SIEMENS

KNX

Room actuator N 568/81, 24-fold

5WG1568-1AB81

Main characteristics

- Room actuator with 24 outputs to switch and control solar protection (AC/DC), on/off valve and ventilation functions
- Standard 35 mm DIN rail mounting, DIN EN 60 715
- Direct operation for efficient installation with output status indication
- Powered via KNX bus

ETS configuration functions

- Switch electrical loads such as lighting, sockets etc.
- Control max. 12 AC 230 V blinds, shutters or awnings
- Control max. 2 DC (outputs 17...20 and 21...24) blinds, shutters or awnings
- Control 3-speed fan
- Control valve drives for heating or cooling via 3-point operation, PWM or 2-point operation

Characteristics

The room actuator (multi-output module) integrates multiple output functions, including switch, solar protection DC/AC, fan and valve. The module functions can be configured as required, e.g., some outputs are used to control the switch, some to control solar protection, and some to control the fan, etc. Different output channels have different load capacities.

A device relay represents one output. Some functions may require multiple outputs, e.g., a shutter AC output needs to use two relay outputs to control forward and reverse rotation. Basic switch outputs require one relay output. Therefore, for engineering, the product must be selected as per actual demands.

The room actuator has a direct operating button on the device front for efficient commissioning. With one operating button and one status LED per channel, the relays can be switched and the output status displayed.

The device is a DIN rail-mounted device in dimension for installation in distributions and installations on 35-mm DIN rails as per standard IEC 60715.

The device bus connection uses a bus terminal block. The device electronics are supplied via bus voltage (no additional supply voltage required).

The device has screw terminals to connect stranded wires to a conductor cross-section of 0.2...5.2 mm² (10...24 AWG) or solid wires with a conductor cross-section of 0.2...5.2 mm² (10...24 AWG), to the output channels.

The room actuator N 568/81 consists of the device (hardware) and the application program (software).

Functions

Switch output

Connect electrical loads, e.g., lighting, sockets, and heating controls. The switch output has max. 24 channels, each output is relay-controlled and switched electronically.

- Switch on/off
- Time function
  - Delay on/off function
  - Flashing function
  - Staircase lighting function. After switching on, lighting is switched off automatically after a specified period of time. This function is more efficient when used together with a sensor
- 8 scenes can be retrieved and saved using 1-byte objects
- Logical operations: AND, OR, XOR, gates
- Access to the relay status informs on the present contact status of the switch via visualized device
- Forced control function, two data types: 1 bit/2 bit, forced on or off, with the highest priority
- Counting of operating hours
- Central control of switching outputs
- Relay contact position selection after bus voltage recovery
- Relay contact position selection after bus voltage failure
- Relay contact position after download
- Direct operation of switching outputs
- Control of thermal actuators (without controller)

Solar protection control with AC/DC outputs

AC/DC outputs to connect blinds, awnings, shutters, vertical blinds etc.

Two relay outputs are required to control AC 230 V drives.

4 relay outputs are required to control DC drives. (pole changes).

The output contacts are for the UP and DOWN moving directions.

AC and DC drives are wired differently, but the functions are similar. Pausing a change of direction can be set via parameters.

- Control of blinds or roller shutters
- Move up/down, on/off, via 1-bit object
- Stop/adjust slats, via 1-bit object
- Move to position 0...100 %, via 1 byte object
- Slats are adjusted to position 0... 100 %, via 1 byte object (blinds only)
- Report blinds position
- Report slat position (blinds only)
- Position selection after bus voltage recovery
- Position selection after bus voltage failure
- Position selection after reference movement
- Slat position setting after reaching the lower end position
- Central control of solar protection channel
- Set different moving times
- Automatic solar protection
- Scene control via 1-byte object
- Safety functions

Fan control

The fan controller can be connected to a single-phase fan and supports max. 3 speeds. The output contacts correspond to those of the switching output.

