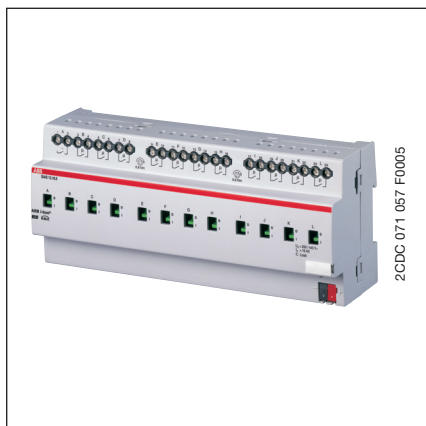


Switch Actuator, x-fold, 16 AX, C-Load, with Current Detection, MDRC SA/S x.16.5S, 2CDG 110 0xx R0011



The 16 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 2-, 4- and 8-fold switch actuators feature a load current detection on every output. A separate external voltage supply for the actuator is not required.

The actuators switch up to 12 independent electrical loads via potential free contacts. The outputs are connected using screw terminals with combination drive head screws. Each output is controlled and monitored separately via the EIB / KNX.

The switch actuators can be manually operated via an operating element which simultaneously indicates the switch status.

The actuators are particularly suitable for switching loads with high peak inrush currents such as fluorescent lighting with compensation capacitors or fluorescent lamp loads (AX) according to EN 60669.

Technical data

Power supply	<ul style="list-style-type: none"> – Operating voltage – Current consumption EIB / KNX – Power consumption EIB / KNX 	21...30 V DC, made available by the bus < 12 mA Max. 250 mW																																			
Output nominal values	<ul style="list-style-type: none"> – SA/S - type – Current detection – Number of contacts (potential free) – U_n rated voltage – I_n rated current – Power loss per device at max. load 	<table border="1"> <thead> <tr> <th></th> <th>2.16.5S</th> <th>4.16.5S</th> <th>8.16.5S</th> <th>12.16.5</th> </tr> </thead> <tbody> <tr> <td>SA/S - type</td> <td>2.16.5S</td> <td>4.16.5S</td> <td>8.16.5S</td> <td>12.16.5</td> </tr> <tr> <td>Current detection</td> <td>yes</td> <td>yes</td> <td>yes</td> <td>no</td> </tr> <tr> <td>Number of contacts (potential free)</td> <td>2</td> <td>4</td> <td>8</td> <td>12</td> </tr> <tr> <td>U_n rated voltage</td> <td colspan="4">250 / 440 V AC (50/60 Hz)</td> </tr> <tr> <td>I_n rated current</td> <td colspan="4">16 AX, C-Load</td> </tr> <tr> <td>Power loss per device at max. load</td> <td>2.0 W</td> <td>4.0 W</td> <td>8.0 W</td> <td>12.0 W</td> </tr> </tbody> </table>		2.16.5S	4.16.5S	8.16.5S	12.16.5	SA/S - type	2.16.5S	4.16.5S	8.16.5S	12.16.5	Current detection	yes	yes	yes	no	Number of contacts (potential free)	2	4	8	12	U_n rated voltage	250 / 440 V AC (50/60 Hz)				I_n rated current	16 AX, C-Load				Power loss per device at max. load	2.0 W	4.0 W	8.0 W	12.0 W
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Output switching currents	<ul style="list-style-type: none"> – AC3 operation ($\cos\phi = 0.45$) EN 60 947-4-1 – AC1 operation ($\cos\phi = 0.8$) EN 60 947-4-1 – Fluorescent lighting load AX to EN 60669-1 – Minimum switching performance – DC current switching capacity (ohmic load) 	16 A / 230 V 16 A / 230 V 16 AX / 250 V (200 μ F) ²⁾ 100 mA / 12 V 100 mA / 24 V 16 A / 24 V DC																																			
Output life expectancy	<ul style="list-style-type: none"> – Mechanical endurance – Electrical endurance to IEC 60 947-4-1 <ul style="list-style-type: none"> – AC1(240 V/$\cos\phi = 0.8$) – AC3 (240 V/$\cos\phi = 0.45$) – AC5a (240 V/$\cos\phi = 0.45$) 	> 10 ⁶ > 10 ⁵ > 3 x 10 ⁴ > 3 x 10 ⁴ Operations (state change)																																			
Current detection (load current) SA/S 2.16.5S, SA/S 4.16.5S, SA/S 8.16.5S	<ul style="list-style-type: none"> – Detection range (sine r.m.s. value) – Accuracy – Frequency – Resolution 1-Byte / 2-Byte – Detection speed limited by low-pass filter with τ 	0.1 A ... 16 A +/- 8 % of current value (sine) and +/- 100 mA 50/60 Hz 100 mA / 1 mA 100 ms																																			
Output switching times ¹⁾	<ul style="list-style-type: none"> – Max. number of relay position changes per output and minute, if all relays are switched simultaneously. The position changes should be distributed equally within the minute. – Max. number of relay position changes per output, and minute if only one relay is switched 	<table border="1"> <thead> <tr> <th></th> <th>2.16.5S</th> <th>4.16.5S</th> <th>8.16.5S</th> <th>12.16.5</th> </tr> </thead> <tbody> <tr> <td>Max. number of relay position changes per output and minute, if all relays are switched simultaneously. The position changes should be distributed equally within the minute.</td> <td>30</td> <td>15</td> <td>7</td> <td>5</td> </tr> <tr> <td>Max. number of relay position changes per output, and minute if only one relay is switched</td> <td>60</td> <td>60</td> <td>60</td> <td>60</td> </tr> </tbody> </table>		2.16.5S	4.16.5S	8.16.5S	12.16.5	Max. number of relay position changes per output and minute, if all relays are switched simultaneously. The position changes should be distributed equally within the minute.	30	15	7	5	Max. number of relay position changes per output, and minute if only one relay is switched	60	60	60	60																				
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¹⁾ The specifications apply only after the bus voltage has been applied to the device for at least 30 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: 16 A, AC3, C-Load Switch Actuator SA/S x.16.5S, technical data

Connections	– EIB / KNX	Bus Connection Terminal, 0.8 mm Ø, single core
	– Load current circuits (2 terminals per contact)	Screw terminal with universal head (PZ 1) 0.2...4 mm ² finely stranded, 2 x (0.2 – 2.5 mm ²) 0.2...6 mm ² single core, 2 x (0.2 – 4 mm ²)
	– Tightening torque	Max. 0.8 Nm
Operating and display elements	– Red LED and EIB / KNX push button – Contact position indication	for assignment of the physical address Relay lever
Housing	– IP 20	to EN 60 529
Safety class	– II	to EN 61 140
Isolation category	– Overvoltage category	III to EN 60 664-1
	– Pollution degree	2 to EN 60 664-1
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)	Modular installation device, ProM
	– SA/S - type	2.16.5S 4.16.5S 8.16.5S 12.16.5
	– Dimensions (H x W x D)	90 x W x 64
	– Width W in mm	36 72 144 216
	– Mounting width (modules at 18 mm)	2 4 8 12
	– Mounting depth in mm	64 64 64 64
Weight	– In kg	0.2 0.34 0.64 0.8
Installation	– On 35 mm mounting rail	EN 60 715
Mounting position	– As required	
Housing, colour	– Plastic housing, grey	
Approvals	– EIB / KNX to EN 50 090-2-2	Certification
CE mark	– in accordance with the EMC guideline and low voltage guideline	

Table 1 – Part 2: 16 A, AC3, C-Load Switch Actuator SA/S x.16.5S, technical data

Lamp loads

Lamps	– Incandescent lamp load	3680 W
Fluorescent lamps T5 / T8	– Uncompensated luminaire	3680 W
	– Parallel compensated	2500 W
	– DUO circuit	3680 W
Low-volt halogen lamps	– Inductive transformer	2000 W
	– Electronic transformer	2500 W
	– Halogen lamp 230V	3680 W
Dulux lamp	– Uncompensated luminaire	3680 W
	– Parallel compensated	3000 W
Mercury-vapour lamp	– Uncompensated luminaire	3680 W
	– Parallel compensated	3680 W
Switching performance (switching contact)	– Max. peak inrush-current I _p (150µs)	600 A
	– Max. peak inrush-current I _p (250µs)	480 A
	– Max. peak inrush-current I _p (600µs)	300 A
Number of electronic ballasts (T5/T8, single element) ¹⁾	– 18 W (ABB EVG 1x58 CF)	26 ²⁾
	– 24 W (ABB EVG-T5 1x24 CY)	26 ²⁾
	– 36 W (ABB EVG 1x36 CF)	22
	– 58 W ABB EVG 1x58 CF)	12 ²⁾
	– 80 W (Helvar EL 1x80 SC)	10 ²⁾

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.

²⁾ Limited by protection with a B16 miniature circuit breaker

Table 2: Lamp Load for SA/S x.16.5S

Application programs

Type	Name	Max. number of communication objects	Max. number of group addresses	Max. number of associations
SA/S 2.16.5S	Switch, 2f16S/1	40	254	254
SA/S 4.16.5S	Switch, 4f16S/1	76	254	254
SA/S 8.16.5S	Switch, 8f16S/1	152	254	254
SA/S 12.16.5	Switch, 12f16/1	220	254	254

Table 3: Application programs SA/S x.16.5S

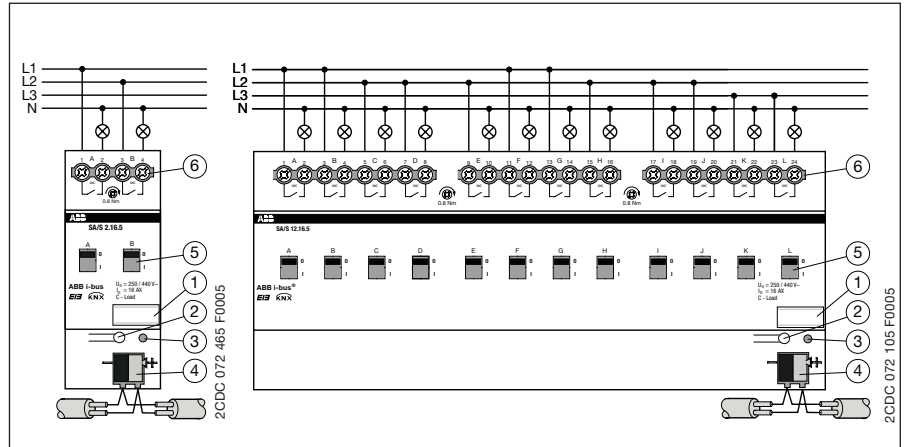
Note:

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, xf16S/1 (x = 2, 4, 8 or 12, number of outputs, S = current detection).

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



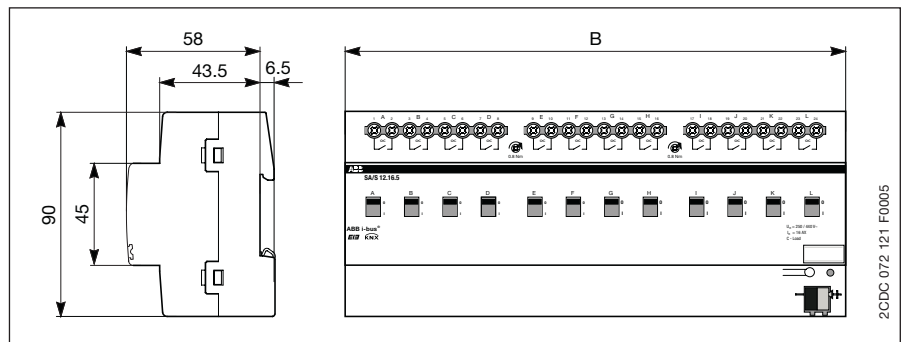
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- 1 Label carrier
- 2 Programming button
- 3 Programming LED
- 4 Bus Connection Terminal
- 5 Contact position indicator and manual operation
- 6 Load current circuits, per circuit 2 connection terminals

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

Dimension drawings



	SA/S 2.16.5S	SA/S 4.16.5S	SA/S 8.16.5S	SA/S 12.16.5
B	36 mm 2 module widths	72 mm 4 module widths	144 mm 8 module widths	216 mm 12 module widths