

## APPLICATION:

IDEM Limit switches are designed to be mounted for position sensing of moving applications e.g. guard doors, conveyors, machine beds, elevators etc.
They are available with linear plungers, rotary levers or roller plungers and either slow or snap action contacts. All contact blocks are positively operated to satisfy IEC 60947-5-1.

## Operation:

Operation of the switches is achieved by a sliding actuation of the moving object to cause deflection of the switch plungers or levers.
For Safety applications it is important that the moving object does not pass completely over the switch actuators so as to cause the actuator to return to its original position.
Installation Guide: Correct Mounting of Limit Switches is critical to obtain optimum performance and ensure safety reliability. nstallation of all switches must be in accordance with a risk assessment for the individual application.
Installation must only be carried out by competent personnel and in accordance with these instructions.

1. Never use the switch as a mechanical stop. Ensure that the actuator is protected from mechanical shock.
2. For switches with Linear actuators the actuating direction and force from the moving object should be applied in line with the axis of the plunger.
3. For switches with Rotary actuators or rollers the operating cam from the moving object should be designed such that the switch is never operated beyond its over travel position. Always use a 30 degree tapered actuating cam.

4. Always ensure that when running electrical conductors that they are routed correctly and no damage can occur to the cable insulation.
5. Always use M5 mounting bolts and ensure 2Nm tightening torque for robust fitting.

## Maintenance:

Every Week: Check switch actuator and body for signs of mechanical damage and wear. Replace any switch showing damage.
Every 6 Months: Isolate power and remove cover. Check screw terminal tightness and check for signs of moisture ingress. Never attempt to repair any switch.

## Contact Block Options:

3NC 1NO ${ }^{2 N C} 2 N O \quad$ 4NC

## Safety Limit Switches

## Safety Limit Switches HLM



Gold Plated Contacts available for low power circuits ( 5 V .5 mA ). Add GC to Part Number e.g. 174151-GC


## Safety Limit Switches

## Safety Limit Switches HLM-SS



| HLM-SS Short Roller Lever |  |  |  |
| :---: | :---: | :---: | :---: |
|  | M20 | Sales Numbers |  |
| 1/2NPT | QC M23 |  |  |
| 2NC 2NO | 175001 | 175002 | 175003 |
| 3NC 1NO | 175004 | 175005 | 175006 |
| 4NC | 175007 | 175008 | 175009 |
| 1NC 1NO Snap | 175010 | 175011 | 175012 |
| 1NC 1NO EX | 175013 | 3 m .4 core | Ex |
| 2NC EX | 175014 | 3 m .4 core | Ex |
| 2NC 2NO EX | 175015 | 3m. 8 core | Ex |

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 175001-GC


| HLM-SS Roller Plunger |  |  | Sales Numbers |  |
| :---: | :---: | :---: | :---: | :---: |
|  | M20 | $1 / 2$ NPT | QC M12 |  |
| 2NC 2NO | 175051 | 175052 | 175053 |  |
| 3NC 1NO | 175054 | 175055 | 17556 |  |
| 4NC | 175057 | 175058 | 175059 |  |
| 1NC 1NO Snap | 175060 | 175061 | 175062 |  |
| 1NC 1NO EX | 175063 | 3 m .4 core | Ex |  |
| 2NC EX | 175064 | 3 m .4 core | Ex |  |
| 2NC 2NO EX | 175065 | 3m. 4 core Ex |  |  |

Gold Plated Contacts available for low power circuits ( 5 V .5 mA ). Add GC to Part Number e.g. 175051-GC




| HLM-SS Pin Plunger |  |  | Sales Numbers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | M20 | $1 / 2^{\prime N P T}$ | QC M12 |  |  |
| 2NC 2NO | 175101 | 175102 | 175103 |  |  |
| 3NC 1NO | 175104 | 175105 | 175106 |  |  |
| 4NC | 175107 | 175108 | 175109 |  |  |
| 1NC 1NO Snap | 175110 | 175111 | 175112 |  |  |
| 1NC 1NO EX | 175113 | 3 m .4 core Ex |  |  |  |
| 2NC EX | 175114 | 3 m .4 core Ex |  |  |  |
| 2NC 2NO EX | 175115 | $3 \mathrm{~m} . ~ 8$ core Ex |  |  |  |

Gold Plated Contacts available for low power circuits ( 5 V .5 mA ). Add GC to Part Number e.g. 175101-GC


| HLM-SS Spring Lever |  |  | Sales Numbers |  |
| :---: | :---: | :---: | :---: | :---: |
|  | M20 | $1 / 2$ NPT | QC M12 |  |
| 2NC 2NO | 175151 | 175152 | 175153 |  |
| 3NC 1NO | 175154 | 175155 | 175156 |  |
| 4NC | 175157 | 175158 | 175159 |  |
| 1NC 1NO Snap | 175160 | 175161 | 175162 |  |
| 1NC 1NO EX | 175163 | 3 m .4 core |  |  |
| 2NC EX | 175164 | 3 m .4 core Ex |  |  |
| 2NC 2NO EX | 175165 | 3 m .8 core Ex |  |  |

Gold Plated Contacts available for low power circuits ( 5 V .5 mA ). Add GC to Part Number e.g. 175151-GC


## Safety Limit Switches

## Safety Classification and Reliability Data:

| Mechanical Reliability B10d | $2.5 \times 10^{6}$ operations at 100 mA load |
| :--- | :--- |
| EN 954-1 | Up to Category 4 with Safety Relay |
| ISO 13849-1 | Up to PLe depending upon system architecture |
| EN 60261 | Up to SIL3 depending upon system architecture |
| Safety Data - Annual Usage | 8 cycles per hour / 24 hours per day / 365 days |
| PFHd | $3.44 \times 10^{-8}$ |
| Proof Test Interval (Life) | 35 years |
| MTTFd | 356 years |

## Technical Specification:

| Conforming to standards | EN1088 IEC 947-5-1 UL508 EN50041 |
| :--- | :--- |
| Positive Opening Operation | NC Contacts |
| Utilization Category | AC15 A300 240V. 3A. |
| Min Current | $5 \mathrm{~V}, 5 \mathrm{~mA}, \mathrm{DC}$ |
| Thermal Current (lth) | 10 A |
| Rated Impulse Withstand Volt | 2500 VAC |


| Case Material | HLM (Die Cast Painted Red) HLM-SS (Stainless Steel 316) |
| :--- | :--- |
| Enclosure Protection | HLM IP67 HLM-SS IP67/IP69K |
| Operating Temperature | Min. $-25^{\circ} \mathrm{C} \mathrm{Max} 80^{\circ} \mathrm{C}$ |
| Mechanical Life Expectancy | $5 \times 10^{6} \mathrm{Cycle} \mathrm{min}$. |
| Vibration | IEC 68-2-6, $10-55 \mathrm{~Hz} 0.35 \mathrm{~mm}$ |
| Conductor size | 1.5 sq.mm |
| Fixing | M5 Bolts |

Pre-Wired Explosion Proof
Ex Exd IIC T6 $(-20 \leqslant T a \leqslant+60 C) \mathrm{Gb}$
Ex Ex tb IIIC T85C $(-20 \leqslant T a \leqslant+60 \mathrm{C}) \mathrm{Db}$

