KNX S2-B6 230 V
Multifunctional actuator

Technical specifications and installation instructions
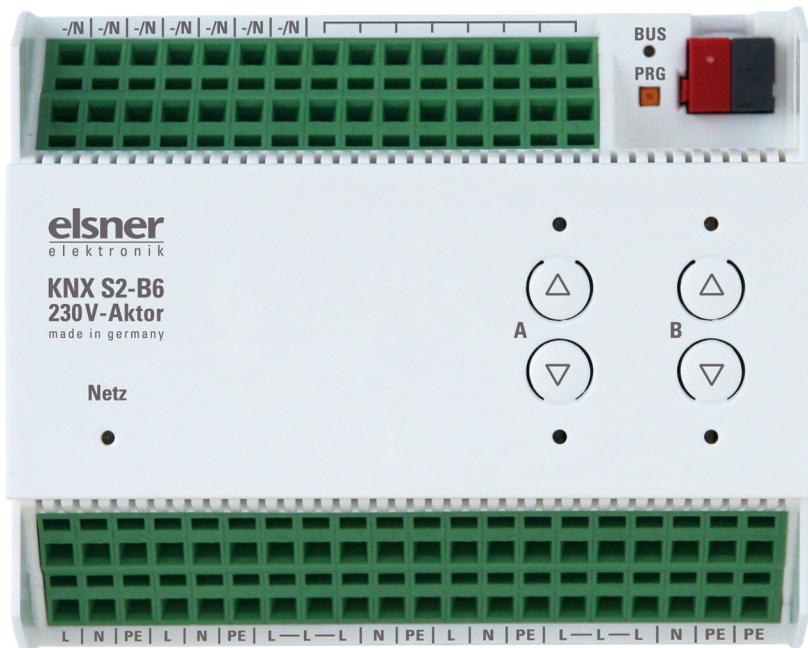
1.   Description

The **KNX S2-B6 230 V actuator** with integrated façade controller has 2 multi-function outputs, 2 push button pairs and control LEDs. Each of the two multifunctional outputs can be connected to either a drive with Up/Down control (blinds, awnings, shutters, windows) or two switched devices (On/Off for light and ventilation). The drives and devices connected are operated directly at the **KNX S2-B6 230 V** and via hand switches.

Automation 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).

Six binary inputs are used either for direct operation (e.g. hand switches) or as bus switches (or also for e.g. alarm notifications). The desired behaviour is defined precisely through selection of the response times in Standard, Comfort or Deadman mode.

Functions:

- **2 Multi-function outputs** for **a 230 V drive** (shades, windows) or for connecting two **switched devices** (light, ventilator)
- Switch panel with **2 switch pairs** and status LEDs
- **6 binary inputs** for use as hand switches or as bus switches with variable voltage (6...80 V DC, 6...240 V AC)
- **Automatic runtime measurement** of the drives for positioning (incl. fault reporting object)
- 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)
- **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 safety functions always take precedence (e.g. wind block)
- Manual or automatic priority setting via time or communication object

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

1.1. Technical specification

Housing	Plastic
Colour	White

Assembly	Series installation on mounting rail
Protection category	IP 20
Dimensions	approx. 107 x 88 x 60 (W × H × D, mm), 6 dividing units
Weight	approx. 360 g
Ambient temperature	Operation -20…+70°C, storage -55…+90°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	230 V AC, 50 Hz
Power consumption	Operation max. approx, 3.5 W Standby max. ca. 0.6 W
Power	on bus: 10 mA
Outputs	2 × outputs with 2 connections for drive Up/Down or 2 devices, 230 V (PE/N/1/2), in total max. 10 A and max. 4 A per connection
Inputs	6 × binary inputs, universal voltage (6...80 V DC, 6...240 V AC)
Max. cable length Binary inputs	50 m
Data output	KNX +/- bus plug-in terminals
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 1024
Assignments	max. 1024
Communication objects	277

The product is compliant with the provisions of EU 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. Device design

