

# KNX S1R-BA4-UP 24V

## Actuator for a 12/24 V DC motor

### Technical specifications and installation instructions

Item number 70516



## 1. Description

The **Actuator KNX S1R-BA4-UP 24 V** with integrated façade controller regulates the 12 or 24 V DC motor for a shutter, an awning, a blind or window. Because the output is designed to be potential-free, other systems can also be controlled, e.g. via the manual switch input on a motor control unit.

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).

The **KNX S1R-BA4-UP 24 V** has four inputs that are used as binary inputs (switches, alarm messages etc.) or as analogue inputs for T-NTC temperature sensors.

#### Functions:

- **Potential-free output** with polarity changer for a **12 V DC or 24 V DC drive** (shade, window)
- **4 inputs** for binary contacts or temperature sensor
- **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)
- Parameters for taking drive and mechanics downtimes into account
- Control via **internal or external automation functions**
- Integrated **shade control** 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
- **4 temperature switching outputs** in the application program with adjustable threshold values (presetting the parameters or communication object)
- **Brief time limit** (movement command blocked) and **2 movement limits**

Configuration is made using the KNX software as of ETS 5. The **product file** can be downloaded from the ETS online catalogue and the Elsner Elektronik website on [www.elsner-elektronik.de](http://www.elsner-elektronik.de).

### 1.0.1. Scope of delivery

- Actuator

## 1.1. Technical specification

Housing	Plastic
Colour	White
Assembly	Flush mounting (in junction box Ø 60 mm, 60 mm deep)
Degree of protection	IP 20
Dimensions	approx. 50 x 50 x 54 (W x H x D, mm)
Weight	approx. 100 g
Ambient temperature	Operation -5...+45 °C, storage -25...+70 °C
Ambient humidity	0...95 % RH, non-condensing
Operating voltage	KNX bus voltage
Power	on bus: 10 mA at 12/24 V DC: typically 5 mA, max. 10 mA
Maximum load	Each terminal contact may be loaded with a maximum of 10 A.
Output	1 x Output potential-free with polarity changer for 1 drive or 2 electrical loads (Connections +   -   Motor 1   Motor 2) Power supply 12-24 V DC for connected Motor/consumer required (via connections +   -). Load capacity: max. 5 A with resistive load Starting current: max. 5 A
Minimum current for runtime measurement	DC effektive 100 mA
Inputs	4x analogue/ digital, max. cable length 10 m.
Setting range for the T-NTC temperature sensor at the input	-30 °C...+80 °C
Data output	KNX +/- bus plug-in terminals
Group addresses	max. 1024
Assignments	max. 1024
Communication objects	200

The product is compliant with the provisions of EU guidelines.

## 2. Installation and commissioning



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



### CAUTION! Live voltage!

There are unprotected live components inside the device.

- Inspect the device for damage before installation. Only put undamaged devices into operation.
- Comply with the locally applicable directives, regulations and provisions for electrical installation.
- Immediately take the device or system out of service and secure it against unintentional switch-on if risk-free operation is no longer guaranteed.

Use the device exclusively for building automation and observe the operating instructions. Improper use, modifications to the device or failure to observe the operating instructions will invalidate any warranty or guarantee claims.

Operate the device only as a fixed-site installation, i.e. only in assembled condition 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.

### 2.1. Safety notice for automatic functions



### WARNING! Risk of injury from automatically moving components!

Parts of the system can be started by the automatic controls and be a danger to persons.

- No persons may remain in the travelling range of parts driven by an electric motor.
- Adhere to the relevant building regulations.
- Ensure that the return path/access to the building is not blocked if spending time outside the building (danger of being locked out).
- Correctly decommission the system for maintenance and cleaning work.

If there is a power outage, the system does not work. Therefore, shadings should be moved to a save position if there are anticipated weather conditions, for example, if this has not already been done by the automatic function (product protection).

If the power supply is removed, the connected drive switches off. When the power is restored, the consumer remains switched off until a new movement command is received by the actuator.

### 2.2. Installation

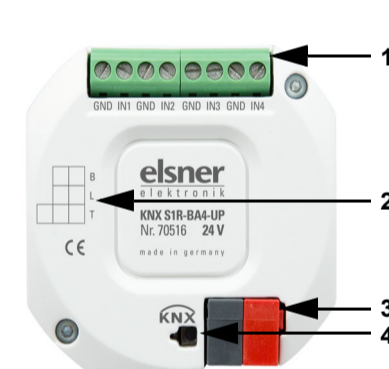


Fig. 1: Bus side

- 1 Connector analogue/digital inputs
- 2 Label field
- 3 KNX plug terminal +/-
- 4 Programming LED and programming button (countersunk)

Analogue/digital inputs connector assignment:

1: GND | 2: IN1 | 3: GND | 4: IN2 | 5: GND | 6: IN3 | 7: GND | 8: IN4  
All GND connectors are internally bridged.

