

13.81 - Electronic step relay - Rail mount - 1 Pole

13.91 - Electronic step relay and timing step relay

Switch box mount - 1 Pole

- Fixed time (10 minutes) timing function selectable (13.91)
- Use with 3 or 4 wire connection, with automatic recognition by the relay
- Control input can be continuously applied
- Longer mechanical and electrical life, and much quieter than electromechanical step relays
- "Zero crossing" load switching
- Can be mounted behind blanking plates, as widely used in residential wiring systems such as; BTicino: Axolute, Matix, Living and Magic, Gewiss: GW24, Vimar: Plana and Idea ... (13.91)
- 35 mm rail (EN 60715) mount (13.81)
- Cadmium free contact material

13.81/91

Screw terminals



For outline drawing see page 10

Contact specification

Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	16/30 (120 - 5 ms)	10/20 (80 - 5 ms)
Rated voltage/Maximum switching voltage	V AC	230/—	230/—
Rated load AC1	VA	3700	2300
Rated load AC15 (230 V AC)	VA	750	450
Nominal lamp rating:			
230 V incandescent/halogen W		3000	1000
fluorescent tubes with electronic ballast W		1500	500
fluorescent tubes with electromechanical ballast W		1000	350
CFL W		600	300
230 V LED W		600	300
LV halogen or LED with electronic ballast W		600	300
LV halogen or LED with electromechanical ballast W		1500	500
Minimum switching load	mW (V/mA)	1000 (10/10)	1000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	V DC	—	—
Rated power	V A (50 Hz)/W	3/1.2	2/1
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	—

Technical data

Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³
Maximum impulse duration		continuous	continuous
Dielectric strength between:			
open contacts V AC		1000	1000
supply - contacts V AC		—	—
Ambient temperature range	°C	-10...+60	-10...+50
Protection category		IP 20	IP 20

Approvals (according to type)



13.81



- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

13.91



- 1 NO (SPST-NO)
- Step relay and timing step relay (10 minutes)
- For mounting within residential switch boxes

**13.01 - Electronic step/monostable relay
Rail mount - 1 Pole****13.61 - Multifunction step/monostable relay
with reset command - Rail mount 1 Pole**

- Selectable Step or Monostable operation (13.01)
- Multifunction (Step, Timing step, Monostable, Light ON) (13.61)
- Reset feature, for centralized off command (13.61)
- Set feature, for centralized on command (13.61.0.024)
- Control input can be continuously applied
- Longer mechanical and electrical life, and much quieter than electromechanical step relays
- 12...24 V AC/DC and 110...240 V AC supply versions (13.61)
- Suitable for SELV applications and available also for supply 12 and 24 V AC/DC (13.01)
- "Zero-crossing" load switching (13.61)
- 35 mm rail (EN 60715) mount
- Cadmium free contact material

13.01/61

Screw terminals



For outline drawing see page 10

Contact specification

Contact configuration		1 CO (SPDT)	1 CO	1 NO
Rated current/Maximum peak current	A	16/30 (120 A - 5 ms)	16/30 (120 A - 5 ms)	16/30 (120 A - 5 ms)
Rated voltage/ Maximum switching voltage	V AC	250/400	250/400	250/400
Rated load AC1	VA	4000	4000	4000
Rated load AC15 (230 V AC)	VA	750	750	750
Nominal lamp rating:				
230 V incandescent/halogen W		2000	2000	3000
fluorescent tubes with electronic ballast W		1000	1000	1500
fluorescent tubes with electromechanical ballast W		750	750	1000
CFL W		400	400	600
230 V LED W		400	400	600
LV halogen or LED with electronic ballast W		400	400	600
LV halogen or LED with electromechanical ballast W		800	800	1500
Minimum switching load	mW (V/mA)	1000 (10/10)	1000 (10/10)	1000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂	AgSnO ₂

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	110...125	230...240	—	110...240
	V DC/AC (50/60 Hz)	12	24	12...24	—
Rated power AC/DC	V A (50/60 Hz)/W	2.5/2.5	—	1/0.5	3.2/1
Operating range	V AC (50 Hz)	90...130	184...253	—	90...264
	V DC/AC (50 Hz)	10.8...13.2	20.6...33.6	10.2...26.4	—

