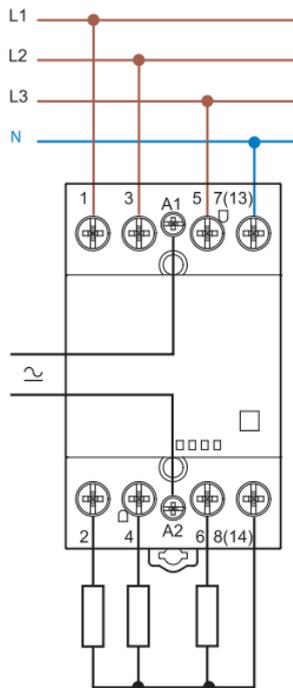
Type 22.64

Specifically intended: for high inrush current loads

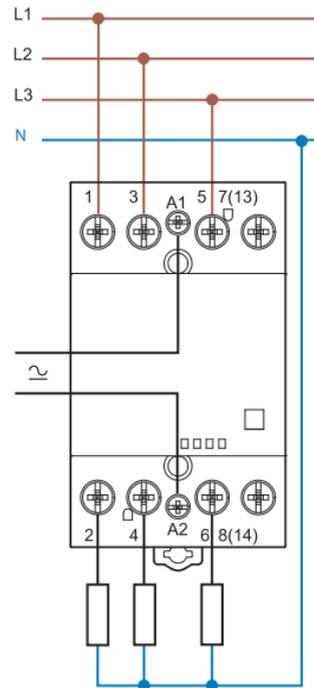
- 4 NO, 3 mm (or 3NO + 1NC or 2NO + 2NC)
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Line and neutral switched



Line only switched





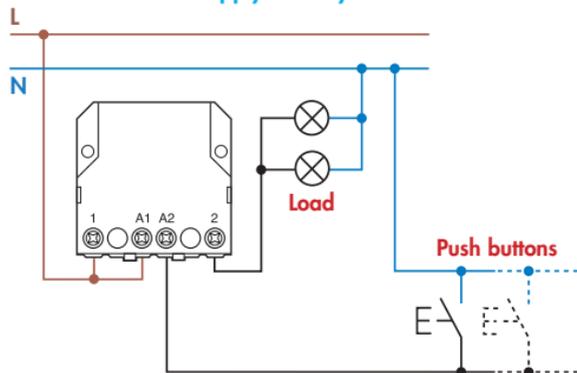
Type	Number of steps	Sequence	
		1°	2°
26.01	2		

Type 26.01

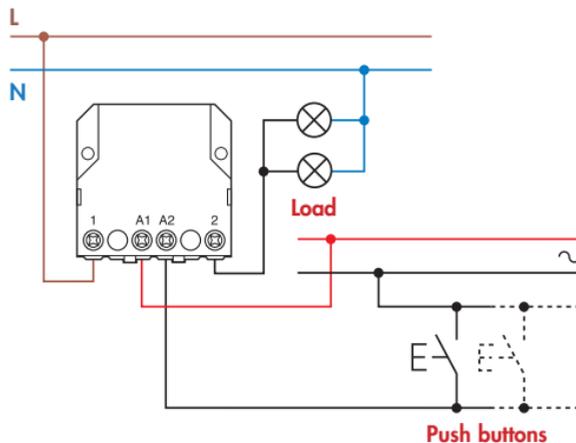
- 1 NO, 10 A 250 V AC
- Supply voltage: AC
- Panel mount



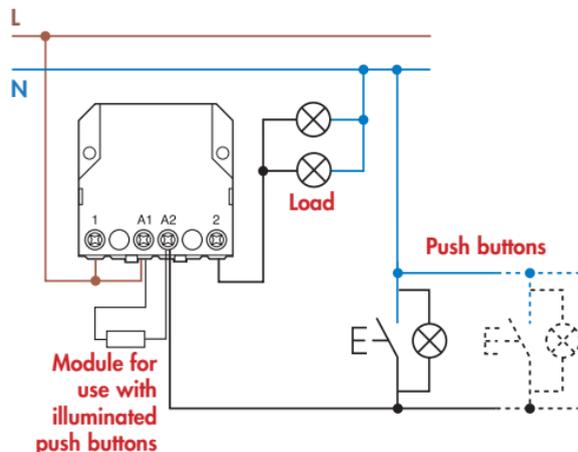
Wiring diagram – single pole relay Common supply to relay coil and load



Wiring diagram - Single pole relay Low voltage AC command circuit



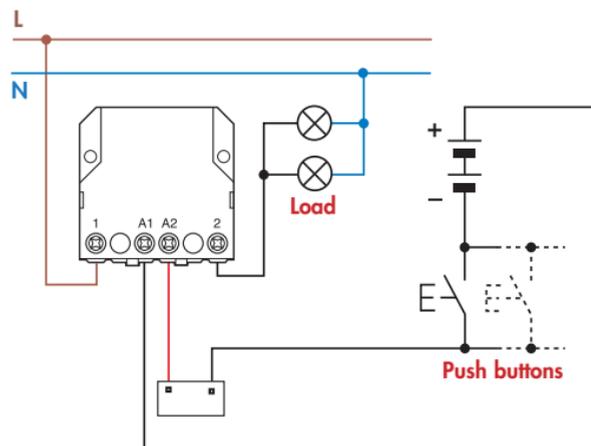
Wiring diagram – Single pole relay
Common supply to relay coil and load
with illuminated push buttons



Accessory - Module for use with illuminated push buttons
Type 026.00

This module is necessary when using between 1 and a maximum of 15 illuminated push buttons in the coil circuit (Each 1.5 mA max, 230 V AC). It must be connected in parallel to the coil of the relay.

Wiring diagram – Single pole relay
Low voltage DC command circuit



Accessories - for 12 and 24 V DC control applications

Type	026.9.012	026.9.024
Nominal voltage	12 V DC	24 V DC
Max temperature	+ 40°C	+ 40°C
Operating range	(0.9...1.1)U _N	



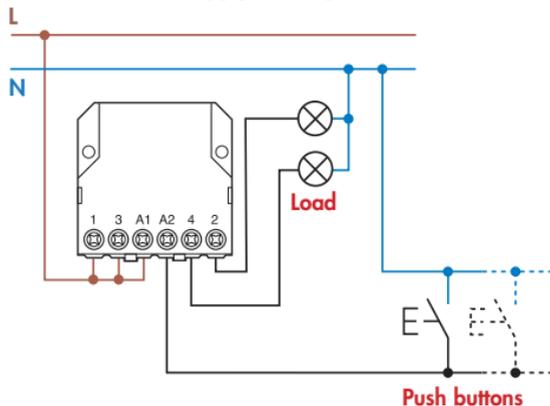
Type	Number of steps	Sequence			
		1°	2°	3°	4°
26.02	2				
26.03	2				

26.04	4				
26.06	3				
26.08	4				

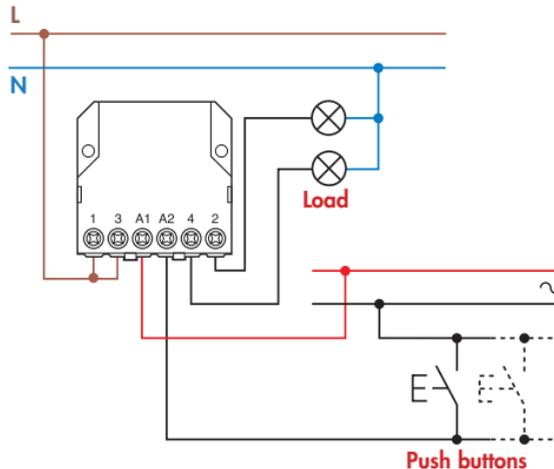
Type 26.02/03/04/06/08

- 2 NO, 10 A 250 V AC
- 1 NO + 1 NC, 10 A 250 V AC (26.03)
- Supply voltage: AC
- Panel mount

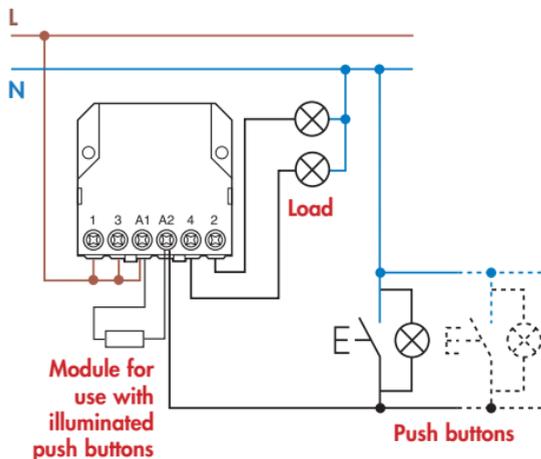
Wiring diagram - 2 pole relay
Common supply to relay coil and load



Wiring diagram - 2 pole relay
Low voltage AC command circuit



Wiring diagram – 2 pole relay
Common supply to relay coil and load
with illuminated push buttons



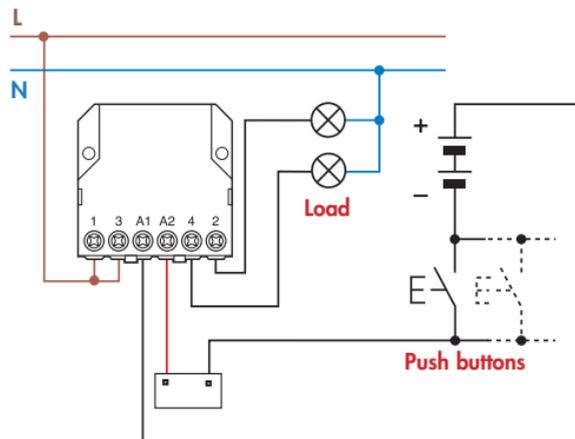
Module for use with illuminated push buttons

Accessory - Module for use with illuminated push buttons

Type 026.00

This module is necessary when using between 1 and a maximum of 15 illuminated push buttons in the coil circuit (Each 1.5 mA max, 230 V AC). It must be connected in parallel to the coil of the relay.

Wiring diagram – 2 pole relay
Low voltage DC command circuit



Appropriate accessory for 12 or 24 V DC control application

Accessories - for 12 and 24 V DC control applications

Type	026.9.012	026.9.024
Nominal voltage	12 V DC	24 V DC
Max temperature	+ 40°C	+ 40°C
Operating range	(0.9...1.1)U _N	



Type	Number of steps	Sequence	
		1°	2°
27.01	2		

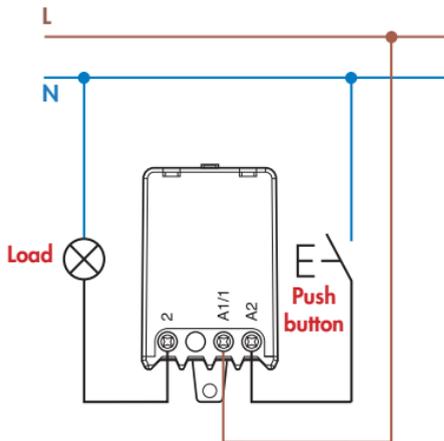


Type 27.01

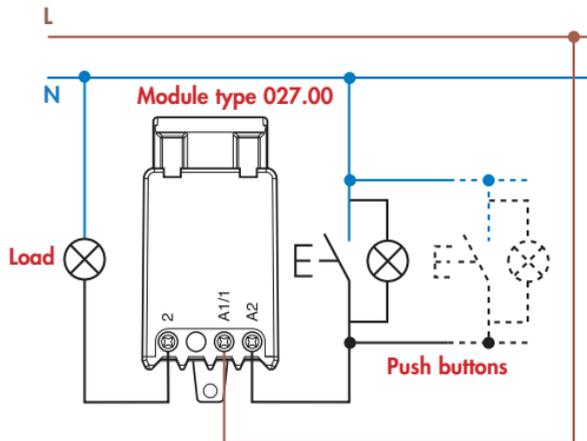
Connect up to 24 illuminated push buttons with the addition of module

- 1 NO, 10 A 230 V AC
- Supply voltage: AC
- Panel mount

Wiring diagram - Single pole relay
Common supply to relay coil and load



Wiring diagram - single pole relay
Common supply to relay coil and load
with illuminated push buttons



Accessory - Module for illuminated push buttons Type 027.00

This module is necessary if using up to a maximum of 24 illuminated push buttons (1 mA max, 230 V AC) in the switching input circuit. It must be plugged directly into the relay.



