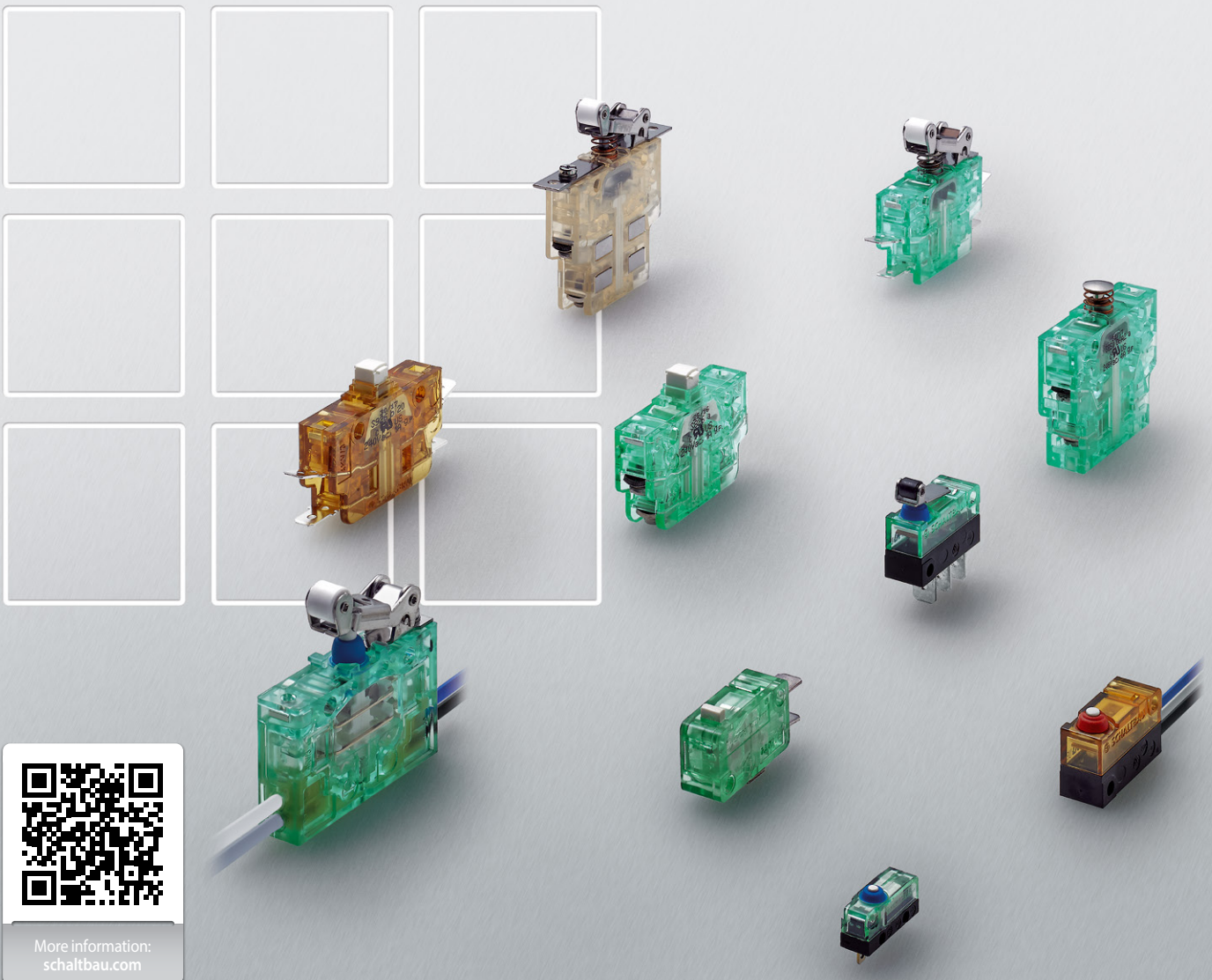


2

Brochure | Snap-Action Switches

Switches for safety-related applications
with robust and precise switch mechanism
and positive opening operation



More information:
schaltbau.com

An underwater photograph showing two divers in silhouette against a bright blue background. The divers are positioned diagonally across the frame, with one above the other. Bubbles are visible around them, and the water surface is visible at the top. The overall mood is serene and focused.