Technical data

Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³	100 · 10 ³
Maximum impulse duration		continuous	continuous	continuous
Dielectric strength between:	open contacts V AC	1000	1000	1000
	supply - contacts V AC	4000	2000	2000
Ambient temperature range	°C	-10...+60	-10...+60	-10...+60
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)**13.01**

- 1 CO (SPDT)
- Step or monostable relay
- 35 mm rail (EN 60715) mount
- 35 mm wide

NEW

13.61.0.024.0000

- 1 CO (SPDT)
- Reset feature, for centralized off command
- Set feature, for centralized on command
- Multifunction:
 - step relay
 - timing step relay
 - monostable relay
 - light on
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

13.61.8.230.0000

- 1 NO (SPST-NO)
- Reset feature, for centralized off command
- Multifunction:
 - step relay
 - timing step relay
 - monostable relay
 - light on
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

13.11 - Call & Reset Relay - Rail mount - 1 Pole**13.12 - Call & Reset Relay - Rail mount - 2 Pole****13.31 - Electromechanical monostable relay
Switch box mount - 1 Pole**

- Call relay with reset command suitable for residential and commercial applications: public bathroom, hospital, hotel (type 13.11/13.12)
- Can be mounted behind blanking plates, as widely used in residential wiring systems such as; BTicino: Axolute, Matix, Living e Magic, Gewiss: GW24, Vimar: Plana e Idea ... (13.31)
- 35 mm rail (EN 60715) or flange mount (13.11 and 13.12)
- Cadmium free contact material (13.31)

13.11/12/31
Screw terminals

**13.11**

- 1 CO (SPDT)
- Call relay with reset command
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

13.12

- 1 CO (SPDT) + 1 NO (SPST-NO)
- Call relay with reset command
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

13.31

- 1 NO (SPST-NO)
- Interposing monostable relay
- For mounting within residential switch boxes

* During impulse only.

For outline drawing see page 10

Contact specification

Contact configuration		1 CO (SPDT)	1 CO (SPDT) + 1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	12/30	8/15	12/20 (80 A - 5 ms)
Rated voltage/ Maximum switching voltage	V AC	250/400	250/400	250/400
Rated load AC1	VA	3000	2000	3000
Rated load AC15 (230 V AC)	VA	750	400	450
Nominal lamp rating:				
230 V incandescent/halogen W		1200	800	800
fluorescent tubes with electronic ballast W		500	300	400
fluorescent tubes with electromechanical ballast W		400	250	300
CFL W		300	150	200
230 V LED W		300	150	200
LV halogen or LED with electronic ballast W		300	150	200
LV halogen or LED with electromechanical ballast W		500	300	400
Minimum switching load	mW (V/mA)	500 (5/5)	300 (5/5)	1000 (10/10)
Standard contact material		AgCdO	AgCdO	AgSnO ₂

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	230...240	12 - 24	12 - 230
	V DC	—	12 - 24	24
Rated power AC/DC	V A (50 Hz)/W	1.7/0.7*	3/2.5*	1/0.4
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	(0.8...1.1)U _N	(0.8...1.1)U _N

Technical data

Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³	70 · 10 ³
Maximum impulse duration		10 s (100 ms minimum)	10 s (100 ms minimum)	continuous
Dielectric strength between:	open contacts V AC	1000	1000	1000
	supply - contacts V AC	2000	2000	2000
Ambient temperature range	°C	-10...+60	-10...+60	-10...+60
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)

Ordering information

Example: 13 series, electronic step/monostable relay, 35 mm rail (EN 60715) mount, 1 CO (SPDT) 16 A contact, 230 V AC supply.

