



KNX A3-B2

Door Operator Control Module

Item number 70391



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Installation, inspection, commissioning and troubleshooting of the device must only be carried out by a competent electrician.

This manual is amended periodically and will be brought into line with new software releases. The change status (software version and date) can be found in the contents footer. If you have a device with a later software version, please check **www.elsner-elektronik.de** in the menu area "Service" to find out whether a more up-to-date version of the manual is available.

Clarification of signs used in this manual



Safety advice.



Safety advice for working on electrical connections, components, etc.

DANGER!

... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING!

... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

CAUTION!

... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.



ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

ETS

In the ETS tables, the parameter default settings are marked by underlining.

1. Description

The **Door operator control module KNX A3-B2** has three outputs for door control and two binary inputs.

Functions:

- **3 outputs** for door operation (impulse or dead-man mode)
- **2 binary inputs** for the bus functions switches, toggle switches, blinds, shutters, marquees, windows, dimmers, 8 but encoders, temperature encoders, brightness encoder, scenes

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.

1.0.1. Deliverables

- Control module in the installation casing
- Connection line for outputs
- Connection line for inputs

1.1. Technical data

Housing	Plastic
Colour	White
Assembly	Installation
Protection category	IP 20
Dimensions	approx. 38 x 47 x 24 (W x H x D, mm)
Weight	approx. 25 g (incl. connection lines)
Ambient temperature	operation -30...+50°C, storage -30...+70°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	bus voltage
Bus current	max. 10 mA
Data output	KNX +/- Bus connector terminal
BCU type	unit's own microcontroller
PEI type	0
Group addresses	max. 230
Assignments	max. 230
Communication objects	20
Inputs	2 x binary inputs (for potential-free contacts), maximum output length 5 m
Outputs	3 x semi-conductor output (open collector) max. 60 V AC/DC, 300 mA. For safety extra-low voltage according to the SELV specifications only!

The product conforms with the provisions of EU directives.

2. Installation and start-up

2.1. Installation notes



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



CAUTION! **Live voltage!**

There are unprotected live components inside the device.

- National legal 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. Installation

2.2.1. Installation location



Install and operate in dry interior rooms only!
Avoid condensation.

2.2.2. Connection/ layout of the circuit board

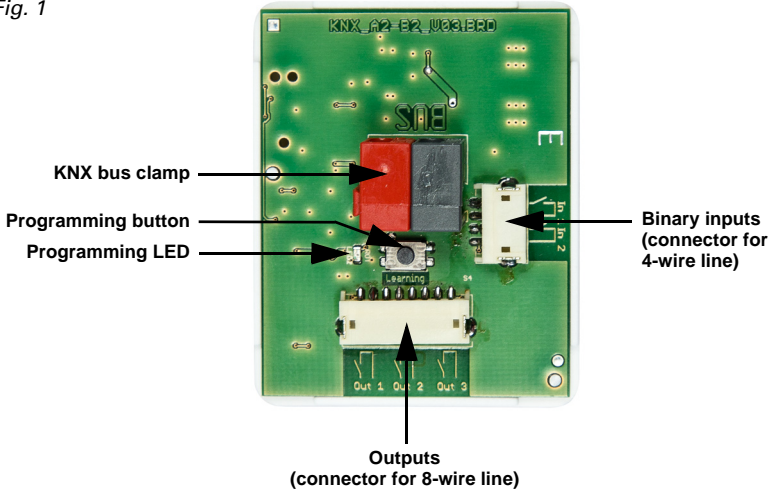


CAUTION!

Unprotected live components!

The voltage connected to the switching outputs must conform with the SELV specifications (safety extra-low voltage)!

Fig. 1



Connect the bus cable (red/black clamp).

Use the 8-wire connection line to connect the outputs and the 4-wire line to connect the binary inputs. The lines may be extended to up to 5 m.

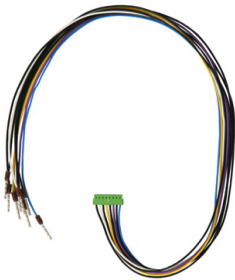


Fig. 2

8-wire connection line for outputs:

	blue	output 3
	black	output 3
	violet	(not connected)
	black	output 2
	yellow	output 2
	black	(not connected)
	white	output 1
	black	output 1

Connection of the outputs independent from polarity.

