

# Line Strong Series - Grab wire safety rope switches



**Heavy Duty Dual Head**  
Type: Line Strong 3D

**Heavy Duty Dual Head**  
Type: Line Strong 3DZ

**Heavy Duty Dual Head**  
Type: Line Strong 3L - 3R



**General Duty**  
Type: Line Strong 2Z (Stainless Steel)



**General Duty**  
Type: Line Strong 2

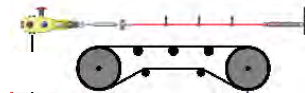


**General Duty**  
Type: Line Strong 1

## Application:

Safety Rope Emergency Stop switches are mounted on machines and sections of plant conveyors which cannot be protected by guards. In contrast to traditional mushroom head type Emergency Stop buttons, Safety Rope Switches can initiate the emergency command from any point along the installed rope length.

In combination with any dual channel safety monitoring controller, ABB Jokab Safety Rope Systems can be used as emergency stop devices and monitored for up to Category 4 / Ple to ISO 13849.



## Operation:

All ABB Jokab Safety Rope Emergency stop switches conform to European Standard ISO 13850 (EN418) and IEC 947-5-5. They have a positive mechanical linkage between the switch contacts and the wire rope as per IEC 947-5-1. The emergency stop switches are brought into the operational condition by pre-tensioning the rope by use of a tensioner / gripper device which clamps the rope and then hooks to the switch eyebolts. Correct tension can be observed by viewing the tension indicator on the switch housing. Once tensioned, the switch contact blocks can be set to the operational condition (safety contacts closed, auxiliary contacts open) by pressing a blue reset button on the switch cover. All of the Safety Rope Switches have wire-breaking monitoring. On pulling or breakage (tension loss) of the rope, the safety contacts are positively opened and the auxiliary contacts are closed. The switches are mechanically latched and can then only be returned to the operational condition by pressing the reset button a required by EN418, (ISO 13850).

## Features:

LED visual indication of Rope status: Steady Green – Machine running  
Steady or Flashing Red – Machine stopped.



Rugged die-cast metal body - Yellow colour

Stainless steel 317 Housings are available (Z versions) - ideal for the food industry

All internal and external screws and fittings are Stainless Steel

Enclosure protected to IP67 - washdown suitable (IP69K on Stainless Steel Versions)

Easy to wire – up to 4 conduit entries

A patented Tensioner / Gripper accessory is available in Stainless Steel to provide rapid installation significantly reducing installation connection to the switch eyebolts and prevents frequent re-tensioning or maintenance caused by cable tension loss, therefore reducing machine down time.



Screw fitting mushroom type E Stop Button



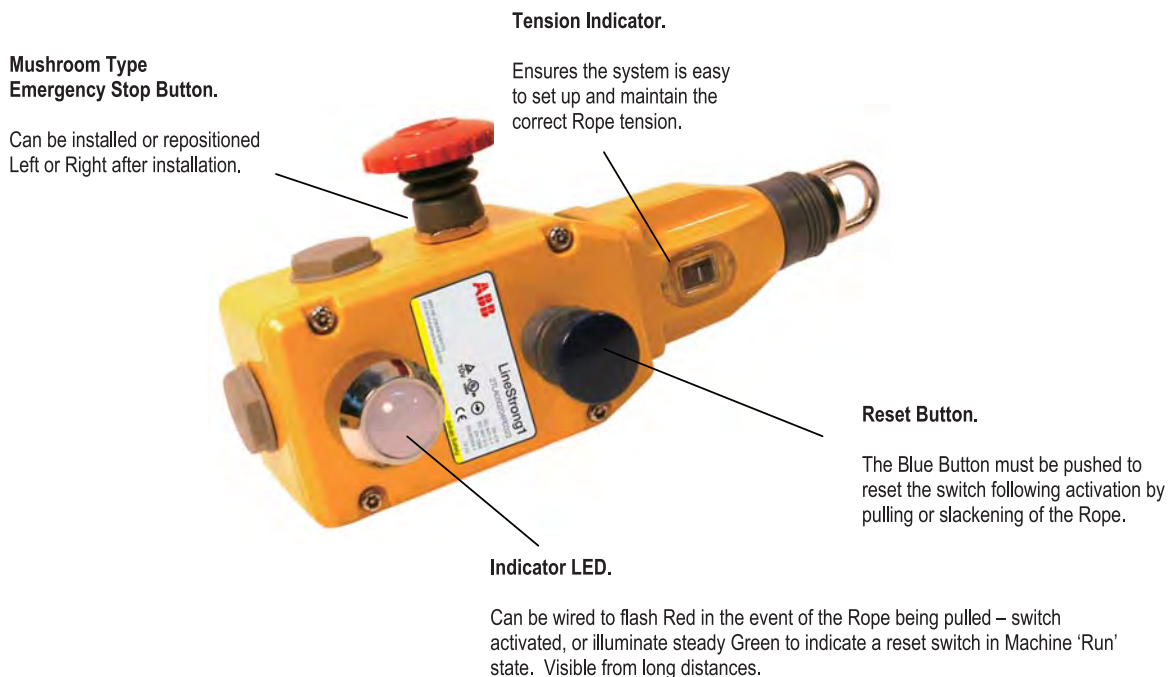
# Using safety rope switches

## Use of Safety Rope Switches.

ABB Jokab Safety Line Strong switches are designed to be mounted on machines and sections of conveyors which cannot be protected by guards. In contrast to traditional mushroom head type Emergency Stop buttons, Safety Rope Switches can initiate the emergency command from any point along the installed rope length and provide robust Emergency Stop Rope Pull protection for exposed conveyors or machines.

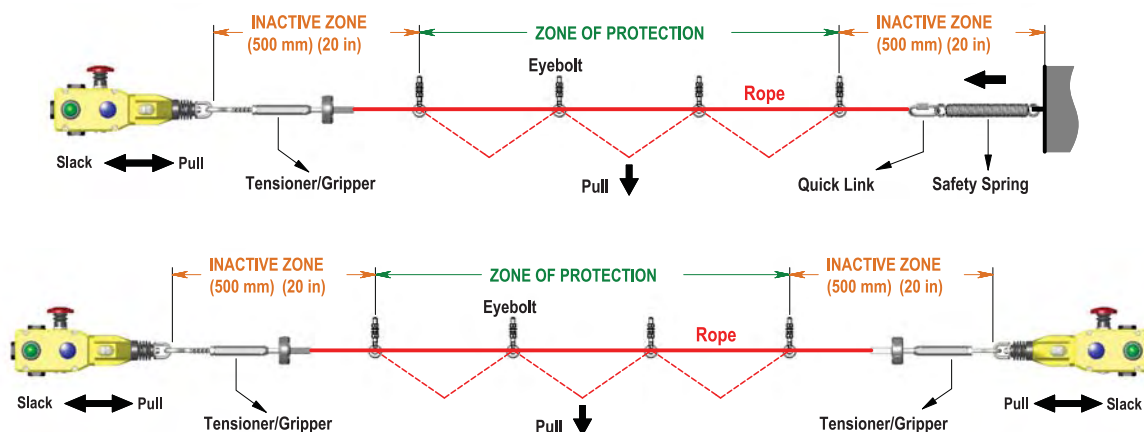
In combination with a dual channel safety monitoring relay, ABB Jokab Safety Rope Systems can be used as emergency stop devices monitored for up to Category 4 to EN 954-1 or PLe ISO13849-1. All ABB Jokab Safety Rope Emergency stop switches conform to ISO13850 and IEC 947-5-5. They have a positive mechanical linkage between the switch contacts and the wire rope. The switches have wire-breaking monitoring.

