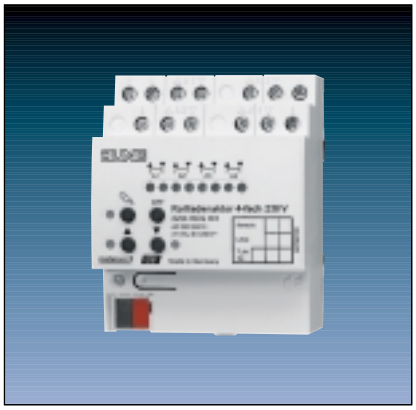
Actuators
Shutters

1



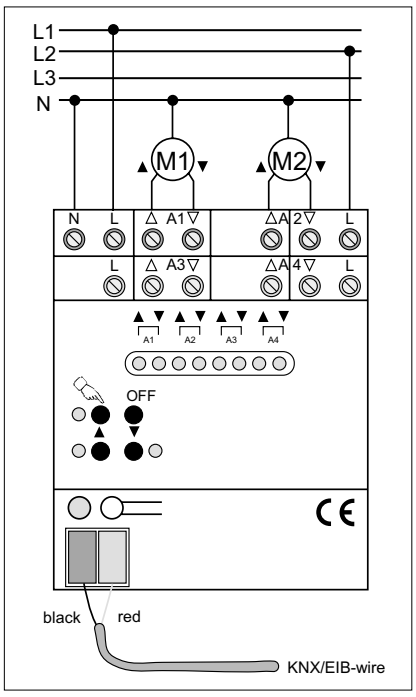
2

	Ref.-No.
KNX shutter actuator,	
4-gang 230 V AC	**2204 REG HR**
ETS-product family:	Shutter
Product type:	Shutter 4-gang
Series embodiment (SE)-device (4 units)	

3

Depending on KNX telegrams received, the shutter actuator switches up to four independent output channels, one for each motor (4-channel operation). The number of output channels can also be reduced to two so that up to two shutter motors can be controlled per channel (2 x 2-channel operation).
The shutter actuator is equipped with a manual control feature permitting bus-independent operation of the individual outputs in a permanent or temporary mode.
On reception of a storm warning, the actuator can, for instance, move the shutter into a predefined safety position and lock them there.
Each output can be independently parameterized for individual moving times.
The 4 manual switches on the front panel of the device permit switching the relays on and off by hand in parallel with the KNX even without bus voltage or in a non-programmed state. This feature permits fast checking of connected motors for proper functioning.
The shutter actuator has its own mains supply independent of the connected drives. For actuation of the outputs, the mains supply must always be on.

Connection diagram:



1 programming button
1 programming LED (red)

Manual controls:
1 "✋" key for manual control mode activation (select key)
1 "OFF" key (ALL stop)
1 "▲" key for manual UP movement
1 "▼" key for manual DOWN movement

Status indicators:
8 LEDs (red) to indicate the movement direction of the individual outputs or of the manually selected output
1 LED (red) to indicate the "permanent manual mode"
1 LED (red) to indicate the "UP" movement of the manually selected output
1 LED (red) to indicate the "DOWN" movement of the manually selected output

4 Technical data

Supply

Voltage:	21 – 32 V DC (SELV)
Power consumption:	max. 150 mW
Connection:	KNX connection and branching terminal

External supply

Voltage:	110 V (–10 %) – 240 V (+10 %) AC; 50/60 Hz (no DC)
Total power dissipation:	min. 0.3 W up to max. 1.8 W (no load connected)
Connection:	screw terminals: 0.5 – 4 mm^2 single wire and stranded without ferrule 0.5 – 2.5 mm^2 stranded wire with ferrule

Response to voltage failure

Bus voltage only:	parameter-dependent
Mains voltage only:	All outputs switch off (stop); manual control not possible.
Bus and mains voltage:	All outputs switch off (stop); manual control not possible.

Response on reactivation

Bus voltage only:	Mains voltage not available: Outputs are off (stop); bus communication is possible, i.e. safety functions can be activated Mains voltage available: parameter-dependent
Mains voltage only:	Bus voltage not available: parameter-dependent, manual control is possible. Bus voltage available: All outputs switch off or remain off (stop) until a new bus telegram is received and until the switching state changes. Exception: The actuator automatically reactivates the safety function(s) for the outputs assigned if the safety objects were activated before or during the mains failure. The parameterized "response at the beginning of the safety function" is repeated. A safety function activated before and deactivated during the mains failure does not launch a new movement on return of the mains voltage. If a safety function was at first activated and then deactivated again during the mains failure, the actuator launches a new movement for the outputs assigned after return of the mains as parameterized for "at the end of a safety function". In any case, the outputs assigned are re-enabled after safety deactivation. Manual control is possible.
Bus and mains voltage:	parameter-dependent

