

TECHNICAL DATA

# ABB i-bus® KNX

## JRA/S x.x.2.2

### Blind/Shutter Actuator



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# 1 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.

## 1.1 Membrane keypad

The devices can be operated manually using the membrane keypad.

### **i** Note

The safety functions as well as operation using the i-bus® Tool have a higher priority than the *Manual operation* mode. An output cannot be operated using the membrane keypad if it is blocked by a safety function or can be operated using the i-bus® Tool. If the safety function is canceled in *Manual operation* operating mode, the output reacts corresponding to its parameterization.

## 2 Device functions

The devices have mutually electromechanically interlocked switching relays with which the following functions can be implemented:

- Activation of 230 V AC blind, shutter or ventilation flap drives (JRA/S x.230.2.2, JRA/S x.230.5.2)
- Activation of 24 V DC blind, shutter or ventilation flap drives (JRA/S x.24.x.2)

With device type 2.230.x.2, two drives can be connected to each output. The connections are electromechanically isolated and cannot be activated independently of each other.

On-site operation of the outputs is possible by manual operation. The status of the outputs is indicated via LEDs.

### Note

Alternatively, to activate a ventilation flap with spring return, the output can be used as a switching output.

## 2.1 Overview

Functions	JRA/S x.x.2.2	JRA/S x.x.5.2
<b>Manual operation</b>		
Membrane keypad	x	x
Enable/block manual operation	x	x
Automatically reset manual operation	x	x
<b>Drive activation</b>		
Blind	x	x
Shutter	x	x
Ventilation flap	x	x
Travel detection		x
Reversing time	x	x
Run time delay & minimum run time	x	x
Change direction of rotation	x	x
Dead times	x	x
Reference movement	x	x
Calibration movement		x
Separate activation of two lower end positions		
<b>Function Safety</b>		
Weather alarms & central safeties	x	x
Forced operation	x	x
Individual safeties	x	x
<b>Function Automatic sun protection</b>		
Block direct commands	x	x
Anti-glare protection	x	x
Heating/cooling	x	x
Overheating protection	x	x
<b>Function Scenes</b>		
Recall and save KNX scenes	x	x
<b>Special functions</b>		
Function Sector control	x	x
Function Working position	x	x
Function Logic	x	x
Function Threshold	x	x
Sending and switching delay	x	x
Reaction on KNX voltage failure/recovery	x	x
Status messages	x	x
i-bus® Tool	x	x
Binary inputs		

Tab. 1: Functional overview JRA/S x.x.2.2, JRA/S x.x.5.2

### 3 Connections

- The devices have the following connections:
- depending on the device type, 2, 4, 8 or 12 outputs for activating 230 V AC (JRA/S x.230.x.2) or 24 V DC (JRA/S x.24.x.2) blind, shutter or ventilation flap drives
  - 1 KNX bus connection

#### 3.1 Inputs

**Note**  
This section is not relevant for these devices.

#### 3.2 Outputs

**Note**  
The largest and most extensive device in the product family is described below as an example.

Function	A	B	C	D	E	F	G	H	I	J	K	L
Blind	x	x	x	x	x	x	x	x	x	x	x	x
Shutter	x	x	x	x	x	x	x	x	x	x	x	x
Ventilation flap	x	x	x	x	x	x	x	x	x	x	x	x
Switching output	x	x	x	x	x	x	x	x	x	x	x	x

Tab. 2: Functions of the outputs

# 4 Product family

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

Device type	Name	Features
JRA/S 2.230.2.2	Blind/Shutter Actuator	manual operation, 2-fold, 230 V AC, MDRC
JRA/S 4.230.2.2	Blind/Shutter Actuator	manual operation, 4-fold, 230 V AC, MDRC
JRA/S 8.230.2.2	Blind/Shutter Actuator	manual operation, 8-fold, 230 V AC, MDRC
JRA/S 12.230.2.2	Blind/Shutter Actuator	manual operation, 12-fold, 230 V AC, MDRC
JRA/S 2.24.2.2	Blind/Shutter Actuator	manual operation, 2-fold, 24 V DC, MDRC
JRA/S 4.24.2.2	Blind/Shutter Actuator	manual operation, 4-fold, 24 V DC, MDRC
JRA/S 8.24.2.2	Blind/Shutter Actuator	manual operation, 8-fold, 24 V DC, MDRC