On pulling the rope the safety contacts are positively opened and the auxiliary contacts are closed. The switches are mechanically latched and can then only be returned to the operational condition by a pressing the blue reset button as required by ISO13950. An optional 2 colour LED indicator is available to enable switch status to be viewed from a distance.



## System set up:

Rope support eyebolts must be fitted at 2.5 m. min. to 3m. maximum intervals along all rope lengths between switches. The rope must be supported no more than 500mm from the switch eyebolt or Safety Spring (if used). It is important that this first 500mm is not used as part of the active protection coverage. When using one switch the rope must be anchored at the other end using a Safety Spring. When using a Safety Spring a maximum of one corner pulley only may be used to ensure complete lengths of rope are visible to either the switch or the spring anchorage.

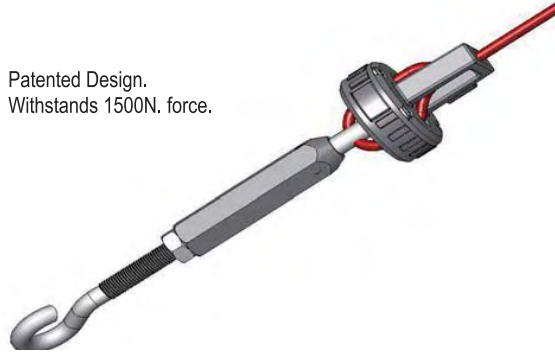


# Using safety rope switches

## Reliable connectivity:

Tensioning of rope is achieved by the use of ABB Jokab Safety's new patented Tensioner / Gripper accessory. Traditional turnbuckle and and clamp systems are difficult to tension and adjust and frequent re-tensioning or maintenance is normally required of either the turnbuckle or the clamps. Viewing of the switch tension window is difficult.

For greater reliability and ease of installation the Tensioner / Gripper accessory significantly reduces the installation time by offering an eyehook and tensioner thimble and high strength gripper in one assembly to enable rapid connection to the switch eyebolts and fast and accurate tensioning of the Rope. By being in close proximity to the switch viewing window systems can be easily tensioned accurately and quickly. The double clamp mechanism prevents rope slippage and significantly reduces machine 'down time' which can occur with traditional turnbuckle systems.

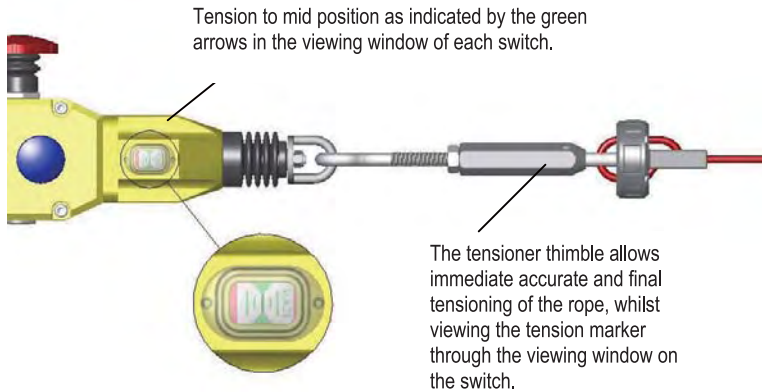


Patented Design.  
Withstands 1500N. force.

The end of the safety rope is fed through a central hole in a cone shaped guide which protrudes from the main housing.

After being fed through the guide hole the rope enters the main housing by going through a feed hole and then is looped back through 180 degrees and is fed through a second feed hole on the opposite side of the mechanism.

The rope is then pulled for maximum tension and is locked in position by a locking bar inside the main housing which is moved by turning an Allen type locking bolt.



Tension to mid position as indicated by the green arrows in the viewing window of each switch.

The tensioner thimble allows immediate accurate and final tensioning of the rope, whilst viewing the tension marker through the viewing window on the switch.



For systems up to 50m. a Quick Link termination is provided for easy connection to either a Safety Spring or Switch eyebolt.

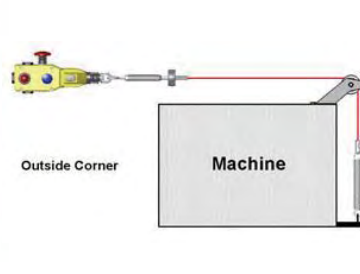
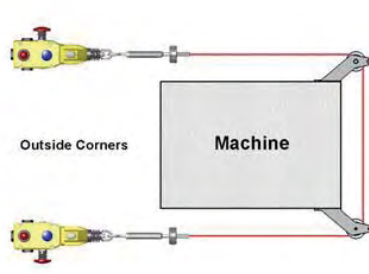
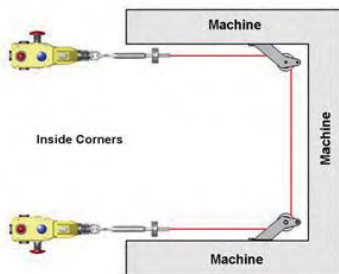


(Note for systems above 50m. a Tensioner / Gripper is required each side).

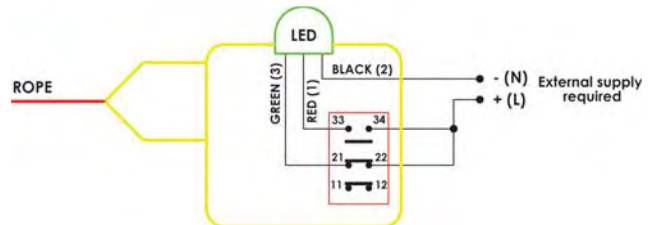
## Navigating Corners:

Because of the added friction on the eyebolts and rope when navigating corners, ABB Jokab Safety's unique "universal" pulley can be used to navigate inside or outside corners without causing damage to the rope. They are stainless steel and can be rigidly mounted.

## Examples of using the Universal Pulley:



## WIRING DIAGRAM FOR LED



# Line Strong 1 Mini-duty switches

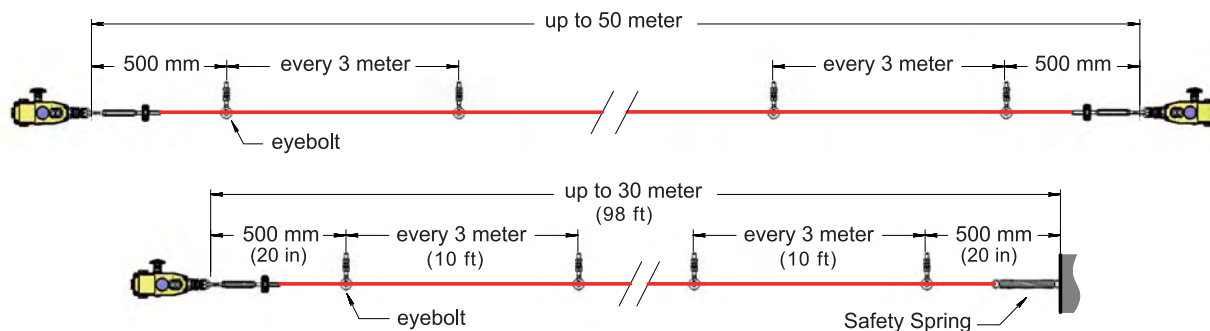
## Protection up to 50 meters



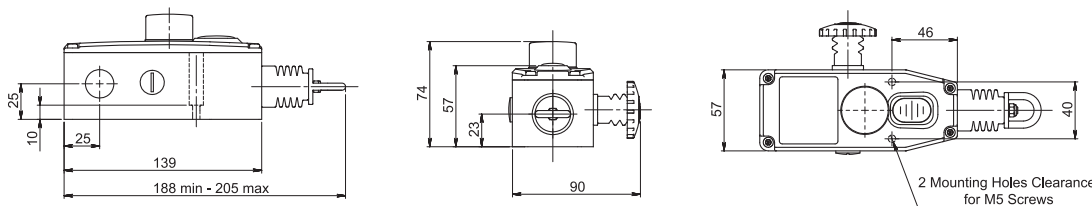
Line Strong 1 is a compact, yet robust die-cast Mini Duty SafetyReop Pull switch designed to protect short conveyor lengths where protection is required up to 50m using two switches or up to 30m using a single switch.