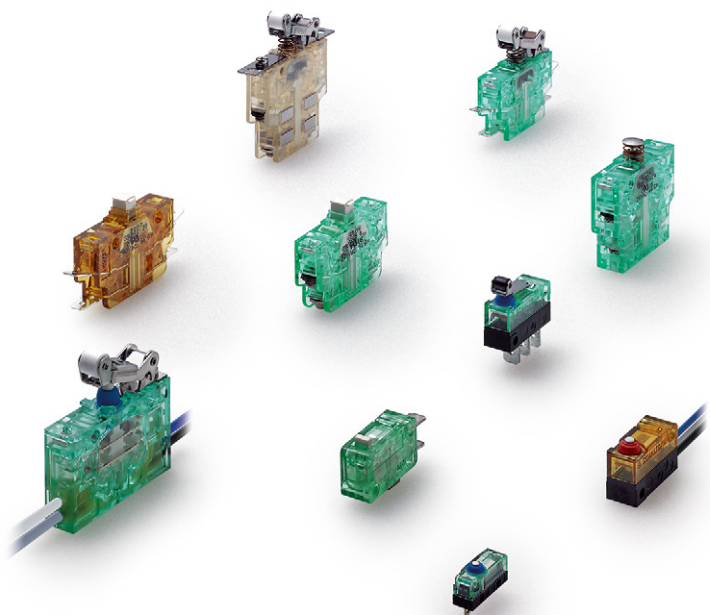
WE GUARANTEE DOUBLE SAFETY

According to the internationally accepted rules of scuba diving it is not allowed for safety reasons to dive without a buddy (second diver). Schaltbau has such a buddy for the micro switch since 1975: a snap-action switch with double-break contacts and positive opening operation, which guarantees that the contacts will open, even when they have become welded together or the spring of the snap mechanism has broken.

So there is a reliable alternative to the micro switch – the switch with double safety from Schaltbau.

Snap-action switches for safety applications

Featuring double-break contacts and positive opening operation, snap-action switches from Schaltbau have proven for 40 years to be the ideal components for safety systems. Both a high breaking capacity and up to 10 million operating cycles provide solid reasons to make Schaltbau switches the components of choice for realising the functional safety of machines and systems.



Glossary :: Snap-action switches

Snap-action switch a switch with snap-action mechanism which is directly operated by a defined force through a defined travel. The resulting indirect contacting action may be such that the speed of the contacting is independent of the speed of the actuation. [IEV 581-10-03]

Contact elements are classified as follows:

Form A SPST-NO
Single gap contact element with 2 terminals.



Form B SPST-NC
Single gap contact element with 2 terminals.



Form X SPST-DB-NO
Double gap contact element with 2 terminals.



Form Y SPST-DB-NC
Double gap contact element with 2 terminals.



Form C SPDT
Single gap changeover contact element with 3 terminals.



Form Za SPDT-DB
Double gap changeover contact element with 4 terminals. The contacts have the same polarity.



Form Zb SPDT-DB
Double gap changeover contact element with 4 terminals. The two moving contacts are electrically separated.



Actuator positions

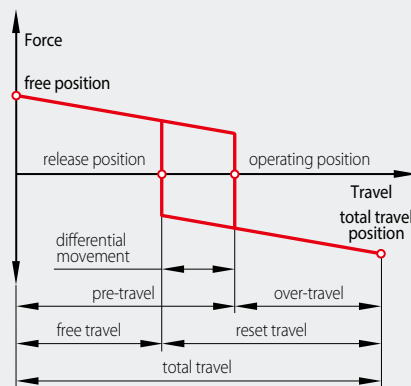
Free position here the actuator is free from any external application of force

Operating position the point of travel at which the snap action is triggered by the actuator

Total travel position the position where the actuator has reached the end of its travel

Release position the point of travel at which the returning actuator releases the snap mechanism in order to revert to its normal position

Contact force travel diagram of a snap-action switch



Pre-travel maximum actuator travel between free position and operating position during which there is no movement of the contact elements

Over-travel path of the actuator between the operating position and total travel position after all contact elements have reached their ON/OFF position. To ensure failsafe switching, at least 50% of the distance should be covered by the actuator

Reset travel path of the returning actuator between total travel position and release position during which the snap mechanism has not yet snapped back to its original position

Free travel path of the returning actuator between release position and free position after the snap mechanism has reverted to its original position

Total travel the total of either pre-travel and over-travel, or reset travel and free travel

Differential movement the difference between operating position and release position

Positive opening operation an opening operation which, in accordance with specified requirements, ensures that all the main contacts are in the open position when the actuator is in the position corresponding to the open position of the device [IEV 441-16-11].

To ensure the proper working of the positive opening operation it is necessary to depress the plunger to the point of total positive opening travel. However, it must not be pressed beyond total travel position.

Utilization categories The utilization categories listed in the table below relate to the most frequent applications by which the contact elements can also be classified:

| Current | Utilization category for silver contacts* | Typical applications |
|---------|---|--|
| AC | AC-12 | Control of resistive and semiconductor loads in input circuits of optocouplers |
| | AC-13 | Control of semiconductor loads with transformer disconnection |
| | AC-14 | Control of low electromagnetic loads (≤ 72 VA) |
| DC | AC-15 | Control of electromagnetic loads (> 72 VA) |
| | DC-12 | Control of resistive and semiconductor loads in input circuits of optocouplers |
| | DC-13 | Control of electromagnetic loads |
| | DC-14 | ditto with economy resistors in the circuit |

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SPECIFICATIONS :: SNAP-ACTION SWITCHES

| Series ▶ | S800 | S804 / S814 | S820 | S826 / S926 ^{PEI} | S834 | S840 | S847 / S947 ^{PEI} | S850 | S870 / S970 ^{PEI} | S880 |
|--|---------------|---------------|-----------------------|----------------------------|-----------------|---------------|----------------------------|--------------------|----------------------------|---------------|
| Positive opening operation ^{*1} | → | → S804 | → | → | → | → | → | → | → | → |
| Wiping contacts | --- | ✓ S804 | --- | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Circuit diagram | | | | | | | | | | |
| Contact configuration | Form Za | Form Za | Form Zb ^{*2} | Form Zb ^{*2} | Enabling switch | Form C | Form Zb ^{*2} | Double NC contacts | Form C | Form C |
| Actuator | | | | | | | | | | |
| Push button | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Plain lever | --- | --- | --- | --- | --- | ✓ | --- | --- | ✓ | ✓ |
| Roller lever | ✓ | --- | ✓ | ✓ | --- | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sim. roller | --- | --- | --- | --- | --- | --- | --- | --- | ✓ | ✓ |
| Terminals | | | | | | | | | | |
| Flat tabs | ✓ | ✓ | ✓ | ✓ | --- | ✓ | ✓ | ✓ | ✓ | --- |
| Screws | ✓ | ✓ | ✓ | ✓ | --- | ✓ | ✓ | --- | ✓ | --- |
| Leads | --- | --- | --- | --- | --- | --- | ✓ | --- | ✓ | ✓ |
| Cable | --- | --- | --- | --- | --- | --- | --- | --- | ✓ | --- |
| Solder pins | --- | --- | --- | ✓ | ✓ | ✓ | --- | --- | ✓ | ✓ |
| Lugs | --- | --- | --- | --- | --- | ✓ | --- | --- | ✓ | ✓ |
| Contact material | Silver Gold | Silver Gold | Silver Gold | Silver Gold | Silver Gold | Silver Gold | Silver Gold | Silver Gold | Silver Gold | Silver Gold |
| Housing material ^{*3} | PC --- | PC --- | PC --- | PC PEI | PC --- | PC --- | PC PEI | PC --- | PC PEI | PC --- |
| Magnetic blowout | ✓ | --- | ✓ | ✓ | --- | --- | ✓ | ✓ | --- | --- |
| Flammability rating | UL 94V-0 | UL 94V-0 | UL 94V-0 | UL 94V-0 | UL 94V-0 | UL 94V-0 | UL 94V-0 | UL 94V-0 | UL 94V-0 | UL 94V-0 |
| Description | Page 6 | Page 6 | Page 8 | Page 7 | Page 8 | Page 8 | Page 9 | Page 11 | Page 10 | Page 11 |

^{*1} Positive opening operation according to IEC 60947-5-1, Annex K

^{*2} Form Z circuitry SPDT-DB, galvanically isolated

^{*3} Polycarbonate (PC) – green transparent or Polyetherimide (PEI) – amber transparent



The production facilities of Schaltbau GmbH have been IRIS certified since 2008.



Certified to DIN EN ISO 14001 since 2002. For the most recent certificate visit our website.

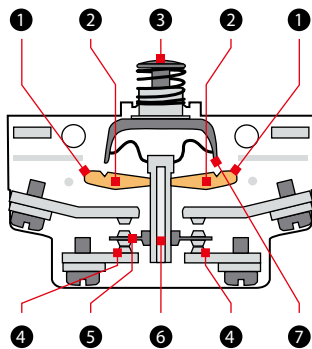


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Positive opening operation

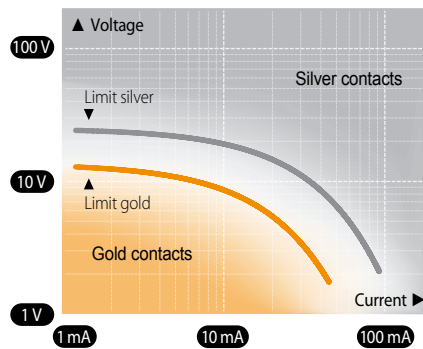
The movement of the positive opening levers 1 at pivot point 2 causes plunger 6 to move upwards, resulting in the forced disconnection of contact bridge 5 from the NC contacts 4. The actuating force is thereby handed down in the following way:

1. via the tips 7 of actuator (pushbutton) 3 onto the positive opening levers 1 and
2. the actuating force is then being transferred to the plunger 6 via pivot point 2 to contact bridge 5, which is supported by the plunger 6.
3. Interruption of the circuit by the positive transmission of force from the actuator 3 onto the contact bridge 5.



Silver or gold contacts

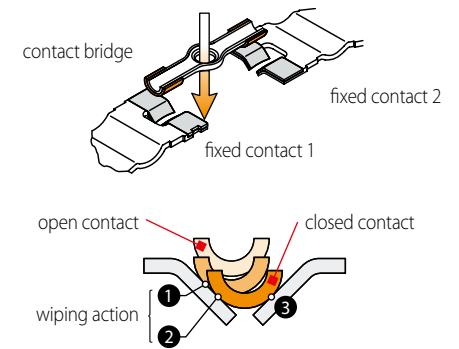
Silver contacts feature high electrical conductivity. That is why they are to be found in most snap-action switches used for standard applications with normal switching capacity. Gold contacts are especially suited for use in the low-voltage range up to 12 V and current ratings up to 50 mA max., and are also extremely resistant to ageing and corrosion. Consequently, they have a consistently low contact resistance which makes them the first choice for applications with long periods of machine downtime or where sulphurous gases are present.



Wiping double-break contacts

The contact bridge is loosely supported by the plunger inside the switch and initially meets the V-shaped fixed contacts at one point only (position 1) before it is straightened between them by the coaxial pressure of the snap spring.

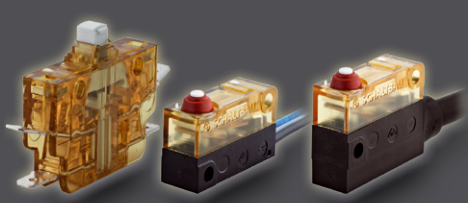
The contact bridge thereby slides from position 1 to position 2 and creates a defined friction. During each operation this wiping action results in self-cleaning of the contacts at least on one side. In the total travel position the contact is closed on either side of the V-shaped fixed contact (at 2 and 3).



PEI
Polyetherimide,
stands for a better one

Resistance to

- ▶ temperature
- ▶ chemicals
- ▶ impact



SNAP-ACTION SWITCHES :: SPECIFICATIONS

Variants for extreme conditions

For applications characterized by harsh environmental conditions Schaltbau GmbH has developed some special variants.

The S926, S947 and S970 series switches have a ruggedised housing made from polyetherimide (PEI). The high-performance thermoplastic used as housing material stands for better resistance to:

- temperature (from -55 °C to +150 °C, dependent on version)
- chemicals (e.g. acids and alkalis)
- impact (PEI more resistant than PC)

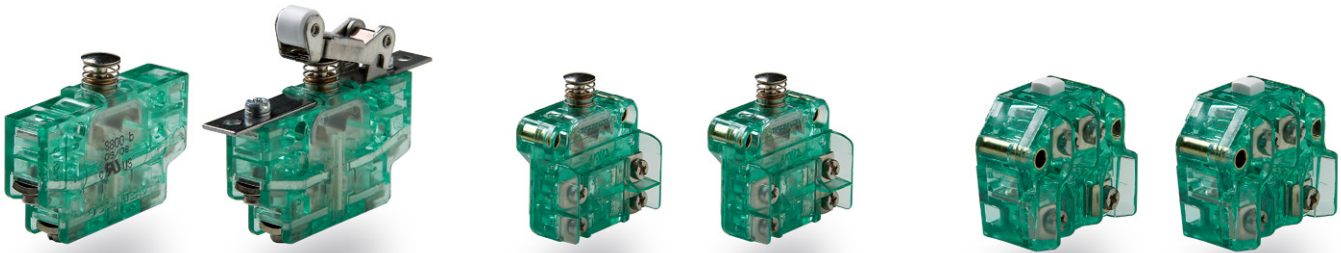
The amber, transparent switches are ideally suited for applications where impact forces are high and/or frequent as well as for use in products that are exposed to strong chemicals and the extremes of temperature.

The 9xx series switches have the same design, dimensions and technical features as the switches of the standard S8xx series, allowing for the easy replacement of a standard switch without additional implementation effort. So upgrading will be no problem.

Schaltbau snap-action switches

Snap-action switches are designed with a snap mechanism that allows extremely fast switching, practically regardless of the duration of actuation. This makes the operating position precisely reproducible and controls the arc more efficiently. Snap-action switches from Schaltbau are designed for industrial applications that place high demands on the reliability of both components and systems. They can switch both control currents and loads reliably and precisely. They are capable of doing so up to 10 million times, depending on the series.

- Double-break contacts
- High electrical switching capacity
- High changeover speed
- Short bounce times
- Snap system and contact system decoupled
- Wiping, self-cleaning contacts
- Long life
- Pos. opening operation, IEC 60947-5-1 Annex K
- Versions with ingress protection rating IP67
- High resistance to shock and vibration



S800

Snap-action switches with positive opening operation

Schaltbau S800 series snap-action switches have been in use for decades and proved their reliability in innumerable applications.

They feature double-break contacts, snap-action mechanism and positive opening operation which ensures a forced breaking of the normally closed contacts in case of spring failure or contact welding due to a short-circuit. This makes them ideally suited for use in safety related applications.

