

TECHNICAL DATA

ABB i-bus® KNX

BE/S x.x.3.2

Binary Input



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Device description

The devices are modular installation devices (MDRC) in *proM* design. They are designed for installation in electrical distribution boards and small housings with a 35 mm mounting rail (according to EN 60715).

The devices are KNX-certified and can be used as products in a KNX system
→ EU declaration of conformity.

The devices are powered via the bus (ABB i-bus® KNX) and require no additional auxiliary voltage.

The connection to the bus (ABB i-bus® KNX) is made via a KNX bus connection terminal on the front of the housing.

The connections at the inputs or outputs are made via screw terminals
→ terminal designation on the housing.

The software application Engineering Tool Software (ETS) is used for physical address assignment and parameterization.

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Membrane keypad

The devices can be operated manually using the membrane keypad.

Device functions

The devices are used as an interface for operating KNX systems via conventional buttons/switches or for coupling floating binary signals (signal contacts) in a KNX environment.

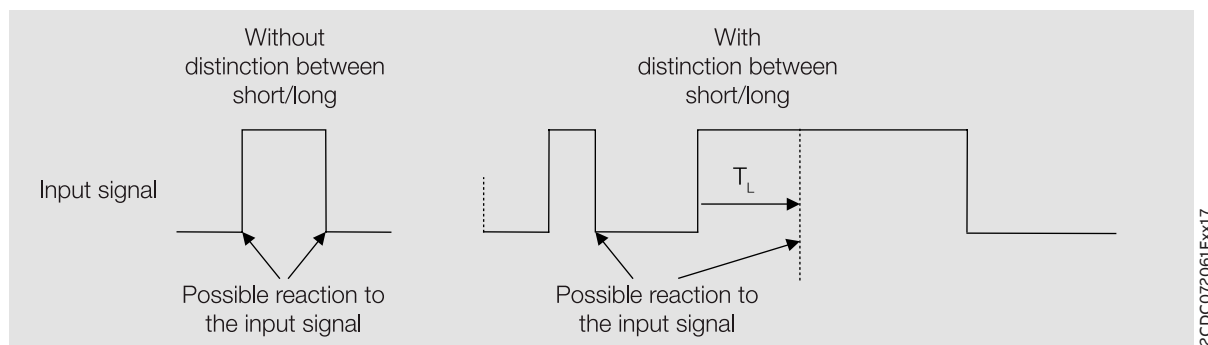
When the contacts connected to the device inputs are operated, the devices send telegrams on the bus (ABB i-bus® KNX) via the application-specific Group Objects.

On-site operation of the inputs is possible by Manual operation. In addition, LEDs indicate the switch status.

Distinction between short and long operation

The devices react to the rising or falling edge that is triggered by operating one of the contacts connected to the device input. Each time an edge is triggered, the devices send telegrams to the Group Objects that are enabled for the input.

If you wish to distinguish between short and long operation (e.g. for the execution of different events), you need to specify, in the parameters, how long a connected contact must be operated for in order to be recognized as a long operation.



Note

T_L is the time from which a long operation is detected.

Mixing signal types at device inputs

On the following device types, each device input can acquire another 10-230 V signal (mixed AC/DC):

- BE/S 8.230.3.2
- BE/S 12.230.3.2

Example

Input a: 12 V AC
Input b: 24 V DC
Input c: 230 V AC

On the following device types, the device inputs can acquire different 10-230 V signals (mixed AC/DC); on two neighboring inputs, the same signal type must be present:

- BE/S 10.230.3.2
- BE/S 16.230.3.2

Example

Input a and b: 12 V AC
Input c and d: 24 V DC
Input e and f: 230 V AC

More information: → [Connection diagram, Page 6](#).

Connections

The devices possess the following connections:

- BE/S x.20.3.2
 - depending on the product variant, 4, 10 or 16 binary inputs for the acquisition of floating binary signals
 - 1 KNX bus connection
- BE/S x.230.3.2
 - depending on the product variant, 4, 8, 10, 12 or 16 binary inputs for the acquisition of 10-230 V signals (AC/DC)
 - 1 KNX bus connection

Inputs

Application/function	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
Switch (1-button operation)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Switch (2-button operation)	x		x		x		x		x		x		x		x	
Blind/shutter (1-button operation)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Blind/shutter (2-button operation)	x		x		x		x		x		x		x		x	
Switch/dim (1-button operation)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Switch/dim (2-button operation)	x		x		x		x		x		x		x		x	
Scenes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Send value/multiple operation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fault indicator/logic input	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Switching sequence (1-button operation)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Switching sequence (2-button operation)	x		x		x		x		x		x		x		x	
Pulse counter	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Logic	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Block input	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Manual operation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Outputs

