Switch actuator, 4-gang / blinds actuator, 2-gang
Art. No. 2304.16 REG HE
Switch actuator, 8-gang / blinds actuator, 4-gang
Art. No. 2308.16 REG HE
Switch actuator, 16-gang / blinds actuator, 8-gang
Art. No. 2316.16 REG HE

Operating instructions

1 Safety instructions

Electrical equipment may only be installed and fitted by electrically skilled persons.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

Danger of electric shock. Device is not suitable for disconnection from supply voltage.

Danger of electric shock on the SELV or PELV installation. Do not connect any loads for SELV, PELV, or FELV together.

For parallel connection of several drives to an output it is essential to observe the corresponding instructions of the manufacturers, and to use a cut-off relay if necessary. There is otherwise risk of irreparable damage to the drives.

Use only Venetian blind drives with mechanical or electronic limit switches. Check the limit switches for correct adjustment. Observe the specifications of the motor manufacturers. Device can be damaged.

Do not connect any three-phase motors. Device can be damaged.

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

2 Device components

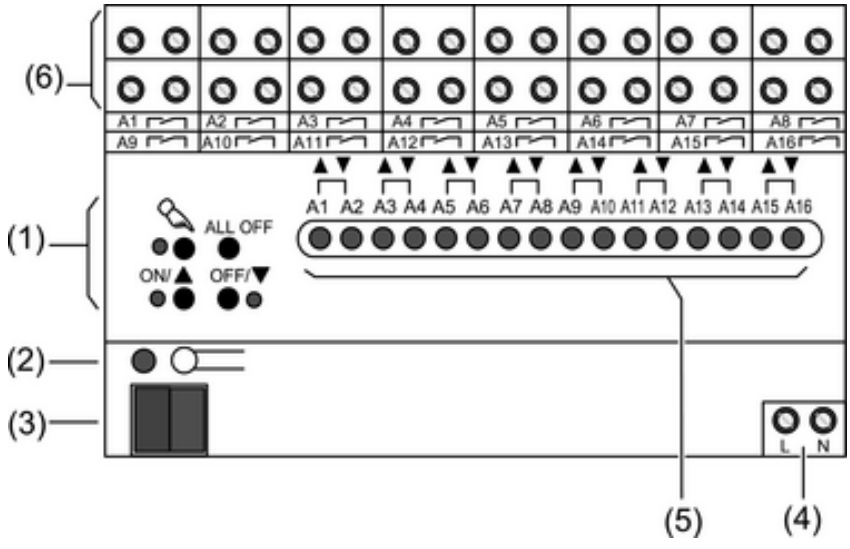

Figure 1

(1) Button field for manual operation
(2) Programming button and LEDs
(3) KNX connection
(4) Connection for mains supply
(5) Status LEDs for outputs
(6) Connection for loads

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. Full functionality with KNX commissioning software version ETS3.0d onwards.

An updated version of the product database, technical descriptions and conversion programs and other auxiliary programs are available on our Internet website.

Intended use

- Switching of AC 230 V electrical loads with floating contacts
- Switching of electrically-driven Venetian blinds, shutters, awnings and similar hangings
- Mounting on DIN rail in small distributors

Product characteristics

- Outputs can be operated manually, construction site mode
- Feedback in manual mode and in bus mode
- Scene function
- Disabling of individual outputs manually or via bus

Characteristics switch operation

- Operation as NO or NC contacts
- Logic and restraint function
- Feedback function
- Central switching function with collective feedback
- Time functions: switch-on delay, switch-off delay, staircase lighting timer with run-on time

Characteristics blinds operation

- Suitable for 230 V AC motors
- Blind/shutter position directly controllable
- Slat position directly controllable
- Feedback of movement status, blind/shutter position and slat position
- Forced position through higher-level controller
- Safety function: 3 independent wind alarms, rain alarm, frost alarm
- Sun protection function

