1473-1-7979 | | 14.06.2012

LED dimmer

LED dimmer
6523 U- ...

Power and productivity
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1 Safety

Warning

Electric voltage!
Risk of death and fire due to electrical voltage of 230 V.
– Work on the 230V supply system may only be performed by authorised electricians!
– Disconnect the mains power supply prior to installation and/or disassembly!

2 Intended use

The LED dimmer is used for light control in connection with rotary dimmer control elements.
The LED dimmer is a phase-angle dimmer and is used to switch and dim all lamps listed in the "Load types" chapter on page 5, especially LEDi loads (LED lamps with an integrated ballast).

3 Environment

Consider the protection of the environment!
Used electric and electronic devices must not be disposed of with domestic waste.
– The device contains valuable raw materials which can be recycled. Therefore, dispose of the device at the appropriate collecting depot.

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.
The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.
(EU Directive 2002/96/EC WEEE and 2002/95/EC RoHS)
(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006)

4 Technical data

General	
Nominal voltage:	230 V~ ±10%, 50 / 60 Hz
Nominal power: (dependent on ambient temperature)	100 W/VA
Back-up fuse:	electronic
Overload protection:	electronic
Ambient temperature range:	0° C – +35° C
Protective class:	IP 20
Terminal 4:	Maximum 100 mA

Permissible loads	
Dimmable retrofit LEDi, 230 V~	
Min./max. load	2 W/VA, 25 W/VA[1]
Minimum current	8 mA
Maximum number	20
Halogen lamps, 230 V~	
Min./max. load	10 W, 100 W
Minimum current	43 mA
Dimmable retrofit LEDi, 12 V~	
Min./max. load	4 W/VA, 25 W/VA[1]
Minimum current	16 mA
Maximum number	20
Dimmable energy-saving lamps	
Min./max. load	10 W, 100 W
Minimum current	43 mA
Incandescent lamps, 230 V~	
Min./max. load	10 W, 100 W
Minimum current	43 mA

1) Connection load for LEDi loads
Above a connection load of 25 W/VA, suitable measures must be taken to increase the connection load to a maximum of 100 VA, for example, through the use of harmonic wave filters, in case of a connection of LEDi according to IEC 61000-3-2.

5 Setup and function

5.1 Load types

The device is intended for the activation and dimming of the following types of loads:

 230 V~	Halogen lamps, 230 V~
 230 V~	Incandescent lamps, 230 V~
 230 V~	Dimmable halogen energy-saving lamps [2]
 **LEDi** 230 V~	Dimmable retrofit LED lamps (LEDi) 230 V.
 **LEDi**	Dimmable low-voltage retrofit LED lamps (LEDi) on conventional or electronic transformers (L, LC) [1]
	Dimmable low-voltage halogen lamps with conventional transformers or electronic transformers (L, LC) [1]

The operation of mixed loads is permitted.

1) Use only L or LC transformers. Pure C transformers are not permitted.
If transformers are used, the specification of the respective manufacturers must be observed. In particular, observe the information regarding the minimum load.

2) Use only energy-saving lamps that are labelled as dimmable.

Note
The device has been optimised for dimming of Philips retrofit LED lamps (LEDi).

5.2 Possible combinations

	 **6523 U**
 2115-21x	X
 3855	X
 6540-xxx	X

6 Reduction of the connection load (derating)

The dimmer heats up during operation because part of the connected load is lost and converted into heat. The specified rated power is designed for dimmer installation in a solid masonry wall.
When installing the dimmer in a wall made of gas concrete, wood, or plasterboard, the maximum connection load must be reduced by 20%.
The connected load must always be reduced when several dimmers are installed one below the other or when other heat sources cause additional heating. In intensely heated-up rooms, the maximum connected load must be reduced according to the diagram.