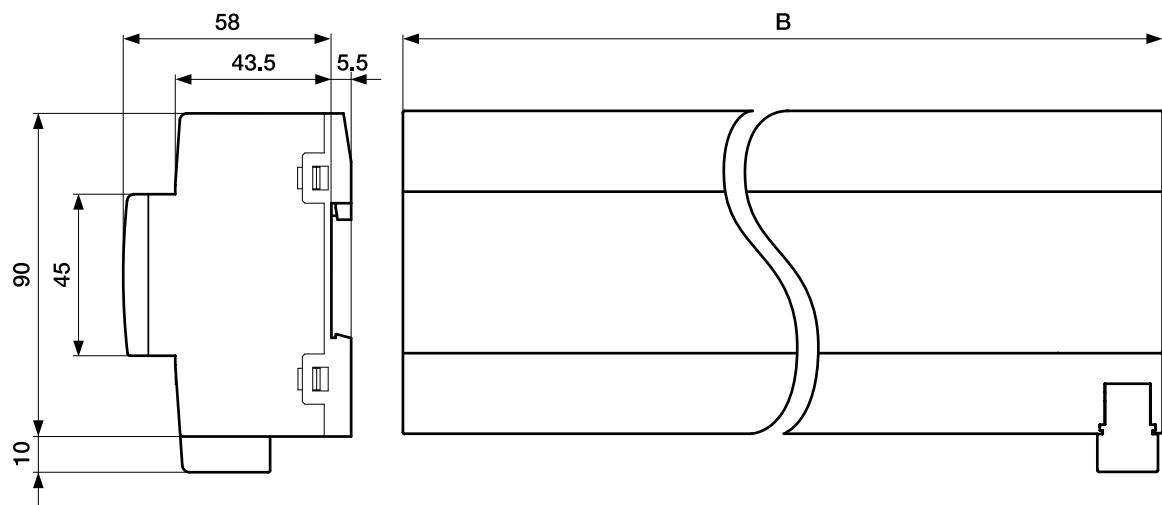
Note

This section is not relevant for these devices.

The product family described in this document includes the following devices:

Device type	Name	Features
BE/S 4.20.3.2	Binary Input	4-fold, Contact Scanning, MDRC
BE/S 10.20.3.2	Binary Input	10-fold, Contact Scanning, MDRC
BE/S 16.20.3.2	Binary Input	16-fold, Contact Scanning, MDRC
BE/S 4.230.3.2	Binary Input	4-fold, 10-230 V AC/DC, MDRC
BE/S 8.230.3.2	Binary Input	8-fold, 10-230 V AC/DC, MDRC
BE/S 10.230.3.2	Binary Input	10-fold, 10-230 V AC/DC, MDRC
BE/S 12.230.3.2	Binary Input	12-fold, 10-230 V AC/DC, MDRC
BE/S 16.230.3.2	Binary Input	16-fold, 10-230 V AC/DC, MDRC

Dimension drawing



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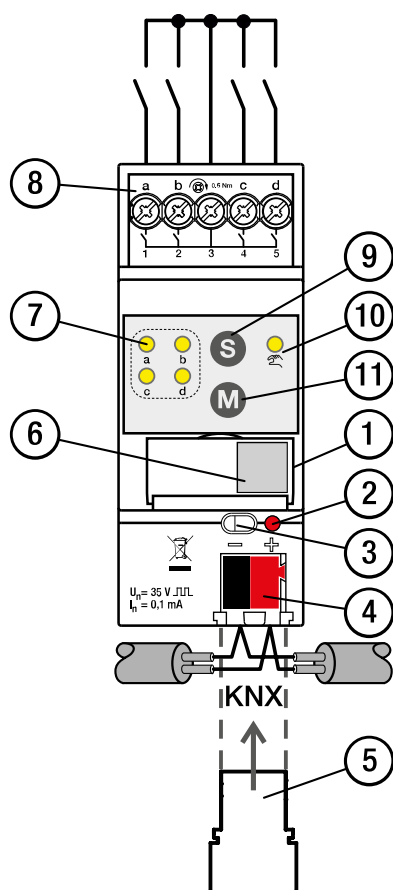
Device type	B
BE/S 4.20.3.2	2 space units, 36 mm
BE/S 10.20.3.2	4 space units, 70 mm
BE/S 16.20.3.2	6 space units, 105 mm
BE/S 4.230.3.2	2 space units, 36 mm
BE/S 8.230.3.2	4 space units, 70 mm
BE/S 10.230.3.2	4 space units, 70 mm
BE/S 12.230.3.2	6 space units, 105 mm
BE/S 16.230.3.2	6 space units, 105 mm

Connection diagram

i Note

The connection variants are explained in the following based on examples.