The device is designed for series installation on mounting rails and occupies 6U.
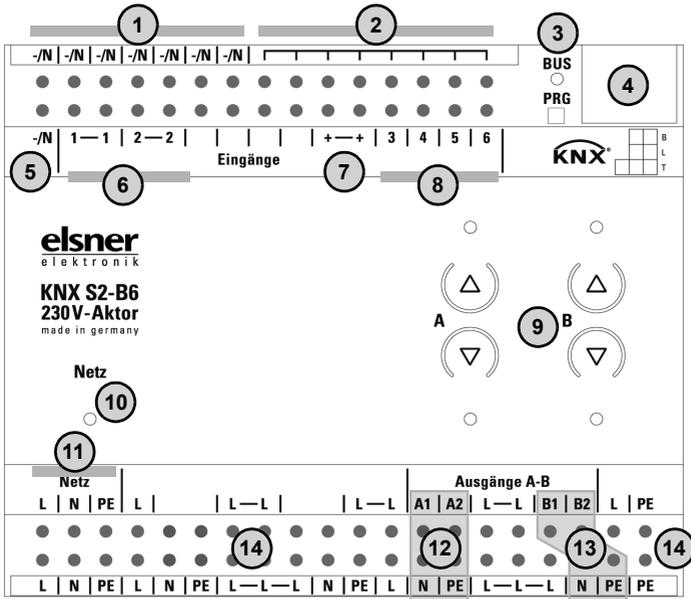
1) –/N (bridged internally with terminal No. 5). When an external auxiliary voltage is used (6...80 V DC, 6...240 V AC), one of the –/N terminals is to be assigned with – or N
2) Free contacts (bridged internally)
3) Programming LED and programming buttons (PRG)
4) Bus terminal slot (KNX +/-)
5) –/N (bridged internally with terminals No. 1)
6) Binary inputs 1-2 (two bridged connections)
7) Internal auxiliary voltage + 24 V DC. Only for binary inputs!
   Do not assign any external voltage!
8) Binary inputs 3-6
9) Up/Down button pairs and LEDs channel A-B
10) Mains LED (Power), mode status display. Siehe "Display of operating status by the power supply LED" auf Seite 7.
11) Operating voltage input 230 V AC L/N/PE
12) Output A1 - A2: "Up"-"Down" respectively "Device1"-"Device2", max. 4 A
13) Output B1 - B2: "Up"-"Down" respectively "Device1"-"Device2", max. 4 A
14) All terminals L, N , PE of the lower connection strip are bridged internally with „main L, N, PE".

> **No. 12-13 in total max. 10 A**

> **STOP** A mix of different auxiliary voltages for the binary inputs is not permitted.

2.2.1. Display of operating status by the power supply LED

Behaviour	Colour	
To	Green	Normal operation. Bus connection/bus voltage present.
Flashes	Green	Normal operation. *No* 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.

2.2.2. Status display by 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, barrier active.
Flashes quickly	bottom	Drive in bottom end position, barrier active.
Flashes quickly	both simultaneously	Drive in intermediate position, barrier active.
Extend	both	Drive in intermediate position.
Flashes	both alternately	Automatic runtime determination error. If the drive can be moved, drive it into the end position by hand (drive in/drive out completely or open/close) in order to restart the runtime determination. If the drive cannot be moved, check the connections.
"Run light" above all LEDs	all channels	Incorrect application version was 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).

2.4. Connecting example for binary inputs

2.4.1. Using the internal auxiliary voltage of the actuator

According to additional binary inputs.
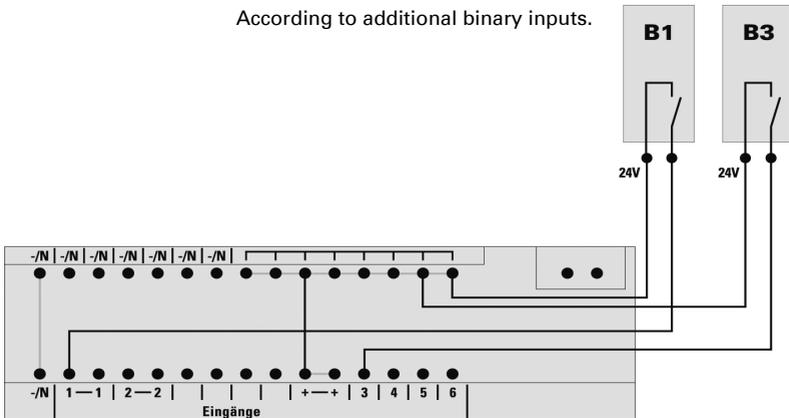
2.4.2. Using an external auxiliary voltage

B1 directly at the phase.
B3 via internally bridged voltage.
According to additional binary inputs.

External auxiliary voltage
6...80 V DC or 6...240 V AC