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
GLS-EX-142030	$793.00	80m [262ft]	Die-cast aluminum	100mm [3.94 in]	Yes	No	2 NO, 2 NC	2.34 [1.06]	PDF
GLS-SS-EX-144030	$1,040.00	100m [328ft]	316 stainless steel	100mm [3.94 in]	Yes	No	2 NO, 2 NC	4.59 [2.08]	PDF
GLHL-EX-141020	$809.00	125m [410ft]	Die-cast aluminum	100mm [3.94 in] Left-hand head	Yes	No	2 NO, 2 NC	2.89 [1.31]	PDF
GLHR-EX-141022	$809.00	125m [410ft]	Die-cast aluminum	100mm [3.94 in] Right-hand head	Yes	No	2 NO, 2 NC	2.89 [1.31]	PDF
GLHD-EX-141018	$1,006.00	250m [820ft]	Die-cast aluminum	100mm [3.94 in] Dual head	Yes	No	2 NO, 2 NC	3.39 [1.54]	PDF

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

GLHD-EX-141018
Dual head

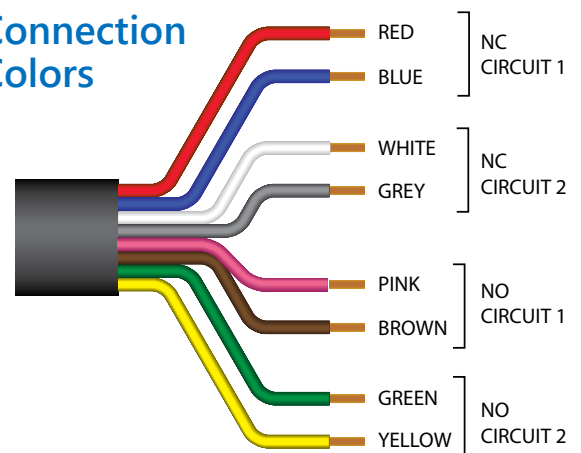**GLHL-EX-141020**
Left-hand

GLHR-EX-141022
Right-hand

GLS-EX-142030

GLS-SS-EX-144030

Connection Colors

RED	NC CIRCUIT 1
BLUE	
WHITE	NC CIRCUIT 2
GREY	
PINK	NO CIRCUIT 1
BROWN	
GREEN	NO CIRCUIT 2
YELLOW	

Safety Electrical Components

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])
140002	$99.00	Includes (1) cable, (5) eyebolts, (1) tensioner / gripper and (1) allen key.	10 [32]	Galvanized steel	0.8 [0.36]
140011	$140.00			Stainless steel	1.3 [0.59]
140004	$139.00	Includes (1) cable, (9) eyebolts, (1) tensioner / gripper and (1) allen key.	20 [65]	Galvanized steel	2.2 [1.0]
140013	$168.00			Stainless steel	2.9 [1.32]
140005	$157.00	Includes (1) cable, (12) eyebolts, (1) tensioner / gripper and (1) allen key.	30 [98]	Galvanized steel	2.8 [1.27]
140014	$200.00			Stainless steel	3.9 [1.77]
140006	$187.00	Includes (1) cable, (20) eyebolts, (1) tensioner / gripper and (1) allen key.	50 [164]	Galvanized steel	4.5 [2.04]
140015	$226.00			Stainless steel	6.0 [2.72]
140007	$209.00	Includes (1) cable, (30) eyebolts, (2) tensioner / grippers and (1) allen key.	80 [262]	Galvanized steel	7.0 [3.18]
140016	$285.00			Stainless steel	9.5 [4.31]
140009	$251.00	Includes (1) cable, (45) eyebolts, (2) tensioner / grippers and (2) allen keys.	126 [413]	Galvanized steel	13.9 [6.28]
140018	$357.00			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])
140033	$21.00	5m length steel cable, 4mm diameter, red	5 [16]	0.35 [0.16]
140034	$31.00	10m length steel cable, 4mm diameter, red	10 [32]	0.7 [0.32]
140036	$47.00	20m length steel cable, 4mm diameter, red	20 [65]	1.4 [0.64]
140037	$60.00	30m length steel cable, 4mm diameter, red	30 [98]	2.1 [0.95]
140038	$83.00	50m length steel cable, 4mm diameter, red	50 [164]	3.5 [1.59]
140039	$125.00	80m length steel cable, 4mm diameter, red	80 [262]	5.4 [2.45]
140040	$145.00	100m length steel cable, 4mm diameter, red	100 [328]	6.6 [2.99]
140041	$165.00	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
140019	$96.00	Cable tensioner / gripper. Includes 4mm allen wrench	Stainless steel	0.5 [0.27]	PDF
140020	$59.00		Galvanized steel	0.3 [0.14]	PDF
140021	$41.00	Pulley assembly	Stainless steel	0.3 [0.14]	PDF
140064	$26.50		Galvanized steel	0.2 [0.09]	PDF
140045	$42.00	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]	PDF
140046	$21.50		Galvanized steel	0.5 [0.27]	PDF
140043	$28.00	Spring, 220mm long	Stainless steel	0.4 [0.18]	PDF
140132-AS	$52.00	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	$61.00	Replacement LED assembly, 110VAC, bi-color steady green and red. Use with GL series cable pull switches.	NA	0.08 [0.04]	PDF

