LineStrong is a pull wire emergency stop switch, used for easy reach of the emergency stop function along machines and sections of conveyors.

A pull wire emergency stop switch allows to initiate the emergency stop command from any point along the installed wire length by pulling the wire. It replaces a series of emergency stop buttons and is easier to install.

LineStrong is also available in different models for different lengths of wires, with different housing material as well as an explosion proof version.

Easy to install
Quick installation
A pull wire emergency stop switch is easier to install than a system of several emergency stop buttons along a carriage path.

Highly adaptable
Several models to choose between gives a variety of mounting possibilities and features.

Long wire length
Can handle wires up to 200 m on a single switch.

Safety and protection
Easily accessible
Easy reach of the emergency stop function along machines, conveyors and processes.

High level of safety
The positive forced disconnect contacts provide a high level of safety and are double switching, i.e. triggers emergency stop in both directions of the wire.

Continuous operation
Reliable in extreme conditions
Robust construction makes LineStrong ideal for use in demanding environments.

LED diagnostics
Integrated LED diagnostics ensures status can be seen easily from a distance.
Applications
LineStrong

**Instead of multiple emergency stops**
A pull wire emergency stop switch is often placed along con-
veyor belts or carriage paths where access to the stop func-
tion must be possible along the whole line. It is often easier to
install a pull wire emergency stop switch than to place multiple
emergency stop buttons if the distance is longer.

LineStrong can handle wires up to 200 m on one single switch
and since the emergency stop command can be initiated from
any point along the wire, this gives better access to the emer-
gency stop function than using emergency stop buttons.

**As protective device in low risk applications**
LineStrong can be used as protection, for example along con-
veyors 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, hence
pulling the wire.

**One, two or several switches**
The maximum length of the wire attached to LineStrong de-
pends on if there is a LineStrong unit attached to both ends of
the wire or if one end is attached to a wall/fixed object. In the
image below LineStrong2 is used as an example.
Features
LineStrong

Positive forced disconnected contacts
The contacts in LineStrong are positive force disconnected, which ensures that the contacts will not be held in a normally closed position due to a failure of the spring mechanism or the welding/sticking of the contacts.

Reset button
All models of LineStrong have an integrated reset button that needs to be pressed in order to reset the emergency stop if the emergency stop function has been triggered.

Emergency stop button
Most LineStrong models have an integrated emergency stop button on the housing of the switch. Since the first half meter of the wire is not intended to pull in order to trigger the emergency stop function, the integrated emergency stop button provides quick and simple access to the emergency stop function if you are standing right in front of LineStrong. The emergency stop button of LineStrong 2 can be moved to either side of LineStrong to enable best access depending on position and height of LineStrong.

Integrated LED
LineStrong2 and LineStrong3 have an integrated 2-color LED that shows if the emergency stop function has been triggered or not. The LED is also available as spare part.

Material
LineStrong is available with a housing in yellow die cast aluminum alloy or with a housing in stainless steel 316 which is recommended for severe applications in e.g. the food processing and the chemical industries.

Left hand, right hand or both sides
LineStrong1 and LineStrong2 can be mounted in any direction. Linestrong3 is available in different models depending on installation. L (left hand) should be used if the placement of the grab wire switch is to the left in the installation. R (right hand) should be used if the grab wire switch is to the right in the installation. D (double wire) has wire entries from both sides of the grab wire switch.

Wire breakage monitoring
The contacts are double switching which means that the emergency stop command is given both when someone pulls the wire and if the wire should break.

Indication of wire tension
All models are equipped with an indicator of the tension of the wire which simplifies installation and adjustment.

Explosion proof
LineStrong2 also exists in an X-model with certified explosion proof contact blocks. The X-model has a stainless steel body and can be used in ATEX zones 1, 2, 21 and 22 (gas and dust). The X-model is preassembled with a 3 m cable.
Easier installation with tensioner/gripper
The tensioner/gripper accessory significantly reduces the installation time. Traditional grab wire systems normally need turnbuckle and clamps, which are difficult to tension and adjust, and normally require frequent re-tensioning. The tensioner gripper integrates an eyehook, a tensioner thimble and a wire strength gripper in one assembly which enables rapid connection to the switch eyebolts and fast and accurate tensioning of the wire.

Thanks to the switch tension indicator, it is easy to adjust the system accurately and quickly. The double clamp mechanism prevents wire slippage and significantly reduces machine downtime which can occur with traditional turnbuckle systems.

For systems longer than 50 m, the tensioner/gripper is necessary on both sides.

Quick-link termination
The quick link termination is provided for easy connection to the safety spring or the switch eyebolt for systems up to 50 m.