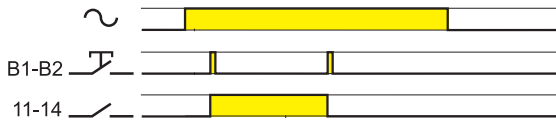
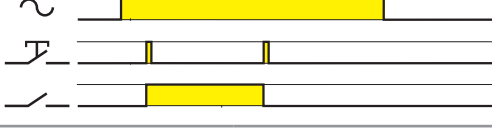
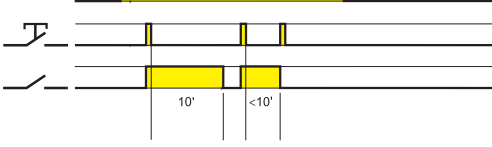
	1	3	.	0	1	.	8	.	2	3	0	.	A	B	C	D
Series	13.0				1.8				230				0000			
Type	0 = Step/Monostable, 35 mm rail (EN 60715) mount, 35 mm wide 1 = Call & Reset relay, 35 mm rail (EN 60715) mount, 17.5 mm wide 3 = Monostable relay, switch box mounting 6 = Multifunction relay, 35 mm rail (EN 60715) mount, 17.5 mm wide 8 = Modular step relay, 35 mm rail (EN 60715) mount, 17.5 mm wide 9 = Step relay and timing step relay, switch box mounting												A: Contact material 0 = Standard 4 = Standard AgSnO ₂ (only for 13.31) B: Contact circuit 0 = Standard 3 = Standard NO (only for 13.31)			
No. of poles					1 = 1 pole 2 = 1 pole CO (SPDT) + 1 NO (SPST-NO)											
Supply version	0 = AC (50/60 Hz)/DC 8 = AC (50/60 Hz) 9 = DC												Codes / Supply voltage 13.01.0.012.0000 12 V AC/DC 13.01.0.024.0000 24 V AC/DC 13.01.8.125.0000 110...125 V AC 13.01.8.230.0000 230...240 V AC 13.11.8.230.0000 230...240 V AC 13.12.0.012.0000 12 V AC/DC 13.12.0.024.0000 24 V AC/DC 13.31.8.012.4300 12 V AC 13.31.9.024.4300 24 V DC 13.31.8.230.4300 230 V AC 13.61.8.230.0000 110...240 V AC 13.61.0.024.0000 12...24 V AC/DC 13.81.8.230.0000 230 V AC 13.91.8.230.0000 230 V AC			
Supply voltage	012 = 12 V AC/DC (13.01 and 13.12 only) 012 = 12 V AC (13.31 only) 024 = 24 V AC/DC (13.01 and 13.12 only) 024 = 24 V DC (13.31 only) 024 = 12...24 V AC/DC (13.61 only) 125 = (110...125)V AC (13.01 only) 230 = (230...240)V AC (13.01 and 13.11) 230 = 110...240 V AC (13.61 only) 230 = 230 V AC (13.31, 13.81 and 13.91)															

Technical data

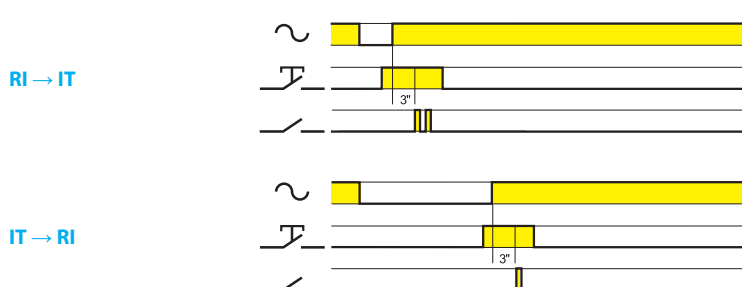
Insulation		13.01.8	13.01.0	13.11 - 13.12	13.31 - 13.61		13.81 - 13.91	
Dielectric strength								
between control circuit and supply	V AC	4000	—	—	—			—
between control circuit and contacts	V AC	4000	4000	—	—			—
between R-S-A2 and contacts	V AC	—	—	2000	—			—
between supply and contacts	V AC	4000	4000	—	2000			—
between open contacts	V AC	1000	1000	1000	1000			1000
Other data		13.01		13.11 - 13.12	13.31	13.61	13.81	13.91
Power lost to the environment								
without contact current	W	2.2		—	0.4	1	1.2	0.7
with rated current	W	3.5		1,5	1.6	1.8	2	1.8
Max cable lenght for push-button connection	m	100		100	—	200	200	100
Max. no. of illuminated push-button	(≤1mA)	—		—	—	10*	15	12
Terminals		13.01		13.11 - 13.12 - 13.31 - 13.61 - 13.81 - 13.91				
Max. wire size		solid cable	stranded cable	solid cable		stranded cable		
	mm²	1 x 6 / 2 x 4	1 x 6 / 2 x 2.5	1 x 6 / 2 x 4		1 x 4 / 2 x 2.5		
	AWG	1 x 10 / 2 x 12	1 x 10 / 2 x 14	1 x 10 / 2 x 12		1 x 12 / 2 x 14		
 Screw torque	Nm	0.8		0.8				

