

## Features

### Electronic step relay and dimmer for control of lighting levels

- Suitable for incandescent and halogen lighting loads (with or without transformer or electronic supply)
- Version compatible with energy saving (CFL or LED) dimmable lamps and with all types of electromagnetic transformers, even under no-load conditions (15.81)
- Use with 3 or 4 wire connection
- "Soft" On and Off transitions
- Two selectable operating modes: with or without previous light level memory
- Step (15.51/15.61) or linear (15.51/15.61/15.81) dimming
- Thermal protection against overload
- Self resetting thermo-fuse for extreme protection (15.81)
- 230 V AC supply, 50 or 60 Hz versions (15.51/15.61)
- 230 V AC supply, 50/60 Hz with automatic recognition of frequency (15.81)

Screw terminal



For outline drawing see page 6

### Output data

Rated voltage	V AC	230	230	230
Power max.	W	400	500	500
Power min.	W	10	5	3
230 V lamps rating:				
incandescent lamps	W	400	500	500 (1)
HV halogen lamps	W	400	500	500 (1)
toroidal electromagnetic transformers for				
low voltage halogen lamps	W	300 (2)	500 (3)	500 (4)
E core electromagnetic transformers for				
low voltage halogen lamps	W	—	—	500 (4)
electronic transformers (ballasts) for LV				
low voltage halogen lamps	W	400 (5)	500 (6)	500 (1)
dimmable compact fluorescent lamps (CFL)	W	—	—	100 (7)
dimmable LED lamps	W	—	—	100 (7)

### Supply specifications

Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	230 (8)	230 (8)	230
Operating range		(0.8...1.1)U <sub>N</sub>	(0.8...1.1)U <sub>N</sub>	(0.8...1.1)U <sub>N</sub>
Stand-by power consumption	W	≤ 1	≤ 0.8	≤ 0.8

### Technical data

Ambient temperature range	°C	-10...+50 (9)	-10...+50 (10)	-10...+50 (10)
Protection category		IP 20	IP 20	IP 20

### Approvals (according to type)



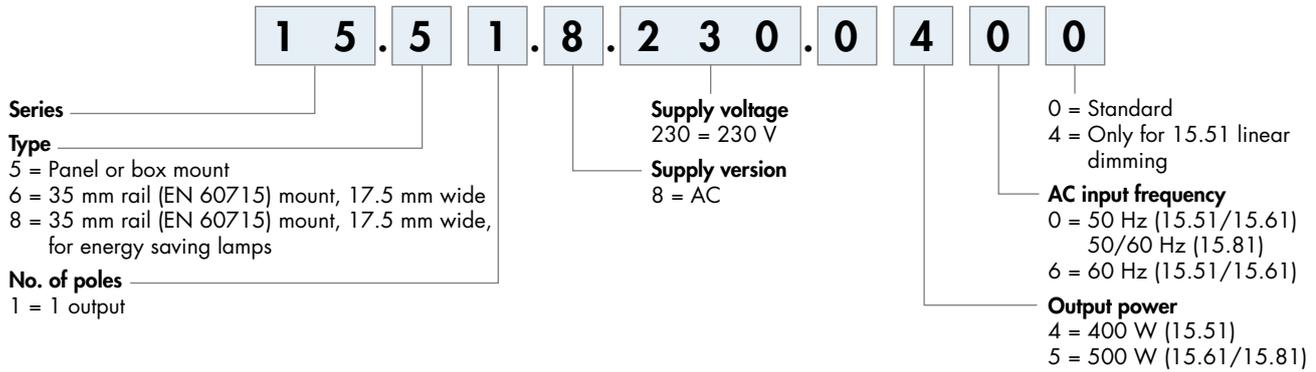
### Note

- (1) select "incandescent lamp" (⚡) position on the front selector
- (2) one transformer only. Power-up only with the lamp load connected
- (3) one or two transformers. Power-up only with the lamp load connected
- (4) select "transformer" (⚡) position on the front selector. Preferably, no more than 2 transformers
- (5) one transformer only
- (6) one or two transformers
- (7) select "CFL" (⚡) position on the front selector, and set the appropriate minimum dimming value (dependent on lamp type)
- (8) specific 60 Hz version available (see ordering information)
- (9) it is not recommended to mount more than one dimmers in the same wall box, unless adequate ventilation is provided or the lamp load is less than 100 W
- (10) with lamp load > 300 W, adequate ventilation must be provided - a gap of 5 mm on both side of the dimmer is suggested

Not compatible with illuminated push-buttons.

