

Heating actuator, 6-gang

Order No. : 2158 00

Operating instructions**1 Safety instructions**

Electrical equipment may only be installed and fitted 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. At the same time, take into account all circuit breakers that supply dangerous voltage to the device or load.

Danger of electric shock. Device is not suitable for disconnection from supply voltage. The load is not electrically isolated from the mains even when the device is switched off.

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

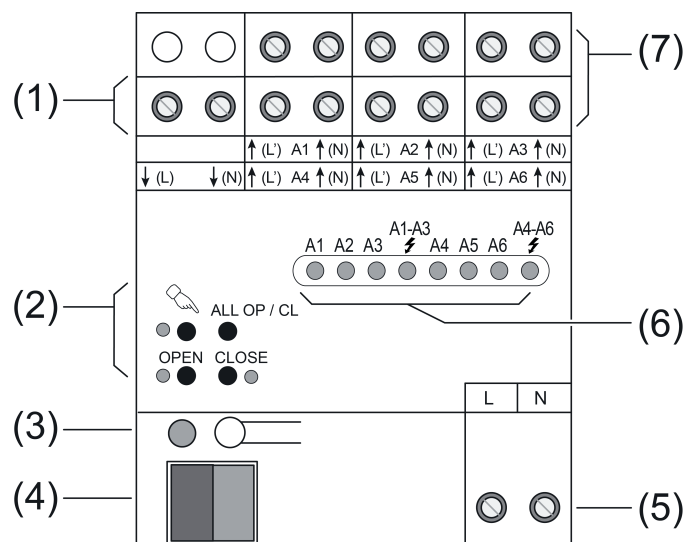
2 Device components

Figure 1: Front view

- (1) Supply of electrothermal valve drives
- (2) Button field for manual operation
- (3) Programming button and LEDs
- (4) KNX connection
- (5) Connection for mains supply
- (6) Status LEDs for outputs
- (7) Connection of electrothermal actuators

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 of electrothermal actuators for heaters or cooling ceilings
- Installation in distribution boxes on DIN rail according to EN 60715

Product characteristics

- Switching operation or PWM operation
 - Actuators with characteristics opened or closed without power
 - Valve drives 230 V or 24 V controllable
 - Outputs can be operated manually, construction site mode
 - Feedback in manual mode and in bus mode
 - Disabling of individual outputs manually or via bus
 - Overload-protected, short circuit-protected, error message with LED
 - Protection against jamming valves
 - Forced position
 - Various setpoints for forced position or emergency operation in case of bus failure for summer or winter
 - Cyclical monitoring of the input signals can be parameterized
 - Feedback via bus, e.g. in case of mains failure, overload or sensor failure
 - Bus connection with standard bus connecting terminal
- i** PWM operation: electrothermal actuators only have the positions "open" and "closed". In PWM operation, switch-on and switch-off during the drive's cycle time achieves an almost constant behaviour.

Overload protection

In order to protect the device and connected actuators, in case of overload the device determines which output is involved and switches it off. Non-overloaded outputs continue to work, which means that the rooms in question are still heated.

- In case of major overloads the actuator initially switches all off the outputs **A1...A6** off.
- In the case of more minor overloads the actuators switches output groups **A1...A3** and/or **A4...A6** off.
- The actuator determines the overloaded output in up to 4 test cycles.
- If in the event of only a minor overload it is not possible to unambiguously identify any output as overloaded, then the actuator switches individual outputs off one after the other.
- The overload can be reported to the bus for each output.

LED display:

- Overload LED flashes slowly: Test cycle active.
- Overload LED flashes quickly: Test cycle completed.