Connection diagram, BE/S 4.20.3.2

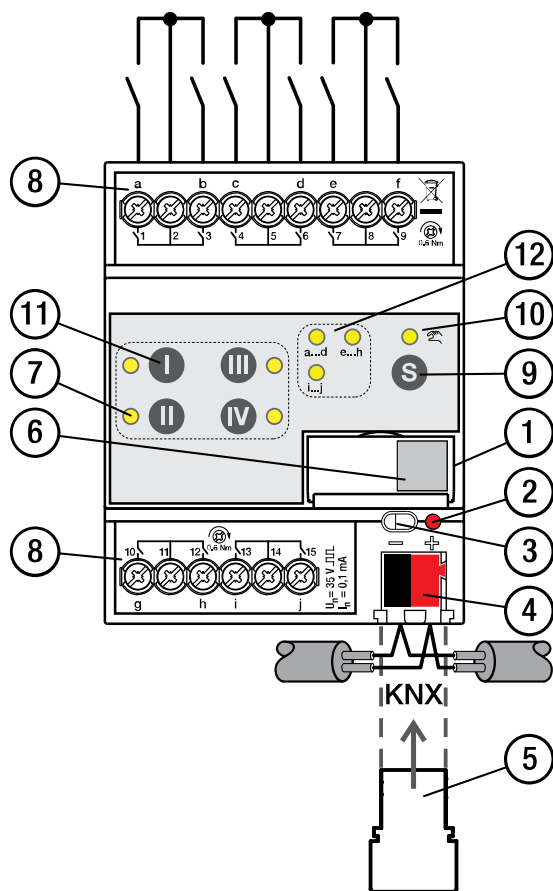


Legend

- 1 label carrier
- 2 *Programming* LED
- 3 *Programming* button
- 4 KNX bus connection terminal
- 5 Cover cap
- 6 2D code

- 7 *Input* LED
- 8 Binary Input
- 9 *S* button
- 10 LED *Manual operation*
- 11 *Input* button

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Connection diagram, BE/S 10.20.3.2

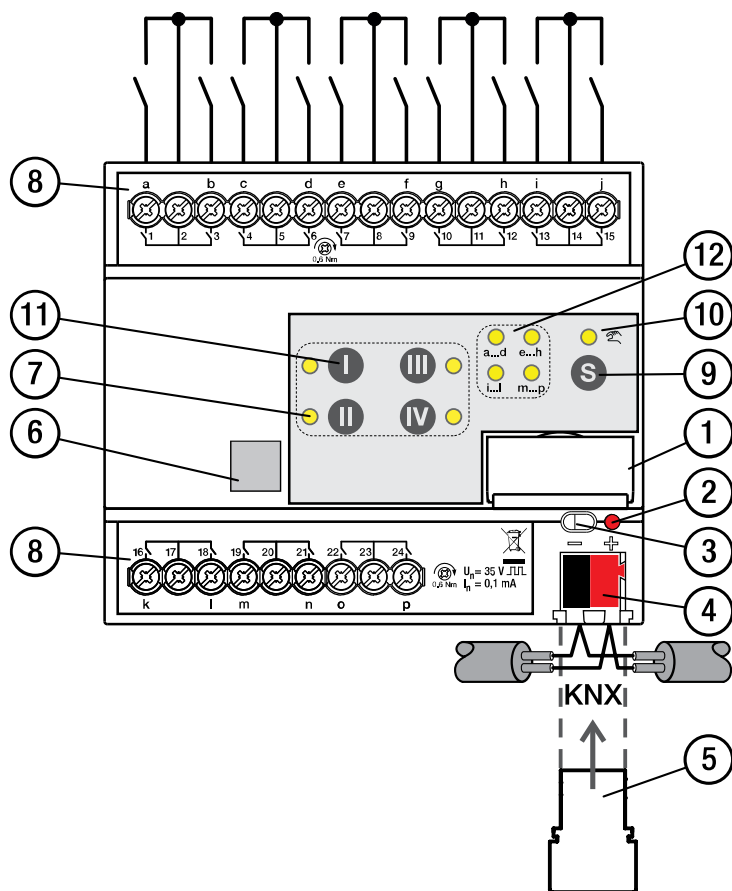


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Legend

- 1 label carrier
- 2 *Programming* LED
- 3 *Programming* button
- 4 KNX bus connection terminal
- 5 Cover cap
- 6 2D code

