Pull-wire emergency stop switches and pull-wire switches
Product overview
Application and design

Pull-wire emergency stop

Application
Pull-wire emergency stop switches are highly important at the man-machine interface in industrial applications. They are mounted, for instance, on transportation plants and conveyor systems. When actuated by hand, these devices trigger or switch off work cycles and functional processes.

All the pull-wire emergency stop switches described in this brochure meet the requirements of the harmonised European standard IEC/EN 60947-5-5 regarding the functional aspects and recommendations for the design and the arrangement of emergency stop devices.

Pull-wire switches are used as signal transmitter to start machines and to open or close electrically driven doors, gates and barriers.

Features of the ZQ 900
- The position indicator facilitates the set-up and the maintenance of systems with spans of up to 50 m
- The integrated emergency-stop push-button enables actuation directly at the device as well
- Reset pushbutton
- The indicator lamp can be screwed in the cable entry
All pull-wire switches are equipped with wire-breakage monitoring. The integrated emergency-stop pushbutton enables actuation directly at the device as well.

Pull-wire switches without mechanical locking are not EN 418-compliant.

Design and operating principle
On the ZQ 900 pull-wire emergency stop switches, the emergency stop function can be initiated from any point of the wire. This feature meets the requirements of EN 418.

The pull-wire emergency stop switch are brought into operational condition by pre-tensioning the wire, i.e. the NC contacts are closed and the NO contacts are opened.

Innovation:
S 900 rope tensioner
The new rope tensioner is a unique wire-tensioning system, accelerating the installation of wire-operated systems. Conventional systems usually are time consuming and difficult to adjust.

Features:
- Smooth adjustment
- Only one tool
- Antiskid
- Time-saving
- Ergonomic
- No risk of injury
Pull-wire emergency stop switches

ZQ 900

- To EN 418 / IEC 60947-5-5
- Metal enclosure
- 4 contacts
- Integrated emergency-stop pushbutton
- Position indicator
- Robust design
- Large wiring compartment
- 3 cable entries M20 x 1.5
- One tension force for wire lengths from 5 to 50 m
- Wire up to 50 m long
- Reset pushbutton
- Twisting of towing eye not possible
- Optional signalling lamp
- External watertight collar
- Wire pull and breakage function

Technical data

Standards:
- IEC/EN 60947-5-1
- IEC/EN 60947-5-5
- EN 418

Enclosure:
- zinc die-cast, enamelled

Cover:
- thermoplastic

Protection class:
- IP 65 to IEC/EN 60529

Contact material:
- silver
- 1 NC/1 NO
- 2 NC/2 NO
- 3 NC/1 NO
- 2 NC
- 4 NC

Switching system:
- snap action with positive break NC contacts

Connection:
- screw terminals

Cable section:
- max. 2.5 mm² (incl. conductor ferrules)

Cable entry:
- 3 x M20 x 1.5

Rated impulse withstand voltage \( U_{imp} \):
- 6 kV

Rated insulation voltage \( U_i \):
- 500 V

Thermal test current \( I_{th} \):
- 6 A

Utilisation category:
- AC-15, DC-13

Rated operating current/voltage \( I_e/U_e \):
- 4 A / 230 VAC
- 1 A / 24 VDC

Max. fuse rating:
- 6 A gG D-fuse to DIN EN 60269-1

Ambient temperature:
- \(-25°C \ldots +70°C\)

Mechanical life:
- > 1 million operations

Indicator lamp:
- optionally

Maximum cable length:
- 50 m
  (please observe ambient temperature range and wire supports)

Features:
- wire pull and breakage detection

Contact variants

1 NO/1 NC

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 1 NO/1 NC</td>
</tr>
<tr>
<td>13 1 NO/3 NC</td>
</tr>
<tr>
<td>22 2 NO/2 NC</td>
</tr>
<tr>
<td>02 2 NC</td>
</tr>
<tr>
<td>04 4 NC</td>
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1 NO/3 NC

2 NC

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<tr>
<th>Description</th>
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<td>13 1 NO/3 NC</td>
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<td>22 2 NC</td>
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2 NO/2 NC

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<thead>
<tr>
<th>Description</th>
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<td>21 2 NC</td>
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<td>22 4 NC</td>
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4 NC

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<tbody>
<tr>
<td>21 2 NC</td>
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<tr>
<td>22 4 NC</td>
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Approvals

Ordering details

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<tr>
<th>ZQ 900</th>
<th>Replace</th>
<th>Description</th>
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<tr>
<td>11</td>
<td>1 NO/1 NC</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1 NO/3 NC</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>2 NO/2 NC</td>
<td></td>
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<tr>
<td>02</td>
<td>2 NC</td>
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<tr>
<td>04</td>
<td>4 NC</td>
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Recommended cable lengths for pull-wire Emergency-Stop switches in relation to the range of ambient temperature.

At 5 m distance intermediate wire supports are required, see accessories on page 7.

Note

Recommended cable lengths for pull-wire Emergency-Stop switches in relation to the range of ambient temperature.

At 5 m distance intermediate wire supports are required, see accessories on page 7.