- Up to 3-speed fan can be controlled
- The fan speeds can be selected via two operating modes: switchover or step switching
- The switchover time between the fan speeds is set in the switchover operating mode
- Set fan speed after a bus voltage failure
- Set fan speed after bus voltage recovery
- Forced control: Fan runs only at speed within permissible range, at highest priority
- Automatic operation: Automatic fan speed as per the control value from the KNX bus, adjustable fan speed.
- Normal operation: Manual fan control, e.g., via panel, etc.
- Max. two control values can be evaluated and monitored
- Parameterizable startup and switch-off behavior
- State feedback, e.g., automatic operating state, fan level status, fan speeds, etc.

Valve control

Valve control for heating and cooling in 2- or 4-pipe systems. The valve drives are controlled separately for heating and cooling using one relay output each. 3 different types of control: 2-point control (ON/OFF), continuous control (PWM output), 3-point control (OPEN/CLOSE).

With 2-point control, a 1-bit control value (ON/OFF) is received via KNX bus. The valve can only be fully opened or closed. The valve is switched by means of the temperature difference between setpoint and actual value. Typically, 2-wire thermal valves are connected, and a distinction is made between normally-closed and normally-open valves.

With continuous control, a 1-byte control value is received via KNX bus. The continuous signal is converted into a cyclical ON/OFF switching signal using parameterizable pulse width modulation (PWM). The valve can only be fully opened or closed. Typically, 2-wire thermostatic valves are connected, and a distinction is made between normally-closed and normally-open valves.

With 3-point control, a 1-byte control value is received via KNX bus. The valve is controlled as per the control value. The valve opens fully, closes fully, or stops at an intermediate position. A valve reversing time can be parameterized. This control is used to control 3-wire valves.

- Heating only, cooling only or heating and cooling
- Monitor control values on the bus and transmit fault states

- Set the valve position after bus voltage recovery
- Set the valve position after bus voltage failure
- Automatically adjust the valve position in 3-point operation
- Correct the valve characteristic curve in 3-point operation
- Valve position feedback or inquiry
- Manual or automatic valve flushing with status signal

Type summary

Product no.	Stock no.	Description	Operating voltage
N 568/81	5WG1568-1AB81	Room actuator, 24-fold	DC 21... 30 V, powered over KNX bus

Ordering

When ordering, specify product number/stock number and name: e.g. N 568/81 (5WG1568-1AB81) Room Actuator, 24-fold.

Version of the engineering tool software

Application	Version
Engineering Tool Software (ETS)	ETS 5 or above

Product documentation

Title	Document ID
Mounting instructions	A6V13469666
Application manual	A6V13469670
CE declaration	A5W00277738A
RCM	A5W00756478A
UKCA	A5W00756482A
Environmental product declaration	A5W00269576A

Related documents such as the environmental declarations, declarations of conformity, etc., can be downloaded from the following Internet address:

www.siemens.com/bt/download

Technical documentation and ETS application can be downloaded at http://www.siemens.com/gamma-td (S-Mode).

To search for the technical documentation, you can enter the product type in http://www.siemens.com/gamma-td.

Notes

Security

⚠ CAUTION	
	**National safety regulations** Failure to comply with national safety regulations may result in personal injury and property damage. ● Observe national provisions and comply with the appropriate safety regulations.

⚠ WARNING	
	● Only certified electricians may install and commission the device. ● When connecting the device, make sure the device can be enabled. ● Do not open the casing of the device. ● Only use conventional transformers that comply with the relevant standards and contain a thermal fuse. ● For planning and to set up electric systems, comply with the regulations and standards of the respective country. ● External preliminary protection with max. 10 A circuit breaker or fuse in the supply line required under any circumstances.

Engineering

⚠ WARNING	
	When designing and constructing the system, be sure to adhere to the installation and operation guidelines for the product, and comply with relevant national laws and regulations strictly.

Mounting

Mounting

- The room actuators are designed for modular installation as per EN 60715 and can be mounted on 35 mm DIN rails. The device uses screw terminals for electrical connection, and the bus is connected directly via the KNX bus terminal. The system does not require an additional power supply except for the bus.
- Only trained and authorized engineers may install and debug the device.
- Keep devices away from vibration, strong magnetic fields, high temperatures and wet environments.
- Do not drop the device on the ground and avoid any hard impacts.
- Do not use wet cloth or volatile agents to wipe the device.
- Do not disassemble the device.

