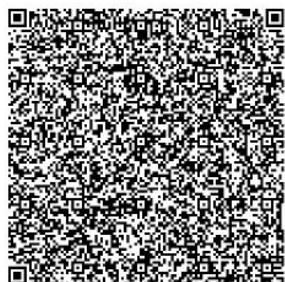




SCHALTBAU

Connect · Contact · Control



Kontakt:

Krzysztof Ostrowski,

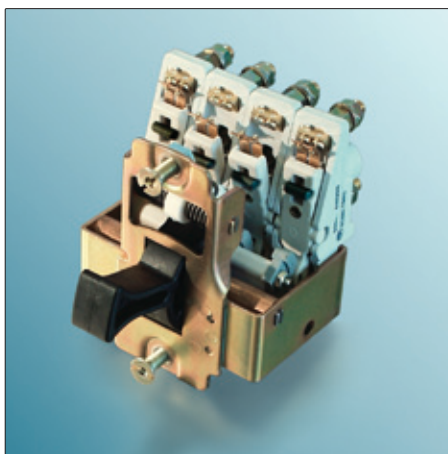
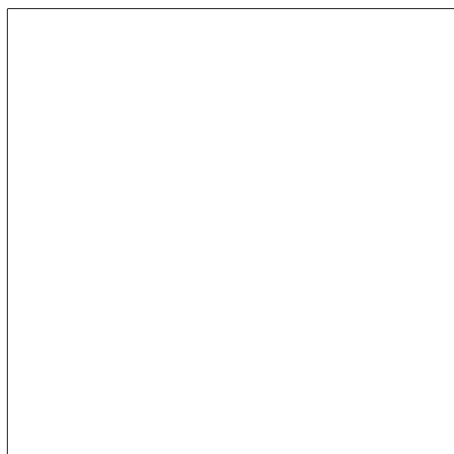
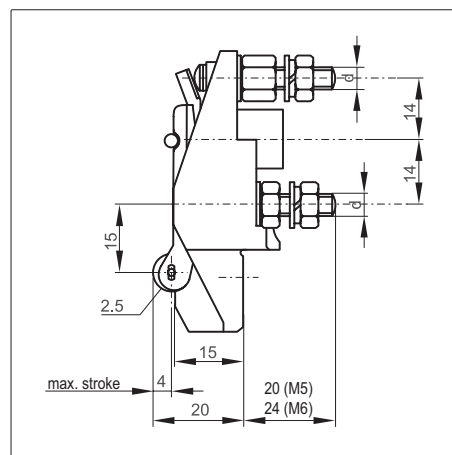
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Cam-operated switching elements S005, S007, S008 Series



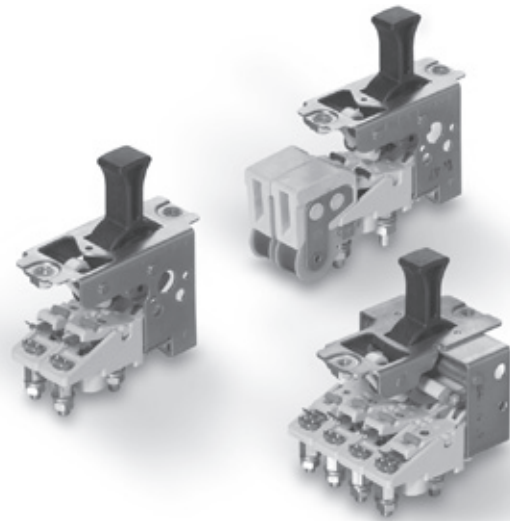
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Cam-operated switching elements Series S005 / S007 / S008

Cam-operated switching elements from Schaltbau continue the success of our S800, S826 and S847 Series snap-action switches allowing for the direct switching of high currents up to 60 A.

Our switching elements are operated by cam disks, so both the operating position and the operating sequence can be determined arbitrarily. There are three different series available to meet the requirements of various AC and DC applications.

Cam-operated switching elements are typically used as auxiliary switches of contactors, and as constituents in camshaft gear, toggle switch devices, key switches, and applications with special requirements as to switching capacity.