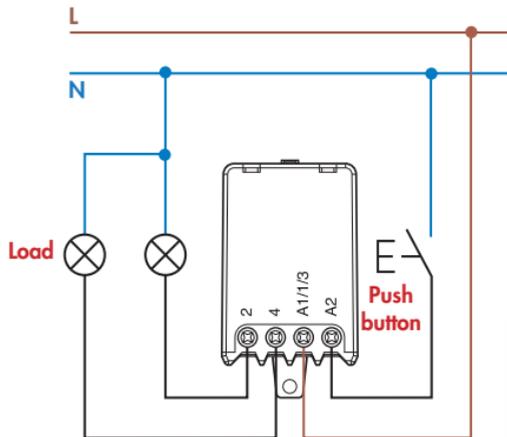


Type 27.05/06
Connect up to 24 illuminated push buttons with the addition of module
 - 2 NO, 10 A 230 V AC
 - Supply voltage: AC
 - Panel mount

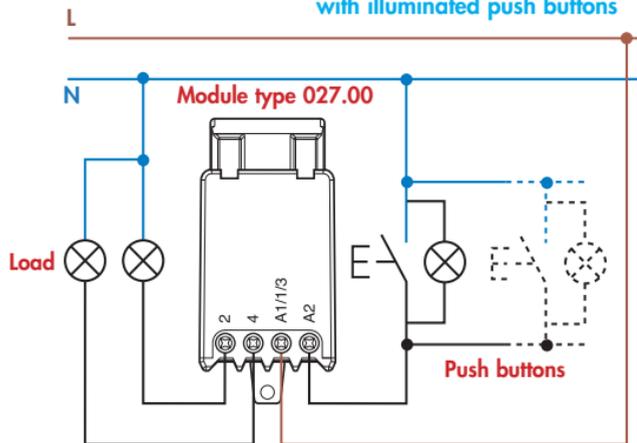
Type	Number of steps	Sequence			
		1°	2°	3°	4°
27.05	4				
27.06	3				



Wiring diagram – 2 pole relay
 Common supply to relay coil and load



Wiring diagram - 2 pole relay
 Common supply to relay coil and load
 with illuminated push buttons



Accessory - Module for illuminated push buttons

Type 027.00

This module is necessary if using up to a maximum of 24 illuminated push buttons (1 mA max, 230 V AC) in the switching input circuit. It must be plugged directly into the relay.





EVO

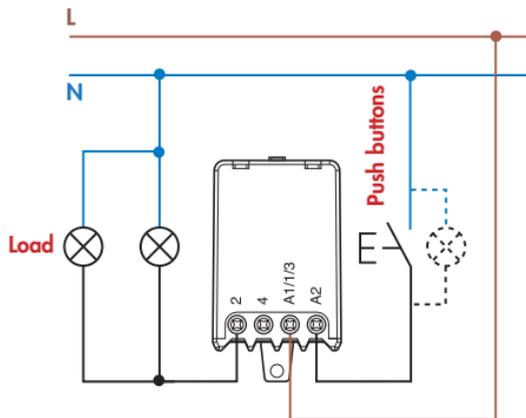


Type 27.21 EVO

- Connect up to 15 illuminated push buttons (without additional module)
- incorporates coil power limiter to permit continuous coil energisation
 - 1 contact, 10 A 230 V AC
 - Supply voltage: AC
 - Panel mount



Type	Number of steps	Sequence	
		1°	2°
27.21	2		





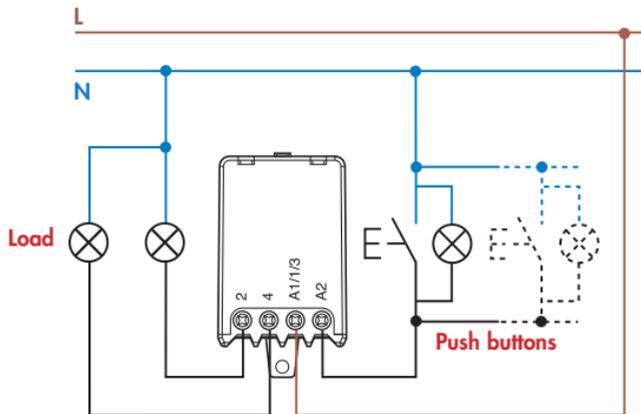
EVO



- Type 27.25 EVO and 27.26 EVO**
Connect up to 15 illuminated push buttons (without additional module)
- incorporates coil power limiter to permit continuous coil energisation
 - 1 NO, 10 A 230 V AC
 - Supply voltage: AC
 - Panel mount



Type	Number of steps	Sequence			
		1°	2°	3°	4°
27.25	4				
27.26	3				



h i - l i n e



New Crono Touch Screen.

- Elegant design and slim 19mm depth
- Easy to use and easy to program
- Calendar with automatic leap year & daylight-saving updates
- Heating and Cooling

Ensures just the right degree of comfort...



1T.41
Thermostat
analogue



1T.31
Thermostat
digital



1C.71
Daily Programmable
room thermostat



1C.71
Weekly Programmable
room thermostat

...and easy on the eye.



Cream



White,
pearl
effect



Metallic
Grey



Metallic
Titanium



Metallic
Silver



Metallic
Anthracite

 **finder**[®]
The power in relays and timers since 1954



Type 1C.71.9.003.xxx1

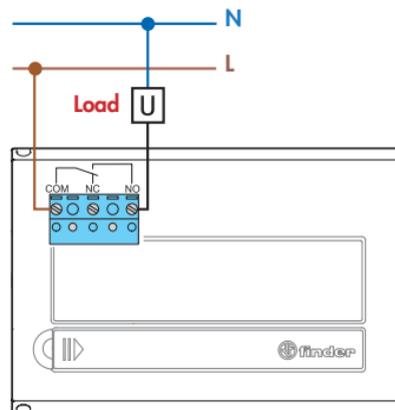


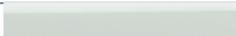
Type 1C.71.9.003.xxx7

TOUCH SCREEN Programmable Room Thermostat

Daily or weekly programmable versions

- SUMMER/WINTER switch
- Functions: frost protection, automatic control, manual control, holiday program, pump anti-seizure function
- Calendar with automatic leap year & daylight-saving updates
- 1 changeover 5A - 230V AC
- 3 programmable temperature thresholds
- Elegant design, slim 18 mm depth
- Supply voltage: 3 V DC (2 batteries 1.5 V DC, AAA size)



	Code - Daily Prog.	Code - Weekly Prog.	Colour	
⊕	1C.71.9.003.0101	1C.71.9.003.0107	Cream	
⌒	1C.71.9.003.0201	1C.71.9.003.0207	White, pearl effect	
—	1C.71.9.003.1101	1C.71.9.003.1107	Metallic Grey	
—	1C.71.9.003.1201	1C.71.9.003.1207	Metallic Silver	
—	1C.71.9.003.2101	1C.71.9.003.2107	Metallic Anthracite	
⌒	1C.71.9.003.2201	1C.71.9.003.2207	Metallic Titanium	



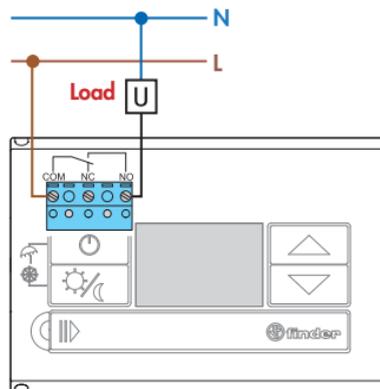
Type 1T.31.9.003.0000



Type 1T.31.9.003.2000

Functions: OFF (with Frost protection)/Summer/Winter

- 1 changeover 5 A 230 V AC
- Independently set temperatures for Day and Night (+5...+37)°C
- Supply voltage: 3 V DC (2 batteries 1.5 V DC AAA)



Code	Colour	
1T.31.9.003.0100	Cream	
1T.31.9.003.0200	White, pearl effect	
1T.31.9.003.1100	Metallic Grey	
1T.31.9.003.1200	Metallic Silver	
1T.31.9.003.2100	Metallic Anthracite	
1T.31.9.003.2200	Metallic Titanium	



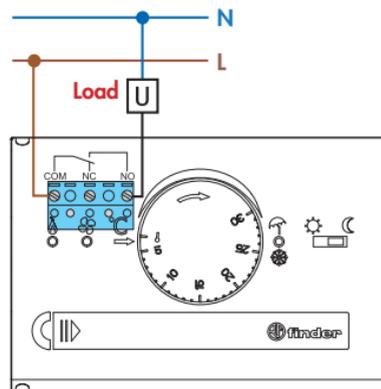
Type 1T.41.9.003.2000



Type 1T.41.9.003.2000

Functions: OFF (with Frost protection)/Summer/Winter

- 1 changeover 5 A 230 V AC
- Temperature setting range (+5...+30)°C
- Selector switch: Day/Night (Setback by - 3°C)
- Supply voltage: 3 V DC
(2 batteries 1.5 V DC AAA)



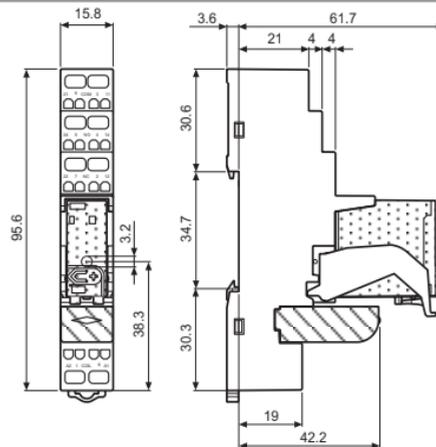
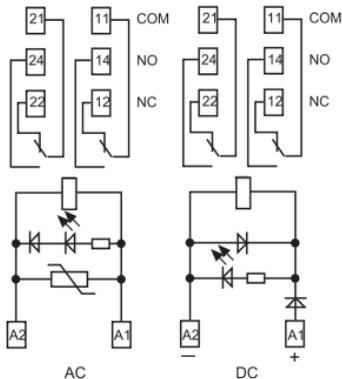


Type 4C.52

- 2 CO, 8 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



(certain relay/socket combinations)



Example:
Screwless socket

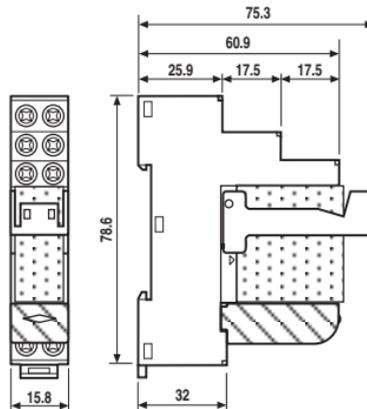
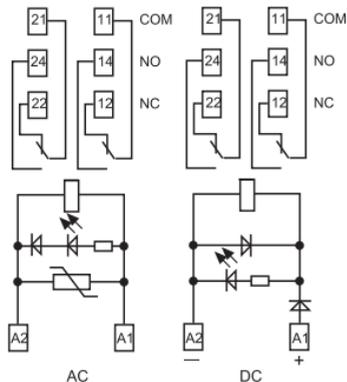


Type 48.52

- 2 CO, 8 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



(certain relay/socket combinations)



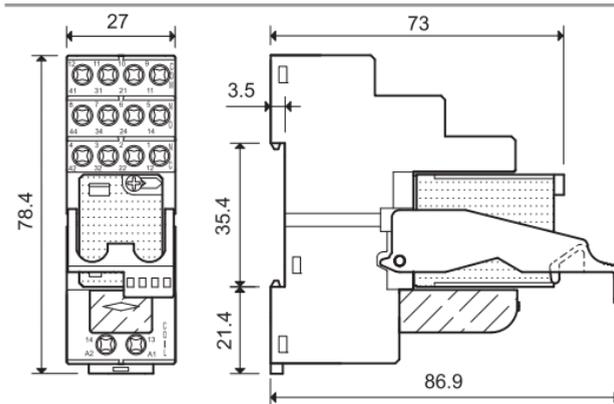
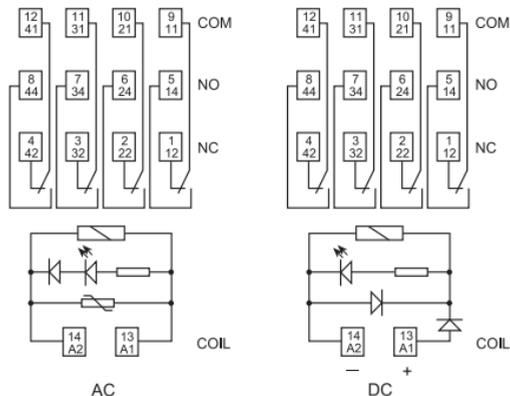


Type 58.34

- 4 CO, 7 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



(certain relay/socket combinations)





Type 19.21.0.024.0000 - Auto/Off/On output module 10 A

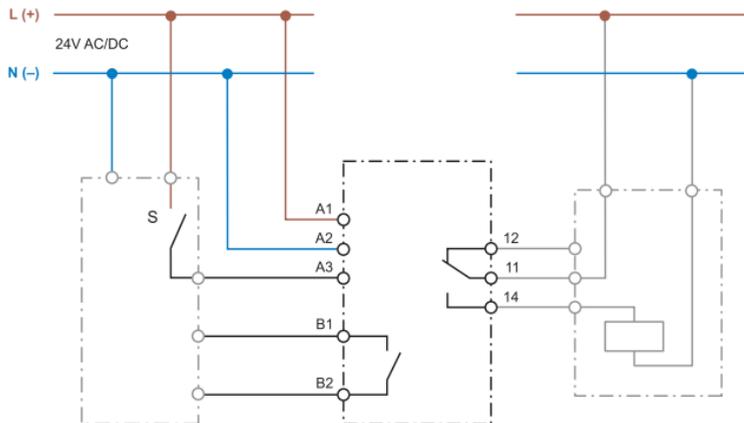
Feedback contact

11.2 mm width

- 1 CO, 10 A 250 V AC

- Supply voltage: AC or DC

- 35 mm rail (EN 60715) mount





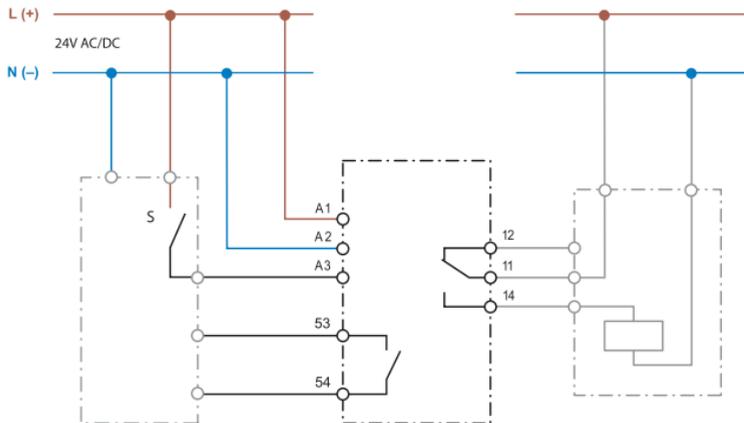
Type 19.41.0.024.0000 - Override module - Auto/Off/Hand