Mounting accessories
The wire pull kits contains the suitable accessories for the included wire length.
- When using one switch, the wire must be anchored at the other end using a safety spring.
- The first eyeball support must be placed no more than 500 mm from the switch eyebolt or safety spring.
- The part of the wire from the wire end to the first eyebolt support shall not be used as part of the active protection coverage.
- Wire support eyebolts must be fitted at 2.5 - 3 meters intervals along the complete wire length.
- The tensioner/gripper is used to adjust the correct tension

Corner pulley
A corner pulley can be used to navigate inside or outside corners without causing damage to the wire. They are in stainless steel and can be rigidly mounted.
When using a safety spring, a maximum of one corner pulley may be used, to ensure that the complete length of the wire is visible from either the switch or the spring anchorage.
# Ordering information

## LineStrong

<table>
<thead>
<tr>
<th>IP rating</th>
<th>Feature</th>
<th>Material</th>
<th>Contacts</th>
<th>Max. wire length (m)</th>
<th>Type</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>P67</td>
<td>No</td>
<td>Yellow die cast aluminum alloy</td>
<td>2 NO + 2 NC</td>
<td>30</td>
<td>-</td>
<td>LineStrong1</td>
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<tr>
<td></td>
<td>Yes</td>
<td></td>
<td>2 NO + 2 NC</td>
<td>60</td>
<td>80</td>
<td>LineStrong2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 NO + 4 NC</td>
<td>100</td>
<td>125</td>
<td>LineStrong2L</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
<td>325</td>
<td>LineStrong2D</td>
</tr>
<tr>
<td>P67, P69K</td>
<td>Yes</td>
<td>Stainless steel 316</td>
<td>2 NO + 2 NC</td>
<td>60</td>
<td>80</td>
<td>LineStrong2Z</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80</td>
<td>100</td>
<td>LineStrong2ZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>125</td>
<td>LineStrong3LZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
<td>325</td>
<td>LineStrong3DZ</td>
</tr>
</tbody>
</table>

*Note: Features include IP rating, material, and type.*
### Mounting accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Material</th>
<th>Length</th>
<th>Type</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire pull kit including wire, eyebolts, tensioner/gripper and Allen key in right quantity for the included wire length.</td>
<td>Galvanized</td>
<td>10 m wire</td>
<td>10 m wire kit, gal</td>
<td>2TLA50210R0130</td>
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<tr>
<td></td>
<td></td>
<td>20 m wire</td>
<td>20 m wire kit, gal</td>
<td>2TLA50210R0330</td>
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<tr>
<td></td>
<td></td>
<td>80 m wire</td>
<td>80 m wire kit, gal</td>
<td>2TLA50210R0630</td>
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<tr>
<td></td>
<td></td>
<td>100 m wire</td>
<td>100 m wire kit, gal</td>
<td>2TLA50210R0730</td>
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<tr>
<td></td>
<td>Stainless steel</td>
<td>50 m wire</td>
<td>50 m wire kit, SS</td>
<td>2TLA50210R0320</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 m wire</td>
<td>100 m wire kit, SS</td>
<td>2TLA50210R0720</td>
</tr>
<tr>
<td>Wire tensioner/gripper</td>
<td>Galvanized</td>
<td>Wire tensioner, gal</td>
<td>2TLA50210R4030</td>
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</tr>
<tr>
<td></td>
<td>Stainless steel</td>
<td>Wire tensioner, SS</td>
<td>2TLA50210R4020</td>
<td></td>
</tr>
<tr>
<td>Corner pulley</td>
<td>Galvanized</td>
<td>Corner pulley, gal</td>
<td>2TLA50210R6030</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless steel</td>
<td>Corner pulley, SS</td>
<td>2TLA50210R6020</td>
<td></td>
</tr>
<tr>
<td>Eyebolt M8 x 1.25</td>
<td>Galvanized</td>
<td>Eyebolt M8x1.25, gal</td>
<td>2TLA50210R8030</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless steel</td>
<td>Eyebolt M8x1.25, SS</td>
<td>2TLA50210R8020</td>
<td></td>
</tr>
<tr>
<td>Safety spring, 220mm</td>
<td>Stainless steel</td>
<td>Spring 220 mm, SS</td>
<td>2TLA50211R0004</td>
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</tr>
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</table>

### Other accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screwdriver, anti-tamper, Torx T20</td>
<td>Screwdriver T20</td>
<td>2TLA50211R0006</td>
</tr>
<tr>
<td>Gland M20 x 1.5</td>
<td>Gland M20x1.5</td>
<td>2TLA500040R0002</td>
</tr>
<tr>
<td>Conduit plug M20 x 1.5</td>
<td>Cond.Plug M20x1.5</td>
<td>2TLA500040R0004</td>
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</tbody>
</table>

### Spare parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>LineStrong LED Green/Red +24 VDC</td>
<td>LineStrong LED 24</td>
<td>2TLA50211R0001</td>
</tr>
<tr>
<td>LineStrong LED Green/Red 230 VAC</td>
<td>LineStrong LED 230</td>
<td>2TLA50211R0003</td>
</tr>
<tr>
<td>LineStrong2 and LineStrong3 Emergency stop button.</td>
<td>LineStrong E-Stop</td>
<td>2TLA50211R0005</td>
</tr>
</tbody>
</table>
### Separate cables and connectors

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connectors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M12-5 pole female, straight</td>
<td>M12-C01</td>
<td>2TLA020065FR1000</td>
</tr>
<tr>
<td>M12-5 pole male, straight</td>
<td>M12-C02</td>
<td>2TLA020065FR1100</td>
</tr>
<tr>
<td>M12-8 pole female, straight</td>
<td>M12-C03</td>
<td>2TLA020065FR1600</td>
</tr>
<tr>
<td>M12-8 pole male, straight</td>
<td>M12-C04</td>
<td>2TLA020065FR1700</td>
</tr>
<tr>
<td><strong>Cable with 5 conductors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 m cable with 5 x 0.34 shielded conductors</td>
<td>C5 cable 10 m</td>
<td>2TLA020057FR0001</td>
</tr>
<tr>
<td>50 m cable with 5 x 0.34 shielded conductors</td>
<td>C5 cable 50 m</td>
<td>2TLA020057FR0005</td>
</tr>
<tr>
<td>100 m cable with 5 x 0.34 shielded conductors</td>
<td>C5 cable 100 m</td>
<td>2TLA020057FR0010</td>
</tr>
<tr>
<td>200 m cable with 5 x 0.34 shielded conductors</td>
<td>C5 cable 200 m</td>
<td>2TLA020057FR0020</td>
</tr>
<tr>
<td>500 m cable with 5 x 0.34 shielded conductors</td>
<td>C5 cable 500 m</td>
<td>2TLA020057FR0050</td>
</tr>
<tr>
<td><strong>Cable with 8 conductors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 m cable with 8 x 0.34 shielded conductors</td>
<td>C8 cable 50 m</td>
<td>2TLA020057FR1005</td>
</tr>
<tr>
<td>100 m cable with 8 x 0.34 shielded conductors</td>
<td>C8 cable 100 m</td>
<td>2TLA020057FR1010</td>
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<tr>
<td>200 m cable with 8 x 0.34 shielded conductors</td>
<td>C8 cable 200 m</td>
<td>2TLA020057FR1020</td>
</tr>
<tr>
<td>500 m cable with 8 x 0.34 shielded conductors</td>
<td>C8 cable 500 m</td>
<td>2TLA020057FR1050</td>
</tr>
</tbody>
</table>
## Technical data

### LineStrong

#### Approvals
- **LineStrong**
- **LineStrong-X**

#### Conformity
- **LineStrong**
  - CE
- **LineStrong-X**
  - CE
  - 2006/42/EC - Machinery

#### Functional safety data
- **EN ISO 13849-1:2008**
  - Up to Cat. 4, PL e, depending on system architecture.
- **EN/IEC 62061:2005**
  - Up to SIL CL 3, depending on system architecture.
- **IEC 61508**
  - Up to SIL 3, depending on system architecture.

#### Electrical data
- **240 VAC / 3 A**
- **+24 VDC / 2.5 A**

#### Mechanical data
- **Operating temperature**
  - -25...+80°C
- **Protection class**
  - LineStrong1, LineStrong2, LineStrong3
  - IP67
  - LineStrong2Z(X), LineStrong3Z
  - IP66, IP67, IP69K
- **Weight**
  - **LineStrong1**
    - 675 g
  - **LineStrong2**
    - 880 g
  - **LineStrong2Z(X)**
    - 1635 g
  - **LineStrong3L/R**
    - 1100 g
  - **LineStrong3LZ/RZ**
    - 2000 g
  - **LineStrong3D**
    - 1320 g
  - **LineStrong3DZ**
    - 2200 g
- **Material**
  - LineStrong1, LineStrong2, LineStrong3D/L/R
  - Die cast painted yellow
  - LineStrong2Z(X), LineStrong3LZ/RZ/DZ
  - Stainless steel 316
- **Wire type**
  - PVC sheath steel wire 4.0 mm outside diameter
- **Conduit entries**
  - LineStrong1/2
    - 3 x M20 x 1.5
  - LineStrong3
    - 4 x M20 x 1.5

### More information
For more information, e.g. the complete technical information, see product manual for: LineStrong [2TLC172248M0201](#)
Dimension drawings
LineStrong

LineStrong1

LineStrong2

LineStrong3L-R

All dimensions in mm
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