

TECHNICAL DATA

# **ABB i-bus® KNX**

## SA/S 4.6.2.2

### Switch Actuator



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## Device description

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

The device is KNX-certified and can be used as a product in a KNX system → EU declaration of conformity.

The device is powered via the bus (ABB i-bus® KNX) and requires no additional auxiliary voltage. The connection to the bus is made via a bus connection terminal on the front of the housing. The loads are connected to the outputs using 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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### Device functions

The device possesses mutually independent switching relays with which the following functions can be implemented:

- Switching primarily resistive loads in single- or multi-phase electrical networks

On-site operation of the outputs is possible using toggle switches.

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**Connections**

- The devices possess the following connections:
- Depending on the device type, 2, 4, 8 or 12 relay outputs for switching electrical loads
  - 1 bus connection

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**Inputs**

This section is not relevant for these devices.

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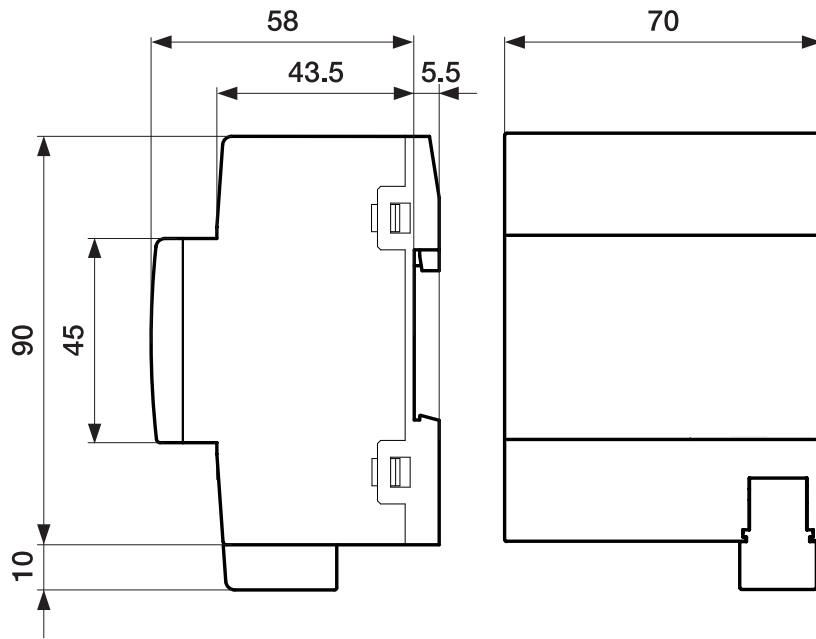
**Outputs**

**ⓘ Note**  
A device with 12 channels (A ... L) is described below.

The outputs can be used individually to switch electrical loads.

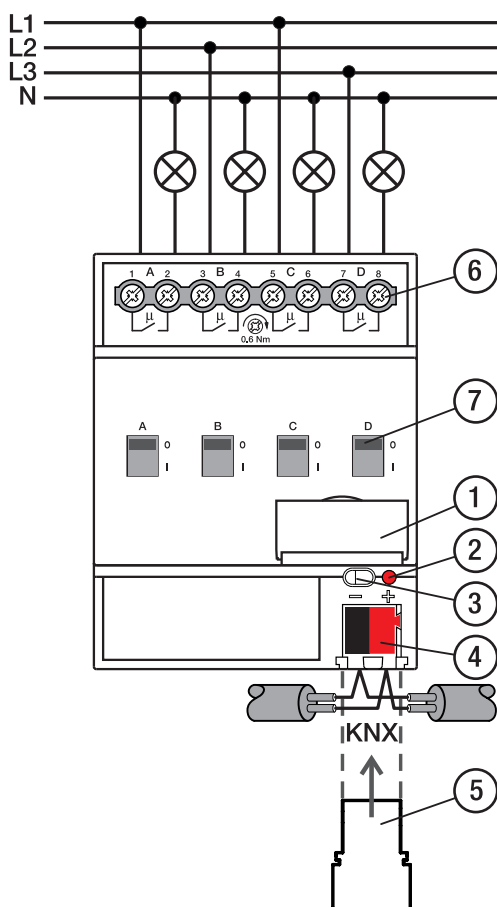
| Function | A | B | C | D | E | F | G | H | I | J | K | L |
|----------|---|---|---|---|---|---|---|---|---|---|---|---|
| Switch   | x | x | x | x | x | x | x | x | x | x | x | x |