Tab. 3: Product family

## 4.1 Dimension drawing

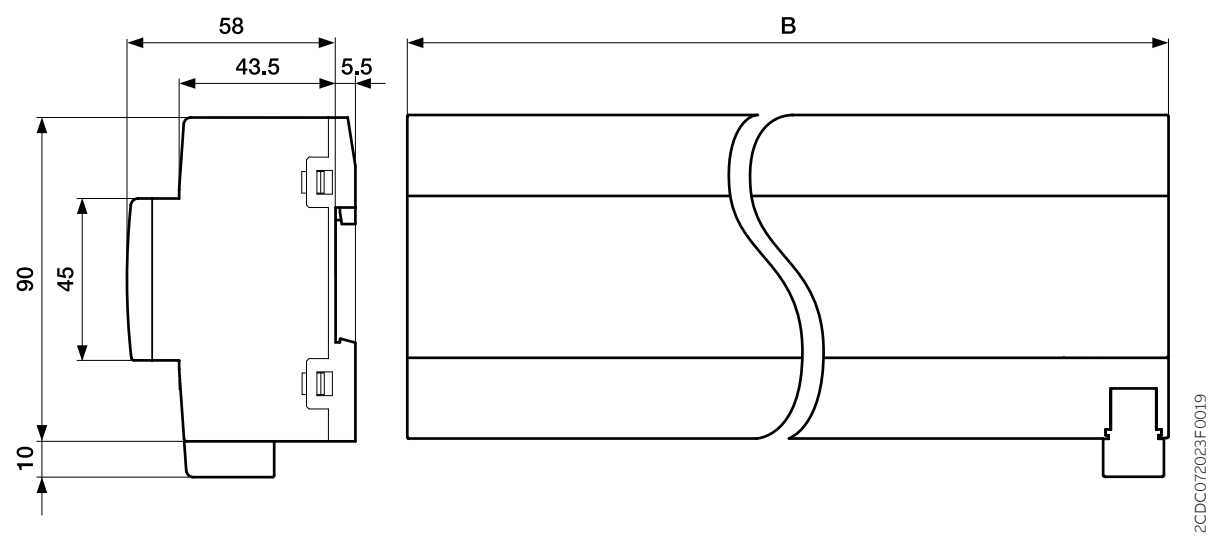


Fig. 1: Dimension drawing for product family

Device type	B
JRA/S 2.230.2.2	4 space units, 70 mm
JRA/S 4.230.2.2	4 space units, 70 mm
JRA/S 8.230.2.2	8 space units, 140 mm
JRA/S 12.230.2.2	12 space units, 210 mm
JRA/S 2.24.2.2	4 space units, 70 mm
JRA/S 4.24.2.2	4 space units, 70 mm
JRA/S 8.24.2.2	8 space units, 140 mm

Tab. 4: Device width (space units/millimeters)

## 4.2 Connection diagram

**Note**

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

### 4.2.1 JRA/S x.24.x.2 connection variant

The connection diagram below applies by way of example to the following devices:

Device type	Name	Features
JRA/S 2.24.2.2	Blind/Shutter Actuator	manual operation, 2-fold, 24 V DC, MDRC
JRA/S 4.24.2.2	Blind/Shutter Actuator	manual operation, 4-fold, 24 V DC, MDRC
JRA/S 8.24.2.2	Blind/Shutter Actuator	manual operation, 8-fold, 24 V DC, MDRC