Wiring

- To make sure all functions of the device are used correctly, check the wiring before using the device.

- Physical address assignment and parameter setting via ETS (ETS5 or later) with knxprod file.
- For parameter settings, note the technical characteristics of the load equipment, especially curtain drivers, fan, valve. For certain technical characteristics inherent to the device, improper settings may damage the load equipment or result in faulty operation.

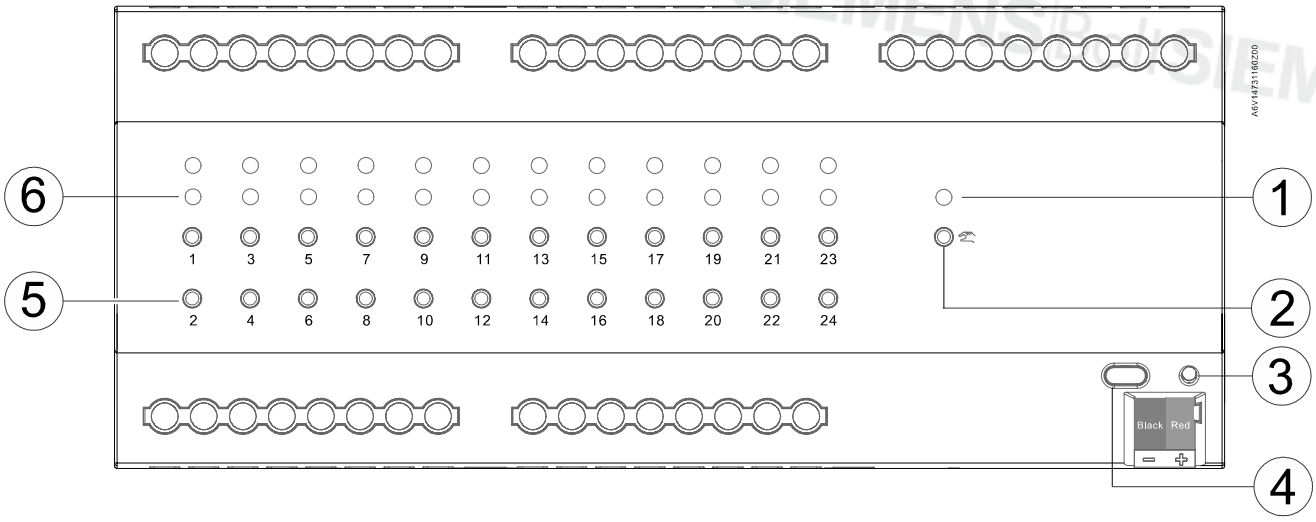
NOTICE	
!	The device outputs are not mechanically locked. There is a risk of faulty load control due to an undefined relay status. Connected drive motors can be destroyed. During commissioning, make sure all relay contacts are open prior to switching on the load. Adhere to the commissioning sequence.

Device commissioning

1. Switch on the KNX bus voltage and connect the actuator to the KNX bus via the black/red KNX bus terminal block
2. Wait for approx. 2 to 3 s until the device is initialized, and all relays are opened
3. Connect the load circuits
4. Test the installation
   - Direct operation in supply state: Only one relay per pair (1/2, 3/4, 5/6, 7/8...) can be closed. The configured relay states cannot be saved after each restart.
5. Load physical address and application program
   - For switched loads, configure the outputs as switching
   - For Venetian blinds operation, configure the outputs as solar protection AC/curtain DC
   - For fan operations, configure the outputs as fan control
   - To control thermal or motorized valve actuators, configure the outputs as heating/cooling/2-pipe outputs or valve control (4-pipe)
   - After pressing the programming button on the device, the programming LED lights up in red
   - Load physical address and application program using ETS
   - After downloading, the programming LED flashes green in KNX bus mode
   - Direct operation after commissioning with ETS (download ETS database): All outputs function as per ETS parameterization. The configured relay states are saved after restart.

Operation and indication

Programmable button and red LED are used to assign physical addresses.