They provide reliable, cost effective safety solutions for conveyor systems and can be enhanced by adding external mushroom Type E Stope at the switch or bi-color LED available to show switch status from a distance.

They have 4 pole contact to ensure flexibility with all modern control applications. Rugged integral sealing bellows means they can be high pressure hoses.



It is recommended when using a Safety Spring that a maximum of one corner pulley is used.



All Dimensions in mm

Standards: IEC 947-5-1 IEC947-5-5 EN954-1 EN62061  
UL508 ISO13850 ISO13849-1

### Safety Classification and Reliability Data:

Mechanical Reliability B10d	1.5 x 10 <sup>6</sup> operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PfHd	<1.0 x 10 <sup>-7</sup>
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure Material	Die Cast Painted Yellow
IP Rating	IP67 (NEMA 6)
Rope Span	up to 50m.
Rope Tension device	Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel Inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	3 x M20 or 3 x 1/2" NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	700g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 2NC (Positive break) 2NO (Auxiliary)
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category: AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

### Line Strong 1

2TLA050200R0030	LineStrong1, 2NC/2NO, M20
2TLA050200R1030	LineStrong1, 2NC/2NO, NPT
2TLA050200R0130	LineStrong1, 2NC/2NO, M20, ESTOP
2TLA050200R1130	LineStrong1, 2NC/2NO, NPT ESTOP
2TLA050200R0232	LineStrong1, 2NC/2NO, M20 LED 24VDC
2TLA050200R1232	LineStrong1, 2NC/2NO, NPT LED 24VDC
2TLA050200R0233	LineStrong1, 2NC/2NO, M20 LED 110VAC
2TLA050200R1233	LineStrong1, 2NC/2NO, NPT LED 110VAC
2TLA050200R0234	LineStrong1, 2NC/2NO, M20 LED 230VAC
2TLA050200R1234	LineStrong1, 2NC/2NO, NPT LED 230VAC
2TLA050200R0332	LineStrong1, 2NC/2NO, M20 ESTOP/LED 24VDC
2TLA050200R1332	LineStrong1, 2NC/2NO, NPT ESTOP/LED 24VDC
2TLA050200R0333	LineStrong1, 2NC/2NO, M20 ESTOP/LED 110VAC
2TLA050200R1333	LineStrong1, 2NC/2NO, NPT ESTOP/LED 110VAC
2TLA050200R0334	LineStrong1, 2NC/2NO, M20 ESTOP/LED 230VAC
2TLA050200R1334	LineStrong1, 2NC/2NO, NPT ESTOP/LED 230VAC

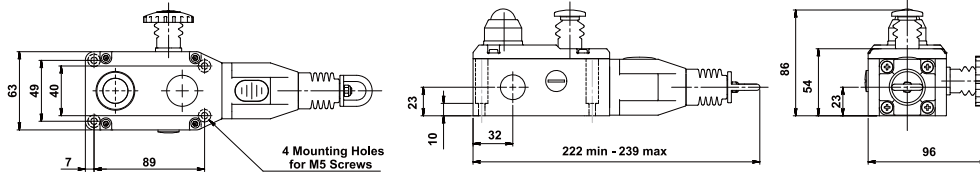
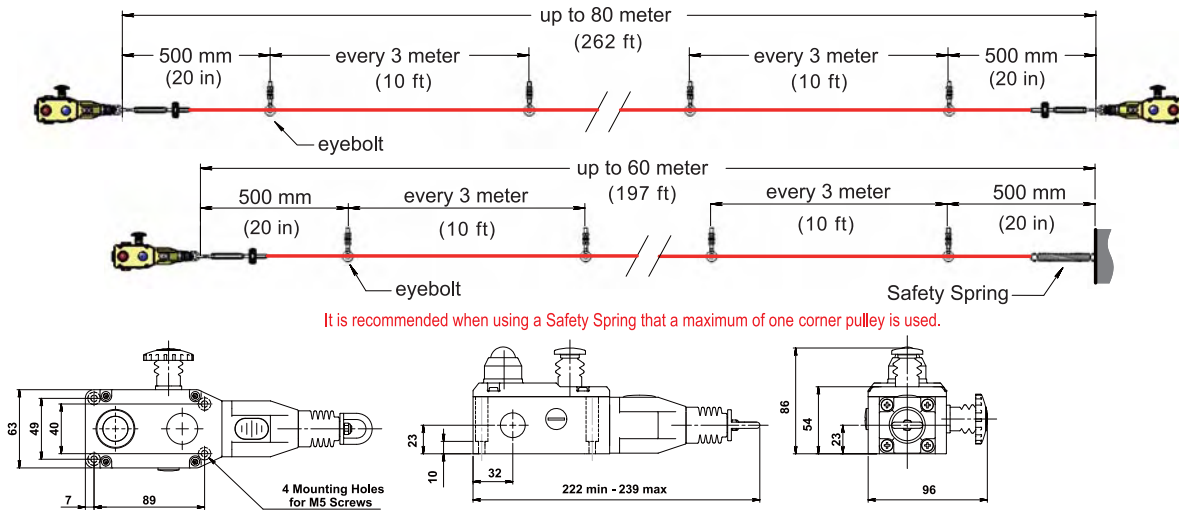
For all ABB Jokab Safety Rope Switches, the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

# Line Strong 2 Standard duty switches

## Protection up to 80 meters

Line Strong 2 is a General Duty robust die-cast Safety Rope Pull switch designed to protect conveyor lengths where protection is required up to 80m using two switches or up to 60m using a single switch. They provide a reliable general purpose safety solution for conveyors and offer a choice of fittings depending upon the application. They can be supplied with a mushroom type emergency Stop button which can be fitted to the side of the switch to offer an extra traditional Emergency Stop function close to the switch or can be fitted later after installation without any extra wiring.

A Bi-color LED is available to show switch status from a distance and they have 4 pole contact blocks to ensure flexibility with all modern control applications. Rugged integral sealing bellows means they can be high pressure hosed and the choice of materials makes them suitable for inside or outside use.