4 Operation

Operating elements

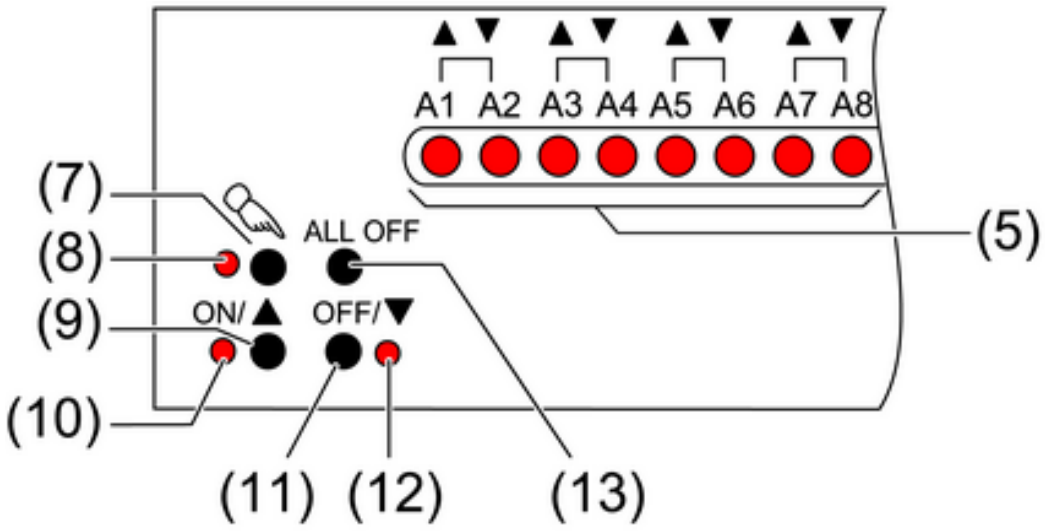

Figure 2

(5) Status LEDs for outputs
(7) Button – Manual operation
(8) LED – On: Continuous manual mode active
(9) Button **ON/▲** - Switching on or move hanging up / stop
(10) LED **ON/▲** – ON: Switched on or hanging moves up, manual mode
(11) Button **OFF/▼** - Switch off or move hanging downwards,manual mode
(12) LED **OFF/▼** – ON: Switched off or hanging moves down, manual mode
(13) Button **ALL OFF** – All outputs off and stop drives.

In operation with the button field the device distinguishes between a short and a long press.
- Short: pressing for less than 1 second
- Long: Pressing for between 1 and 5 seconds

Status indication

The status LED **A1...** (5) indicate the states of the outputs (figure 1).
- Off: Output switched off
- On: Output switched on
- Flashes slowly: Output in manual mode
- 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

i No bus operation is possible in manual mode.
i No manual mode is possible in case of bus failure.
i After a bus failure and restoration the device switches to bus operation.
i After a power failure and restoration the device switches to bus operation.
i The manual mode can be disabled in ongoing operation via a bus telegram.

Priorities for blinds operation

- Highest priority: manual mode
- 2nd priority: forced position
- 3rd priority: safety function
- 4th priority: sun protection
- Lowest priority: bus mode: moving up/down, slat positioning, scenes, positioning

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.

ⓘ 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.
  Status LEDs **A1...** no longer flash, but rather indicate the output status.
  Switching outputs: depending on the programming, the output relays switch to the position that is active after the manual mode is switched off, e.g. to the forced position, logic function.
  Blind/shutter outputs: depending on the programming, the hangings move to the position that is active after the manual mode is switched off, e.g. to the forced position, safety or sun protection position.

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.
  Switching outputs: depending on the programming, the output relays switch to the position that is active after the manual mode is switched off, e.g. to the forced position, logic function.
  Blind/shutter outputs: depending on the programming, the hangings move to the position that is active after the manual mode is switched off, e.g. to the forced position, safety or sun protection position.

Operating the outputs

The device is in continuous or short-term 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.
  The LEDs **ON/▲** and **OFF/▼** indicate the status.
- Operate output with **ON/▲** or **OFF/▼** button.
  Switching outputs: switch on or switch off.
  Blind/shutter outputs:
  Short: Stop hanging.
  Long: Move hanging upwards/downwards.
  The selected output executes the corresponding commands.
  The LEDs **ON/▲** and **OFF/▼** indicate the status.

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

Switching off all outputs / Stopping all hangings

The device is in continuous manual mode.