Use the following formula for the calculation of the nominal power:

Nominal power = transformer losses* + lamp power

* 5% of the nominal transformer power in the case of electronic transformers
* 20% of the nominal transformer power in the case of conventional transformers

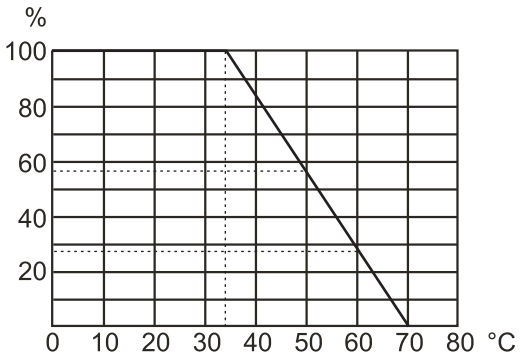

Fig. 1: Derating

Unit	Meaning
%	Nominal power
°C	Ambient temperature

7 Installation and electrical connection

Warning

Electric voltage!
Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.
- Low-voltage and 230 V lines must not be installed together in a flush-mounted socket!

Warning

Electric voltage!
The upstream fuse must be disconnected when working on the lighting system.

7.1 Requirements for the electrician

Warning

Electric voltage!
Install the device only if you have the necessary electrical engineering knowledge and experience.
- Incorrect installation endangers your life and that of the user of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:
- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
  1. Disconnect from power;
  2. Secure against being re-connected;
  3. Ensure there is no voltage;
  4. Connect to earth and short-circuit;
  5. Cover or barricade adjacent live parts.
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the supply network type (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

7.2 Mounting

The device must only be installed in suitable flush-mounted sockets (DIN 49073-1).

7.3 Electrical connection

Caution

Risk of damaging the device due to overheating!

- When using transformers, ensure that each transformer is fused individually on the primary side or with a thermal fuse according to the manufacturer's specifications.
- Use exclusively wound safety isolating transformers according to DIN VDE 61558.

Caution

Overheating of cables!

Excessive currents cause electric cables to heat up and can damage them.

- Secure terminal 4 with miniature circuit breaker "ABB S271-C".
  Or an equivalent miniature circuit breaker (0.5 A) can be used.

Terminal 4 is intended for operation with mains disconnection systems.

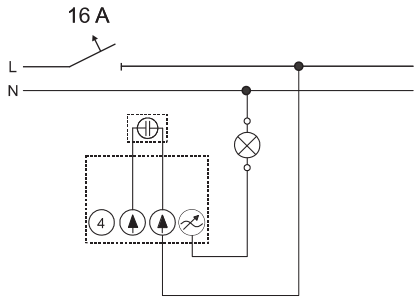

Fig. 2: Standard operation: for possible load types, see chapter "Load types“ on page 5

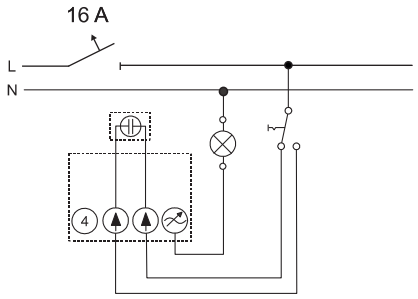

Fig. 3: Operation in a two-way circuit

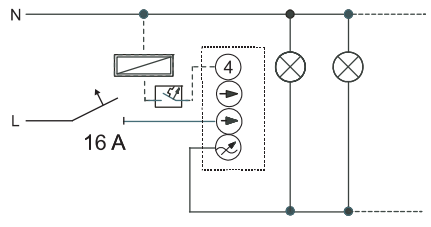

Fig. 4: Deactivation with a mains off switch

8 Commissioning

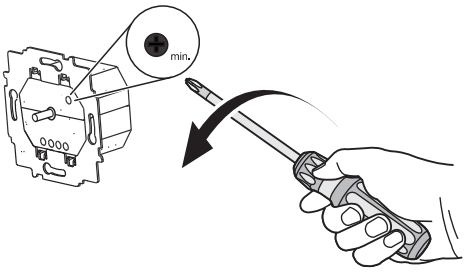

Fig. 5:

1. Set the minimum brightness on the potentiometer at the front of the device.

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