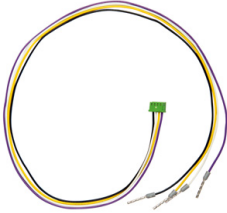






Fig. 3

4-wire connection line for binary inputs:

	violet	input 1
	yellow	input 1
	white	input 2
	black	input 2

Connection of the outputs independent from polarity.

2.3. Notes on mounting and commissioning

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

After the bus 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.

3. Addressing of the device at the bus

The device is supplied with the bus address 15.15.250. You can program another address into the ETS by overwriting the 15.15.250 address or by teaching via the programming key.

4. Transmission protocol

Units:

Time in seconds

Dimming in percent

Temperature in 0.1°C

Brightness in kLux

4.1. List of all communications objects

EIS types:

1 1 / 0 switch

5 Floating decimal value

6 8-bit value

Abbreviation flags:

R Reading

W Writing

C Communication

T Transmission

No.	Text	Function	DPT	Length (byte)	Flags
0	Output 1 - Impulse [In Defined Open/Close/Stop mode: Output 1+2 - Impulse (1=open 0=close)]	Input	1.001	1	RC
1	Output 2 - Impulse	Input	1.001	1	RC
2	Output 3 - Impulse [In Defined Open/Close/Stop mode: Output 3 - Impulse (1 or 0)]	Input	1.001	1	RC
11	Input 1 Extended	Input/Output	1.008	1	RWCT
12	Input 1 Short	Output	1.010	1	R CT
13	Input 1 Switching	Input/Output	1.001	1	RWCT
14	Input 1 Relative dimming	Input/Output	3.007	1	RWCT
15	Input 1 Encoder 8 bit	Output	5.*	1	R CT
16	Input 1 Encoder Temperature	Output	9.001	2	R CT
17	Input 1 Encoder Brightness	Output	9.004	2	R CT
18	Input 1 Scene	Output	18.001	1	R CT
19	Input 2 Extended	Input/Output	1.008	1	RWCT
20	Input 2 Short	Output	1.010	1	R CT
21	Input 2 Switching	Input/Output	1.001	1	RWCT

No.	Text	Function	DPT	Length (byte)	Flags
22	Input 2 Relative Dimming	Input/Output	3.007	1	RWCT
23	Input 2 Encoder 8 bit	Output	5.*	1	R CT
24	Input 2 Encoder Temperature	Output	9.001	2	R CT
25	Input 2 Encoder Brightness	Output	9.004	2	R CT
26	Input 2 Scene	Output	18.001	1	R CT
27	Software version	Readable	217.001	2	R C

5. Parameter setting

The parameter defaults are underlined.

5.1. General settings

Set the maximum telegram rate:

Maximum message rate	1 • 2 • <u>5</u> • 10 • 20 <u>messages per second</u>
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5.2. Door operator

You define the operating mode for the outputs in the **Door operation** menu.

Operating mode	<ul style="list-style-type: none"> • <u>Defined Open/Close/Stop</u> • Impulse mode • Dead-man mode
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If only one door is connected to the three outputs (two- or three-button operation, output 1 = open, output 2 = close, if needed output 3 = stop), select *Defined Open/Close/Stop* mode or *Impulse mode*.

If a door is connected to each output (single-button operation), select *Impulse mode* or *dead-man mode*.

Defined Open/Closed: (1 door)

The outputs 1 and 2 react to the object (are assigned to the object) *Output 1+2 - Impulse*. If the object value is 1, then output 1 receives an impulse (closes for 1s). If the object value is 0, then output 2 receives an impulse (closes for 1 s).

Output 3 is assigned to the object *Output 3 - Impulse*. The output reacts as soon as an object has been received (no matter which value).

Select whether output 3 is a normally closed or normally open contact (duration of opening/closing 1 second).

Operating mode	Defined Open/Closed/Stop
Allows control of one door	

When receiving "Output 1 + 2 - Impulse" when object value = 1	Output 1 Impulse
When receiving "Output 1 + 2 - Impulse" when object value = 0	Output 2 Impulse
When receiving "Output 3 - Impulse" when object value = 0 or 1	Output 3 Impulse
Output 3 relay contact	<u>normally closed</u> • normally open

Impulse mode: (1, 2 or 3 doors)

Output 1 reacts to the (is assigned to the object) *Output 1 - Impulse* and receives an impulse (closes for 1 s) when the object value is 1.

