

# 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.

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.

## 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
- 80m [262ft], 100m [328ft], 125m [410ft] and 250m [820ft] maximum length systems



| IDEM Explosion-Proof Safety Cable-Pull Switches |            |                     |                       |                                    |        |     |                       |                  |                     |
|-------------------------------------------------|------------|---------------------|-----------------------|------------------------------------|--------|-----|-----------------------|------------------|---------------------|
| Part Number                                     | Price      | Maximum Rope Length | Construction Material | Mounting Profile                   | E-Stop | LED | Contact Configuration | Weight (lb [kg]) | Drawings            |
| <a href="#">GLS-EX-142030</a>                   | \$770.00   | 80m [262ft]         | Die-cast aluminum     | 100mm [3.94 in]                    | Yes    | No  | 2 NO, 2 NC            | 2.34 [1.06]      | <a href="#">PDF</a> |
| <a href="#">GLS-SS-EX-144030</a>                | \$1,010.00 | 100m [328ft]        | 316 stainless steel   | 100mm [3.94 in]                    | Yes    | No  | 2 NO, 2 NC            | 4.59 [2.08]      | <a href="#">PDF</a> |
| <a href="#">GLHL-EX-141020</a>                  | \$785.00   | 125m [410ft]        | Die-cast aluminum     | 100mm [3.94 in]<br>Left-hand head  | Yes    | No  | 2 NO, 2 NC            | 2.89 [1.31]      | <a href="#">PDF</a> |
| <a href="#">GLHR-EX-141022</a>                  | \$785.00   | 125m [410ft]        | Die-cast aluminum     | 100mm [3.94 in]<br>Right-hand head | Yes    | No  | 2 NO, 2 NC            | 2.89 [1.31]      | <a href="#">PDF</a> |
| <a href="#">GLHD-EX-141018</a>                  | \$977.00   | 250m [820ft]        | Die-cast aluminum     | 100mm [3.94 in]<br>Dual head       | Yes    | No  | 2 NO, 2 NC            | 3.39 [1.54]      | <a href="#">PDF</a> |

