KIEPE ELEKTRIK

Belt Conveyor - Pull Rope Switch

HEN 221/231



APPLICATION

Kiepe pull rope emergency stop switches type HEN 221 and 231 are SafetyBus variants of Kiepe's proven bidirectional HEN type pull rope emergency stop switch. They are used in accordance with the requirements of EN 620 as well as BGI 710 and in conformity with DIN EN ISO 13850 as a supplementary safety measures on conveyor belt systems. The pull rope is symmetrical tensioned on both sides of the release lever. The devices are suitable for outdoor use and applications where the temperature varies considerably.

With the pull rope system functionally aligned, the emergency stop signal can be triggered over a distance of up to about 100 m for each switch.

The emergency stop signal is transferred by a SafetyBus module 100 over a 2-wire bus to a safety relay. Signal transfers can be economically implemented over long distances.

Kiepe pullrope emergency stop switches type HEN 221 and HEN 231 comply with the Machinery Directive 2006/42/EC and meet the safety requirements of the Low Voltage Directive 2006/95/EC.

They must only be used in combination with Dupline® safety relays in control circuits and require a Dupline® bus signal produced by a channel generator. (www.dupline.com).

Types HEN 221 and HEN 231 are equipped with a positive making normal close contact that returns the input signal for the SafetyBus.

Taking into consideration the safety data and maintenance recommendations, the pull rope emergency stop switches type HEN can be used with the SafetyBus module in safety circuits in accordance with DIN EN ISO 13849 up to performance level e (PL e).

FUNCTION

The pull rope emergency stop switch is actuated by a pull rope connected on both sides of the red trigger lever. The contacts are actuated by a spring supported cam disc (snap action function). The emergency stop signal is generated by a positive making NC contact that changes the state of the SafetyBus module 100.

Each SafetyBus module 100 receives its clocked and synchronized electrical supply, assigned to two addresses, via the digital pulse code of a channel generator.

The addressed signals are required for the safety query via a safety relay. The safety relay detects errors on the bus, inconsistencies in signal generation and signal change.

SafetyBus modules 100 and safety relays must be coordinated and programmed before installation.

After an emergency stop has been triggered, the switching mechanism is locked in the shut-off position „0".

When the reset lever is actuated in switch position „1", the switching contact is closed again and the bus module enables the safety relay again.

Resetting the pull rope emergency stop switch must not cause the conveyor system to start up.

TECHNICAL DATA

Designation	Pull-rope emergency stop switch type HEN 221 / 231 – Emergency stop device with latching function; SafetyBus design
Actuation	Bidirectional (pull rope on both sides of the switch); Spring-supported („snap action")
Complies with	DIN EN ISO 13850; DIN EN 60204-1; DIN EN 60947-5-5; DIN EN 60947-5-1; EN 620; BGI 710
To be used for	Controls and systems in accordance with DIN EN 60204
Mechanics	
Enclosure	Aluminium GK-AlSi 12
Finish	DD paint Enclosure - yellow, RAL 1004 Trigger lever - red, RAL 3000 Reset lever - blue, RAL 5010
Mounting	2 slotted holes for M8 screws
Installation position	Horizontal, tilt angle up to about 15°
Total length of pull rope	Up to about 100 m
Actuation force	30 N ± 10 N
Weight	1.8 kg
Electrical system	
Switching system	1 positive making gold plated NC switch contact Signal transfer via Dupline® SafetyBus module
Cable entry	Threaded holes 2x M25 x 1.5 with 1x screwed cable gland; sealing range Ø 11 mm to Ø 16mm; 1x dummy plug
Protective conductor connection	In the casing; M4
Contact reliability	220,000 operations
Connection cross section	max. 2.5 mm^2
Ambient conditions in accordance DIN EN 60947-5-5	
Permissible ambient temperature	- 25 °C ... + 70 °C
Protection	IP 67 according to EN 60529
Safety data in accordance with DIN EN ISO 13849, EN 61062 and IEC/EN 61508	
Safety functions	Emergency stop incl. latching Manual reset
Average B10d service life	24.000 actuations
PFH* - Dupline® SafetyBus module *Probability of dangerous Failure per Hour	5,9 x 10^{-9} / h