Tab. 5: Product family

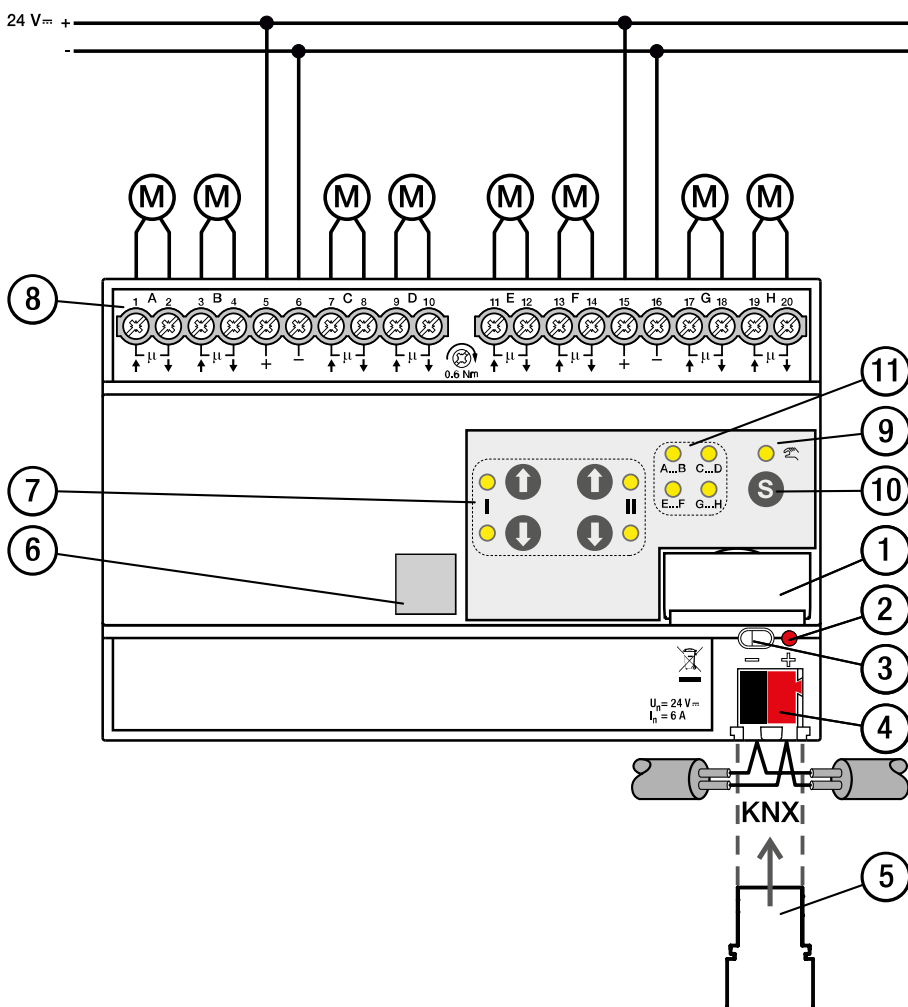


Fig. 2: JRA/S x.24.x.2 connection variant

### Legend

- |                               |                        |
|-------------------------------|------------------------|
| 1 Labeling field              | 7 Input Button/LED     |
| 2 Programming LED             | 8 Output               |
| 3 Programming button          | 9 Manual operation LED |
| 4 KNX bus connection terminal | 10 S button            |
| 5 Cover cap                   | 11 Group LED           |
| 6 2D code                     |                        |

4.2.2 JRA/S 2.230.x.2 connection variant

The connection diagram below applies by way of example to the following devices:

Device type	Name	Features
JRA/S 2.230.2.2	Blind/Shutter Actuator	manual operation, 2-fold, 230 V AC, MDRC