Example: Toggle switch devices with cam-operated switching elements

Features



- Suitable for DC and AC applications
- Current carrying capacity up to 60 A
- Operated by cams or cam disks (maximum diameter 100 mm)
- Actuating forces dependent on corresponding contact pressure
- Fastening with only one screw
- Easy mounting and replacement
- Rated impulse withstand voltage 400 V at PD3 in accordance with IEC 60947-1
- Special designs to suit customer requirements

Maximum breaking capacity

The value of the maximum breaking capacity of a cam-operated switching element is shown in the curves assigned to the Specifications of its series. The curves represent the maximum breaking capacity at which arc extinction is just about possible. Breaking capacity is a physical value which cannot be universally determined. It depends on various interactive factors such as type of current, voltage, amperage, switching rate, or mounting position (e.g. contacts of toggle switches pointing downwards). So, if the maximum is required of one of these factors, almost all the other conditions must be reduced correspondingly. In practice it is not recommended to use a cam-operated switching element at its maximum breaking capacity if a meaningful lifetime is expected. Usage at 20% ... 60% of maximum breaking capacity should give a satisfactory electrical life.



Example: Cam-operated switching elements in master controller

Series S005



Features:

- Reliable contact by way of bifurcated flexible contact reeds
- Self-cleaning contacts
The tips of the flexible contact reeds wipe across the fixed contacts before full contact pressure is reached. This results in a very effective cleaning of the contact points.
- Suitable for switching low voltages and currents

Ordering code

Example:

S005 A

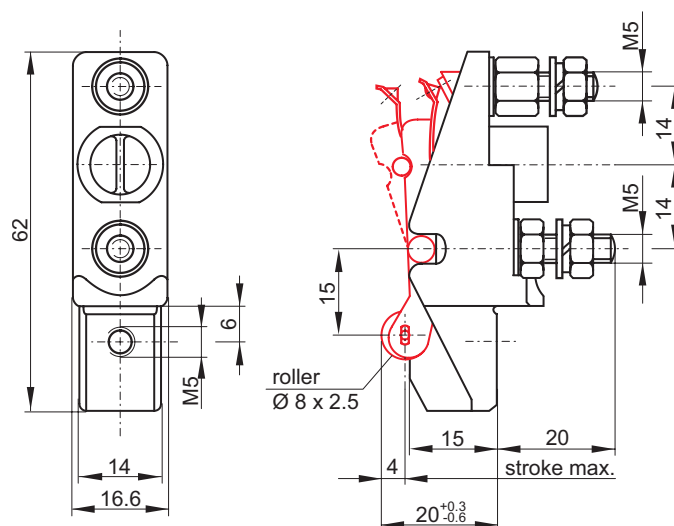
Series:

S005

Index:

A = Conventional thermal current $I_{th} = 15\text{ A}$

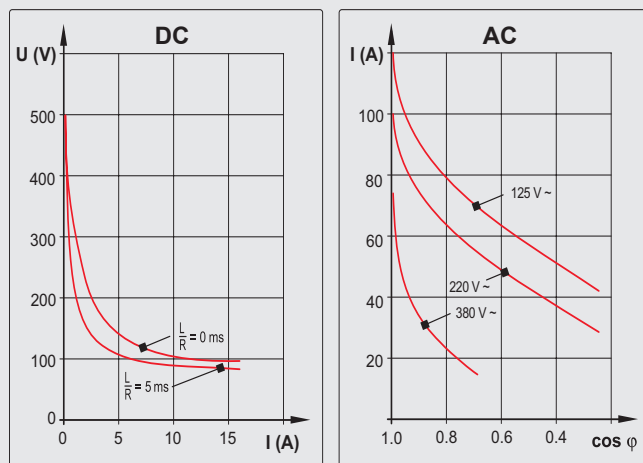
Dimension diagram



Specifications

Series	S005 A
Conventional thermal current I_{th}	15 A
Rated insulation voltage U_i at PD	400 V 3
Contact type	1 NC
Protection degree	IP00
Mechanical switching rate	120 operating cycles/min.
Electrical switching rate	10 ... 60 oper. cycles/min depending on load.
Mechanical life	> 1 million operations
Actuating force	4 N
Actuator travel	4 mm max.
Temperature range	-25°C ... +70°C
Terminal screws	M5
Weight	approx. 35 g

Maximum breaking capacity Series S005



Series S007



Features:

- Both fixed contact and contact bridge hardsilver-plated
- Long operating life
- Mechanically rigid contacts
- Rugged design

