

Snap-action switches

S834 Series

Enabling switches with positive opening operation and wiping contacts

Catalogue D34.en





S834 Enabling switch with positive opening operation and wiping contacts

Enabling switches for manual control units of industrial robots

The S834 enabling switch is typically used in manual control actuators for automatic handling machines and robotics. When installed in such devices, the S834 greatly increases safety for the operator in the working area.

Operation:

- Mid position (ON) circuit closed: The manual control actuator is • continuously held by the operator in the detented mid position.
- Emergency cutout the machine stops: The manual control • actuator is either released or further depressed - past the midpoint detent of the switch - by a panicking operator.

Features



Positive opening operation: Reliable breaking of the normally closed (NC) circuit even if the contacts have become welded together, in compliance with IEC 60947-5-1, Annex K.



3-position switch: Three distinct OFF-ON-OFF actuator positions and mid position detent. Single and double pole versions available.



Precision switch: High switching accuracy and resistance to shock and vibration.



Contact material: silver



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Switch design and function

► Actuator	Standard: push button
Contacts	 Double-break contacts Positive opening operation Contact material: silver
► IP rating	Contacts IP50 Terminals IP00
► Terminals	Solder pins for PCB assembly

Competence	Application	Series S834

The success of a product is owed to its quality

The Schaltbau product line is clearly defined and keeps up with the technological requirements of today's markets. Behind every individual snap-action switch you will find decades of experience in engineering and manufacturing.

With their well known transparent-green housing, the safety function in Schaltbau switches is visible.

Typical applications are systems and components that require a high degree of safety and reliability.

Schaltbau enabling switches are designed especially for manual control units of industrial robots.

Subject to technical alterations / Dimensions in mm

S834 T1G2a 090, S834 T1G2a 100 Dimension diagrams

12.8±0.1

5.2+0.2/-0

• S834 T1G2a 090: Single pole enabling switch



Note: To ensure proper operation of the positive opening function it is necessary to depress the plunger to the total travel position. However, it must not be pushed beyond total travel position. Data is valid for new switches.

• S834T1G2a 100: Double pole enabling switch



21+0.15 Ø5.0±0.05 16.79_{+0.1} Locating pin to be pressed into PCB 1.5±0.05 16.5 + 0.055.38±0.1 **6.6**±0.1 2.5±0.42 10.4±0.4

12.8±0.1

Ø9.9±0.1

Actuator position	Pushbutton	Con	tact	
Actuator position	Dim. 🕔 in mm	1–2	3–4	
Free position	32.90 ± 0.20		<u> </u>	
Operating position	30.28+0.30/-0,.2			
Total travel position	26.90+0.30/-0.12	~r Θ	~-	

Note: To ensure proper operation of the positive opening function it is necessary to depress the plunger to the total travel position. However, it must not be pushed beyond total travel position. Data is valid for new switches.

Operation of enabling switches

Contact is made only in position 2, the detented mid position. In position 1 (actuator not operated) and position 3 (actuator pressed past the detented mid position) the contact is open.

When released to position 1 the contact remains open (OFF) by the force of the return spring. Return to position 1 is guaranteed even in case of a broken spring.

Single pole enabling switch



- 1. Position 1 ► Position 2 (mid position): Contact 1–2 closed, when actuator is continuously held in the detented mid position.
- 2. Position 2 ► Position 3: Contact $1-2 \bigoplus$ opened, when actuator is pressed past the midpoint detent of the switch.
- 3. Position 3 ► Position 1: Contact 1-2 remains open, when released to position 1 the contact remains open (OFF) by the force of the return spring.

Double pole enabling switch

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- 1. Position 1 ► Position 2 (mid position): Contact 1-2 and 3-4 closed, when actuator is continuously held in the detented mid position.
- 2. Position 2 ► Position 3: Contact $1-2 \bigoplus$ and 3-4 opened, when actuator is pressed past the midpoint detent of the switch.
- 3. Position 3 ► Position 1: When released to position 1, contact 1-2 is closed, whereas contact 3-4 remains open (OFF) by the force of the return spring.