- Press the **ALL OFF** button.
  All outputs switch off; all hangings stop moving.

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 **ON/▲** and **OFF/▼** buttons simultaneously for at least 5 seconds.
  Selected output is disabled.
  The status LED of the selected output **A1...** flashes quickly.
- Activate bus mode (see section Deactivating permanent manual control).

ⓘ A disabled output can be operated in manual mode.

ⓘ When a disabled output is selected in manual mode, the corresponding status LED flashes twice briefly at intervals.

Re-enabling 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 twice briefly at time intervals.
- Press **ON/▲** and **OFF/▼** buttons simultaneously for at least 5 seconds.
  Selected output is enabled.
  LED of the selected 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 working on the device, disconnect the power supply and cover up live parts in the working environment.

Fitting the device

Observe the temperature range. Ensure adequate cooling.

- Snap device onto DIN rail to DIN EN 60715. Output terminals must be at the top.

Connecting the device

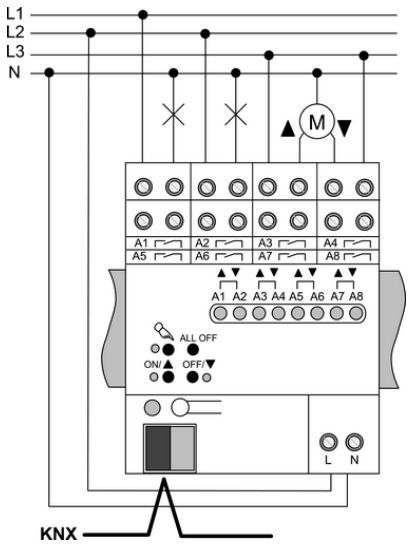

Figure 3

- Connect bus line with connecting terminal.
- Connect mains voltage supply.

i Delivery state: Outputs can be operated using button field, construction site mode. All outputs are set as blind/shutter outputs.

Connecting switched loads

Output is parameterised as a switching output.

CAUTION!
Overloading the device leads to excessive heating.
Damage to the device and the connected cables may result.
Do not exceed the maximum current carrying capacity.

- Connected switched loads (figure 4).

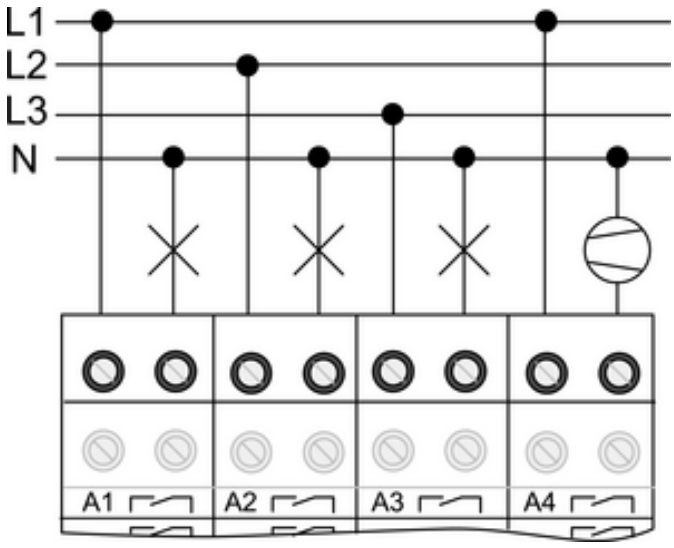

Figure 4

Connecting blind/shutter drives

For blind/shutter drives, each pair of adjacent relay outputs forms a blind/shutter output. In each case the left-hand relay output **A1, A3...** is intended for the up direction, and the right-hand load output **A2, A4...** for the down direction.

Output is parameterised as a blind/shutter output.

CAUTION!
Overloading the device leads to excessive heating.
Damage to the device and the connected cables may result.
Do not exceed the maximum current carrying capacity.

- Connect drives (figure 5).