SELECTION TABLE

Type	Dupline® SafetyBus module	Order number
HEN 221	not included	91.043 450.221
HEN 231	included	91.043 450.231
Spare parts and accessories:		
Screwed cable gland M25 x 1,5 (sealing area 11mm to 16mm)		113.52.02.20.01
Screw plug M25 x 1,5		113.52.87.20.02
Replacement cover including seal and screws		93.066 839.004
Dupline® SafetyBus module		367.07.01.04.23

MOUNTING

Pull rope emergency stop switches of type HEN 221 and 231 are each fastened to the substructure in installation position with two M8 screws, centered between the anchor hook 3 of the pull rope system (see the mechanical mounting diagram).

The SafetyBus module [100] must be programmed before the electrical installation. Programming is performed according to the requirements of Dupline® Carlo Gavazzi (www.dupline.com)

After programming is complete, the electrical connection is made via the 2-wire bus line with the screwed cable gland (included with delivery) to the terminals in the pull rope emergency stop switch.

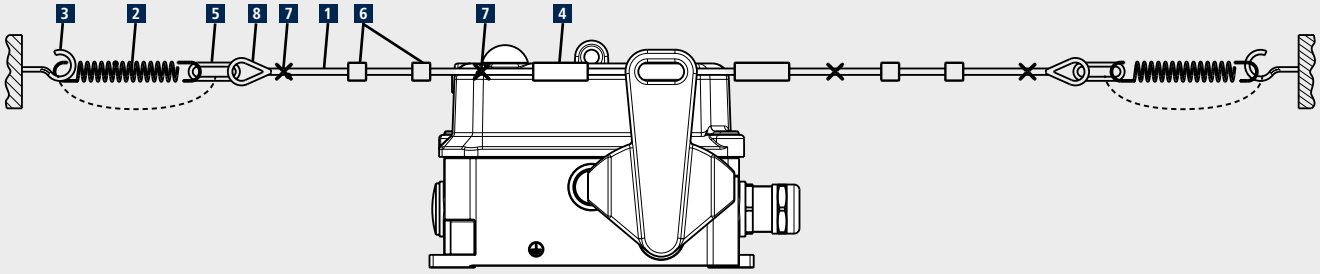
The pull rope 1 is tensioned by tension springs 2 between the anchor hooks 3 and fastened onto the trigger lever.

After the tension springs 2 have been adjusted, the actuation force and path for triggering the switch must be tested to ensure compliance with specified requirements.

Note:
A channel generator and a safety relay are required for proper operation and power supply of the bus modules.

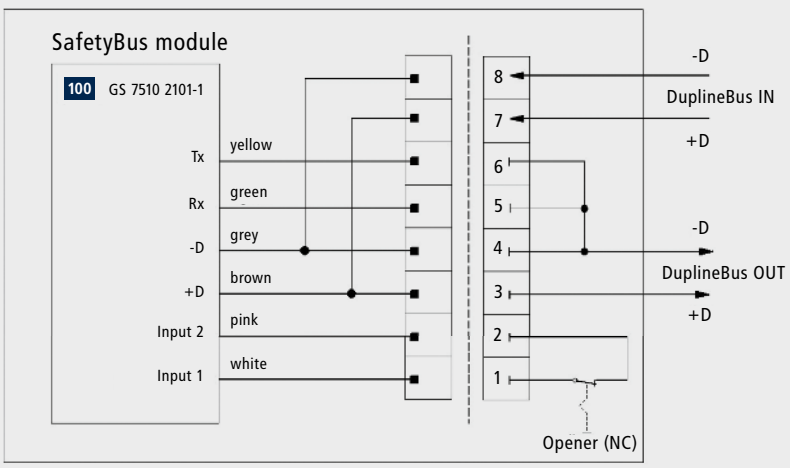
(more Information at www.dupline.com)