- 7 *Input* LED
- 8 Binary Input
- 9 *S* button
- 10 LED *Manual operation*
- 11 *Input* button
- 12 *Group* LED

Connection diagram, BE/S 16.20.3.2



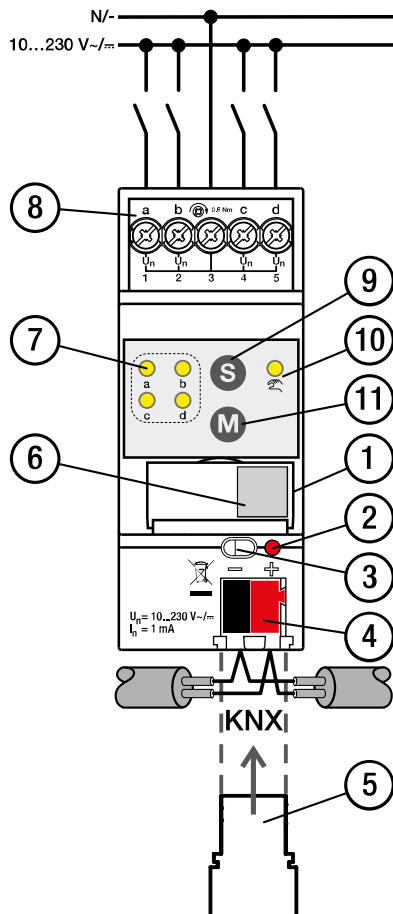
Legend

- | | |
|-------------------------------|--------------------------------|
| 1 label carrier | 7 Input LED |
| 2 <i>Programming</i> LED | 8 Binary Input |
| 3 <i>Programming</i> button | 9 S button |
| 4 KNX bus connection terminal | 10 LED <i>Manual operation</i> |
| 5 Cover cap | 11 Input button |
| 6 2D code | 12 Group LED |

Connection diagram, BE/S 4.230.3.2

i Note

When acquiring AC signals, an RCD circuit can be connected. When acquiring DC signals, make sure the polarity is correct.



Legend

- 1 label carrier
- 2 *Programming* LED
- 3 *Programming* button
- 4 KNX bus connection terminal
- 5 Cover cap
- 6 2D code

- 7 *Input* LED
- 8 Binary Input
- 9 *S* button
- 10 LED *Manual operation*
- 11 *Input* button

Connection diagram, BE/S 8.230.3.2

Note

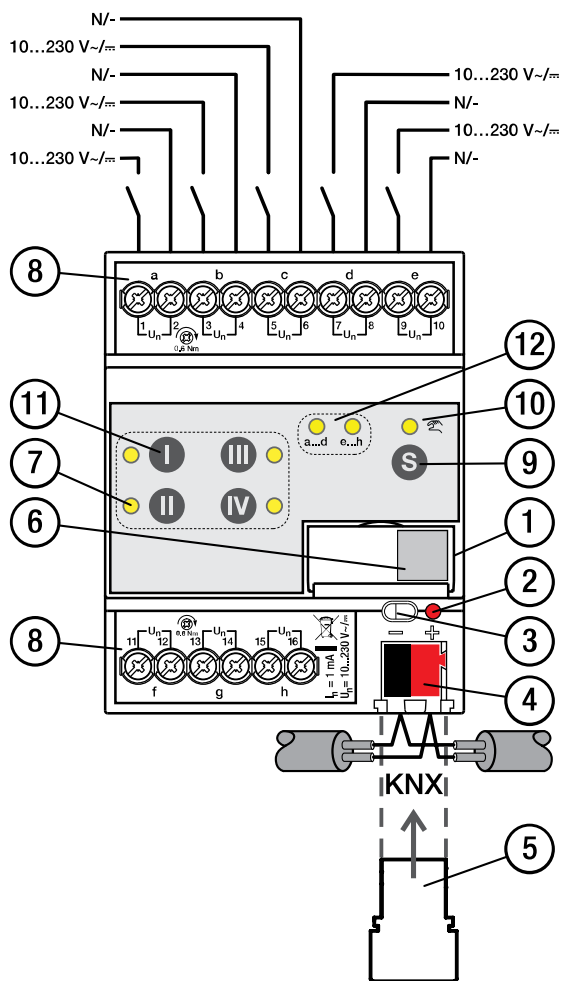
When acquiring AC signals, up to 8 RCD circuits can be connected. When acquiring DC signals, make sure the polarity is correct. Each device input can acquire another 10-230 V signal (mixed AC/DC).