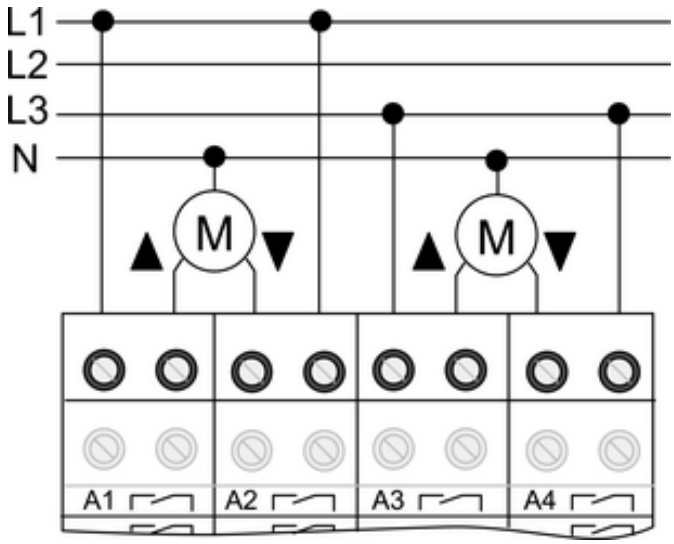

Figure 5

Installing the cover

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

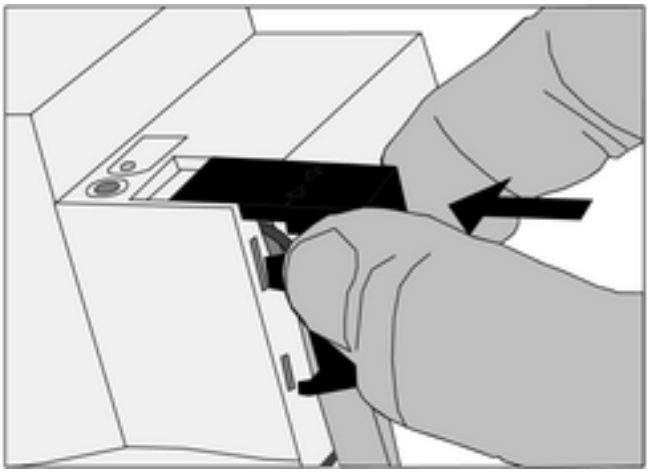

Figure 6: Installing the cover

- Route the bus line towards the rear.

- Install cover on top of the bus terminal so that it snaps into place (figure 6).

Removing the cover

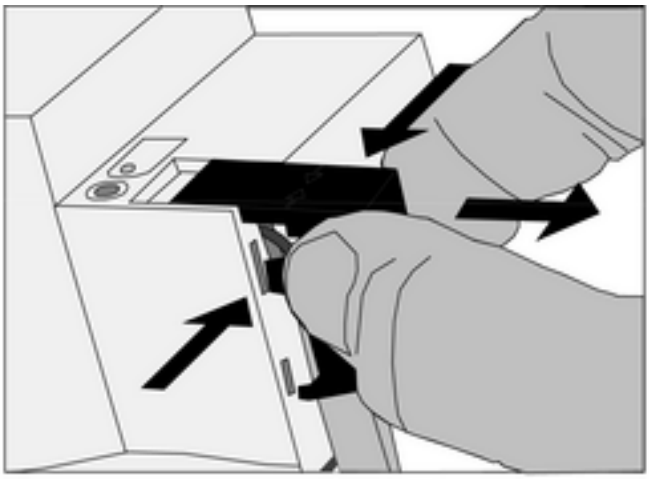

Figure 7: Removing the cover

- Press the cover to the side and pull it off (figure 7).

5.2 Commissioning

Measuring the hanging and slat operation time

The blind/shutter travelling time is important for position and scene runs. For slatted Venetian blinds the slat adjusting time is by design part of the overall blind/shutter travelling time. The opening angle of the slats is therefore set as the operation time between the positions Open and Closed.

The upwards travel generally lasts longer than the downwards travel, and is taken into account as the operation time extension in %.

- Measure upwards and downwards operation time of the hanging.
- Measure slat adjusting time between Open and Closed.
- Enter the measured values in the parameter setting – Downwards travel in seconds and operation time extension in percent.

i In the case of automatic operation time detection, no measurement of the hanging operation times is performed.

i Automatic measurement of the slat adjusting time is not possible.