1 feedback output contact

LED indicator

17.5 mm width

- 1 CO, 5 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount





Type 19.42.0.024.0000 - Override module - Auto/Off/Low/High

Low and High output contacts - 1 feedback output contact

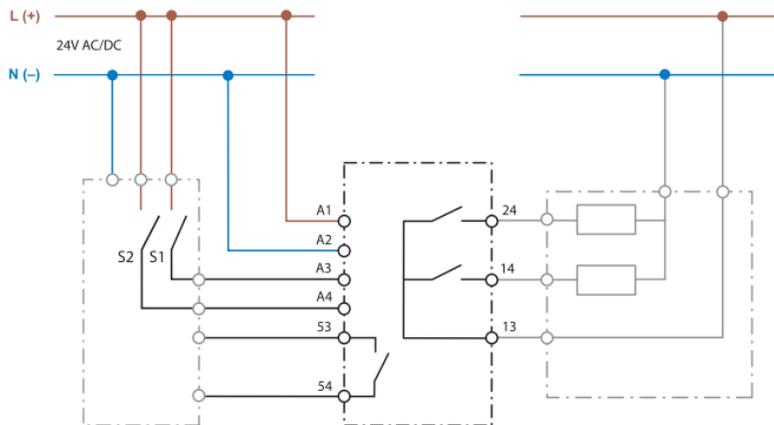
LED indicator

35 mm width

- 2 NO, 5 A 250 V AC

- Supply voltage: AC or DC

- 35 mm rail (EN 60715) mount





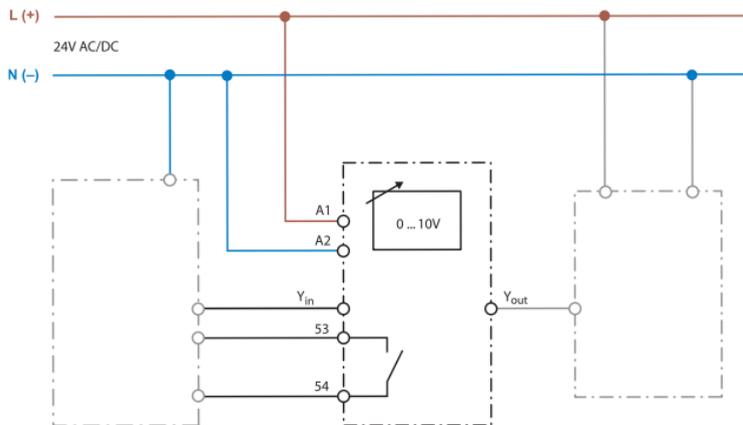
Type 19.50.0.024.0000 - Analogue override module - Auto/Hand (0...10)V

1 feedback output contact

LED indicator

17.5 mm width

- 1 CO, 5 A 250 V AC
- Supply voltage: 24 V AC or DC
- 35 mm rail (EN 60715) mount



In the selector position A (Automatic) the 0...10 V signal at Yin is transferred through Yout, to the end process;
 in the selector position H (Hand) the 0...10 V value set by the module's regulator is transferred, through Yout, to the end process.



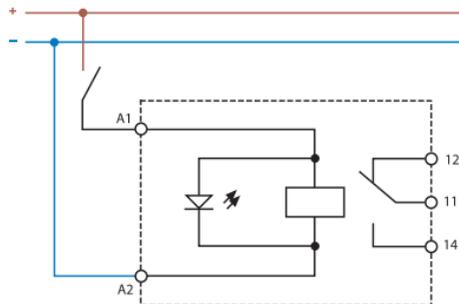
Type 19.91.9.0xx.4000 - Power relay module 16 A

17.5 mm width

- 1 CO, 16 A 250 V AC

- Supply voltage: DC

- 35 mm rail (EN 60715) mount





Type 7E.23

- Nominal current 5 A (32 A Maximum)
- 1-phase 230 V AC
- 17.5 mm width
- 35 mm rail (EN 60715) mount

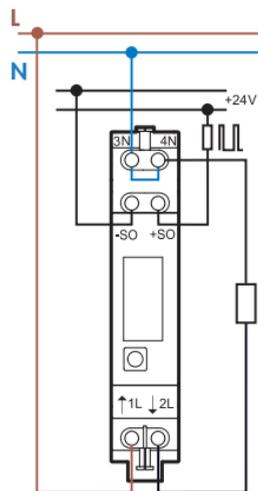


Accessories

Terminal cover Type 07E.13



For the tamper-proof lead seal use 2 terminal covers.





Type 7E.46

- Nominal current 10 A (65 A Maximum)
- 3-phase
- Single and Dual tariff (Day and Night)
- 70 mm width
- 35 mm rail (EN 60715) mount

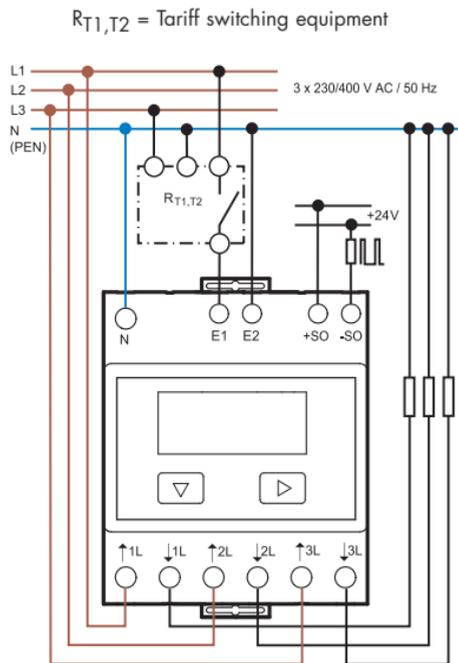


Accessories

Terminal cover Type 07E.16



For the tamper-proof lead seal use 4 terminal covers





Type 7E.56

- Nominal current 5 A (6 A Maximum)
- 3-phase
- Usable with current transformer up to 1,500 A
- 70 mm width
- 35 mm rail (EN 60715) mount

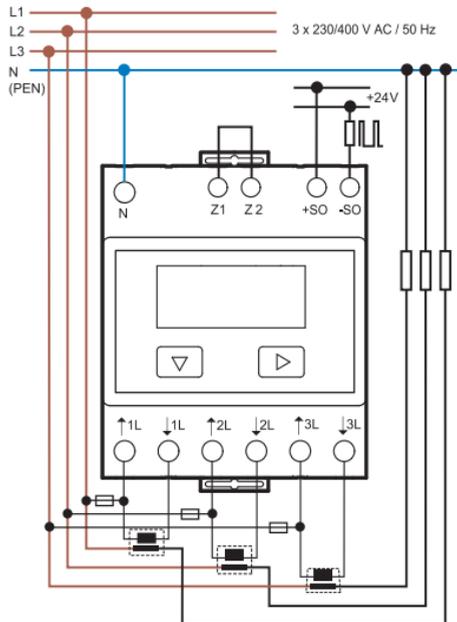


Accessories

Terminal cover Type 07E.16



For the tamper-proof lead seal use 4 terminal covers





Type 7E.12.8.230.0002

- Nominal current 10 A (25 A Maximum)
- 1-phase 230 V AC
- 35 mm width
- 35 mm rail (EN 60715) mount

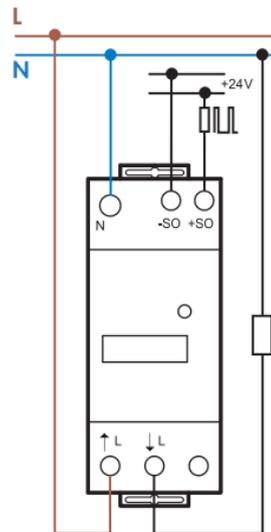


Accessories

Terminal cover Type 07E.16



For the tamper-proof lead seal use 2 terminal covers





Type 7E.13

- Nominal current 5 A (32 A Maximum)
- 1-phase 230 V AC
- 17.5 mm width
- 35 mm rail (EN 60715) mount



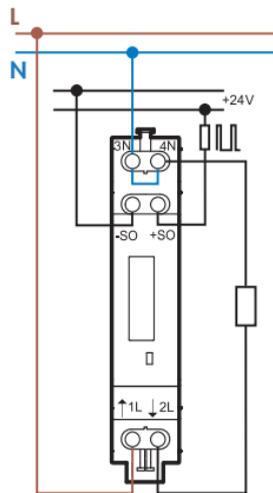
*(Physikalisch -
Technischen Bundesanstalt)*

Accessories

Terminal cover Type 07E.13



For the tamper-proof lead seal use 2 terminal covers.





Type 7E.16

- Nominal current 10 A (65 A Maximum)
- 1-phase 230 V AC
- 35 mm width
- 35 mm rail (EN 60715) mount



PTB

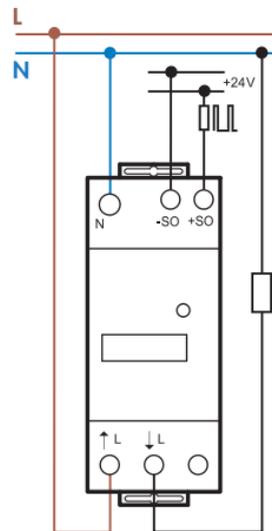
*(Physikalisch -
Technischen Bundesanstalt)*

Accessories

Terminal cover Type 07E.16



For the tamper-proof lead seal use 2 terminal covers





Type 7E.36.8.400.0000

- Nominal current 10 A (65 A Maximum)
- 3-phase
- 70 mm width
- 35 mm rail (EN 60715) mount



PTB

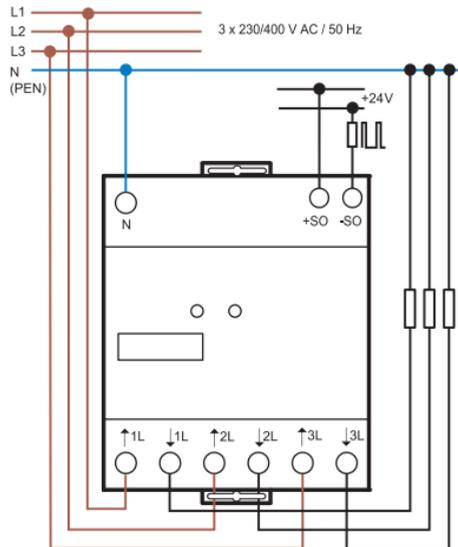
(Physikalisch -
Technischen Bundesanstalt)

Accessories

Terminal cover Type 07E.16



For the tamper-proof lead seal use 4 terminal covers





Type 7E.36.8.400.0002

- Nominal current 10 A (65 A Maximum)
- 3-phase
- Dual tariff (Day and Night)
- 70 mm width
- 35 mm rail (EN 60715) mount



PTB

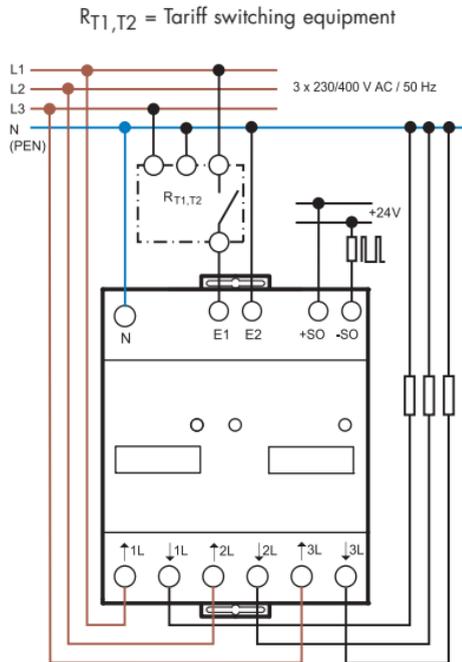
(Physikalisch -
Technischen Bundesanstalt)

Accessories

Terminal cover Type 07E.16



For the tamper-proof lead seal use 4 terminal covers





Type 7P.02.8.260.1025 - SPD Type 1+2

For single phase system.

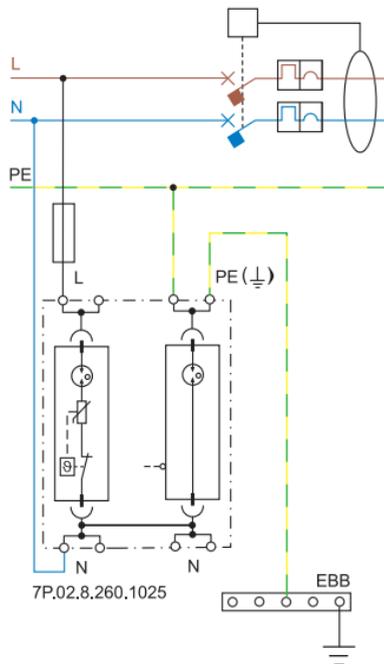
Varistor + GDT protection L-N + GDT protection N-PE.