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



**GLHD-EX-141018**  
Dual head



**GLHL-EX-141020**  
Left-hand



**GLHR-EX-141022**  
Right-hand

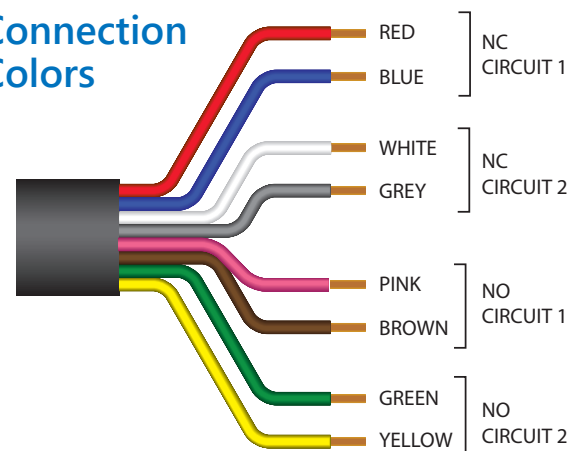


**GLS-EX-142030**



**GLS-SS-EX-144030**

## Connection Colors



# IDEM Cable-Pull Safety Rope Switches



## Cable Kits for IDEM Cable-Pull Safety Switches

| Part Number            | Price    | Description                                                                     | Cable Length (m [ft]) | Construction Material | Weight (lb [kg]) |
|------------------------|----------|---------------------------------------------------------------------------------|-----------------------|-----------------------|------------------|
| <a href="#">140002</a> | \$96.00  | Includes (1) cable, (5) eyebolts, (1) tensioner / gripper and (1) allen key.    | 10 [32]               | Galvanized steel      | 0.8 [0.36]       |
| <a href="#">140011</a> | \$133.00 |                                                                                 |                       | Stainless steel       | 1.3 [0.59]       |
| <a href="#">140004</a> | \$135.00 | Includes (1) cable, (9) eyebolts, (1) tensioner / gripper and (1) allen key.    | 20 [65]               | Galvanized steel      | 2.2 [1.0]        |
| <a href="#">140013</a> | \$160.00 |                                                                                 |                       | Stainless steel       | 2.9 [1.32]       |
| <a href="#">140005</a> | \$152.00 | Includes (1) cable, (12) eyebolts, (1) tensioner / gripper and (1) allen key.   | 30 [98]               | Galvanized steel      | 2.8 [1.27]       |
| <a href="#">140014</a> | \$191.00 |                                                                                 |                       | Stainless steel       | 3.9 [1.77]       |
| <a href="#">140006</a> | \$182.00 | Includes (1) cable, (20) eyebolts, (1) tensioner / gripper and (1) allen key.   | 50 [164]              | Galvanized steel      | 4.5 [2.04]       |
| <a href="#">140015</a> | \$215.00 |                                                                                 |                       | Stainless steel       | 6.0 [2.72]       |
| <a href="#">140007</a> | \$203.00 | Includes (1) cable, (30) eyebolts, (2) tensioner / grippers and (1) allen key.  | 80 [262]              | Galvanized steel      | 7.0 [3.18]       |
| <a href="#">140016</a> | \$271.00 |                                                                                 |                       | Stainless steel       | 9.5 [4.31]       |
| <a href="#">140009</a> | \$244.00 | Includes (1) cable, (45) eyebolts, (2) tensioner / grippers and (2) allen keys. | 126 [413]             | Galvanized steel      | 13.9 [6.28]      |
| <a href="#">140018</a> | \$340.00 |                                                                                 |                       | Stainless steel       | 14.0 [6.35]      |

**140002****140033**

## Steel Cable for IDEM Cable-Pull Safety Switches

| Part Number            | Price    | Description                                | Cable Length (m [ft]) | Weight (lb [kg]) |
|------------------------|----------|--------------------------------------------|-----------------------|------------------|
| <a href="#">140033</a> | \$20.50  | 5m length steel cable, 4mm diameter, red   | 5 [16]                | 0.35 [0.16]      |
| <a href="#">140034</a> | \$30.00  | 10m length steel cable, 4mm diameter, red  | 10 [32]               | 0.7 [0.32]       |
| <a href="#">140036</a> | \$46.00  | 20m length steel cable, 4mm diameter, red  | 20 [65]               | 1.4 [0.64]       |
| <a href="#">140037</a> | \$59.00  | 30m length steel cable, 4mm diameter, red  | 30 [98]               | 2.1 [0.95]       |
| <a href="#">140038</a> | \$81.00  | 50m length steel cable, 4mm diameter, red  | 50 [164]              | 3.5 [1.59]       |
| <a href="#">140039</a> | \$121.00 | 80m length steel cable, 4mm diameter, red  | 80 [262]              | 5.4 [2.45]       |
| <a href="#">140040</a> | \$141.00 | 100m length steel cable, 4mm diameter, red | 100 [328]             | 6.6 [2.99]       |
| <a href="#">140041</a> | \$160.00 | 126m length steel cable, 4mm diameter, red | 126 [413]             | 8.42 [3.82]      |

## IDEM Cable-Pull Safety Switch Accessories

| Part Number               | Price   | Description                                                                                               | Construction Material | Weight (lb [kg]) | Drawings            |
|---------------------------|---------|-----------------------------------------------------------------------------------------------------------|-----------------------|------------------|---------------------|
| <a href="#">140019</a>    | \$91.00 | Cable tensioner / gripper. Includes 4mm allen wrench                                                      | Stainless steel       | 0.5 [0.27]       | <a href="#">PDF</a> |
| <a href="#">140020</a>    | \$57.00 |                                                                                                           | Galvanized steel      | 0.3 [0.14]       | <a href="#">PDF</a> |
| <a href="#">140021</a>    | \$39.00 | Pulley assembly                                                                                           | Stainless steel       | 0.3 [0.14]       | <a href="#">PDF</a> |
| <a href="#">140064</a>    | \$25.50 |                                                                                                           | Galvanized steel      | 0.2 [0.09]       | <a href="#">PDF</a> |
| <a href="#">140045</a>    | \$40.00 | Eye bolt 84mm long, M8 x 1.25 threads. Includes (2) flat washers and (2) nuts per eye bolt. Package of 8. | Stainless steel       | 0.8 [0.36]       | <a href="#">PDF</a> |
| <a href="#">140046</a>    | \$21.00 |                                                                                                           | Galvanized steel      | 0.5 [0.27]       | <a href="#">PDF</a> |
| <a href="#">140043</a>    | \$27.00 | Spring, 220mm long                                                                                        | Stainless steel       | 0.4 [0.18]       | <a href="#">PDF</a> |
| <a href="#">140132-AS</a> | \$50.00 | Replacement LED assembly, 24VDC, bi-color steady green and red. Use with GL series cable pull switches.   | NA                    | 0.08 [0.04]      | <a href="#">PDF</a> |
| <a href="#">140132-BS</a> | \$59.00 | Replacement LED assembly, 110VAC, bi-color steady green and red. Use with GL series cable pull switches.  | NA                    | 0.08 [0.04]      | <a href="#">PDF</a> |

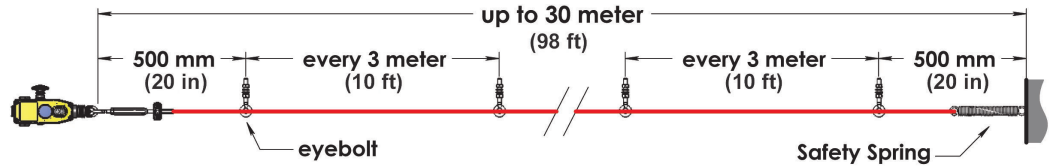
**140019****140021****140045****140043****140132-AS**

