

Operating instructions

Dimming actuator, 4-gang Standard
Order no. 2015 00

Dimming actuator, 4-gang Komfort
Order no. 2025 00



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1 Safety instructions



Electrical devices may only be mounted and connected by electrically skilled persons.

Serious injuries, fire or property damage possible. Please read and follow manual fully.

Danger of electric shock. Always disconnect before carrying out work on the device or load. In so doing, take all the circuit breakers into account, which support dangerous voltages to the device and or load.

Danger of electric shock. Device is not suitable for disconnection from supply voltage because mains potential even is applied on the load when the output is switched off. Always disconnect before carrying out work on the device or load. To do so, switch off all associated circuit breakers.

Risk of destruction of the dimmer and load if the set operating mode and load type do not match. Set the correct dimming principle before connecting or exchanging the load.

Fire hazard. For operation with inductive transformers, each transformer must be fused on the primary side in accordance with the manufacturer's instructions. Only safety transformers according to EN 61558-2-6 may be used.

This manual is an integral part of the product, and must remain with the end customer.

2 Device components

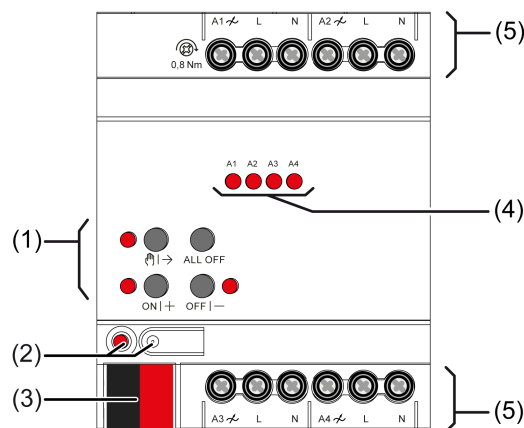


Image 1: Device components

- (1) Button field for manual operation
- (2) Programming button and LED
- (3) KNX connection
- (4) Status LEDs for outputs
- (5) Load connections

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.

The device can be updated. Firmware can be easily updated with the Gira ETS Service App (additional software).

The device is KNX Data Secure capable. KNX Data Secure offers protection against manipulation in building automation and can be configured in the ETS project. Detailed specialist knowledge is required. A device certificate, which is attached to the device, is required for safe commissioning. During mounting, the device certificate must be removed from the device and stored securely.

Planning, installation and commissioning of the device are carried out with the aid of the ETS, version 5.7.3 and above.

- Operation in KNX system for Standard and Comfort devices.
- Operation in Gira One system for Standard devices only.

Intended use

- Switching and dimming of incandescent lamps, HV halogen lamps, dimmable HV-LED lamps, dimmable compact fluorescent lamps, dimmable inductive transformers with LV halogen or LV LED lamps, dimmable electronic transformers with LV halogen or LV LED lamps
- Operating in KNX systems
- Mounting on DIN rail according to EN 60715 in sub-distribution unit

- i** If inductive or electronic transformers are connected, observe the data of the transformer manufacturer on loads and the dimming principle.
- i** HV-LED and compact fluorescent lamps generate high pulsed currents, when they are operated in the leading edge phase control.
- i** Our dimmers take into account the different electronic characteristics of most LED lamps found on the market. However, it cannot be guaranteed that in individual cases the desired results may not be achieved.

Product characteristics

- Outputs can be operated manually, construction site mode

- Feedback in manual mode and in bus mode
- Disabling of individual outputs via bus
- Status feedback
- KNX Data Secure compatible
- Updateable with ETS Service App

Only for "Comfort" version:

- Disabling of individual outputs manually or by bus

Dimming operation characteristics

- Automatic or manual selection of the dimming principle suitable for the load
- Protected against no-load, short-circuit and overheating
- Feedback of the switching position and the dimming value
- Parameterisable switch-on and dimming behaviour
- Time functions: switch-on delay, switch-off delay, staircase lighting timer with run-on time
- Light scene operation
- Status indicator of the outputs via LED
- Mains failure longer than approx. 5 seconds leads to switch-off of the dimming actuator. Depending on the parameter setting, the connected load is calibrated after mains voltage return.
- Power extension possible by means of power boosters.

Only for "Comfort" version:

- Signal in the event of a short-circuit
- Increase in output power possible through parallel switching of multiple outputs
- Operating hours counter

i Delivery state: Construction site mode, outputs can be operated using button field.

i Flickering of the connected lamps due to undershoot of the specified minimum load or through centralised pulses from the power stations. This does not represent any defect in the device.

Logic function characteristics

Only for "Comfort" version:

- Logic gate
- Transformer (conversion)
- Disabling element
- Comparator
- Limit value switch

4 Operation

Operating elements

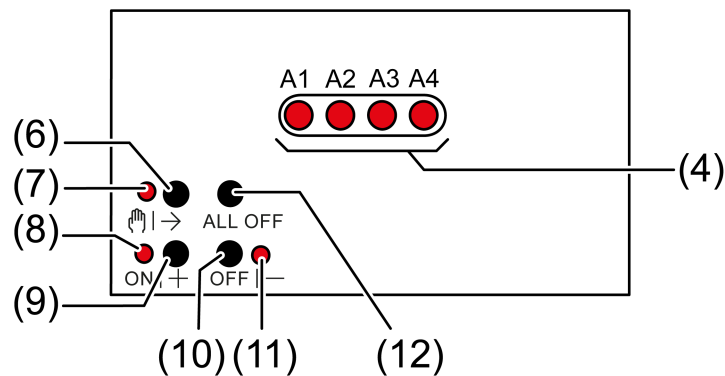


Image 2: Operating elements

- (4) Status LEDs for outputs
 - on: output switched on, 1...100%
 - flashes at 1 Hz: short-circuit or manual mode
 - flashes at 2 Hz: overload, mains voltage failure or firmware update
- (6) Button
 - Manual operation
- (7) LED
 - on: continuous manual mode
- (8) LED **ON|+**
 - on: selected output on, 1...100%
 - flashes: Firmware update
- (9) Button **ON|+**
 - Switch on/increase brightness
- (10) Button **OFF|-**
 - Switch off/reduce brightness
- (11) LED **OFF|-**
 - on: Selected output off
 - flashes: Firmware update
- (12) Button **ALL OFF**
 - Switching off all outputs

Operating modes



- Bus operation: operation via push-button sensors or other bus devices
- Temporary manual control: manual control locally with keypad, automatic return to bus control
- Continuous manual mode: Exclusively manual operation on the device

No bus operation is possible in manual mode.

- i** After a bus failure and restoration the device switches to bus operation.
- i** The manual mode can be disabled in ongoing operation via a bus telegram.

Switching on temporary manual operation mode


Operation using the button field is programmed and not disabled.

- Press button  (6) briefly.
LED  (7) flashes, LED **A1...** (4) of the first configured output flashes.
Short-time manual operation is switched on.

- i** After 5 s without a button actuation, the actuator returns automatically to bus operation.

Switching off temporary manual operation mode



The device is in short-term manual mode.

- No button-press for 5 s.
- or -
- Press  (6) button briefly as many time as necessary until the actuator leaves the short-time manual mode.
Status LED **A1...** (4) no longer flash, but rather indicate the output status.
Short-time manual operation is switched off.

When switching off the manual control, the outputs, depending on the programming, switch to the active position, e.g. forced position, logic operation.



Switching on permanent manual operation mode

Operation using the button field is programmed and not disabled.

- Press the  (6) button for at least 5 s.
LED  (7) lights, LED **A1...** (4) of the first configured output flashes.
Continuous manual mode is switched on.

Switching off permanent manual operation mode

The device is in continuous manual mode.


- Press the  (6) button for at least 5 s.
LED  (7) is off.

Continuous manual mode is switched off. Bus operation is switched on.

When switching off the manual control, the outputs, depending on the programming, switch to the active position, e.g. forced position, logic operation.

Operating the outputs

The device is in continuous or short-term manual mode.

- Press the button  (6) briefly as many times as necessary until the desired output is selected.

The LED of the selected output A1... (4) flashes.

The LEDs **ON|+** (8) and **OFF|–** (11) indicate the status.


- Operate output with **ON|+** (9) button or **OFF|–** (10) button.

Short: switch on/off.

Long: dim brighter/darker.

Release: Stop dimming.

The LEDs **ON|+** (8) and **OFF|–** (11) indicate the status.

-  Short-term manual mode: After running through all of the outputs the device exits manual mode after another brief actuation.

Switching off all outputs

The device is in continuous manual mode.

- Press the button **ALL OFF** (7).

All outputs are shut off.

5 Information for electrically skilled persons



DANGER!

Mortal danger of electric shock.

Disconnect the device. Cover up live parts.

5.1 Mounting and electrical connection

Connecting the device

- Connect bus line with KNX device connection terminal observing the correct polarity.
- Attach the cover cap to the KNX connection as protection against hazardous voltages.

**CAUTION!**

Danger of destruction. 400 V are shorted when outputs switched in parallel are connected to different outer phase conductors.

The device will be destroyed.

Always connect outputs switched in parallel to the same outer phase conductor.

- i** Delivery state: The outputs can be operated with manual control.

In the "Universal" operating mode, the dimming actuator only calibrates itself again after disconnection of the load and also after commissioning using the ETS.

- i** Capacitive-inductive mixed load is not permitted.
- i** For LED leading edge phase control: Connect a maximum of 2 electronic transformers per output.
- i** Connect 600 Watt LED lamps or compact fluorescent lamps at most per 16 ampere circuit breaker. When connecting transformers, observe the data of the transformer manufacturer.

Only for "Comfort" version:

- i** Several dimmer outputs can be combined for dimming greater lamp loads. Only utilise parallel-switched outputs up to 95 % each. Do not connect any compact fluorescent lamps to dimmer outputs switched in parallel.
- i** Observe delivery state. Before connecting parallel outputs and switching on, program the dimming actuator with ETS to the changed output configuration.
- i** Do not expand parallel-switched dimmer outputs with power packs.

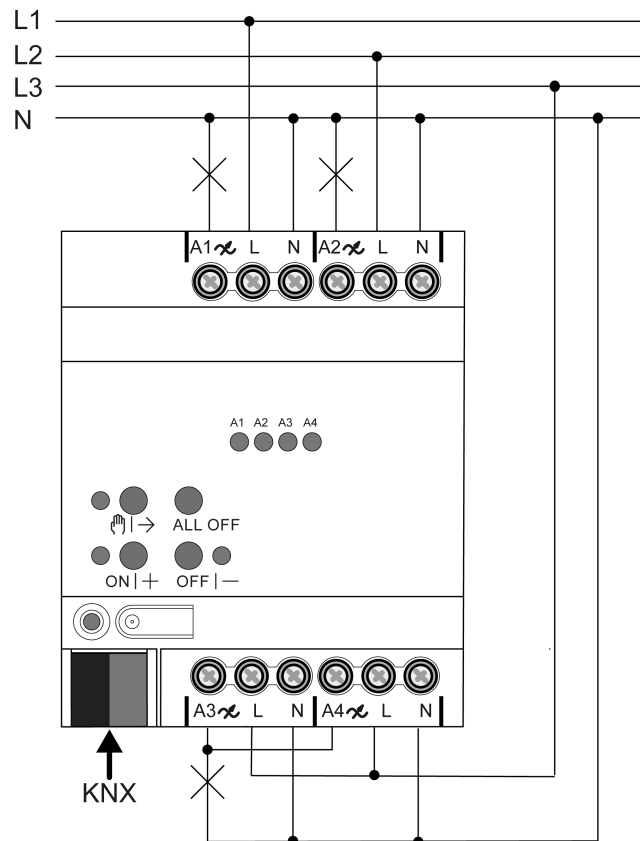


Image 3: Comfort variant of the device connection with dimmer outputs switched in parallel (connection example)

- Connect the lamp loads according to the connection example.

5.2 Commissioning

Safe-state mode

The safe-state mode stops the execution of the loaded application program.

- i** Only the system software of the device is still functional. ETS diagnosis functions and programming of the device are possible. Manual operation is not possible.

Activating safe-state mode

- Switch off the bus voltage or remove the KNX device connection terminal.
- Wait about 15 s.
- Press and hold down the programming button.
- Switch on the bus voltage or attach the KNX device connection terminal. Release the programming button only after the programming LED starts flashing slowly.

The safe-state mode is activated.

By briefly pressing the programming button again, the programming mode can also be switched on and off in the safe-state mode as usual. If the programming mode is active, the programming LED stops flashing.

Deactivating safe-state mode

- Switch off bus voltage (wait approx. 15 s) or carry out ETS programming.

Master reset

The master reset restores the basic device settings (physical address 15.15.255, firmware remains in place). The device must then be recommissioned with the ETS. Manual operation is possible.

In secure operation: A master reset deactivates device security. The device can then be recommissioned with the device certificate.

Performing a master reset

Precondition: The safe-state mode is activated.

- Press and hold down the programming button for > 5 s.
The programming LED flashes quickly.

The device performs a master reset, restarts and is ready for operation again after approx. 5 s.

Restoring the device to factory settings

Devices can be reset to factory settings with the Gira ETS Service App. This function uses the firmware contained in the device that was active at the time of delivery (delivered state). Restoring the factory settings causes the devices to lose their physical address and configuration.





6 Technical data

KNX

KNX medium	TP256
KNX commissioning mode	S-mode
Rated voltage KNX	DC 21 ... 32 V SELV
Current consumption KNX	6 ... 15 mA
Connection mode KNX	Device connection terminal
Rated voltage	DC 21 ... 32 V SELV
Current consumption	6 ... 15 mA
Dimming outputs	
Rated voltage	AC 110 ... 230 V ~
Mains frequency	50 / 60 Hz

Power loss	max. 7 W
Standby power	approx. 0.16 W per channel
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C

Connected load per channel depends on the connected lamps and the set load type:
(see figure 4), (see figure 5)

	Load type parameter
UNI	universal (with automatic calibration procedure)
	conv. transformer (inductive / leading edge phase control)
LED 	LED (leading edge phase control)
	electr. transformer (capacitive / trailing edge phase control)
LED 	LED (trailing edge phase control)












	 LED	 LED	 LED
230V			
	W	W	VA
UNI	1 ... 35	20 ... 100	20 ... 100
	—	—	20 ... 100
LED 	1 ... 35	20 ... 100	—
	1 ... 200	20 ... 200	—
LED 	1 ... 200	20 ... 200	—
110V			
	W	W	VA
UNI	1 ... 18	20 ... 50	20 ... 50
	—	—	20 ... 50
LED 	1 ... 18	20 ... 50	—
	1 ... 100	20 ... 100	—
LED 	1 ... 100	20 ... 100	—

Image 4: LED lamp loads

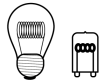











				
230V				
	W	W	VA	W
UNI	20 ... 225	20 ... 210	20 ... 210	20 ... 80
	20 ... 210	—	20 ... 210	—
LED 	20 ... 210	20 ... 210	—	20 ... 80
	20 ... 225	20 ... 225	—	20 ... 150
LED 	20 ... 225	20 ... 225	—	20 ... 150
110V				
	W	W	VA	W
UNI	20 ... 120	20 ... 110	20 ... 110	20 ... 40
	20 ... 110	—	20 ... 110	—
LED 	20 ... 110	20 ... 110	—	20 ... 40
	20 ... 120	20 ... 120	—	20 ... 75
LED 	20 ... 120	20 ... 120	—	20 ... 75

Image 5: conventional lamp loads

i Capacitive-inductive mixed load is not permitted.

Power boosters

See power booster instructions

Connection

Single stranded

0.5 ... 4 mm²

Finely stranded without conductor sleeve

0.5 ... 4 mm²

Finely stranded with conductor sleeve

0.5 ... 2.5 mm²

Connection torque, screw terminals

max. 0.8 Nm

Installation width

72 mm / 4 HP

7 Troubleshooting

Connected LED lamps or compact fluorescent lamps switch off in the lowest dimming position or flicker

The set minimum brightness is too low.

Increase minimum brightness.

Connected LED lamps or compact fluorescent lamps flicker

Cause 1: Lamps are not dimmable.

Check manufacturer's instructions.

Exchange lamps for another type.

Cause 2: Dimming principle and lamps do not optimally match.

For HV-LED: Check operation in another dimming principle, reduce connected load as well if necessary.

For LV-LED: Check the lamp operating device and replace as necessary.

With the "Universal" setting: Define the dimming principle manually.

Connected HV-LED lamps or compact fluorescent lamps in the lowest dimming position are too bright; dimming range is too small

Cause 1: The set minimum brightness is too high.

Reduce minimum brightness.

Cause 2: HV-LED trailing edge phase control dimming principle does not optimally match the connected lamps.

Check operation in the "HV-LED leading edge phase control" setting, reduce connected load as well if necessary.

Exchange lamps for another type.

Output has switched off.

Cause 1: Overheating protection has tripped.

Disconnect all outputs from the mains, switch-off the corresponding circuit breakers.

HV-LED trailing edge phase control: Reduce the connected load. Exchange lamps for another type.

HV-LED leading edge phase control: Reduce the connected load. Check the operation in the "HV-LED trailing edge phase control" setting. Exchange lamps for another type.

Let device cool down for at least 15 minutes. Check installation situation, ensure cooling, e.g. provide distance from surrounding devices.

Cause 2: Overvoltage protection has tripped.

HV-LED trailing edge phase control: Check the operation in the "HV-LED leading edge phase control" setting, reduce the connected load as well if necessary.

Exchange lamps for another type.

i The response of the surge protection can be signalled by sending a short-circuit telegram or can be determined by polling the "short-circuit" communication object.

Cause 3: short-circuit in output circuit

Disconnect all outputs from the mains.

Eliminate short-circuit.

Switch on mains voltage to the outputs again. Switch the affected output off and on again.

i When a short-circuit occurs the affected output switches off. Automatic restart when short-circuit is eliminated within 100 ms (inductive load) or 7 seconds (capacitive or ohmic load). After that lasting switch-off.

- i** When a short-circuit occurs during the calibration process, the load calibrates itself again after the short-circuit is eliminated.

Cause 4: load failure.

Check load, replace lamp. For inductive transformers, check primary fuse and replace if necessary.

Manual control with button field not possible

Cause 1: Manual control has not been programmed.

Program manual control.

Cause 2: Manual control via bus disabled.

Enable manual control.

None of the outputs can be operated.

Cause 1: All of the outputs are disabled.

Cancel disabling.

Cause 2: Manual mode active.

Deactivate manual mode (switch off continuous manual mode).

Cause 3: Application software missing or faulty.

Check programming and correct.

All outputs off and not possible to switch on

Cause 1: bus voltage failure.

Check bus voltage.

Luminaires flicker or buzz, proper dimming not possible, device buzzes

Cause: wrong dimming principle set.

Installation or commissioning error. Disconnect device and luminaire, switch off circuit breaker.

Check installation and correct.

If the wrong dimming principle has been preselected: Set correct dimming principle.

If dimming actuator calibrates itself incorrectly, e.g. with highly inductive mains or long load cables: preselect correct dimming principle with commissioning.

LED lamp is dimly lit when dimmer is switched off

Cause: LED lamp is not optimally suited for this dimmer.

Use a compensation module, see accessories.

Use another type of LED lamp or an LED lamp of another manufacturer.

8 Accessories

Compensation module LED

Order no. 2375 00

9 Warranty

The warranty is provided in accordance with statutory requirements via the specialist trade. Please submit or send faulty devices postage paid together with an error description to your responsible salesperson (specialist trade/installation company/electrical specialist trade). They will forward the devices to the Gira Service Center.

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