

Emergency Stop Grab Wire Safety Switch LineStrong3



Approvals:



Application:

- Machines
- Transportation lines

Features:

- Duplicate extraction in two directions
- Up to 250 m length
- Up to IP69K
- Integrated emergency stop button
- 4NC + 2NO
- EX version

Switch operational description

LineStrong3 is an emergency stop grab wire safety switch used for easy reach of an emergency stop along machines, conveyors and processes. LineStrong3 is a quite robust switch that can handle long wires, up to 250 meters on a single switch. A grab wire emergency stop is easier to install than a system of several emergency stop buttons along a carriage path. LineStrong3 can be used as protection, for example along conveyors, with low risks where the wire can be installed at waist height in front of the conveyor, which provides an emergency stop if someone walks or falls towards the conveyor.

LineStrong3 has double switching in both directions of the wire. If someone pulls the wire or if the wire is broken, the switch goes to a safe state, e.g. the machine is stopped.

After a safe state the LineStrong3 needs to be reset to be able to run again and this is made on the local reset button. Additional features on the LineStrong3 is a "normal" emergency stop fitted on the top of the grab wire safety switch and also a two coloured LED for indication.

LineStrong3 is equipped with an indication of how taut the wire is, which make the installation and adjustment easy.

Material

Depending on the environment where the switch will be used, different materials can be chosen for the LineStrong3. The basic version has a rugged yellow die cast housing with a rating of IP67. In severe applications as for food processing and chemical industry, there is a LineStrong3Z with a total

rugged stainless steel 316 body. This version has IP69K enclosure protection (maintained by a double seal lid gasket and seals) and can be high pressure hosed with detergent at high temperature.

Positive forced disconnected contacts

A positive forced contact provides a forced disconnect of the safety contacts when the wire is being pulled or broken. The design of the LineStrong3 ensures that the contacts will not fail or be held in a normally closed position, due to failure of the spring mechanism or that welding/sticking of the contacts can occur. The LineStrong3 switch has 4NC and 2NO.

Safety level

The forced disconnected contacts provide a high level of safety. To achieve a maximum safety level in the connection with the machine control system, it is recommended that the LineStrong3 is monitored by an appropriate ABB Jokab Safety safety relay, Pluto safety-PLC or a Vital system.

Explosion Proof version (X)

LineStrong3 also exist in versions with certified explosion proof contact block (X-versions). LineStrong3LZX/RZX/DZX have a stainless steel body and can be used in European Zone 1, 2, 21, 22 environments (Gas and Dust). Preassembled with 3 meter cable.

Regulations and Standards

The LineStrong3 is designed and approved in accordance to relevant standards. Examples of relevant standards are IEC/EN 60947-5-1, IEC/EN 60947-5-5, EN 62061, UL 508, EN ISO 13850 and EN ISO 13849-1.

Single Wire

LineStrong3L/3R and LineStrong3LZ/3RZ

LineStrong3L/3R - Standard version

The LineStrong3L/3R are two different versions depending on installation.

L - "Left hand" - is the version of LineStrong3 where the placement of the grab wire switch is to the left in the installation.

R - "Right hand" - is the version of LineStrong3 where the placement of the grab wire switch is to the right in the installation.

Both versions have die-cast housings and are robust to severe indoor or outdoor use. LineStrong3L/3R are designed to protect a length up to 100 meters on a single switch. If two switches are used together, up to 125 meters. A two colour LED ensures switch status can be seen easily from a distance. They have 4NC and 2NO contacts to ensure flexibility with all modern control application.

LineStrong3LZ/3RZ - Stainless steel version

The LineStrong3LZ/3RZ are two stainless steel switches with different installations possibilities.

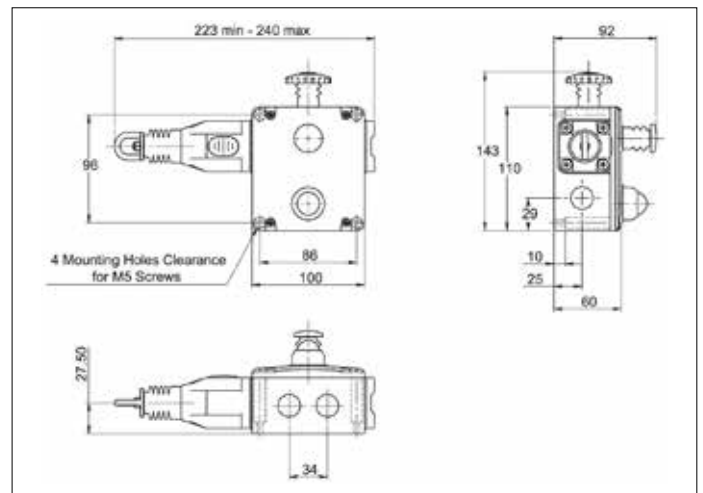
L - "Left hand" - is the version of LineStrong3Z where the placement of the grab wire switch is to the left in the installation.

