

# IDEM Inch Hinge Safety Switches

## Inch Hinge Series Housing

- Shaft hinge (Idem Inch Hinge) interlock operated
- M16, M20, 1/2 in NPT threaded opening or M12 connection
- 16.5mm to 18mm mounting profile (Inch-X); 16.5mm to 22mm mounting profile (MK-1)
- 25mm plastic, 30mm stainless steel housings

- Compact body
- Plastic and stainless steel housings
- 90° adjustable head
- Force guided N.C. contacts

See electrical specifications later in this section.

### IDEM Inch Hinge Series

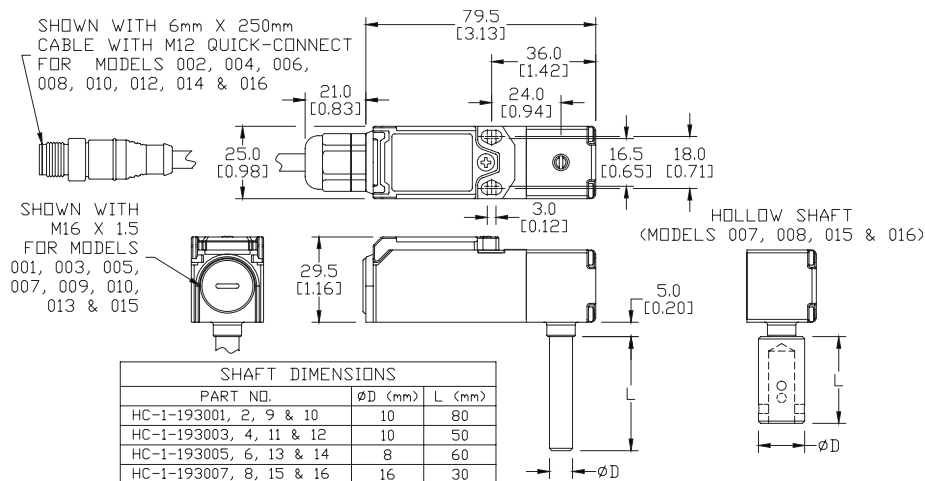


| IDEM Inch Hinge Safety Switches |       |               |                     |             |                                              |                       |                           |                      |            |
|---------------------------------|-------|---------------|---------------------|-------------|----------------------------------------------|-----------------------|---------------------------|----------------------|------------|
| Part Number                     | Price | Body Material | Head Material       | Weight (lb) | Actuator Travel / Force for Positive Opening | Contact Configuration | Shaft Size                | Connection           | Dimensions |
| <a href="#">HC-1-193001</a>     |       | Plastic       | 316 stainless steel | 0.29        | 7° / 0.5N                                    | 2 N.C. Slow action    | Solid diameter 10 x 80mm  | 1 x M16              | Figure 1   |
| <a href="#">HC-1-193002</a>     |       | Plastic       | 316 stainless steel | 0.32        | 7° / 0.5N                                    | 2 N.C. Slow action    | Solid diameter 10 x 80mm  | M12 Quick disconnect | Figure 1   |
| <a href="#">HC-1-193007</a>     |       | Plastic       | 316 stainless steel | 0.29        | 7° / 0.5N                                    | 2 N.C. Slow action    | Hollow diameter 16 x 30mm | 1 x M16              | Figure 1   |
| <a href="#">HC-1-193008</a>     |       | Plastic       | 316 stainless steel | 0.32        | 7° / 0.5N                                    | 2 N.C. Slow action    | Hollow diameter 16x 30mm  | M12 Quick disconnect | Figure 1   |

## Dimensions

mm [in]