FEATURES

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K
- Dimensions according to DIN 41636-6, type F
- Degree of protection IP40, IEC 60529
- High electrical rating due to solid contact bridge
- Contact material: silver or gold-plated silver
- High resistance to shock and vibration
- Magnetic blowout, optional

S804

Snap-action switches with positive opening operation

S804 series switches add to the product line featuring the same snap-action mechanism and positive opening operation as the S800 series switches.

They differ, however, in form, dimensions and position of the screw-type terminals. For these reasons, unlike S800 series snap-action switches, S804 series switches are not suited for use with a blowout device.

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K
- Degree of protection IP40 according to IEC 60529
- High electrical rating due to solid contact bridge
- High resistance to shock and vibration

S814

Snap-action switch with plunger running full-length through the switch

Unlike S800 and S804, Schaltbau's S814 series snap-action switches do not feature positive opening operation.

They normally come with silver-plated contacts, but are also available with gold contacts. Due to an actuator running straight through the switch, it is possible to connect two snap-action switches in series – one on top of the other. Thus two switching operations can be triggered by just one actuation.

- Performance according to IEC 60947-5-1
- Degree of protection IP40 according to IEC 60529
- High electrical rating due to solid contact bridge
- Contact material: hard silver or gold alloy
- High resistance to shock and vibration
- Wiping, self-cleaning contacts

SPECIFICATIONS

| Series ▶ | S800 | S804 | S814 |
|---|--|--|---|
| Conventional thermal current I_{th} | 10 A | 10 A | 10 A |
| Utilization category for silver contacts* | AC-15 230 V / 3 A DC-13 110 V / 1 A | AC-15 230 V / 3 A DC-13 110 V / 1 A | AC-15 230 V / 1 A DC-13 60 V / 0.5 A |
| Rated impulse withstand voltage U_{imp} | 4 kV / PD3 | 4 kV / PD3 | 2.5 kV / PD3 |
| Degree of protection | IP40 | IP40 | IP40 |
| Actuating force | 3.3 N | 3.3 N | 3.2 N |
| Actuator travel | 3.2 mm | 3.2 mm | 2.0 mm |
| Mechanical endurance | 10 million cycles | 10 million cycles | 10 million cycles |
| Ambient temperature | -40° C ... +85° C | -40° C ... +85° C | -40° C ... +85° C |
| Dimensions (L x H x D) in mm | 50 x 28 x 12 | 36 x 30 x 22 | 36 x 31 x 22 |
| Weight without leads | S800 b: 26 g | S804 b: 25 g | S814 b: 25 g |



S826

Switches with positive opening operation and wiping double-break contacts

S826 series switches feature galvanically isolated contact bridges that make it possible to control two separate load circuits with independent voltage levels at the same time. This makes them ideally suited for automation tasks with separate electric loads.

The wiping, double-break contacts ensure high reliability even at low electrical loads. Switches with gold contacts are particularly suitable for low currents and voltages.

S926 PEI

Variant with ruggedised housing made from polyetherimide (PEI)

Thanks to the high-performance thermoplastic housing material, S926 series snap-action switches feature both a better resistance to temperature and chemicals as well as a higher impact resistance compared to polycarbonate (PC).

They are ideally suited for applications characterised by harsh environmental conditions. Sharing the same design as the S826 switches, they can easily replace a standard switch without additional implementation effort.

FEATURES

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K
- Dimensions according to DIN 41636-6, type F
- Degree of protection IP40, IEC 60529
- Wiping, double-break contacts
- Form Z SPDT-DB, galvanically isolated
- Contact material: hard silver or gold alloy
- Magnetic blowout, optional
- Housing made of polyetherimide (PEI) particularly robust against:
 - extreme temperatures
 - aggressive chemicals
 - heavy impact forces (more shock-resistant than polycarbonate)
- Self-cleaning, double-break contacts
- Form Z circuitry SPDT-DB, galvanically isolated
- All other features, see S826 series

SPECIFICATIONS

| S826 | S926 |
|--|--|
| 10 A | 10 A |
| AC-15 230 V / 1 A DC-13 110 V / 0,5 A | AC-15 230 V / 1 A DC-13 110 V / 0,5 A |
| 4 kV / PD3 | 4 kV / PD2 |
| IP40 | IP40 |
| 3.6 N | 3.6 N |
| 3.2 mm | 3.2 mm |
| 10 million cycles | 10 million cycles |
| -40° C ... +85° C | -55° C ... +85° C** |
| 50 x 28.5 x 12 | 50 x 28.5 x 12 |
| S826 b: 18 g | S926 b: 18 g |

| |
|---|
| Series |
| Conventional thermal current I_{th} |
| Utilization category for silver contacts* |
| Rated impulse withstand voltage U_{imp} |
| Degree of protection |
| Actuating force |
| Actuator travel |
| Mechanical endurance |
| Ambient temperature |
| Dimensions (L x H x D) in mm |
| Weight without leads |

* Data for gold contacts upon request

** Versions up to 105° C available



S820

Snap-action switches with enhanced current-carrying capacity

The S820 snap-action switch is a robust microswitch with positive opening. Its contact system is designed for conducting and disconnecting high currents. At 20 amps, the continuous thermal current is twice as high as in other snap-action switches of the 'F' design.