Standards: IEC 947-5-1 IEC947-5-5 EN954-1 EN62061  
UL508 ISO13850 ISO13849-1

### Safety Classification and Reliability Data:

Mechanical Reliability B10d	1.5 x 10 <sup>6</sup> operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFDd	<1.0 x 10 <sup>-7</sup>
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Die-Cast – Painted Yellow
External Parts	Stainless Steel
IP Rating	IP67 (NEMA 6)
Rope Spans	Up to 80m.
Rope Tension device	Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	3 x M20 or 3 x ½" NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	820 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 2NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category: AC15
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

### Line Strong 2

2TLA050202R0030	LineStrong2, 2NC/2NO, M20
2TLA050202R1030	LineStrong2, 2NC/2NO, NPT
2TLA050202R0232	LineStrong2, 2NC/2NO, M20 LED 24VDC
2TLA050202R1232	LineStrong2, 2NC/2NO, NPT LED 24VDC
2TLA050202R0233	LineStrong2, 2NC/2NO, M20 LED 110VAC
2TLA050202R1233	LineStrong2, 2NC/2NO, NPT LED 110VAC
2TLA050202R0234	LineStrong2, 2NC/2NO, M20 LED 230VAC
2TLA050202R1234	LineStrong2, 2NC/2NO, NPT LED 230VAC
2TLA050202R0130	LineStrong2, 2NC/2NO, M20, ESTOP
2TLA050202R1130	LineStrong2, 2NC/2NO, NPT ESTOP
2TLA050202R0332	LineStrong2, 2NC/2NO, M20 ESTOP/LED 24VDC
2TLA050202R1332	LineStrong2, 2NC/2NO, NPT ESTOP/LED 24VDC
2TLA050202R0333	LineStrong2, 2NC/2NO, M20 ESTOP/LED 110VAC
2TLA050202R1333	LineStrong2, 2NC/2NO, NPT ESTOP/LED 110VAC
2TLA050202R0334	LineStrong2, 2NC/2NO, M20 ESTOP/LED 230VAC
2TLA050202R1334	LineStrong2, 2NC/2NO, NPT ESTOP/LED 230VAC

For all ABB Jokab Safety Rope Switches, the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

# Line Strong 2Z Standard duty switches

## Protection up to 100 meters

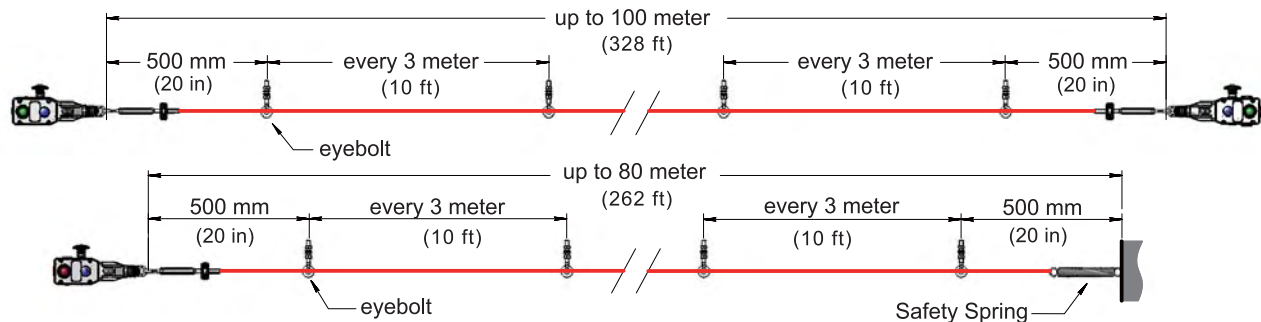


The Line Strong 2Z is a General Duty Safety Rope Pull switch designed to protect long conveyor lengths up to 100m. The Stainless Steel 316 housings are designed specifically to withstand the tough environments found in the Food and Pharmaceutical Industries. The fixing holes are under the cover of the switch to prevent food trap areas. They are all purpose switches and will survive chemical and detergent wash-down by providing all stainless steel parts and robust IP67 and IP69K sealing by using integral bellows and gaskets.

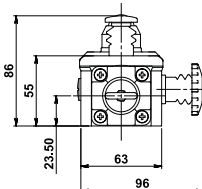
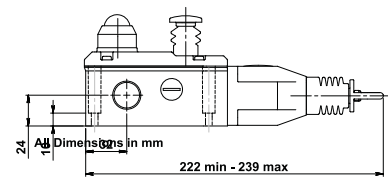
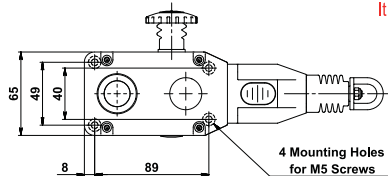
Stainless Steel



An easily seen bi-color LED is available to show switch status from a distance and they have 4 pole contact blocks to ensure flexibility with all modern control applications. Shorter rope spans up to 80m can be achieved by using just one switch therefore making a cost effective solution and also reducing electrical wiring runs.



It is recommended when using a Safety Spring that a maximum of one corner pulley is used.



Standards: IEC 947-5-1 IEC947-5-5 EN954-1 EN62061  
UL508 ISO13850 ISO13849-1

Safety Classification and Reliability Data:

Mechanical Reliability B10d	1.5 x 10 <sup>6</sup> operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10 <sup>-7</sup>
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Stainless Steel 316
External Parts	Stainless Steel
IP Rating	IP69K (NEMA PW12) IP67 (NEMA 6)
Rope Spans	100m
Rope Tension device	Tensioner / Gripper - Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner - PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	3 x M20 or 3 x 1/2" NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C. (100C. Cleaning)
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	1750 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

### Line Strong 2Z

2TLA050202R0020	LineStrong2Z, 2NC/2NO, M20, SS
2TLA050202R1020	LineStrong2Z, 2NC/2NO, NPT, SS
2TLA050202R0222	LineStrong2Z, 2NC/2NO, M20 LED, SS 24VDC
2TLA050202R1222	LineStrong2Z, 2NC/2NO, NPT LED, SS 24VDC
2TLA050202R0223	LineStrong2Z, 2NC/2NO, M20 LED, SS 110VAC
2TLA050202R1223	LineStrong2Z, 2NC/2NO, NPT LED, SS 110VAC
2TLA050202R0224	LineStrong2Z, 2NC/2NO, M20 LED, SS 230VAC
2TLA050202R1224	LineStrong2Z, 2NC/2NO, NPT LED, SS 230VAC
2TLA050202R0120	LineStrong2Z, 2NC/2NO, M20, ESTOP, SS
2TLA050202R1120	LineStrong2Z, 2NC/2NO, NPT ESTOP, SS
2TLA050202R0322	LineStrong2Z, 2NC/2NO, M20 ESTOP/LED, SS 24VDC
2TLA050202R1322	LineStrong2Z, 2NC/2NO, NPT ESTOP/LED, SS 24VDC
2TLA050202R0323	LineStrong2Z, 2NC/2NO, M20 ESTOP/LED, SS 110VAC
2TLA050202R1323	LineStrong2Z, 2NC/2NO, NPT ESTOP/LED, SS 110VAC
2TLA050202R0324	LineStrong2Z, 2NC/2NO, M20 ESTOP/LED, SS 230VAC
2TLA050202R1324	LineStrong2Z, 2NC/2NO, NPT ESTOP/LED, SS 230VAC

For all ABB Jokab Safety Rope Switches, the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

# Line Strong 3L and 3R Heavy duty switches

## Protection up to 125 meters



The Line Strong 3L/R is a robust die-cast Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths where protection is required up to 125m using two switches or up to 100m using a single switch.

The die-cast housings are robust to survive indoor or outdoor use.

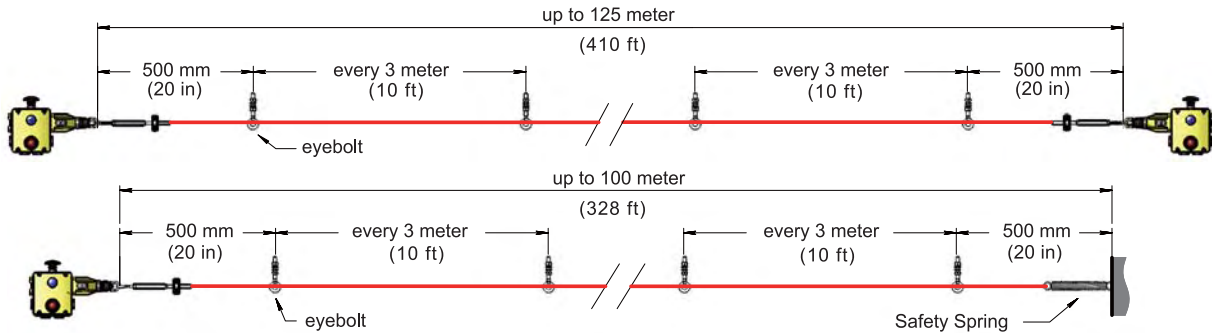
A bi-color LED ensures switch status can be seen easily from a distance. They have 4NC 2NO contacts to ensure flexibility with all modern control applications.

They can be used to compliment the Line Strong 3D versions at each end of the rope span.

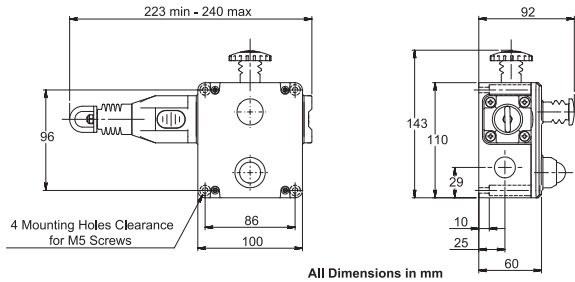


Line Strong 3L

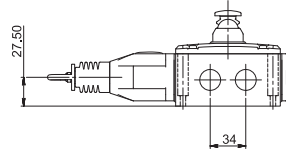
Line Strong 3R



It is recommended when using a Safety Spring that a maximum of one corner pulley is used.



All Dimensions in mm



Standards: IEC 947-5-1 IEC947-5-5 EN954-1 EN62061  
UL508 ISO13850 ISO13849

### Safety Classification and Reliability Data:

Mechanical Reliability B10d	1.5 x 10 <sup>6</sup> operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFFhd	<1.0 x 10 <sup>-7</sup>
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Die-Cast – Painted Yellow
External Parts	Stainless Steel
IP Rating	IP67
Rope Spans	125m.
Rope Tension device	Tensioner / Gripper - Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x 1/2" NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	1320 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category: AC15 A300
Operational Rating	240V, 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A, (FF)

### Line Strong 3L and 3R

- 2TLA050206R0332 LineStrong3L, 4NC/2NO, M20 ESTOP/LED 24VDC
- 2TLA050206R1332 LineStrong3L, 4NC/2NO, NPT ESTOP/LED 24VDC
- 2TLA050206R0333 LineStrong3L, 4NC/2NO, M20 ESTOP/LED 110VAC
- 2TLA050206R1333 LineStrong3L, 4NC/2NO, NPT ESTOP/LED 110VAC
- 2TLA050206R0334 LineStrong3L, 4NC/2NO, M20 ESTOP/LED 230VAC
- 2TLA050206R1334 LineStrong3L, 4NC/2NO, NPT ESTOP/LED 230VAC
- 2TLA050206R0232 LineStrong3L, 4NC/2NO, M20 LED 24VDC
- 2TLA050206R1232 LineStrong3L, 4NC/2NO, NPT LED 24VDC
- 2TLA050206R0233 LineStrong3L, 4NC/2NO, M20 LED 110VAC
- 2TLA050206R1233 LineStrong3L, 4NC/2NO, NPT LED 110VAC
- 2TLA050206R0234 LineStrong3L, 4NC/2NO, M20 LED 230VAC
- 2TLA050206R1234 LineStrong3L, 4NC/2NO, NPT LED 230VAC
- 2TLA050206R0130 LineStrong3L, 4NC/2NO, M20, ESTOP
- 2TLA050206R1130 LineStrong3L, 4NC/2NO, NPT ESTOP
- 2TLA050206R0030 LineStrong3L, 4NC/2NO, M20
- 2TLA050206R1030 LineStrong3L, 4NC/2NO, NPT
- 2TLA050208R0332 LineStrong3R, 4NC/2NO, M20 ESTOP/LED 24VDC
- 2TLA050208R1332 LineStrong3R, 4NC/2NO, NPT ESTOP/LED 24VDC
- 2TLA050208R0333 LineStrong3R, 4NC/2NO, M20 ESTOP/LED 110VAC
- 2TLA050208R1333 LineStrong3R, 4NC/2NO, NPT ESTOP/LED 110VAC
- 2TLA050208R0334 LineStrong3R, 4NC/2NO, M20 ESTOP/LED 230VAC
- 2TLA050208R1334 LineStrong3R, 4NC/2NO, NPT ESTOP/LED 230VAC
- 2TLA050208R0232 LineStrong3R, 4NC/2NO, M20 LED 24VDC
- 2TLA050208R1232 LineStrong3R, 4NC/2NO, NPT LED 24VDC
- 2TLA050208R0233 LineStrong3R, 4NC/2NO, M20 LED 110VAC
- 2TLA050208R1233 LineStrong3R, 4NC/2NO, NPT LED 110VAC
- 2TLA050208R0234 LineStrong3R, 4NC/2NO, M20 LED 230VAC
- 2TLA050208R1234 LineStrong3R, 4NC/2NO, NPT LED 230VAC
- 2TLA050208R0130 LineStrong3R, 4NC/2NO, M20, ESTOP
- 2TLA050208R1130 LineStrong3R, 4NC/2NO, NPT ESTOP
- 2TLA050208R0030 LineStrong3R, 4NC/2NO, M20
- 2TLA050208R1030 LineStrong3R, 4NC/2NO, NPT

For all ABB Jokab Safety Rope Switches, the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

# Line Strong 3LZ and 3RZ Heavy duty switches

## Protection up to 125 meters



The Line Strong 3LZ / RZ is a robust Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths where protection is required up to 125m using two switches or up to 100m using a single switch.

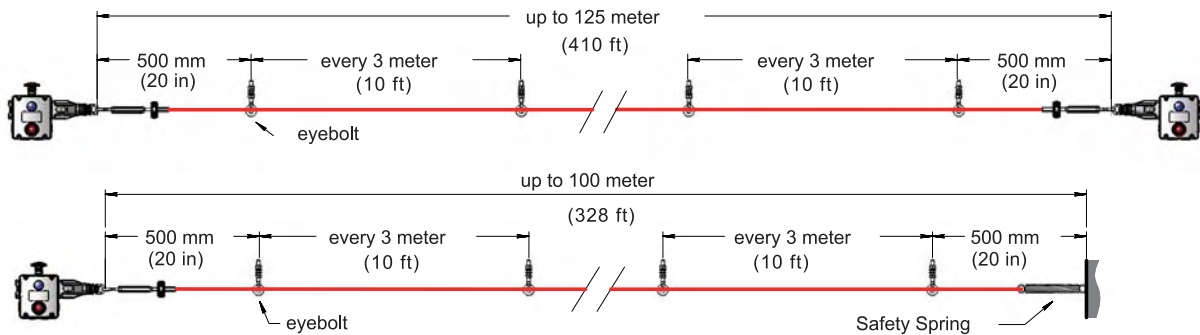
The Stainless Steel 316 housings are designed specifically to withstand the tough environments found in the Food and Pharmaceutical industries. They will survive chemical and detergent washdown by providing all stainless steel parts and robust IP67 and IP69K sealing by using integral bellows and gaskets.

They can be used to compliment the Line Strong 3DZ versions at each end of the rope span.

