Operating instructions

Heating actuator 6-gang with controller
Order no. 2139 00

Product image non-binding

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1 Safety instructions

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

Serious injuries, fire or property damage are possible. Please read and follow the 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 device is switched off. Before carrying out work on the device or load, switch off all corresponding circuit breakers.

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

2 Device components

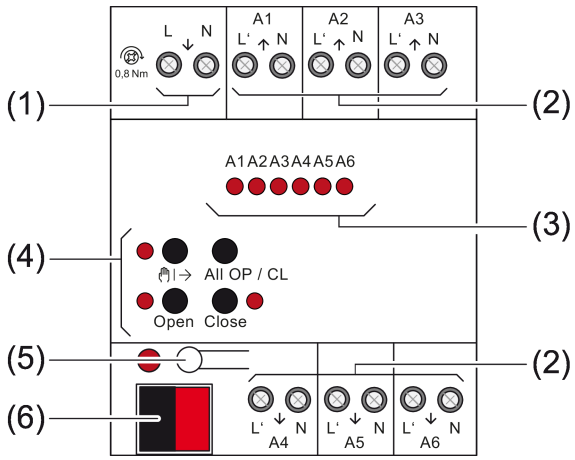

Figure 1: Front view

(1) Supply of electrothermal valve drives
(2) Connection of electrothermal valve drives (A1 to A6)
(3) Status LEDs for outputs
(4) Button field for manual operation
(5) Programming button and LED
(6) Bus connection

If all of the status LEDs (3) are flashing (2 Hz), the device is indicating that there is no power supply to the electrothermal valve drives (1).

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 5.7.7 and above.

Intended use

- Switching of electrothermal valve drives for heaters or cooling ceilings
- Operation in KNX system
- Installation in sub-distribution units on DIN rail according to DIN EN 60715

Product characteristics

- Switching operation or PWM operation
- Valve drives with characteristics opened or closed without power controllable
- 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 by bus
- Overload-protected, short-circuit-protected, error message with LED
- Protection against jamming valves
- Forced position
- Cyclical monitoring of the input signals can be parameterized
- Feedback via bus, e.g. in case of mains failure or overload
- Bus connection with standard bus terminal

PWM operation: electrothermal valve drives 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.

- Integrated room temperature control with setpoint value specification
- 12 independent controllers to control up to 12 independent rooms
- Controller function for heating and cooling operation

Overload / short-circuit protection

In order to protect the device and connected valve drives, in case of overload or short-circuit 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 the event of an overload, group monitoring switches off the affected output group A1...A3 or A4...A6 first.
- Unambiguous monitoring 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:

All status LEDs of the affected valve group flash synchronously during the test (1s flash -> 1s pause -> 1s flash -> ...).

- Overload: Status LED of the identified output flashes continuously (approx. 2 Hz): Test cycle completed.
- Short-circuit: Status LED of the identified output flashes continuously (approx. 1 Hz): Test cycle completed.

4 Operation

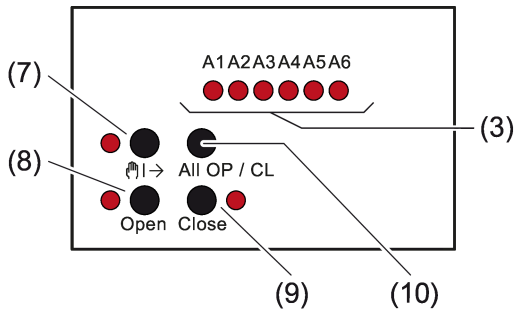

Figure 2: Operating elements

(3) Status LEDs for outputs

(7) button – Manual operation
LED - On: permanent manual operation mode active

(8) **Open** button – Open valve
LED – On: valve opened, manual operation mode

(9) **Close** button – Close valve
LED – On: valve closed, manual operation mode

(10) **ALL OP / CL** button – Central operating function for all outputs in case of permanent manual operation: Open and close all valves alternately

Status display and output behaviour

The status LEDs A1...A6 (3) show whether the current flow is switched on or switched off at the appropriate output. The connected heating or cooling valves open and close according to their characteristics.

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

– Status LED flashes slowly: output in manual operation mode

– Status LED flashes quickly: output disabled via permanent manual operation mode

Operating modes

– Bus operation: operation via push-button sensors, for example

– Temporary manual operation mode: manual operation on device with button field, automatic return to bus mode

– Permanent manual operation mode: exclusively manual operation on the device

No bus operation is possible in manual mode.