Load the address and the application software

- Switch on the bus voltage.
- Assign physical addresses and load application software into the device.
- Note the physical address on the device label.

6 Appendix

6.1 Technical data

Supply	
Rated voltage	AC 230 / 240 V ~
Mains frequency	50 / 60 Hz
Power loss	
Art. No. 2304.16 REG HE	max. 2 W
Art. No. 2308.16 REG HE	max. 3 W
Art. No. 2316.16 REG HE	max. 4.5 W
Ambient conditions	

Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C
Outputs	
Contact type	µ contact, monostable
Switching voltage	AC 250 V ~
Switching current AC1	16 A
Fluorescent lamps	16 AX
Current carrying capacity	
Neighbouring outputs	Σ 20 A
Device	
Art. No. 2304.16 REG HE	Σ 40 A
Art. No. 2308.16 REG HE	Σ 80 A
Art. No. 2316.16 REG HE	Σ 160 A
Loads per output	
Ohmic load	3000 W
Capacitive load	max. 16 A (140µ)
Motors	1380 VA
Switch-on current 200 µs	max. 800 A
Switch-on current 20 ms	max. 165 A
Lamp loads	
Incandescent lamps	3000 W
HV halogen lamps	2500 W
LV halogen lamps with Tronic transformer	1500 W
LV halogen lamps with inductive transformer	1200 VA
Fluorescent lamps T5/T8	
uncompensated	1000 W
parallel compensated	1160 W (140 µF)
Duo circuit	2300 W (140 µF)
Compact fluorescent lamps	
uncompensated	1000 W
parallel compensated	1160 W (140 µF)
Mercury vapour lamps	
uncompensated	1000 W
parallel compensated	1160 W (140 µF)
Connections supply and load	
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
Fitting width	
Art. No. 2304.16 REG HE	72 mm / 4 modules
Art. No. 2308.16 REG HE	72 mm / 4 modules
Art. No. 2316.16 REG HE	144 mm / 8 modules
Weight	
Art. No. 2304.16 REG HE	approx. 250 g
Art. No. 2308.16 REG HE	approx. 290 g
Art. No. 2316.16 REG HE	approx. 460 g
KNX	
KNX medium	TP 1
Commissioning mode	S-mode
Rated voltage KNX	DC 21 ... 32 V SELV
Power consumption KNX	typical 150 mW
Connection type for bus	Connection terminal

6.2 Troubleshooting

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.

Output cannot be operated.
Cause: Output is disabled.
Cancel disabling.

None of the outputs can be operated.
Cause 1: All of the outputs are disabled-
Cancel disabling.
Cause 2: Continuous manual mode active.
Deactivate manual mode (switch off continuous manual mode).
Cause 3: Application software has been stopped, programming LED is flashing.
Perform reset: Disconnect device from bus, switch on again after 5 seconds.
Cause 4: Application software missing or faulty.
Check programming and correct.

Blind/shutter outputs cannot be operated
Cause: Forced position, safety function or sun protection is active.
As long as higher-order functions are active for a blind/shutter output, this output cannot be operated.

Position runs and scene runs are not executed or executed improperly
Cause 1: Sun protection, safety function, forced position or manual mode is activated.
As long as higher-order functions are active, no position or scene runs are possible.

Hanging does not move to end position, position and scene runs faulty.
Cause: Blind/shutter travelling time has been set incorrectly.
Correct blind/shutter travelling time.

The hanging moves upwards before the positioning and scene run.
Cause: No position saved, e.g. due to power failure.
Hanging performs reference run. Do not interrupt hanging run.

6.3 Accessories

Connection cover	Art. No. 2050 K
Decoupling relay	Art. No. TR-S
Decoupling relay for rail mounting	Art. No. TR-S REG
Decoupling relay, flush-mounted	Art. No. TR-S UP

6.4 Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

We provide a warranty as provided for by law.

Please send the device with a description of the defect to our central customer service office.

ALBRECHT JUNG GMBH & CO. KG
Volmestraße 1
58579 Schalksmühle

Telefon: +49.23 55.8 06-0
Telefax: +49.23 55.8 06-2 04
kundencenter@jung.de
www.jung.de

Service Center
Kupferstr. 17-19
44532 Lünen
Germany