



The 16/20 A Switching actuators SA/S x.16.6.1 are modular installation devices in ProM Design for installation in the distribution board.

The devices are especially suitable for switching loads with high peak inrush currents such as lighting equipment with compensation capacitors or fluorescent lamp loads (AX) to EN 60 669.

The Switch actuators feature one load current detection per output. The maximum load current per output is 20 A.

Manual actuation of the switch actuator is possible using a button. This simultaneously indicates the switching state.

The Switch actuators can switch up to 8 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.

Individual outputs can be copied or exchanged to reduce the programming effort within the SA/S x.16.6.1 devices.

The device does not require an additional power supply and is ready for immediate use, after the bus voltage has been applied.

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

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	2.16.6.1	4.16.6.1	8.16.6.1
	Current detection	yes	yes	yes
	Number (floating contacts 2/group)	2	4	8
	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
	Leakage loss per device at max. load 20 A	3.0 W	5.5 W	11.0 W
Output switching current	AC3 operation (cos φ = 0.45) EN 60 947-4-1	16 A/230 V AC		
	AC1 operation (cos φ = 0.8) 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		
Output service life	DC current switching capacity (resistive load)	20 A/24 V DC		
	Mechanical service life	> 10 ⁶		
	Electronic endurance to IEC 60 947-4-1			
	AC1 (240 V/cos φ = 0.8)	> 10 ⁵		
	AC3 (240 V/cos φ = 0.45)	> 3 x 10 ⁴		
	AC5a (240 V/cos φ = 0.45)	> 3 x 10 ⁴		

Current detection (load current)	Detection range (sine effective value)	0,02 A...20 A		
	Accuracy	+/- 2 % of actual current value (sine) and +/- 20 mA		
	Frequency	50/60 Hz		
	2 byte representation (figure value, DTP 7.012) or 4 byte representation (floating value, DTP 14.019)	in mA		
	Measurement speed:			
	– Low-pass filter transient response with τ	300 ms		
	– Scanning frequency of the current value	320 ms		
Output switching times³⁾	SA/S type	2.16.6.1	4.16.6.1	8.16.6.1
	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
	Maximum relay position change per output and minute if only one relay is switched.	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 mm ² stranded, 2 x 0.2...2.5 mm ² 0.2... 6 mm ² solid, 2 x 0.2...4 mm ²		
	Ferrules without/with plastic sleeves	0.25...2.5/4 mm ²		
	TWIN ferrules	0.5...2.5 mm ²		
	Tightening torque	Contact pin length at least 10 mm 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, ProM		
	SA/S type	2.16.6.1	4.16.6.1	8.16.6.1
	Dimensions	90 x W x 64.5 mm (H x W x D)		
	Width W in mm	36	72	144
	Mounting width in space units (modules at 18 mm)	2	4	8
	Mounting depth in mm	64.5	64.5	64.5
Weight	in kg	0.2	0.34	0.64
Installation	auf Tragschiene 35 mm	nach DIN 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⁾ The specifications apply only after the bus voltage has been applied to the device for at least 30 seconds.
Typical delay of the relay is approx. 20 ms.

²⁾ The maximum peak inrush current may not be exceeded.

Output lamp load 16/20 A

Lamps	Incandescent lamp load	3680W
Fluorescent lamp T5 / T8	Uncorrected	3680W
	Parallel compensated	2500W
	DUO circuit	3680W
Low-voltage halogen lamps	Inductive transformer	2000W
	Electronic transformer	2500W
	Halogen lamp 230 V	3680W
Dulux lamp	Uncorrected	3680W
	Parallel compensated	3000W
Mercury-vapour lamp	Uncorrected	3680W
	Parallel compensated	3680W
Switching performance (switching contact)	Maximum peak inrush-current I_p (150 μ s)	600A
	Maximum peak inrush-current I_p (250 μ s)	480A
	Maximum peak inrush-current I_p (600 μ s)	300A
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.

²⁾ The number of ballasts is limited by the protection with B16/20 circuit-breakers.

Application programs

Application programs	Device designation	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
Switch 2f 16CS/3	SA/S 2.16.6.1	40	254	254
Switch 4f 16CS/3	SA/S 4.16.6.1	76	254	254
Switch 8f 16CS/3	SA/S 8.16.6.1	148	254	254

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.

Programming requires EIB Software Tool ETS2 V1.3a or higher.

If ETS3 is used, a *.VD3 or higher type file must be imported.

