

SIGUARD Cable-Operated Switches

Metal enclosures

Area of application

SIGUARD cable-operated switches are used for monitoring or for EMERGENCY-STOP facilities on particularly endangered system sections.

As the effective range of a cable-operated switch is only limited by the length of the pull-wire, large systems can also be protected.

Cable-operated switches (requiring pulling at both ends) and conveyor belt unbalance trackers are used primarily for monitoring very long belt systems.

Standards

Switches with positive latching for implementation in EMERGENCY-STOP equipment correspond to the EN 418 standard.

Functions

The NC contacts of the cable-operated switch and the conveyor belt unbalance tracker are positive opening.

Cable-operated switches with one-side operation are held in free position by the pre-tension on the turnbuckle.

In the 3SE7 140 and 3SE7 150 cable-operated switches, both switching contacts are available for cable-break/cable-pull signaling. The NO contact can be used, for example, for signaling purposes.

On switches with interlocking, with a pretensioned cable, the locking must be deactivated beforehand in order to return the cable operated switch to its original position.

Design

The switches for cable lengths up to 50 m are available with 1 NO + 1 NC or 2 NC contacts. The switches for cable lengths of 2 × 50 m and the conveyor belt unbalance trackers are supplied with 2 NO + 2 NC contacts.

The cable operated switch and the conveyor belt unbalance tracker can also be supplied with a factory-fitted LED (red, DC 24 V). This light in innovative on-board chip technology allows the operating status of the switch to be visible at a distance of at least 50 m.

Technical specifications

Type	3SE7 120,	3SE7 150	3SE7 140	3SE7 160	3SE7 310
Standards	IEC 60947-5-1, EN 60947-5-1, IEC 60204-1, EN 60204-1				
Approvals	UL/CSA				
Electrical design	Contacts electrically isolated from each other				
Electrical loading	<ul style="list-style-type: none"> • at AC-15 AC 400 V, 6 A • min. AC/DC 24 V, 10 mA 				
Short-circuit protection	6 A (slow)				
Mechanical endurance	> 1 × 10 ⁶ operating cycles				
Contact material	Fine silver				
Actuation	By pulling or breaking of rope				
Rope length, maximum	10 m	25 m	50 m	2 × 50 m	–
Spacing between rope supports, maximum	3 m	3 m	5 m	5 m	–
Enclosure	GD Al alloy, coated (color), dark black RAL 9005				
Cover	Shock-resistant thermoplastic				
Degree of protection acc. to IEC 60529	IP65				
Ambient temperature	–25 °C ... +70 °C				
Fixing	Designed for M 5				
Fixing spacing	30 mm and 40 mm				
Cable entry	2 × (M 20 × 1.5)	1 × (M 16 × 1.5)	2 × (M 25 × 1.5)	1 × (M 16 × 1.5)	2 × (M 25 × 1.5)
Type of connection	M3.5 screw connection, self-lifting terminal clamps				