Output 2 reacts to the (is assigned to the object) *Output 2 - Impulse* and receives an impulse (closes for 1 s) when the object value is 1.

Output 3 reacts to the (is assigned to the object) *Output 3 - Impulse* and receives an impulse (closes for 1 s) when the object value is 1.

No further settings can be made for the outputs.

Operating mode	Impulse mode
Allows control of up to three doors	
When receiving "Output 1 - Impulse" when object value = 0	nothing
When receiving "Output 1 - Impulse" when object value = 1	Output 1 Impulse
When receiving "Output 2 - Impulse" when object value = 0	nothing
When receiving "Output 2 - Impulse" when object value = 1	Output 2 Impulse
When receiving "Output 3 - Impulse" when object value = 0	nothing
When receiving "Output 3 - Impulse" when object value = 1	Output 3 Impulse

Dead-man mode: (2 doors)

Output 1 react to the object (is assigned to the object) *Output 1 - Impulse*. At value = 1, the output closes; at value 0, it opens.

Output 2 react to the object (is assigned to the object) *Output 2 - Impulse*. At value = 1, the output closes; at value 0, it opens.

Output 3 react to the object (is assigned to the object) *Output 3 - Impulse* and gets an impulse (closes for 1 second) at object value 1.

In addition, monitoring can be set. After the monitoring period, the object is set to 0 (unless a new 1 signal is received), i.e. the output is opened:

Operating mode	Dead-man mode
Allows control of one or two doors	
When receiving "Output 1 - Impulse" when object value = 1	Output 1 closed
When receiving "Output 1 - Impulse" when object value = 0	Output 1 open
When receiving "Output 2 - Impulse" when object value = 1	Output 2 closed
When receiving "Output 2 - Impulse" when object value = 0	Output 2 open
Monitoring the control objects use	<u>no</u> • yes
Monitoring period for objects in seconds	1...60; <u>2</u>

5.3. Input 1 / 2

You define the function of the two inputs in the "Input 1" or "Input 2" menu. The inputs are independent of the outputs.

Bus function	<ul style="list-style-type: none"> • <u>Switch</u> • <u>Changeover switch</u> • <u>Blind</u> • <u>Roller blind</u> • <u>Awning</u> • <u>Window</u> • <u>Dimmer</u> • <u>8-bit encoder</u> • <u>Temperature encoder</u> • <u>Brightness encoder</u> • <u>Scenes</u>
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Input as switch:

If a button with switch function is assigned to the input, select the bus function "Switch" and specify which value is sent when pressing/releasing the button and when it will be sent.

Bus function	Switch
Command when pressing the button	<ul style="list-style-type: none"> • send <u>0</u> • <u>send 1</u> • do not send telegram
Command when releasing the button	<ul style="list-style-type: none"> • <u>send 0</u> • send 1 • do not send telegram

Send value	<ul style="list-style-type: none"> • <u>no change</u> • for change to 1 • for change to 0 • for change and cyclical • for change to 1 and cyclical • for change to 0 and cyclical
Send all values (only if sent as "cyclical")	<u>5 s</u> ... 2 h

Input as selector switch:

If a button with switch function is assigned to the input, select the bus function "Selector switch" and specify if the button should switch when pressed/released.

Bus function	Selector switch
Command when pressing the button	<ul style="list-style-type: none"> • <u>selector switch</u> • do not send telegram
Command when releasing the button	<ul style="list-style-type: none"> • selector switch • <u>do not send telegram</u>

Input to shutter, blinds, awning or window control:

If the input to the drive control is used via the bus, select the bus function "shutter", "awning", "blinds" or "window" and specify the button function and control mode.

Bus function	Shutter / blinds / awning / window	
Button function	<u>Up</u> • Down <u>Up</u> • Down • Up/ Down <u>On</u> • Off • On/Off <u>Open</u> • Closed • Open/Closed	(shutter) (blinds) (awning) (window)
Control mode*	<ul style="list-style-type: none"> • <u>Standard</u> • Standard inverted • Comfort mode • Dead man's switch 	

Input as dimmer:

If the input is used as a dimmer, select the bus function "Dimmer" and specify the button function, time interval (switching/dimming) and if requested, the repeat interval for a long button press.