Tab. 6: Product family

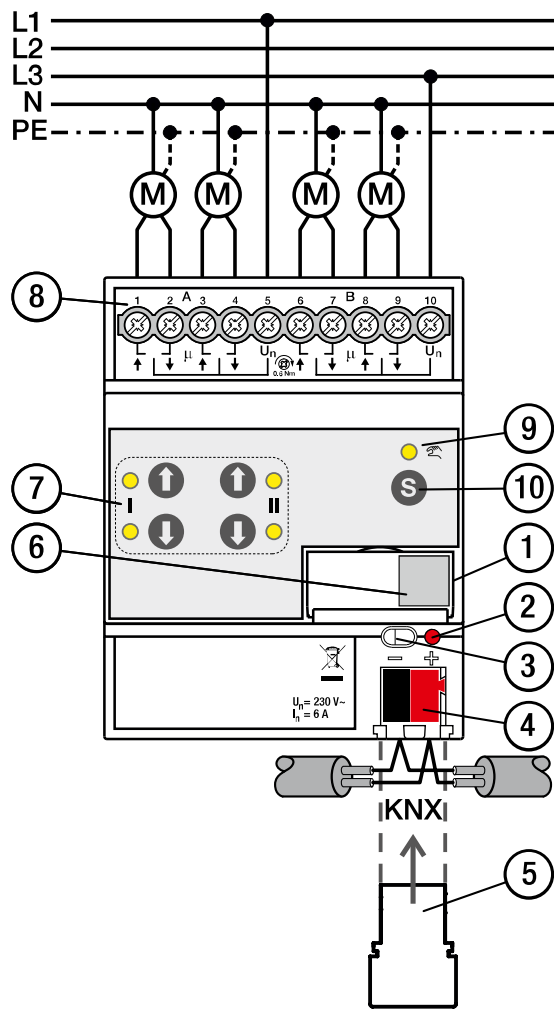


Fig. 3: JRA/S 2.230.x.2 connection variant

Legend

- 1 Labeling field
- 2 Programming LED
- 3 Programming button
- 4 KNX bus connection terminal
- 5 Cover cap
- 6 2D code
- 7 Input Button/LED
- 8 Output
- 9 Manual operation LED
- 10 S button



4.2.3 JRA/S 4/8/12.230.x.2 connection variant

The connection diagram below applies by way of example to the following devices:

Device type	Name	Features
JRA/S 4.230.2.2	Blind/Shutter Actuator	manual operation, 4-fold, 230 V AC, MDRC
JRA/S 8.230.2.2	Blind/Shutter Actuator	manual operation, 8-fold, 230 V AC, MDRC
JRA/S 12.230.2.2	Blind/Shutter Actuator	manual operation, 12-fold, 230 V AC, MDRC

