## IDEM Explosion-Proof Safety Cable-Pull Switches



IDEM's range of explosion-proof cable-pull switches has been developed to satisfy the latest IECEx and ATEX Standards and provide explosion-proof switching for use in hazardous locations created within the oil, chemical, pharmaceutical, food processing, packaging and other hazardous industries.

## Features

- 3m [9.84 ft] prewired pigtail cable
- Includes one tamper-proof T20 Torx bit
- Rope Pull kits sold separately and recommended for increased reliability
- 80 m [262ft], 100 m [328ft], 125 m [410ft] and 250 m [820ft] maximum length systems

These switches provide positively operated switching contacts. They combine explosion-proof protection and satisfy high functional safety requirements all in one device.
These switches are manufactured with ATEX Exd IIC T6 certified explosion proof contact blocks. All electrical switching elements are fully encapsulated.

| \|DEM Explosion-Proof Safety Cable-Pu|l Switches |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Part Number | Price | Maximum Rope Length | Construction Material | Mounting Profile | E-Stop | LED | Contact Configuration | Weight <br> (lb [kg]) | Drawings |
| GLS-EX-142030 | \$688.00 | 80 m [262ft] | Die-cast aluminum | 100 mm [ 3.94 in ] | Yes | No | $2 \mathrm{NO}, 2 \mathrm{NC}$ | 2.34 [1.06] | PDF |
| GLS-SS-EX-144030 | \$908.00 | 100 m [328ft] | 316 stainless steel | 100 mm [ 3.94 in ] | Yes | No | $2 \mathrm{NO}, 2 \mathrm{NC}$ | 4.59 [2.08] | PDF |
| GLHL-EX-141020 | \$701.00 | 125m [410ft] | Die-cast aluminum | 100 mm [ 3.94 in ] Left-hand head | Yes | No | 2 NO, 2 NC | 2.89 [1.31] | PDF |
| GLHR-EX-141022 | \$701.00 | 125m [410ft] | Die-cast aluminum | 100 mm [3.94 in] Right-hand head | Yes | No | $2 \mathrm{NO}, 2 \mathrm{NC}$ | 2.89 [1.31] | PDF |
| GLHD-EX-141018 | \$872.00 | 250 m [820ft] | Die-cast aluminum | 100 mm [3.94 in] Dual head | Yes | No | $2 \mathrm{NO}, 2 \mathrm{NC}$ | 3.39 [1.54] | PDF |

*See Recommended Rope Span Options and Fittings for number of switches recommended with specific maximum rope lengths.



| Cable Kits for IDEM Cable-Pu\|l Safety Switches |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Part <br> Number | Price | Description | Cable Length ( $m$ [ft]) | Construction Material | Weight <br> (lb [kg]) |
| 140002 | \$87.00 | Includes (1) cable, (5) eyebolts, <br> (1) tensioner / gripper and (1) allen key. | 10 [32] | Galvanized steel | 0.8 [0.36] |
| 140011 | \$121.00 |  |  | Stainless steel | 1.3 [0.59] |
| 140004 | \$123.00 | Includes (1) cable, (9) eyebolts, <br> (1) tensioner / gripper and (1) allen key. | 20 [65] | Galvanized steel | 2.2 [1.0] |
| 140013 | \$145.00 |  |  | Stainless steel | 2.9 [1.32] |
| 140005 | \$138.00 | Includes (1) cable, (12) eyebolts, <br> (1) tensioner / gripper and (1) allen key. | 30 [98] | Galvanized steel | 2.8 [1.27] |
| 140014 | \$173.00 |  |  | Stainless steel | 3.9 [1.77] |
| 140006 | \$165.00 | Includes (1) cable, (20) eyebolts, <br> (1) tensioner / gripper and (1) allen key. | 50 [164] | Galvanized steel | 4.5 [2.04] |
| 140015 | \$195.00 |  |  | Stainless steel | 6.0 [2.72] |
| 140007 | \$184.00 | Includes (1) cable, (30) eyebolts, <br> (2) tensioner / grippers and (1) allen key. | 80 [262] | Galvanized steel | 7.0 [3.18] |
| 140016 | \$205.00 |  |  | Stainless steel | 9.5 [4.31] |
| 140009 | \$222.00 | Includes (1) cable, (45) eyebolts, (2) tensioner / grippers and (2) allen keys. | 126 [413] | Galvanized steel | 13.9 [6.28] |
| 140018 | \$252.00 |  |  | Stainless steel | 14.0 [6.35] |