- Visual fault and remote contact fault signalling varistor/GDT status, N-PE GDT presence
- Upside down mounting possible
- Replaceable modules
- Possibility of serial connection (V-shape)
- 35 mm rail (EN 60715) mount



Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.

TT-single phase system - SPD up-stream of RCD



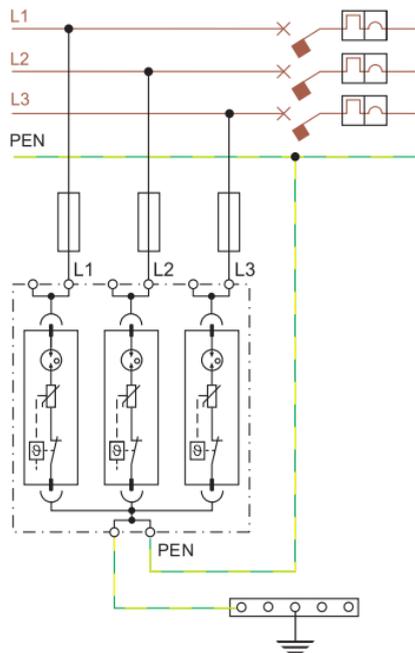


Type 7P.03.8.260.1025 - SPD Type 1+2
For three phase system without Neutral (PEN conductor).
Varistor + GDT protection L1, L2, L3-PEN.

- Visual fault and remote contact fault signalling varistor/GDT status
- Upside down mounting position
- Replaceable modules
- Possibility of serial connection (V-shape)
- 35 mm rail (EN 60715) mount



TN-C- three phase system - SPD up-stream of RCD



Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.

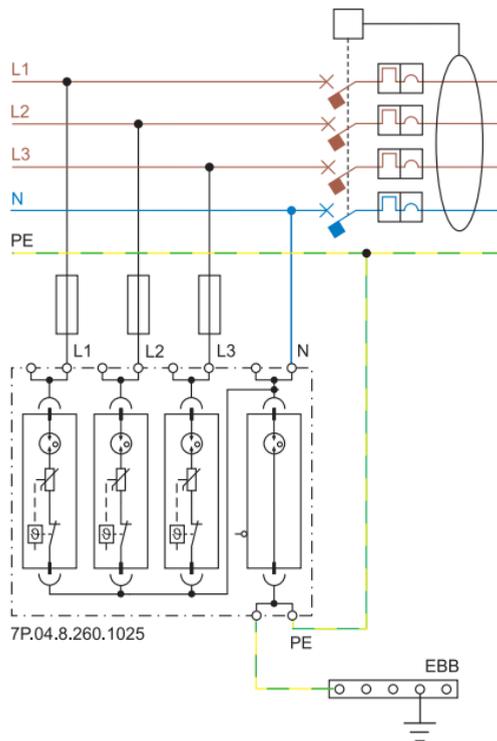


**Type 7P.04.8.260.1025 - SPD Type 1+2
For three phase system with Neutral.
Varistor + GDT protection L1, L2, L3-N +
spark gap protection N-PE.**

- Visual fault and remote contact fault signalling varistor/GDT status, N-PE GDT presence
- Upside down mounting position
- Replaceable modules
- Wiring diagrams "V-shape" example page 109
- 35 mm rail (EN 60715) mount

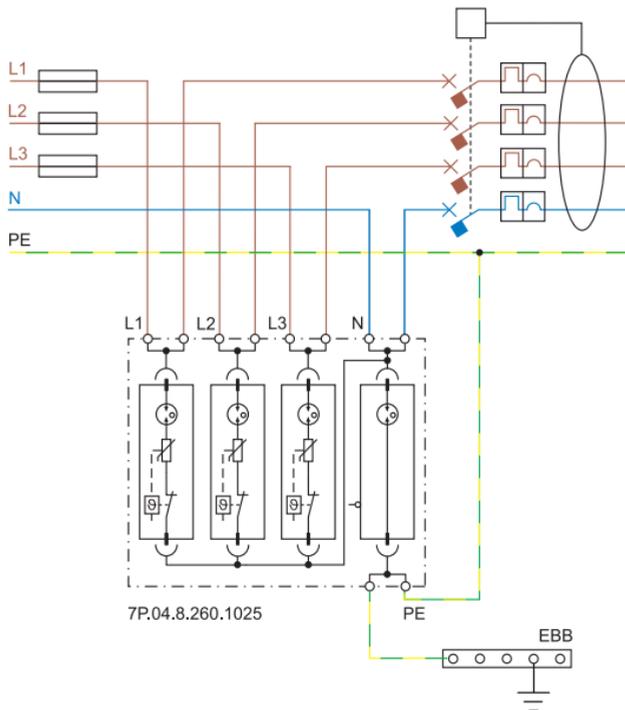


TT-three phase system - SPD up-stream of RCD



Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.

TT-three phase system - SPD up-stream of RCD
 Wiring diagrams "V-shape" (fuse max = 125 A)





NEW

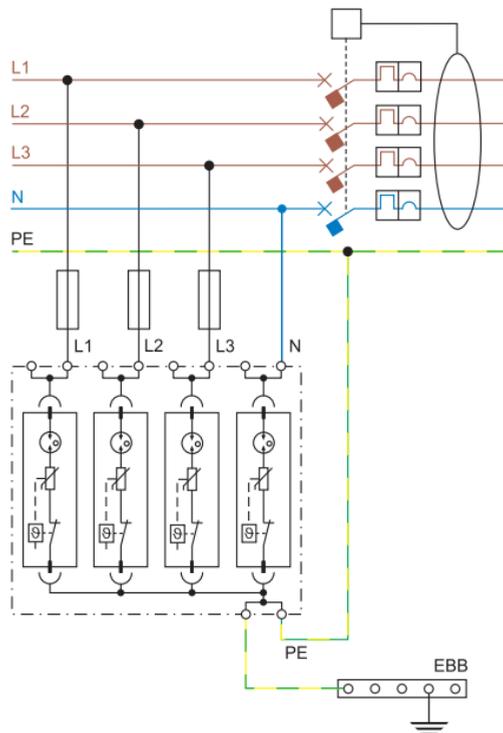
Type 7P.05.8.260.1025 - SPD Type 1+2
For three phase system with Neutral.
Varistor + GDT protection L1, L2, L3-N +
varistor + GDT protection N-PE.

- Visual fault and remote contact fault signalling varistor/GDT status
- Upside down mounting position
- Replaceable modules
- Possibility of serial connection (V-shape)
- Montaggio su barra 35 mm (EN 60715)



Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.

TT - TN-S- three phase system - SPD up-stream of RCD





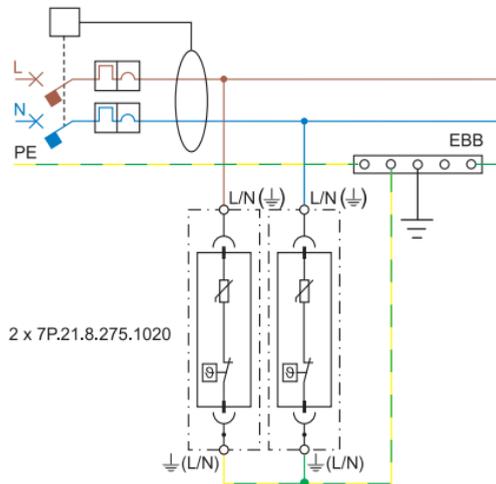
Type 7P.21.8.275.1020 - SPD Type 2

Varistor protection L/N (⊥) - ⊥ (L/N)

- Surge arrester suitable for 230 V system/applications
- Single phase systems
- Replaceable varistor module
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount



TN-S single phase system - SPD down-stream of RDC



Note: suggested RCD type S

Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.

NEW



Type 7P.12.8.275.1012
SPD Type 1+2 "Low U_p System"
 Varistor protection L-N
 + spark gap protection N-PE

NEW



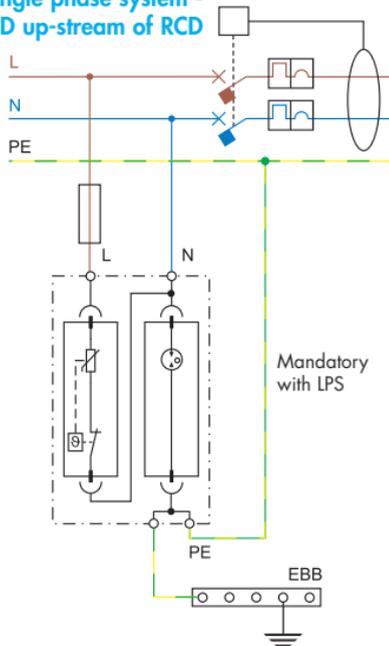
Type 7P.22.8.275.1020 - SPD Type 2
 Varistor protection L-N
 + spark-gap protection N-PE

- Suitable for 230 V system/applications
- Single phase systems
- Visual indication of varistor status - Healthy/Replace
- Replaceable modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount

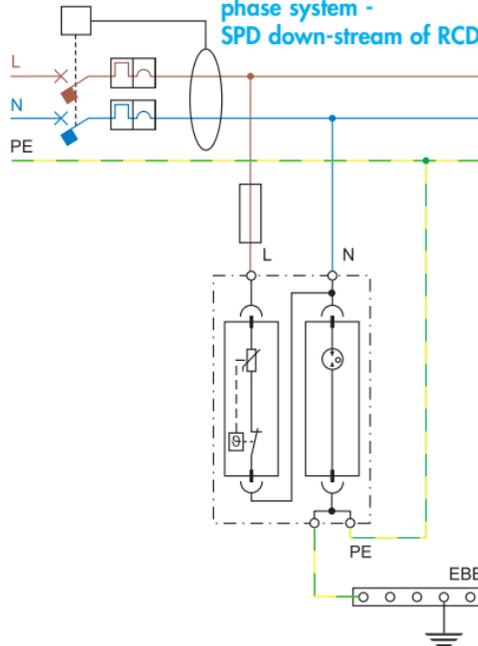


Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.

TT-single phase system - SPD up-stream of RCD



TT or TN-S single phase system - SPD down-stream of RCD





Type 7P.13.8.275.1012 - SPD Type 1+2
Varistor protection L1, L2, L3-PEN

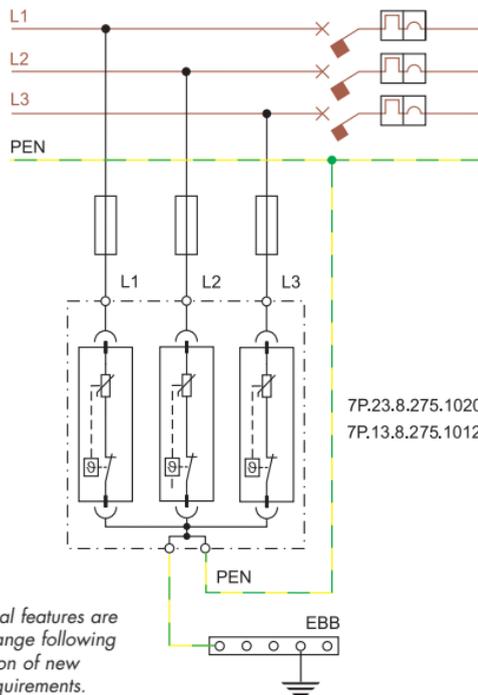


Type 7P.23.8.275.1020 - SPD Type 2
Varistor protection L1, L2, L3

- Surge arrester suitable for 230/400 V system/applications
- Three-phase systems
- Visual indication of varistor status - Healthy/Replace
- Replaceable varistor modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount



TN-C three phase system - SPD up-stream of overcurrent protection



7P.23.8.275.1020
 7P.13.8.275.1012

Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.



Type 7P.15.8.275.1012 - SPD Type 1+2
 Varistor protection L1, L2, L3, N, PE

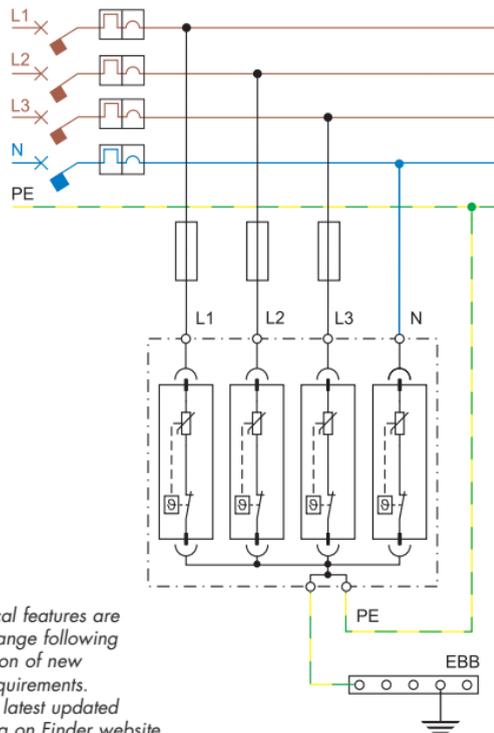


Type 7P.25.8.275.1020 - SPD Type 2
 Varistor protection L1, L2, L3 - N
 + varistor protection N-PE

- Surge arrester suitable for 230/400 V system/applications
- Three-phase systems
- Visual indication of varistor status - Healthy/Replace
- Replaceable varistor modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount



TN-S three phase system - SPD down-stream of overcurrent protection



Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.