Tab. 7: Product family

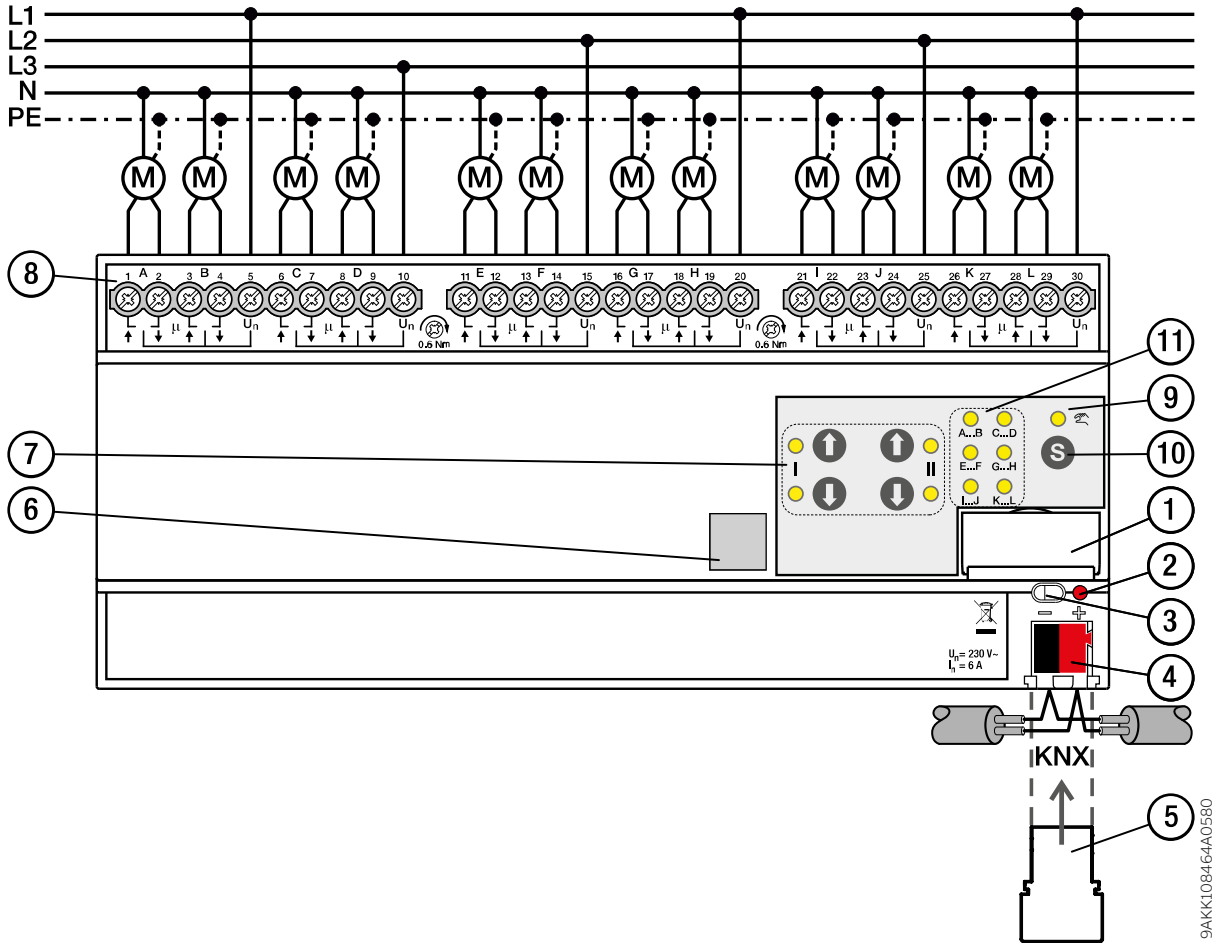


Fig. 4: JRA/S 4/8/12.230.x.2 connection variant

Legend

- 1 Labeling field

2 Programming LED

3 Programming button

4 KNX bus connection terminal

5 Cover cap

6 2D code
- 7 Input Button/LED

8 Output

9 Manual operation LED


10 S button

11 Group LED

## 4.3 Operating and display elements

### Note







The largest and most extensive device in the product family is described below as an example.

Operating control/LED	Description/function	Display
	Assignment of the physical address	LED on: Device in programming mode

Programming button/LED

Tab. 8: Operating and display elements








### 4.3.1 Manual mode

Operating control/LED	Description/function	Display
 S button / Manual operation LED	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 outputs Central operation via membrane keypad	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active
 X...Y Output group LED		LED on: Group selected LED off: Group not selected
  Output I button/LED	First output of group (A/C/E/G/I/K) Top button: <ul style="list-style-type: none"> <li>Long button push &gt; 1 s: up (open)</li> <li>Short button push &lt; 1 s: stop/slat adjustment</li> </ul> Bottom button: <ul style="list-style-type: none"> <li>Long button push &gt; 1 s: down (close)</li> <li>Short button push &lt; 1 s: stop/slat adjustment</li> </ul>	Top LED on and bottom LED off: upper end position (ventilation flap is opening or open) Top LED off and bottom LED on: lower end position (ventilation flap is closing or closed) Top and bottom LEDs off: Intermediate position Top LED flashing (1 Hz) and bottom LED off: Up movement Top LED off and bottom LED flashing (1 Hz): Down movement Top LED flashing (1 Hz) and bottom LED flashing (1 Hz): Output blocked Blind or shutter applications only: Top LED flashing (5 Hz) and bottom LED flashing (5 Hz): Output active (after the group is changed or after change to <i>Manual operation</i> operating mode)
  Output II button/LED	Second output of group (B/D/F/H/J/L) Top button: <ul style="list-style-type: none"> <li>Long button push &gt; 1 s: up (open)</li> <li>Short button push &lt; 1 s: stop/slat adjustment</li> </ul> Bottom button: <ul style="list-style-type: none"> <li>Long button push &gt; 1 s: down (close)</li> <li>Short button push &lt; 1 s: stop/slat adjustment</li> </ul>	Top LED on and bottom LED off: upper end position (ventilation flap is opening or open) Top LED off and bottom LED on: lower end position (ventilation flap is closing or closed) Top and bottom LEDs off: Intermediate position Top LED flashing (1 Hz) and bottom LED off: Up movement Top LED off and bottom LED flashing (1 Hz): Down movement Top LED flashing (1 Hz) and bottom LED flashing (1 Hz): Output blocked Blind or shutter applications only: Top LED flashing (5 Hz) and bottom LED flashing (5 Hz): Output active (after the group is changed or after change to <i>Manual operation</i> operating mode)

Tab. 9: Operating and display elements

## 4.3.2

## KNX operation

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>	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active LED flashing (1 Hz): Device connected to i-bus® Tool, <i>Manual operation</i> blocked LED flashing (1 Hz) while button pressed: <i>Manual operation</i> not enabled or blocked
 X...Y <i>Output group LED</i>		LED on: Group selected LED off: Group not selected
  <i>Output I button/LED</i>	First output of group (A/C/E/G/I/K) Button without function	Top LED on and bottom LED off: upper end position (ventilation flap is opening or open) Top LED off and bottom LED on: lower end position (ventilation flap is closing or closed) Top and bottom LEDs off: Intermediate position Top LED flashing (1 Hz) and bottom LED off: Up movement Top LED off and bottom LED flashing (1 Hz): Down movement Top LED flashing (1 Hz) and bottom LED flashing (1 Hz): Output blocked, or controlled by i-bus® Tool Blind or shutter applications only: Top LED flashing (5 Hz) and bottom LED flashing (5 Hz): Output active (after the group is changed or after change to <i>KNX operation</i> )
  <i>Output II button/LED</i>	Second output of group (B/D/F/H/J/L) Button without function	Top LED on and bottom LED off: upper end position (ventilation flap is opening or open) Top LED off and bottom LED on: lower end position (ventilation flap is closing or closed) Top and bottom LEDs off: Intermediate position Top LED flashing (1 Hz) and bottom LED off: Up movement Top LED off and bottom LED flashing (1 Hz): Down movement Top LED flashing (1 Hz) and bottom LED flashing (1 Hz): Output blocked, or controlled by i-bus® Tool Blind or shutter applications only: Top LED flashing (5 Hz) and bottom LED flashing (5 Hz): Output active (after the group is changed or after change to <i>KNX operation</i> )

Tab. 10: Operating and display elements

## 4.4 Technical data


### 4.4.1 General technical data

Device	Dimensions	90 × 70 × 63.5 mm (H x W x D)	90 × 70 × 63.5 mm (H x W x D)
		90 × 70 × 63.5 mm (H x W x D)	90 × 70 × 63.5 mm (H x W x D)
		90 × 140 × 63.5 mm (H x W x D)	90 × 140 × 63.5 mm (H x W x D)
		90 × 210 × 63.5 mm (H x W x D)	
	Mounting width in space units	4 modules, 17.5 mm each	4 modules, 17.5 mm each
		4 modules, 17.5 mm each	4 modules, 17.5 mm each
		8 modules, 17.5 mm each	8 modules, 17.5 mm each
		12 modules, 17.5 mm each	
	Weight	0.160 kg	0.153 kg
		0.203 kg	0.206 kg
		0.378 kg	0.382 kg
		0.543 kg	
	Mounting position	Any	Any
	Mounting variant	35 mm mounting rail	35 mm mounting rail
	Design	proM	proM
	Degree of protection	IP 20	IP 20
	Protection class	II	II
	Overvoltage category	III	III
	Overload protection	Yes	Yes
	Reverse voltage protection	Yes	Yes
	Short-circuit proof	Yes	Yes
	Pollution degree	2	2
Materials	Housing	Polycarbonate, Makrolon FR6002, halogen free	Polycarbonate, Makrolon FR6002, halogen free
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	< 12 mA	< 12 mA
	Power loss, device	≤ 3.85 W	≤ 3.05 W
		≤ 3.85 W	≤ 5.85 W
		≤ 7.45 W	≤ 11.45 W
		≤ 11.05 W	
	Power loss, bus	≤ 0.25 W	≤ 0.25 W
	Power loss, relay output 6 A	≤ 0.9 W	≤ 1.4 W
	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/outputs	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 mm <sup>2</sup> ) / 2 × (0.2 ... 1.5 mm <sup>2</sup> )	1 × (0.2 ... 4 mm <sup>2</sup> ) / 2 × (0.2 ... 1.5 mm <sup>2</sup> )
	Conductor cross section, rigid	1 × (0.2 ... 6 mm <sup>2</sup> ) / 2 × (0.2 ... 1.5 mm <sup>2</sup> )	1 × (0.2 ... 6 mm <sup>2</sup> ) / 2 × (0.2 ... 1.5 mm <sup>2</sup> )
	Conductor cross section with wire end ferrule without plastic sleeve	1 × (0.25 ... 4 mm <sup>2</sup> ) / 2 × (0.25 ... 0.75 mm <sup>2</sup> )	1 × (0.25 ... 4 mm <sup>2</sup> ) / 2 × (0.25 ... 0.75 mm <sup>2</sup> )
	Conductor cross section with wire end ferrule with plastic sleeve	1 × (0.25 ... 2.5 mm <sup>2</sup> )	1 × (0.25 ... 2.5 mm <sup>2</sup> )
	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 mm <sup>2</sup> )	1 × (0.5 ... 2.5 mm <sup>2</sup> )
	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	→ <a href="#">9AKK108468A8276</a>	→ <a href="#">9AKK108468A8278</a>
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)

## 4.4.2 Outputs Blind Shutter 6 A

Rated values	Number of outputs	2	2
		4	4
		8	8
		12	
	Rated voltage $U_n$	230 V AC	24 V DC
	Rated current $I_n$ (per group)	6A	6A
	Rated frequency	50 / 60 Hz	-
	Relay type	Bi-stable	Bi-stable
Switching currents	AC-1 operation ( $\cos \varphi = 0.8$ ) at 230 V	$\leq 6$ A	$\leq 6$ A
	AC-3 operation ( $\cos \varphi = 0.45$ ) at 230 V	$\leq 6$ A	$\leq 6$ A
	AC-1 operation ( $\cos \varphi = 0.8$ ) at 400 V	$\leq 6$ A	$\leq 6$ A
	AC-3 operation ( $\cos \varphi = 0.45$ ) at 400 V	$\leq 6$ A	$\leq 6$ A
	Switching current at 5 V AC	$\geq 100$ mA	$\geq 100$ mA
	Switching current at 12 V AC	$\geq 10$ mA	$\geq 10$ mA
	Switching current at 24 V AC	$\geq 1$ mA	$\geq 1$ mA
	Switching current at 24 V DC (resistive load)	$\leq 6$ A	$\leq 6$ A
Switching capacity	Switching capacity at min. 5 V AC	$\leq 0.5$ W	$\leq 0.5$ W
	Switching capacity at min. 12 V AC	$\leq 0.12$ W	$\leq 0.12$ W
	Switching capacity at min. 24 V AC	$\leq 0.024$ W	$\leq 0.024$ W
Service life	Mechanical service life	$\geq 10^7$ switching operations	$\geq 10^7$ switching operations
	AC-1 operation ( $\cos \varphi = 0.8$ )	$\geq 10^5$ switching operations	$\geq 10^5$ switching operations
	AC-3 operation ( $\cos \varphi = 0.45$ )	$\geq 10^5$ switching operations	$\geq 10^5$ switching operations
Switching operations	Switching operations per minute when one relay switches	$\leq 1000$	$\leq 1000$
	Switching operations per minute when all relays switch	$\leq 500$	$\leq 500$
		$\leq 250$	$\leq 250$
		$\leq 125$	$\leq 125$
Inrush current	Inrush current $I_{peak}$ (150 $\mu$ s)	$\leq 100$ A	$\leq 100$ A
	Inrush current $I_{peak}$ (250 $\mu$ s)	$\leq 80$ A	$\leq 80$ A
	Inrush current $I_{peak}$ (600 $\mu$ s)	$\leq 50$ A	$\leq 50$ A

### 4.4.2.1 Load table

Load type	Symbol	Max. load
Rated motor power		1,380 W

Tab. 11: Load table

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Ordering details

Description	MB	Type	Order no.	Packaging unit [pcs.]	Weight (incl. packaging) [kg]
Blind/Shutter Actuator	2	JRA/S 2.230.2.2	2CDG110284R0011	1	0.248
Blind/Shutter Actuator	4	JRA/S 4.230.2.2	2CDG110285R0011	1	0.291
Blind/Shutter Actuator	8	JRA/S 8.230.2.2	2CDG110286R0011	1	0.477
Blind/Shutter Actuator	12	JRA/S 12.230.2.2	2CDG110287R0011	1	0.656
Blind/Shutter Actuator	2	JRA/S 2.24.2.2	2CDG110295R0011	1	0.241
Blind/Shutter Actuator	4	JRA/S 4.24.2.2	2CDG110296R0011	1	0.294
Blind/Shutter Actuator	8	JRA/S 8.24.2.2	2CDG110297R0011	1	0.481

Tab. 11: Ordering details



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