All controlled valve outputs switch off after bus voltage failure.

Switching on temporary manual operation mode

Operation is not disabled.

- Press the ✋|→ button briefly.
  Status LED A1 flashes, LED ✋|→ flashes.

ⓘ After 5 seconds without button actuation, the actuator returns automatically to bus mode.

Switching off temporary manual operation mode

The device is in short-term manual mode.

- No button has been actuated for 5 seconds.
  - or -
- Press the ✋|→ button briefly as many times as necessary until the actuator exits temporary manual operation mode.

  Status LEDs A1...A6 no longer flash, but indicate the status.

Switching on permanent manual operation mode

Operation is not disabled.

- Press the ✋|→ button for at least 5 seconds.

  LED ✋|→ is illuminated, status LED A1 flashes, permanent manual operation mode is switched on.

Switching off permanent manual operation mode

The device is in permanent manual operation mode.

- Press the ✋|→ button for at least 5 seconds.

  LED ✋|→ is off, status LEDs A1...A6 no longer flash, bus mode is switched on.

Operating the outputs

In manual operation mode the outputs can be operated instantly.

The device is in permanent or temporary manual operation mode.

- Press the ✋|→ button briefly, < 1 s, as many times as necessary until the desired output is selected.
  The status LED of the selected output A1...A6 flashes.

  The LEDs **Open** and **Close** indicate the status.
- Press the **Open** button.
  Valve opens.
- Press the **Close** button.
  Valve closes.

The LEDs **Open** and **Close** indicate the valve status.

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

Operating all outputs simultaneously

The device is in permanent manual operation mode.

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

In contrast to the operating function using the OPEN or CLOSE buttons, the actuator always activates the valve outputs with a constant signal (0% or 100%), when they are activated simultaneously. This causes the valves to close or open completely. No pulse width modulation is executed.

Disabling individual outputs

The device is in permanent manual operation mode.

- Press the button → briefly as many times as necessary until the desired output is selected.
  The status LED of the selected output flashes.
- Press buttons **Open** and **Close** simultaneously for at least 5 seconds.
  Selected output is disabled.
  The status LED of the disabled output flashes quickly.
- Deactivate permanent manual operation mode(see chapter "Operation" Page 8).

A disabled output can be operated in manual mode.

Re-enabling outputs

The device is in permanent manual operation mode.

- Press the 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.
  Status LED of the enabled output flashes slowly.
- Deactivate permanent manual operation mode (see chapter "Operation" Page 8).

5 As-delivered state

In the as-delivered state, the device enables manual operation on the device itself, provided that the voltage supply to the valve drives and the bus voltage are switched on. With manual operation, no feedback telegrams are sent to the KNX.

In the as-delivered state, all the valve outputs are configured as follows:

- Valve direction of action: Deenergised closed
- Pulse width modulation on "Open valve": 50%
- Cycle time: 20 minutes
- Behaviour in case of bus voltage failure: Valves set to deenergised state (valve outputs switched OFF)
- Behaviour in case of bus voltage return: Valves set to deenergised state (valve outputs switched OFF)

6 Information for electrically skilled persons

6.1 Mounting and electrical connection

DANGER!

Electric shock when live parts are touched.

Electric shocks can be fatal.

Always disconnect before carrying out work on the device or load. To do so, switch off all corresponding circuit breakers, secure them against being switched on again and check that there is no voltage. Cover up any adjacent live parts.

Mount device

- Enter or scan the device certificate and add it to the project. A high resolution camera should be used to scan the QR code.
- The device certificate should be removed from the device during mounting.
- Document all passwords and keep them safe.

Observe ambient temperature. Ensure adequate cooling.

- Mount device on DIN rail.

Connect device

Connect either AC 230 V or AC 24 V valve drives 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 valve drives 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 valve drives per output (see chapter "Technical data" ▸ Page 16).

Observe the technical data of the valve drives used.

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

- Connect AC 230 V valve drives according to the connection diagram (see figure 3). The neutral conductors of the actuators can either be connected directly to the N terminals of the outputs of the heating actuator (left-hand connection example) or, alternatively, jointly with a suitable N potential (e.g. N conductor terminal in the distributor) (right-hand connection example). It is not absolutely necessary to connect the neutral conductor of the actuators directly to the actuator.

