

**Control unit 1-10 V, 3-gang**  
 Art.-No.: 2193 REG

## Operationsmanual

### 1 Safety instructions

Electrical equipment may only be installed and fitted by electrically skilled persons.

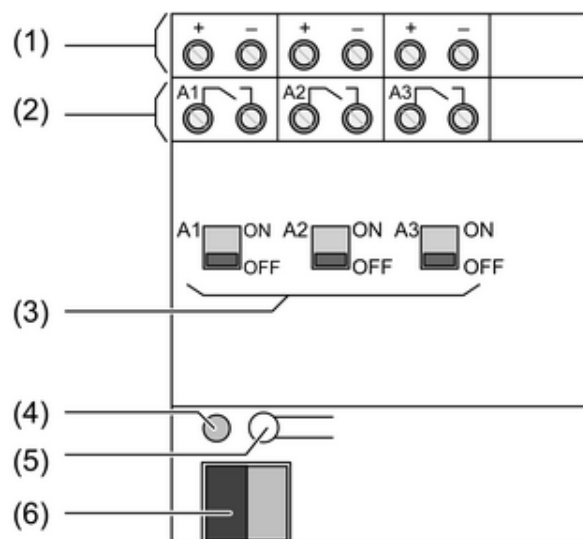
Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

**Danger of electric shock.** Device is not suitable for disconnection from supply voltage.

**Danger of electric shock.** The 1...10 V control voltage is a functional extra-low voltage (FELV), and can be connected to mains potential. On installing, ensure safe separation to SELV/PELV systems. In order to disconnect the connected luminaires, disconnect both the mains voltage and control voltage circuits.

These instructions are an integral part of the product, and must remain with the end customer.

### 2 Device components



picture 1

- (1) Connection for control outputs
- (2) Connection for switching outputs
- (3) Slide switch/Status indication
- (4) Programming LED
- (5) Programming button
- (6) KNX connection

### 3 Function

#### System information

This device is a product of the KNX system and complies with the KNX directives. Detailed technical knowledge obtained in KNX training courses is a prerequisite to proper understanding.

The function of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer's product database. Planning, installation and commissioning of the device are

carried out with the aid of KNX-certified software. The latest versions of product database and the technical descriptions are available on our website.

### Intended use

- Switching and brightness setting for lamps with operating devices with 1-10-V interface
- Mounting on DIN rail according to EN 60715 in distribution boxes

### Product characteristics

- Relay switch contact for switching the connected loads
- Manual operation of the relay independently of the bus
- Various L1, L2 and L3 external conductors can be connected.
- No additional power supply necessary
- Feedback of switching state and brightness value
- Switch position display
- Switch-on and dimming behaviour can be set
- Time dimmer can be set
- Time functions: switch-on delay, switch-off delay, staircase lighting timer with run-on time
- Integration into light scenes

## 4 Operation

### Switching relay contacts manually

The status of the relay is reflected by the slide switches (3) on the front of the device (picture 1). At the same time they can be used for manual operation of the relay outputs using a suitable tool.

- Move slide switch to **ON** position.  
Relay contact is closed, load is switched on.
- Move slide switch to **OFF** position.  
Relay contact is open, load is switched off.
- i** The position of the slide switch immediately reflects the status of the relay, regardless of whether the output is in NO or NC mode of operation.
- i** Manual switching of the relays is independent of the bus. Thus in case of manual switching there will be no feedback via the bus.
- i** Outputs disabled via software can still be switched manually.

## 5 Information for electrically skilled persons

### 5.1 Fitting and electrical connection



#### **DANGER!**

**Electrical shock when live parts are touched.**

**Electrical shocks can be fatal.**

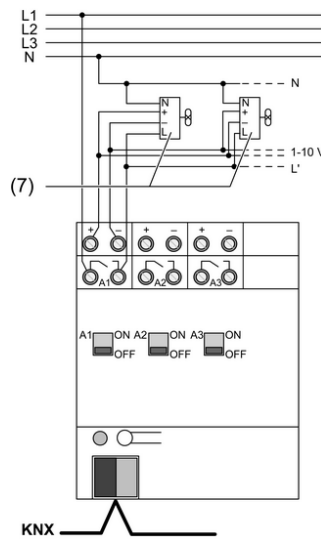
**Before carrying out work on the device or load, disengage all the corresponding circuit breakers. Cover up live parts in the working environment.**

### Fitting the device

Observe the temperature range. Ensure adequate cooling.

- Mount device on DIN rail. Output terminals must be at the top.

## Connecting the device



picture 2

### (7) Lamp operating device with 1-10 V interface

Control cable: appropriate type, cross-section and routing for the specifications for mains voltage cables. 1-10 V and mains voltages wires can be run together in a cable, e.g. NYM 5x1.5 mm<sup>2</sup>.