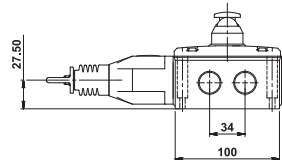
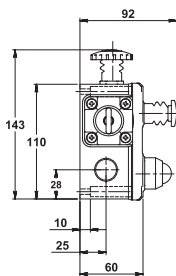
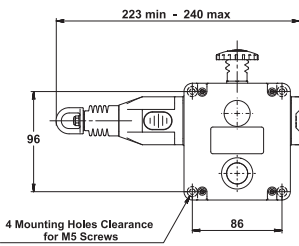


Line Strong 3LZ

Line Strong 3RZ



It is recommended when using a Safety Spring that a maximum of one corner pulley is used.



All Dimensions in mm

Standards: IEC 947-5-1 IEC947-5-5 EN954-1 EN62061  
UL508 ISO13850 ISO13849-1

### Safety Classification and Reliability Data:

Mechanical Reliability B10d	1.5 x 10 <sup>6</sup> operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	< 1.0 x 10 <sup>-7</sup>
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Stainless Steel 316
External Parts	Stainless Steel
IP Rating	IP69K (NEMA PW12) IP67 (NEMA 6)
Rope Spans	125m.
Rope Tension device	Tensioner / Gripper – Quick Fixing
Rope Tension	4.0 mm Outside Dia, Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x 1/2" NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80C (100C. cleaning)
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	1320 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

### Line Strong 3LZ and 3RZ

2TLA050206R0322	LineStrong3LZ, 4NC/2NO, M20 ESTOP/LED SS 24VDC
2TLA050206R1322	LineStrong3LZ, 4NC/2NO, NPT ESTOP/LED SS 24VDC
2TLA050206R0323	LineStrong3LZ, 4NC/2NO, M20 ESTOP/LED SS 110VAC
2TLA050206R1323	LineStrong3LZ, 4NC/2NO, NPT ESTOP/LED SS 110VAC
2TLA050206R0324	LineStrong3LZ, 4NC/2NO, M20 ESTOP/LED SS 230VAC
2TLA050206R1324	LineStrong3LZ, 4NC/2NO, NPT ESTOP/LED SS 230VAC
2TLA050206R0222	LineStrong3LZ, 4NC/2NO, M20 LED, SS 24VDC
2TLA050206R1222	LineStrong3LZ, 4NC/2NO, NPT LED, SS 24VDC
2TLA050206R0223	LineStrong3LZ, 4NC/2NO, M20 LED, SS 110VAC
2TLA050206R1223	LineStrong3LZ, 4NC/2NO, NPT LED, SS 110VAC
2TLA050206R0224	LineStrong3LZ, 4NC/2NO, M20 LED, SS 230VAC
2TLA050206R1224	LineStrong3LZ, 4NC/2NO, NPT LED, SS 230VAC
2TLA050206R0120	LineStrong3LZ, 4NC/2NO, M20, ESTOP, SS
2TLA050206R1120	LineStrong3LZ, 4NC/2NO, NPT ESTOP, SS
2TLA050206R0020	LineStrong3LZ, 4NC/2NO, M20, SS
2TLA050206R1020	LineStrong3LZ, 4NC/2NO, NPT, SS
2TLA050208R0322	LineStrong3RZ, 4NC/2NO, M20 ESTOP/LED SS 24VDC
2TLA050208R1322	LineStrong3RZ, 4NC/2NO, NPT ESTOP/LED SS 24VDC
2TLA050208R0323	LineStrong3RZ, 4NC/2NO, M20 ESTOP/LED SS 110VAC
2TLA050208R1323	LineStrong3RZ, 4NC/2NO, NPT ESTOP/LED SS 110VAC
2TLA050208R0324	LineStrong3RZ, 4NC/2NO, M20 ESTOP/LED SS 230VAC
2TLA050208R1324	LineStrong3RZ, 4NC/2NO, NPT ESTOP/LED SS 230VAC
2TLA050208R0222	LineStrong3RZ, 4NC/2NO, M20 LED, SS 24VDC
2TLA050208R1222	LineStrong3RZ, 4NC/2NO, NPT LED, SS 24VDC
2TLA050208R0223	LineStrong3RZ, 4NC/2NO, M20 LED, SS 110VAC
2TLA050208R1223	LineStrong3RZ, 4NC/2NO, NPT LED, SS 110VAC
2TLA050208R0224	LineStrong3RZ, 4NC/2NO, M20 LED, SS 230VAC
2TLA050208R1224	LineStrong3RZ, 4NC/2NO, NPT LED, SS 230VAC
2TLA050208R0120	LineStrong3RZ, 4NC/2NO, M20, ESTOP, SS
2TLA050208R1120	LineStrong3RZ, 4NC/2NO, NPT ESTOP, SS
2TLA050208R0020	LineStrong3RZ, 4NC/2NO, M20, SS
2TLA050208R1020	LineStrong3RZ, 4NC/2NO, NPT, SS

For all ABB Jokab Safety Rope Switches, the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.



# Line Strong 3D Heavy duty switches

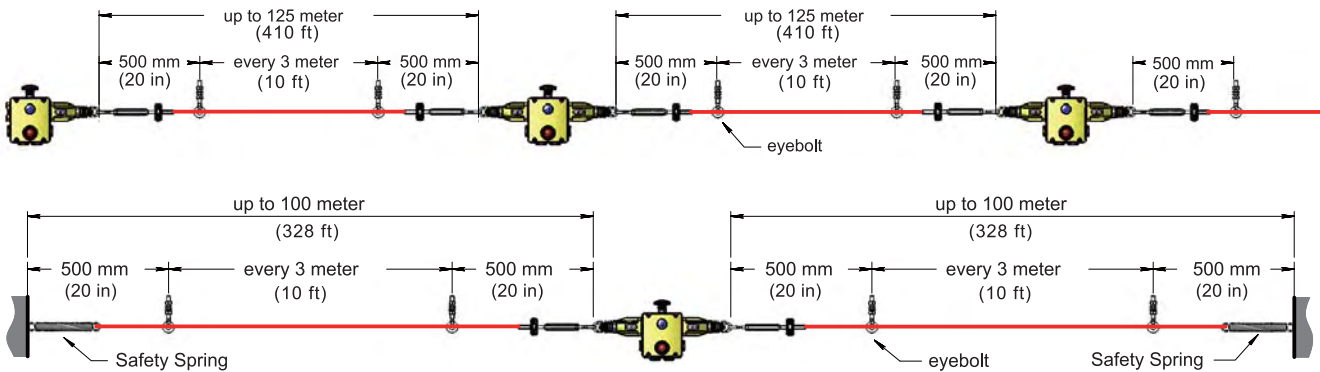
## Protection up to 250 meters



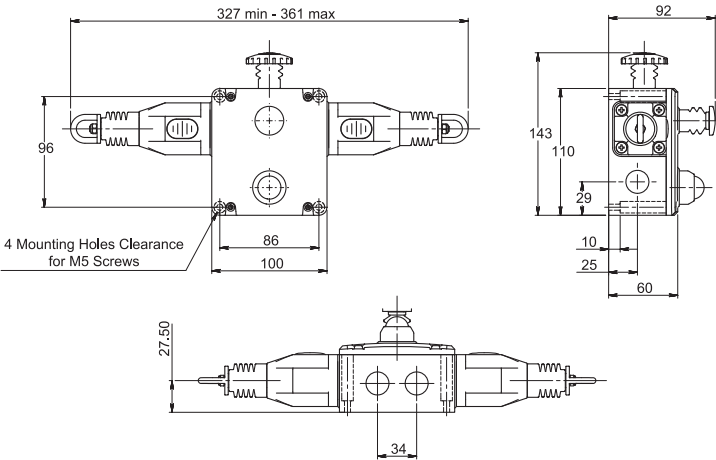
The Line Strong 3D is a Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths. The die-cast housings are robust to survive indoor or outdoor use including washdown (IP67 rating).