Type 7P.23.9.750.1020

SPD Type 2

For protection on DC side (750 V) of systems in photovoltaic applications*

- Replaceable modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount

Type 7P.23.9.000.1015

SPD Type 2

For protection on DC side (1020 V) of systems in photovoltaic applications*

- Replaceable modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount

Type 7P.23.9.200.1015

SPD Type 2

For protection on DC side (1200 V) of systems in photovoltaic applications*

- Replaceable modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount



Type 7P.03.9.000.1012

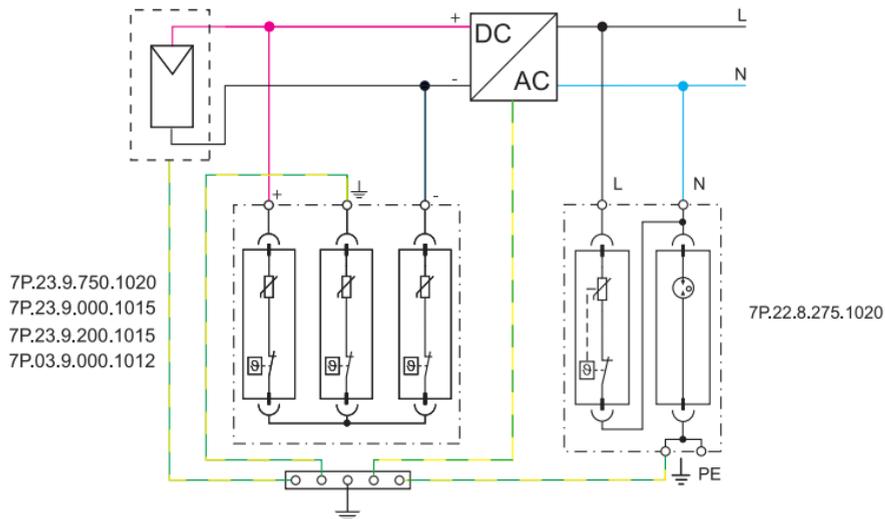
SPD Type 1+2

For protection on DC side (1000 V) of systems in photovoltaic applications*

- For systems with LPS
- Replaceable modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount

* according to prEN 50539-12

Installation examples - photovoltaic



Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.



NEW



**Type 7P.26.9.420.1020
SPD Type 2**
For protection on DC side (420 V) of
systems in photovoltaic applications*

- Replaceable modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount



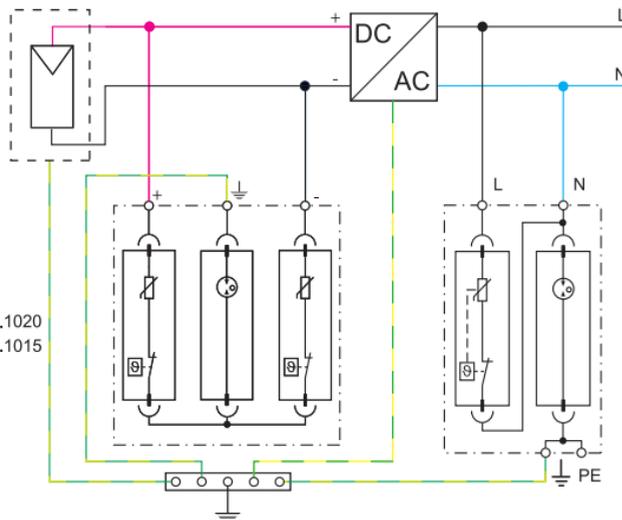
NEW



**Type 7P.26.9.000.1015
SPD Type 2**
For protection on DC side (1020 V) of
systems in photovoltaic applications*

- Replaceable modules
- Visual and remote signalling of varistor status
- 35 mm rail (EN 60715) mount

Installation examples - photovoltaic



7P.26.9.420.1020
7P.26.9.000.1015

7P.22.8.275.1020

* according to prEN 50539-12

Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.



Type 7P.32.8.275.2003

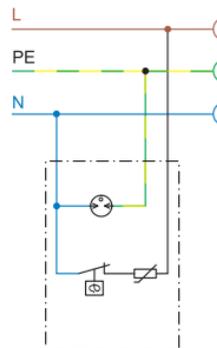
SPD Type 3

Provides easy additional surge protection for existing 230 V sockets

- Protects electric and electronic equipment against pulse overvoltage (example: TV, Hi-Fi, PC ...)
- Acoustical (buzzing) signalling of varistor fault
- Combined varistor + spark-gap protection (avoiding earth leakage current)
- Small size
- For incorporation within socket outlets



TT or TN-S single phase system -
incorporated in socket outlet



Some technical features are subject to change following the introduction of new normative requirements. Please check latest updated technical data on Finder website.



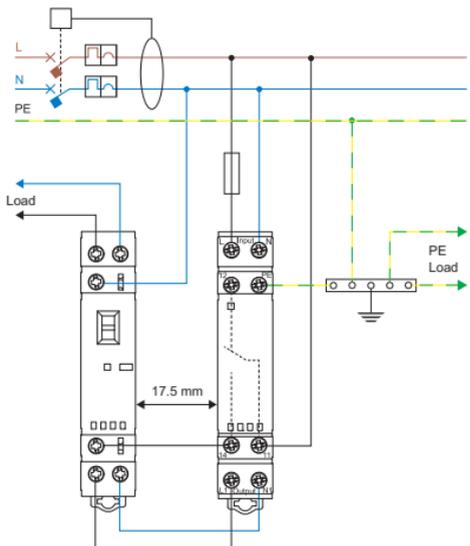
NEW

CE

Type 7P.37.8.275.1003 - SPD Type 3 - For TT and TN-S system (with Neutral)

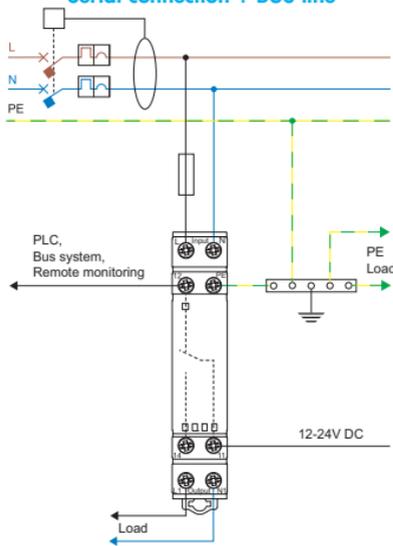
- L-N/N-PE protection
- Permits serial connection for optimized load protection up to 16 A
- Remote signaling of varistor status by integral change-over relay contact
- 35 mm rail (EN 60715) mount

TT or TN-S single phase system - SPD down-stream of RCD - Serial connection



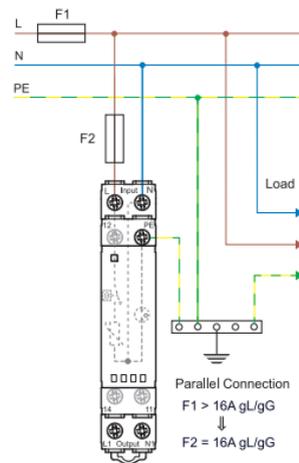
22,32,0,230,X440 7P,37,8,275,1003

TT or TN-S single phase system SPD down-stream of RCD Serial connection + BUS line



7P,37,8,275,1003

TT, TN-S single phase: parallel connection

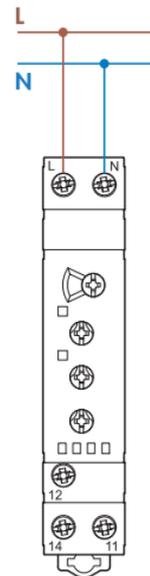
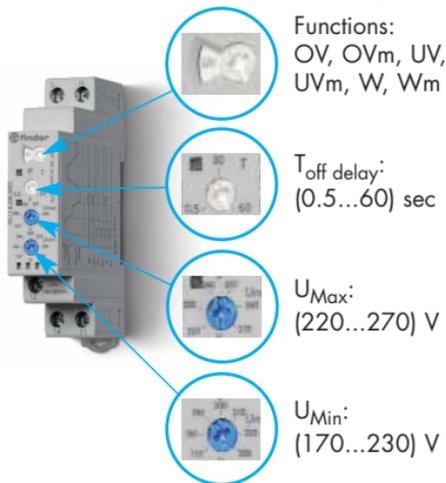




Type 70.11 - Single-phase (220...240 V) voltage monitoring:

- Undervoltage
 - Overvoltage
 - Window mode (overvoltage + undervoltage)
 - Voltage fault memory selectable
- 1 CO, 10 A 250 V AC
 - Supply voltage: AC
 - 35 mm rail (EN 60715) mount

Front view: function selector and regulators

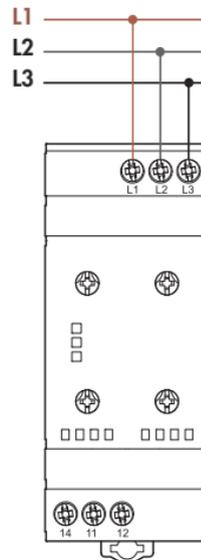
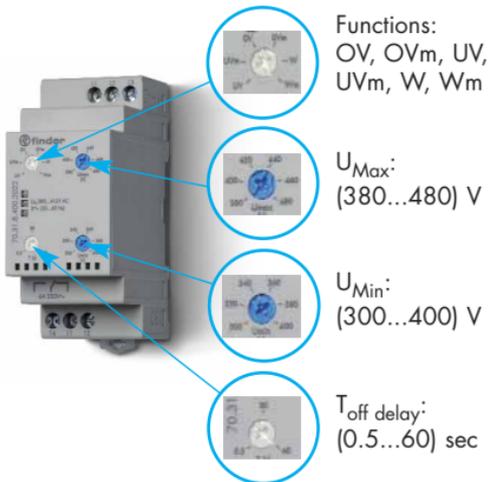




Type 70.31 - Three-phase (380...415 V) voltage monitoring:

- Undervoltage
 - Overvoltage
 - Window mode (overvoltage + undervoltage)
 - Voltage fault memory selectable
 - Phase loss
 - Phase rotation
- 1 CO, 6 A 250 V AC
 - Supply voltage: AC
 - 35 mm rail (EN 60715) mount

Front view: function selector and regulators

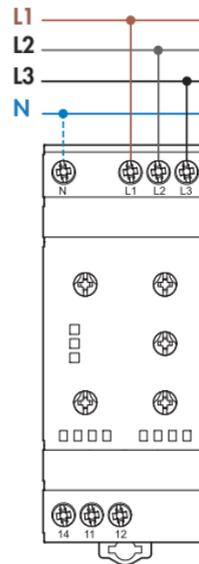
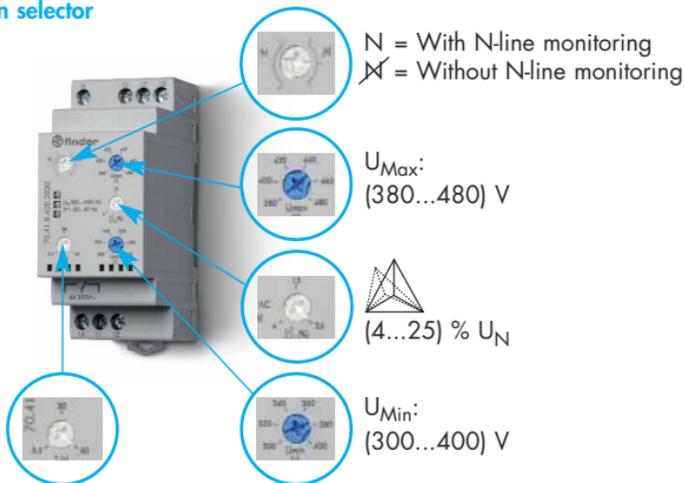




Type 70.41 - Three-phase (380...415 V, with or without neutral) voltage monitoring:

- Window mode (overvoltage + undervoltage)
 - Phase loss
 - Phase rotation
 - Asymmetry
 - Neutral loss selectable
- 1 CO, 6 A 250 V AC
 - Supply voltage: AC
 - 35 mm rail (EN 60715) mount

Front view: function selector and regulators

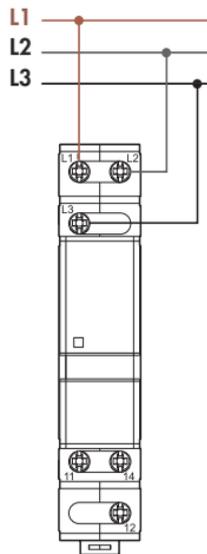




Type 70.61

Three-phase (208...480 V) voltage monitoring:

- Phase loss
- Phase rotation
- 1 CO, 6 A 250 V AC
- Supply voltage: AC
- 35 mm rail (EN 60715) mount

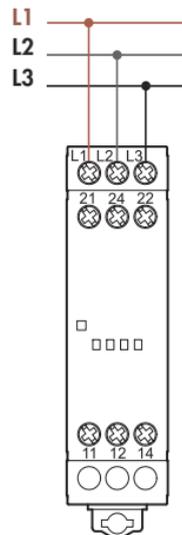




Type 70.62

Three-phase (208...480 V) voltage monitoring:

- Phase loss
 - Phase rotation
- 2 CO, 8 A 250 V AC
 - Supply voltage: AC
 - 35 mm rail (EN 60715) mount





Type 72.01 - Adjustable sensitivity

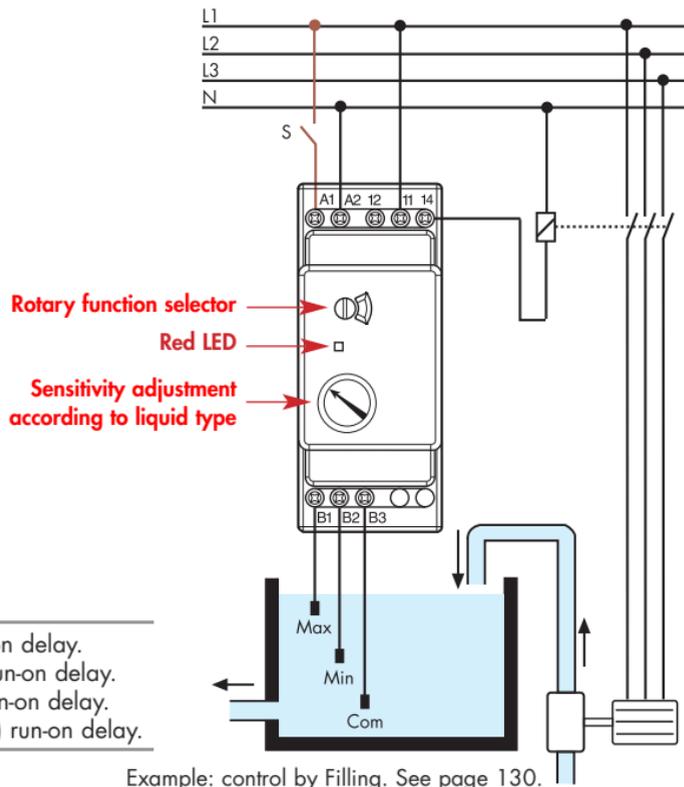
- 1 CO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Functions

- FL** = Level control by Filling, Long (7sec) run-on delay.
- EL** = Level control by Emptying, Long (7sec) run-on delay.
- FS** = Level control by Filling, Short (0.5sec) run-on delay.
- ES** = Level control by Emptying, Short (0.5sec) run-on delay.

Wiring diagram with 3 electrodes





Type 72.01 - Adjustable sensitivity

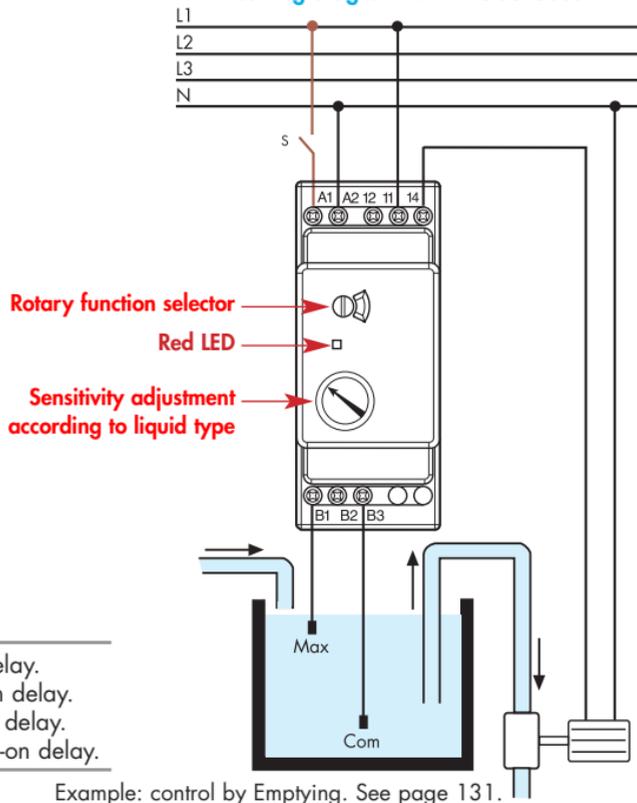
- 1 CO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Functions

- FL** = Level control by Filling, Long (7sec) run-on delay.
- EL** = Level control by Emptying, Long (7sec) run-on delay.
- FS** = Level control by Filling, Short (0.5sec) run-on delay.
- ES** = Level control by Emptying, Short (0.5sec) run-on delay.

Wiring diagram with 2 electrodes



Example: control by Emptying. See page 131.



Type 72.11 - Fixed sensitivity

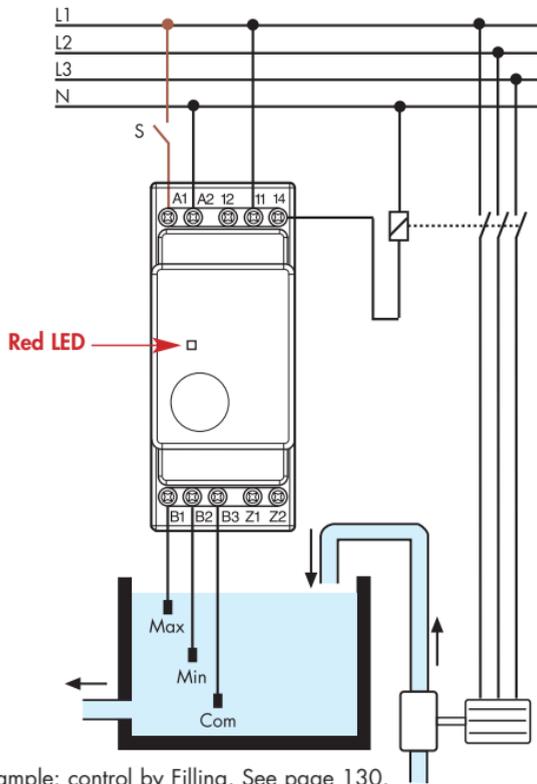
- 1 CO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Functions

- F** = Level control by Filling, Z1-Z2 open.
Run-on time fixed at 1sec.
- E** = Level control by Emptying, Z1-Z2 linked.
Run-on time fixed at 1sec.

Wiring diagram with 3 electrodes



Example: control by Filling. See page 130.



Type 72.11 - Fixed sensitivity

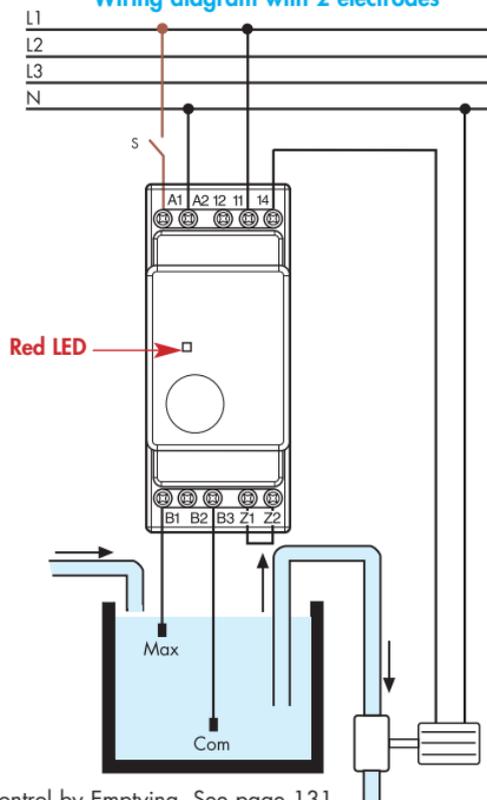
- 1 CO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Functions

- F** = Level control by Filling, Z1-Z2 open.
Run-on time fixed at 1 sec.
- E** = Level control by Emptying, Z1-Z2 linked.
Run-on time fixed at 1 sec.

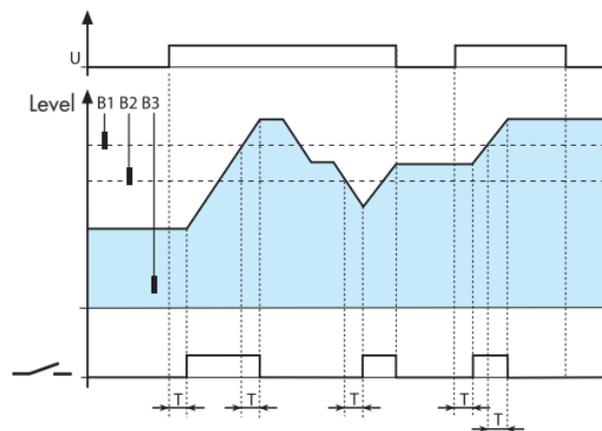
Wiring diagram with 2 electrodes



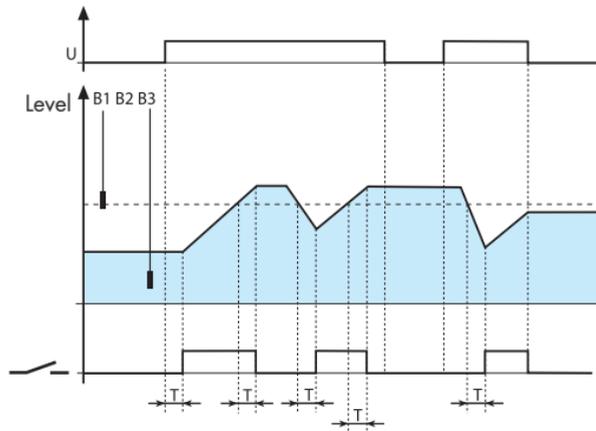
Example: control by Emptying. See page 131.

Filling functions

Example with 3 electrodes.

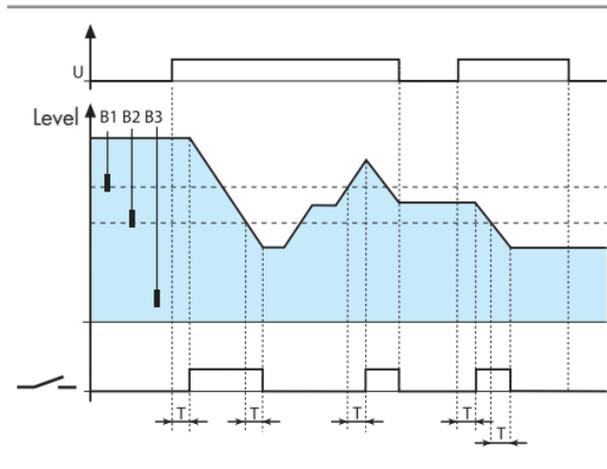


Example with 2 electrodes.

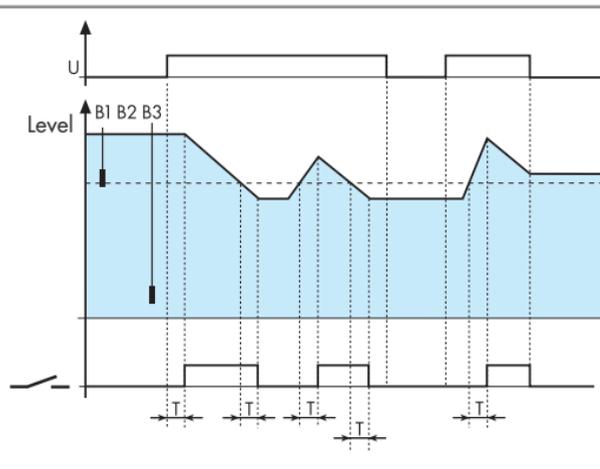


Emptying functions

Example with 3 electrodes.



Example with 2 electrodes.





Type 072.01.06 - Cable length: 6 m (1.5 mm²)

Type 072.01.15 - Cable length: 15 m (1.5 mm²)

Suspended electrode for conductive liquids, complete with cable.

Suitable for level monitoring in wells and reservoirs not under pressure. All materials used are compatible with food processing applications.



Tipo 072.31
Suspended electrode



Type 072.02.06

Cable length (blue colour): 6 m (1.5 mm²)

Electrode for swimming pools with high levels of chlorine, or in salt-water pools with high levels of salinity.



Type 072.11 - Floor water sensor, designed for the detection and reporting of the presence of floor surface water.



Type 072.51 - Electrode holder with two pole connector,

one connected directly to the electrode and the second connected to the grounded installation thread.

Suitable for metal tank with G3/8" linkage.



Type 072.53
Electrode holder with three poles

Type 072.500



Electrode.
500 mm long.

Type 072.501



Electrode connector.