Number	Button/LED	Functions
①	Status LED to indicate direct or bus operation	Indicates direct/bus operation
②	Toggle button for direct/bus operating mode	Switch between direct/bus operating mode
③	Programming LED	Flashing green LED indicates that the device application layer operates normal A red LED indicates active programming mode
④	Programming button	Switch to programming mode
⑤	Direct operation button	Switch output
⑥	Output LED	Indicates output status

Disposal

This symbol or any other national label indicate that the product, its packaging, and, where applicable, any batteries may not be disposed of as domestic waste. Delete all personal data and dispose of the item(s) at separate collection and recycling facilities in accordance with local and national legislation.
For additional details, refer to Siemens information on disposal.

If a device is defective, contact the local sales office.

Power supply	
Operating voltage	DC 21...30 V, powered over KNX bus
Standby current	<12 mA
Charging current	<20 mA
Standby power consumption	<360 mW

KNX interface	
KNX terminals	Black/red, 0.6...0.8 mm
Max. communication objects	532
Max. group addresses	1000
Max. associations	1000

Outputs (each output is configured separately)	
Output terminals • Diameter • Torque	Connect by screw • 0.2...5.2 mm^2 • 0.85 Nm
Un (rated voltage)	AC 230 V (50/60 Hz)
In (rated current and capacitance)	10 A / 105 µF (LED max. load 200 W)
Surge impulse current	300 A / 2 ms
Max. switching current	20 A / AC 250 V
Mechanical life	>1 x 10^6
Electrical life	>5 x 10^4
Min. applicable load (reference value)	100 mA / DC 5 V

Note:

For relay parameters, the above load refers to only one lamp. For multiple lamps in parallel, the applicable load is reduced. Even when power remains the same, but when the instantaneous impulse current increases, the relay contact may melt. Thus, in normal use, the measured current should prevail, and the max. measured impulse current must be within the permitted range.

Ambient conditions and protection classification	
Protection degree of housing as per EN 60529	IP20
Environmental conditions	
• Storage	• Temperature: -25...+55 °C Humidity: <93 % r.h. (non-condensing)
• Transport	• Temperature: -40...+70 °C Humidity: <93 % r.h. (non-condensing)
• Operation	• Temperature: -5...+45 °C Humidity: <93 % r.h. (non-condensing)

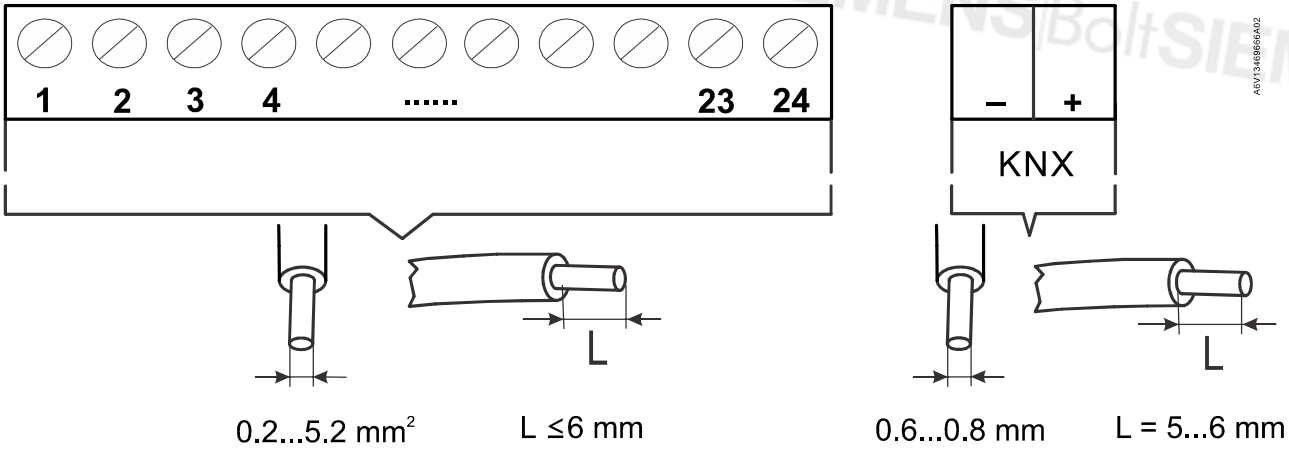
Standards, directives, and approvals	
Product standards	EN 50428 EN 60669-1, EN 60669-2-1 EN IEC 63044-5-1，EN IEC 63044-5-2
Overvoltage category	III
Degree of pollution	2
EU conformity (CE)	A5W00277738A *)
RCM conformity	A5W00756478A *)
UKCA	A5W00756482A *)
Environmental compatibility	The product environmental declaration (A5W00269576A *) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal, etc.).