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**Dimension drawing**



2CDC072033F0015

## Connection diagram



## Legend

- 1 label carrier
- 2 *Programming* LED
- 3 *Programming* button
- 4 Bus connection terminal

- 5 Cover cap
- 6 Load circuit, two screw terminals each
- 7 Toggle switches

## Operating and display elements

| Operating control/LED                                                                                       | Description/function                                                                                                 | Display                                                                                                                |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|                            | Assignment of the physical address                                                                                   | LED on: Device in programming mode                                                                                     |
| <i>Programming button/LED</i>                                                                               |                                                                                                                      |                                                                                                                        |
|  <div>0</div> <div>1</div> | Switching of the output: <ul style="list-style-type: none"> <li>• 1 = Switch on</li> <li>• 0 = Switch off</li> </ul> | Indication of the contact position: <ul style="list-style-type: none"> <li>• 1 = Closed</li> <li>• 0 = Open</li> </ul> |
| Toggle switches                                                                                             |                                                                                                                      |                                                                                                                        |

## General technical data

|                           |                                                                      |                                                                       |
|---------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Device</b>             | Dimensions                                                           | 90 × 70 × 63.5 mm (H × W × D)                                         |
|                           | Mounting width in space units                                        | 4 modules, 17.5 mm each                                               |
|                           | Weight                                                               | 0.22 kg                                                               |
|                           | Mounting position                                                    | Any                                                                   |
|                           | Mounting variant                                                     | 35 mm mounting rail                                                   |
|                           | Design                                                               | ProM                                                                  |
|                           | Degree of protection                                                 | IP 20                                                                 |
|                           | Protection class                                                     | II                                                                    |
|                           | Overvoltage category                                                 | III                                                                   |
| <b>Materials</b>          | Pollution degree                                                     | 2                                                                     |
|                           | Housing                                                              | Polycarbonate, Makrolon FR6002, halogen free                          |
|                           | Fire classification                                                  | Flammability V-0                                                      |
|                           | Material note                                                        |                                                                       |
|                           | Rated voltage, bus                                                   | 30 V DC                                                               |
|                           | Voltage range, bus                                                   | 21 ... 31 V DC                                                        |
|                           | Current consumption, bus                                             | < 12 mA                                                               |
|                           | Maximum current, device                                              | 4 × 6 A                                                               |
|                           | Power loss, device                                                   | ≤ 1.2 W                                                               |
| <b>Electronics</b>        | Power loss, bus                                                      | ≤ 0.25 W                                                              |
|                           | KNX safety extra low voltage                                         | SELV                                                                  |
|                           | Connection type, KNX bus                                             | Plug-in terminal                                                      |
|                           | Cable diameter, KNX bus                                              | 0.6 ... 0.8 mm, solid                                                 |
|                           | Connection type, load circuit                                        | Screw terminal with universal head (PZ 1)                             |
|                           | Pitch                                                                | 7.62 mm                                                               |
|                           | Tightening torque, screw terminals                                   | 0.5 ... 0.6 Nm                                                        |
|                           | Conductor cross-section, flexible                                    | 1 × (0.2 ... 4 mm <sup>2</sup> ) / 2 × (0.2 ... 2.5 mm <sup>2</sup> ) |
|                           | Conductor cross section, rigid                                       | 1 × (0.2 ... 6 mm <sup>2</sup> ) / 2 × (0.2 ... 4 mm <sup>2</sup> )   |
| <b>Connections</b>        | Conductor cross section with wire end ferrule without plastic sleeve | 1 × (0.25 ... 2.5 mm <sup>2</sup> )                                   |
|                           | Conductor cross section with wire end ferrule with plastic sleeve    | 1 × (0.25 ... 4 mm <sup>2</sup> )                                     |
|                           | Conductor cross section with TWIN wire end ferrule                   | 1 × (0.5 ... 2.5 mm <sup>2</sup> )                                    |
|                           | Length, wire end ferrule contact pin                                 | ≥ 10 mm                                                               |
|                           | Declaration of conformity CE                                         | → 2CDK505253D2701                                                     |
|                           | Certificates and declarations                                        |                                                                       |
|                           | Ambient conditions                                                   |                                                                       |
|                           | Operation                                                            | -5 ... +45 °C                                                         |
|                           | Transport                                                            | -25 ... +70 °C                                                        |
| <b>Ambient conditions</b> | Storage                                                              | -25 ... +55 °C                                                        |
|                           | Humidity                                                             | ≤ 95 %                                                                |
|                           | Condensation allowed                                                 | No                                                                    |
|                           | Atmospheric pressure                                                 | ≥ 80 kPa (corresponds to air pressure at 2,000 m above sea level)     |
|                           |                                                                      |                                                                       |