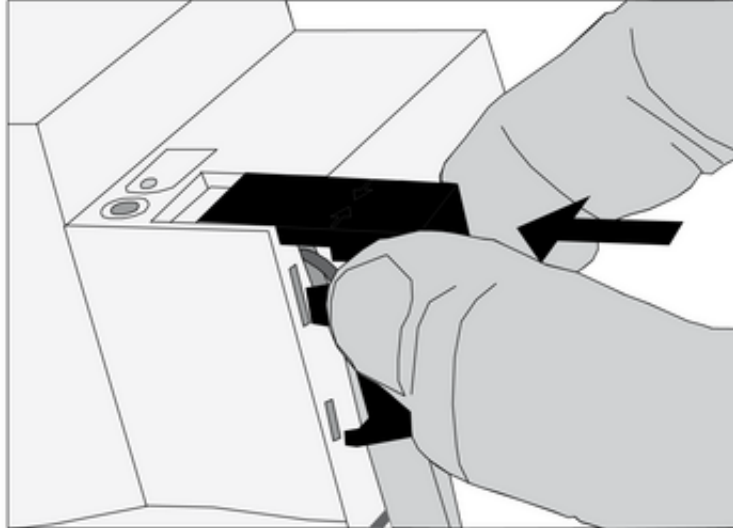
Only use lamp operating devices that are of the same type, the same power level, and from the same manufacturer. Otherwise there may be differences in brightness between the individual lamps.

The maximum number of lamp operating devices that can be connected is a function of the sum of the control voltages that feed these devices.

- i Electronic lamp operating devices generate high current spikes when they are switched on, that can result in sticking of the relay contacts. Note switch-on currents. In the case of loads with high switch-on current, use switch-on current limiter or separate load protection.
  - Connect the device according to the connection diagram (picture 2).
  - Connect load operating devices with protective earth conductor in accordance with the manufacturer's specifications.
  - If multiple miniature circuit breakers supply dangerous voltages to the device or load, couple the miniature circuit breakers or label them with a warning, to ensure release is guaranteed.

### Installing the cover

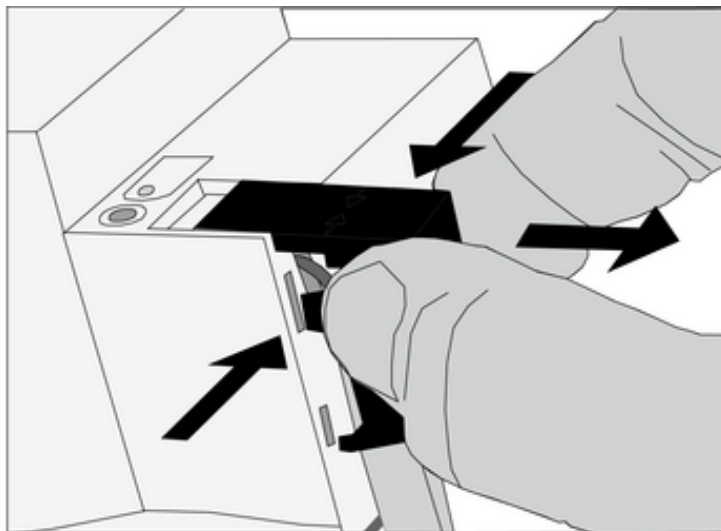
It is necessary to install a cover to protect the bus connection against hazardous voltages in the connection area.



picture 3: Installing the cover

- Route the bus cable towards the rear.
- Install cover on top of the bus terminal so that it snaps into place (picture 3).

#### Removing the cover



picture 4: Removing the cover

- Press the cover to the side and pull it off (picture 4).

## 5.2 Commissioning

### Load the address and the application software

- Switch on the bus voltage
- Assign physical addresses and load application software into the device.
- Note the physical address on the device label.

## 6 Appendix

### 6.1 Technical data

KNX	TP 1
KNX medium	S mode
Commissioning mode	DC 21 ... 32 V SELV
Rated voltage KNX	max. 240 mW
Power consumption KNX	Connection terminal
Connection mode KNX	
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C
Control outputs	
Control voltage	1 ... 10 V
Control current per output	max. 100 mA
Cable length	max. 500 m (0.5mm <sup>2</sup> )
Switching outputs	
Contact type	μ contact
Switching voltage	AC 250 / 400 V
Switching current 230 V AC 1	16 A
Switching current 230 V AC 3	10 A
Switching current 400 V AC 1	10 A
Switching current 400 V AC 3	6 A
Fluorescent lamps	10 AX
Switching voltage DC	DC 12 ... 24 V
Switching current DC	16 A
Minimum switching current	100 mA
Switch-on current 150 μs	400 A
Switch-on current 600 μs	200 A
Ohmic load	3680 W
Capacitive load	10 A / 140 μF
Lamp loads	
Incandescent lamps	2500 W
HV halogen lamps	2500 W
LV halogen lamps with inductive transformer	1200 VA
LV halogen lamps with Tronic transformer	1500 W
Fluorescent lamps T5/T8	
uncompensated	2500 W
parallel compensated	1300 W / 140 μF
Duo circuit	2300 W / 140 μF
Compact fluorescent lamps	
uncompensated	2500 W
parallel compensated	1300 W / 140 μF
Mercury vapour lamps	
uncompensated	2000 W
parallel compensated	2000 W / 140 μF
Connection	
Single stranded	0.5 ... 4 mm <sup>2</sup>
finely stranded without conductor sleeve	0.34 ... 4 mm <sup>2</sup>
finely stranded with conductor sleeve	0.14 ... 2.5 mm <sup>2</sup>
Fitting width	72 mm / 4 modules

### 6.2 Accessories

Connection cover	Art.-No.: 2050 K
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## 6.3 Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

We provide a warranty as provided for by law.

Please send the unit postage-free with a description of the defect to our central customer service office:

### **ALBRECHT JUNG GMBH & CO. KG**

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