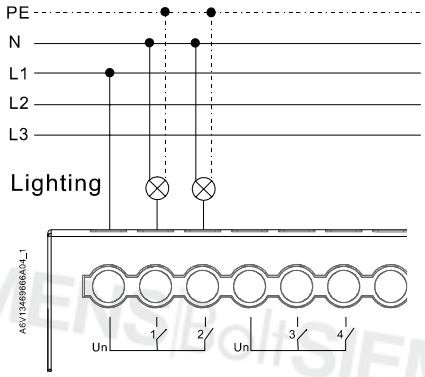
General data	
Dimensions in mm （w × h × d）	216 × 90 × 64
Weight without/with package	711 / 854 g
Materials and colors	Housing: Plastic, light grey

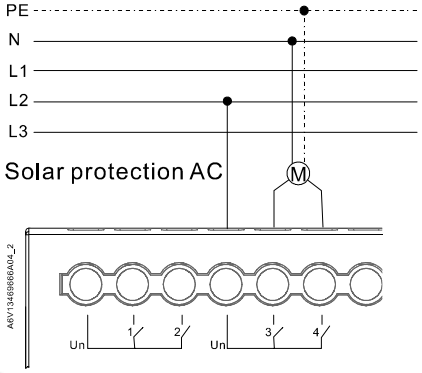
*) The documents can be downloaded from https://siemens.com/bt/download.