140019

140021

140045

140043

140132-AS

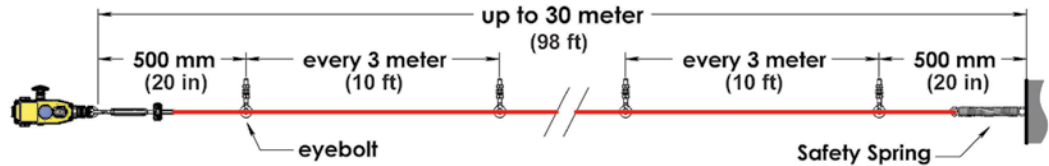# IDEM Cable-Pull
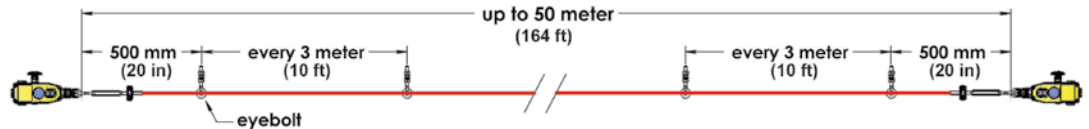# Rope Span Options and Fittings

Recommended Rope Span Installations
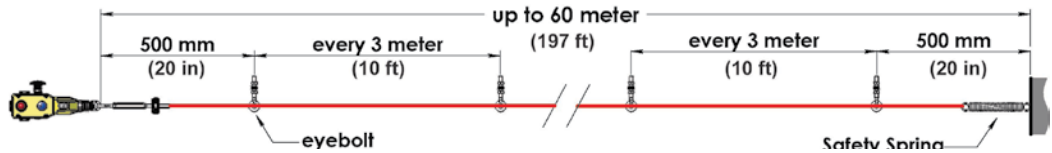
GLM 30m
Up to 30m [98ft]
1 switch / 1 spring

GLM 50m
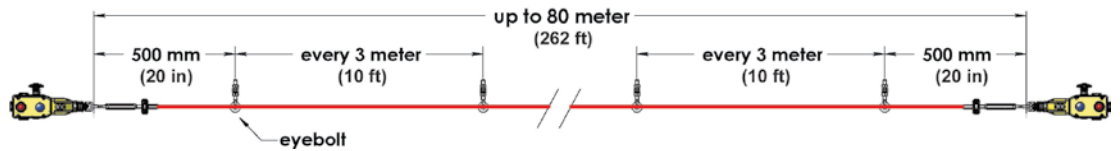30 to 60m [98 to 197ft]
2 switches

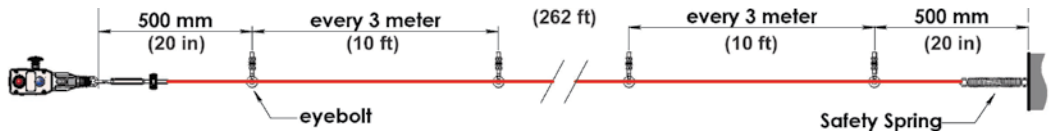**GLS 60m**
Up to 60m [197ft]
1 switch / 1 spring
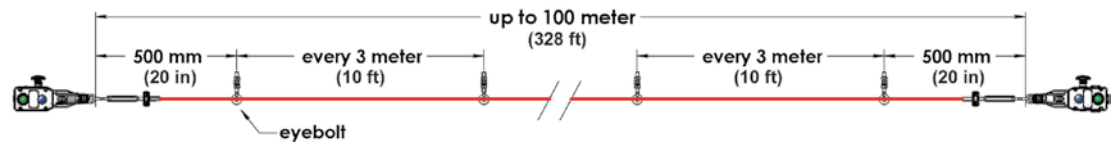

