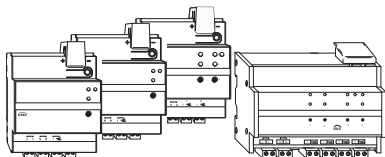


Universal dimming actuator REG-K

Operating instructions



Universal dimming actuator REG-K/230/500 W

Art. no. MTN649350



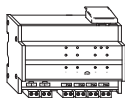
Universal dimming actuator REG-K/230/1000 W

Art. no. MTN649310



Universal dimming actuator REG-K/2x230/300 W

Art. no. MTN649330



Universal dimming actuator REG-K/4x230/150 W

Art. no. MTN649315

For your safety

DANGER Risk of fatal injury from electrical current.

All work on the device should only be carried out by trained and skilled electricians. Observe the country-specific regulations as well as the valid KNX guidelines.

CAUTION Damage to the device.

- Only operate the device according to the specifications stated in the Technical data.
- All devices that are installed next to the actuator must be equipped with at least basic insulation.

CAUTION Damage to the device.

Do not connect any combination of capacitive and inductive loads to one channel.

CAUTION Danger of device malfunctions.

Each dimming channel requires a minimum load for operation (see technical data). If this is not reached, malfunctions may arise.

i In the case of a mixed load (combination of ohmic and inductive, or ohmic and capacitive loads) on one channel, the ohmic load may not exceed 30 % of the total connected load of this channel. Otherwise, the wrong load might be detected. Different loads may be connected to different channels.

i When using inductive transformers, the load connected to the secondary circuit must be at least half the size of the nominal load of the transformer. If the load is too small, the channel may shut down automatically. Only transformers that are certified for use with electronic switches may be connected.

i Socket-outlets may not be dimmed. The risk of overloading and the risk of unsuitable appliances being connected is too high.

Universal dimming actuator introduction

The universal dimming actuator REG-K (referred to as **actuator** below) allows you to connect the following loads to each channel and then switch and dim them (depending on the type of actuator you have, you will have one or more channels available):

- ohmic loads (e.g. 230 V incandescent lamps)
- inductive loads (e.g. inductive transformers with low-voltage halogen lamps)
- capacitive loads (e.g. electronic transformers with low-voltage halogen lamps)
- a combination of ohmic and inductive loads
- a combination of ohmic and capacitive loads

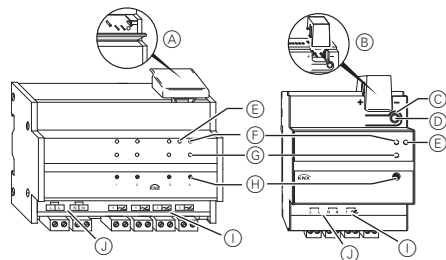
The universal dimming actuator automatically recognises the connected loads.

You can connect up to ten extension TELE inserts (art. no. MTN573998). You can also connect any number of mechanical extensions (conventional push-buttons).

If there is no bus voltage, you can switch and dim the connected luminaires with the channel keys or use the push-buttons connected to the extension inputs. Dimming will be continuous (up or down) for as long as the key is pressed. The settings made via the ETS are not effective.

The actuator has a bus coupler. It is installed on a DIN rail acc. to EN 60715, with the bus connection made via a bus connecting terminal. A data rail is not required.

Connections, displays and operating elements



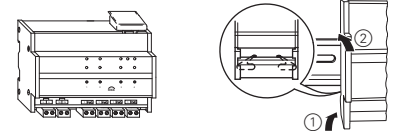
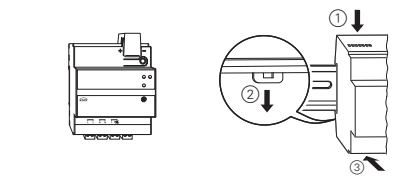
- (A) Under the cable cover: Bus connecting terminal, programming button and programming LED (red)
- (B) Bus connecting terminal
- (C) Programming button
- (D) Programming LED (red)
- (E) Operating LED "RUN" (green)
- (F) Channel status LED (yellow) for the corresponding channel
- (G) Channel error LED (red) for the corresponding channel
- (H) Channel keys for manually controlling the channel in question
- (I) Channel terminals for loads and extension unit
- (J) Supply voltage

