

Operating Instructions Busch-Dimmer®

Dimmer
2247-500
2247 U-500
2247 U-127-500



1	Safety.....	3
2	Intended use	3
3	Environment.....	3
4	Technical data.....	4
5	Setup and function.....	4
5.1	Features of function and equipment.....	4
5.2	Possible combinations	5
6	Reduction of the connection load (derating).....	6
7	Installation and electrical connection	7
7.1	Requirements for the electrician	7
7.2	Mounting	8
7.3	Electrical connection	9
7.4	Inserting the glow lamp	10
8	Commissioning	10
9	Fault rectification.....	11

1 Safety



Warning

Electric voltage!

Risk of death and fire due to electrical voltage of 127/230 V.

- Work on the 127/230 V supply system may only be performed by authorised electricians!
- Disconnect the mains power supply prior to installation and/or disassembly!

2 Intended use

The device is to be used exclusively with the components that are supplied and licensed as described in chapter "Setup and function".

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	2247-500 230 V AC ± 10%, 50 Hz
	2247 U-127-500 127 V AC ± 10%, 60 Hz
Nominal power (depending on the ambient temperature, a power loss of 20% in case of conventional transformers needs to be considered)	2247-500 500 W/VA
	2247 U-127-500 300 W/VA
Minimum load	20 VA
Module width	3 MW (1 MW = 18 mm) applies only to Modular DIN Rail Component (MDRC)
Short-circuit protection	T 3.15 H
Overload protection	Temperature limiter
Total ambient temperature range	0 ... 70 °C
Connected load	- Ambient temperature range 0 ... 35°C connected load 100%
	- Ambient temperature range 35 ... 70°C reduced connected load (Derating)
Terminal 4	
Nominal voltage	230 V AC ± 10%, 50/60 Hz
Nominal current	100 mA
Series circuit-breaker	0.5 A







Note

Terminal 4 is intended for operation with mains isolating components, see Fig. 4

5 Setup and function





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

 230 V	230 V incandescent lamps
 230 V	230 V halogen lamps
	Low-voltage halogen lamps with conventional transformers
	

5.1 Features of function and equipment

- Rotary actuation
- With two-way switch and soft-catch
- Phase-angle
- Adjustable minimum brightness
- Illuminable with glow lamp (flush-mounted only)
- Also suitable for two-way circuits

5.2 Possible combinations

	Flush-mounted		MDRC
	 2247 U ...		 2247 ...
 3855 ...	X	 3099 ...	X
 2115-21 ...	X		
 3856 ...	X		
 6540-2 ...	X		
 6540-7 ...	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

* For conventional transformers ~ 20% of nominal power of transformer

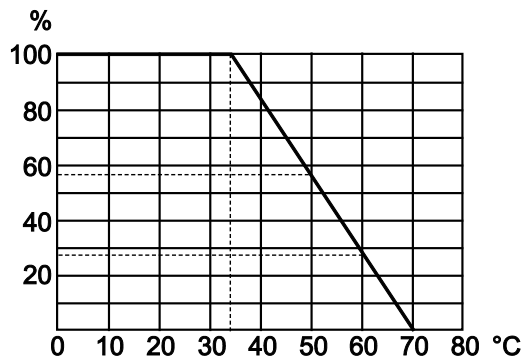


Fig. 1: Derating

Unit	Meaning
%	Nominal power
°C	Ambient temperature

7 Installation and electrical connection



Warning

Electric voltage!

Risk of death due to electrical voltage of 127/230 V during short-circuit in the low-voltage line.
Low-voltage and 127/230 V lines must not be installed together in a flush-mounted socket!

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



Warning

Electric voltage!

Risk of death and fire due to electrical voltage of 127/230 V.

- Work on the 127/230 V supply system may only be performed by authorised electricians!
- Disconnect the mains power supply prior to installation and/or disassembly!

The flush-mounted insert must only be installed in flush-mounted wall boxes according to DIN 49073-1, Part 1, or suitable surface-mounted housings.

The MDRC must only be installed on mounting rails according to DIN EN 500022. The MDRC is latched onto the mounting rail.



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

Risk of damaging the device due to excessive voltages!

Extended operation of an unloaded transformer (e.g. with a faulty bulb) connected to a dimmer may destroy both the transformer and the dimmer. This is caused by a possible voltage rise which may occur between an unloaded transformer and the dimmer.

- Connect at least two incandescent lamps per transformer or at least two transformers per dimmer.
- Replace defective incandescent lamps immediately.



Note on operating transformers with dimmers

To achieve the same linear rise in the brightness level of halogen lamps over the entire adjusting range from bright to dark, transformers with the same secondary voltage and the same power should be used.

When installing, please bear in mind that transformers, depending on their quality and version, may generate humming noise when used with dimmers.

Use an inrush current limiter if excessive inrush currents occur.

7.3 Electrical connection



Note on adapting the connected load to the ambient temperature

In intensely heated rooms, the maximum connected load must be reduced according to the following derating diagram.