The application program can be found in the ETS2 / ETS3 at ABB/Output/Binary output xf 16CS/3 (x = 2, 4 or 8).

The devices do not support the closing function of a *BA password* (ETS2) or a *BCU code* (ETS3) that can assign the devices using the ETS. This function has no effect on the device. Data can still be read and programmed.

Note

Only load currents with a sine wave characteristic can be detected correctly. On other signal types, e.g. phase angle or inverse phase angle control signals, the detected current value is distorted. In this case, the measured value is meaningless.

Current values less than 20 mA are indicated as a 0 mA value on the KNX. For small load currents that are just above the minimum detection threshold of 20 mA, it is possible that a value of 0 mA is displayed due to the inaccuracies, even though a current is flowing.

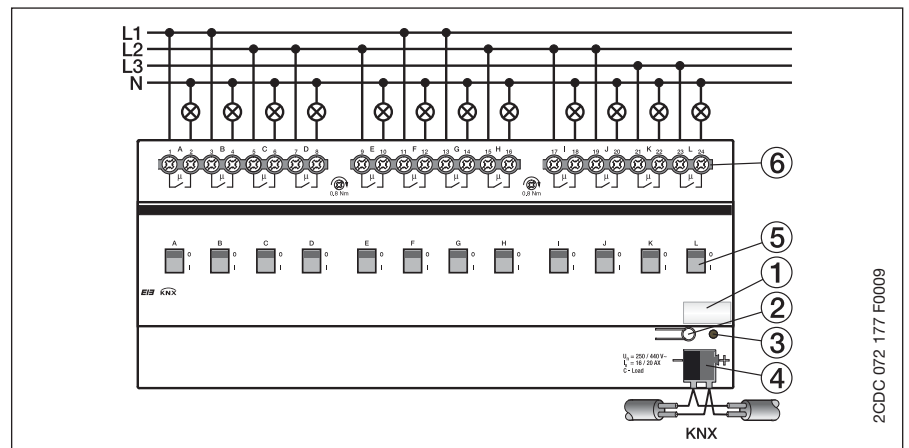
Example: A current of 25 mA is flowing. The Switch Actuator detects 5 mA due to the tolerances. This value is less than the minimum current detection limit of 20 mA and is thus sent as a 0 mA value on the KNX.

Important

The function current detection and monitoring should only be used for safety relevant applications. The Switch actuator cannot assume the function of a circuit-breaker or RCD (earth-leakage circuit breaker).

If the load current detection is used for equipment fault detection that only causes a slight change of under 30 mA, mains voltage and current fluctuations due to ambient influences, e.g. temperature, natural ageing of the device or a non-sinusoidal current, play a significant role. Even when the current changes are detected by the Switch actuator, the detected current changes do not necessarily mean that a device has malfunctioned.

Connection schematic SA/S x.16.6.1

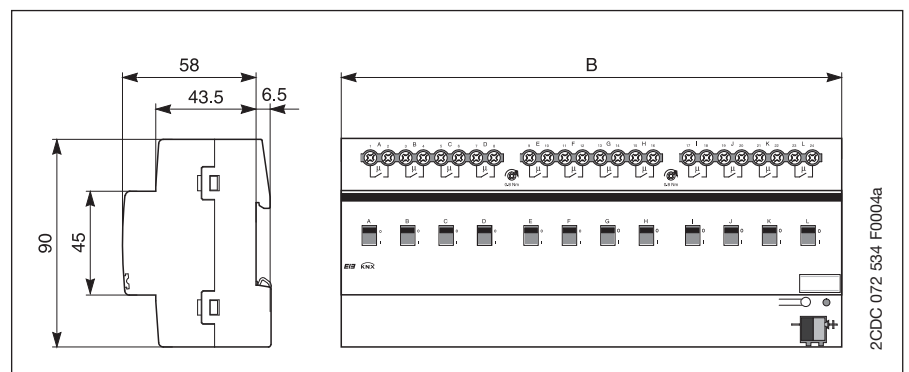


- 1 Label carrier
- 2 Programming button
- 3 Programming LED
- 4 Bus connection terminal
- 5 Switch position display and manual operation
- 6 Load circuit, with 2 terminals each



Touch voltages.
Danger of injury.
All-pole disconnection.

Dimension drawing
SA/S x.16.6.1



	SA/S 2.16.6.1	SA/S 4.16.6.1	SA/S 8.16.6.1
Width W	36 mm	72 mm	144 mm
Mounting width (modules at 18 mm)	2 TE	4 TE	8 TE

Notes

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