140033

# Steel Cable for IDEM Cable-Pull Safety Switches 



| Part Number | Price | Description | Cable Length <br> (m [ft]) | Weight <br> (lb [kg]) |
| :---: | :---: | :---: | :---: | :---: |
| 140033 | \$18.00 | 5 m length steel cable, 4 mm diameter, red | 5 [16] | 0.35 [0.16] |
| 140034 | \$27.00 | 10 m length steel cable, 4 mm diameter, red | 10 [32] | 0.7 [0.32] |
| 140036 | \$41.50 | 20 m length steel cable, 4 mm diameter, red | 20 [65] | 1.4 [0.64] |
| 140037 | \$53.00 | 30 m length steel cable, 4 mm diameter, red | 30 [98] | 2.1 [0.95] |
| 140038 | \$74.00 | 50 m length steel cable, 4 mm diameter, red | 50 [164] | 3.5 [1.59] |
| 140039 | \$110.00 | 80 m length steel cable, 4 mm diameter, red | 80 [262] | 5.4 [2.45] |
| 140040 | \$128.00 | 100 m length steel cable, 4 mm diameter, red | 100 [328] | 6.6 [2.99] |
| 140041 | \$145.00 | 126 m length steel cable, 4 mm diameter, red | 126 [413] | 8.42 [3.82] |


| DEM Cable-Pu\|l Saifiy Swhich Accossorios |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Part Number | Price | Description | Construction Material | Weight <br> (lb [kg]) | Drawings |
| 140019 | \$83.00 | Cable tensioner / gripper. Includes 4 mm allen wrench | Stainless steel | 0.5 [0.27] | PDF |
| 140020 | \$53.00 |  | Galvanized steel | 0.3 [0.14] | PDF |
| 140021 | \$35.50 | Pulley assembly | Stainless steel | 0.3 [0.14] | PDF |
| 140064 | \$23.50 |  | Galvanized steel | 0.2 [0.09] | PDF |
| 140045 | \$36.50 | Eye bolt 84 mm long, $\mathrm{M} 8 \times 1.25$ threads. Includes (2) flat washers and (2) nuts per eye bolt. Package of 8 . | Stainless steel | 0.8 [0.36] | PDF |
| 140046 | \$18.50 |  | Galvanized steel | 0.5 [0.27] | PDF |
| 140043 | \$24.50 | Spring, 220mm long | Stainless steel | 0.4 [0.18] | PDF |
| 140132-AS | \$46.00 | Replacement LED assembly, 24VDC, bi-color steady green and red. Use with GL series cable pull switches. | NA | 0.08 [0.04] | PDF |
| 140132-BS | \$54.00 | Replacement LED assembly, 110VAC, bi-color steady green and red. Use with GL series cable pull switches. | NA | 0.08 [0.04] | PDF |



## GLM 30m

Up to 30m [98ft]
1 switch / 1 spring


## GLM 50m

30 to 60m [98 to 197ft]
2 switches

## GLS 60m

Up to 60m [197ft]
1 switch / 1 spring


## GLS 80m

60 to 80 m [197 to 262ft]
2 switches

## GLS-SS 80m

Up to 80 m [262ft]
1 switch / 1 spring

## GLS-SS 100m

80 to 100 m [262 to 328 ft ]
2 switches

## GLHL/R 100m With Safety Springs

Up to 100 m [328ft]
1 switch / 1 spring


## GLHL/R 125m

Up to 125 m [410ft]
2 switches


## Recommended Rope Span Installations (continued)

## GLHD 200 m

 With Safety SpringsUp to 200m [656ft]
(100m [328ft] on each side) 1 switch / 2 springs

## GLHD/L/R 250m

Up to 250 m [820ft]
( 125 m [410ft] on each side)
2 switches


## Universal Pulley Examples

- Use two switches when using two pulleys
- When using a safety spring, use a maximum of one corner pulley



## LED

When power is applied to the Red wire (terminal 1), the lamp will illuminate red. When power is applied to the Green Wire (terminal 3), the lamp will illuminate green. Black is OVDC or neutral for 110 VAC and 230VAC versions.