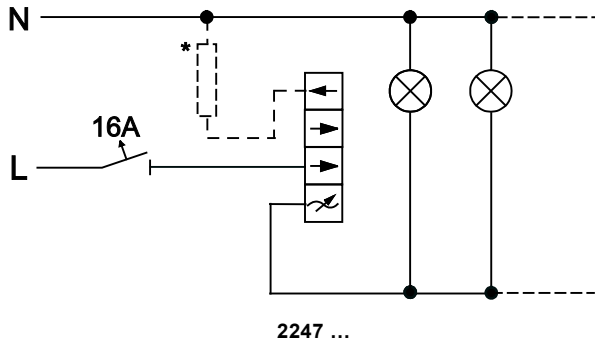


Fig. 2: Deactivation

*** Optional voltage sensor**

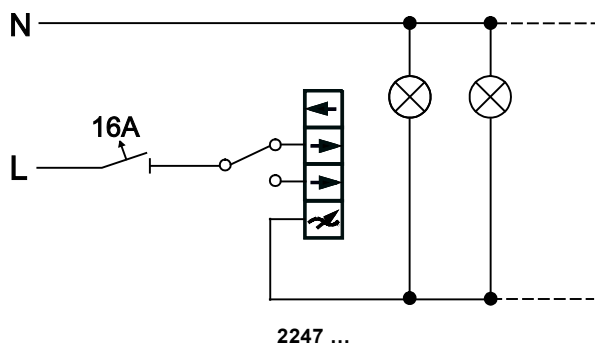


Fig. 3: Two-way circuit

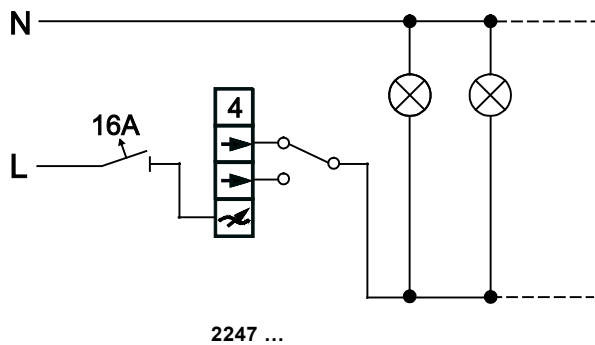


Fig. 4: Two-way circuit with dimmer as the first two-way switch

7.4 Inserting the glow lamp



Note

The glow lamp is included in the delivery with cover plate. The glow lamp serves for orientation and is only available as flush-mounted version.

1. Pull the rotary knob off.
The rotary knob is fixed with a spring and can be removed by turning it in a clockwise direction.
2. Remove the cover plate.
3. Plug the glow lamp onto the centre terminals with the nose facing the dimmer centre.
4. Seat the cover plate on the insert.
5. Attach the rotary knob.

8 Commissioning

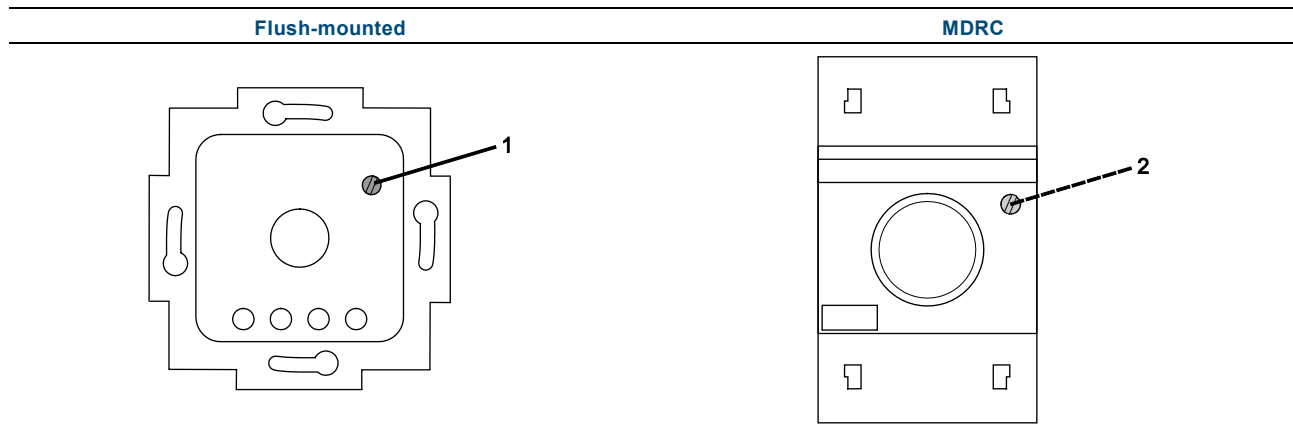


Fig. 5: Front of devices

1 Potentiometer

2 Potentiometer behind cover

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

9 Fault rectification

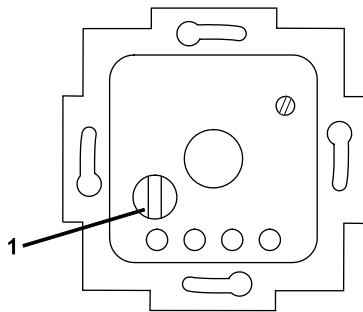


Fig 6: Dimmer (flush-mounted insert)

1 Fuse switch

1. Turn the fuse switch to the left up to the stop.
2. Remove the fuse switch.
3. Replace the defective fuse with a new fuse of the same values.
4. Re-insert the fuse switch.
5. Turn the fuse switch to the right up to the stop.

A member of the ABB Group

Busch-Jaeger Elektro GmbH

PO box
58505 Lüdenscheid

Freisenbergstraße 2
58513 Lüdenscheid
Germany

www.BUSCH-JAEGER.com

info.bje@de.abb.com

Central sales service:

Phone: +49 (0) 2351 956-1600

Fax: +49 (0) 2351 956-1700

Notice

We reserve the right to at all times make technical changes as well as changes to the contents of this document without prior notice.

The detailed specifications agreed to at the time of ordering apply to all orders. ABB accepts no responsibility for possible errors or incompleteness in this document.

We reserve all rights to this document and the topics and illustrations contained therein. The document and its contents, or extracts thereof, must not be reproduced, transmitted or reused by third parties without prior written consent by ABB.

Copyright© 2012 Busch-Jaeger Elektro GmbH
All rights reserved