# IDEM Cable-Pull Rope Span Options and Fittings

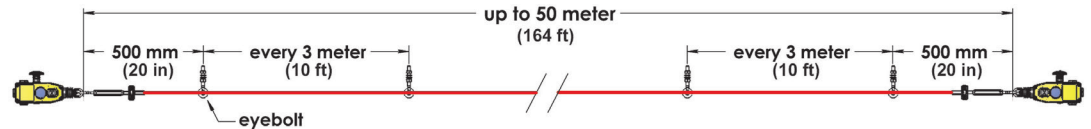
## Recommended Rope Span Installations

**GLM 30m**

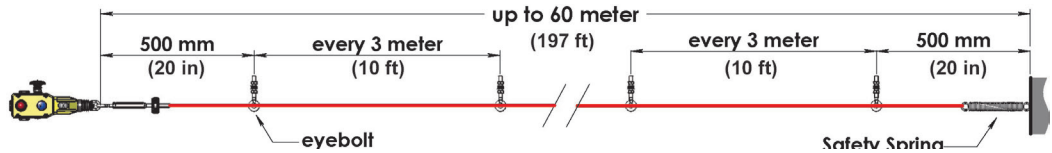
Up to 30m [98ft]  
1 switch / 1 spring

**GLM 50m**

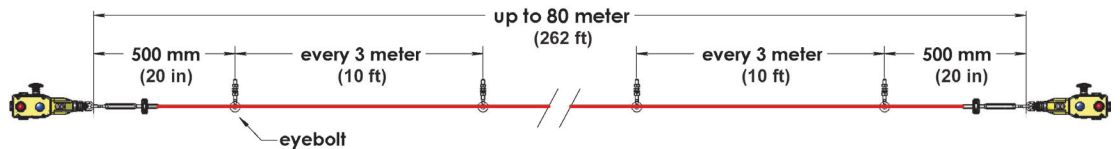
30 to 60m [98 to 197ft]  
2 switches

**GLS 60m**

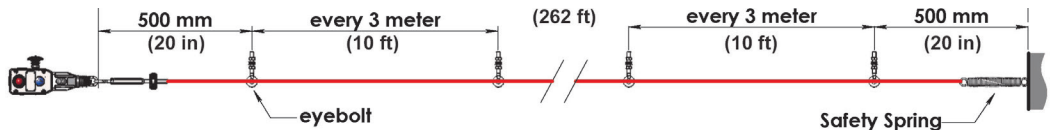
Up to 60m [197ft]  
1 switch / 1 spring

**GLS 80m**

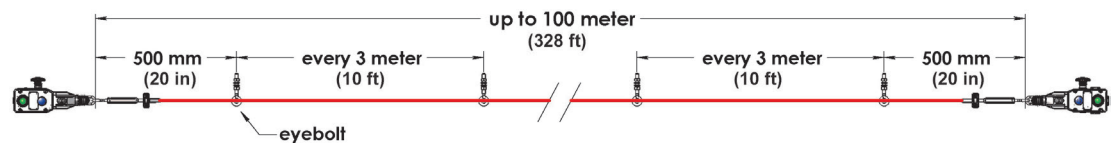
60 to 80m [197 to 262ft]  
2 switches

**GLS-SS 80m**

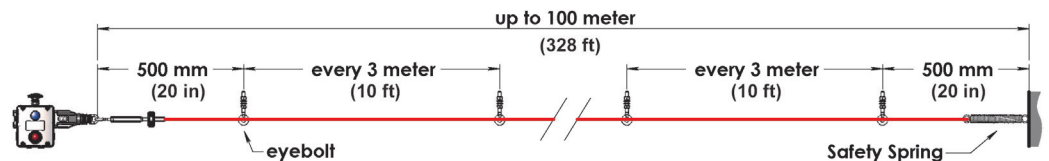
Up to 80m [262ft]  
1 switch / 1 spring

**GLS-SS 100m**

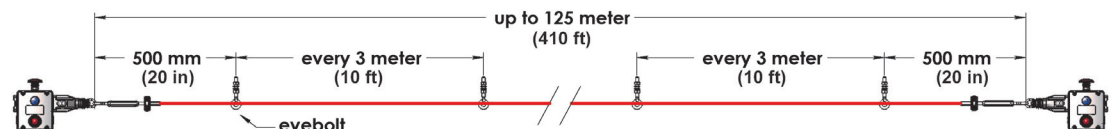
80 to 100m [262 to 328ft]  
2 switches

**GLHL/R 100m**

**With Safety Springs**  
Up to 100m [328ft]  
1 switch / 1 spring

**GLHL/R 125m**

Up to 125m [410ft]  
2 switches



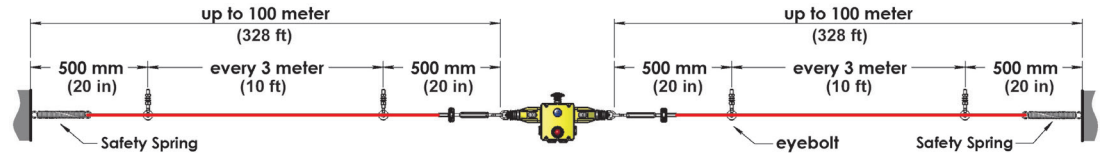
# IDEM Cable-Pull Rope Span Options and Fittings



## Recommended Rope Span Installations (continued)

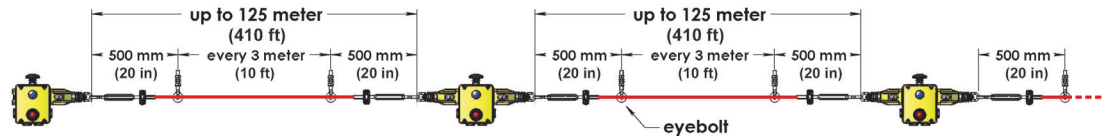
### GLHD 200m With Safety Springs

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



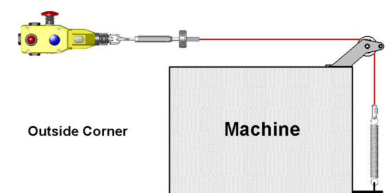
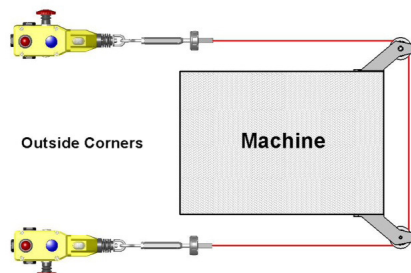
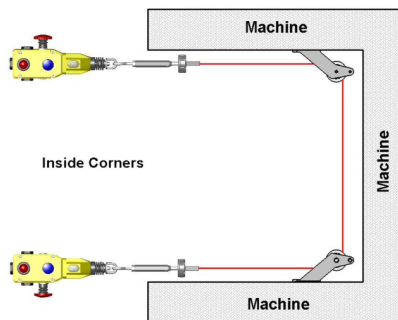
### GLHD/L/R 250m

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



## Universal Pulley Examples

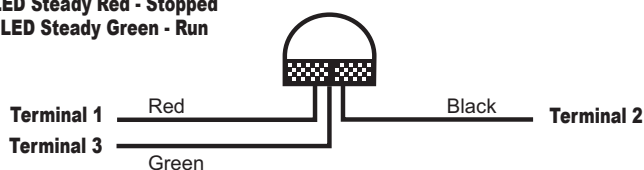
- Use two switches when using two pulleys
- When using a safety spring, use a maximum of one corner pulley



## 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 0VDC or neutral for 110 VAC and 230VAC versions.

LED Steady Red - Stopped  
LED Steady Green - Run



# 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 (B10 <sub>d</sub> )  | 2.5 x 10 <sup>6</sup> operations at 100mA load                                   |                                                   |                                       | 1.5 x 10 <sup>6</sup> operations at 100mA 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 <sub>d</sub>                          | 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                     | 5mA, 5VDC                                                                        |                                                   |                                       |                                                |                                                     |
| Thermal Current                            | 2.5 A max                                                                        |                                                   |                                       |                                                |                                                     |
| Maximum Switching Current                  | 250VAC/DC, 2.5 A maximum                                                         |                                                   |                                       |                                                |                                                     |
| Maximum Approach/Withdrawal Speed          | 600mm/s [23.6 in/s]                                                              |                                                   |                                       | NA                                             |                                                     |
| Enclosure Protection                       | IP67 (IP69K on all models with both stainless steel head and body)               |                                                   |                                       |                                                |                                                     |
| Operating Temperature                      | -20°C to 60°C [-4°F to 140°F]                                                    |                                                   |                                       |                                                |                                                     |
| Vibration                                  | IEC 68-2-6, 10Hz to 55Hz<br>0.35mm [0.01 in]                                     | IEC 68-2-6, 10Hz to 55Hz + 1Hz                    |                                       |                                                |                                                     |
| Lid Screws/Torque                          | Plated brass<br>1 N•m [0.74 lb•ft]                                               | Stainless steel<br>T20 Torx<br>1 N•m [0.74 lb•ft] | Stainless steel<br>1 N•m [0.74 lb•ft] |                                                | Stainless steel<br>T20 Torx<br>1.5 N•m [1.11 lb•ft] |
| Recommended Mounting Screws/Torque         | M4<br>2 N•m [1.48 lb•ft]                                                         | M5<br>4N•m [2.95 lb•ft]                           |                                       |                                                |                                                     |
| Head Screws/Torque                         | Stainless steel, except snap (plated brass)<br>1 N•m [0.74 lb•ft]                | Stainless steel<br>T20 Torx<br>1 N•m [0.74 lb•ft] | Stainless steel; 1 N•m [0.74 lb•ft]   |                                                |                                                     |

# IDEM Interlock/Hinge Safety Travel Charts



## Interlock Safety Switch Types

### Slow-make/slow-break contacts:

A contact element in which the contact motion is dependent on the actuator speed.