Output

Type of switching contact:	1 make contact and 1 change-over contact per output, monostable (movement directions mechanically interlocked.)
Number of outputs:	4
Switching voltage:	110 V – 240 V AC +/–10 %, 50/60Hz (no DC)
Max. switching current:	6 A at 230 V AC: non inductive or low-inductance loads (e.g. condenser-type motors)
Connection:	Screw terminals: 0.5 – 4 mm^2 single wire and stranded without ferrule 0.5 – 2.5 mm^2 stranded wire with ferrule

5 Description of software application

Objects

Number of addresses (max): 32
Number of assignments (max): 32
Communication objects: 10

Object	Name	Function	Type	Flag
Mode of operation "4–channel operation"				
☐↓ 0	Output 1	Short operation (STEP)	1 Bit	C, W, (R*)
☐↓ 1	Output 2	Short operation (STEP)	1 Bit	C, W, (R*)
☐↓ 2	Output 3	Short operation (STEP)	1 Bit	C, W, (R*)
☐↓ 3	Output 4	Short operation (STEP)	1 Bit	C, W, (R*)
☐↓ 4	Output 1	Long operation (MOVE)	1 Bit	C, W, (R*)
☐↓ 5	Output 2	Long operation (MOVE)	1 Bit	C, W, (R*)
☐↓ 6	Output 3	Long operation (MOVE)	1 Bit	C, W, (R*)
☐↓ 7	Output 4	Long operation (MOVE)	1 Bit	C, W, (R*)
Mode of operation "2 x 2-channel operation"				
☐↓ 0	Output 1/3	Short operation (STEP)	1 Bit	C, W, (R*)
☐↓ 1	Output 2/4	Short operation (STEP)	1 Bit	C, W, (R*)
☐↓ 4	Output 1/3	Long operation (MOVE)	1 Bit	C, W, (R*)
☐↓ 5	Output 2/4	Long operation (MOVE)	1 Bit	C, W, (R*)
☐↓ 16	Safety 1	Safety	1 Bit	C, W, (R*)
☐↓ 17	Safety 2	Safety	1 Bit	C, W, (R*)

* : For objects marked (R), the current object status can be read out (set "R" flag).

Description of objects (dynamic object structure):

☐↓ 0 – 3	Short operation (STEP):	1-bit object for short operation (STEP) of a shutter
☐↓ 4 – 7	Long operation (MOVE):	1-bit object for long operation (MOVE) of a shutter
☐↓ 16 – 17	Safety:	1-bit object for reception of an alarm resp. safety message (polarity can be parameterized)

Scope of functions

- Mode of operation: 4-channel operation or 2 x 2-channel adjustable:
  – In 4-channel operation, 4 independent output channels, each for one shutter motor or for similar systems.
  – In 2 x 2-channel operation, reduction of output channels, so that two output terminals can be used in common for two motors per output channel.
- Short operation (STEP) or long operation (MOVE) presettable independently for each output channel (long operation (MOVE) also infinitely).
- Switch-over delay at change of movement direction independently presettable for each output.
- Automatic moving time extension (3 %) for the adaptation of different moving times to upper limit stop (dependent on drive unit). This is useful since shutters are slower during UP movements.
- Two safety functions separately assignable to shutter channels and common cyclical monitoring: Movement into a parameterized limit position on activation and deactivation of the safety function(s). The polarity of the safety objects is adjustable.
- Response after failure and return of bus voltage adjustable.
- Manual control of the output channels is possible even without bus voltage. The manual control mode can be inhibited.

5 Safety function

The shutter actuator has two safety functions with separate assignment to the shutter. Safety functions can be activated or deactivated by separate objects. The priority of the objects can be parameterized.

Scope of functions

Safety reaction
The reaction of the assigned output channels at the beginning and at the end of a safety function can be preset.

Response at the beginning of a safety function
The actuator moves the shutters alternatively into one of the limit stop position, if the response at safety is parameterized for "Moving up" or "Moving down". With these settings, the shutters are locked up in the limit position after the end of the safety movement. If the response at safety at the beginning of the safety function is parameterized for "No reaction", no movement is started and the output channels are locked in the actual position.
With respect to all other bus-controllable functions of the actuator, the safety function has the highest priority. This means that all functions in progress for the outputs (e.g. short or long operations) will be aborted and the safety reaction is executed. The safety function can be interrupted only by manual control on the device itself.

Response at the end of a safety function
At the end of a safety function, the actuator immediately re-enables the output channels concerned when the setting is "Moving up" or "Moving down" and approaches the corresponding limit stop positions. If the response at the end of a safety function is parameterized for "No reaction", the corresponding outputs are enabled without starting a new movement. If enabling by "No reaction" occurs during a safety movement still in progress, the outputs are enabled without interrupting the movement.

Safety assignment
Each output channel can be assigned separately to safety functions 1 or 2 or alternatively to both safety functions. If a channel is intended to respond to both functions, the safety objects resp. the functions are combined by a logic OR. This means that the corresponding output channel goes into the safety lock state as soon as one of the objects is active. In this case, the channel will be re-enabled only if both objects are deactivated. Only then can a position follow-up be performed at the end of the safety lock of a channel assigned to both functions!
If the setting is "No assignment", the safety function for this output channel is deactivated.