

Safety Cable Pull Switches

SRM, SR



General information on safety cable pull switches

The series SR and SRM safety cable pull switching devices developed and manufactured by BERNSTEIN AG are designed and approved in accordance with the standards IEC 947-5-5, DIN EN 60947-5-5 and ISO 13850, i.e. on actuation or in the event of cable breakage, the emergency stop switching device locks automatically and can only be reset to its initial setting by means of the resetting device on the switch.

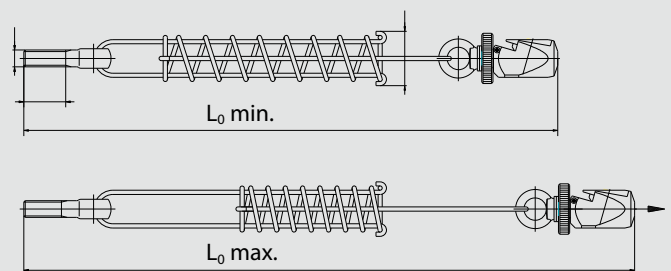
In order for the overall system to conform to the standards EN 60947-5-5 and EN 13850 governing the emergency stop function of cable pull switches it is necessary to integrate a spring in the system. The reasoning behind this requirement is that a person who triggers the emergency stop functions does not need to consider the activation direction. With the spring it is possible to pull the cable in the direction of the cable pull switch, thus activating the emergency stop function.

Safety cable pull switches may only be used in control power circuits. Safety cable pull switches are used on accessible sides of conveyor systems or machines. In contrast to Emergency Stop switching devices (e.g. mushroom pushbuttons) installed at intervals, with which the emergency stop signal can only be generated at the device itself, with the safety cable pull switch it is possible to generate the signal at any point in a section. Depending on the type of switching device, a span of up to 75 m can be achieved with a pull cable connected to the pulling element.

The maximum possible span length of a pull cable switch is always dependent on the temperature fluctuations to which the system is exposed. It is possible that the pull cable switch may trip due to the fact that, owing to its temperature coefficient, the length of the steel cable can change in response to changes in temperature. Ultimately, this change in length is dependent on the length of the cable, the difference in the temperature change and the type of springs used in the pull cable switch. Overview 1 shows which cable lengths are possible as a function of change in temperature.

Pull cable counterspring

With overstretch safeguard based on compression spring principle



Application		
Type	SR...100/SR...175/SRM...175	SR...300/SRM...300
Spring Art. No.	3911042153	3911042154
$L_0 \text{ min.}$	383	483
$L_0 \text{ max.}$	487	653

Advantages of SRM/SR safety cable pull switches:

- The SR (plastic enclosure) and SRM (metal enclosure) safety cable pull switches are available with the Quickfix quick-connect system, which renders unnecessary cable eye stiffeners, cable grips and turnbuckles that are otherwise required for mounting the cable. Added to this, the time required to install the cable is drastically reduced. Versions with a conventional eye are, of course, also available.
- All variants of the SRM and especially of the SR are equipped with an integrated emergency stop impact button that can be actuated by pressing in hazardous situations. In the same way as pulling the pull cable, the safety contacts are opened and the switch is locked.
- The type SRM...E-... safety cable pull switches are optionally available with a remote indicator for monitoring the cable tension. This option has an integrated sensor unit that monitors situations in which the cable tension may overshoot or undershoot the permissible value or triggering of the safety

cable pull switch is imminent. This electronic output signals in good time that maintenance/adjustment is required otherwise the machine will shut down. This output can also be used for event signalling purposes or optionally available indicator lamps can be connected. This connection configuration conforms to "preventative maintenance" requirements.

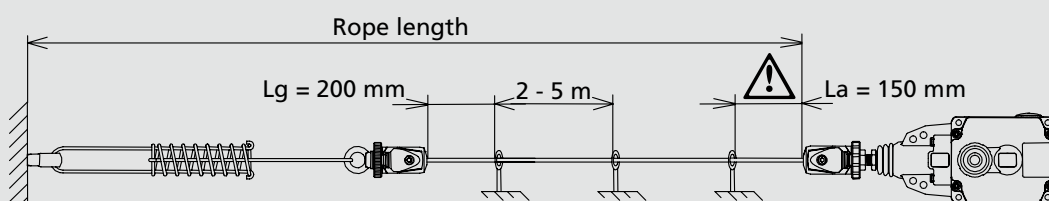
- During installation/adjustment of the cable span, the correct tension of the cable can be checked through the integrated inspection window. To ensure optimum cable tension as part of the adjustment procedure, the tips of the indicator arrows should be aligned with the marking.
- A second inspection window integrated in the SRM version makes it possible to check the status of the locking function and of the contacts. Yellow in the inspection window indicates that the safety cable pull switch is locked. Green in the inspection window indicates that the cable pull switch is ready for operation and the cable assembly is monitored.

Overview 1

		Span L max. in metres [m]																																																																										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	55	60	65	70	75																																			
Max. temperature variation in Kelvin (K)	+/- 40 K																																																																											
	+/- 35 K																																																																											
	+/- 30 K																																																																											
	+/- 25 K																																																																											
	+/- 20 K																																																																											
	+/- 15 K																																																																											
	+/- 10 K																																																																											
	+/- 5 K																																																																											
SR...100																																																																												
SR...175/SRM...175																																																																												
SR...300/SRM...300																																																																												

The parameter 100, 175 and 300 in the product designation indicates the force of the springs used in the cable pull switch. It should be noted that a greater actuating force is required for higher spring forces.

Installation example

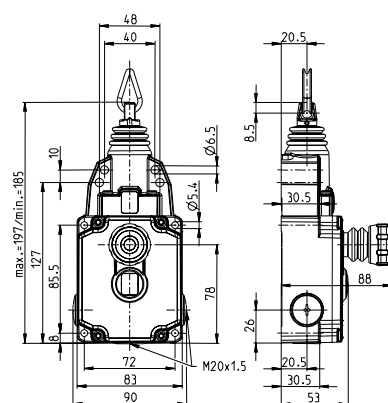
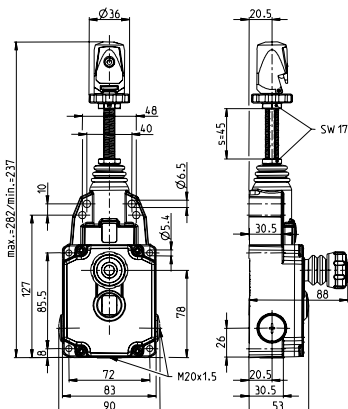


Safety Cable Pull Switches

Max. span length

75 metres (Dimensioned drawing 1)

37,5 metres (Dimensioned drawing 2)



2 Ö/2 S

3 Ö/1 S

2 Ö/2 S

3 Ö/1 S

Quickfix
(Dimensioned drawing 1)

6012929087
SRM-U1Z/U1Z-QF-300

6012999096
SRM-A2Z/U1Z-QF-300

6012929085
SRM-U1Z/U1Z-QF-175

6012999094
SRM-A2Z/U1Z-QF-175

Öse
(Dimensioned drawing 2)

6012921091
SRM-U1Z/U1Z-LU-300

6012991100
SRM-A2Z/U1Z-LU-300

6012921089
SRM-U1Z/U1Z-LU-175

6012991098
SRM-A2Z/U1Z-LU-175

Quickfix with remote monitoring
(Dimensioned drawing 1)

6012929088
SRM-U1Z/U1Z-QF-300-E

6012999097
SRM-A2Z/U1Z-QF-300-E

6012929086
SRM-U1Z/U1Z-QF-175-E

6012999095
SRM-A2Z/U1Z-QF-175-E

Eye with remote monitoring
(Dimensioned drawing 2)