Type 072.503

Electrode separator



*Level control relays
for conductive liquids*



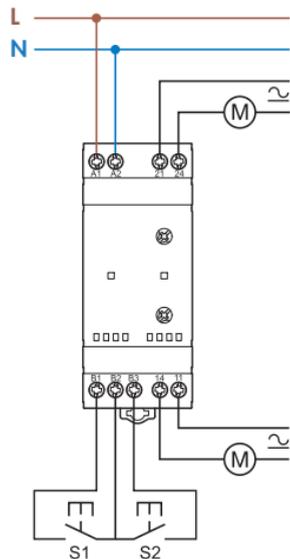
Priority change relay

*Type 72.42, Special relay for alternating loads,
for applications with pumps, compressors,
air conditioning or refrigeration units.*

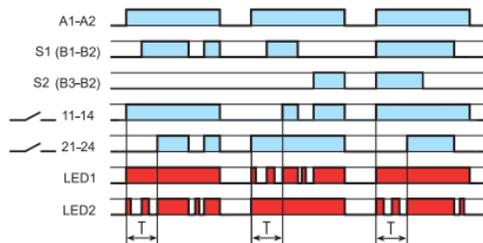


Type 72.42

- 2 independent NO output, 12 A 250 V AC
- Supply voltage: (110...240)V and 24 V AC/DC
- 35 mm rail (EN 60715) mount

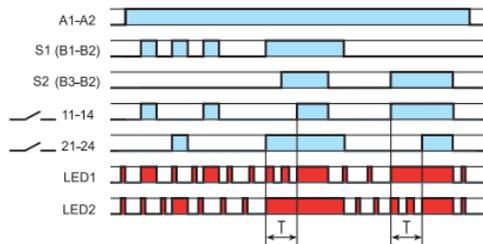


Functions



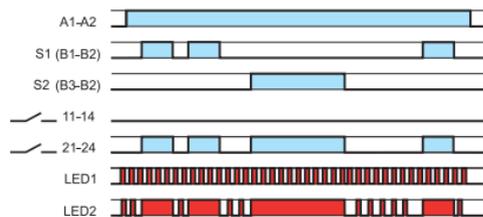
(MI) Outputs alternate on successive applications of supply voltage

- Application of the supply voltage to A1-A2 forces just one output contact to close, but the contact that closes will alternate between 11-14 and 21-24 on each successive application of the supply – ensuring even wear across both motors.
- The other output contact can be forced closed by the closure of either S1 or S2 - but to limit high current surges the other motor cannot start within T seconds of the first motor.



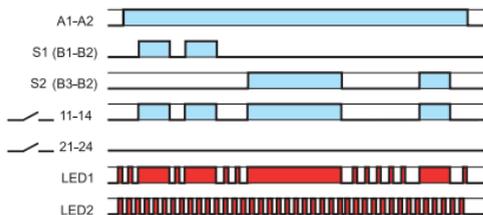
(M1) Outputs alternate according to control signal

- The supply voltage is permanently applied to A1-A2. When closed, S1 forces just one output contact to close. The contact that closes will alternate between 11-14 and 21-24 on each successive S1 closure - ensuring even wear across both motors.
- If closed, S2 forces both output contacts to close (irrespective of S1). However, to limit high current surges, both motors cannot start within T seconds of each other.



(M2) Output 2 (21-24) only

- Supply permanently applied to A1-A2.
- Closure of either S1 or S2 will close output contact 2 (21-24). Use when load 1 (11-14) is out of service.



(M1) Output 1 (11-14) only

- Supply permanently applied to A1-A2.
- Closure of either S1 or S2 will close output contact 1 (11-14). Use when load 2 (21-24) is out of service.

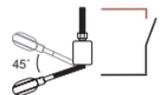
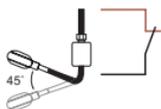
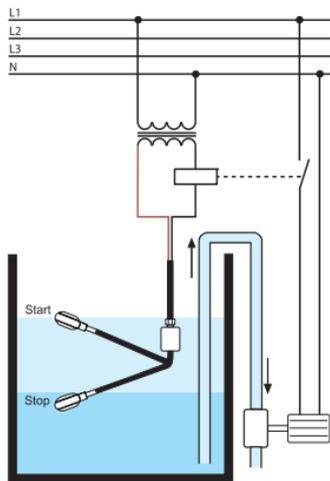


Type 72.A1

- Float switch with 2 watertight chambers, for plumbing pumps and grey water systems
- Counterweight (300gr) with cable grip, included

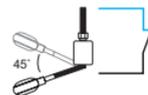
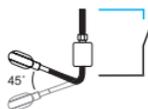
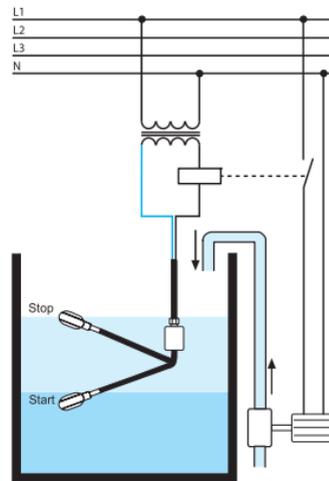
- 1 CO 20 A 250 V AC
- Protection degree: IP 68

Emptying function



When black and brown wires are used, the circuit opens when the float is down and closes when the float is up. In this case the blue/grey wire must be insulated.

Filling function



When black and blue/grey wires are used, the circuit opens when the float is up and closes when the float is down. In this case the brown wire must be insulated.

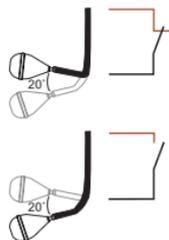
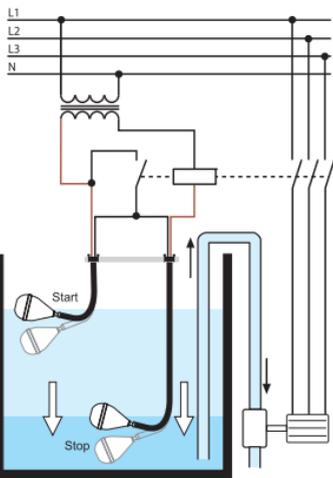


Type 72.B1

- Float switch with 3 watertight chambers, for dirty water systems, drainage plants and pumping stations
- Supplied with fixing kit

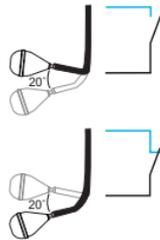
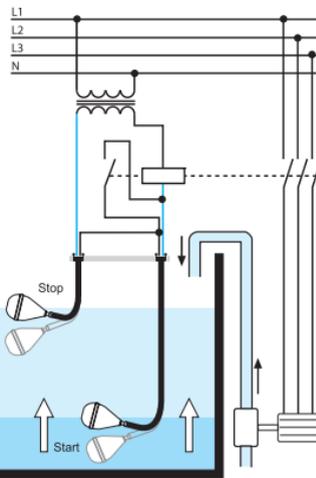
- 1 CO 20 A 250 V AC
- Protection degree: IP 68

Emptying function



When black and brown wires are used, the circuit opens when the float is down and closes when the float is up. In this case the blue/grey wire must be insulated.

Filling function



When black and blue/grey wires are used, the circuit opens when the float is up and closes when the float is down. In this case the brown wire must be insulated.

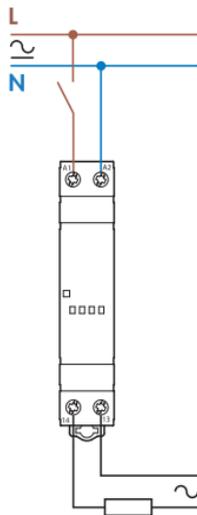


Type 77.01
17.5 mm width

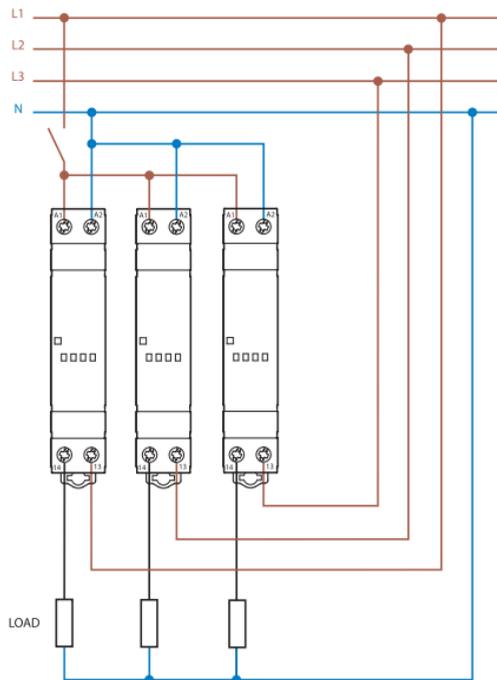
- 1 NO 5 A
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Example of single-phase connection



Example of three-phase connection (with 3 x 77.01.8.230.8051)





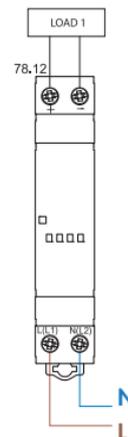
Type 78.12...2400
24 V DC, 12 W output



Type 78.12...1200
12 V DC, 12 W output

Range of modular DC power supplies

- Supply voltage: (110...240)V AC, 220 V DC not polarized
- 35 mm rail (EN 60715) mount

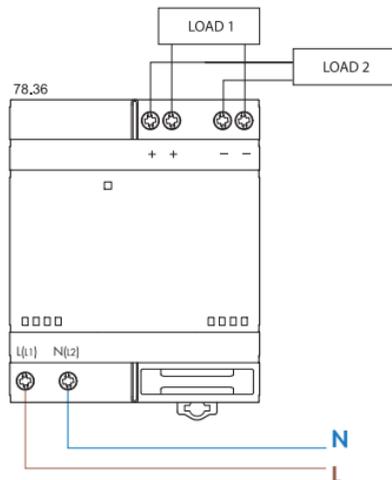




Type 78.36

Range of modular DC power supplies

- 24 V DC, 36 W output
- Supply voltage: (110...240)V AC,
220 V DC not polarized
- 35 mm rail (EN 60715) mount





Type 78.50

Uscita 12 V DC, 50 W

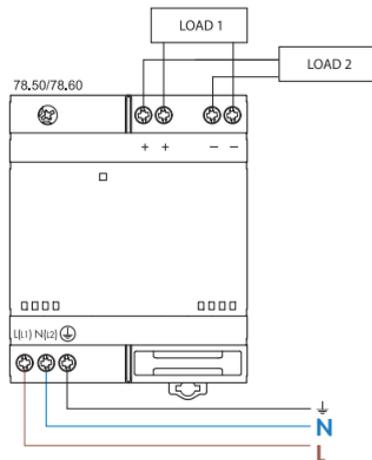


Type 78.60

Uscita 24 V DC, 60 W

Range of modular DC power supplies

- Supply voltage: (110...240)V AC
220 V DC not polarized
- 35 mm rail (EN 60715) mount



Functions

U = Supply voltage

 = Output contact

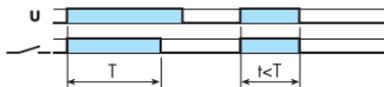
Type 80.01, 80.11



(AI) On-delay

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.

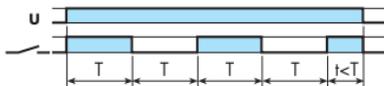
Type 80.01, 80.21



(DI) Interval

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

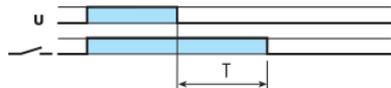
Type 80.01



(SW) Symmetrical flasher (starting pulse on)

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

Type 80.61



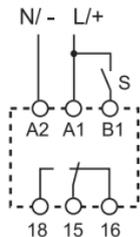
(BI) Power off-delay (True off-delay)

Apply power to timer (minimum 300ms). Output contacts transfer immediately. Removal of power initiates the preset delay, after which time the output contacts reset.

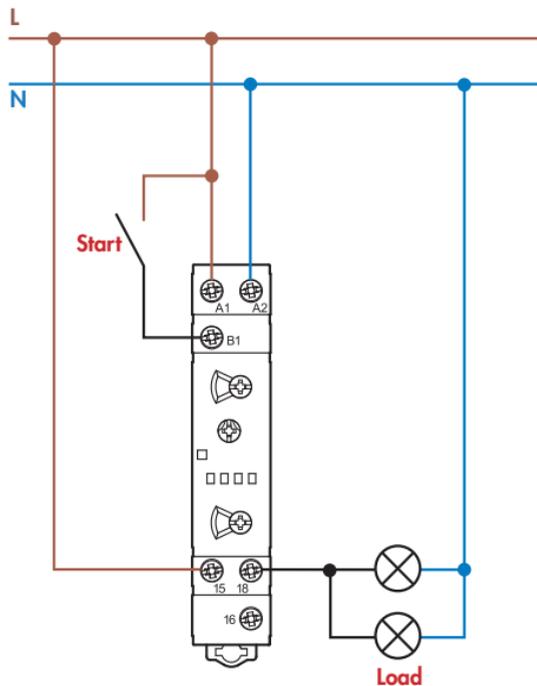


Type 80.01/41/91

- 1 CO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Timing function initiated by start signal to terminal B1



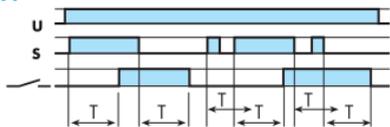
Functions

U = Supply voltage

S = External Start

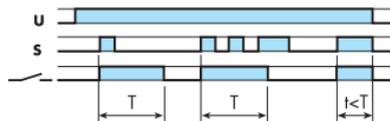
 = Output contact

Type 80.01



(CE) On- and off-delay with control signal

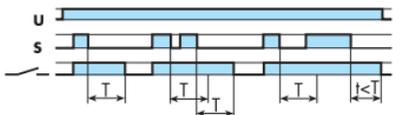
Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.



(DE) Interval with control signal on

Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

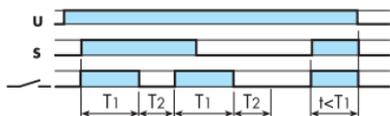
Type 80.01, 80.41



(BE) Off-delay with control signal

Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.

