KNX-BSA12L (24 VDC)
KNX-BSA12H (230 VAC)

Blind/shutter Actuator
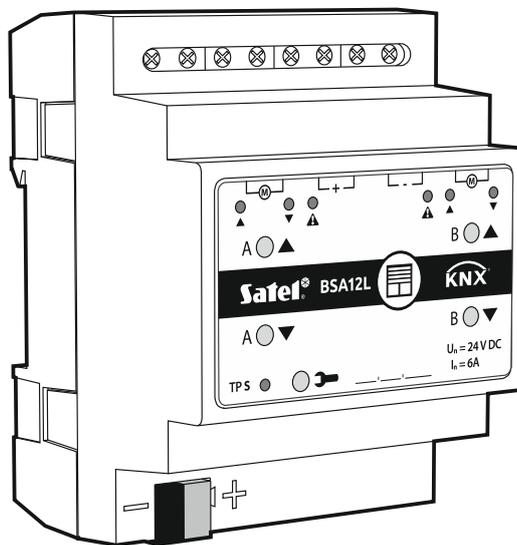
Quick installation guide

Full manual is available on **www.satel.eu**

IMPORTANT

The device should be installed by qualified personnel.

Prior to installation, please read carefully this manual in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

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The declaration of conformity may be consulted at www.satel.eu/ce

The following symbols may be used in this manual:

- note;

- caution.

This manual only regards the installation of modules KNX-BSA12L and KNX-BSA12H. For more information about modules and their configuration, please refer to the full manual available at **www.satel.eu**.

1. Description

The KNX-BSA12L and KNX-BSA12H are KNX blind/shutter actuators that allow you to control the movement of sun protection products such as horizontal (Venetian) blinds, vertical blinds, roller shutters and awnings. They also enable control of the movement of electrically-operated windows. The KNX-BSA12L module is designed to control devices having the 24 VDC motor. The KNX-BSA12H module instead can control devices equipped with the 230 VAC motor.

i *The KNX-BSA12L and KNX-BSA12H modules have two physical outputs with two corresponding logic channels. Each channel allows control of one selected type of blind/shutter or window.*
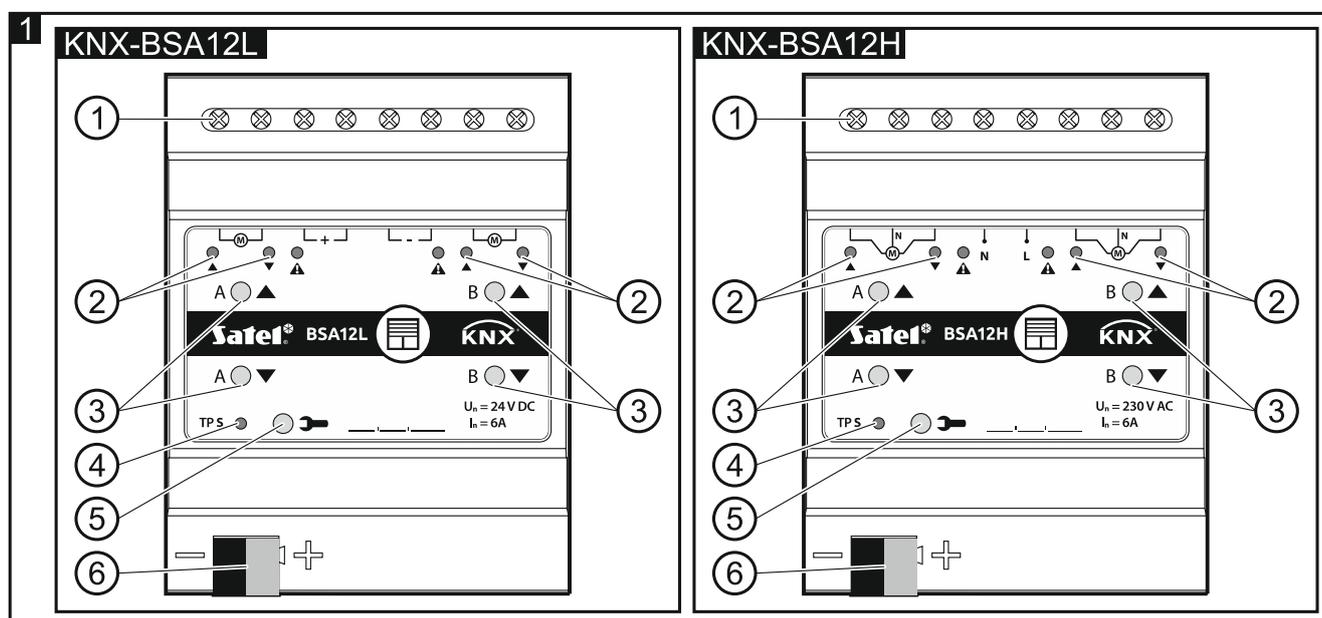
① connecting terminals for blind/shutter motors and power supply.