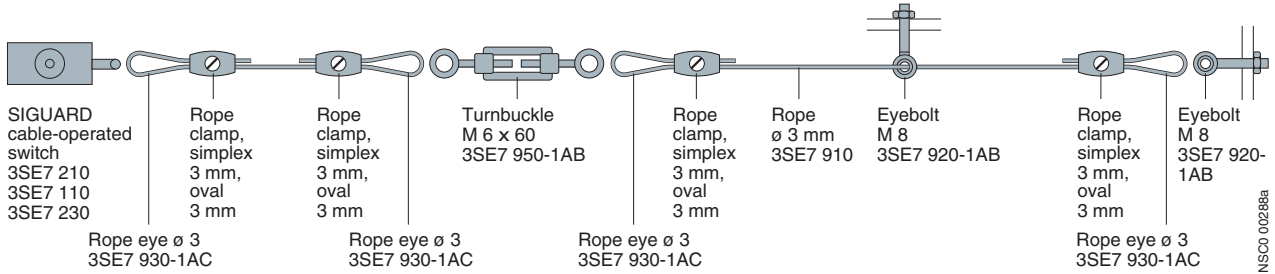
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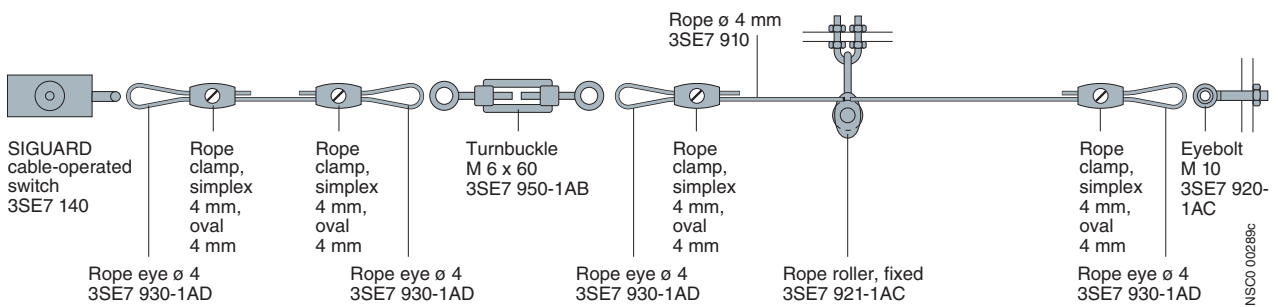
Design

Mounting and fixing the cables

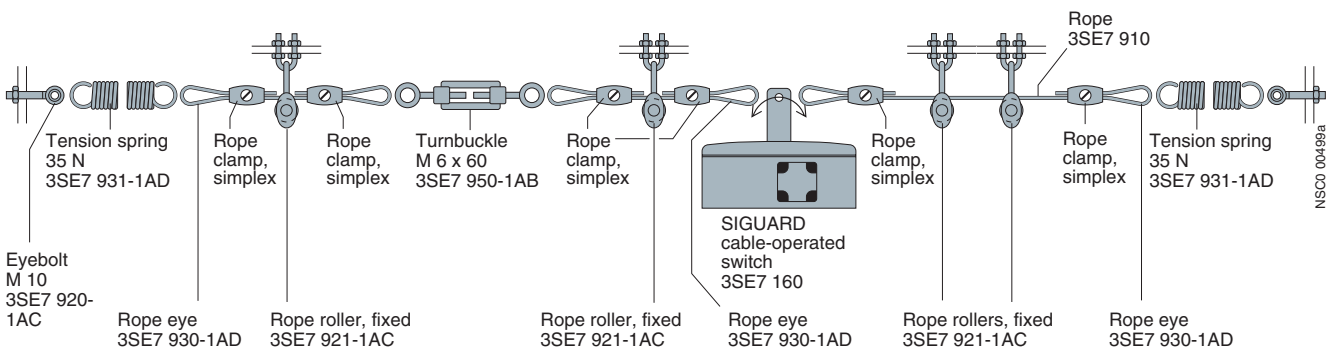
Short lengths of rope up to 25 m



Long lengths of rope up to 50 m



Pulling from both sides up to 2 x 50 m









Use of a tension spring is essential for long sections of rope.