GLS 80m
60 to 80m [197 to 262ft]
2 switches

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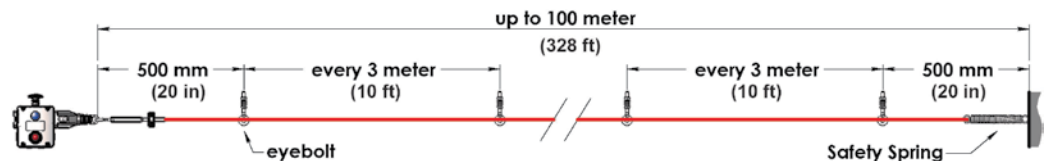Up to 80m [262ft]
1 switch / 1 spring

GLS-SS 100m
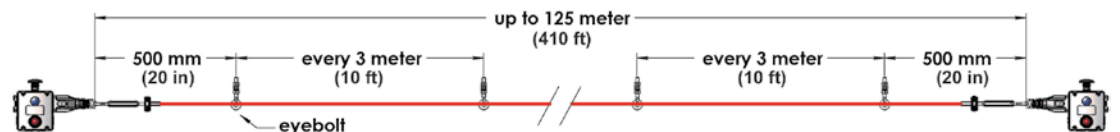80 to 100m [262 to 328ft]
2 switches

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

GLHL/R 125m
Up to 125m [410ft]
2 switches

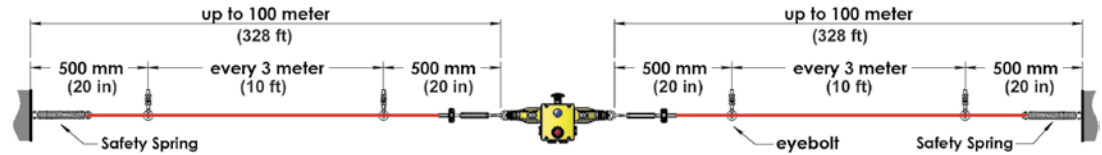**Safety Electrical Components**   tESC-133

IDEM Cable-Pull
Rope Span Options and Fittings
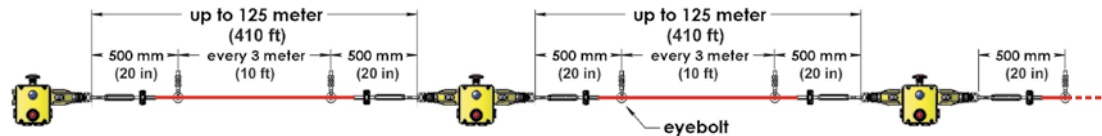
Recommended Rope Span Installations (continued)

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

up to 100 meter (328 ft) — 500 mm (20 in) — every 3 meter (10 ft) — 500 mm (20 in)
up to 100 meter (328 ft) — 500 mm (20 in) — every 3 meter (10 ft) — 500 mm (20 in)
Safety Spring — eyebolt — Safety Spring

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

up to 125 meter (410 ft) — 500 mm (20 in) — every 3 meter (10 ft) — 500 mm (20 in)
up to 125 meter (410 ft) — 500 mm (20 in) — every 3 meter (10 ft) — 500 mm (20 in) — 500 mm (20 in)
eyebolt

Universal Pulley Examples

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

Inside Corners

Machine

Machine

Outside Corners

Machine

Outside Corner

Machine
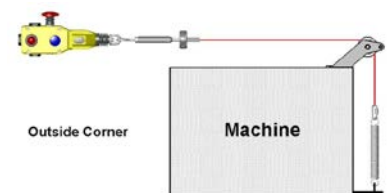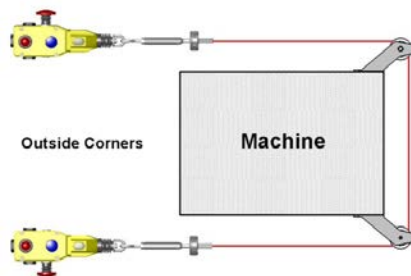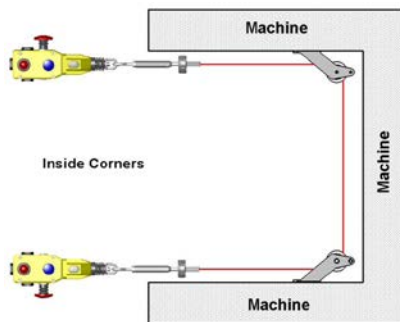
LED