Example

Input a: 12 V AC

Input b: 24 V DC

Input c: 230 V AC



Legend

- 1 label carrier
- 2 *Programming* LED
- 3 *Programming* button
- 4 KNX bus connection terminal
- 5 Cover cap
- 6 2D code

- 7 *Input* LED
- 8 Binary Input
- 9 *S* button
- 10 *LED Manual operation*
- 11 *Input* button
- 12 *Group* LED

Connection diagram, BE/S 10.230.3.2

i Note

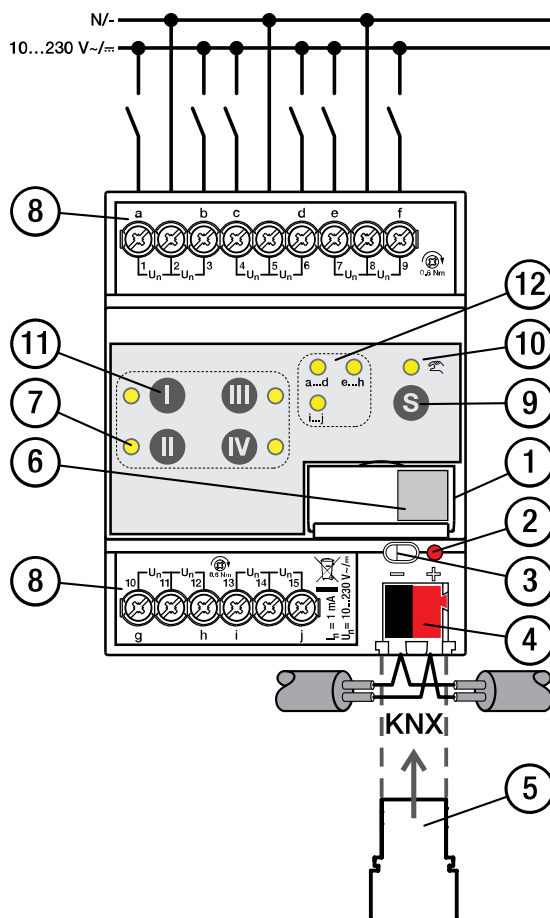
When acquiring AC signals, up to 5 RCD circuits can be connected. When acquiring DC signals, make sure the polarity is correct. The device inputs can acquire different 10-230 V signals (mixed AC/DC); on two neighboring inputs, the same signal type must be present.

Example

Input a and b: 12 V AC

Input c and d: 24 V DC

Input e and f: 230 V AC



Legend

- 1 label carrier
- 2 *Programming* LED
- 3 *Programming* button
- 4 KNX bus connection terminal
- 5 Cover cap
- 6 2D code

- 7 *Input* LED
- 8 Binary Input
- 9 *S* button
- 10 LED *Manual operation*
- 11 *Input* button
- 12 *Group* LED

Connection diagram, BE/S 12.230.3.2

i Note

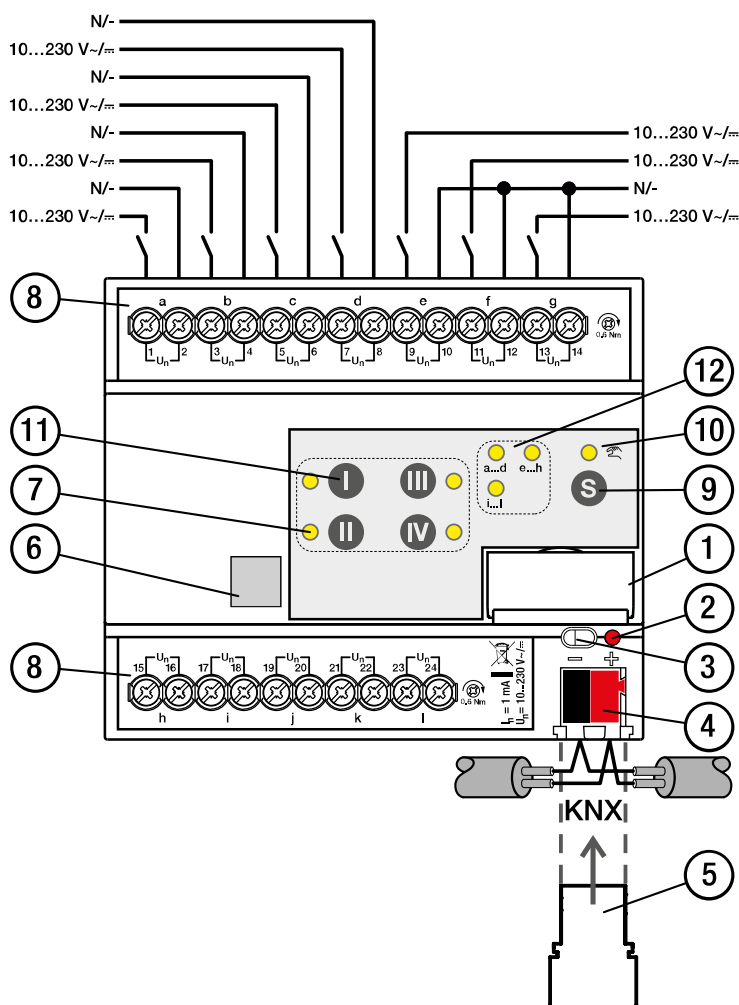
When acquiring AC signals, up to 12 RCD circuits can be connected. When acquiring DC signals, make sure the polarity is correct. Each device input can acquire another 10-230 V signal (mixed AC/DC).