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Selection and ordering data












Version	Rope length	Contacts	DT	Order No.	PS*	Weight per PU approx.	
	m					kg	
Cable-operated switches							
	Metal enclosure (cover made of molded plastic)	10					
		<ul style="list-style-type: none"> without latching, only cable pull monitoring with latching and button reset 	1 NO + 1 NC 2 NC	A A	→ 3SE7 120-2DD01 → 3SE7 120-1BF00	1 unit 1 unit	0.425 0.410
	Metal enclosure (cover made of molded plastic), with dust protection and alignment window	25					
		<ul style="list-style-type: none"> without latching with latching and button reset 	1 NO + 1 NC 1 NO + 1 NC	C C	→ 3SE7 150-2DD00 → 3SE7 150-1BD00	1 unit 1 unit	0.424 0.443
		<ul style="list-style-type: none"> with latching and key unlatching 	2 NC 1 NO + 1 NC	C C	→ 3SE7 150-1BF00 → 3SE7 150-1CD00	1 unit 1 unit	0.442 0.510
		Metal enclosure (cover made of molded plastic), with dust protection, with LED, red, DC 24 V	25				
<ul style="list-style-type: none"> without latching with latching and button reset 	1 NO + 1 NC 1 NO + 1 NC	A A	→ 3SE7 150-2DD04 → 3SE7 150-1BD04	1 unit 1 unit	0.425 0.448		
	Metal enclosure (cover made of molded plastic), with dust protection	50					
		<ul style="list-style-type: none"> with latching and button reset 	1 NO + 1 NC 2 NC	C C	→ 3SE7 140-1BD00 → 3SE7 140-1BF00	1 unit 1 unit	0.792 0.790
		<ul style="list-style-type: none"> also with LED, red, DC 24 V with latching and key unlatching 	1 NO + 1 NC 1 NO + 1 NC	A C	→ 3SE7 140-1BD04 → 3SE7 140-1CD00	1 unit 1 unit	0.820 0.835
		Metal enclosure , with actuation on both sides	2 × 50				
<ul style="list-style-type: none"> with latching and button reset also with LED, red, DC 24 V 	2 NC + 2 NO 2 NC + 2 NO	C A	→ 3SE7 160-1AE00 → 3SE7 160-1AE04	1 unit 1 unit	1.270 1.260		
	Metal enclosure						
		<ul style="list-style-type: none"> with latching and button reset also with LED, red, DC 24 V 	2 NC + 2 NO 2 NC + 2 NO	C A	→ 3SE7 310-1AE00 → 3SE7 310-1AE04	1 unit 1 unit	1.800 1.810
Conveyor belt unbalance protection devices							
	Metal enclosure						
		<ul style="list-style-type: none"> with latching and button reset also with LED, red, DC 24 V 	2 NC + 2 NO 2 NC + 2 NO	C A	→ 3SE7 310-1AE00 → 3SE7 310-1AE04	1 unit 1 unit	1.800 1.810
Accessories							
	LED , red DC 24 V 25 mm in diameter; for M 20 × 1.5 connection			A	3SX3 235	1 unit 0.019	

→ Positive opening according to IEC 60947-5-1, Appendix K.

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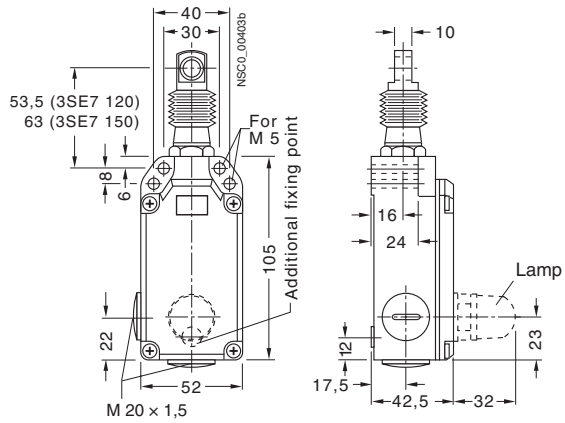
Accessories