## Ordering information

Example: type 15.51, electronic step relay and dimmer, 230 V AC.



### Codes

- 15.51.8.230.0400 step dimming
- 15.51.8.230.0404 linear dimming
- 15.51.8.230.0460 step dimming, 60Hz
- 15.61.8.230.0500 step and linear dimming
- 15.61.8.230.0560 step and linear dimming, 60Hz
- 15.81.8.230.0500 linear dimming, 50/60Hz

## Technical data

EMC specifications			15.51	15.61	15.81
<b>Type of test</b>		<b>Reference standard</b>			
Electrostatic discharge	contact discharge	EN 61000-4-2		4 kV	
	air discharge	EN 61000-4-2		8 kV	
Radio-frequency electromagnetic field	(80 ... 1,000 MHz)	EN 61000-4-3	3 V/m	3 V/m	3 V/m
Fast transients (burst)	on supply terminals	EN 61000-4-4	4 kV	2 kV	4 kV
	on pushbutton connection	EN 61000-4-4	4 kV	2 kV	4 kV
Surges (1.2/50 µs)	on supply terminals	EN 61000-4-5	2 kV	2 kV	2 kV
Radiofrequency common mode voltage	on supply terminals	EN 61000-4-6	3 V	3 V	3 V
	on pushbutton connection	EN 61000-4-6	3 V	3 V	3 V
Radiofrequency conducted emissions	0.15...30 MHz	EN 55014	class B		
Radiated emissions	30...1,000 MHz	EN 55014	class B		
<b>Terminals</b>		<b>solid cable</b>	<b>stranded cable</b>		
Max. wire size	mm <sup>2</sup>	1 x 6 / 2 x 6	1 x 6 / 2 x 4		
	AWG	1 x 10 / 2 x 10	1 x 10 / 2 x 12		
Screw torque	Nm	0.8			
Wire strip length	mm	9			
<b>Other data</b>			<b>15.51</b>	<b>15.61</b>	<b>15.81</b>
Power lost to the environment	without load	W	0.7	0.8	0.5
	with rated load	W	2.2	2.4	2.6
Max cable length for push-button connection	m		100	100	100

## Thermal protection and signaling

LED (15.61/15.81 types)	Supply voltage	Thermal protection
—	OFF	—
—	ON	—
—	ON	ALARM

### ALARM

The internal thermal protection will detect an unsafe temperature, due to overload or incorrect installation, and will turn the dimmer output off.

It is possible to turn the dimmer on, by push button, only when the temperature reduces to a safe level (after 1 to 10 minutes, depending on installation conditions) and after removing the cause of the overload.

## Functions (15.51/15.61 types)

Type	Setting	Step dimming
15.51...0400	see "Operating mode setup"	<b>Operating mode 1 (with memory):</b> the previous light level is memorized.
15.61	1(M)	<p><b>Long control pulse:</b> The light level is progressively raised or lowered through a maximum of 10 incremental steps.</p> <p><b>Short control pulse:</b> Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.</p>
15.51...0400	see "Operating mode setup"	<b>Operating mode 2 (without memory):</b> on switch off, the light level is not memorized.
15.61	2(M)	<p><b>Long control pulse:</b> The light level is progressively raised or lowered through a maximum of 10 incremental steps.</p> <p><b>Short control pulse:</b> Alternately switches On or Off between the maximum light level and the off state.</p>
15.51...0404	see "Operating mode setup"	<b>Operating mode 3 (with memory):</b> the previous light level is memorized.
15.61	3(M)	<p><b>Long control pulse:</b> The light level is progressively raised or lowered.</p> <p><b>Short control pulse:</b> Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.</p>
15.51...0404	see "Operating mode setup"	<b>Operating mode 4 (without memory):</b> on switch off, the light level is not memorized.
15.61	4(M)	<p><b>Long control pulse:</b> The light level is progressively raised or lowered.</p> <p><b>Short control pulse:</b> Alternately switches On or Off between the maximum light level and the off state.</p>

## Operating mode setup

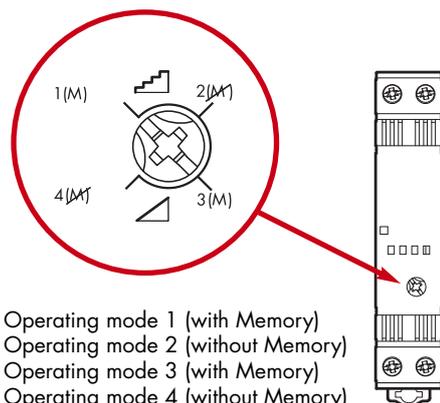
### Type 15.51

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.