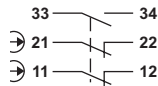
### Snap-action contact:

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.

## Contacts Configuration

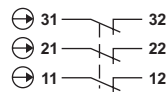
### 1 NO and 2 NC

Slow-make/slow-break contacts



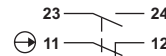
### 3 NC

Slow-make/slow-break contacts



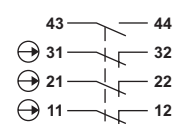
### 1 NO and 1 NC

Snap action contacts



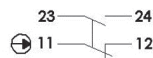
### 1 NO and 3 NC

Slow-make/slow-break contacts



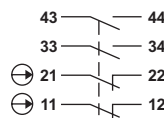
### 1 NO and 1 NC

Slow-make/slow-break contacts



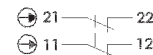
### 2 NO and 2 NC

Slow-make/slow-break contacts



### 2 NC

Slow-make/slow-break contacts



## Travel Charts



### Interlock Switches

2NC 1NO 6.8 6.0 0 mm

|       |      |      |
|-------|------|------|
| 11/12 | Open |      |
| 21/22 | Open |      |
| 33/34 |      | Open |

3NC 6.0 0 mm

|       |      |  |
|-------|------|--|
| 11/12 | Open |  |
| 21/22 | Open |  |
| 31/32 | Open |  |

3NC 1NO 6.8 6.0 0 mm

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

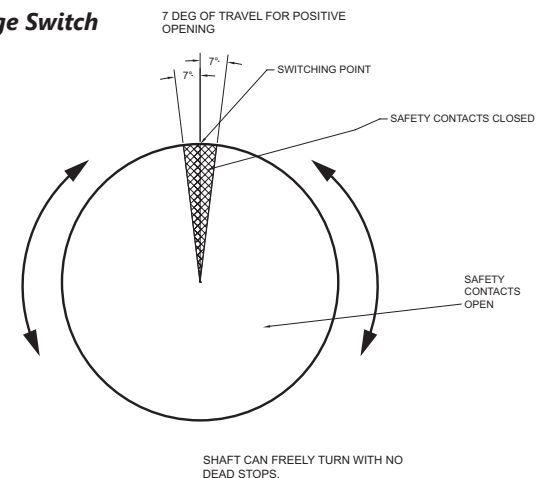
2NC 2NO 6.8 6.0 0 mm

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

1NC 1NO (SNAP) 6.5 0 mm

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

### Hinge Switch



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

| EX | 1 NO/2 NC | 1 NO/3 N.C. | 2 NO/2 N.C. | 0 mm                     | 3.5 mm                       | 14.5 mm     | 17.0 mm |
|----|-----------|-------------|-------------|--------------------------|------------------------------|-------------|---------|
|    |           |             |             | Latched off - Rope Slack | Tension Range (Switch Reset) | Rope Pulled |         |
| NC | 11/12     | 11/12       | 11/12       | Open                     |                              | Open        |         |
|    | 21/22     | 21/22       | 21/22       | Open                     |                              | Open        |         |
|    |           | 31/32       |             | Open                     |                              | Open        |         |
| NO | 33/34     | 43/44       | 33/44       |                          | Open                         |             |         |
|    |           |             | 43/44       |                          | 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.*

*AutomationDirect does not provide design or consulting services, and cannot advise whether any specific application or use of our products would ensure compliance with the safety requirements for any application.*