Example

Input a: 12 V AC

Input b: 24 V DC

Input c: 230 V AC



Legend

- | | |
|-------------------------------|-------------------------|
| 1 label carrier | 7 Input LED |
| 2 Programming LED | 8 Binary Input |
| 3 Programming button | 9 S button |
| 4 KNX bus connection terminal | 10 LED Manual operation |
| 5 Cover cap | 11 Input button |
| 6 2D code | 12 Group LED |

Connection diagram, BE/S 16.230.3.2

Note

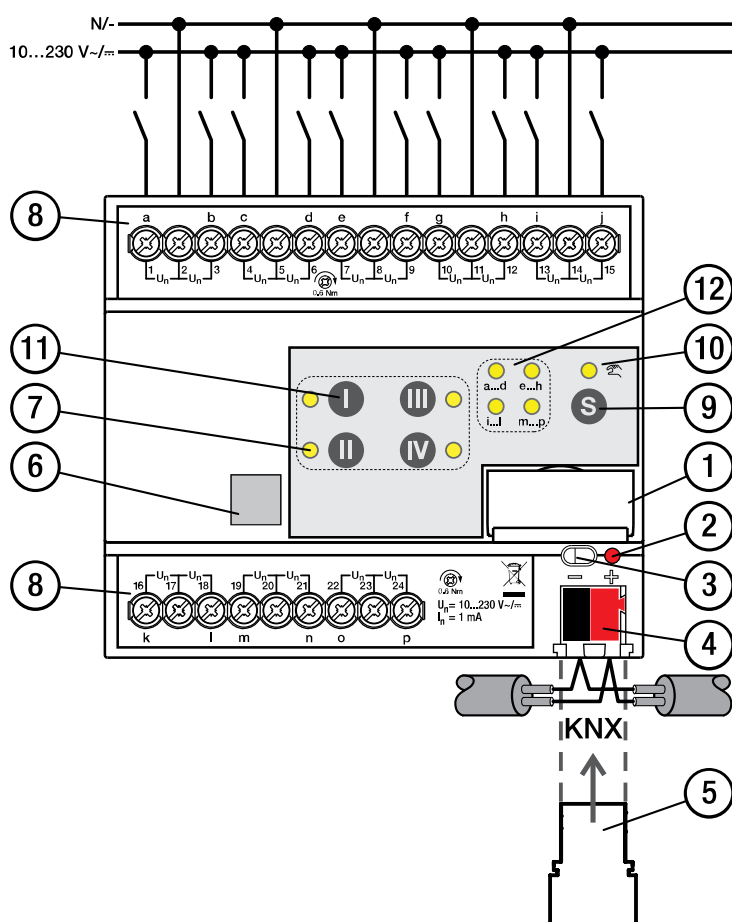
When acquiring AC signals, up to 8 RCD circuits can be connected. When acquiring DC signals, make sure the polarity is correct. The device inputs can acquire different 10-230 V signals (mixed AC/DC); on two neighboring inputs, the same signal type must be present.

Example

Input a and b: 12 V AC

Input c and d: 24 V DC

Input e and f: 230 V AC



Legend

- | | |
|-------------------------------|-------------------------|
| 1 label carrier | 7 Input LED |
| 2 Programming LED | 8 Binary Input |
| 3 Programming button | 9 S button |
| 4 KNX bus connection terminal | 10 LED Manual operation |
| 5 Cover cap | 11 Input button |
| 6 2D code | 12 Group LED |

Operating and display elements

Note

The operating and display elements are shown with variables in the following tables for illustrative purposes only. All elements of the same type function in exactly the same way.