6012921092
SRM-U1Z/U1Z-LU-300-E

6012991101
SRM-A2Z/U1Z-LU-300-E

6012921090
SRM-U1Z/U1Z-LU-175-E

6012991099
SRM-A2Z/U1Z-LU-175-E

Approvals

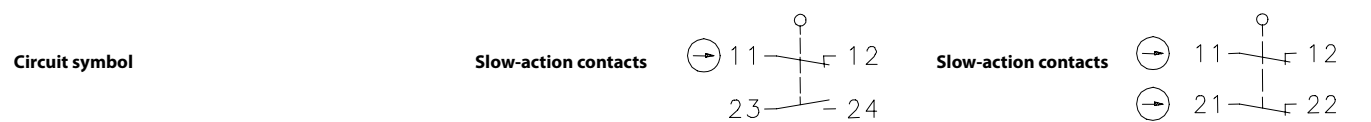
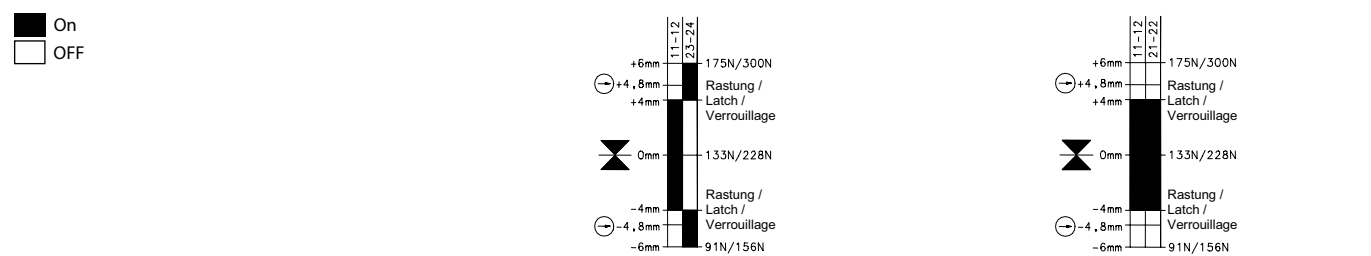


Technical data

Electrical data		
Rated insulation voltage	U_i max.	250 V AC
Rated operating voltage	U_e max.	240 V
Conventional thermal current	I_{the}	10 A
Utilization category	U_e / I_e	AC-15, U_e / I_e 240 V / 3 A; 120 V/6 A DC-13 U_e / I_e 250 V/0.27 A; 125 V/0.55 A
Short-circuit protection		6 A gL/gG
Protection class		I
Mechanical data		
Enclosure	Aluminium pressure die-casting	
Ambient temperature	-30°C to +80°C	
Mechanical service life	1 x 10 ⁵	
Switching frequency max.	≤ 20 / min.	
Mounting	4 x M6 or 4 x M5	
B10d	0.2 mill.	
Type of connection	Screw connections	
Conductor cross sections	Single-wire 0.5 - 1.5 mm ²	
Cable entry	3 x M20 x 1.5	
Protection class	IP67 conforming to IEC/EN 60529	
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1 VDE 0660 T210, DIN EN 60947-5-5, IEC 60947-5-5 ISO 13850		

Contact type	1 Ö / 1 S (Zb)	2 Ö (Zb)
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Action contacts	U1Z	A2Z
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Schaltdiagramm


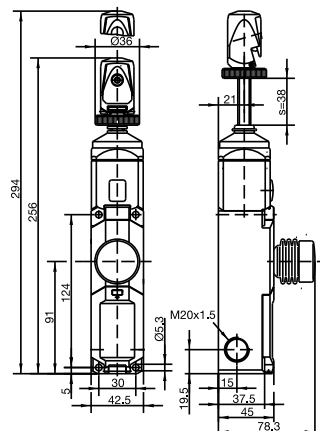
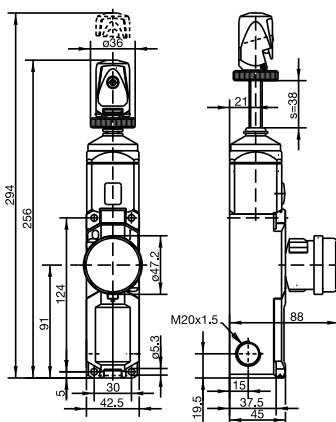
The pulling force data depend on the type of switch used. (SRM...175/SRM...300)
 Tolerances: Switching point +/- 0.5 mm, actuating force +/- 15 %