Meaning of the displays

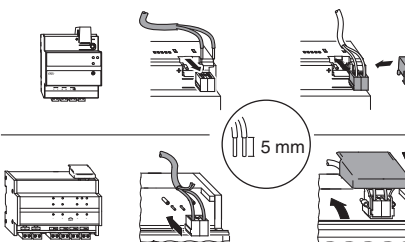
Operational LED (green)	Channel status LED (yellow)	Channel error LED (red)	
On	-	-	Universal dimming actuator ready for operation (mains voltage and bus voltage available) and channel switched off
On	On	-	Universal dimming actuator ready for operation (mains voltage and bus voltage available), channel switched on (switching object = "1") or load detection
On	-	On	Overload or short circuit. The channel has been switched off. Mains and bus voltage available
On	On	On	No load at output (idle). The channel has been switched off. Mains and bus voltage available
-	-	-	No bus voltage and channel switched off, or no mains voltage
-	On	-	No bus voltage and channel switched on
-	-	On	Overload or short circuit and no bus voltage. The channel has been switched off.
-	On	On	No load at output (idle) and no bus voltage. The channel has been switched off.
Flashes	On/Off	All on	Excess temperature. All channels that are switched on are dimmed to minimum power/minimum brightness. Channels which are currently switched off cannot be switched on. See also the section "How to recognise potential faults".
On	-	-	Universal dimming actuator ready for operation (mains voltage and bus voltage available) and channel switched off

Mounting the actuator

- Set the actuator onto the DIN rail.



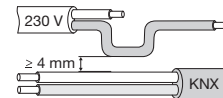
- Connect KNX.



- Connect the bus voltage

DANGER
Risk of fatal injury from electrical current.
The outputs may carry an electrical voltage even when the dimmer is switched off. Always disconnect the fuse in the incoming circuit from the supply before working on connected loads.

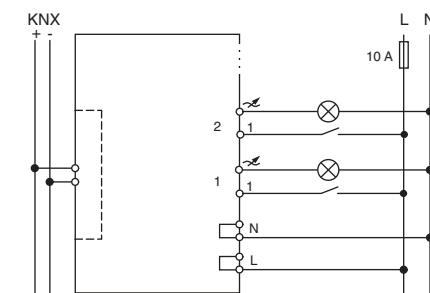
WARNING
Risk of fatal injury from electrical current. The device could become damaged.
Safety clearance must be guaranteed in accordance with IEC 60664-1. There must be at least 4 mm between the individual cores of the 230 V supply cable and the KNX line.



WARNING
The installation site must provide sufficient cooling and unimpeded air circulation through the cooling slots.

CAUTION
The extension inputs must be connected to the same phase as the power supply of the dimming actuator.

i The two L and N connections are each bridged internally. When several devices are connected in series, bridges must also be inserted in the connecting terminals so that when the terminals are removed from one device, the next devices in the series are not damaged by power supply surges.



- Connect the load and extension unit.
- Connect the load voltage.

Putting the actuator into operation

- Press the programming button. The programming LED lights up.
- Load the physical address and application into the device from the ETS.

The programming LED goes out.

The operating LED lights up: The application was loaded successfully, the device is ready for operation.

Operating the actuator

Operate the dimmer via one of the following:

- KNX
- mechanical extension units (conventional push-button) and/or electronic extension units
- Channel buttons on the actuator

If bus voltage is available, operation via the extension units and channel keys depends on the parameters of the application (see the separate application description).

If there is no bus voltage, you can do the following with the extension units and channel keys:

- Switch on/off: press the button briefly
- Dim brighter/darker: press the button and hold it down
- Activate/deactivate memory function (switch on at last brightness value): press the button briefly 10 times

Load detection

The first time a channel is switched after the mains voltage is switched on, after a load is connected or after a short circuit or overload at the output has been rectified, load detection will be carried out automatically (to determine whether an inductive, capacitive or ohmic load is connected). When this happens, the channel switches on for approx. 5 seconds at the maximum brightness value, is then extinguished briefly, and then dims up to the maximum brightness or the parameterised brightness.

What should I do if there is a problem?

The brightness of the connected lamps is reduced to a minimum (the lamps might then switch off automatically).

If the temperature in the actuator is too high, all the channels which are switched on will be dimmed to minimum power/brightness. You can now only switch the channels off - you can no longer switch them on, or dim them.

If the temperature decreases again within approx. 15 minutes, the previous values will be re-established. If the temperature increases further, the channels will be switched off automatically.

You can then only switch the channels on again when the temperature has decreased significantly. Any KNX commands received in the intervening period will be lost.

Afterwards, you can use the actuator as normal again.

i Excessive temperature in the universal dimming actuator is normally caused by overloading the outputs, or insufficient heat dissipation from the universal dimming actuator. When several dimming actuators are installed next to one another, they might cause each other to heat up.

! Make sure that an electrician detects and remedies the cause of the increased temperature before putting the device back into operation.

The connected lamps switch off automatically and can no longer be switched or dimmed.

In the case of a short circuit, an overload or open circuit, the corresponding channel switches off and the channel error display lights up.

When using inductive transformers, the load connected to the secondary circuit must be at least half the size of the nominal load of the transformer. If the load is too small, the channel may shut down automatically.

Have an electrician rectify the cause. The first time the channel is switched after the fault is rectified, load detection will be carried out automatically.

Afterwards, you can use the actuator as normal again.

All connected lamps switch off automatically and can no longer be switched or dimmed.

The mains voltage has failed. Once the mains voltage is switched on again, the channels remain switched off. The first time the channel is switched after the mains voltage is switched on, load detection will be carried out automatically.

If there is no bus voltage, the lamp will not be switched to its full brightness if it is switched on via the extension unit or the channel key.

The memory function is switched on. The lamp is switched on at the previous brightness value. To toggle (memory function on/off), press the key briefly ten times.

Technical data

Supply from KNX: DC 24 V, approx. 5 mA
 Insulation voltage: AC 4 kV bus/mains voltage
 Nominal voltage: AC 220 - 230 V, 50/60 Hz
 Fuse: The actuator must be fused using a 10 A automatic circuit breaker.

Minimum nominal power per channel:

ohmic loads > 30 W
 inductive loads > 50 VA
 capacitive loads > 50 VA

Maximum nominal power (ohmic loads/ inductive or capacitive loads):

MTN649310: 1000 W/VA

MTN649350: 500 W/VA

MTN649330:
 2 channels Channel 1: 300 W/VA
 Channel 2: 300 W/VA

1 channel Channel 1: 500 W/VA
 Channel 2: -*

MTN649315:
 4 channels Channel 1: 150 W/VA
 Channel 2: 150 W/VA
 Channel 3: 150 W/VA
 Channel 4: 150 W/VA

3 channels Channel 1: 300 W/VA
 Channel 2: -*
 Channel 3: 150 W/VA
 Channel 4: 150 W/VA
 Channel 1: 150 W/VA
 Channel 2: 150 W/VA
 Channel 3: -*
 Channel 4: 300 W/VA

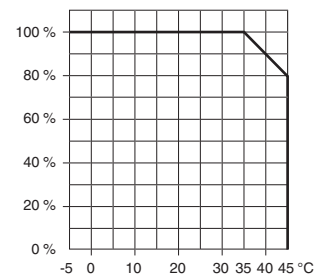
2 channels Channel 1: 300 W/VA
 Channel 2: -*
 Channel 3: -*
 Channel 4: 300 W/VA

1 channel Channel 1: 300 W/VA
 Channel 2: -*
 Channel 3: -*
 Channel 4: -*
 Channel 1: -*
 Channel 2: 300 W/VA
 Channel 3: 300 W/VA
 Channel 4: 300 W/VA
 Channel 1: -*
 Channel 2: -*
 Channel 3: 300 W/VA
 Channel 4: 300 W/VA
 Channel 1: -*
 Channel 2: -*
 Channel 3: -*
 Channel 4: 300 W/VA

* No loads may be connected.

The maximum power values specified presume a mains frequency of 50 Hz and an ambient temperature up to approx. 35°C. When operating with a mains frequency of 60 Hz, the maximum power values are reduced by approx. 15%.

The changes in power relative to the ambient temperature can be seen in the diagram which follows.



Ambient temperature

Operation: -5 °C to +45 °C

Storage: -25 °C to +55 °C

Transport: -25 °C to +70 °C

Max. humidity: 93 % relative humidity, no moisture condensation

Environment: The device is designed for use at a height up to 2000 m above sea level.

Type of protection: IP 20

Connections

Inputs, outputs: Screw terminals

Single-core: 1.5 mm² to 2.5 mm²

finely stranded (with core end sleeve): 1.5 mm² to 2.5 mm²

KNX: two 1 mm pins for bus connecting terminal

Maximum cable length between extension unit input and extension unit:

mechanical extension units: 20 m

electronic extension units: 20 m (max. 10 items with max. total cable length 20 m)

Nominal voltage: AC 220 - 230 V, 50/60 Hz

Extension units: (identical phase to mains connection)

Protective functions: Electronic load detection, short-circuit, overload and idling detection, excess temperature detection (dimming actuator temperature)

Guidelines: 73/23/EEC Low-Voltage Directive, 85/336/EEC EMC Directive

Device width:

MTN649350: 4 modules = approx. 72 mm

MTN649310: 4 modules = approx. 72 mm

MTN649330: 4 modules = approx. 72 mm

MTN649315: 6 modules = approx. 108 mm

Schneider Electric Industries SAS

If you have technical questions, please contact the Customer Care Center in your country.

www.schneider-electric.com

This product must be installed, connected and used in compliance with prevailing standards and/or installation regulations. As standards, specifications and designs develop from time to time, always ask for confirmation of the information given in this publication.