Operating control/LED	Description/function	Display
	Assignment of the physical address	LED on: Device in programming mode
<i>Programming button/LED</i>		

Manual operation, BE/S 4.x.3.2

Operating control/LED	Description/function	Display
 	Short button push < 2 s: Selection of input Button push 2 ... 5 s: Changeover to <i>KNX operation</i>	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active
<i>S button / Manual operation LED</i>		
 <i>x</i> <i>Input LED</i>	LED briefly flashes once (< 1 Hz): Input was selected via the S button.	LED on: Contact closed LED off: Contact open LED flashing (1 Hz): Input blocked; Manual operation not possible.
 <i>Input button</i>	Switching of inputs (simulation of opening/closing the contact)	

KNX operation, BE/S 4.x.3.2

Operating control/LED	Description/function	Display
 	Short button push < 2 s: Selection of input Button push 2 ... 5 s: Change to <i>Manual operation</i>	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active LED flashing (1 Hz) while button pressed: <i>Manual operation</i> not enabled or blocked
<i>S button / Manual operation LED</i>		
 <i>x</i> <i>Input LED</i>		LED on: Contact closed LED off: Contact open
 <i>Input button</i>	Button without function	

Manual operation, BE/S 8/10/12/16.x.3.2

Operating control/LED	Description/function	Display
 	Short button push < 2 s: Selection of group Button push 2 ... 5 s: Changeover to <i>KNX operation</i> Long button push > 5 s: Selection of all inputs	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active
<i>S button / Manual operation LED</i>		
 <i>x...y</i> <i>LED group input</i>		LED on: Group selected LED off: Group not selected
 <i>Input button</i>	Switching of inputs (simulation of opening/closing the contact) Button I: First input of group (a/e/i/m) Button II: Second input of group (b/f/j/n) Button III: Third input of group (c/g/k/o) Button IV: Fourth input of group (d/h/l/p)	

Operating control/LED	Description/function	Display
 <i>Input LED</i>		LED on: Contact closed LED off: Contact open LED flashing (1 Hz): Input blocked; Manual operation not possible.

KNX operation, BE/S 8/10/12/16.x.3.2

Operating control/LED	Description/function	Display
   <i>S button / Manual operation LED</i>	Short button push < 2 s: Selection of group Button push 2 ... 5 s: Change to <i>Manual operation</i> Long button push > 5 s: Selection of all inputs	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active LED flashing (1 Hz) while button pressed: <i>Manual operation</i> not enabled or blocked
 x...y <i>LED group input</i>		LED on: Group selected LED off: Group not selected
 <i>Input button</i>	Button without function	
 <i>Input LED</i>		LED on: Contact closed LED off: Contact open

