

7. Pull-wire emergency stop switch

Description

Area of application

Pull-wire emergency switches are used on machinery and equipment, that cannot be protected by safety covers or safety doors.

Their main area of application are transport and conveyor systems. But also for large equipment such as in the recycling industry, the plastics and wood processing is this type of safety switchgear widely used.

The reason for this is: In contrast to the EMERGENCY STOP mushroom pushbutton, the pull-wire emergency switch can trigger the EMERGENCY STOP function at any point along the rope.

In conjunction with an appropriate safety analysis, a pull-wire emergency stop switch can be used up to PL e according to EN ISO 13849-1. Information for the selection of suitable safety relay modules can be found in the chapter "Safety relay modules" (refer to page 216).

Included in the Schmersal Group pull-wire emergency stop switch range includes variants with integrated AS-i SaW interface (AS-Interface Safety at Work). They use the advantage of the simple and proven bus system of the open standards AS - International.

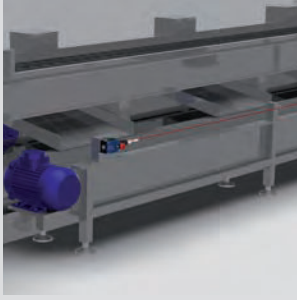
With the right design, they can also be used in explosively hazardous areas and under extreme temperatures.

Design and way of functioning

All pull-wire emergency switches from the Schmersal Group are in accordance with the guidelines of the IEC 60947-5-5 and EN ISO 13850. A wire and wire-breakage monitoring is standard equipment.

The pull-wire emergency switch is set in the operating condition by pre-tensioning the rope. Then the NC contacts are closed and the NO contacts are open. If the rope is pulled or broken the NC contacts are opened and the NO contacts closed. Thereafter the pull-wire emergency switch can only be manually set back into an operational state.

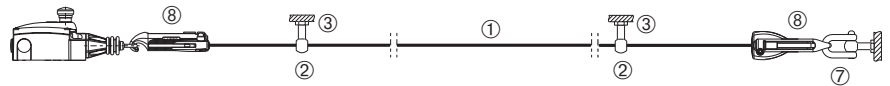
A distinction is made between one-sided and two-sided acting pull-wire emergency switches. While one-sided series are installed on one side of the system, the assembly of the two-sided pull-wire emergency switch is centrally located. In addition to the assembly possibilities, the rope length and the number of available contacts is important with the selection.



Mounting instructions

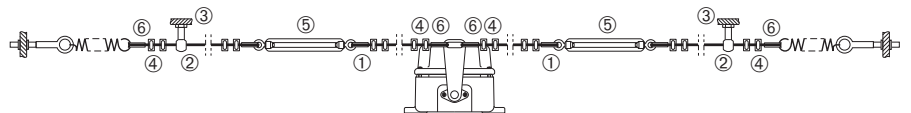
One-side acting pull-wire emergency switch (example ZQ 900)

The pull-wire emergency switch with one-sided action is installed at either the start or the end of the hazardous area. The rope is fastened accordingly to the opposite end.



Two-side acting pull-wire emergency switch (example T3Z 068)

The pull-wire emergency switch with two-side actuation is mounted mid-way, so that the rope can be clamped on both sides. Depending on the pulling direction, the actuating lever is swung to the left or right, thus triggering the EMERGENCY STOP command.



Key

- ① Wire rope
- ② Eyebolt
- ③ Nut
- ④ Wire clamp
- ⑤ Tensioner
- ⑥ Wire thimble
- ⑦ Shackle
- ⑧ Rope tensioner

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Overview of the series



T3Z 068



ZQ 700



ZQ 900

Key Features

- Maximum cable length 2 x 50 m
- 6 contacts
- Enclosure in grey cast iron, painted

- Maximum cable length 10 m
- 2 contacts
- Plastic enclosure, thermoplastic

- Maximum cable length 75 m
- 4 contacts
- Enclosure in zinc die-cast and thermoplastic

Other versions

ATEX / IECEx	■	—	■
AS-i SaW	—	■	■

Technical features

Electrical characteristics			
Max. switching capacity U/I	230 VAC / 2.5 A; 24 VDC / 6 A	230 VAC / 4 A; 24 VDC / 4 A	230 VAC / 4 A; 24 VDC / 1 A
Mechanical data			
Cable entry	2 x M20	1 x M20	3 x M20
Cable section ¹⁾	0.75 ... 1.5 mm ²	0.75 ... 2.5 mm ²	0.75 ... 2.5 mm ²
Dimensions (W x H x D)	182 x 124.5 x 178 mm	40.5 x 160 x 51 mm	71 x 220 x 69.7 mm
Ambient conditions			
Ambient temperature	-30 °C ... +90 °C ²⁾	-25 °C ... +70 °C	-25 °C ... +70 °C
Protection class	IP65	IP67	IP67

Safety classification

Standards	EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1
B _{10d} (NC contact)	100,000	100,000	100,000
Certificates			

¹⁾ Including conductor ferrules

²⁾ Special versions to -40 °C upon request



To get detailed information about the products and certificates, visit www.schmersal.net.