The S820 series switch is a Form Z circuitry SPDT-DB. Its two mechanically linked rigid contact bridges are electrically separated.



S840

Compact microswitch with positive opening operation and self-cleaning contacts

The S840 snap-action switch is a high-quality microswitch in a conventional design. The mechanical positive opening ensures the opening of the contacts, even if they have been fused by a short circuit. The self-cleaning contacts also connect low voltages and currents safely and reliably.

S845 and S846 series switches are SPST versions with NC and NO contacts respectively.

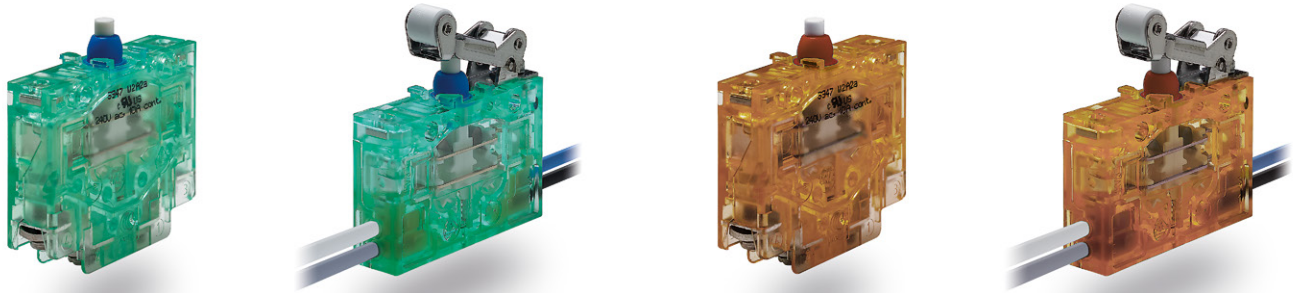
FEATURES

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K,
- Dimensions according to DIN 41636-6, type F
- Degree of protection IP40 according to IEC 60529
- High electrical rating due to rigid contact bridge
- Form Z circuitry SPDT-DB, galvanically isolated
- Contact material: hard silver
- High resistance to shock and vibration

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K
- Dimensions according to DIN 41636-2, type A
- Degree of protection IP40 according to IEC 60529
- Wiping, self-cleaning contacts
- Contact material: hard silver or gold alloy

SPECIFICATIONS

| Series ▶ | S820 | S840 |
|--|--|----------------------------|
| Conventional thermal current I_{th} | 20 A | 6 A |
| Utilization category for silver contacts * | AC-15 230 V / 5 A DC-13 110 V / 1 A | AC-15 230 V / 1.5 A --- |
| Rated impulse withstand voltage U_{imp} | 4 kV / PD3 | 2.5 kV / PD3 |
| Degree of protection | IP40 | IP40 |
| Actuating force | 8.0 N | 2.4 N |
| Actuator travel | 4.0 mm | 2.5 mm |
| Mechanical endurance | 1 million cycles | 10 million cycles |
| Ambient temperature | -40° C ... +85° C | -40° C ... +85° C |
| Dimensions (L x H x D) in mm | 50 x 45 x 12 | 30 x 16.5 x 10.3 |
| Weight without leads | S820 b: 45 g | S840 b: 10 g |



S847

Snap-action switches with positive opening operation and self-cleaning double-break contacts

S847 series snap-action switches in modular design are available with three degrees of protection according to IEC 60529: IP40 (protected against solid particles), IP60 (dustproof), and IP67 (waterproof).

Due to their self-cleaning double-break contacts as well as protection against dust, moisture and pollutants, S847 series switches are highly reliable even at low contact ratings. The switches are therefore also often used for handling low currents and voltages.

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K
- Dimensions according to DIN 41636-6, type F
- Degree of protection up to IP67 for contact area and terminals according to IEC 60529
- Self-cleaning, double-break contacts
- Form Z circuitry SPDT-DB, galvanically isolated
- Contact material: Hard silver or gold alloy
- Long overtravel after positive opening operation
- Magnetic blowout, optional

S947 PEI

Variant with ruggedised housing made from polyetherimide (PEI)

Thanks to the high-performance thermoplastic housing material, S947 series snap-action switches feature both a higher resistance to temperature and chemicals as well as a higher impact resistance compared to polycarbonate (PC).

They are ideally suited for applications characterised by harsh environmental conditions. Sharing the same design as the S847 series switches, they can easily replace a standard switch without additional implementation effort.