Ordering code

Dimension diagram

Example:

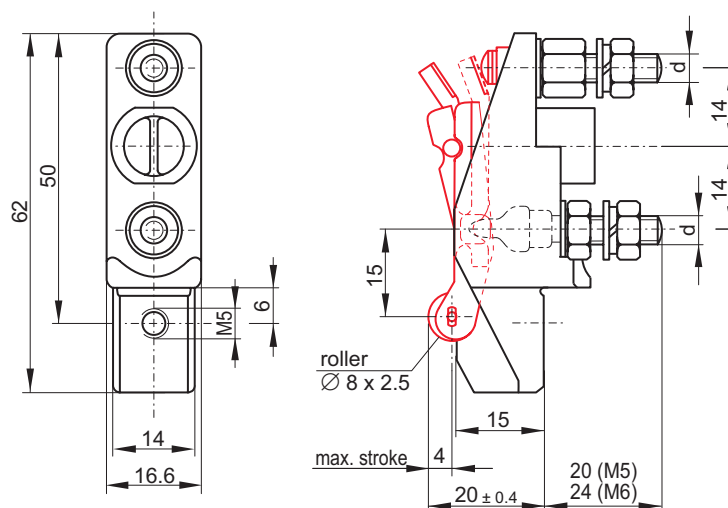
S007 A

Series:

S 007

Index:

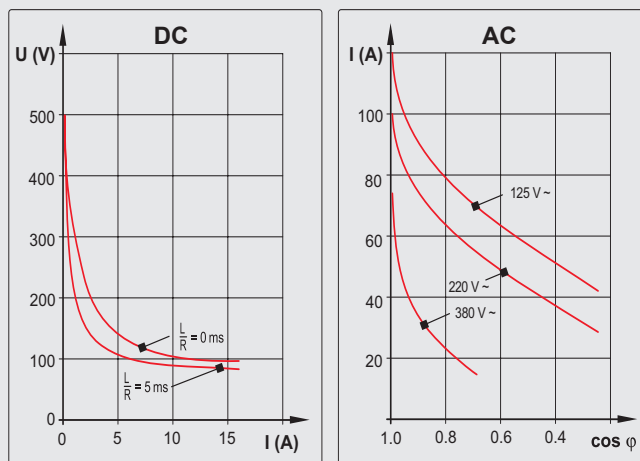
- A = Convention thermal current $I_{th} = 25$ A
C = Convention thermal current $I_{th} = 60$ A



Specifications

Series	S007 A	S007 C
Convention thermal current I_{th}	25 A	60 A
Rated insulation voltage U_i at PD	400 V	3
Contact type	1 NC	
Protection degree	IP00	
Mechanical switching rate	120 operating cycles/min.	
Electrical switching rate	10 ... 60 oper. cycles/min. depending on load.	
Mechanical life	> 3 million operations	
Actuating force	4 N	
Actuator travel	4 mm max.	
Temperature range	-25°C ... +70°C	
Terminal screws „d“	M5	M6
Weight	ca. 40 g	

Maximum breaking capacity Series S007



Series S008 with electromagnetic blowout

Features:

- Electromagnetic blowout with tape-wound coil for extension of breaking capacity
- Suitable for switching DC and AC voltages
- Termination irrespective of polarity
- Both fixed contact and contact bridge hardsilver-plated
- Long operating life
- Mechanically rigid contacts
- Rugged design

Ordering code
Dimension diagram

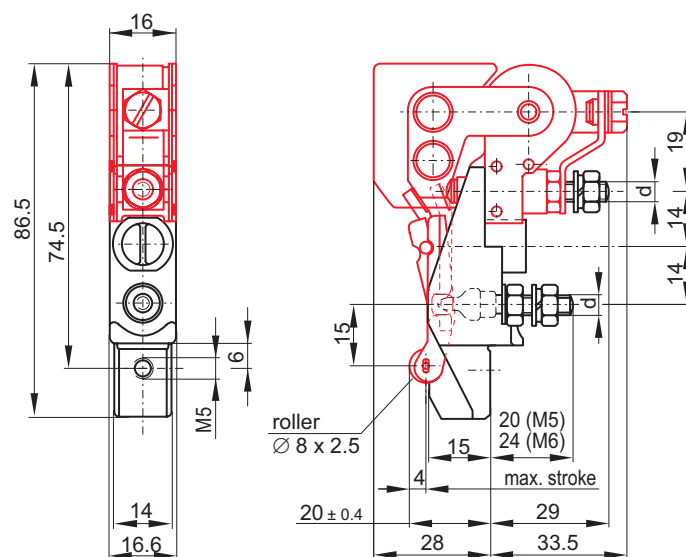
Example:

S008 G
Series:

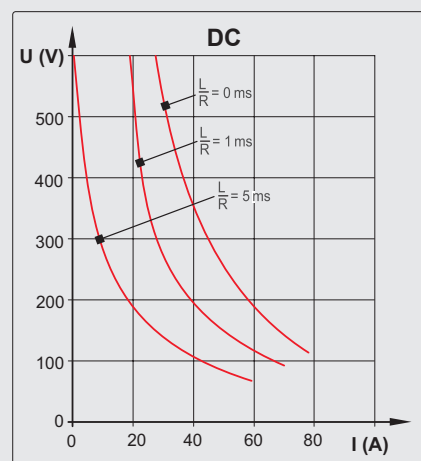
S008

Index:

- G = Conventional thermal current $I_{th} = 25\text{ A}$
 K = Conventional thermal current $I_{th} = 60\text{ A}$


Specifications

Series	S008 G	S008 K
Conventional thermal current I_{th}	25 A	60 A
Rated insulation voltage U_i at PD	400 V	3
Contact type	1 NC	
Protection degree	IP00	
Mechanical switching rate	120 operating cycles/min.	
Electrical switching rate	10 ... 60 oper. cycles/min. depending on load.	
Mechanical life	> 3 million operations	
Actuating force	4 N	
Actuator travel	4 mm max.	
Temperature range	-25°C ... +70°C	
Terminal screws „d“	M5	M6
Weight	approx. 100 g	

Maximum breaking capacity Series S008


- Permanent-magnetic blowout for increased breaking capacity in DC applications
- Polarity is important with permanent-magnetic blow-out. Positive terminal bolt clearly marked „+“.
- Arc chamber is hinged for inspection of contacts
- Both fixed contact and contact bridge are hardsilver-plated
- Amperages are embossed in blowout assembly
- Long operating life
- Mechanically rigid contacts
- Rugged design

Dimension diagram

Technical drawing of the roller assembly, showing front and side views with dimensions.

Front View Dimensions:

- Overall height: 86.5
- Height of the upper section: 74.5
- Width of the upper section: 16
- Width of the lower section: 14
- Width of the base: 16.6
- Mounting hole: M5
- Offset from base: 6

Side View Dimensions:

- Angle: 5.5°
- Roller diameter: $\varnothing 8 \times 2.5$
- Roller offset: 15
- Mounting hole: 20 (M5) / 24 (M6)
- Offset from mounting hole: 15
- Offset from roller: 4
- Offset from roller: 20_{-0.4}
- Base width: 28
- Max. stroke: max. stroke
- Offset from roller: 14
- Offset from roller: 14
- Offset from roller: 19

Series	S008 P5	S008 P6
Conventional thermal current I_{th}	25 A	60 A
Rated insulation voltage U_i at PD	400 V	3
Contact type	1 NC	
Protection degree	IP00	
Mechanical switching rate	120 operating cycles/min.	
Electrical switching rate	10 ... 60 oper. cycles/min. depending on load	
Mechanical life	> 3 million operations	
Actuating force	4 N	
Actuator travel	max. 4 mm	
Temperature range	-25°C ... +70°C	
Terminal screws „d“	M5	M6
Weight	approx. 100 g	

DC

U (V)

500

400

300

200

100

0

0 20 40 60 80

I (A)

$\frac{L}{R} = 0 \text{ ms}$

$\frac{L}{R} = 1 \text{ ms}$

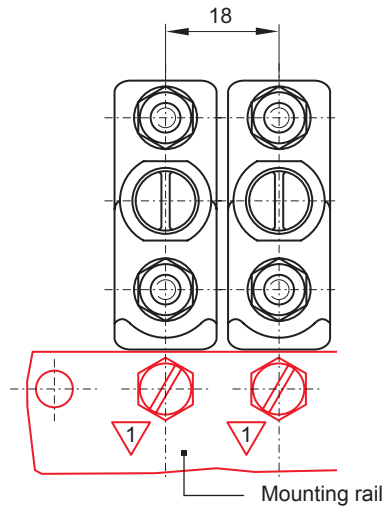
$\frac{L}{R} = 5 \text{ ms}$

Reduced scale diagrams / dimensions in mm

Notes for project planning

● Mechanical fastening

- Ganging of cam-operated switching elements of all series by fixing to a mounting rail