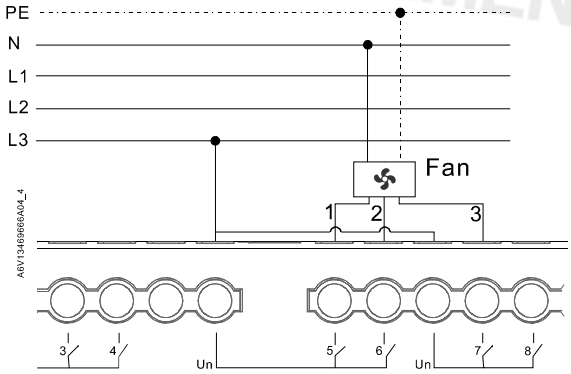
Diagrams

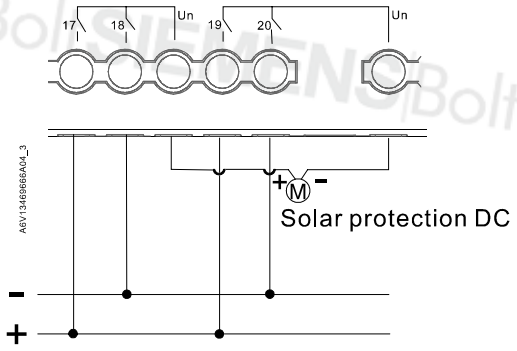
Connection terminals

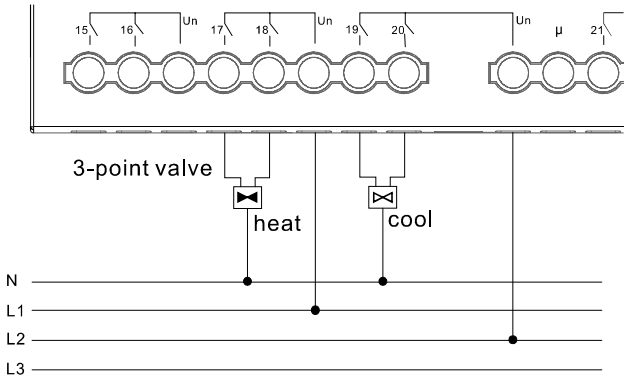


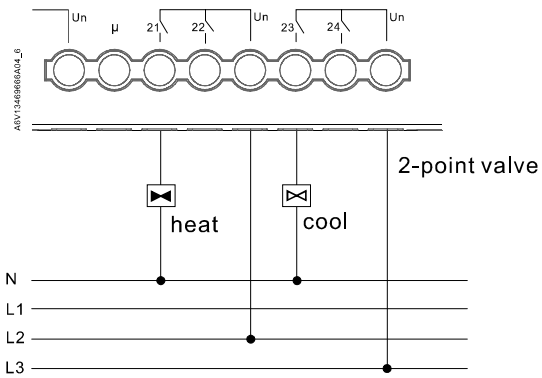


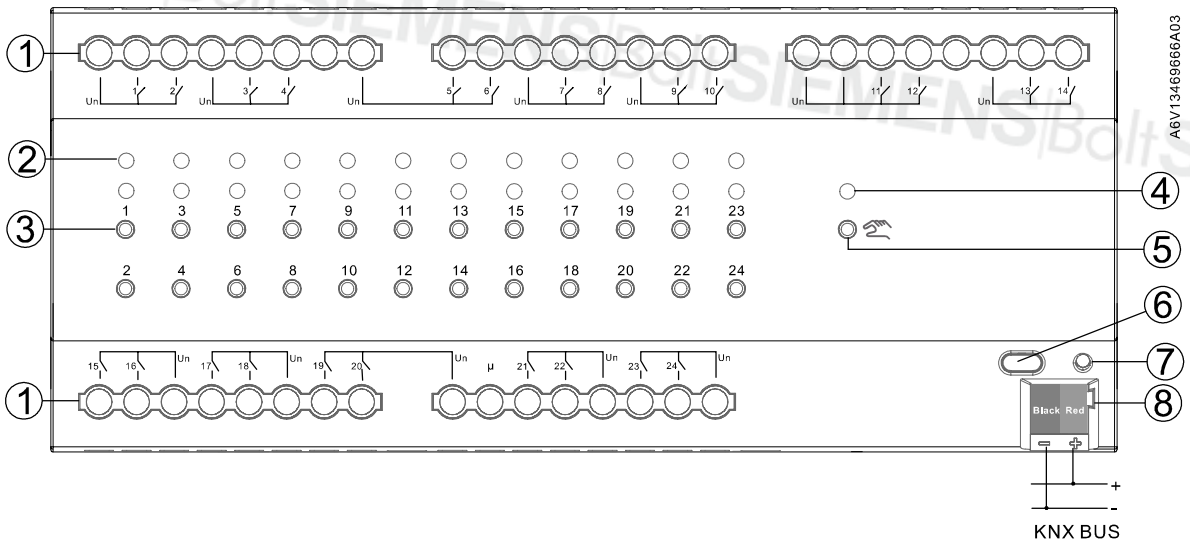












Number	Description
①	**Output load terminals**: Indicates the wiring for each relay output
② ③	**Direct operation buttons for relay outputs and status (database is loaded)**: ● When using the direct operation buttons, each relay output corresponds to a direct operation button and the corresponding LED indication. The LED indicates the present output status. ● The direct operation button controls curtains/blinds (AC/DC), long press (channel 1) moves up and (channel 2) moves down, short press stops moving/adjusting blinds. When the curtains/blinds are operated, the corresponding indicator flashes. When the limit position is reached, the indicator is On constantly. For DC outputs, the status LED and direct operation buttons (channel 3) & (channel 4) are not used. ● When the direct operation button is used to control the fan speed, channel 1 is for 1-speed, channel 2 for 2-speed, channel 3 for 3-speed. Press and hold any button of the three to switch off the fan. The status LED for the direct operation button indicates the fan speed. ● If the direct operating buttons are used for valve control, channel 1 is to open/close the valve for 2-pipe control. The status LED (channel 1) indicates the On/Off status of the valve (fully open/fully closed). Channel 2 is not used. With 4-pipe control, the direct operation button (channel 1) and the status LED (channel 1) are used to switch and indicate the heating valve state. The direct operation button (channel 3) and the status LED (channel 3) are used to switch and indicate the cooling valve state. Channel 2 and Channel 4 are not used. For 3-point valves, output 1 and output 3 are used to open, output 2 and output 4 to close the valve. **Direct operation buttons for relay outputs and status (database not loaded)**: ● If the database is not loaded, direct operation is used to test the installation. The configured relay states cannot be saved after restart. Only one channel of each pair of channels (1&2...23&24) can be set to On. Thus, if channel 1 is set to On, channel 2 is forced to Off.