- Housing made of polyetherimide (PEI) particularly robust against:
 - extreme temperatures
 - aggressive chemicals
 - heavy impact forces (more shock-resistant than polycarbonate)
- Degree of protection up to IP67 for contact area and terminals according to IEC 60529
- Self-cleaning, double-break contacts
- Form Z circuitry SPDT-DB, galvanically isolated
- All other features, see S847 series

FEATURES

SPECIFICATIONS

| S847 | | | S947 | | |
|--|-------------------|-------------------|--|-------------------|-------------------|
| 10 A | | | 10 A | | |
| AC-15 230 V / 1.5 A DC-13 110 V / 1 A | | | AC-15 230 V / 1.5 A DC-13 110 V / 1 A | | |
| 4 kV / PD3 | 4 kV / PD3 | 4 kV / PD3 | 4 kV / PD3 | 4 kV / PD3 | 4 kV / PD3 |
| IP40 | IP60 | IP67 | IP40 | IP60 | IP67 |
| 3 N | 3 N | 3 N | 3 N | 3 N | 3 N |
| 4.9 mm | 4.9 mm | 4.9 mm | 4.9 mm | 4.9 mm | 4.9 mm |
| 10 million | 5 million | 5 million | 10 million | 5 million | 5 million |
| -40° C ... +85° C | -40° C ... +85° C | -40° C ... +85° C | -55° C ... +85° C | -55° C ... +85° C | -55° C ... +85° C |
| 50 x 36 x 12 | | | 50 x 36 x 12 | | |
| S847 W1D2a: 22 g | | | S947 W1D2a: 22 g | | |

- ◀ Series
- Conventional thermal current I_{th}
- Utilization category for silver contacts*
- Rated impulse withstand voltage U_{imp}
- Degree of protection
- Actuating force
- Actuator travel
- Mechanical endurance
- Ambient temperature
- Dimensions (L x H x D) in mm
- Weight without leads

* Data for gold contacts upon request



S870

Snap-action switches with positive opening operation and self-cleaning contacts

Self-cleaning contacts and protection against dust, humidity and polluting agents allow high reliability even at low contact load. In telecommunications and automation, the S870 is used for switching low voltages and currents. Its compact dimensions, protection class up to IP67 and special variants, e.g. with pre-assembled cable, make this switch suitable for a wide range of applications.

S970 PEI

Variant with ruggedised housing made from polyetherimide (PEI)

Thanks to the high-performance thermoplastic housing material, S970 series snap-action switches feature both a higher resistance to temperature and chemicals as well as a higher impact resistance compared to polycarbonate (PC).

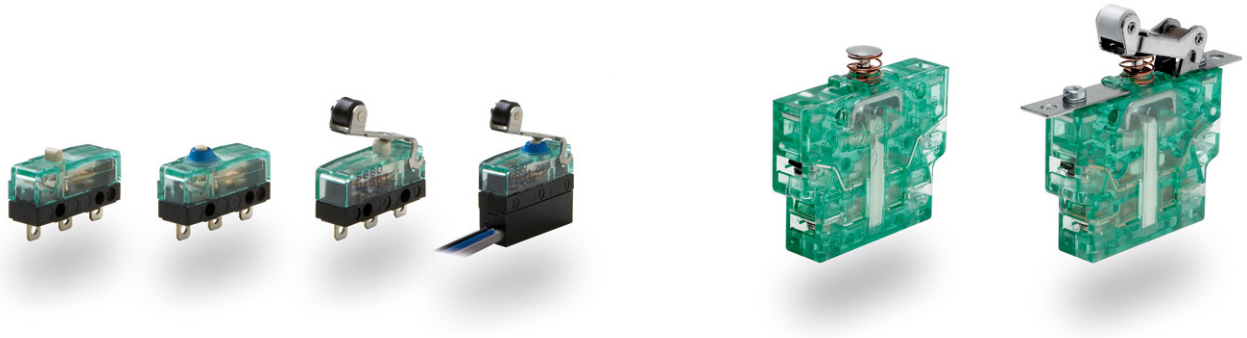
They are ideally suited for applications characterised by harsh environmental conditions. Sharing the same design as the S870 series switches, they can easily replace a standard switch without additional implementation effort.

