Installation Instructions - Emergency Pull-Wire Switch ZS 92 S / KST

Kinder Australia product:	Emergency Pull-Wire Switch ZS 92 S / KST
Product category:	Safety & Environmental
Issue date:	17.6.24
Revision:	3

ZS 92 S

ZS 92 S KST

ZS 92 S L

⚠ WARNING ⚠

Always obey all applicable safety rules.
Be sure all power to the conveyor has been disconnected and controls are locked out.

This product has been designed by Steute GMBH in accordance with Australian Standards. However, the customer is required to assess how this product complies in their specific application to meet the Australian Standard or their company's safety protocols.

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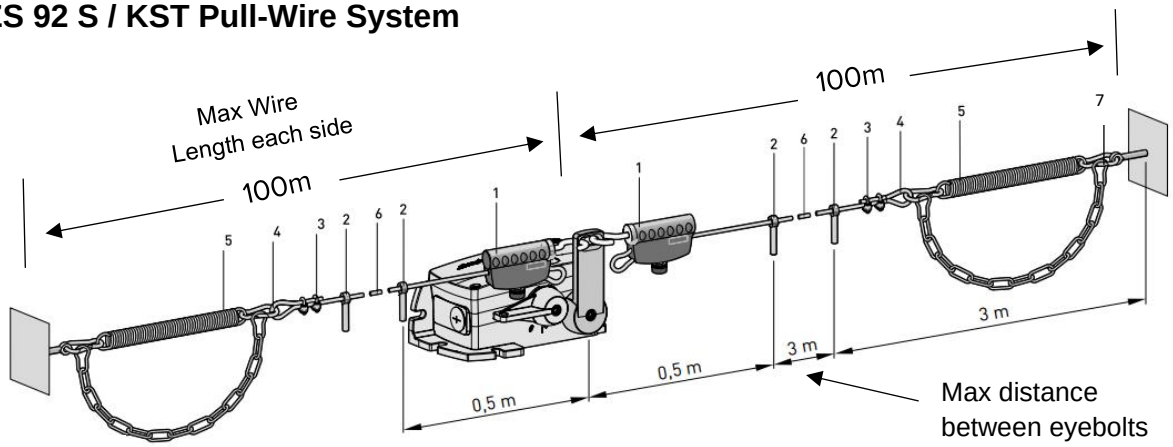
ZS 92 S / KST Pull-Wire System



ITEM	DESCRIPTION	KINDER PART NO.	KINDER PART NO. (STAINLESS STEEL)
1	Cable Tensioner System TS 65	K-PW-TS-65	-
2	Eye bolt M10 x 120 with 2 nuts	PW-EYEBOLT-M10-120	-
3	Wire Clamp	PW-C	PW-C-SS
4	Wire Thimble 3mm	PW-T-RW-4	PW-T-RW-3-SS
5	Compensation spring ZS 90/91/92 S	PW-CS-ZS-90-91-92-S	PW-CS-ZS-90-91-92-S-SS
6	Pull-wire 1/m	PW-1	PW-SS-1
7	Eye bolt M8 x 70	PW-EYEBOLT-M8-70	PW-EYEBOLT-M8-70-SS

ABN: 28 006 489 238

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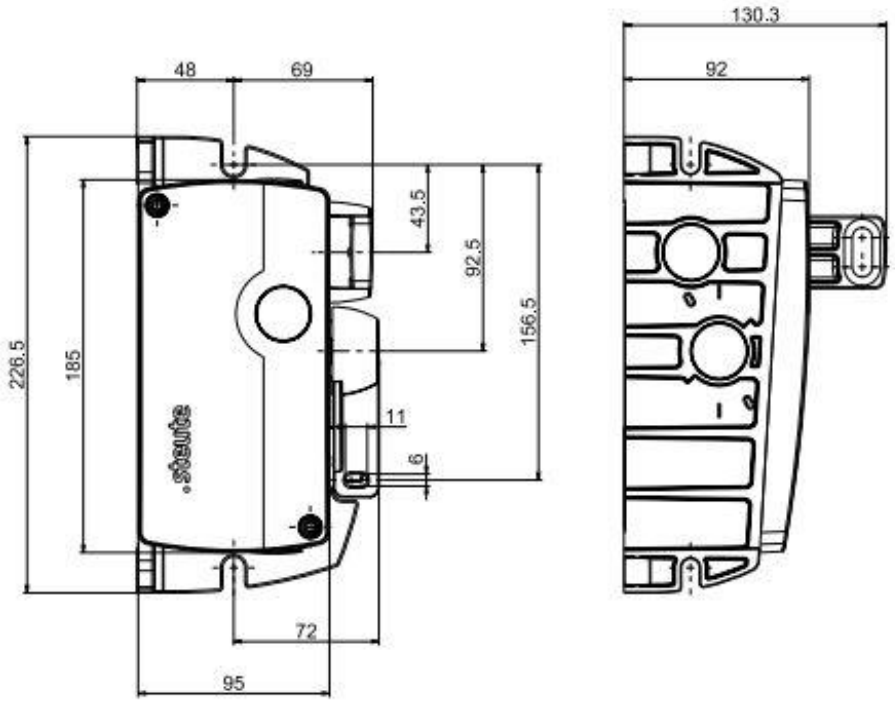
SWITCH MOUNTING

Each ZS 92 S switch has the below dimensions with 5 slotted holes which allows for bottom or back mounting.



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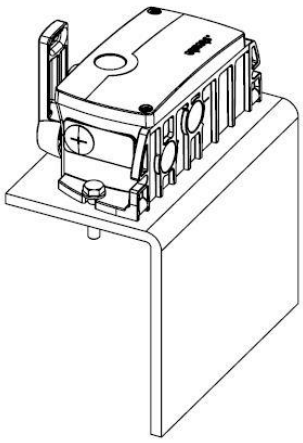
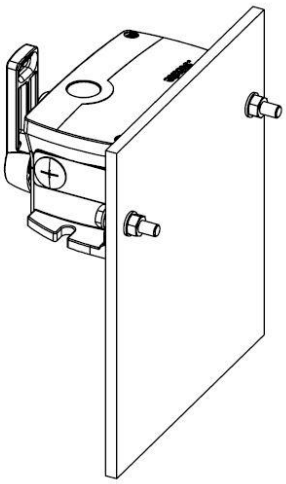
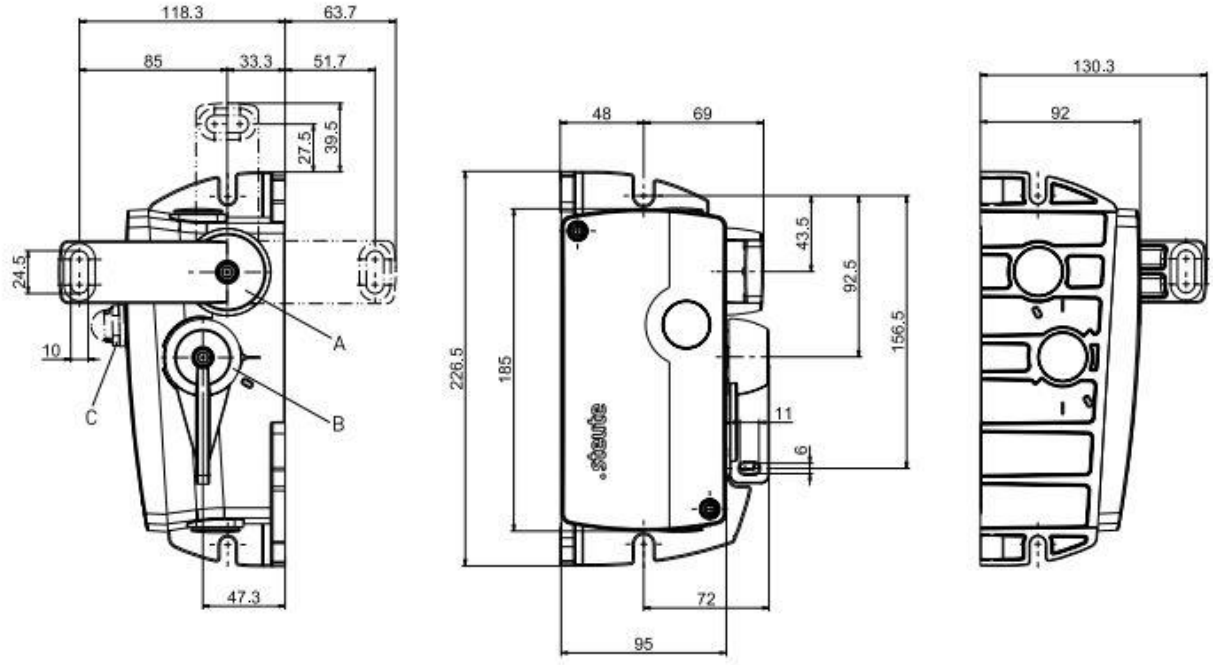
Bottom Mounting	Top Mounting
	

Actuating Lever Mounting Positions

Type F:



A – Actuating Lever

B – Reset Lever

C – LED as option

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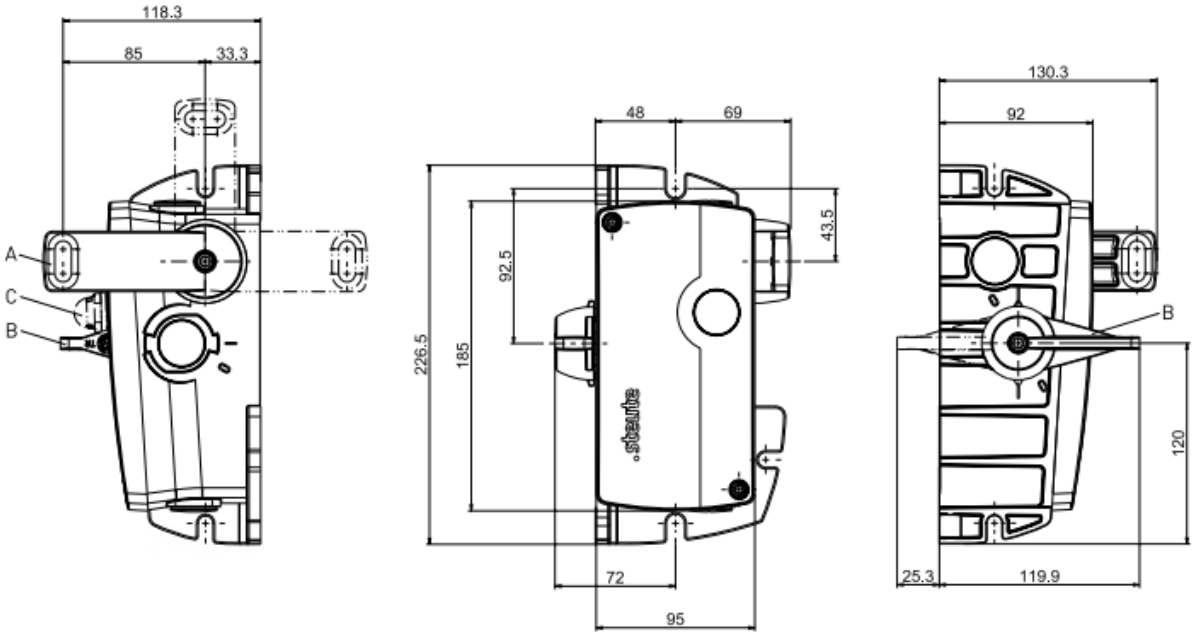
The actuating lever can be mounted in three positions, (see figure above)

To change the direction of a lever:

1. Unwind screw on the lever.
2. Remove lever.
3. Attach lever in the desired position.
4. Insert screw and tighten.

Type B:



A – Actuating Lever

B – Reset Lever

C – LED as option

The reset lever can be mounted in two positions (see figure above).

To change the direction of a lever, follow the same process as the previous step (Type F):

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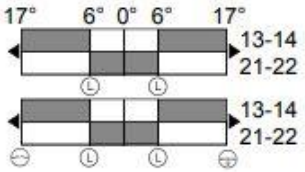
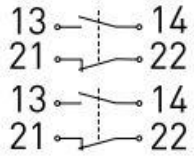
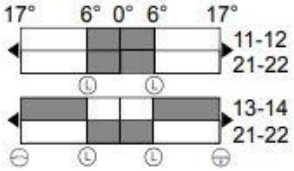
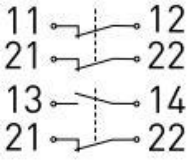
Contacts:

NC - Normally Closed

NO - Normally Open

Part Number	Type	Switching Diagram	Contact Diagram
K-ZS-92-S-22-VD-F K-ZS-92-S-22-VD-F1-KST K-ZS-92-S-22-VD-L-F K-ZS-92-S-22-VD-L-F1-KST	Zb		
K-ZS-92-S-13-VD-F K-ZS-92-S-13-VD-F1-KST K-ZS-92-S-13-VD-L-F K-ZS-92-S-13-VD-L-F1-KST	Zb		

When the wire is pulled, or if the wire breaks, the NC contacts are opened and the NO contacts are closed and then locked in this position. The switch can only be released using the blue release lever.

⚠ WARNING!!

ALL ELECTRICAL WIRING TO BE CARRIED OUT BY A QUALIFIED ELECTRICIAN.

Be sure all power to the conveyor has been disconnected and controls are locked. out.

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Application

- The device's connection cables through the 3 x M20 x 1.5 cable entry holes, must have a fixed installation and be set up in a manner that protects them from mechanical damage.

- If the connection is in an explosive area, the connection cable must be connected in an enclosure which complies with the requirements of an approved ignition protection degree according to EN 60079-0, par. 1.

- Use device only within the permitted electrical load limits (see technical data).

- For short-circuit protection, use fuse size 6 A (gG/gN).

- Use device only within the permitted ambient temperature range (see product label and technical data).

- The cable must be connected inside an enclosure which meets the requirements of a degree of protection per EN 60079-0: section 1 if the connection carried out is within a hazardous area.

- Reconstruction and alterations to the device which might affect the explosion protection are not allowed. Furthermore, EN 60079-14 must be applied for the installation of electrical equipment in explosive areas. Moreover, the ATEX test certificate and the special conditions therein must be observed.

EMERGENCY PULLWIRE SWITCH INSTALLATION STANDARDS

Emergency Pull Wire switches should follow the relevant Standards as outlined below:

a) For conveyors not greater than 2.5 m in length and located less than 2.7 m above the floor, walkway or platform, a single Pull Wire Switch is adequate. The location should be easily accessible by an operator.
b) Pull Wire Switches to be installed **every 30m** along the length of the conveyor for conveyors **greater than 2.5 m in length and located less than 2.7 m** above the floor, walkway, or platform, at the head, tail, or drive.
c) Pull Wire Switches to be installed **at intervals not exceeding 100m** along the length of the conveyor, for conveyors located **more than 2.7 m above the floor, walkway, or platform.**

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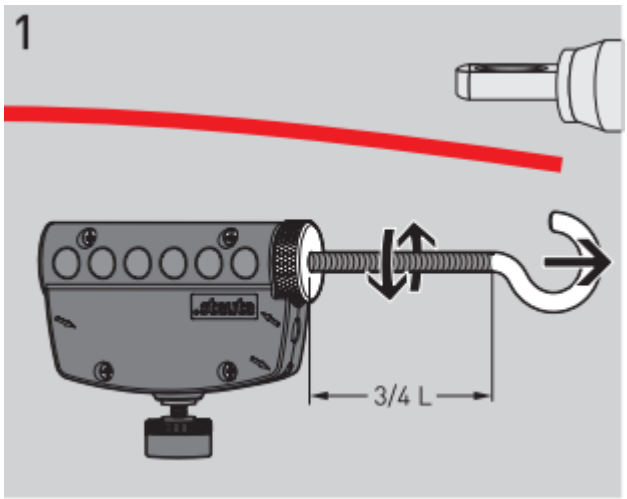
PULLWIRE INSTALLATION STANDARDS

The installation of pull wires must be in accordance with section 2.10.6.3 of AS 4024.3610:2015 Safety of machinery – Conveyors - General Requirements:

- Pull Wires must be clearly visible.
- Pull Wires must be readily accessible from all areas of access to the conveyor.
- Pull Wires should be located external to the vertical line of any nip or shear point and no further than 1m from the nip or shear points.
- At least 900 mm above the access floor and not more than 1500mm above the access floor.
- Where it is possible for a person to be inadvertently on a moving conveyor, an emergency stop must be provided and be located no closer to the conveyor discharge than the maximum stopping distance of the conveyor.
- The emergency stop should be accessible from the conveyor.

Pull-Wire Tensioner Mounting



Unscrew the Tensioner's hook. The maximum thread adjustment available is 56mm.

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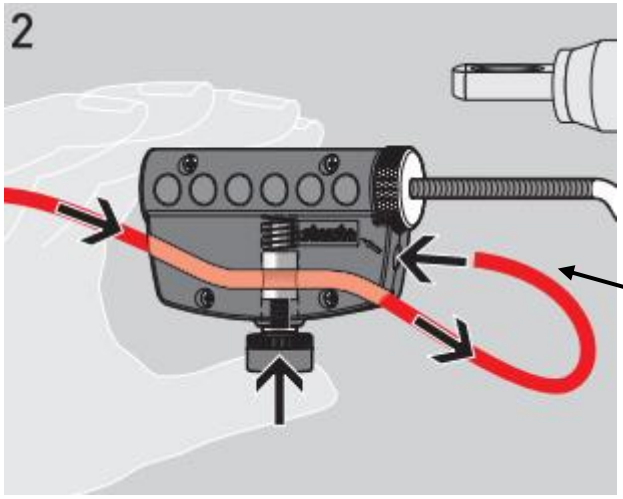
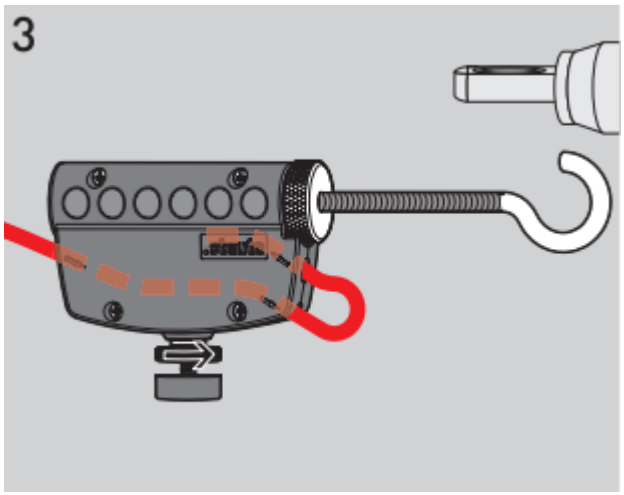
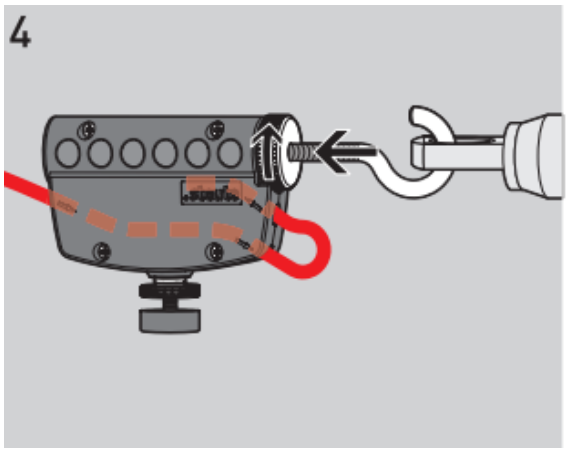


Feed the Pull-Wire through the tensioner by pressing on the spring-loaded thimble to allow the wire to pass

Place wire end in the second hole.



Screw on the threaded section of the thimble clockwise. This will secure the Pull-wire in place, preventing it from being pulled out while under tension.



Adjust the threaded thimble to allow the hook to fit in the actuating Lever. Do not tighten yet.

Pull-Wire installation on wire thimbles

Before mounting the pull-wire, remove enough red PVC sheath from the pull-wire in the clamping range of the pull-wire as shown below:

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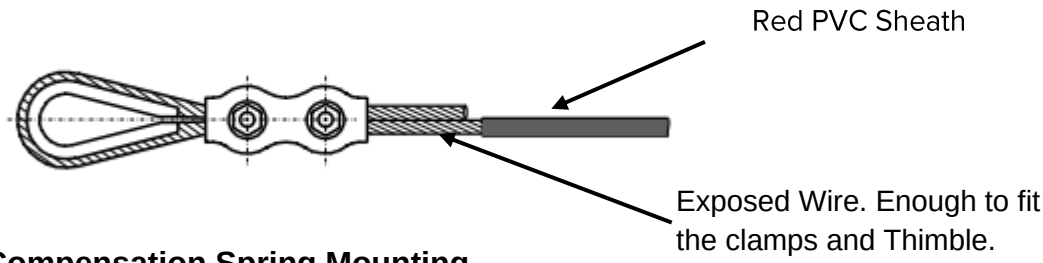
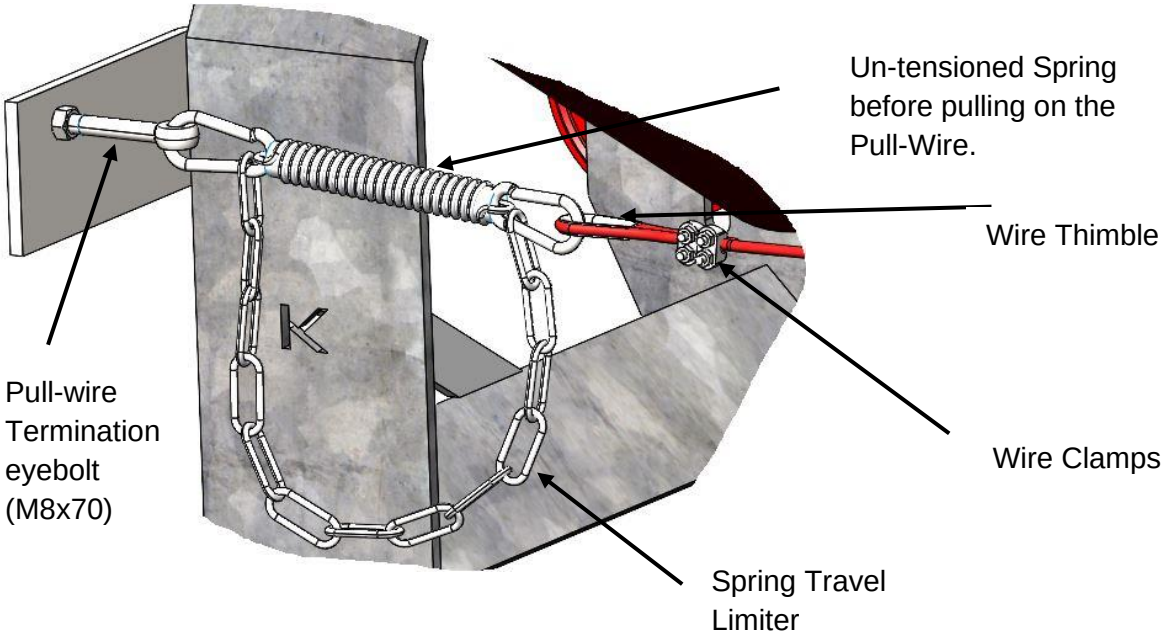
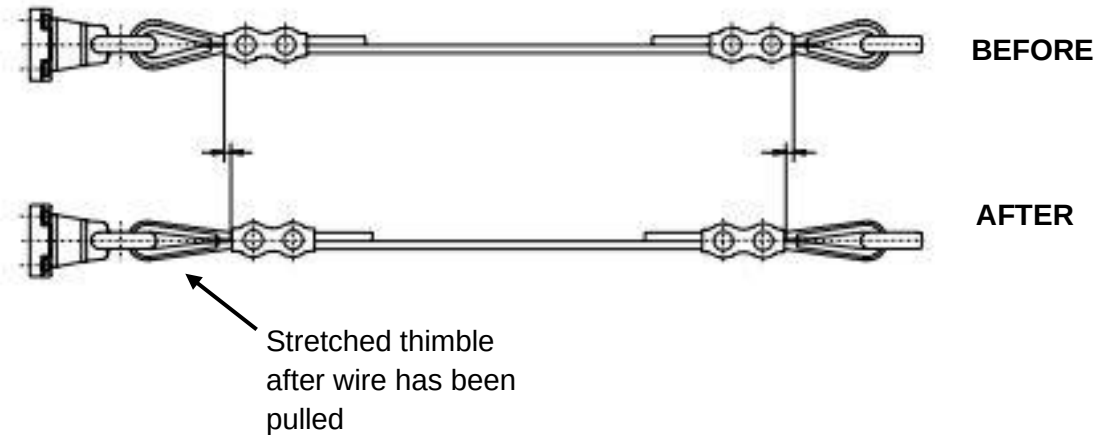


Compensation Spring Mounting

1. Mount the first pull-wire with compensation spring at the fixed point.



After fitting the wire, pull strongly on it several times, as the pull-wire and the wire thimble will deform as shown below. Subsequently re-tension wire clamps, eyebolt, and tensioner.



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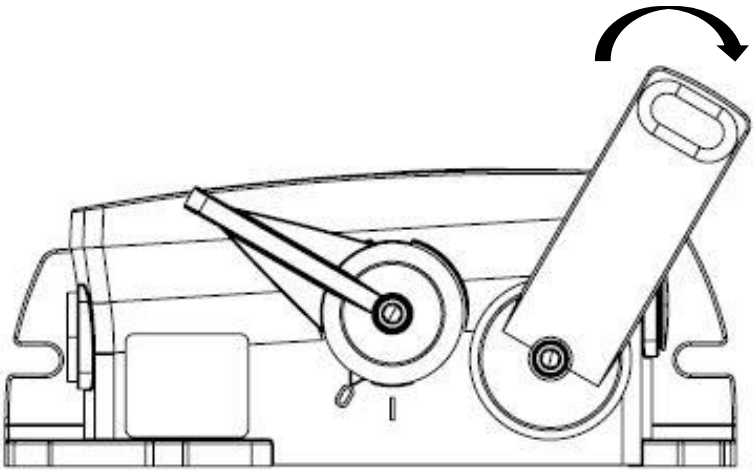
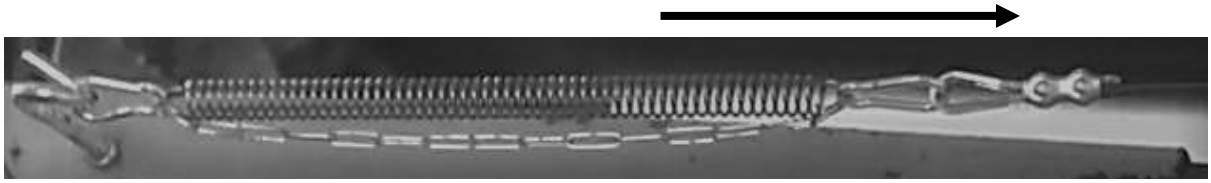
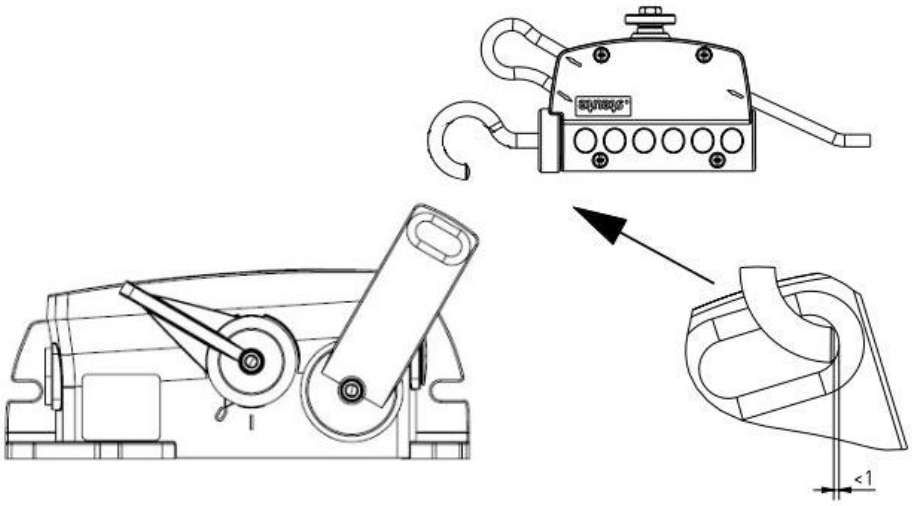
1.1 Move actuating lever in opposite direction:



1.2 Pull pull-wire until spring stops.



1.3 Tighten pull-wire with cable tensioner system so that it can still be fixed at the actuating lever. Do not fix pull-wire yet! The wire length is only being set at this stage.



Leave a 1mm gap between lever and Tensioner hook.

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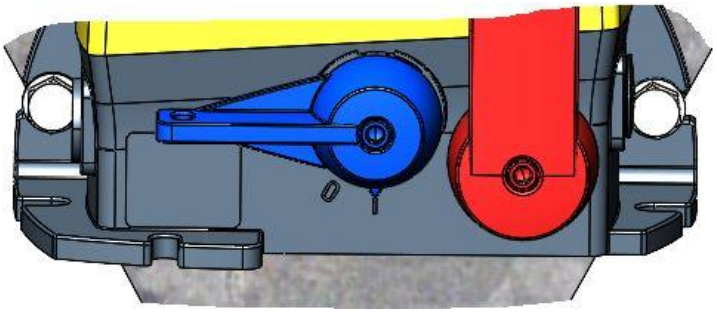
1.4 Reset switch by blue reset lever.



1 = Reset

0 = Pull-Wire Lever actuated.

1.5 Remove pull-wire.

2. Mount the second pull-wire with compensation spring at the fixed point.

2.1 Repeat points 1.1 to 1.5 for second pull-wire.

2.2 Fix the first pull-wire again and reset switch.

3. Functional test.

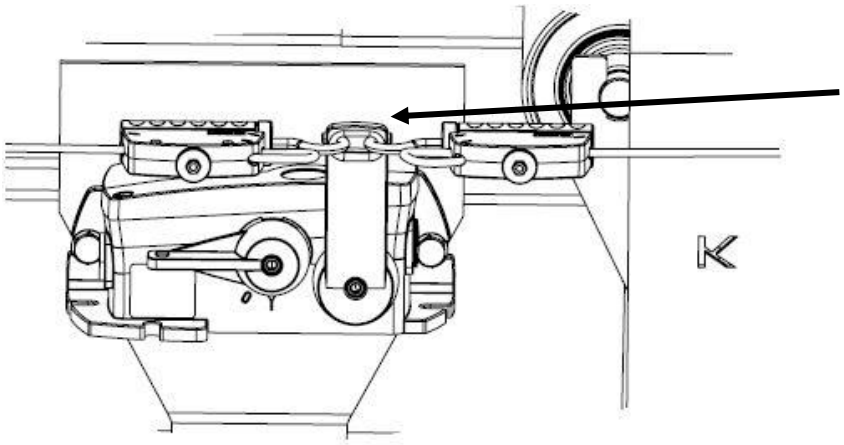
3.1 Check for both sides of the switch if the switch is actuated by pulling the pull-wires.

Actuating forces

Actuating lever approx. 30 N/1,600 N*

Reset lever approx. 40 N/1,200 N*

* Maximum permissible actuating force



Correctly tensioned pull-wires are shown. The actuating Lever must be in the centre position with both sides tensioned.

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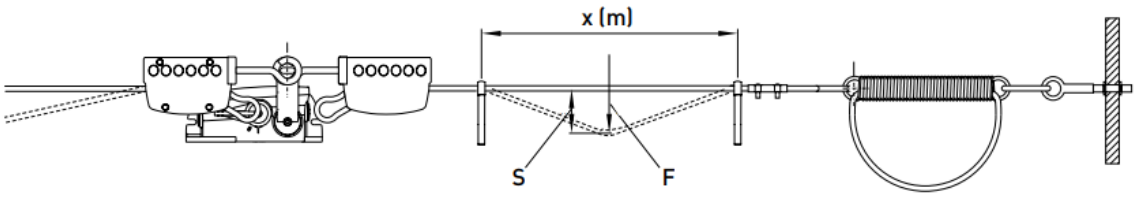
3.2 After mounting, check that the specifications of the relevant standards are complied with:

TS 65 Mounting Layout:



X – Pull-Wire Eye-bolt guides to be spaced out at 3m intervals

S – Pull-wire travel < 300 mm

F – Actuating Force < 70 N

OPERATION

- One-sided pulling or breaking of the pull-wire triggers the switching function of the emergency pull-wire switch and leads to contact-latching in the actuated position.
- The reset lever switches from switching position »1« (emergency pull-wire switch is active) to switching position »0« (safety circuit open, switch latched). In doing so, the NC contacts of the safety circuit have a positive break.
- When the reset lever is brought into switching position »1«, the emergency pull-wire switch switches back to active operation state. In doing so, the NC contacts are closed, and the actuating lever returns to middle position.

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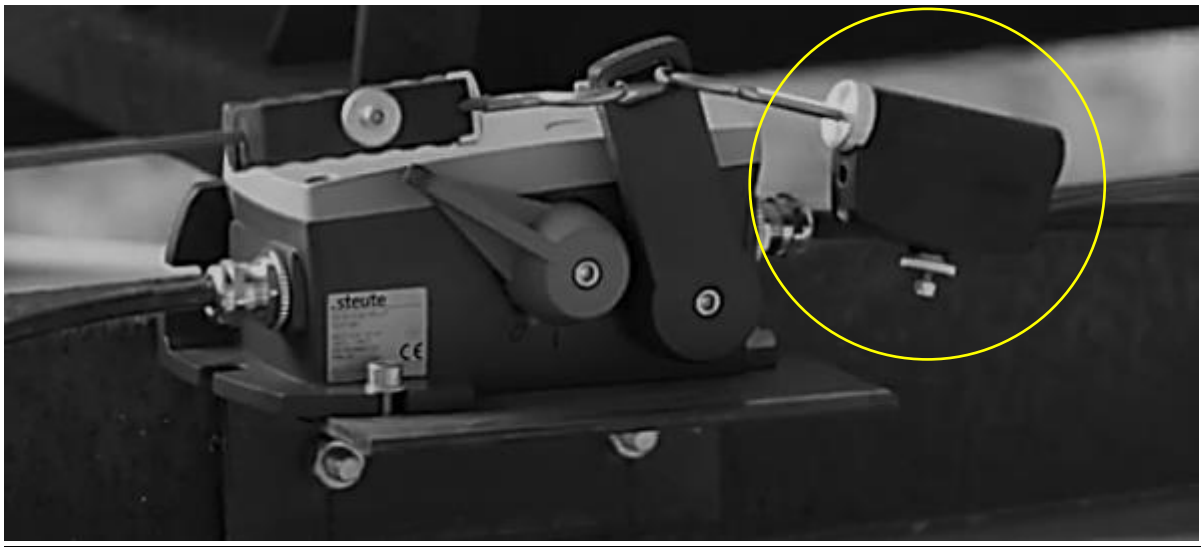
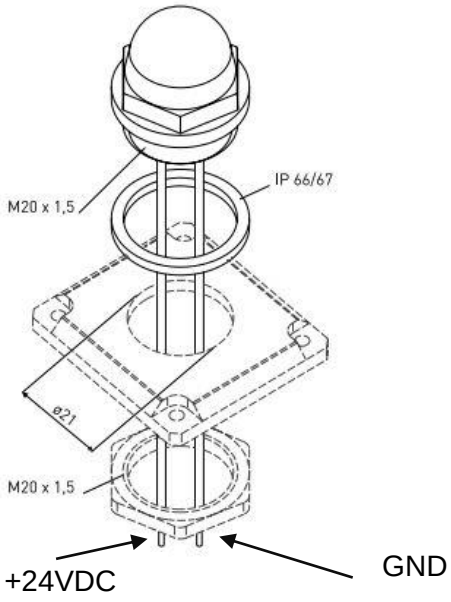
WIRE BREAKAGE DETECTION



If a Pull-wire breaks, the tension on the 2nd Pull-wire will activate the lever and stop the belt.

OPTIONAL LED INSTALLATION



Available LED Options:

- 24VDC/VAC
- 115VAC
- 230VAC

*NOTE

External power required to the positive wire. The negative wire is connected to the NO contact.

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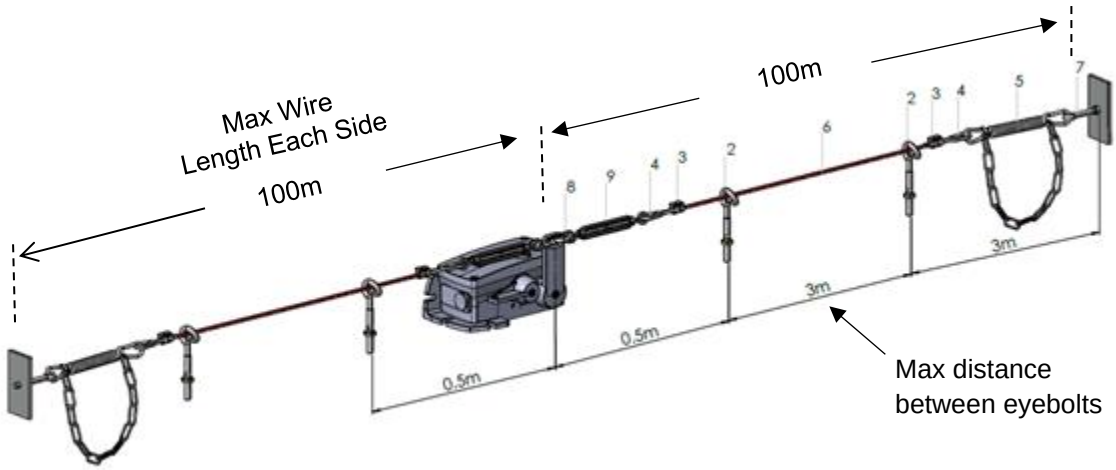
M6 TURNBUCKLE MOUNTING LAYOUT:



ITEM	DESCRIPTION	KINDER PART NO.	KINDER PART NO. (STAINLESS STEEL)
1	-	-	-
2	Eye bolt M10 x 120 with 2 nuts	PW-EYEBOLT-M10-120	-
3	Wire Clamp	PW-C	PW-C-SS
4	Wire Thimble 3mm	PW-T-RW-4	PW-T-RW-3-SS
5	Compensation spring ZS 90/91/92 S	PW-CS-ZS-90-91-92-S	PW-CS-ZS-90-91-92-S-SS
6	Pull-wire 1/m	PW-1	PW-SS-1
7	Eye bolt M8 x 70	PW-EYEBOLT-M8-70	PW-EYEBOLT-M8-70-SS
8	M6 D Shackle – Din 82101	FAS-M6-DSHACKLE	FAS-M6-DSHACKLE-SS
9	M6 Turnbuckle – Din 1480	FAS-M6-TURNBUCKLE	FAS-M6-TURNBUCKLE-SS

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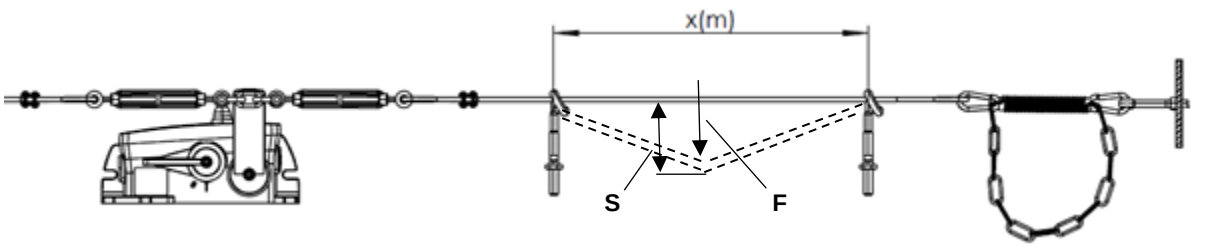

After mounting, check that the specifications of the relevant standards are complied with:

X – Pull-Wire Eye-bolt guides to be spaced out at 3m intervals

S – Pull-wire travel < 300 mm

F – Actuating Force < 70 N

OPERATION

- One-sided pulling or breaking of the pull-wire triggers the switching function of the emergency pull-wire switch and leads to contact-latching in the actuated position.
- The reset lever switches from switching position »1« (emergency pull-wire switch is active) to switching position »0« (safety circuit open, switch latched). In doing so, the NC contacts of the safety circuit have a positive break.
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MAINTENANCE PROCEDURE

1. Check for correct switch function by checking the pull-wire function and the wire-break detection.
2. Remove dirt around Actuating and Reset Lever.
3. Check sealing of the cable or conduit connection through the M20 cable entry points.
4. Check centre position of the actuator.
5. Check TS65 Tensioning system adjustment thimbles are tightened.

CLEANING:

⚠ WARNING!!

Live parts. Electric shock hazard! Clean in accordance with degree of protection IP65/66/67 (see product label)

1. Clean by hand with a hand brush or cloth. Use mild, non-scratching, non-chafing cleaners.
2. Do not use knives or sharp-edged tools.
3. Do not use any cleaning agents containing solvents.

⚠ WARNING

**Electric Shock hazard! Do not repair defective or damaged devices. Replace them.
Alternative: Repair of defective device by trained personnel in agreement with Steute and with Steute spare parts.**

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TECHNICAL DATA			
Applied standards	EN 60947-5-1, EN 60947-5-5, EN ISO 13850, EN ISO 13849-1, EN 620:2011-5.7.2.9, AS 1755-2000-2.7.9.1, AS/NZS 4024.3610:2015-2.10.6.2	**Cable entry**	2 x M25 x 1.5
Enclosure	Aluminium die-cast, corrosion-resistant, powder-coated, passivated, shock-proof, anthracite grey, similar to RAL 7016	**Rated impulse withstand voltage U_{imp}**	6 kV; with Si-Bus: 4 kV
Cover	Aluminium die-cast **or** Thermoplastic, corrosion-resistant, powder-coated, passivated, shock-proof, signal yellow, similar to RAL 1003	**Rated insulation voltage U_i**	400 V; with Si-Bus: 250 V
Actuating Lever	Aluminium die-cast, corrosion-resistant, powder-coated, passivated, shock-proof, signal red, similar to RAL 3001	**Conventional thermal current I_{the}**	6 A
Reset Lever	Aluminium die-cast, corrosion-resistant, powder-coated, passivated, shock-proof, sky blue, similar to RAL 5015	**Conditional short-circuit current**	1100 A
Screws	Stainless steel	**Rated operating current/voltage I_e/U_e**	6 A/400 VAC; with Si-Bus: 6 A/250 VAC
Tightening Torque	Cover screws: max. 2.5 Nm actuator screws: max. 6 Nm	**Utilisation category**	AC-15

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Installation Instructions - Emergency Pull-Wire Switch ZS 92 S / KST

Degree of protection	IP 66/67/69 to IEC/EN 60529	**Short-circuit protection**	6 A gG/gN fuse
B_{10d} (10% load)	100 000	**Mechanical life**	> 50 000 operations
T_M	Max. 20 years	**Max. wire length**	2 x 100 m
Contact material	Silver, with Si-Bus: silver, gold-plated	**Ambient temperature**	–40 °C … +85 ºC Si-Bus: with Si-Bus – 40°C ... +70°C; without Si-Bus –40°C ... +85°C
Switching system	Snap action, positive break NC contacts	**Degree of pollution**	3
Switching elements	2 NC/2 NO or 3 NC/1 NO contact, type Zb; Si-Bus: 2 NC contacts, type Zb	**Actuating force**	Actuating lever approx. 30 N; reset lever approx. 40 N
Connection	Screw connection terminals; with Si-Bus: screw connection terminals, basic strip to connect Dupline Safe input module with connector (see accessories)	**Indicator lamp**	As Option
Cable cross-section	0.5 ... 2.5 mm² (incl. conductor ferrules)	**Approvals**	

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