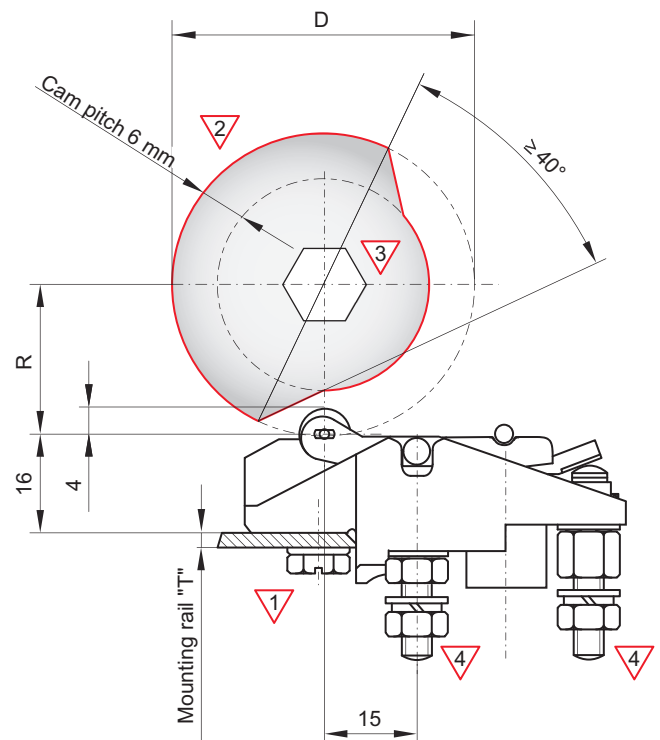
- Assembly and installation tips:

- 1 M5 screw for fastening the switching element to the mounting rail must be 6 mm longer than dimension "T".
- 2 Cam pitch of cam disk must be at least 6 mm.
- 3 Diameter of cam disk 40 mm min. up to 100 mm max.
- 4 Max. tightening torque 2 Nm for both terminal nuts / max. tightening torque 3 Nm for screw M5.

Note: Ensure that the wiring has adequate strain relief.

● Actuation

- Schaltbau S005, S007 and S008 Series switching elements are designed to be operated by cams or cam disks. For this type of actuation the recommended minimal angle of actuation is 40 degrees, which should be strictly observed (see dimension diagram below). In addition to that, the actuating speed is of no less importance - too slow a speed can lead to increased loss of contact material. When planning new projects it is, therefore, highly advisable to do tests beforehand.
- The minimal width of cams and cam disks respectively should be 4 mm.



Disk diameter D (mm)	Distance R (mm)
40	20
60	30
100 (max.)	50



Schaltbau GmbH
has an environment
management system
that has been certified
since 2002.



Schaltbau GmbH
has a quality manage-
ment system that has
been certified since
1994.

Electrical Components and Systems for Railway Engineering and Industrial Applications

Connectors

- Connectors manufactured to industry standards
- Connectors to suit the special requirements of communications engineering (MIL connectors)
- Charging connectors for battery-powered machines and systems
- Connectors for railway engineering, including UIC connectors
- Special connectors to suit customer requirements

Snap-action switches

- Snap-action switches with positive opening operation
- Snap-action switches with self-cleaning contacts
- Enabling switches
- Special switches to suit customer requirements

Contactors

- Single and multi-pole DC contactors
- High-voltage AC/DC contactors
- Contactors for battery powered vehicles and power supplies
- Contactors for railway applications
- Terminal bolts and fuse holders
- DC emergency stop switches
- Special contactors to suit customer requirements

Electrics for rolling stock

- Equipment for driver's cab
- Equipment for passenger use
- High-voltage switchgear
- High-voltage heaters
- High-voltage roof equipment
- Equipment for electric brakes
- Design and engineering of train electrics to customer requirements

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with compliments: