



KNX S2

Actuator for drives up/down

Technical specifications and installation instructions

Item number 70541



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1. Description

With the **Actuator KNX S2** with integrated facade control, the drives of shutters, awnings, blinds or windows are controlled. The connected drives can be directly operated with the switch pairs of the actuator.

With the potential-free design of the outputs, drives of up to 30 VDC and 230 VAC can be controlled, as well as other systems (e.g. manual switch input of a motor control unit).

The automation for the shading or window ventilation is specified externally or internally. Internally, there are numerous options available for blocking, locking (e.g. master-slave) and priority definitions (e.g. manual-automatic). Scenes are saved and called up via the bus (scene control with 16 scenes per drive).

Functions:

- **2 potential-free outputs** for drives of shading or windows.
- Switch panel with **switch pairs** and status LEDs
- **Position feedback** (movement position, also slat position for shutters)
- **Position storage** (movement position) via 1-bit object (storage and call-up e.g. via buttons)
- Control via **internal or external automation functions**
- Integrated **shade control** for each drive output (with **slat tracking** according to sun position for shutters)
- Integrated **window ventilation control**
- **Scene control** for movement position with 16 scenes per drive (also slat position for shutters)
- Mutual **locking** of two drives using zero position sensors prevents collisions e.g. of shade and window (master-slave)
- **Blocking objects and alarm reports** have different priorities, so that safety functions always take precedence (e.g. wind block)
- **Manual or automatic control configuration** per time or communication object
- **5 security objects** for each channel
- **Brief time limit** (movement command blocked) and **2 movement limits**

Configuration is made using the KNX software ETS. The **product file** can be downloaded from the Elsner Elektronik website on www.elsner-elektronik.de in the "Service" menu.

1.0.1. Deliverables

- Actuator

1.1. Technical specifications

Housing	Plastic
Colour	White

Assembly	Series installation on mounting rail
Protection category	IP 20
Dimensions	approx. 53 x 88 x 60 (W x H x D, mm), 3 modules
Weight	approx. 150 g
Ambient temperature	Operation -20...+70°C, storage -55...+90°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	bus voltage
Current at the bus	approx. 22 mA
Outputs	2 x output up/down potential-free, up to 30 V DC or 230 V AC, max. 4 A per output with resistive load
Data output	KNX +/- bus plug terminal
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 1024
Assignments	max. 1024
Communication objects	207

The product is compliant with the provisions of EC guidelines.

2. Installation and commissioning

2.1. Installation notes



Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.



DANGER!

Risk to life from live voltage (mains voltage)!

There are unprotected live components within the device.

- VDE regulations and national regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

2.2. Connection



When installing and laying the cables for the KNX connection, the regulations and standards governing SELV current circuits must be observed!

2.2.1. Overview

The device is designed for series installation on mounting rails and occupies 3U.

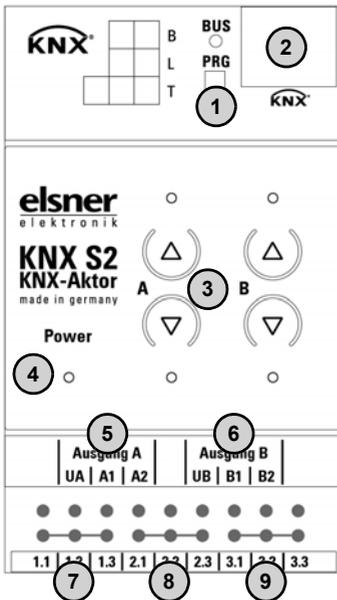


Fig. 1

- 1 Programmable LED and programmable buttons (PRG)
- 2 Bus terminal socket (KNX +/-)
- 3 Up/Down button pairs and LEDs channel A-B
- 4 Power LED, operation status indicator. See "Display of operating status with the power supply LED", page 6.
- 5 Output A:
UA (voltage) / A1 (up) / A2 (down), max. 4 A
- 6 Output B:
UB (voltage) / B1 (up) / B2 (down), max. 4 A
- 7 Free clamps 1.1 to 1.3 (internally bridged), max. 10 A per clamp
- 8 Free clamps 2.1 to 2.3 (internally bridged), max. 10 A per clamp
- 9 Free clamps 3.1 to 3.3 (internally bridged), max. 10 A per clamp

Insulation properties of the clamp groups:

The **Actuator KNX S2** is assigned to Overvoltage category III and Pollution degree 2 according to EN60664-1. According to this classification, between 230 V power cables and FELV 4 kV surge voltage resistance and between 230 V power cables and SELV 6 kV surge voltage resistance must be provided. This provision must be observed during the installation.

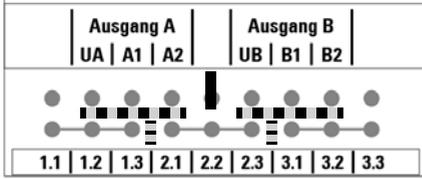


Fig. 2 Insulation properties of the clamp groups
 ■■■ Insulation 6 kV (increased insulation)
 ■■■ Insulation 4 kV (single insulation)

Non-labelled clams may not be used, to avoid influencing the insulation properties!



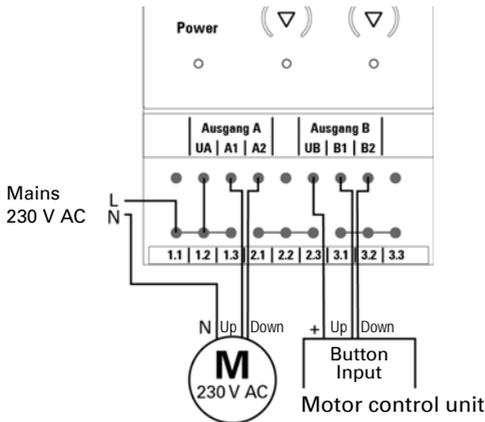
Neighbouring clamp groups [1.1 to 1.3], [2.1 to 2.3] and [3.1 to 3.3] may not be used with mixed voltages, as there is only single insulation between them.

2.2.2. Connection example KNX S2

Output A: Motor 230 V AC, up/down

Output B: External motor control unit. The **Actuator KNX S2** is suitable for the use with direct voltage (12 V DC, 24 V DC) through the potential-free output. In this case, the U-connection is used as "Com".

Fig. 3



2.2.3. Display of operating status with the power supply LED

Behaviour	Colour	
To	Green	Normal operation. Bus connection/bus voltage present.
To	Orange	Device starts or is programmed via the ETS. No automatic functions are executed.
Flashes	Green (on), Orange (flashing)	Programming mode active.

2.2.4. Status display with the channel LEDs

Behaviour	LED	
To	top	Drive in top end position/device on.
To	bottom	Drive in bottom end position/drive on.
Flashes slowly	top	Drive moves up.
Flashes slowly	bottom	Drive moves down.
Flashes quickly	top	Drive in top end position, block active.
Flashes quickly	bottom	Drive in bottom end position, block active.
Flashes quickly	both simultane- ously	Drive in intermediate position, block active.
Off	both	Drive in intermediate position.
"Running light" over all LEDs	all channels	Incorrect application version loaded. Use the version compatible with the device!

2.3. Notes on mounting and commissioning

Device must not be exposed to water (rain). This could result in the electronic being damaged. A relative air humidity of 95% must not be exceeded. Avoid bedewing.

After the operating voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received or sent via the bus.

For KNX devices with safety functions (e.g. wind or rain blocks), it is important to set up periodical monitoring of the safety objects. The ideal ratio is 1:3 (example: if the weather station sends a value every 5 minutes, the actuator must be configured for a monitoring period of 15 minutes).