### Type 15.61

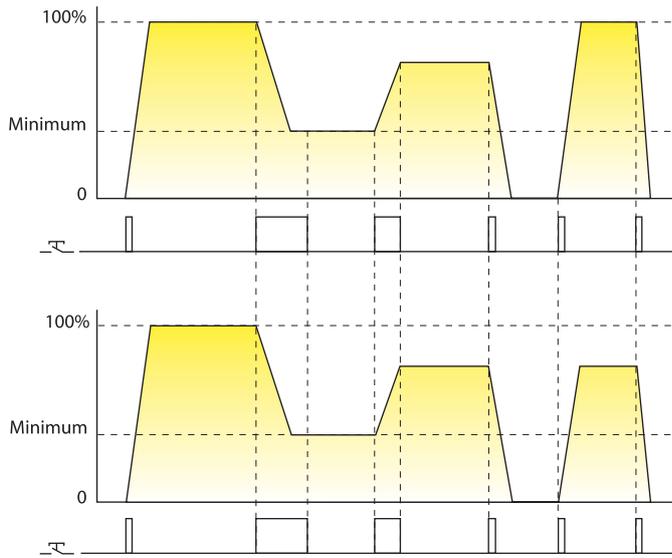
On **15.61** it is possible to select the required operating mode 1, 2, 3 or 4 using the front selector.



- 1(M) = Operating mode 1 (with Memory)
- 2(M) = Operating mode 2 (without Memory)
- 3(M) = Operating mode 3 (with Memory)
- 4(M) = Operating mode 4 (without Memory)

## Functions (15.81 type)

15.81



**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

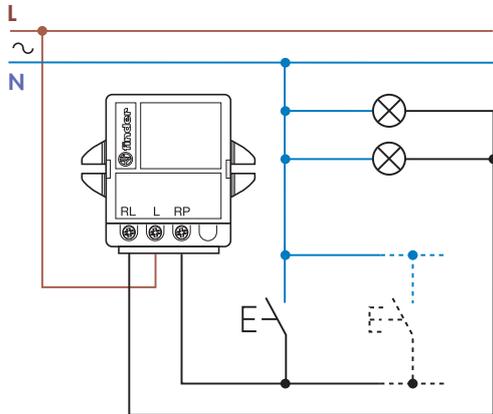
**Short control pulse:** Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

Type of load	Selector setting		Regulator setting
	With memory (M)	Without memory (M)	
<ul style="list-style-type: none"> <li>Incandescent lamps</li> <li>230 V halogen lamps</li> <li>12/24 V halogen lamps with electronic transformer/ballast</li> </ul>			<p>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.</p>
<ul style="list-style-type: none"> <li>Dimmable compact fluorescent lamps (CFL)</li> <li>Dimmable LED lamps</li> </ul>			<p>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.</p>
<ul style="list-style-type: none"> <li>12/24 V halogen lamps with toroidal or E-core electromagnetic transformer</li> </ul>			<p>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.</p>