The neutral conductor terminals of the valve outputs are bridged internally in the device. Only use the neutral conductor terminals of the outputs for the connections of the actuators of an actuator.

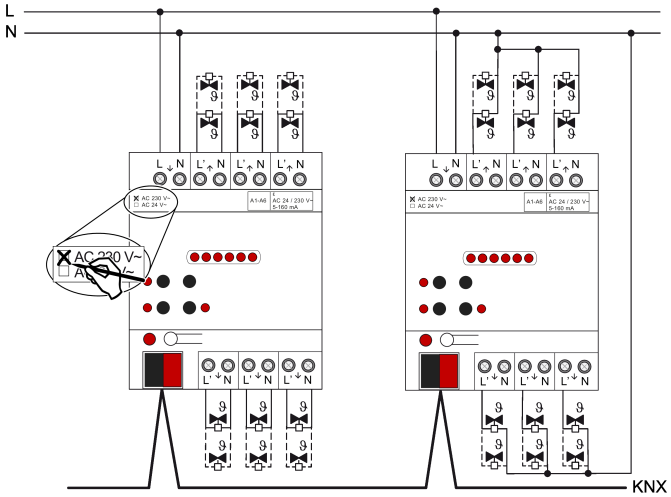

Figure 3: Connection for AC 230 V actuators (connection examples)
Left: Neutral conductor of the actuators run separately to the actuator /
Right: Shared neutral conductor for actuators

- Connect AC 24 V valve drives according to the connection diagram (see figure 4). It is possible to connect the actuators individually and directly with the terminals of the outputs of the heating actuator (left-hand connection example) or, alternatively, using a shared conductor (right-hand connection example).

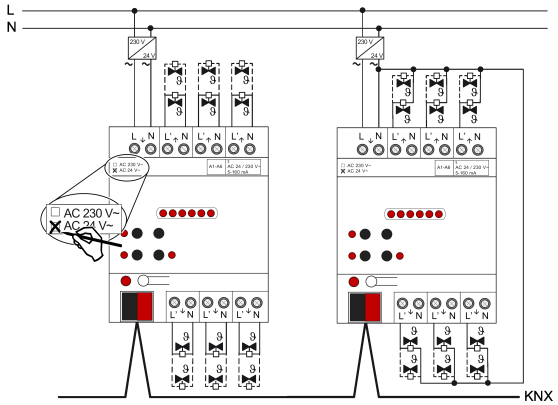

Figure 4: Connection for actuators AC 24 V
Left: Isolated connection of the actuators, separately on the actuator /
Right: Shared conductor for actuators

The terminals of the valve outputs indicated with "(N)" are bridged internally in the device. The terminals may only be used for the connection of the actuators of an actuator. Never connect N potential (mains voltage)!

- Connect the supply for the valve drives to the terminals ↓**(L)** and ↓**(N)** (1).
- Connect bus line with device connection terminal observing the correct polarity.

- Attach the cover cap to the bus connection as protection against hazardous voltages.

6.2 Commissioning

6.2.1 Safe-state mode and master reset

Safe-state mode

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

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 default device settings (physical address 15.15.255, firmware is retained). The device must then be recommissioned with the ETS. Manual operation is possible.

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

Performing a master reset

Prerequisite: 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

The device 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 device to lose its physical address and configuration.

7 Technical data

Ambient conditions	
Ambient temperature	-5 ... +45°C
Storage/transport temperature	-25 ... +70°C
Housing	
Installation width	72 mm / 4 HP
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 s)
Switch-on current	max. 0.3 A (2 min)
Number of drives per output	
230 V drives	max. 4
24 V drives	max. 2
Connection of outputs	
Connection mode	Screw terminal
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 for screw terminals	Max. 0.8 Nm
KNX	
KNX medium	TP256
Commissioning mode	S mode
Rated voltage KNX	DC 21 ... 32 V SELV
Current consumption KNX	4.5 ... 10 mA

8 Troubleshooting

Valve drives 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 valve drives. Check number of valve drives 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.

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 to 20 minutes.

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.

9 Warranty

The warranty is provided by the specialist trade in accordance with statutory requirements. Please submit or send faulty devices postage paid together with a fault 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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