	Version	Length / diameter	DT	Order No.	PS*	Weight per PU approx. kg	
	Steel rope , with red plastic sheath, Ø 4 mm ¹⁾	10 m	A	3SE7 910-3AA	1 unit	0.422	
		15 m	A	3SE7 910-3AB	1 unit	0.600	
		20 m	A	3SE7 910-3AC	1 unit	0.863	
		50 m	A	3SE7 910-3AH	1 unit	2.120	
   	Rope clamp , galvanized white	• oval	Ø 4 mm	A	3SE7 941-1AC	1 unit	0.040
		• simplex (1 set = 4 units)	Ø 4 mm	A	3SE7 943-1AC	4 units	0.041
		• duplex (1 set = 4 units)	Ø 4 mm	A	3SE7 944-1AC	4 units	0.079
		• single (1 set = 4 units)	Ø 5 mm	A	3SE7 942-1AA	4 units	0.093
	Tension springs (zinc-plated) to maintain the counter tension	• 13 N	A	3SE7 931-1AB	1 unit	0.155	
		• 35 N	A	3SE7 931-1AD	1 unit	0.337	
	Rope rollers for changing the direction of the rope, rotatable	Ø 4 mm	A	3SE7 921-1AC	1 unit	0.046	
	Fixing of the rope roller		A	3SE7 921-1AA	1 unit	0.013	
	Rope eyes for changes in rope direction and improved power transmission at the fixing points (1 set = 4 units)	Ø 4 mm	A	3SE7 930-1AD	4 units	0.020	
	Eyebolts for fixing the rope	• incl. nut M 8	A	3SE7 920-1AB	1 unit	0.033	
		• incl. nut M 10	A	3SE7 920-1AC	1 unit	0.060	
	Turnbuckle for precise adjustment of the pretension	• M 6 × 60	A	3SE7 950-1AB	1 unit	0.051	
		• M 6 × 110	A	3SE7 950-1AD	1 unit	0.073	

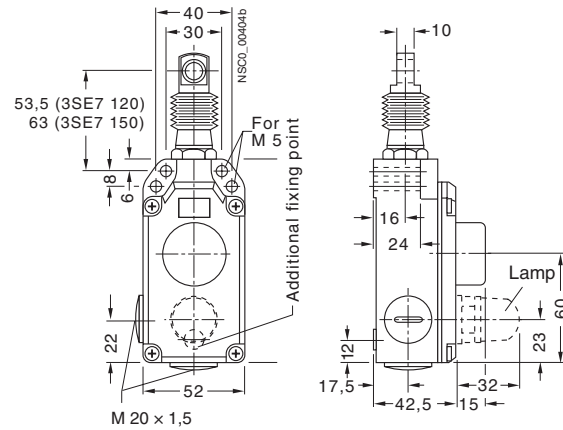
1) Diameter including casing; the diameter of the steel wire is 3.2 mm.

Dimension drawings

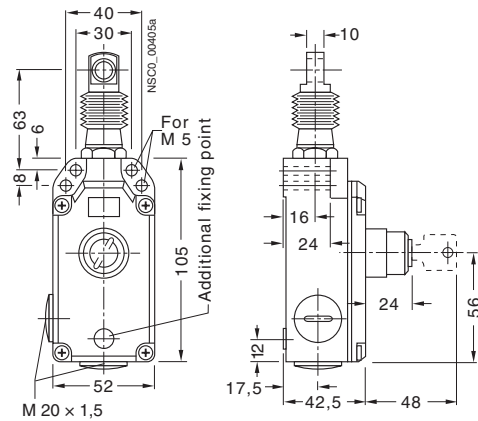
3SE7 120-2DD.., 3SE7 150-2DD..
without latching



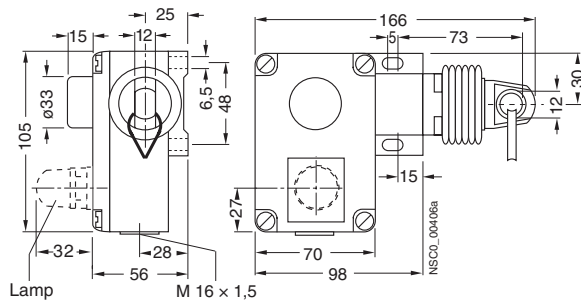
3SE7 120-1B..., 3SE7 150-1B...
with latching and button reset