## Outputs – relays 6 A

|                      |                                                         |                                           |
|----------------------|---------------------------------------------------------|-------------------------------------------|
| Rated values         | Number of outputs                                       | 4                                         |
|                      | Rated voltage $U_n$                                     | 230 V AC                                  |
|                      | Rated current $I_n$ (per output)                        | 6 A                                       |
|                      | Rated frequency                                         | 50/60 Hz                                  |
|                      | Relay type                                              | Bi-stable                                 |
| Switching currents   | AC-1 operation ( $\cos \varphi = 0.8$ )                 | $\leq 6$ A                                |
|                      | AC-3 operation ( $\cos \varphi = 0.45$ )                | $\leq 6$ A                                |
|                      | Fluorescent lighting load AX                            | $\leq 6$ AX                               |
|                      | Switching current at 12 V AC                            | $\geq 0.1$ A                              |
|                      | Switching current at 24 V AC                            | $\geq 0.1$ A                              |
| Service life         | Switching current at 24 V DC (resistive load)           | $\leq 6$ A                                |
|                      | Mechanical service life                                 | $\geq 3 \times 10^6$ switching operations |
|                      | AC-1 operation ( $\cos \varphi = 0.8$ )                 | $\geq 10^5$ switching operations          |
|                      | AC-3 operation ( $\cos \varphi = 0.45$ )                | $\geq 3 \times 10^4$ switching operations |
|                      | AC-5a operation ( $\cos \varphi = 0.45$ )               | $\geq 3 \times 10^4$ switching operations |
| Switching operations | Switching operations per minute when one relay switches | $\leq 120$                                |
|                      | Switching operations per minute when all relays switch  | $\leq 30$                                 |
| Inrush current       | Inrush current $I_{peak}$ (150 $\mu$ s)                 | $\leq 400$ A                              |
|                      | Inrush current $I_{peak}$ (250 $\mu$ s)                 | $\leq 320$ A                              |
|                      | Inrush current $I_{peak}$ (600 $\mu$ s)                 | $\leq 200$ A                              |

### Note

The starting current  $I_{peak}$  is the typical ballast load current that results during switching. Using the starting current  $I_{peak}$ , it is possible to calculate the maximum number of switchable ballasts at the Switch Actuator output Ballast calculation.

| Lamp type                                        | Symbol                                                                              | Max. lamp load |
|--------------------------------------------------|-------------------------------------------------------------------------------------|----------------|
| Incandescent bulbs                               |  | 1380 W         |
| Fluorescent lamps uncompensated                  |  | 1380 W         |
| Fluorescent lamps parallel compensated           |                                                                                     | 1380 W         |
| Fluorescent lamps duo circuit                    |                                                                                     | 1380 W         |
| Low-voltage halogen lamps inductive transformer  |  | 1200 W         |
| Low-voltage halogen lamps electronic transformer |  | 1380 W         |
| Low-voltage halogen lamps 230 V                  |                                                                                     | 1380 W         |
| Dulux lamps uncompensated                        |                                                                                     | 1100 W         |
| Dulux lamps parallel compensated                 |                                                                                     | 1100 W         |
| Mercury-vapor lamps uncompensated                |                                                                                     | 1380 W         |
| Mercury-vapor lamps parallel compensated         |                                                                                     | 1380 W         |
| LED lamps                                        |  | 400 W          |
| Rated motor power                                |  | 1,380 W        |

## Device type

|             |                                   |                                                 |
|-------------|-----------------------------------|-------------------------------------------------|
| Device type | Switch Actuator                   | SA/S 4.6.2.2                                    |
|             | Application                       | Switch standard 4-fold 6 A / ...                |
|             |                                   | ... = current version number of the application |
|             | Maximum number of Group Objects   | 166                                             |
|             | Maximum number of group addresses | 1000                                            |
|             | Maximum number of assignments     | 1000                                            |

### Note

See software information on the website  
→ [www.abb.com/knx](http://www.abb.com/knx).

### Note

The device supports the locking function of a KNX device in ETS. If a BAU code was assigned, the device can be read and programmed only with this BAU code.

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## Ordering details

| Description | MB | Type         | Order no.       | Packaging unit<br>[pcs.] | Weight (incl.<br>packaging)<br>[kg] |
|-------------|----|--------------|-----------------|--------------------------|-------------------------------------|
| switching   | 4  | SA/S 4.6.2.2 | 2CDG110254R0011 | 1                        | 0,29                                |



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