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Preferred types




Series	Enclosure	Operating principle	Possible wire length	Emergency stop button	Un-locking	Contacts	Indicator lamp	Type designation	Material number
T3Z 068	Metal	2-side operation	2 x 50 m		Pull-ring	1 NO/1 NC	---	T3Z 068-11YR	101087877
							yellow	T3Z 068-11YRG	101087879
						2 NO/2 NC	---	T3Z 068-22YR	101087881
							yellow	T3Z 068-22YRG	101087883
						3 NO/3 NC	---	T3Z 068-33YR	101087885
							yellow	T3Z 068-33YRG	101087887
					Key	1 NO/1 NC	---	T3Z 068-11YRS	101087878
							yellow	T3Z 068-11YRSG	101087880
						2 NO/2 NC	---	T3Z 068-22YRS	101087882
yellow	T3Z 068-22YRSG	101087884							
3 NO/3 NC	---	T3Z 068-33YRS	101087886						
	yellow	T3Z 068-33YRSG	101087888						
ZQ 700	Thermo-plastic	1-side operation	10 m		Button	2 NC	---	ZQ 700-02	101192478
								1 NO/1 NC	ZQ 700-11
ZQ 900	Metal / Thermo-plastic	1-side operation	75 m		Button	2 NC	optionally as accessories	ZQ 900-02	101186146
						4 NC		ZQ 900-04	101184416
						1 NO/1 NC		ZQ 900-11	101184327
						1 NO/3 NC		ZQ 900-13	101184332
						2 NO/2 NC		ZQ 900-22	101184329
						2 NC		ZQ 900-02N	101186147
						4 NC		ZQ 900-04N	101184477
						1 NO/1 NC		ZQ 900-11N	101184474
						1 NO/3 NC		ZQ 900-13N	101184476
						2 NO/2 NC		ZQ 900-22N	101184475

A variety of other types of pull-wire emergency stop switches can be found at www.schmersal.net.

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Accessories



<p>Eyebolt 101084928</p>  <ul style="list-style-type: none"> ■ BM 10 x 40 101084928 ■ BM 8 x 70 (stainless steel) 101192471 ■ Included in delivery: Eyebolt with nut 	<p>Wire clamp 101203477</p>  <ul style="list-style-type: none"> ■ Wire clamp 101203477 ■ 3 mm (stainless steel) 101203477 ■ 5 mm (stainless steel) 101203478 	<p>Duplex wire clamp 101190917</p>  <ul style="list-style-type: none"> ■ Duplex wire clamp 3 mm (stainless steel)
<p>Egg-shaped wire clamp 101196043</p>  <ul style="list-style-type: none"> ■ Egg-shaped wire clamp, size 3 	<p>Wire thimbles 101203472</p>  <ul style="list-style-type: none"> ■ Wire thimble 101203472 ■ 3 mm (stainless steel) 101203476 ■ 5 mm (stainless steel) 	<p>Pulley 101192433</p>  <ul style="list-style-type: none"> ■ Pulley (stainless steel) to guide the wire rope where the path is not a straight line ■ According to EN ISO 13850, pulleys may only be mounted so that the complete length of the pull-wire can be observed.
<p>Tensioning jack 101087930</p>  <ul style="list-style-type: none"> ■ Tensioner M6 ■ For exact adjustment of the tension of the wire rope ■ Adjustable 145 mm ... 225 mm ■ To DIN 1480 	<p>Tension spring 101087931</p>  <ul style="list-style-type: none"> ■ Tension spring to maintain the reaction force 101087931 ■ RZ-136E (only for T3Z 068) 101186696 ■ RZ-2041 (only for ZQ 900) 101186696 ■ ACC-700-RZ173I (only ZQ 700) 103005863 	<p>Shackle 101186490</p>  <ul style="list-style-type: none"> ■ Shackle (stainless steel) ■ For fixing the wire rope to the eyebolt

For detailed information on selection, visit www.schmersal.net.

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Wire rope	Wire unit complete	S 900 rope tensioner	101186704
 <ul style="list-style-type: none"> ■ Wire rope ■ With red PVC sheath ■ Ø total 5 mm ■ Ø of the steel core 3 mm <p style="text-align: right;">on request</p>	 <ul style="list-style-type: none"> ■ Wire unit complete ■ Ready-to-fit ■ Included in delivery: 1 Wire rope; 2 Wire clamps; 1 Duplex wire clamp; 1 Wire thimble; 1 Eyebolt <p style="text-align: right;">on request</p>	 <ul style="list-style-type: none"> ■ S 900 rope tensioner ■ Smooth and time-saving adjustment 	
Indicator lamp G24-M20	Mounting plate set	Mounting plate set	101150877
 <ul style="list-style-type: none"> ■ Indicator lamp G24-M20 for ZQ 900 (LED 24 VDC - red/green) 	 <ul style="list-style-type: none"> ■ Mounting plate set for ZQ 900 ■ Included in delivery: 1 Mounting plate; 4 Counter sunk screws for fixing of the ZQ 900 	 <ul style="list-style-type: none"> ■ Mounting plate set for ZQ 700 ■ Included in delivery: 1 Mounting plate; 2 Counter sunk screws for fixing of the mounting plate; 4 Cylinder head screws for fixing of the ZQ 700 	
Cable gland	Cable gland	Screw plug	103006011
 <ul style="list-style-type: none"> ■ M20 x 1,5 cable gland, metal ■ For ZQ 900 / T3Z 068 ■ Brass, nickel-plated ■ Authorised cable diameter: 6 ... 12 mm ■ Tightening torque 8 Nm 	 <ul style="list-style-type: none"> ■ M20 x 1.5 cable gland, plastic ■ For ZQ 700 ■ Polyamide ■ Authorised cable diameter: 6 ... 12 mm ■ Tightening torque 4.5 Nm 	 <ul style="list-style-type: none"> ■ M20 x 1.5 screw plug, metal ■ For ZQ 900 / T3Z 068 ■ Brass, nickel-plated ■ Tightening torque 8 Nm 	

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