* For 8.230 version.

Functions

Type		
13.01		Monostable On closure of a switch between terminals (B2-B3) the output contact will close, and remain so, until the switch opens.
		Step relay (bistable) After every impulse (B1-B2), the output contact changes state - alternately switching from open to closed and vice versa.
13.11 13.12		Call and Reset relay On momentary closure of the Set switch (S), the output contact closes. Only a momentary closure of the Reset switch (R) will open the output contact.
13.81		(RI) Step relay After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.
13.91		(RI) Step relay After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.
		(IT) Timing step relay On initial impulse the output contact closes and timing starts for the pre-set duration (fixed 10 min); On expiry of the time delay, the output contact opens. During the timing period it is possible to immediately open the contact with a further impulse.

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.

Functions

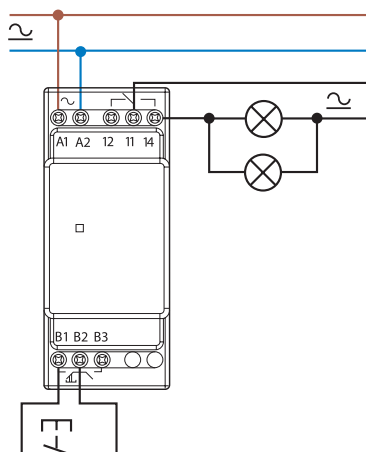
Type	Functions	
13.61.8.230		(RM) Monostable On closure of a switch between terminal 3 and Line (or Neutral, in case of 3-wire connection) the output contact will close, and remain so, until the switch opens.
		(IT) Timing step relay On initial impulse the output contact closes and timing starts for the pre-set duration T; On expiry of the time delay, the output contact opens. During the timing period it is possible to immediately open the contact with a further impulse.
		(RI) Step relay After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.
		Light ON With this function set - the output contact stays permanently closed.
13.61.0.024		(RM) Monostable On closure of a switch between terminal 3 and Line (or Neutral, in case of 3-wire connection) the output contact will close, and remain so, until the switch opens.
		(IT) Timing step relay On initial impulse the output contact closes and timing starts for the pre-set duration T; On expiry of the time delay, the output contact opens. During the timing period it is possible to immediately open the contact with a further impulse.
		(RI) Step relay After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.
		Light ON With this function set - the output contact stays permanently closed.

Wiring diagrams (13.01, 13.11, 13.12 and 13.31)

Type 13.01

Step wiring diagram

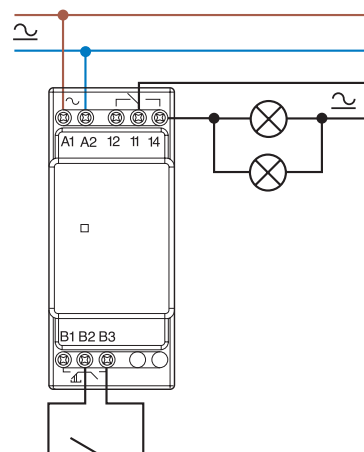
Red LED indication:
Continuous = relay ON