Note

The screwed G24-M20 indicator lamp must be ordered separately, see page 7.
Pull-wire switches

TQ 900

- Metal enclosure
- 4 contacts
- Position indicator
- Robust design
- Large wiring compartment
- 3 cable entries M20 x 1.5
- One tension force for wire lengths from 5 to 50 m
- Wire up to 50 m long
- Twisting of towing eye not possible
- Optional signalling lamp
- External watertight collar
- Wire pull and breakage function

Technical data

Standards: IEC/EN 60947-5-1
Enclosure: zinc die-cast, enamelled
Cover: thermoplastic
Protection class: IP 65 to IEC/EN 60529
Contact material: silver
1 NC/1 NO
or 2 NC/2 NO
or 3 NC/1 NO
or 2 NC
or 4 NC

Switching system: IEC 60947-5-1
slow action with positive break NC contacts

Connection: screw terminals

Cable section: max. 2.5 mm²

Cable entry: 3 x M20 x 1.5

Rated impulse withstand voltage \(U_{imp}\): 6 kV

Rated insulation voltage \(U_i\): 500 V

Thermal test current \(I_{test}\): 6 A

Utilisation category: AC-15, DC-13

Rated operating current/voltage \(I_e/U_e\):
4 A / 230 VAC
1 A / 24 VDC
6 A gG D-fuse to DIN EN 60269-1

Ambient temperature: \(-25°C \ldots +70°C\)

Mechanical life: > 1 million operations

Indicator lamp: optionally

Maximum cable length: 50 m

(please observe ambient temperature range and wire supports)

Features: wire pull and breakage detection

Contact variants

1 NO/1 NC
1 NO/3 NC
2 NC
2 NO/2 NC
1 NO/3 NC
4 NC

Approvals

Ordering details

<table>
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<th>TQ 900</th>
<th>No.</th>
<th>Replace</th>
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</tr>
<tr>
<td>04</td>
<td>4</td>
<td>NC</td>
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Recommendations

Recommended cable lengths for pull-wire switches in relation to the range of ambient temperature.

At 5 m distance intermediate wire supports are required, see accessories on page 7.

Note

The screwed G24-M20 indicator lamp must be ordered separately, see page 7.
Pull-wire emergency stop switches

Mode of operation

Wire pull and breakage detection

Not actuated

Wire pull detection

Wire breakage detection

Mounting instructions

One-side operation

1 = Wire rope
2 = Eyebolt
3 = Nut
4 = Wire clamp
5 = Tensioner
6 = Wire thimble
7 = Shackle
8 = Rope tensioner

A = Position indicator
B = Emergency-stop pushbutton

Thimble deformation

Note:
As the thimbles are subject to deformation in case of wire pull, the wire should be pulled several times after fitting. After that, the wire must be re-tensioned using the eyebolt or the tensioner.
# Pull-wire emergency stop switches

## System components

<table>
<thead>
<tr>
<th>Eyebolt</th>
<th>Pulley</th>
<th>Tension spring</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Eyebolt" /></td>
<td><img src="image" alt="Pulley" /></td>
<td><img src="image" alt="Tension spring" /></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Wire clamp</th>
<th>Tensioner</th>
<th>Wire rope</th>
<th>Shackle</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Wire clamp" /></td>
<td><img src="image" alt="Tensioner" /></td>
<td><img src="image" alt="Wire rope" /></td>
<td><img src="image" alt="Shackle" /></td>
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</tbody>
</table>

## Eyeletless stop systems

<table>
<thead>
<tr>
<th>Egg-shaped wire clamp</th>
<th>Wire thimble</th>
<th>Wire unit complete</th>
<th>Signalling lamp G24-M20</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Egg-shaped wire clamp" /></td>
<td><img src="image" alt="Wire thimble" /></td>
<td><img src="image" alt="Wire unit complete" /></td>
<td><img src="image" alt="Signalling lamp G24-M20" /></td>
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</table>

## Ordering details

<table>
<thead>
<tr>
<th>Eyebolt</th>
<th>Pulley</th>
<th>Tension spring</th>
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</thead>
<tbody>
<tr>
<td>BM 10 x 40</td>
<td>BM 8 x 70</td>
<td>Wire rope per m</td>
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<tr>
<td>1084928</td>
<td>1162986</td>
<td>on request</td>
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<tr>
<td>Wire clamp 3 mm</td>
<td>Wire unit complete 50 m</td>
<td>Wire rope per m</td>
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<td>1144548</td>
<td>(other lengths on request)</td>
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<tr>
<td>Egg-shaped wire clamp</td>
<td>Wire unit complete 50 m</td>
<td>Wire rope per m</td>
</tr>
<tr>
<td>1077072</td>
<td>(other lengths on request)</td>
<td>on request</td>
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<tr>
<td>Wire thimble 3B</td>
<td>Signalling lamp G24-M20</td>
<td>Tension spring</td>
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<tr>
<td>1144551</td>
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<td>Rope tensioner S 900</td>
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<tr>
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<td>on request</td>
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<td>Shackle</td>
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<td></td>
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<td>Signalling lamp G24-M20</td>
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<tr>
<td></td>
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<td>(LED 24 VDC)</td>
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