Lengths over 2 Km can be achieved with less than 20 switches. A bi-color LED ensures switch status can be seen easily from a distance. They have 4NC 2NO contacts to ensure flexibility with all modern control applications.

Shorter rope spans up to 200m can be achieved by using just one switch, therefore making a cost effective solution and also reducing electrical wiring runs.



It is recommended when using a Safety Spring that a maximum of one corner pulley is used.



Standards:	IEC 947-5-1	IEC947-5-5	EN954-1	EN62061
	UL508	ISO13850	ISO13849-1	
Safety Classification and Reliability Data:				
Mechanical Reliability B10d	1.5 x 10 <sup>6</sup> operations at 100mA load			
EN 954-1	up to Category 4 with Safety Relay			
ISO 13849-1	up to PLe depending upon system architecture			
EN 62061	up to SIL3 depending upon system architecture			
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days			
PFHd	<1.0 x 10 <sup>-7</sup>			
Proof Test Interval (Life)	21 years			
MTTFd	214 years			
Enclosure / Cover	Die-Cast – Painted Yellow			
External Parts	Stainless Steel			
IP Rating	IP67 (NEMA 6)			
Rope Spans	Dual Head 250m.			
Rope Tension device	Tensioner / Gripper - Quick fixing			
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath			
Mounting	4 x M5			
Mounting position	Any			
Conduit entries	4 x M20 or 4 x 1/2" NPT by part number			
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm			
Ambient Temperature	-25C +80 C.			
Vibration resistance	10-500Hz 0.35mm			
Shock resistance	15g 11ms			
Tension Force (typical mid setting)	130N.			
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection			
Mechanical Life	1,000,000 operations			
Weight	1320 g.			
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)			
Contact Material	Silver			
Termination	Clamp up to 2.5 sq. mm conductors			
Rating	Utilisation Category : AC15 A300			
Operational Rating	240V. 3A.			
Thermal Current (Ith)	10A.			
Rated Insulation Voltage (Ui)	500V.			
Withstand Voltage (Uimp)	2500V.			
Short Circuit Overload Protection	Fuse Externally 10A. (FF)			

Line Strong 3D
2TLA050204R0332 LineStrong3D, 4NC/4NO, M20 ESTOP/LED 24VDC
2TLA050204R1332 LineStrong3D, 4NC/4NO, NPT ESTOP/LED 24VDC
2TLA050204R0333 LineStrong3D, 4NC/4NO, M20 ESTOP/LED 110VAC
2TLA050204R1333 LineStrong3D, 4NC/4NO, NPT ESTOP/LED 110VAC
2TLA050204R0334 LineStrong3D, 4NC/4NO, M20 ESTOP/LED 230VAC
2TLA050204R1334 LineStrong3D, 4NC/4NO, NPT ESTOP/LED 230VAC
2TLA050204R0232 LineStrong3D, 4NC/4NO, M20 LED 24VDC
2TLA050204R1232 LineStrong3D, 4NC/4NO, NPT LED 24VDC
2TLA050204R0233 LineStrong3D, 4NC/4NO, M20 LED 110VAC
2TLA050204R1233 LineStrong3D, 4NC/4NO, NPT LED 110VAC
2TLA050204R0234 LineStrong3D, 4NC/4NO, M20 LED 230VAC
2TLA050204R1234 LineStrong3D, 4NC/4NO, NPT LED 230VAC
2TLA050204R0130 LineStrong3D, 4NC/4NO, M20, ESTOP
2TLA050204R1130 LineStrong3D, 4NC/4NO, NPT ESTOP
2TLA050204R0030 LineStrong3D, 4NC/4NO, M20
2TLA050204R1030 LineStrong3D, 4NC/4NO, NPT

For all ABB Jokab Safety Rope Switches, the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

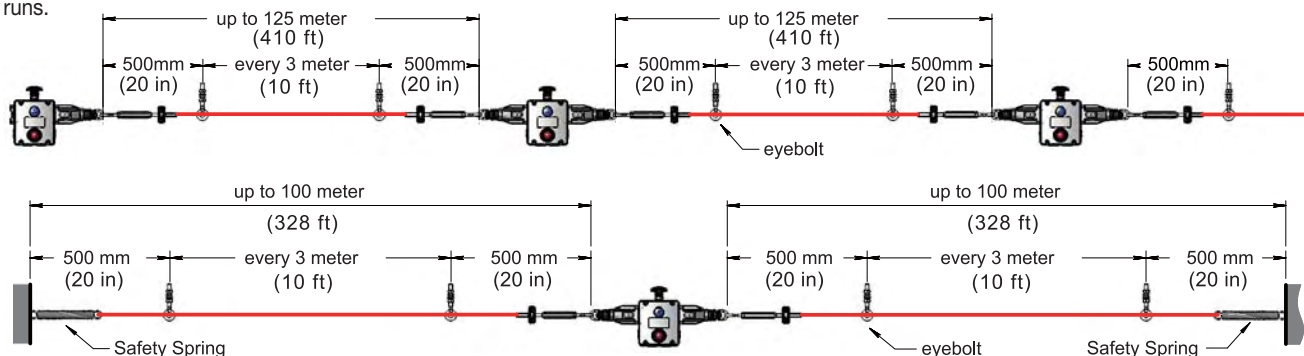
# Line Strong 3DZ Heavy duty switches

## Protection up to 250 meters

The Line Strong 3DZ is a robust Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths up to 250m. The Stainless Steel 316 housings are designed specifically to withstand the tough environments found in the Food and Pharmaceutical industries. They will survive chemical and detergent washdown by providing all stainless steel parts and robust IP67 and IP69K sealing by using integral bellows and gaskets.

A bi-color LED ensures switch status can be seen easily from a distance. They have 4NC 2NO contacts to ensure flexibility with all modern control applications.

Shorter rope spans up to 200m can be achieved by using just one switch, therefore making a cost effective solution and also reducing electrical wiring runs.

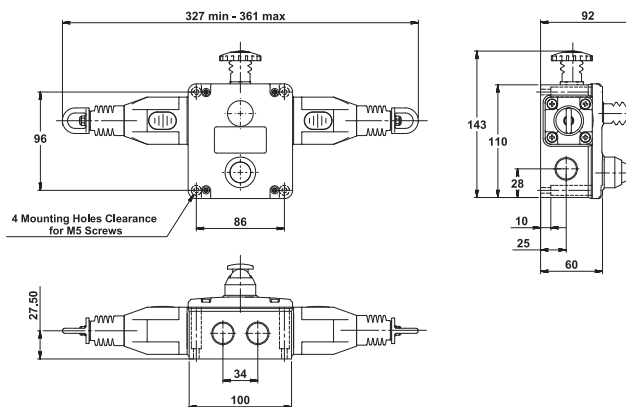


It is recommended when using a Safety Spring that a maximum of one corner pulley is used.