② LEDs indicating state of blinds/shutters / channels and errors (▲ and ▼ – green, ⚠ - orange) – see Table 1.

LED			State of channel / blind/shutter
▲	▼	⚠	
○	○	○	no blind/shutter / channel not used
☀	☀	☀	blind/shutter not synchronized with module
○ / ●	● / ○	○	blind/shutter travel time detection (synchronization of blind/shutter with module)
●	○	○	blind/shutter fully open
○	●	○	position other than fully open
☀	○	○	blind/shutter move up
○	☀	○	blind/shutter move down
●	●	○	restoring module factory settings
			Error type
☀	●	☀	blind/shutter error* when move up
●	☀	☀	blind/shutter error* when move down
○ – OFF, ● – ON, ☀ – flashing, ○ / ● and ● / ○ – LEDs are OFF and ON alternately.			
* incorrect position, mechanical jam, no power / supply circuit fault, motor overheating or obstacle detection by smart motor.			

Table 1.

ℹ️ *Blind/shutter error does not block the channel. The blind/shutter travel can be controlled for the entire duration of the error. The error is automatically cleared when the blind/shutter reaches the end position in the opposite direction to that in which it was moving when the channel reported an error.*

Continuous operation for too long a time or repeated activation of the blind/shutter in very short intervals can cause motor overheating. Re-starting of the motor is only possible after it has cooled down. The maximum continuous operation time of the motor and the time required for cooling down after overheating are specified in the motor manual.

③ buttons for manual control of blinds/shutters / channels – see Table 2.

Button	How to use	Reaction
▲	short press	blind/shutter move one step up* / stop
	long press	blind/shutter fully open
▼	short press	blind/shutter move one step down* / stop
	long press	blind/shutter fully closed
▲ + ▼	long press	starts process of blind/shutter travel time detection (synchronization of blind/shutter with module)
* function available in normal operating mode (not available in service mode).		
Pressing the button is interpreted by the module as a long press, when you press and hold down the button for longer than 1 second.		

Table 2.

i | *Manual control is possible after configuring the module settings in the ETS program.*

The buttons are also used for restoring the module to its factory default settings (see "Restoring module factory default settings").

④ red LED – ON during physical address assignment via the ETS program and flashes when the service mode is active. Address assignment can be activated manually by using the 🔧 button on the enclosure or remotely from the ETS program.

⑤ programming button (used for physical address assignment). The button can also be used to start the service mode in the module (see "Service mode").

⑥ terminal to connect KNX bus.

1.1   Enclosure
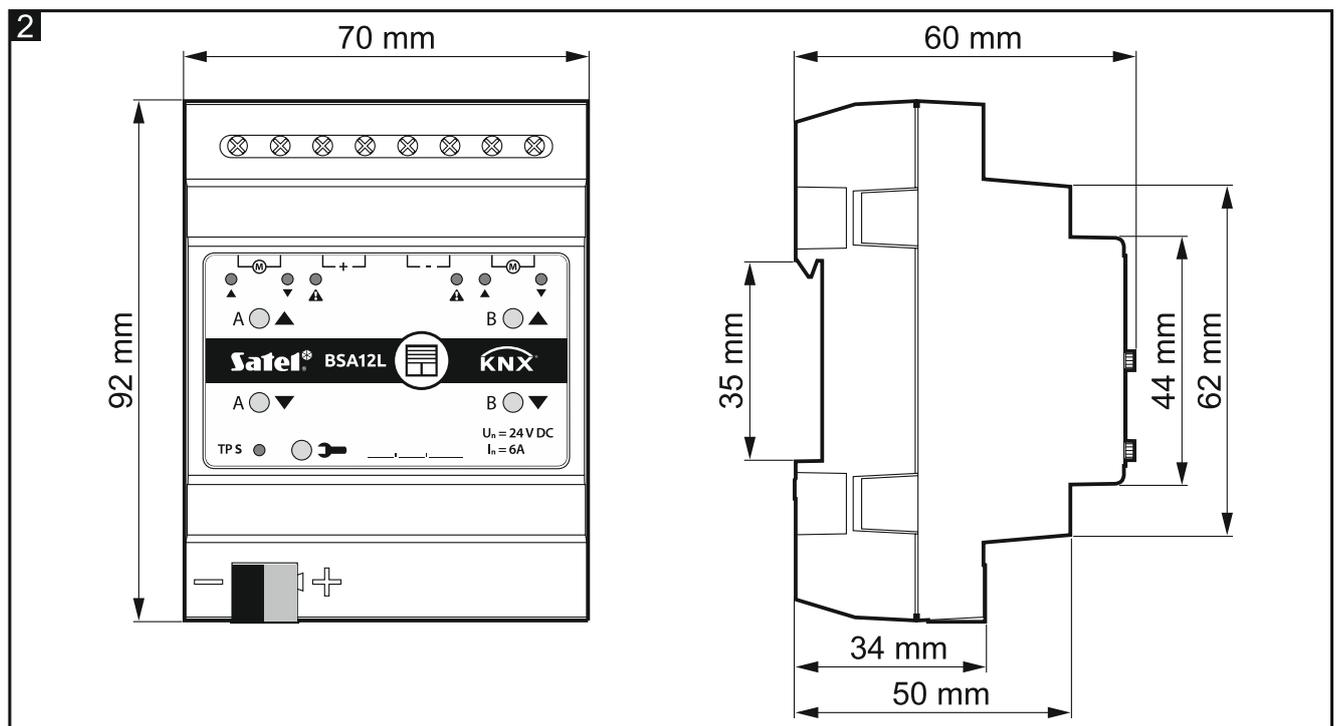
Electronics of the KNX-BSA12L and KNX-BSA12H modules is installed in enclosures of identical shape and dimensions. The enclosures only differ in their panels for manual control of channel state. The figure shows enclosure dimensions based on the KNX-BSA12L module. The module takes up 4 units on the DIN rail (35 mm).

1.2   Service mode

The service mode allows checking whether connections between the module and the blind/shutter motors are made properly, and whether the module correctly detects the blind/shutter movement. You can use the service mode before configuring the module settings in the ETS program (e.g. to set limit switches).

To enter the service mode, press and hold the 🔧 button on the module enclosure for about 5 seconds. The LED next to the button will start flashing. When the service mode is started, the blind/shutter can only be moved by using the buttons located on the enclosure (see p. 2). Scenes and other functions will be blocked.

Table 3 contains information on operating the module in service mode.

Control	Blind/shutter state	LED ▲	LED ▼	LED ⚠	State of connection between module and blind/shutter motor
long press ▲	move up	●	○	●	motor connected correctly, the module detects blind/shutter movement
long press ▼	move down	○	●	●	
long press ▲	move down	●	○	●	motor connected incorrectly *
long press ▼	move up	○	●	●	
long press ▲	move up	●	○	○	motor connected correctly, but the module detects no blind/shutter movement **
long press ▼	move down	○	●	○	
long press ▲	no move	●	○	○	motor is defective / connected incorrectly / receives no power from the module
long press ▼	no move	○	●	○	
short press ▲ / ▼	stop	○	○	○	

○ – OFF, ● – ON.

* KNX-BSA 12L – reverse the wires connecting the module with the blind/shutter motor, KNX-BSA 12H – reverse the wires controlling the direction of motor rotation.

** Check the current consumption by the blind/shutter motor:
  – if it is lower than the minimum current detected by the module, the blind/shutter travel time must be detected manually,
  – if it is higher than the minimum current detected by the module, it means failure of the motor detection circuit in the module.

Table 3.

If you want to end the service mode, press and hold the 🔧 button on the module enclosure for about 5 seconds.

2. Installation

⚠️ **Disconnect power before making any electrical connections.**

The module is designed for indoor installation, in spaces with normal air humidity, e.g. in distribution boxes on 35 mm DIN rail.

1. Mount the module on the mounting rail.
2. Connect the blind/shutter motors and power cables to the connection terminals as indicated on the enclosure.

ⓘ *All connections should be made as recommended in section "Wiring diagram".*

3. Use the connection terminal to connect the KNX bus cable to the module.
4. Connect a computer running ETS program to the KNX bus and configure the module.

ⓘ *To configure the module, you will require a computer running the ETS program version 5.5 or newer, provided with USB or Ethernet (TCP/IP) connector. The SATEL ETS application file, which can be downloaded from www.satel.eu/ets, must be imported into the program.*

2.1   Wiring diagram
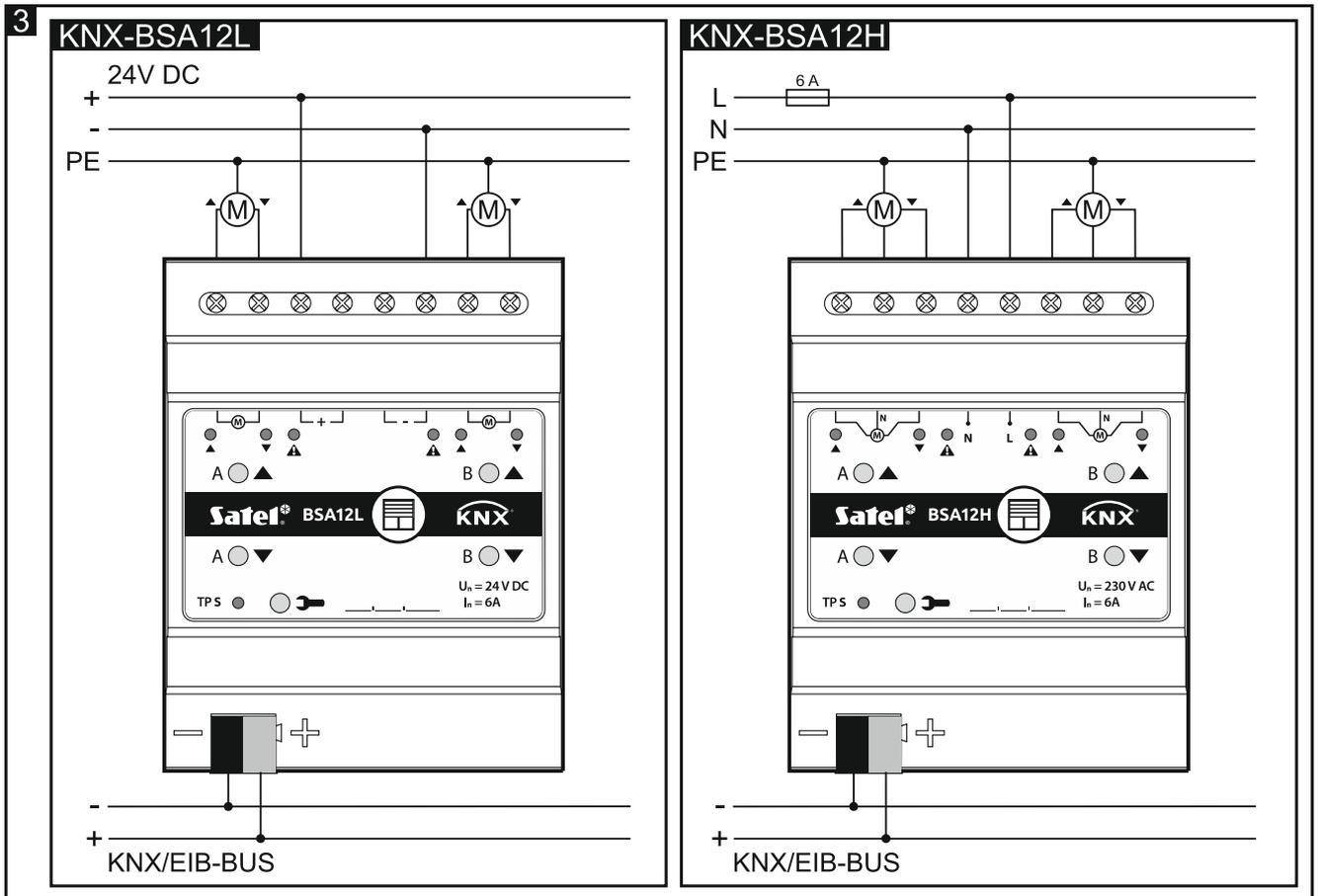
3.   Restoring module factory default settings

1. Press simultaneously the four channel state control buttons located on the module enclosure (see "Description"). The ▲ and ▼ LED indicators will come on.
2. Hold the buttons down until the LEDs go out (about 5 seconds). The module will be restarted and the factory settings will be restored.

4.   Specifications

Power supply

Supply voltage (KNX bus)...20…30 VDC
Current consumption from KNX bus ....<20 mA

Load circuit

U_n rated voltage

      KNX-BSA 12L ....24 VDC
      KNX-BSA 12H...230 VAC

I_n rated current

      KNX-BSA 12L ....6 A
      KNX-BSA 12H..6 A

Connections

Maximum wire cross-section...2.5 mm^2

Maximum tightening torque .... 0.5 Nm

KNX parameters

Maximum time of reaction to telegram .... <20 ms

Maximum number of communication objects KNX-BSA12L/KNX-BSA12H 45

Maximum number of group addresses 256

Maximum number of associations 256

Other parameters

Operating temperature range .... 0°C...+45°C

Storage/transport temperature range .... -25°C...+70°C

IP code IP20

Number of units on DIN rail 4

Enclosure dimensions .... 70 x 92 x 60 mm

Weight

       KNX-BSA 12L .... 182 g

       KNX-BSA 12H .... 188 g

⚠ **Exceeding the limit values of the module working parameters may damage the module and pose hazard to human health or life.**