R - "Right hand" - is the version of LineStrong3Z where the placement of the grab wire switch is to the right in the installation.

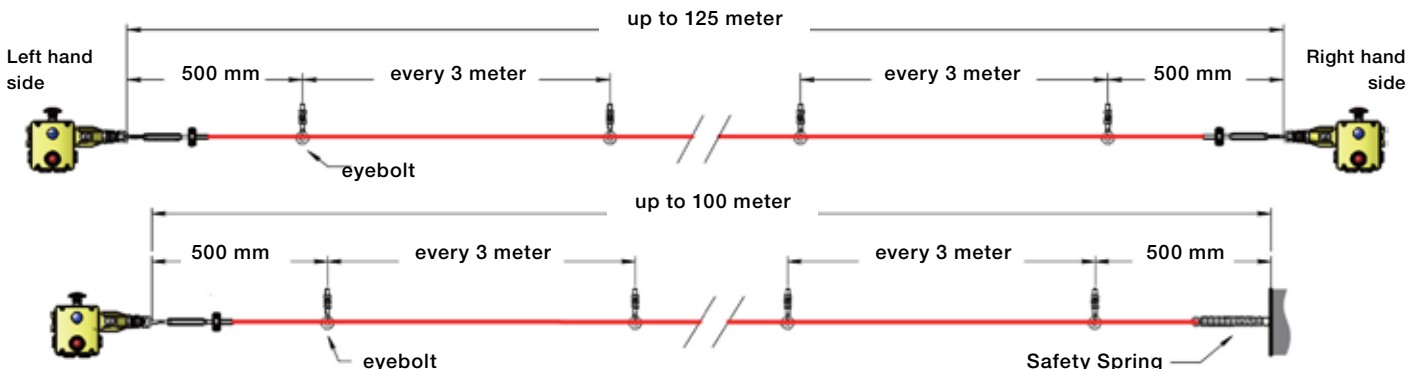
Both versions are in stainless steel 316 housings and are designed specifically to withstand the tough environments found in the food and pharmaceutical industries. LineStrong3LZ/3RZ are designed to protect a length up to 100 meters on a single switch. If two switches are used together, up to 125 meters. A two colour LED ensures switch status can be seen easily from a distance. They have 4NC and 2NO contacts to ensure flexibility with all modern control application.

Left hand

Right hand



Dimensions LineStrong3L/R and LineStrong3LZ/RZ



Double Wire LineStrong3D and LineStrong3DZ

LineStrong3D - Standard version

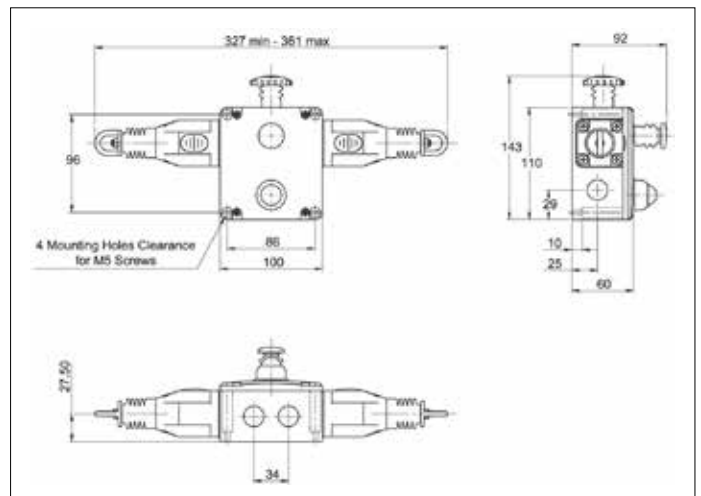
The Linestrong3D is a third version of the Linstrong3. With wire entries from both sides of the grab wire switch, LineStrong3D can be used for a long protection length. The LineStrong3D has a die-cast housing and is robust to manage severe indoor or outdoor use. LineStrong3D is designed to protect a length up to 200 meters on a single switch. If several switches are used together, it will be possible with a length up to 125 meters between the switches. A two colour LED ensures switch status can be seen easily from a distance. LineStrong3D have 4NC and 2NO contacts to ensure flexibility with all modern control application.



