The technical properties of the ABB i-bus® Switch Actuators are explained in the following sections.

The 6 A Switch Actuators are modular installation devices in proM design for installation in the distribution board on 35 mm mounting rails. The connection to the ABB i-bus® EIB / KNX is implemented via a Bus Connection Terminal.

The device does not require an additional power supply.

Technical data

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Operating voltage</th>
<th>Current consumption EIB / KNX</th>
<th>Power consumption EIB / KNX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage</td>
<td>21...30 V DC, made available by the bus</td>
<td>&lt; 12 mA</td>
<td>Max. 250 mW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output nominal values</th>
<th>SA/S - type</th>
<th>Number (potential free contacts 2 per group)</th>
<th>U_n rated voltage</th>
<th>I_n rated current (per output)</th>
<th>Power loss per device at max. load</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6.1</td>
<td>4</td>
<td>6 A</td>
<td>250 / 440 V AC (50/60 Hz)</td>
<td>6 A</td>
<td>1.5 W</td>
</tr>
<tr>
<td>8.6.1</td>
<td>8</td>
<td>6 A</td>
<td></td>
<td>6 A</td>
<td>2.0 W</td>
</tr>
<tr>
<td>12.6.1</td>
<td>12</td>
<td>6 A</td>
<td></td>
<td>6 A</td>
<td>2.5 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output switching currents</th>
<th>AC3 operation (cosϕ = 0.45) EN 60 947-4-1</th>
<th>6 A / 230 V</th>
<th>AC1 operation (cosϕ = 0.8) EN 60 947-4-1</th>
<th>6 A / 230 V</th>
<th>Fluorescent lighting load to EN 60 669-1</th>
<th>6 A / 250 V (35 µF) 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC3</td>
<td>6 A / 230 V</td>
<td>20 mA / 5 V</td>
<td>10 mA / 12 V</td>
<td>7 mA / 24 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC1</td>
<td>6 A / 230 V</td>
<td>6 A / 250 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum switching performance</td>
<td>6 A / 250 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC current switching capacity (ohmic load)</td>
<td>6 A / 24 V DC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output life expectancy</th>
<th>Mechanical endurance</th>
<th>Electrical endurance to IEC 60 947-4-1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 10⁷</td>
<td>AC1 (240 V/cosϕ = 0.8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 10⁵</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AC3 (240 V/cosϕ = 0.45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 1.5 x 10⁴</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AC5a (240 V/cosϕ = 0.45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 1.5 x 10⁴</td>
</tr>
<tr>
<td>Operations (state change)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output switching times 1)</th>
<th>Max. number of relay position changes per output and minute.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>if all relays are switched simultaneously.</td>
</tr>
<tr>
<td></td>
<td>The position changes should be distributed equally within the minute.</td>
</tr>
<tr>
<td></td>
<td>Max. number of relay position changes per output and minute only one relay is switched.</td>
</tr>
<tr>
<td></td>
<td>4.6.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connections</th>
<th>EIB / KNX</th>
<th>Bus Connection Terminal, 0.8 mm Ø, single core</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Load current circuits (1 terminal per contact)</td>
<td>Screw terminal 0.2...2.5 mm² finely stranded</td>
</tr>
<tr>
<td></td>
<td>Phase (1 terminal for 2 contacts)</td>
<td>Max. 0.6 Nm</td>
</tr>
<tr>
<td></td>
<td>Tightening torque</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EIB / KNX operating and display elements</th>
<th>LED red and EIB / KNX push button</th>
<th>for assignment of the physical address</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Housing</th>
<th>IP 20</th>
<th>to EN 60 529</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety class</td>
<td>II</td>
<td>to EN 61 140</td>
</tr>
<tr>
<td>Isolation category</td>
<td>Overvoltage category</td>
<td>Ill to EN 60 664-1</td>
</tr>
<tr>
<td></td>
<td>Pollution degree</td>
<td>2 to EN 60 664-1</td>
</tr>
</tbody>
</table>

1) The specifications apply only after the bus voltage has been applied to the device for at least 10 seconds. The typical elementary delay of the relay is approx. 20 ms.

2) The maximum inrush-current peak (see table 2) may not be exceeded.