4 Operation

Operating elements

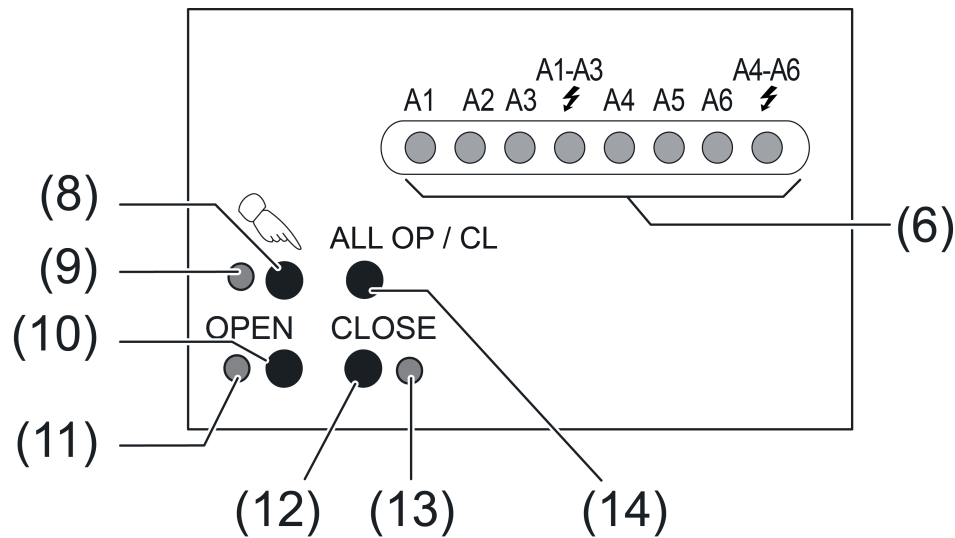


Figure 2: Operating elements – Overview

- (6) **A1...A6**: Status LEDs for outputs
⚡1-3, ⚡4-6: Display "Overload/short-circuit" for output group
- (8) Button – Manual operation
- (9) LED – On: Continuous manual mode active
- (10) **OPEN** button – Open valve
- (11) LED **OPEN** – On: Valve opened, manual operation
- (12) **CLOSE** button – Close valve
- (13) LED **CLOSE** – On: Valve closed, manual operation
- (14) **ALL OP / CL** button – Central operating function for all outputs: Open and close all valve alternatively

Status display and output behaviour

The Status LEDs **A1...A6** (6) show whether the current flow is switch on or switched off at the appropriate output. The connected heating or cooling valves open and close according to their characteristics.

Valve drive	LED on	LED off
Deenergised closed	Heating/cooling Valve opened	Off Valve closed
Deenergised opened	Off Valve closed	Heating/cooling Valve opened

- LED flashes slowly: Output in manual mode
- LED flashes quickly: Output disabled via continuous manual mode



Operating modes

- Bus operation: Operation via push-button sensors or other bus devices
- Short-term manual operation: Manual operation locally with button field, automatic return to bus operation.
- Continuous manual mode: Exclusively manual operation on the device
- No bus operation is possible in manual mode.
- No manual mode is possible in case of bus failure.
- The behaviour after bus failure and return can be set.

- i** The manual mode can be disabled in ongoing operation via a bus telegram.

Switching on the temporary manual control


Operation using the button field is programmed and not disabled.

- Press the  button briefly.
Status-LET **A1** flashes, LED  remains off.

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



Switching off temporary manual operation

The device is in short-term manual mode.

- No button-press for 5 seconds.
- or -
- Press  button briefly as many time as necessary until the actuator leaves the short-time manual mode.
LEDs **A1...** no longer flash, but rather indicate the output status.



Switching on permanent manual control

Operation using the button field is programmed and not disabled.

- Press the  button for at least 5 seconds.
LED  is illuminated, status LED **A1** flashes, continuous manual mode is switched on.

Switching off permanent manual control


The device is in continuous manual mode.

- Press the  button for at least 5 seconds.
LED  is off, bus operation is switched on.

Operating the outputs

In manual operation the outputs can be operated instantly.

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

- Press  button briefly, < 1 s, as many times as necessary until the desired output is selected.
The LED of the selected output **A1...A6** flashes.
The LEDs **OPEN** and **CLOSE** indicate the status.
- Press **OPEN** button.
Valve opens.
- Press **CLOSE** button.
Valve closes.
The LEDs **OPEN** and **CLOSE** display the valve stats.

- i** Short-term manual operation: After running through all of the outputs the device exits manual mode after another brief press.


Operate all outputs simultaneously

The device is in continuous manual mode.