General technical data

		BE/S 4.20.3.2 BE/S 10.20.3.2 BE/S 16.20.2.3	BE/S 4.230.3.2 BE/S 8.230.3.2 BE/S 10.230.3.2 BE/S 12.230.3.2 BE/S 16.230.2.3
Device	Dimensions	90 × 36 × 63.5 mm (H × W × D) 90 × 70 × 63.5 mm (H × W × D) 90 × 105 × 63.5 mm (H × W × D)	90 × 36 × 63.5 mm (H × W × D) 90 × 70 × 63.5 mm (H × W × D) 90 × 70 × 63.5 mm (H × W × D) 90 × 105 × 63.5 mm (H × W × D) 90 × 105 × 63.5 mm (H × W × D)
	Mounting width in space units	2x 18 mm modules 4x 7.5 mm modules 6x 17.5 mm modules	2x 18 mm modules 4x 17.5 mm modules 4x 17.5 mm modules 6x 17.5 mm modules 6x 17.5 mm modules
	Weight	0.078 kg 0.145 kg 0.204 kg	0.077 kg 0.143 kg 0.142 kg 0.200 kg 0.202 kg
	Mounting position	Any	Any
	Mounting variant	35 mm mounting rail	35 mm mounting rail
	Design	proM	proM
	Protection class	II	II
	Overvoltage category	III	III
	Pollution degree	2	2
Materials	Housing	Polycarbonate, Makrolon FR6002, halogen free	Polycarbonate, Makrolon FR6002, halogen free
	Housing	Ultradid C3U	Ultradid C3U
Material note	Fire classification	Flammability V-0	Flammability V-0
Electronics	Rated voltage, bus	30 V DC	30 V DC
	Voltage range, bus	21 ... 31 V DC	21 ... 31 V DC
	Current consumption, bus	< 5 mA	< 5 mA
	Power loss, bus	≤ 250 mW	≤ 250 mW
	KNX safety extra low voltage	SELV	SELV
Connections	Connection type, KNX bus	Plug-in terminal	Plug-in terminal
	Cable diameter, KNX bus	0.6 ... 0.8 mm, solid	0.6 ... 0.8 mm, solid
	Connection type, inputs	Screw terminal with universal head (PZ 1)	Screw terminal with universal head (PZ 1)
	Pitch	6.35 mm	6.35 mm
	Tightening torque, screw terminals	0.5 ... 0.6 Nm	0.5 ... 0.6 Nm
	Conductor cross-section, flexible	1 × (0.2 ... 4 mm²) / 2 × (0.2 ... 1.5 mm²)	1 × (0.2 ... 4 mm²) / 2 × (0.2 ... 1.5 mm²)
	Conductor cross section, rigid	1 × (0.2 ... 6 mm²) / 2 × (0.2 ... 1.5 mm²)	1 × (0.2 ... 6 mm²) / 2 × (0.2 ... 1.5 mm²)
	Conductor cross section with wire end ferrule without plastic sleeve	1 × (0.25 ... 4 mm²) / 2 × (0.25 ... 0.75 mm²)	1 × (0.25 ... 4 mm²) / 2 × (0.25 ... 0.75 mm²)
	Conductor cross section with wire end ferrule with plastic sleeve	1 × (0.25 ... 2.5 mm²)	1 × (0.25 ... 2.5 mm²)
	Dimensions of wire end ferrule plastic sleeve	≤ 4.4 × 8 mm	≤ 4.4 × 8 mm
	Conductor cross section with TWIN wire end ferrule	1 × (0.5 ... 2.5 mm²)	1 × (0.5 ... 2.5 mm²)
	Length, (TWIN) wire end ferrule contact pin	8 mm	8 mm
	Stripping length for KNX terminal	6 mm	6 mm
	Stripping length for load terminal	8 mm	8 mm
Certificates and declarations	CE declaration of conformity	→ 9AKK108464A0594	→ 9AKK108464A0595
Ambient condition	Operation	-5 ... +45 °C	-5 ... +45 °C
	Transport	-25 ... +70 °C	-25 ... +70 °C
	Storage	-25 ... +55 °C	-25 ... +55 °C
	Humidity	≤ 95%	≤ 95%
	Condensation allowed	No	No
	Atmospheric pressure	≥ 80 kPa (corresponds to air pressure at 2,000 m above sea level)	≥ 80 kPa (corresponds to air pressure at 2,000 m above sea level)

Inputs – contact scanning, binary

		BE/S 4.20.3.2 BE/S 10.20.3.2 BE/S 16.20.2.3	BE/S 4.230.3.2 BE/S 8.230.3.2 BE/S 10.230.3.2 BE/S 12.230.3.2 BE/S 16.230.2.3
Rated values	Number of inputs	4	4
		10	8
		16	10
			12
			16
	Voltage range	-	0 ... 265 V AC/DC
	Input current	-	≤ 1 mA
	Signal level for 0-signal	-	0 ... 2 V AC/DC
	Signal level for 1-signal	-	9 ... 265 V AC/DC
Contact scanning	Scanning current	≤ 0.1 mA	-
	Scanning voltage	≤ 35 V DC (pulsed)	-
Cable length	Between sensor and device input, one-way	≤ 100 m	≤ 100 m

Ordering details

Description	MB	Type	Order no.	Packaging unit [pcs.]	Weight (incl. packaging) [kg]
Binary Input	2	BE/S 4.20.3.2	2CDG110276R0011	1	0.152
Binary Input	4	BE/S 10.20.3.2	2CDG110277R0011	1	0.233
Binary Input	6	BE/S 16.20.3.2	2CDG110278R0011	1	0.297
Binary Input	2	BE/S 4.230.3.2	2CDG110279R0011	1	0.151
Binary Input	4	BE/S 8.230.3.2	2CDG110280R0011	1	0.231
Binary Input	4	BE/S 10.230.3.2	2CDG110281R0011	1	0.232
Binary Input	6	BE/S 12.230.3.2	2CDG110282R0011	1	0.239
Binary Input	6	BE/S 16.230.3.2	2CDG110283R0011	1	0.295



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