Standards: IEC 947-5-1 IEC947-5-5 EN954-1 EN62061  
UL508 ISO13850 ISO13849-1

### Safety Classification and Reliability Data:

Mechanical Reliability B10d	1.5 x 10 <sup>6</sup> operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage PFHd	8 cycles per hour / 24 hours per day / 365 days
	< 1.0 x 10 <sup>-7</sup>
Proof Test Interval (Life) MTTFd	21 years
	214 years
Enclosure / Cover	Stainless Steel 316
External Parts	Stainless Steel
IP Rating	IP69K (NEMA PW12) IP67 (NEMA 6)
Rope Spans	Dual Head 250m.
Rope Tension device	Tensioner / Gripper - Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner - PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x 1/2" NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C. (Cleaning 100C.)
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	2000 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)



All Dimensions in mm

### Line Strong 3DZ

2TLA050204R0322	LineStrong3DZ, 4NC/4NO, M20 ESTOP/LED SS 24VDC
2TLA050204R1322	LineStrong3DZ, 4NC/4NO, NPT ESTOP/LED SS 24VDC
2TLA050204R0323	LineStrong3DZ, 4NC/4NO, M20 ESTOP/LED SS 110VAC
2TLA050204R1323	LineStrong3DZ, 4NC/4NO, NPT ESTOP/LED SS 110VAC
2TLA050204R0324	LineStrong3DZ, 4NC/4NO, M20 ESTOP/LED SS 230VAC
2TLA050204R1324	LineStrong3DZ, 4NC/4NO, NPT ESTOP/LED SS 230VAC
2TLA050204R0222	LineStrong3DZ, 4NC/4NO, M20 LED, SS 24VDC
2TLA050204R1222	LineStrong3DZ, 4NC/4NO, NPT LED, SS 24VDC
2TLA050204R0223	LineStrong3DZ, 4NC/4NO, M20 LED, SS 110VAC
2TLA050204R1223	LineStrong3DZ, 4NC/4NO, NPT LED, SS 110VAC
2TLA050204R0224	LineStrong3DZ, 4NC/4NO, M20 LED, SS 230VAC
2TLA050204R1224	LineStrong3DZ, 4NC/4NO, NPT LED, SS 230VAC
2TLA050204R0120	LineStrong3DZ, 4NC/4NO, M20, ESTOP, SS
2TLA050204R1120	LineStrong3DZ, 4NC/4NO, NPT ESTOP, SS
2TLA050204R0020	LineStrong3DZ, 4NC/4NO, M20, SS
2TLA050204R1020	LineStrong3DZ, 4NC/4NO, NPT, SS

For all ABB Jokab Safety Rope Switches, the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

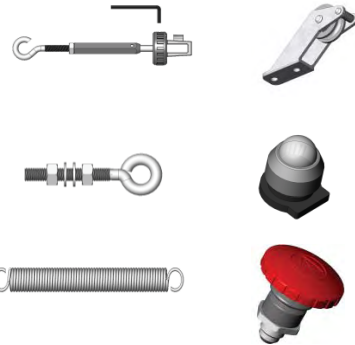
# Line Strong Rope switch accessories

## Line Strong Accessories

2TLA050210R0030	5M Rope Kit, Galv. w/Allen Key
2TLA050210R0130	10M Rope Kit, Galv. w/Allen Key
2TLA050210R0230	15M Rope Kit, Galv. w/Allen Key
2TLA050210R0330	20M Rope Kit, Galv. w/Allen Key
2TLA050210R0430	30M Rope Kit, Galv. w/Allen Key
2TLA050210R0530	50M Rope Kit, Galv. w/Allen Key
2TLA050210R0630	80M Rope Kit, Galv. w/Allen Key
2TLA050210R0730	100M Rope Kit, Galv. w/Allen Key
2TLA050210R0830	126M Rope Kit, Galv. w/Allen Key
2TLA050210R0020	LineStrong Acces. 5M Rope Kit SS w/ Key
2TLA050210R0120	LineStrong Acces. 10M Rope Kit SS w/ Key
2TLA050210R0220	LineStrong Acces. 15M Rope Kit SS w/ Key
2TLA050210R0320	LineStrong Acces. 20M Rope Kit SS w/ Key
2TLA050210R0420	LineStrong Acces. 30M Rope Kit SS w/ Key
2TLA050210R0520	LineStrong Acces. 50M Rope Kit SS w/ Key
2TLA050210R0620	LineStrong Acces. 80M Rope Kit SS w/ Key
2TLA050210R0720	LineStrong Acces. 100M Rope Kit SS w Key
2TLA050210R0820	LineStrong Acces. 126M Rope Kit SS w Key
2TLA050210R2020	LineStrong Acces. 5m Rope Only
2TLA050210R2120	LineStrong Acces. 10m Rope Only
2TLA050210R2220	LineStrong Acces. 20m Rope Only
2TLA050210R2320	LineStrong Acces. 30m Rope Only
2TLA050210R2420	LineStrong Acces. 50m Rope Only
2TLA050210R2520	LineStrong Acces. 80m Rope Only
2TLA050210R2620	LineStrong Acces. 100m Rope Only
2TLA050210R2720	LineStrong Acces. 126m Rope Only
2TLA050210R2820	LineStrong Acces. 500m Rope Only
2TLA050210R4020	LineStrong Acces. Rope Tensioner, SS
2TLA050210R4030	LineStrong Acces. Rope Tensioner, Galv.
2TLA050210R8020	LineStrong Acces. Eyebolt M8x1.25, SS
2TLA050210R8030	LineStrong Acces. Eyebolt M8x1.25, Galv.
2TLA050210R6020	LineStrong Acces. Pully, SS
2TLA050210R6030	LineStrong Acces. Pully, Galv.
2TLA050211R0001	LineStrong Acces. LED Green/Red 24 VDC
2TLA050211R0002	LineStrong Acces. LED Green/Red 110 VDC
2TLA050211R0003	LineStrong Acces. LED Green/Red 230VDC
2TLA050211R0004	LineStrong Acces.Spring, 220mm, SS
2TLA050211R0005	LineStrong Acces. E-Stop Button
2TLA050211R0006	LineStrong Acces. Anti-Tamper, Torx T20



Tensioner / Gripper Assembly  
 Allen Key 4mm  
 Quick Link (QL)  
 For up to 50m. spans ,one rope end is terminated with a thimble and permanent clamp.  
 For over 50m. spans, 2 Tensioner / Gripper assemblies are supplied (no Quick Link).



Screwdriver Anti-Tamper T20

## Accessories - Contact Blocks and fittings

### Line Strong Contact Blocks

2TLA050240R0101	LineStrong Acces. Contact Block 2NC/1NO
2TLA050240R0102	LineStrong Acces. Contact Block 3NC
2TLA050240R0103	LineStrong Acces. Contact Block 2NC/2NO
2TLA050240R0104	LineStrong Acces. Contact Block 3NC/1NO
2TLA050240R0105	LineStrong Acces. Contact Block 4NC
2TLA050240R0101	LineStrong Acces. Contact Block 2NC/1NO
2TLA050240R0102	LineStrong Acces. Contact Block 3NC
2TLA050240R0103	LineStrong Acces. Contact Block 2NC/2NO
2TLA050240R0104	LineStrong Acces. Contact Block 3NC/1NO
2TLA050240R0105	LineStrong Acces. Contact Block 4NC

### Line Strong Glands and Plugs

2TLA050240R0101	LineStrong Acces. Contact Block 2NC/1NO
2TLA050240R0102	LineStrong Acces. Contact Block 3NC
2TLA050240R0103	LineStrong Acces. Contact Block 2NC/2NO
2TLA050240R0104	LineStrong Acces. Contact Block 3NC/1NO
2TLA050240R0105	LineStrong Acces. Contact Block 4NC
2TLA050240R0101	LineStrong Acces. Contact Block 2NC/1NO
2TLA050240R0102	LineStrong Acces. Contact Block 3NC
2TLA050240R0103	LineStrong Acces. Contact Block 2NC/2NO
2TLA050240R0104	LineStrong Acces. Contact Block 3NC/1NO
2TLA050240R0105	LineStrong Acces. Contact Block 4NC