FEATURES

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K
- Dimensions according to DIN 41636-2, type A
- Degree of protection: contacts IP40, IP60, IP67, terminals IP00, IP20B, IP67 according to IEC 60529
- Wiping, self-cleaning contacts
- Contact material: hard silver or gold alloy
- High resistance to shock and vibration
- Housing made of polyetherimide (PEI) particularly robust against:
 - extreme temperatures
 - aggressive chemicals
 - heavy impact forces (more shock-resistant than polycarbonate)
- Degree of protection: contacts IP40, IP60, IP67, terminals IP00, IP20B, IP67 according to IEC 60529
- Wiping, self-cleaning contacts
- Contact material: hard silver or gold alloy
- All other features, see S870 series

SPECIFICATIONS

| Series ▶ | S870 | | | S970 | | |
|---|---|-------------------|----------------------|---|----------------------|----------------------|
| Conventional thermal current I_{th} | 10 A | | | 10 A | | |
| Utilization category for silver contacts* | AC-15 230 V / 1.5 A DC-13 60 V / 0.5 A | | | AC-15 230 V / 1.5 A DC-13 60 V / 0.5 A | | |
| Rated impulse withst. voltage U_{imp} | 4 kV / PD3 | | | 4 kV / PD3 | | |
| Degree of protection | IP40 | IP60 | IP67 | IP40 | IP60 | IP67 |
| Actuating force | 2.4 N | 3 N | 3 N | 2.4 N | 3 N | 3 N |
| Actuator travel | 3 mm | 3 mm | 3 mm | 3 mm | 3 mm | 3 mm |
| Mechanical endurance | 10 million | 5 million | 5 million | 10 million | 5 million | 5 million |
| Ambient temperature | -40° C ... +85° C | -40° C ... +85° C | -30° C ... +85° C*** | -55° C ... +150° C | -55° C ... +150° C** | -30° C ... +85° C*** |
| Dimensions (L x H x D) in mm | 30 x 16 x 10.5 | | | 30 x 16 x 10.5 | | |
| Weight without leads | S870 W1D1a: 7 g | | | S970 W1D1a: 7 g | | |



S880

The world's smallest snap switch with positive opening operation

Schaltbau subminiature S880 snap-action switches feature both wiping, self-cleaning contacts as well as a positive opening function.

Minimum size in combination with maximum reliability make this V4 snap-action switch ideally suited for a host of applications such as a safety limit switch in medical engineering or limit switch for machine, door and system control projects or in the driver's consoles of locomotives.

Self-cleaning contacts and protection class up to IP67 against dust, humidity and pollutants all contribute to the high reliability of the switch, even at low currents.

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K,
- Dimensions to DIN 41636-3, type B (V4 subminiature switch)
- Degree of protection: contacts IP40, IP60, IP67, terminals IP00, IP67 according to IEC 60529
- Wiping, self-cleaning contacts
- Contact material: hard silver or gold alloy
- Snap mechanism highly resistant to shock and vibration

S850

Snap-action switches with double NC contacts Two safety switches in one housing

To meet the safety requirements of the Machinery Directive ISO 13849-1: it is necessary that the safety-related parts of control systems for machines and plants are designed to be fully redundant.

With the S850 switch Schaltbau offers a favourably priced solution for designers of control systems who want to step up the safety level without the need to invest in additional hardware, installation and programming of equipment.

Typical applications for the S850 are components and systems that require maximum reliability and safety such as door controls in trains, off-track and pull cord switches, cranes and lifts.

- Performance according to IEC 60947-5-1
- Positive opening operation, IEC 60947-5-1 Annex K
- Double NC contacts: safety switch featuring two galvanically isolated circuits in one housing. Used for applications complying with ISO 13849-1.
- Dimensions according to DIN 41636-6, type F
- Degree of protection: contacts IP40, terminals IP20 according to IEC 60529
- Self-cleaning, double-break contacts
- Contact material: hard silver or gold alloy
- Magnetic blowout, optional

FEATURES

SPECIFICATIONS

| S880 | | | S850 |
|---|-------------------|-------------------|---|
| 6 A | | | 10 A |
| AC-15 230 V / 1 A DC-13 60 V / 0.5 A | | | AC-15 230 V / 1.5 A DC-13 24 V / 1.5 A |
| 2.5 kV / PD3 | | | 4 kV / PD3 |
| IP40 | IP60 | IP67 | IP40 |
| 2 N | 2 N | 2 N | 8.5 N |
| 1.95 mm | 1.95 mm | 1.95 mm | 3.2 mm |
| 1.5 million cycles | | | 1.5 million cycles |
| -40° C ... +85° C | -25° C ... +85° C | -25° C ... +85° C | -55° C ... +85° C |
| 20 x 9.3 x 6.5 | 20 x 9.3 x 6.5 | 20 x 15.1 x 6.5 | 50.2 x 38 x 12 |
| S880 W1G6a: 1.5 g | | | S850 O6A2a: 30 g |

- ▶ Series
- Conventional thermal current I_{th}
- Utilization category for silver contacts*
- Rated impulse withst. voltage U_{imp}
- Degree of protection
- Actuating force
- Actuator travel
- Mechanical endurance
- Ambient temperature
- Dimensions (L x H x D) in mm
- Weight without leads

* Data for gold contacts upon request

Schaltbau GmbH

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with compliments:

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
- Snap-action switch made of robust polyetherimide (PEI)
- Snap-action switch with two galvanically isolated contact bridges
- 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