Figure 1  
HC-1



# IDEM Interlock Safety Switches Specifications



| Specifications                             |                                                                                                                                                 |                                                   |                                       |    |                          |      |                                                     |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------|----|--------------------------|------|-----------------------------------------------------|
|                                            | IDIS                                                                                                                                            | INCH/MK1                                          | HC                                    | KM | KP/K-SS                  | K-15 | GLx                                                 |
| Safety Classification and Reliability Data |                                                                                                                                                 |                                                   |                                       |    |                          |      |                                                     |
| Switching Reliability (B10 <sub>d</sub> )  | 2.5 x 10 <sup>6</sup> operations at 100 mA load                                                                                                 |                                                   |                                       |    |                          |      | 1.5 x 10 <sup>6</sup> 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                                                                                                 |                                                   |                                       |    |                          |      |                                                     |
| Agency Approvals                           | cULus (E258676), CE                                                                                                                             |                                                   |                                       |    |                          |      | cULus (E258676), CE, TUV                            |
| Electrical and General Specifications      |                                                                                                                                                 |                                                   |                                       |    |                          |      |                                                     |
| Conductor Sizes                            | 16-12 AWG (1.5 to 2.5 mm <sup>2</sup> )                                                                                                         |                                                   |                                       |    |                          |      |                                                     |
| Utilization Category                       | AC15, A300, 3 A                                                                                                                                 |                                                   |                                       |    |                          |      |                                                     |
| Thermal Current                            | 10A                                                                                                                                             |                                                   |                                       |    |                          |      |                                                     |
| Short Circuit Overload Protection          | External 10A Fast Acting recommended                                                                                                            |                                                   |                                       |    |                          |      |                                                     |
| Rated Insulation Voltage                   | 600 VAC                                                                                                                                         |                                                   |                                       |    | 500 VAC                  |      |                                                     |
| Contact Terminals                          | Stainless steel (Snap action plated brass); Max conductor 1.5 m <sup>2</sup> (IDIS), 2.5 m <sup>2</sup> (KM, K/K-15); 1 N•m [0.74 lb•ft] torque |                                                   |                                       |    |                          |      |                                                     |
| Maximum Switching Current                  | 2.5A @24 VDC 6A @ 120 VAC, 3A @ 240 VDC (720 VA Break)                                                                                          |                                                   |                                       |    |                          |      |                                                     |
| Maximum Approach/Withdrawal Speed          | 600 mm/s [23.6 in/s]                                                                                                                            |                                                   |                                       |    |                          |      | NA                                                  |
| Enclosure Protection                       | IP67 (IP69K on all models with both stainless steel head and body)                                                                              |                                                   |                                       |    |                          |      |                                                     |
| Operating Temperature                      | -25 to 80 °C [-13 to 176 °F]                                                                                                                    |                                                   |                                       |    |                          |      |                                                     |
| Vibration                                  | IEC 68-2-6, 10 Hz to 55 Hz + 1 Hz                                                                                                               |                                                   |                                       |    |                          |      | 10 Hz to 500 Hz<br>0.35mm [0.014in]                 |
| 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/<br>Torque     | M4<br>1.5 N•m [1.11 lb•ft]                                                                                                                      | M5<br>4 N•m [2.95 lb•ft]                          | M4<br>1.5 N•m [1.11 lb•ft]            |    | M5<br>4 N•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.

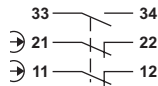
### Snap-action contact:

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

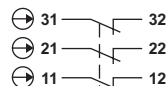
### 1 N.O. and 2 N.C.

Slow-make/slow-break contacts



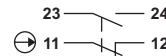
### 3 N.C.

Slow-make/slow-break contacts



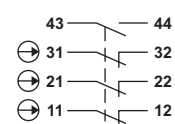
### 1 N.O. and 1 N.C.

Snap action contacts



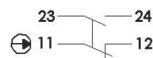
### 1 N.O. and 3 N.C.

Slow-make/slow-break contacts



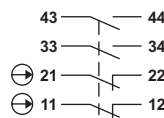
### 1 N.O. and 1 N.C.

Slow-make/slow-break contacts



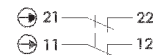
### 2 N.O. and 2 N.C.

Slow-make/slow-break contacts



### 2 N.C.

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 |

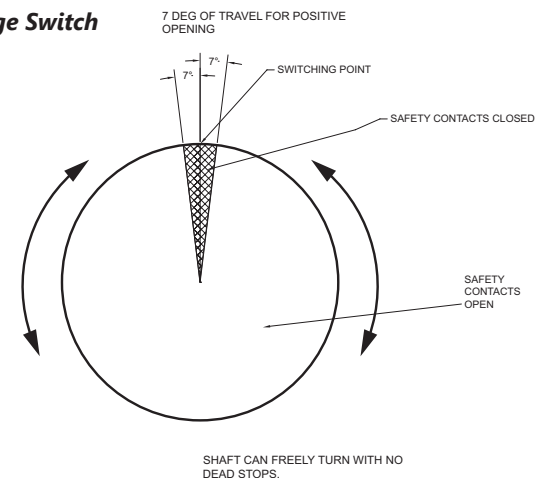
2NC 2NO 6.8 6.0 0 mm

|       |      |      |
|-------|------|------|
| 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 N.O./2 N.C. | 1 N.O./3 N.C. | 2 N.O./2 N.C. | 0 mm                     | 3.5 mm                       | 14.5 mm     | 17.0 mm |
|------|---------------|---------------|---------------|--------------------------|------------------------------|-------------|---------|
|      |               |               |               | Latched off - Rope Slack | Tension Range (Switch Reset) | Rope Pulled |         |
| N.C. | 11/12         | 11/12         | 11/12         | Open                     |                              | Open        |         |
|      | 21/22         | 21/22         | 21/22         | Open                     |                              | Open        |         |
|      |               | 31/32         |               | Open                     |                              | Open        |         |
| N.O. | 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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