Series S834

5.2+0.2/-0

2.5+0.45/-0.35



Assembly PCB assembly instructions

Our S834 is designed for PCB assembly only. After assembly a test is required in accordance with the test principles of GS-ET-22, section 6. Download at: 🔊 www.schaltbau.info/s834-en

Hand soldering:

- Soldering apparatus: hand-held soldering iron
- Solder: flux-filled solder wire, lead-free
- Temperature/duration: 350 °C; 6 sec max. (PCB, 1.6 mm, through-hole plating)

Selective soldering:

- Soldering apparatus: selective soldering station
- Solder: lead-free solder for selective and wave soldering
- Temperature/duration: 300 °C, 2 sec, 3 mm wave distance, flux time 1 sec

Wave soldering:

- Soldering apparatus: wave soldering station, 1 wave (Wörthmann wave)
- Solder: lead-free solder for selective and wave soldering
- Temperature/duration: 260 °C, 4.4 sec, wave width 66 mm; conveyor speed 1.3 m/min, pre-heating approx. 100 sec at 110 °... 145 °C typ.

Mounting and safety instructions, environmental conditions

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Mounting instructions:

- Enabling switches should be mounted by qualified professional staff only.
- Observe the required clearance and creepage distances.
- When installing the switch make sure to provide suitable shock protection!
- It is necessary to use insulating plates when mounting the enabling switch on an uninsulated surface.
- The switches can be mounted in any desired position.
- The actuator may not be pre-tensioned when in the free position. When actuated, the actuator should travel well beyond the operating position.
- To ensure the proper function of the positive opening operation it is necessary to depress the plunger to the total travel position.
- To prevent mechanical destruction of the switch, make sure that actuation of the switch does not exceed the specified total travel position. Avoid using the switch as a mechanical end stop.
- High-impact actuation of the switch can also have a negative effect on its mechanical life.

Non-permissible environmental conditions:

- Cleaning agents, adhesives, solvents, or screw-retaining varnish must be compatible with polycarbonate. Never use chemicals which are not compatible with polycarbonate.
- Using chemicals which are not compatible can result in cracks, deformation, breakage and dissolution of the housing or complete destruction of the switch.

Safety instructions:

- Be sure to make visual inspections regularly.
- Make sure to electrically link the enabling switch to the control circuit in such a way that all safety requirements according to DIN EN 775, DIN EN 60204-1, DIN EN 954-1, DIN EN 1088 and VDI 2854 are met.
- All cables and conductors (except PE) of equipment used in an
 installation that are either accessible without opening or removing
 a machine guard or are laid on exposed conductive parts that may
 become live in the event of a failure must have double insulation
 or reinforced insulation. Insulation must insulate the wire from the
 surface on which the conductor is laid. Alternatively conductors
 can be enclosed in a metal sheathing that should have sufficient
 current carrying capacity in the event of a short circuit between
 wire and sheath.
- Our S834 is not a ready-to-use enabling switch, but the necessary switching element for it.
- Make sure that in the case of an actuator malfunction, for instance due to a broken return spring, the safety device as such will continue to function properly.
- No liability is accepted for failure to observe our safety instructions.
- Full observation of the safety instructions is essential for the proper functioning of the switch.
- Improper handling of the switch, e. g. when hitting the floor with some impact, can result in breakage, visible cracks and deformation.
- The switch suitability has to be confirmed by the customer for the specific application, and under application conditions.

Defective parts must be replaced immediately!

For a detailed list of all safety instructions see here: schaltbau.info/download2en!

Standards

- DIN EN 60947-5-1, Annex K: Special requirements for control switches with direct opening action
- DIN EN 60529: Degrees of protection provided by enclosures (IP code)
- UL 94V-0: Flammability Standard
- DIN 40050-9: Road vehicles; degrees of protection (IP code); protection against foreign objects; water and contact; electrical equipment

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Specifications



Series S834

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*1 Measured directly at push-button



Note: Data valid for new switches under laboratory conditions



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 disconnect 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