- Press the **ALL OP / CL** button.
All the valves open and close alternately.

Disabling individual outputs

The device is in continuous manual mode.


- Press  button briefly as many times as necessary until the desired output is selected.
The status LED of the selected output **A1...** flashes.
- Press buttons **OPEN** and **CLOSE** simultaneously for at least 5 seconds.
Selected output is disabled.

The status LED of the blocked output **A1...** flashes quickly.

- Activate bus mode (see section Deactivating permanent manual control).
- ❗ A disabled output can be operated in manual mode.

Re-enabling outputs

The device is in continuous manual mode.

- Press  button briefly as many times as necessary until the desired output is selected.
- Press buttons **OPEN** and **CLOSE** simultaneously for at least 5 seconds.
Selected output is enabled.
The LED of the enabled output flashes slowly.
- Activate bus mode (see section Deactivating permanent manual control).

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

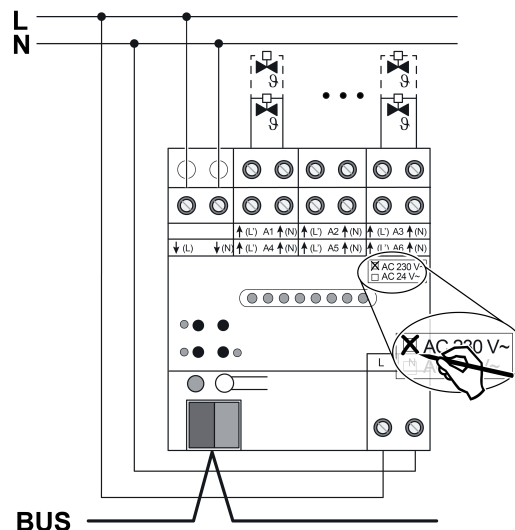


Figure 3: Connection of actuators 230 V

Connect valve drives of AC 230 V or AC 24 V to all the outputs.

Only connect valve drives with the same characteristics to each output (deenergised closed/opened).

Do not connect any other loads.

Connect actuators for frost-sensitive rooms to outputs **A1** and **A4**. These are switched off last in the event of overload.

Do not exceed maximum number of actuators per output (see "Technical data").

Observe the technical data of the valve drives used.

Do not connect the neutral conductor from the output terminals through to additional devices.

- Connect the AC 230 V valve drives according to the connection diagram (Figure 3).
- Connect the AC 24 V valve drives according to the connection diagram (Figure 4).
- Connect the supply for the valve drives to the terminals ↓(L) and ↓(N) (1).
- Connecting the mains voltage to the terminals (5).
- Connect bus line with connecting terminal.

i The device can draw its power either only from the bus voltage or only from the mains voltage.

Only bus supply: The settings for the behaviour on bus failure have no effect. The outputs switch to the deenergised state.

Only mains supply: Operation of the outputs with the button field or emergency operation according to the programming is possible.

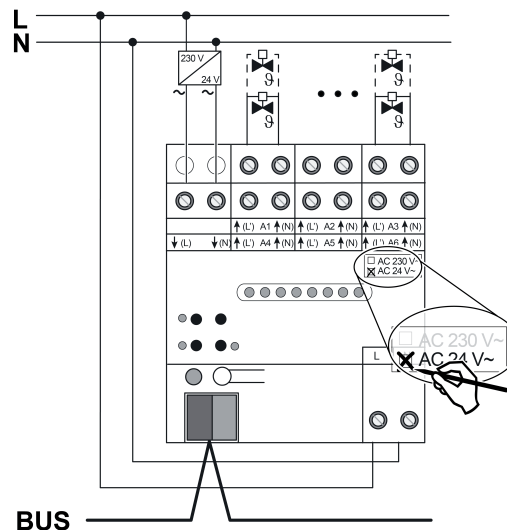


Figure 4: Connection of actuators 24 V

Installing the cover

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

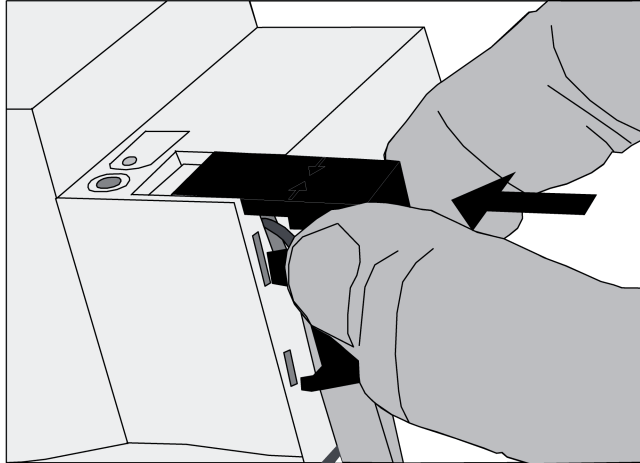


Figure 5: Installing the cover

- Route the bus line towards the rear.
- Install cover on top of the bus terminal so that it snaps into place (Figure 5).

Removing the cover

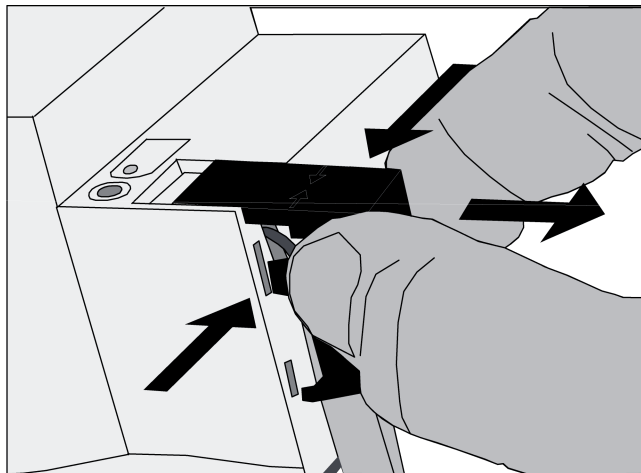


Figure 6: Removing the cover

- Press the cover to the side and pull it off (Figure 6).

5.2 Commissioning

Load the address and the application software

- Switch on the bus voltage.
- Press the programming button.
- Load physical address into the device.
- Load the application software into the device.
- Note the physical address on the device label.

6 Appendix

6.1 Technical data

Supply
Rated voltage

AC 110 ... 230 V ~

Mains frequency	50 / 60 Hz
Standby power	max. 0.4 W
Power loss	max. 1 W
KNX	
KNX medium	TP
Commissioning mode	S-mode
Rated voltage KNX	DC 21 ... 32 V SELV
Power consumption KNX	max. 250 mW
Ambient conditions	
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C
Heating outputs	
Contact type	Semi-conductor (Triac), ε
Switching voltage	AC 24 / 230 V ~
Mains frequency	50 / 60 Hz
Switching current	5 ... 160 mA
Switch-on current	max. 1.5 A (2 sec)
Switch-off current	max. 0.3 A (2 min)
Number of drives per output	
230 V drives	max. 4
24 V drives	max. 2
Housing	
Fitting width	72 mm / 4 modules
Connection of outputs	
Connection mode	Screw terminal
single stranded	0.5 ... 4 mm ²
finely stranded without conductor sleeve	0.5 ... 4 mm ²
Finely stranded with conductor sleeve	0.5 ... 2.5 mm ²

6.2 Troubleshooting

Actuators of an output or all outputs do not switch

Cause: An output is overloaded.

Determine cause of the overload switch-off. Eliminate short-circuits, replace defective actuators. Check number of actuators connected to the output, reduce if necessary. Do not exceed max. switching current.

Reset overload switch-off: disconnect device from mains completely for approx. 5 seconds, switch off miniature circuit-breaker. Then switch on again.

- i** In case of overload, initially one or both output groups switch off for approx. 6 minutes. After that the device determines which output is overloaded and switches it off permanently. This rest and test phase lasts 6...20 minutes.
- i** After resetting of the overload switch-off it is no longer possible for the device to determine which output is overloaded. If the cause is not eliminated, overload switch-off will occur again.

6.3 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.

KNX

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GIRA

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