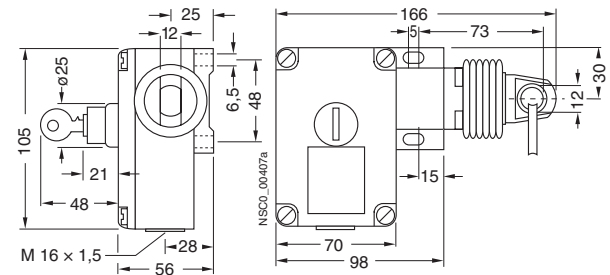
3SE7 150-1CD..
with latching, button reset and key unlatching



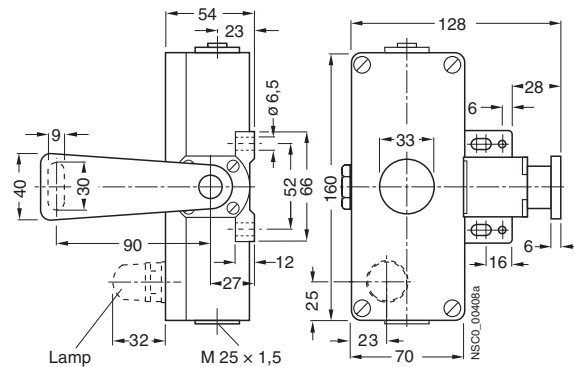
3SE7 140-1B...
with latching and button reset



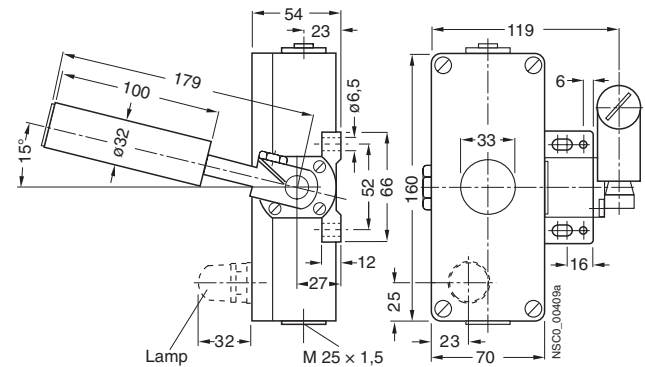
3SE7 140-1CD..
with latching, button reset and key unlatching



3SE7 160-1AE..
with latching and button reset



Conveyor belt unbalance tracker 3SE7 310-1AE..
with latching and button reset



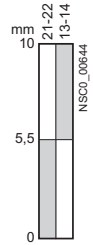
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Circuit diagrams

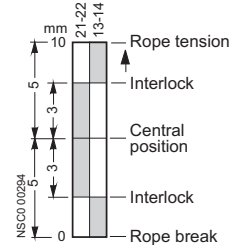
Connection diagrams, operating travel diagrams

3SE7 120-2DD01



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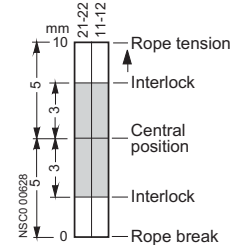
3SE7 150-..D0.



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Central position

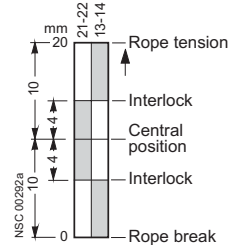
3SE7 120-1BF00, 3SE7 150-1BF00



NSC 00629

Central position

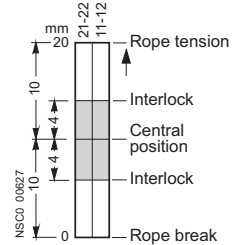
3SE7 140-1.D0.



NSC00293

Central position

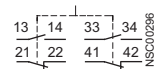
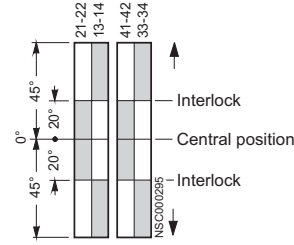
3SE7 140-1.F00



NSC 00629

Central position

3SE7 160-1AE, 3SE7 310-1AE



NSC00296

Central position