Table 1 – Part 1: 6 A Switch Actuator SA/S x.6.1, technical data
ABB i-bus® EIB / KNX
Switch Actuator, x-fold, 6 A, MDRC
SA/S x.6.1, 2CDG 110 0xx R0011

EIB / KNX voltage
- SELV 24 V DC (safety extra low voltage)

Temperature range
- Operation
  - 5 °C ... + 45 °C
- Storage
  - 25 °C ... + 55 °C
- Transport
  - 25 °C ... + 70 °C

Design
- Modular DIN-Rail Component (MDRC)
- SA/S - type
  - 4.6.1
  - 8.6.1
  - 12.6.1
- Dimensions (H x W x D)
  - 90 x W x 64
- Width W in mm
  - 36
  - 72
  - 108
- Mounting width (modules at 18 mm)
  - 2
  - 4
  - 6
- Mounting depth
  - 64
  - 64
  - 64

Weight
- In kg
  - 0.13
  - 0.24
  - 0.3

Installation
- On 35 mm mounting rail
  - EN 60 715

Mounting position
- As required

Housing, colour
- Plastic housing, grey

Approvals
- EIB / KNX nach EN 50 090-2-2 Certification

CE mark
- In accordance with the EMC guideline and low voltage guideline

Table 1 – Part 2: 6 A Switch Actuator SA/S x.6.1, technical data

Lamps
- Incandescent lamp load
  - 1200 W

Fluorescent lamp T5 / T8
- Uncompensated luminaire
  - 800 W
- Parallel compensated
  - 300 W
- DUO circuit
  - 350 W

Low-volt halogen lamps
- Inductive transformer
  - 800 W
- Electronic transformer
  - 1000 W
- Halogen lamp 230V
  - 1000 W

Dulux lamp
- Uncompensated luminaire
  - 800 W
- Parallel compensated
  - 800 W

Mercury-vapour lamp
- Uncompensated luminaire
  - 1000 W
- Parallel compensated
  - 800 W

Switching performance (switching contact)
- Max. peak inrush-current $I_p$ (150 µs)
  - 200 A
- Max. peak inrush-current $I_p$ (250 µs)
  - 160 A
- Max. peak inrush-current $I_p$ (600 µs)
  - 100 A

Number of electronic ballasts
(T5/T8, single element) $^1$
- 18 W (ABB EVG 1x58 CF)
  - 10
- 24 W (ABB EVG-T5 1x24 CY)
  - 10
- 36 W (ABB EVG 1x36 CF)
  - 7
- 58 W (ABB EVG 1x58 CF)
  - 5
- 80 W (Helvar EL 1x80 SC)
  - 3

$^1$ For multiple element lamps or other types the number of electronic ballasts must be determined using the peak inrush current of the electronic ballasts.

Table 2: Lamp load for SA/S x.6.1

Application programs

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Max. number of communication objects</th>
<th>Max. number of group addresses</th>
<th>Max. number of associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA/S 4.6.1</td>
<td>Switch, 4f6/1</td>
<td>64</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>SA/S 8.6.1</td>
<td>Switch, 8f6/1</td>
<td>124</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>SA/S 12.6.1</td>
<td>Switch, 12f6/1</td>
<td>184</td>
<td>254</td>
<td>254</td>
</tr>
</tbody>
</table>

Table 3: Application programs SA/S x.6.1
Note: The programming requires the EIB Software Tool ETS2 V1.3 or higher. If the ETS3 is used a “.VD3” type file must be imported. The application program is located within the ETS2 / ETS3 in the category ABB/output/Binary output, x-fold/switch, xf6/1 (x = 4, 8 or 12, number of outputs).

Detailed information about the application can be found in the product manual for the “Switch Actuators SA/S”. This manual can be free downloaded under www.abb.de/eib.

Wiring diagram

1 Label carrier
2 Programming button
3 Programming LED
4 Bus Connection Terminal
5 Load current circuit

Note: All-pole disconnection must be observed in order to avoid dangerous contact voltage which can develop via loads in other phases.

Dimension drawings

<table>
<thead>
<tr>
<th></th>
<th>SA/S 4.6.1</th>
<th>SA/S 8.6.1</th>
<th>SA/S 12.6.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>36 mm</td>
<td>72 mm</td>
<td>108 mm</td>
</tr>
<tr>
<td></td>
<td>2 module widths</td>
<td>4 module widths</td>
<td>6 module widths</td>
</tr>
</tbody>
</table>
ABB i-bus® EIB / KNX

Switch Actuator, x-fold, 6 A, MDRC
SA/S x.6.1, 2CDG 110 0xx R0011