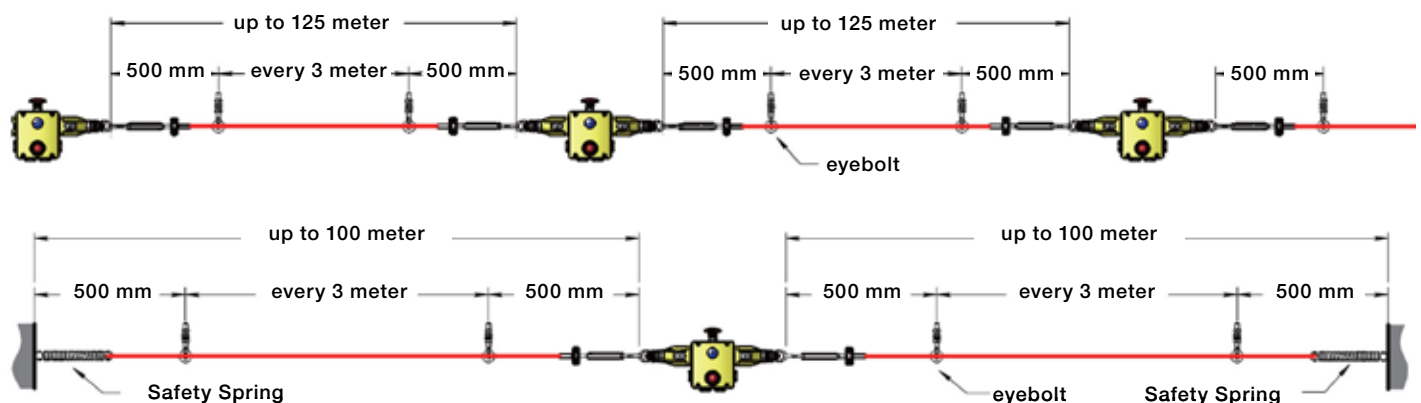
LineStrong3DZ - Stainless steel version

The Linestrong3DZ is a third version of the Linstrong3Z. As a stainless steel version with wire entries on both sides of the grab wire switch, LineStrong3DZ can be used for a long protection length.

The LineStrong3DZ has stainless steel 316 housing and is designed specifically to withstand the tough environments found in the food and pharmaceutical industries. LineStrong3DZ is designed to protect a length up to 200 meters on a single switch. If several switches are used together it will be possible with a length up to 125 meters between the switches. A two colour LED ensures switch status can be seen easily from a distance. LineStrong3DZ have 4NC and 2NO contacts to ensure flexibility with all modern control application.



Dimensions LineStrong3D and LineStrong3DZ



Technical data – LineStrong3 series

Article number	
LineStrong3L	2TLA050206R0332
LineStrong3R	2TLA050208R0332
LineStrong3LZ	2TLA050206R0322
LineStrong3RZ	2TLA050208R0322
LineStrong3LZX (EX)	2TLA050204R7125
LineStrong3RZX (EX)	2TLA050206R7125
LineStrong3D	2TLA050204R0332
LineStrong3DZ	2TLA050204R0322
LineStrong3DZX (EX)	2TLA050208R7125
Level of Safety	
EN ISO 13849-1	Up to PL e, Cat. 4 depending upon system architecture
EN 62061	Up to SIL3 depending upon system architecture
Safety data	
Mechanical reliability B_{10d}	1.5×10^6 operations at 100mA load 21 years
Proof test interval (life) $MTTF_d$	214 years (8 cycles per hour/24 hours per day/365 days)
Wire span	
LineStrong3L/R/LZ(X)/RZ(X)	Up to 125 m
LineStrong3D/DZ(X)	Up to 250 m
Wire tension device	
	Tensioner / Gripper- Quick Fixing
Wire type	
	PVC sheath steel wire 4.0 mm outside diameter
Torque settings	
	Mounting M5 4.0Nm, Lid T20 Torx M4 1.5Nm, Terminals 1.0Nm
Termination	
	Clamp up to 2.5 mm ² conductors
Tension force (typical mid setting)	
	130N
Tension operating force (wire pulled)	
	< 125N < 300 mm deflection
Short circuit overload Protection	
	Fuse externally 10A (FF)
Rated insulation/withstand voltages	
	500VAC / 2500VAC
Utilisation category	
	AC15 A300 3A
Vibration resistance	
	10-500Hz 0.35 mm
Shock resistance	
	15 g 11 ms
Thermal current (I_{th})	
	10A
LED	
	24 VDC
Contact type	
	IEC/EN 60947-5-1 double break Typ Zb snap action
Contact material	
	Silver
Conduit entries	
	4 x M20 x 1.5
Enclosure classification	
LineStrong3D/L/R	IP67
LineStrong3LZ(X)/RZ(X)/DZ(X)	IP69K and IP67
Ambient temperature:	
LineStrong3L/R/D	-25°C to +80°C
LineStrong3LZ(X)/RZ(X)/DZ(X)	-25°C to +80°C (100°C cleaning)
Enclosure material/cover:	
LineStrong3L/R/D	Die cast painted yellow
LineStrong3LZ(X)/RZ(X)/DZ(X)	stainless steel 316
Mounting position	
	Any
Mounting bolts	
	4 x M5
Explosion Proof version (X)	
Classification	Ex d IIC T6 (-20°C ≤ Ta ≤ +60°C) Gb Ex tb IIIC T85°C (-20°C ≤ Ta ≤ +60°C) Db
Rated Voltage	250V AC/DC
Rated Current	2 pole 4A 4 pole 2.5A