Switch Actuator, x-fold, 16/20 A, MDRC
SA/S x.16.5.1, 2CDG 110 1xx R0011

The 16/20 A Switching actuators SA/S x.16.5.1 are modular installation devices in Pro*M* Design for installation in the distribution board.
The devices are particularly suitable for switching loads with high peak inrush currents such as fluorescent lighting with compensation capacitors or fluorescent lamp loads (AX) to EN 60669.

Manual actuation of the Switch Actuator is possible using a button. This simultaneously indicates the switching state.

The Switch Actuators can switch up to 12 independent electrical loads via floating contacts. The maximum load current per output is 20 A.
The connection of the outputs is implemented using universal head screw terminals. Each output is controlled separately via the KNX.

The devices do not require an additional power supply and are ready for immediate use, after the bus voltage has been applied.

The Switch Actuators are parameterised via ETS. The connection to the KNX is implemented using the bus connection terminal on the front.

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Technical data

Supply	Bus voltage	21…30 V DC			
	Current consumption via bus	< 12 mA			
	Power consumption via bus	Maximum 250 mW			
Output rated value	SA/S type	2.16.5.1	4.16.5.1	8.16.5.1	12.16.5.1
	Current detection	no	no	no	no
	Number (floating contacts 2/group)	2	4	8	12
	U_n rated voltage	250/440 V AC (50/60 Hz)			
	I_n rated current	16/20 AX, C-Load			
	Leakage loss per device at max. load 16 A	2.0 W	4.0 W	8.0 W	12 W
	Leakage loss per device at max. load 20 A	3.0 W	5.5 W	11.0 W	16 W
Output switching current	AC3[1] operation (cos φ = 0.45) to EN 60 947-4-1	16 A/230 V AC			
	AC1[1] operation (cos φ = 0.8) to EN 60 947-4-1	16/20 A/230 V AC			
	Fluorescent lighting load to EN 60 669-1	16/20 AX/250 V AC (200 µF)[2]			
	Minimum switching performance	100 mA/12 V AC 100 mA/24 V AC 7 mA/24 V AC			
	DC current switching capacity (resistive load)	20 A/24 V DC			
Output service life	Mechanical service life	> 10^6			
	Electrical durability to IEC 60 947-4-1				
	AC1[1] (240 V/cos φ = 0.8)	> 10^5			
	AC3[1] (240 V/cos φ = 0.45)	> 3 x 10^4			
	AC5a[1] (240 V/cos φ = 0.45)	> 3 x 10^4			

Output switching times[3]	SA/S type	2.16.5.1	4.16.5.1	8.16.5.1	12.16.5.1
	Maximum relay position change of output and minute if all relays are switched simultaneously. The position changes should be distributed equally within the minute.	30	15	7	5
	Maximum relay position change per output and minute if only one relay is switched.	60	60	60	60
Connections	KNX	Via bus connection terminals 0.8 mm Ø, solid			
	Load current circuits (2 terminal per relay)	Universal head screw terminal (PZ 1) 0.2…4 mm² stranded, 2 x 0.2…2.5 mm² 0.2…6 mm² solid, 2 x 0.2…4 mm²			
	Ferrules without/with plastic sleeves	0.25…2.5/4 mm²			
	TWIN ferrules	0.5…2.5 mm² Contact pin length at least 10 mm			
	Tightening torque	Maximum 0.8 Nm			
Operating and display elements	Programming button/LED	For assignment of the physical address			
	Switch position display	Relay operator			
Enclosure	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			
KNX safety extra low voltage	SELV 24 V DC				
Temperature range	Operation	-5 °C…+45 °C			
	Storage	-25 °C…+55 °C			
	Transport	-25 °C…+70 °C			
Ambient conditions	Maximum air humidity	93 %, no condensation allowed			
Design	Modular installation device (MDRC)	Modular installation device, Pro*M*			
	SA/S type	2.16.5.1	4.16.5.1	8.16.5.1	12.16.5.1
	Dimensions	90 x W x 64.5 mm (H x W x D)			
	Width W in mm	36	72	144	216
	Mounting width in space units (modules at 18 mm)	2	4	8	12
	Mounting depth in mm	64.5	64.5	64.5	64.5
Weight	in kg	0.2	0.34	0.64	0.75
Installation	On 35 mm mounting rail	To EN 60 715			
Mounting position	As required				
Housing/colour	Plastic housing, grey				
Approvals	KNX to EN 50 090-1, -2	Certification			
CE mark	In accordance with the EMC guideline and low voltage guideline				

[1] Further information concerning electrical endurance to IEC 60 947-4-1 can be found at: AC1-, AC3-, AX-, C-Load specifications.
[2] The maximum peak inrush current may not be exceeded.
[3] The specifications apply only after the bus voltage has been applied to the device for at least 30 seconds. Typical response delay of the relay is approx. 20 ms.

Output lamp load 16/20 A

Lamps	Incandescent lamp load	3680 W
Fluorescent lamps T5/T8	Uncorrected	3680 W
	Parallel compensated	2500 W
	DUO circuit	3680 W
Low-voltage halogen lamps	Inductive transformer	2000 W
	Electronic transformer	2500 W
	Halogen lamps 230 V	3680 W
Dulux lamp	Uncorrected	3680 W
	Parallel compensated	3000 W
Mercury-vapour lamp	Uncorrected	3680 W
	Parallel compensated	3680 W
Switching performance (switch contact)	Maximum peak inrush-current I_p (150 µs)	600 A
	Maximum peak inrush-current I_p (250 µs)	480 A
	Maximum peak inrush-current I_p (600 µs)	300 A
Number of electronic ballasts (T5/T8, single element)[1)]	18 W (ABB EVG 1 x 18 SF)	26[2)]
	24 W (ABB EVG-T5 1 x 24 CY)	26[2)]
	36 W (ABB EVG 1 x 36 CF)	22
	58 W (ABB EVG 1 x 58 CF)	12[2)]
	80 W (Helvar EL 1 x 80 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, see Ballast calculation.

[2)] The number of ballasts is limited by the protection with B16/B20 circuit-breakers.

Device type	Application program	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
SA/S 2.16.5.1	Switch 2f 16C/...*	34	254	254
SA/S 4.16.5.1	Switch 4f 16C/...*	64	254	254
SA/S 8.16.5.1	Switch 8f 16C/...*	124	254	254
SA/S 12.16.5.1	Switch 12f 16C/...*	184	254	254

* … = current version number of the application program

Note

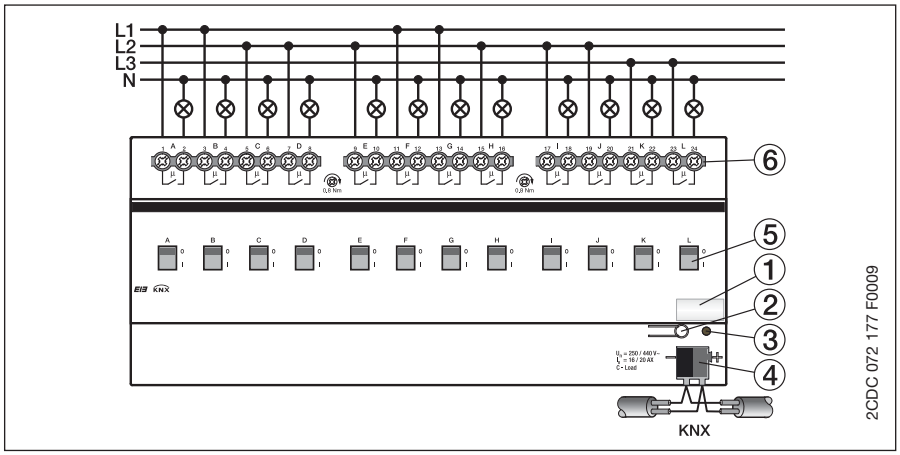
For a detailed description of the application program see „Switch Actuators SA/S“ product manual. It is available free-of-charge at *www.ABB.de/KNX*.

The ETS and the current version of the device application program are required for programming.

The current version of the application program is available for download on the Internet at *www.abb.com/knx*. After import it is available in the ETS under *ABB/Output/Binary output xf 16C/…* (x = 2, 4, 8 or 12)*.

The device does not support the closing function of a KNX device in the ETS. If you inhibit access to all devices of the project with a BCU code, it has no effect on this device. Data can still be read and programmed.

Connection schematic
SA/S x.16.5.1

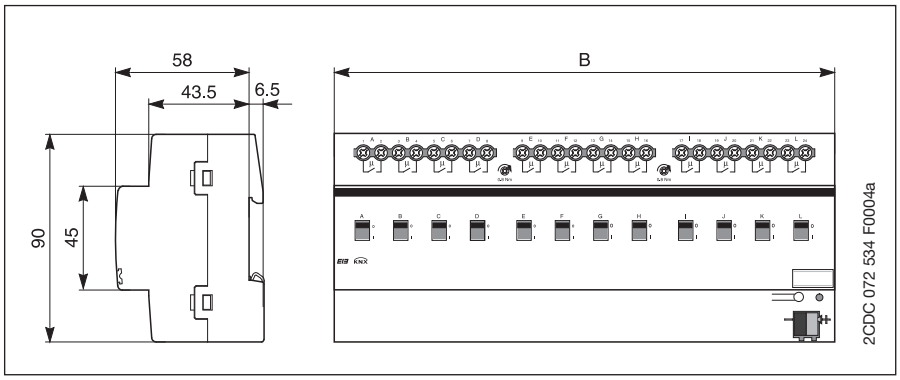


1 Label carrier
2 Button *Programming*
3 LED *Programmieren*
4 Bus connection terminal
5 Switch position display and manual operation
6 Load circuit, with 2 terminals each

Danger

Touch voltages.
Danger of injury.
Note the all-pole disconnection.

Dimension drawing
SA/S x.16.5.1



	SA/S 2.16.5.1	SA/S 4.16.5.1	SA/S 8.16.51	SA/S 12.16.5.1
Width W	36 mm	72 mm	144 mm	216 mm
Mounting width (modules at 18 mm)	2 space units	4 space units	8 space units	12 space units