Safety Cable Pull Switches

Max. span length

75 metres (Dimensioned drawing 1)

37.5 metres (Dimensioned drawing 2)



2 Ö/2 S

4 Ö

2 Ö/2 S

4 Ö

Quickfix
(Dimensioned drawing 1)

6011629028
SR-U2Z-QF 300

6011691051
SR-A4Z-QF 300

6011629024
SR-U2Z-QF 175

6011691050
SR-A4Z-QF 175

Quickfix N.A.
(Dimensioned drawing 2)

6011629019
SR-U2Z-NA-QF 300

6011691054
SR-A4Z-NA-QF 300

6011629027
SR-U2Z-NA-QF 175

6011691053
SR-A4Z-NA-QF 175

Öse
(Dimensioned drawing 3)

6011620020
SR-U2Z 300

6011691048
SR-A4Z 300

6011621026
SR-U2Z 175

6011691047
SR-A4Z 175

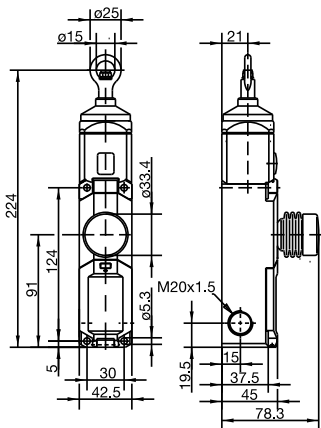
Approvals



Technical data

Electrical data		
Rated insulation voltage	U_i max.	250 V AC
Rated operating voltage	U_e max.	240 V
Conventional thermal current	I_{the}	10 A
Utilization category	U_e / I_e	AC-15, U_e / I_e 240 V / 3 A
Short-circuit protection		6 A gL/gG
Protection class		II, Insulated
Mechanical data		
Enclosure		PA 6 GV (UL94-V0)
Ambient temperature		-25°C to +70°C
Mechanical service life		as per EN 60947-5-5
Switching frequency max.		≤ 20 / min.
Mounting		4 x M5
B10d		0.02 mill.
Type of connection		Cage clamp terminal
Conductor cross sections		≤ 1.5 - 2 mm ²
Cable entry		3 x M20 x 1.5
Protection class		IP67 conforming to IEC/EN 60529
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1		
VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		
VDE 0660 T210, DIN EN 60947-5-5, IEC 60947-5-5		
ISO 13850		

25 metres (Dimensioned drawing 3)



2 Ö/2 S

4 Ö

6011629032
SR-U2Z-QF 100

6011691049
SR-A4Z-QF 100

6011629031
SR-U2Z-NA-QF 100

6011691052
SR-A4Z-NA-QF 100

6011621030
SR-U2Z 100

6011691033
SR-A4Z 100



Contact type

2 Ö/2 S (Zb)

4 Ö

Action contacts

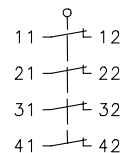
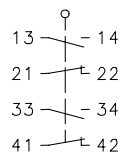
U2Z

A4Z

Circuit symbol

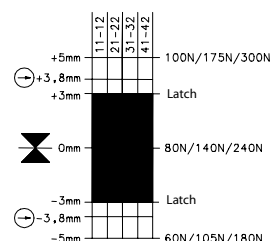
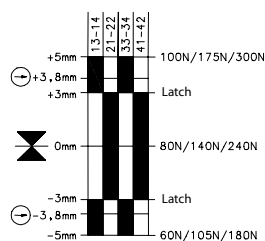
Slow-action contacts

Slow-action contacts



Schaltprogramm

On
Off



The pulling force data depend on the type of switch used. (SR...100/SR...175/SR...300)
Tolerances: Switching point +/- 0.5 mm, actuating force +/- 15 %