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

Terminal 1   Red   Black   **Terminal 2**
Terminal 3   Green
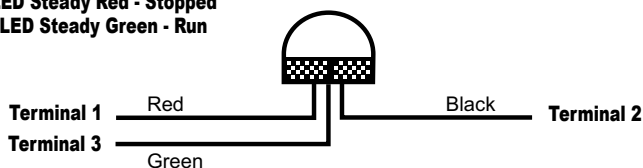
IDEM Explosion-Proof Safety Switches Specifications

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$_d$)	2.5 x 10^6 operations at 100mA load			1.5 x 10^6 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$_d$	356 years			214 years	
Agency Approvals	ATEX, IECEx, CE 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 0.35mm [0.01 in]	IEC 68-2-6, 10Hz to 55Hz + 1Hz			
Lid Screws/Torque	Plated brass 1 N•m [0.74 lb•ft]	Stainless steel T20 Torx 1 N•m [0.74 lb•ft]	Stainless steel 1 N•m [0.74 lb•ft]		Stainless steel T20 Torx 1.5 N•m [1.11 lb•ft]
Recommended Mounting Screws/ Torque	M4 2 N•m [1,48 lb•ft]	M5 4N•m [2.95 lb•ft]			
Head Screws/Torque	Stainless steel, except snap (plated brass) 1 N•m [0.74 lb•ft]	Stainless steel T20 Torx 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.

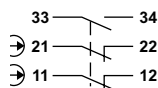**Snap-action contact:**
A contact element in which the contact motion is independent of the speed of the actuator. This feature ensures reliable electrical performance even in applications involving very slow moving actuators.
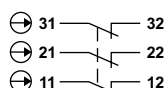
Contacts Configuration
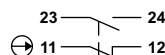
1 NO and 2 NC
Slow-make/slow-break contacts

```
33 ——— 34
21 ——— 22
11 ——— 12
```

3 NC
Slow-make/slow-break contacts

```
31 ——— 32
21 ——— 22
11 ——— 12
```

1 NO and 1 NC
Snap action contacts

```
23 ——— 24
11 ——— 12
```

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

```
43 ——— 44
31 ——— 32
21 ——— 22
11 ——— 12
```
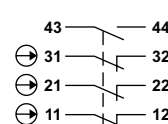
1 NO and 1 NC
Slow-make/slow-break contacts

```
23 ——— 24
11 ——— 12
```

2 NO and 2 NC
Slow-make/slow-break contacts

```
43 ——— 44
33 ——— 34
21 ——— 22
11 ——— 12
```

2 NC
Slow-make/slow-break contacts

```
21 ——— 22
11 ——— 12
```

Travel Charts

Contact Open
Contact Closed

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

7 DEG OF TRAVEL FOR POSITIVE OPENING

7°. 7°.

SWITCHING POINT

SAFETY CONTACTS CLOSED

SAFETY CONTACTS OPEN

SHAFT CAN FREELY TURN WITH NO DEAD STOPS.
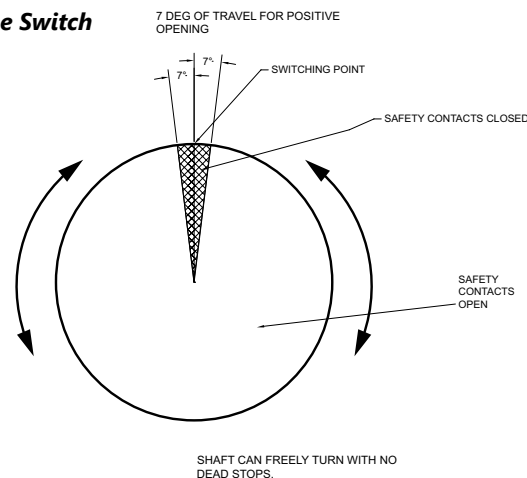
User to ensure that by correct positioning of the shaft at installation causes the safety contacts to open such that no hazard exists to the operator when the door is opened a few degrees.

Safety Rope Switches

| | | | | 0 mm | 3.5 mm | 14.5 mm | 17.0 mm |

EX	1 NO/2 NC	1 NO/3 N.C.	2 NO/2 N.C.	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.

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