④ ⑤	**Direct/bus operation changeover button and indicator**: Press and hold this button to switch over between direct and bus operation, with indicator On for direct operation, and Off for bus operation.
⑥ ⑦	**Programming button and LED indicator**: This button switches over to programming mode. The status LED is red.
⑧	**KNX bus connection terminals**

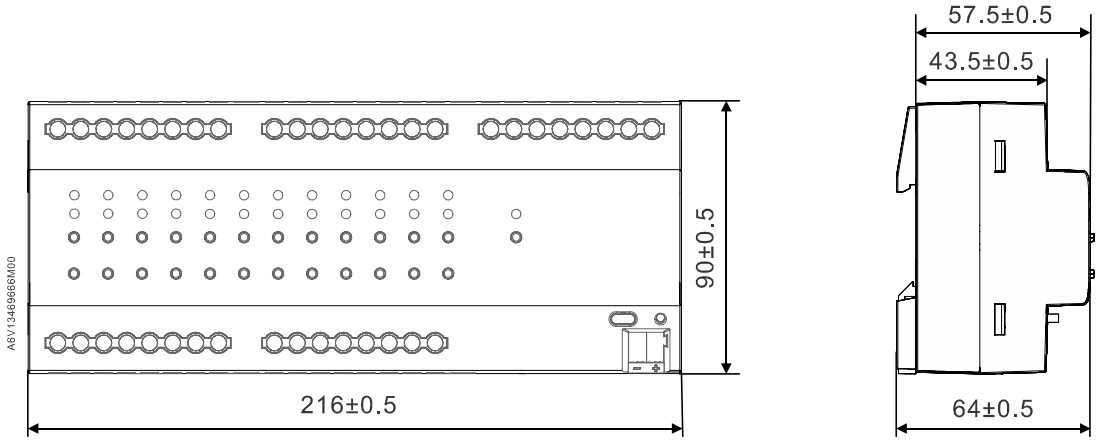
Notes:

- After activating direct operation, bus telegrams are ignored. Existing operating states are retained until channels are switched manually. Manually triggered operating states are retained even after returning to

bus operation and are only changed after new bus commands are received. (For special handling of direct operation, see application manual.)

- For AC and DC wiring, note the following:
  - If channels 17/18/19/20 are used for DC curtains, channels 15/16/21/22/23/24 cannot be connected to rated voltage 230 V;
  - If channels 21/22/23/24 are used for DC curtains, channels 15/16/17/18/19/20 cannot be connected to rated voltage 230 V.
- In the ETS product database configuration, each output offers a range of functions. Wiring of loads must be consistent with ETS database configuration.

Dimensions



Dimensions in mm

Regulatory compliance information

European Union conformity

Contact for regulatory topics: (EU) Siemens AG, Berliner Ring 23, DE-76437 Rastatt

United Kingdom conformity assessed

Contact for regulatory topics: (GB) Siemens plc, Sir William Siemens House, Princess Road, Manchester, M20 2UR

Support

- Hand over the operating instructions and all other technical product information to the client.
- Return faulty devices with a return delivery note to the local Siemens office.
- For technical questions, contact:
  Tel.: +49 89 9221-8000
  http://www.siemens.com/supportrequest

Technical Support:
http://www.siemens.com/supportrequest

FAQ:
https://support.industry.siemens.com/cs/ww/en/ps/faq

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