MOUNTING DIAGRAM



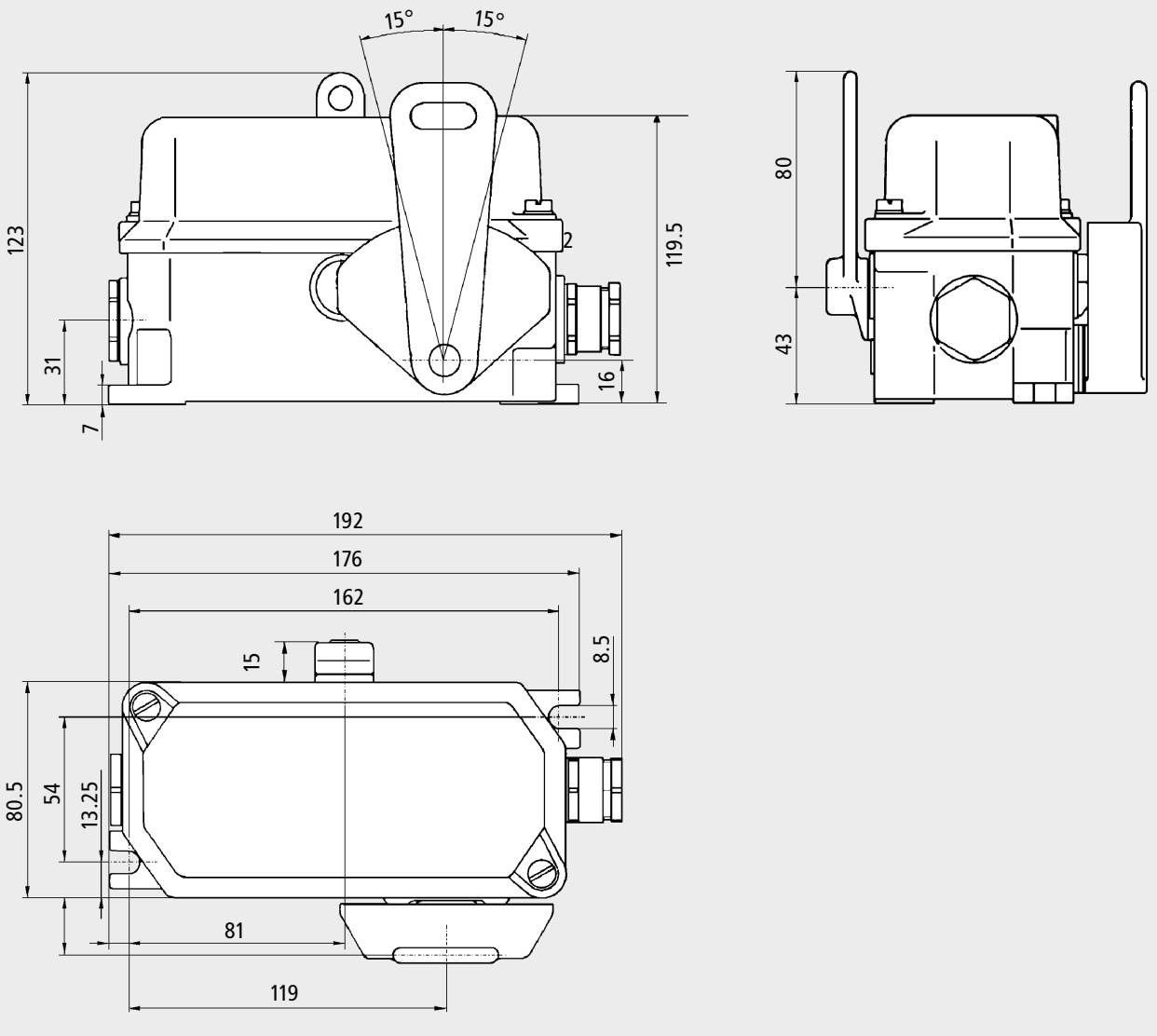
1 Pull rope
2 Tension spring
3 Anchor hook
4 Turnbuckle
5 Quick link
6 Rope support
7 Clamp
8 Thimble

CONNECTION DIAGRAM



HEN 231 - activated position "1"

DIMENSIONS



Subject to change without notice.

Vertrieb Schweiz
APS systems AG
Neumatt 4
4626 Niederbuchsiten
Schweiz

Tel. +41 (0) 62 517 88 33
Web www.kiepe-elektrik.ch
Mail info@kiepe-elektrik.ch

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