## IDEM Explosion-Proof Safety Switches Specifications



| Specifications |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | HLM-EX / HLM-SS-EX | KM-EX / KM-SS-EX | KP-EX / K-SS-EX | GLS-EX / GLS-SS-EX | GLHx-EX |
| Safety Classification and Reliability Data |  |  |  |  |  |
| Switching Reliability $\left(B 10_{d}\right)$ | $2.5 \times 10^{6}$ operations at 100 mA load |  |  | $1.5 \times 10^{6}$ operations at 100 mA load |  |
| 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 |  |  |  |  |
| MTTF ${ }_{\text {d }}$ | 356 years |  |  | 214 years |  |
| Agency Approvals | ATEX, IECEX, CE <br> The contact block is cURus Hazardous Location rated (E358295) |  |  |  |  |
| Electrical and General Specifications |  |  |  |  |  |
| Utilization Category | B300 (pilot duty) |  |  |  |  |
| Minimum Switch Current | $5 \mathrm{~mA}, 5 \mathrm{VDC}$ |  |  |  |  |
| Thermal Current | 2.5 A max |  |  |  |  |
| Maximum <br> Switching Current | 250VAC/DC, 2.5 A maximum |  |  |  |  |
| Maximum <br> Approach/Withdrawal Speed | $600 \mathrm{~mm} / \mathrm{s}[23.6 \mathrm{in} / \mathrm{s}$ ] |  |  | NA |  |
| Enclosure Protection | IP67 (IP69K on all models with both stainless steel head and body) |  |  |  |  |
| Operating Temperature | $-20^{\circ} \mathrm{C}$ to $60^{\circ} \mathrm{C}\left[-4^{\circ} \mathrm{F}\right.$ to $\left.140^{\circ} \mathrm{F}\right]$ |  |  |  |  |
| Vibration | $\begin{gathered} \text { IEC } 68-2-6,10 \mathrm{~Hz} \text { to } 55 \mathrm{~Hz} \\ 0.35 \mathrm{~mm}[0.01 \mathrm{in}] \end{gathered}$ | IEC $68-2-6,10 \mathrm{~Hz}$ to $55 \mathrm{~Hz}+1 \mathrm{~Hz}$ |  |  |  |
| Lid Screws/Torque | Plated brass <br> $1 \mathrm{~N} \cdot \mathrm{~m}[0.74 \mathrm{lb} \cdot \mathrm{ft}]$ | Stainless steel T20 Torx $1 \mathrm{~N} \cdot \mathrm{~m}[0.74 \mathrm{lb} \cdot \mathrm{ft}]$ | Stainless steel <br> $1 \mathrm{~N} \cdot \mathrm{~m}[0.74 \mathrm{lb} \cdot \mathrm{ft}]$ |  | $\begin{gathered} \text { Stainless steel } \\ \text { T20 Torx } \\ 1.5 \mathrm{~N} \cdot \mathrm{~m}[1.11 \mathrm{lb} \cdot \mathrm{ft}] \end{gathered}$ |
| Recommended Mounting Screws/ Torque | $\begin{gathered} \text { M4 } \\ 2 \mathrm{~N} \cdot \mathrm{~m}[1,48 \mathrm{lb} \cdot \mathrm{ft}] \end{gathered}$ | $\begin{gathered} \mathrm{M} 5 \\ 4 \mathrm{~N} \cdot \mathrm{~m}[2.95 \mathrm{lb} \cdot \mathrm{ft}] \end{gathered}$ |  |  |  |
| Head Screws/Torque | Stainless steel, except snap (plated brass) <br> $1 \mathrm{~N} \cdot \mathrm{~m}[0.74 \mathrm{lb} \cdot \mathrm{ft}]$ | Stainless steel T20 Torx <br> $1 \mathrm{~N} \cdot \mathrm{~m}[0.74 \mathrm{lb} \cdot \mathrm{ft}]$ | Stainless steel; 1 N•m [0.74 lbft] |  |  |

## Interlock Safety Switch Types

Slow-make/slow-break contacts:
A contact element in which the contact motion is dependent on the actuator speed.

## Contacts Configuration

## 1 NO and 2 NC

Slow-make/slow-break contacts


3 NC
Slow-make/slow-break contacts


## Snap-action contact:

A contact element in which the contact motion is independent of the speed of the actuator. This feature ensures reliable electrical performance even in applications involving very slow moving actuators.

## 1 NO and 1 NC

Snap action contacts


1 NO and 3 NC
Slow-make/slow-break contacts


1 NO and 1 NC
Slow-make/slow-break contacts

## 2 NO and 2 NC

Slow-make/slow-break contacts

2 NC
Slow-make/slow-break contacts


$$
\begin{aligned}
& \Leftrightarrow 21 —+22 \\
& \Leftrightarrow 11 \square-12
\end{aligned}
$$

## Travel Charts



## Interlock Switches

2NC 1NO

| 6.86 .0 |  | mm |
| :---: | :---: | :---: |
| $11 / 12$ | Open |  |
| $21 / 22$ | Open |  |
| $33 / 34$ |  | Open |

$\begin{array}{llll}3 N C & 1 N O & 6.8 \quad 6.0 & 0 \mathrm{~mm}\end{array}$

| $11 / 12$ | Open |  |
| :--- | :--- | :---: |
| $21 / 22$ | Open |  |
| $31 / 32$ | Open |  |
| $43 / 44$ | Open |  |

1NC 1NO (SNAP) $\quad 6.5$

| $11 / 12$ | Open |  |
| :---: | :---: | :---: |
| $23 / 24$ |  | Open |



User to ensure that by correct positioning of the shaft at installation causes the safety contacts to open such that no hazard exists to the operator when the door is opened a few degrees.

## Safety Rope Switches


2NC 2NO

| $11 / 12$ | Open | 6.8 |  |
| :--- | :--- | :--- | :---: |
| $21 / 22$ | Open |  |  |
| $33 / 34$ |  | Open |  |
| $43 / 44$ |  | Open |  |


| $E X$ | $\mathbf{1}$ NO/2 NC | 1 NO/3 N.C. | 2 NO/2 N.C. |
| :---: | :---: | :---: | :---: |
|  | $11 / 12$ | $11 / 12$ | $11 / 12$ |
|  | $21 / 22$ | $21 / 22$ | $21 / 22$ |
|  |  | $31 / 32$ |  |
| NO | $33 / 34$ | $43 / 44$ | $33 / 44$ |
|  |  |  | $43 / 44$ |


| Latched off - Rope <br> Slack | Tension Range (Switch <br> Reset) | Rope Pulled |
| :---: | :---: | :---: |
| Open |  | Open |
| Open |  | Open |
| Open |  | Open |
|  | Open |  |
|  | Open |  |

## Safety Products



Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.

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