Type 80.91



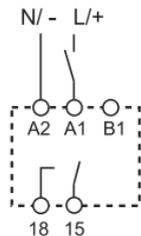
(LE) Asymmetrical flasher (starting pulse on) with control signal

Power is permanently applied to the timer. Closing Signal Switch (S) causes the output contacts to transfer immediately and cycle between ON (T1) and OFF (T2), until opened.

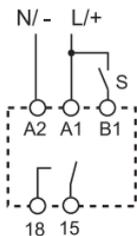


Type 80.71
Multi-function & Multi-voltage
Solid State output timer

- 1 NO, 1 A (24...240)V AC/DC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount

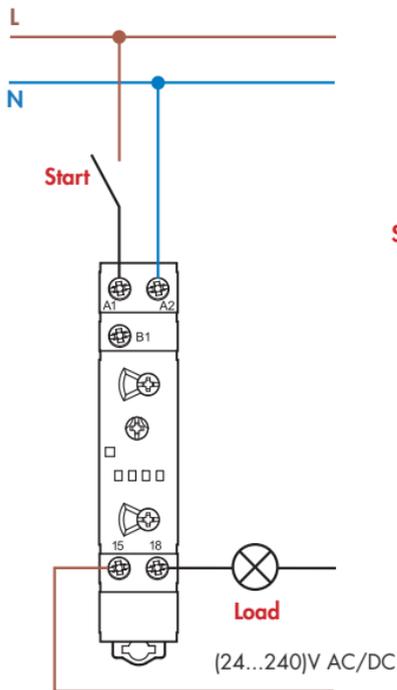


without signal
START

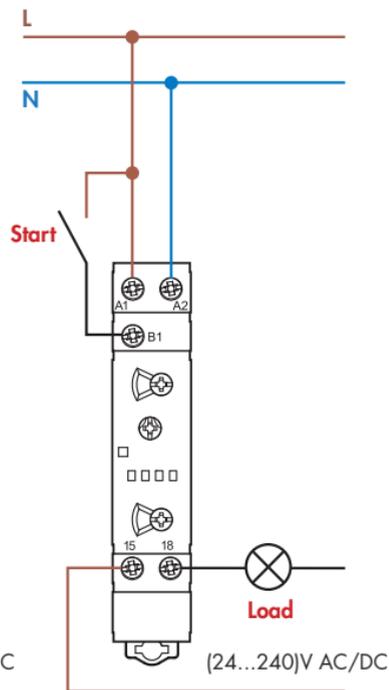


with signal
START

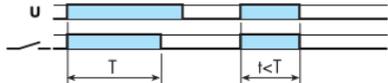
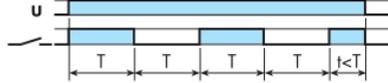
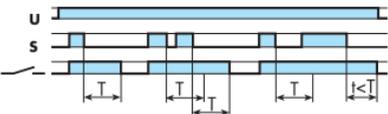
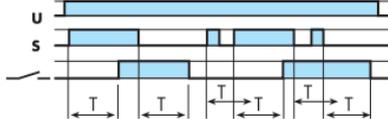
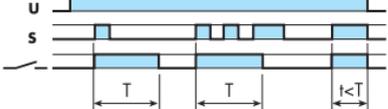
Timing function initiated by the
application of the supply voltage



Timing function initiated by
start signal to terminal B1

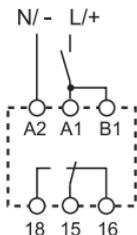


Functions

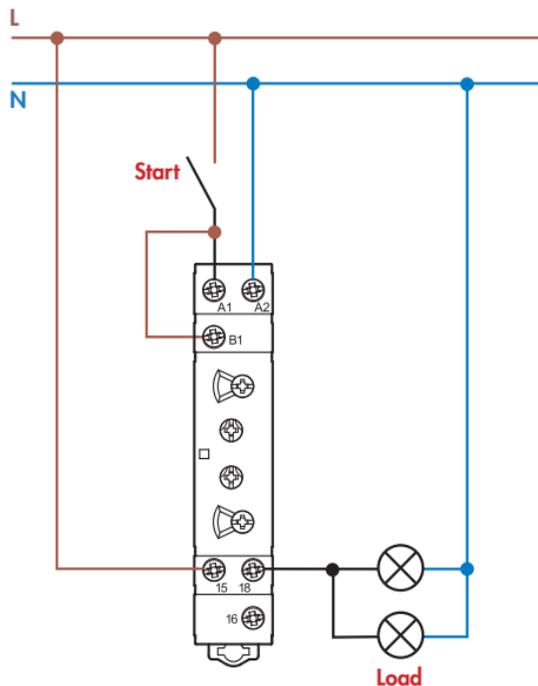
U = Supply voltage	S = External Start	 = Output contact
	<p>(AI) On-delay Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.</p>	
	<p>(DI) Interval Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.</p>	
	<p>(SW) Symmetrical flasher (starting pulse on) Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).</p>	
	<p>(BE) Off-delay with control signal Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.</p>	
	<p>(CE) On- and off-delay with control signal Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.</p>	
	<p>(DE) Interval with control signal on Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.</p>	



Type 80.91
Asymmetrical recycling timer - ON start
 - 1 CO, 16 A 250 V AC
 - Supply voltage: AC or DC
 - 35 mm rail (EN 60715) mount

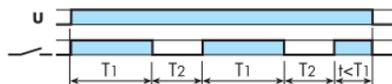


Timing function initiated by the application of supply voltage



Functions

U = Supply voltage = Output contact



(L) Asymmetrical flasher (starting pulse on)

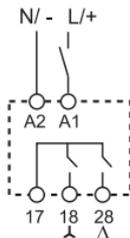
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ON (T1) and OFF (T2) times are independently adjustable.



Type 80.82

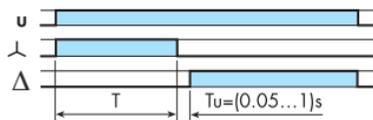
Star-Delta timer

- 2 NO, 6 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Functions

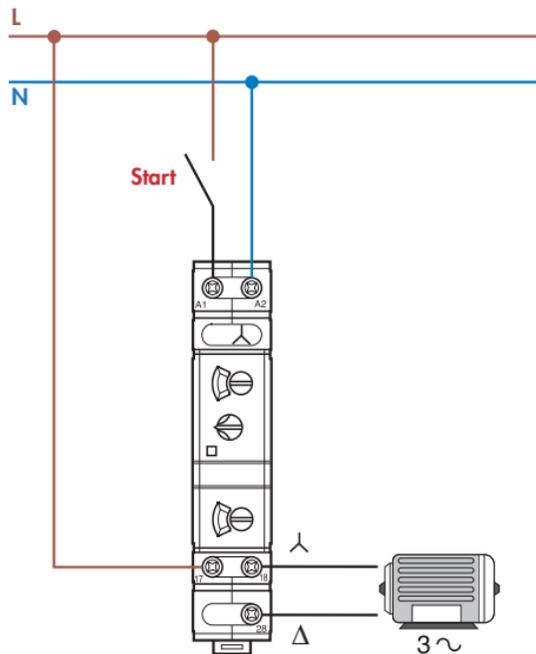
U = Supply voltage



(SD) Star-delta

Apply power to timer. The star contact (∧) closes immediately. After preset delay has elapsed the star contact (∧) resets. After a further transfer time variable from $[0.05 \dots 1]s$ the delta contact (Δ) closes and remains in that position, until reset on power off.

Timing function initiated by the application of supply voltage

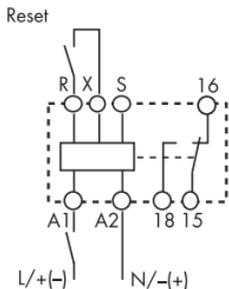




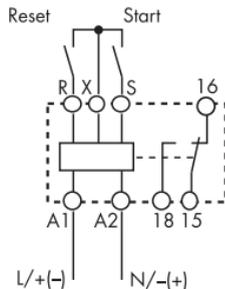
Type 81.01

Multi-function and multi-voltage timer

- 1 CO, 16 A 250 V AC
- Supply voltage: AC or DC
- 35 mm rail (EN 60715) mount



Wiring diagram
(Supply START)

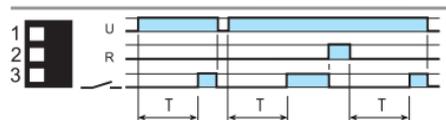


Wiring diagram
(Signal START)

Time range setting	(0.1...1)s	(1...10)s	(10...60)s	(1...10)min	(10...60)min	(1...10)h
1						
2						
3						
4						
5						
6						

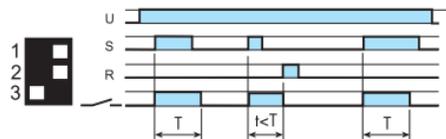
NOTE: time range and function must be set before energising the timer.

RESET function (R)



Supply START; ON delay function

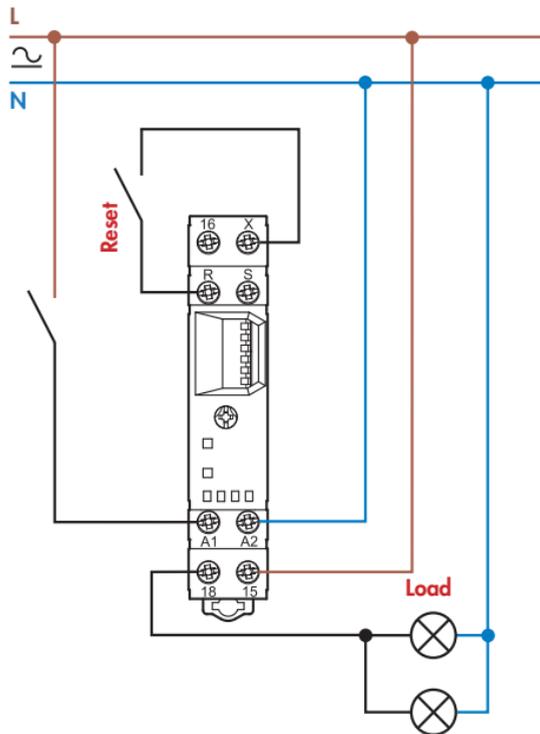
Closing the external reset switch immediately resets the timer. Opening the reset switch re-initiates the timing function.



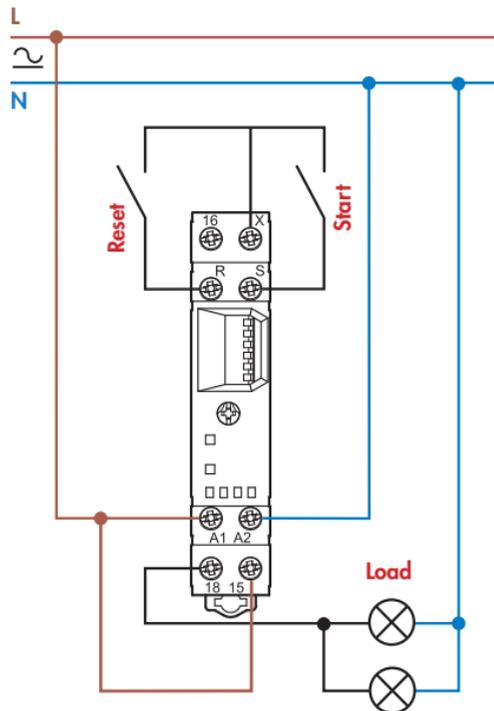
Signal START; ON pulse function.

Closing the external reset switch terminates the interval time and resets the timer. To re-start, it is necessary to open the reset switch, before closing the signal START contact.

Application of the supply voltage initiates timing



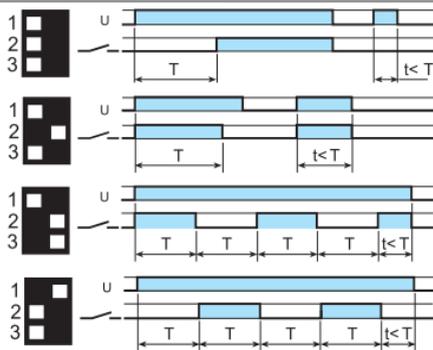
Remote Start contact initiates timing



Functions

U = Supply voltage

= Output contact



(AI) On-delay

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.

(DI) Interval

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

(SW) Symmetrical flasher (starting pulse on)

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

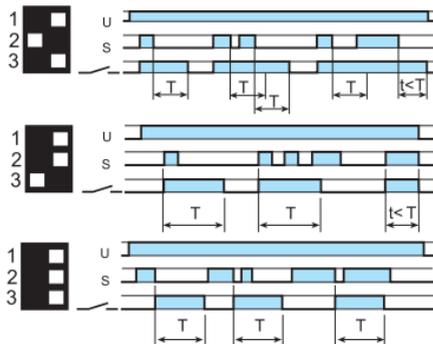
(SP) Symmetrical flasher (starting pulse off)

Apply power to timer. First transfer of contact occurs after preset time has elapsed. The timer now cycles between OFF and ON as long as power is applied. The ratio is 1:1 (time on = time off).

U = Supply voltage

S = External Start

= Output contact



(BE) Off-delay with control signal

Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.

(DE) Interval with control signal on

Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

(EE) Interval with control signal off

Power is permanently applied to the timer. On opening of the Signal Switch (S) the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.



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