Bus function	Dimmer
Button function	<u>brighter</u> • darker • brighter/darker
Time between switching and dimming in 0.1 seconds	1...50; <u>5</u>
Repeat the dimm command	<u>no</u> • yes

Repeat the dimm command for a long button press <i>(only if dimm command is repeated)</i>	every 0.1 s • every 2 sec; <u>every 1 sec</u>
Dim by <i>(only if dimm command is repeated)</i>	1,50% • 3% • <u>6 %</u> • 12,50% • 25% • 50%

Input 8 bit encoder:

If the input is to be used as an 8bit encoder, select the "8 bit encoder" bus function and specify which value will be sent.

Bus function	8 bit encoder
Value	<u>0</u> ...255

Input as temperature encoder:

If the input is used as a temperature encoder, then choose the bus function "Temperature encoder" and specify which value between -30°C and +80°C will be sent. By sending a temperature value, the target value of the temperature control may be changed for example (e.g. Elsner KNX T-UP).

Bus function	Temperature encoder
Temperature in 0.1°C	-300...800; <u>200</u>

Input as brightness encoder:

If the input is assigned and shall be used as a brightness encoder (e.g. switch output of a sun sensor), select "brightness encoder" and specify which value will be sent. By sending a brightness value, the threshold value of the sun sensor may be changed for example (e.g. Elsner KNX L).

Bus function	Brightness encoder
Brightness in klux	0...100; <u>20</u>

Input for scene control:

If scenes are called and saved with the input, then choose the "Scenes" bus function and specify the saving, time difference (call/save) and scene number.

Bus function	Scenes
Button operation	<ul style="list-style-type: none"> • <u>without saving</u> • with saving
Time between calling and saving in 0.1 seconds <i>(only if selected "with saving")</i>	1...50; <u>10</u>
Scene No.	<u>0</u> ...127

5.3.1. Control modes for drive control

Standard:

If briefly operated, the drive will move incrementally or stops. If operated longer, the drive will move up to the end position. The time difference between "short" and "long" is set individually.

Control mode	Standard
Behavior during button operation: short = stop/increment long = Up or Down	
Time between short and long in 0.1 seconds	1...50; <u>10</u>

Standard inverted:

When pushed shortly, the drive moves up to the end position. When pushed for longer, the drive moves incrementally or stops. The time difference between "short" and "long" and the repeat interval is set individually.

Control mode	Standard inverted
Behavior during button operation: short = Up or Down long = Stop/Step	
Time between short and long in 0.1 seconds	1...50; <u>10</u>
Repeat the step command for a long button press	every 0.1 s • every 2 sec; <u>every 0.5 sec</u>

Comfort mode:

In the **comfort mode** pushing the button briefly, a bit longer and long will trigger different responses of the drive. The time intervals are set individually.

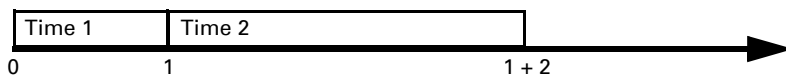
By pushing the button (shorter than adjustable time 1) the drive will be positioned (resp. stopped) incrementally.

If the drive is to be moved a bit farther, then a little longer push is needed (longer than time 1 but shorter than time 1+2). The drive stops immediately when releasing the button.

If the drive must be moved independently into the end position, the button is released only after times 1 and 2 have expired. The move can be stopped by briefly pushing.

Fig. 4

Time interval comfort mode diagram



Point in time 0:

Push of button, start of time 1

Release before time 1 expired:

step (or stop if drive is moving)

<i>Point in time 1:</i>	<i>End of time 1, start of time 2</i>
	<i>Moving command</i>
<i>Release after time 1 expired</i>	
<i>but before time 2 expires:</i>	<i>Stop</i>
<i>Release after time 1 + 2 expired:</i>	<i>Move into end position</i>

Control mode	Comfort mode
Behavior during button operation: Button is pushed and released before time 1 expired = stop/step held longer than time 1 = Up or Down released between time 1 and 1-2= stop released after time 1 +2 = no more stop	
Time 1	0.0s ... • 2 s; <u>0.4 s</u>
Time 2	0 s • 2 s; <u>2 s</u>

Dead man's switch:

The drive moves as soon as the button is pushed and stops as soon as the button is released.

Control mode	Dead man's switch
Behavior during button operation: Push button = Up or Down command Release button = Stop command	