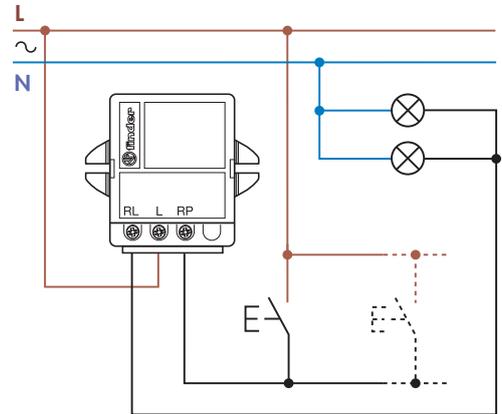
## Wiring diagrams

**Note:** remember to maintain a ground/earth connection for class 1 lamps.

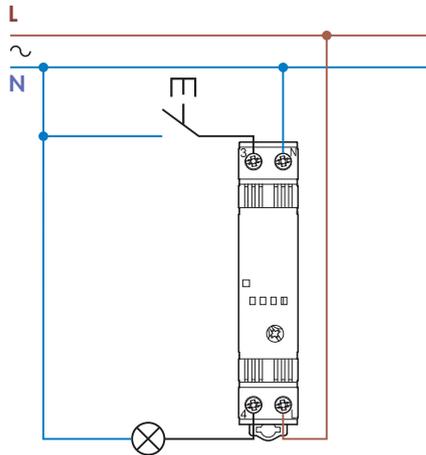
**Type 15.51 - 3 wire connection**



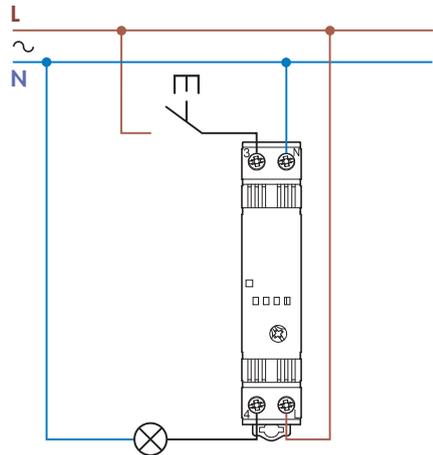
**Type 15.51 - 4 wire connection**



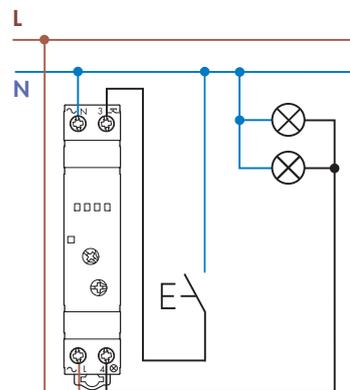
**Type 15.61 - 3 wire connection**



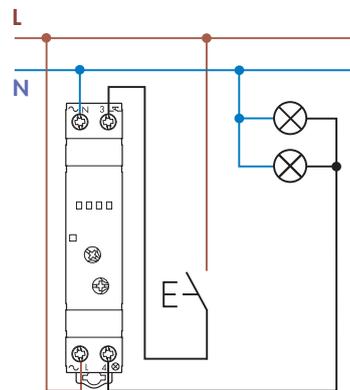
**Type 15.61 - 4 wire connection**



**Type 15.81 - 3 wire connection**

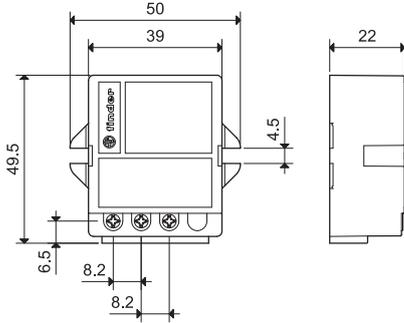


**Type 15.81 - 4 wire connection**

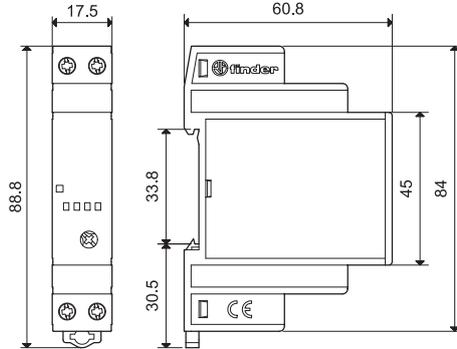


## Outline drawings

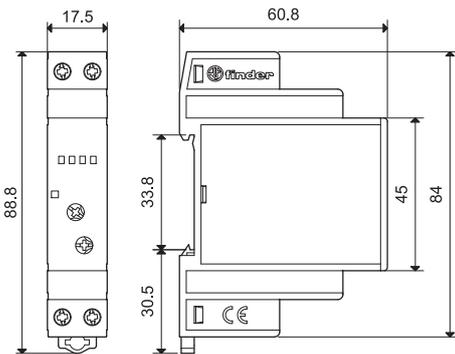
15.51  
Screw terminal



15.61  
Screw terminal



15.81  
Screw terminal

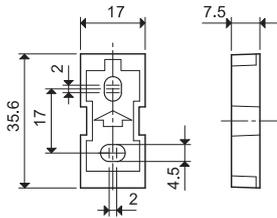


## Accessories



020.01

**Adaptor for panel mounting** for type 15.61/15.81, plastic, 17.5 mm wide | 020.01



060.72

**Sheet of marker tags** for type 15.61/15.81, plastic, 72 tags, 6x12 mm | 060.72



020.03

**Separator for panel mounting** for type 15.61/15.81 | 020.03