Type 13.01

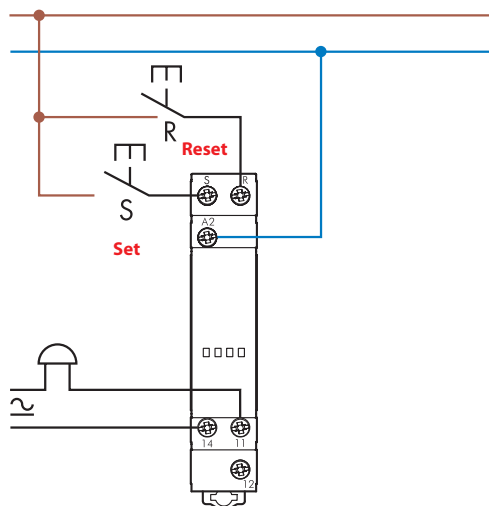
Monostable wiring diagram

Red LED indication:
Continuous = relay ON



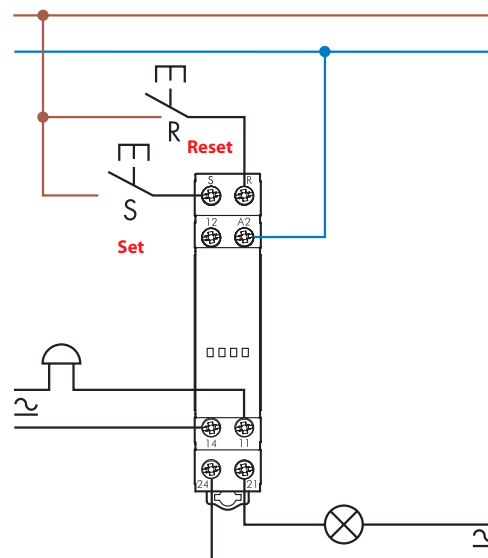
Type 13.11

Call & reset relay



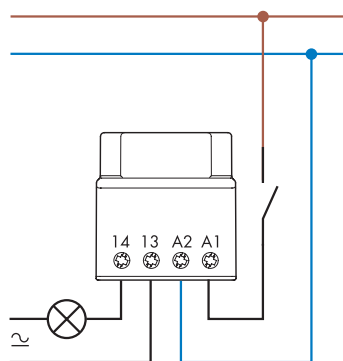
Type 13.12

Call & reset relay



Type 13.31

Connection



Wiring diagrams (13.61)

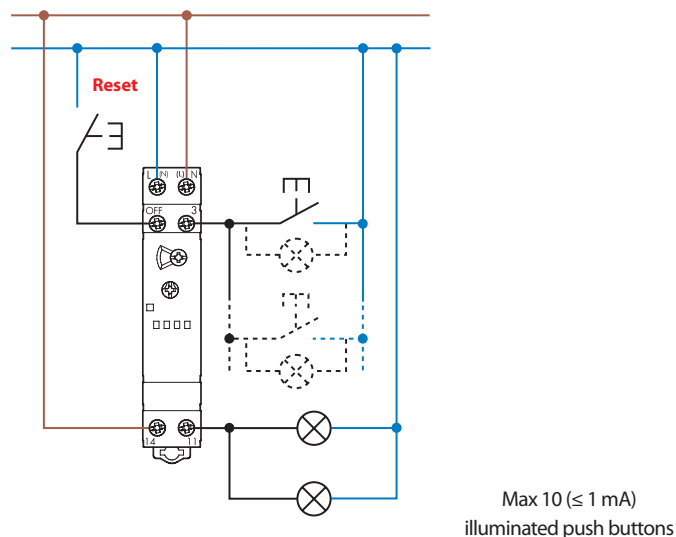
Type 13.61.8.230

3 wire connection

Red LED indication:

Continuous = relay ON

Blinking = relay OFF



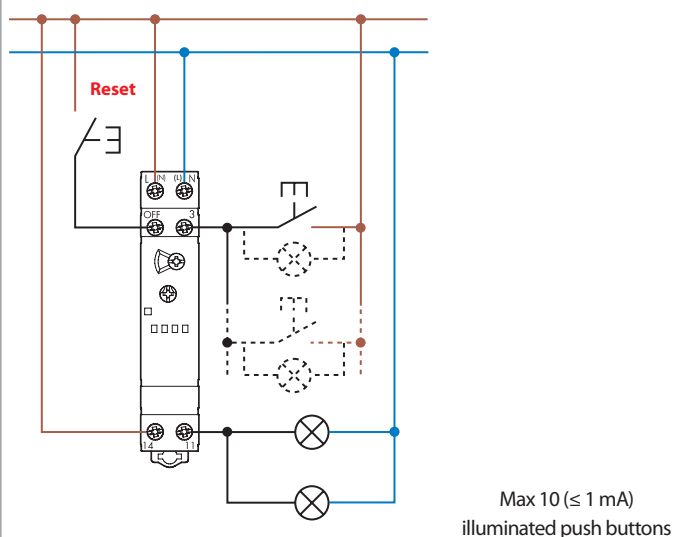
Type 13.61.8.230

4 wire connection

Red LED indication:

Continuous = relay ON

Blinking = relay OFF



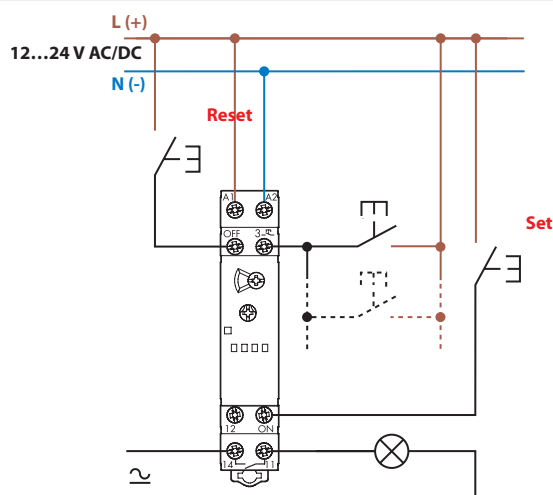
Type 13.61.0.024

4 wire connection

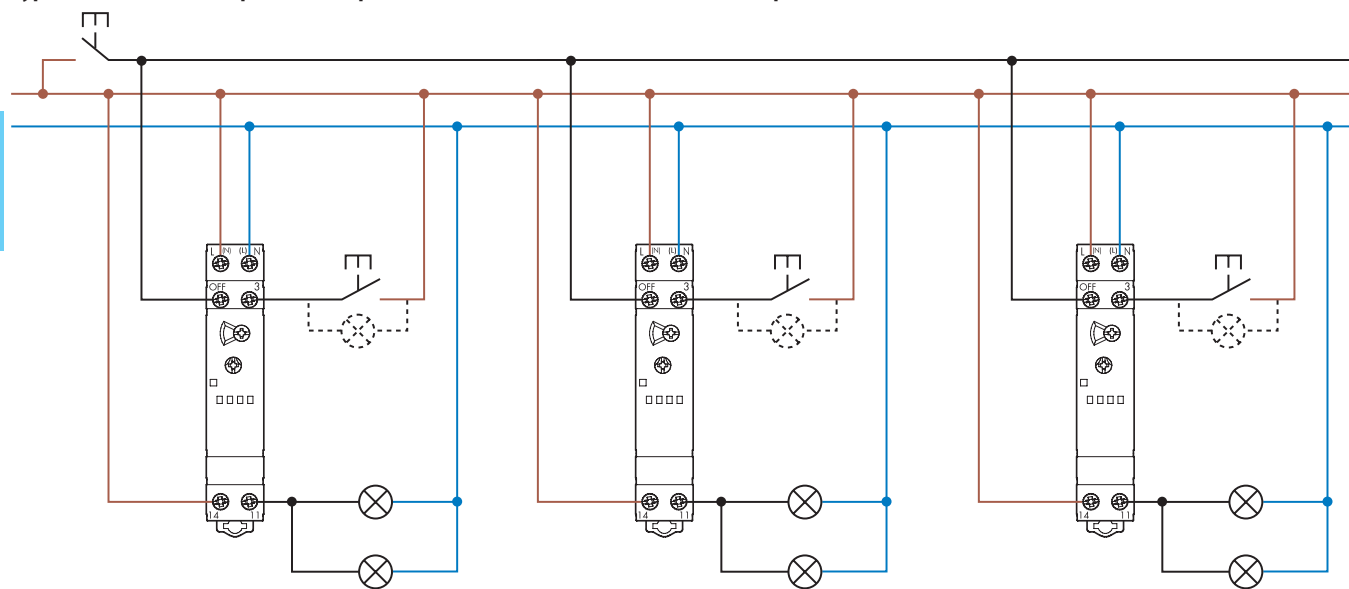
Red LED indication:

Continuous = relay ON

Blinking = relay OFF



Type 13.61.8.230 - Examples of multiple 4 wire connection with centralized reset pushbutton



Wiring diagrams (13.81 and 13.91)

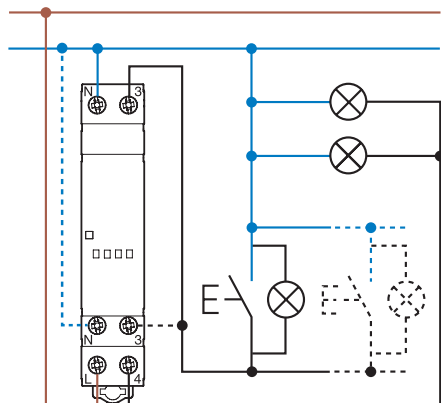
Type 13.81

3 wire connection

Red LED indication:

Continuous = relay ON

Blinking = relay OFF



Max 15 (≤ 1 mA)
illuminated push buttons

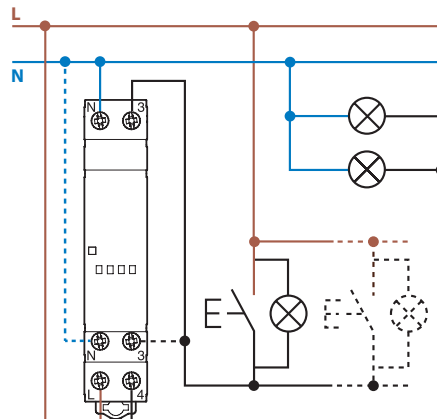
Type 13.81

4 wire connection

Red LED indication:

Continuous = relay ON

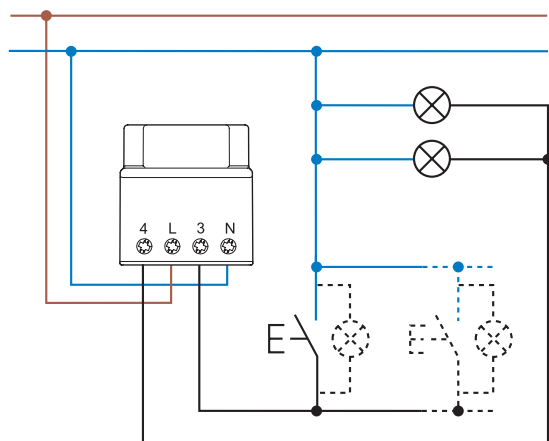
Blinking = relay OFF



Max 15 (≤ 1 mA)
illuminated push buttons

Type 13.91

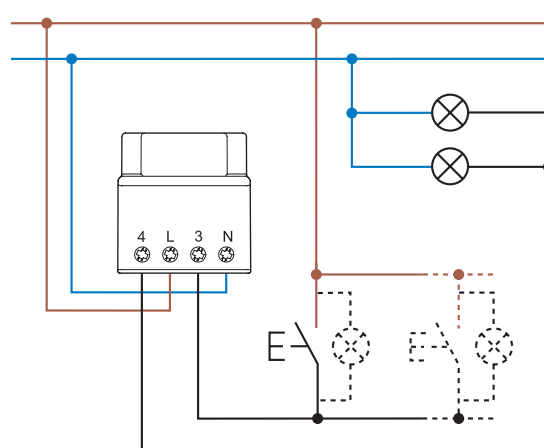
3 wire connection



Max 12 (≤ 1 mA)
illuminated push buttons

Type 13.91

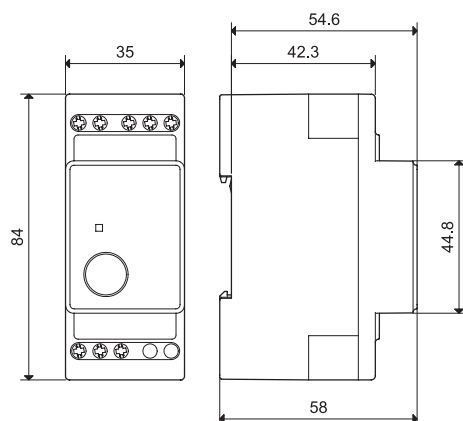
4 wire connection



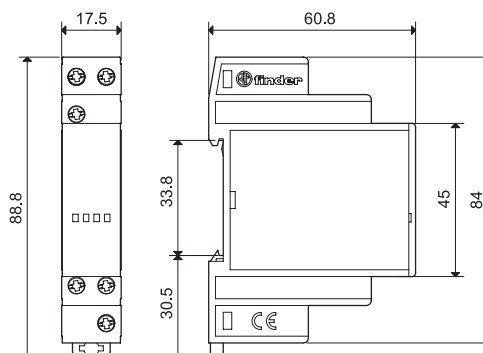
Max 12 (≤ 1 mA)
illuminated push buttons

Outline drawings

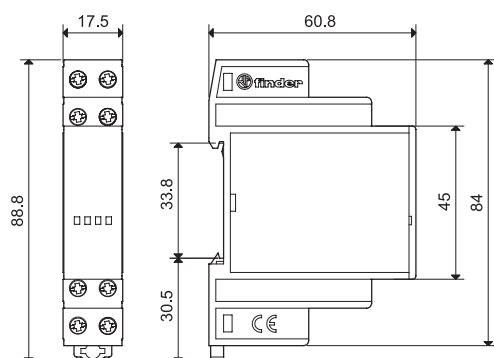
13.01
Screw terminal



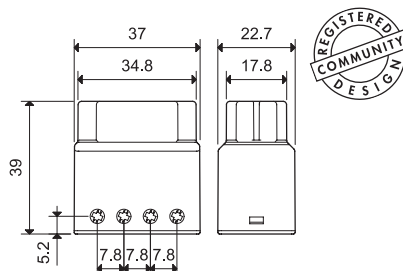
13.11
Screw terminal



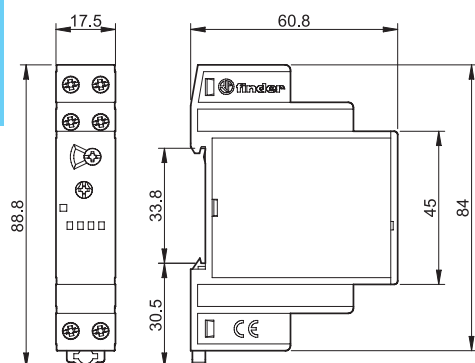
13.12
Screw terminal



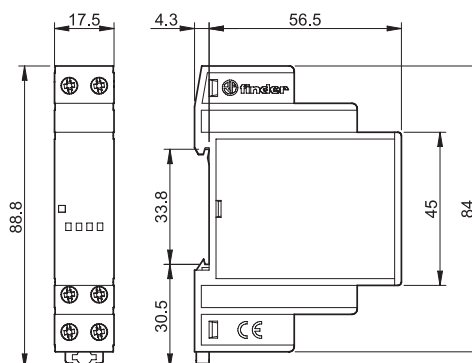
13.31/13.91
Screw terminal



13.61
Screw terminal



13.81
Screw terminal



Accessories



011.01

Adaptor for panel mounting, for type 13.01, 35 mm wide

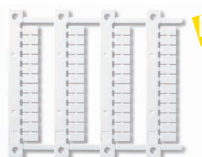
011.01



020.01

Adaptor for panel mounting, for type 13.11, 13.12, 13.61 and 13.81, 17.5 mm wide

020.01



060.48

NEW

Sheet of marker tags (CEMBRE Thermal transfer printers) for relays types 13.11, 13.12, 13.61 and 13.81 (48 tags), 6 x 12 mm

060.48