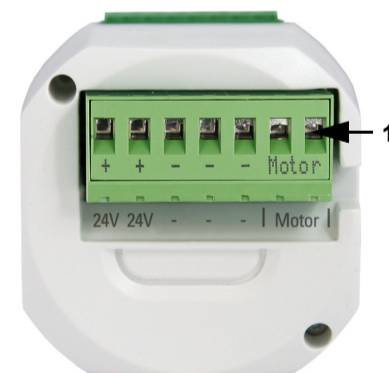


Fig. 2: Output side

- 1 Connector for 12 V DC or 24 V DC motor (free of potential)

### 2.3. Connection

The **Actuator KNX S1R-BA4-UP 24 V** is installed in a flush-mounted socket. The connection is made using a KNX connector on the KNX data bus. In addition, a power supply for the connected drive is necessary (potential-free output).



**Follow the guidelines and standards for SELV electric circuits while installing and cable laying of the KNX connection and inputs!**



### ATTENTION! When first switched on, relays may be live!

The bistable relays used in this product can switch themselves on when subjected to strong vibration, e.g. during transport.

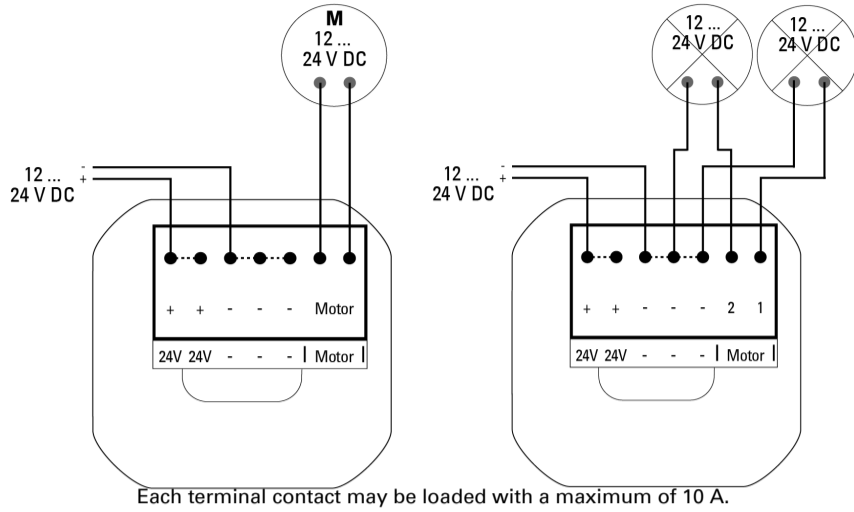
- First of all connect the bus voltage; this will switch off the relays. Only then can the power supply for the drive be switched on.

The physical address is assigned by the KNX software. There is a button with a control LED for this on the actuator.

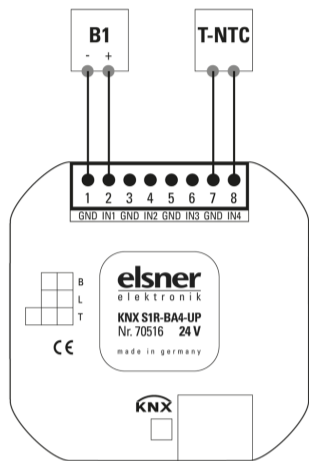
### 2.3.1. Connection examples

**Drive 12 to 24 V DC at the output:**

**2 consumers 12 to 24 V DC at the output:**



**Inputs:**



**Fig. 3**  
Example KNX S1R-B4-UP with binary contact on input 1 and T-NTC temperature sensor on input 4.

Connection of the temperature sensor is independent of the polarity.

### 2.4. Instructions for assembly and initial start-up

Never expose the actuator to water (e.g. rain) or dust. This can damage the electronics. You must not exceed a relative air humidity of 80%. Avoid condensation.

After the auxiliary 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).

### 3. Addressing of the device at the bus

The device is supplied with the bus address 15.15.255. You can program another address into the ETS by overwriting the 15.15.255 address or by teaching via the programming button.

### 4. Disposal

After use, the device must be disposed of in accordance with the legal regulations. Do not dispose of it with the household waste!