

## HLM-ARL HLM-SS-ARL HLM-AL HLM-SS-AL Operating Instructions

**HLM-ARL  
(Die-Cast) IP67**



**HLM-SS-ARL  
(S/Steel)  
IP69K**



**HLM-AL  
(Die-Cast) IP67**



**HLM-SS-AL  
(S/Steel)  
IP69K**



### APPLICATIONS:

IDEM Limit Switches are designed to be mounted for position sensing of moving applications, e.g. guard doors, conveyors, machine beds and elevators. They are supplied with a telescopic arm that extends up to 620mm with either slow or snap action contacts.

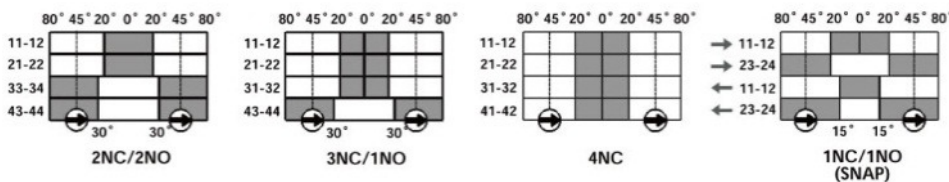
### FEATURES:

- Heavy Duty Die Cast or Stainless Steel 316 bodies.
- Explosion Proof versions available (see Part Numbers Ex).
- Industry standard mounting to EN50041.
- High Mechanical Life 2,500,000 cycles.
- Die Cast Housing IP67 rated.
- Stainless Steel Housing IP69K rated.

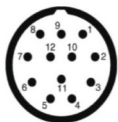
### OPERATION:

Operation of the switches is achieved by a sliding actuation of the moving object to cause deflection of the switch arm. It is important that the moving object does not pass completely over the switch actuators so as to either cause damage to the actuator or allow it to return to its original position.

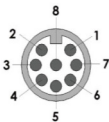
Contact blocks provide positively operated safety contacts to IEC 60947-5-1.



QC Quick Connect Versions



Quick Connect  
Pin view from switch



| Quick Connect (QC)<br>M23 12 Way Male<br>(connector Length 26mm)<br>Pin view from switch | Switch Circuit     | Quick Connect (QC)<br>M12 8 Way Male<br>(on Flying Lead 250mm)<br>Pin view from switch |
|--|--------------------|--|
| 1 3  | 11 / 12            | 1 7  |
| 4 6  | 21 / 22            | 6 5  |
| 7 8  | 33 / 34 or 31 / 32 | 4 3  |
| 9 10   | 41 / 42 or 43 / 44 |  |

| SAFETY CLASSIFICATION AND RELIABILITY DATA: |   |
|---|---|
| Mechanical Reliability B10d                 | 2.5 x 10 <sup>6</sup> operations at 100mA load                          |
| 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<br>MTTFd 356 years      |
| TECHNICAL SPECIFICATIONS:                   |   |
| Case Material                               | HLM-ARL HLM-AL (Die Cast)<br>HLM-SS-ARL HLM-SS-AL (Stainless Steel 316) |
| Enclosure Protection                        | Die Cast IP67 Stainless Steel IP67 / IP69K<br>(Connectors IP67)         |
| Operating Temperature                       | Min. -25°C Max 80°C (105C cleaning S/Steel)                             |
| Typical operating parameters                | 0.4Nm Torque 15-30 degrees contact changeover                           |
| Vibration                                   | IEC 68-2-6, 10-55Hz 0.35mm  |
| Conductor size                              | 1.5 sq.mm   |
| Fixing                                      | M5 Bolts  |
| Positive Opening Operation                  | NC Contacts   |
| Utilization Category                        | AC15 A300 240V. 3A.   |
| Min Current                                 | 5V, 5mA, DC   |
| Thermal Current (Ith)                       | 10A   |
| Rated Impulse Withstand Volt                | 2500VAC   |

### INFORMATION FOR UL Standards:

Type 1 Enclosures.  
Use 16 - 12AWG copper conductors, rated 75°C minimum.  
Intended for same polarity use. Electrical Rating: A300 240V.ac 3A. (6,000 cycles) 240V. 10A. carry only.  
Wire range: 16AWG – 12AWG Copper Torque 7lb/in (0.8Nm)  
Earth bonding terminal inside enclosure if required.



**WARNING: DO NOT DEFEAT, TAMPER, OR BYPASS THE SAFETY FUNCTION. FAILURE TO DO SO CAN RESULT IN DEATH OR SERIOUS INJURY.**

**AVERTISSEMENT: NE PAS DESACTIVER, MODIFIER, RETIRER, OU CONTOURNER CETI INTERVERROUILLAGE IL PEUT EN RESULTER DES**

### Original Instructions.

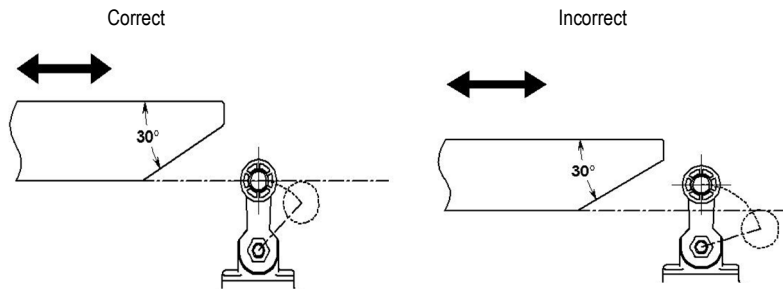
To request this data sheet in other languages please contact [info@idemsafety.com](mailto:info@idemsafety.com)  
Um dieses Datenblatt in Deutscher Sprache wenden Sie sich bitte anfordern [info@idemsafety.com](mailto:info@idemsafety.com)  
Pour obtenir cette fiche en Français, veuillez contacter [info@idemsafety.com](mailto:info@idemsafety.com)  
Para solicitar esta hoja de datos en Español, por favor contacto con [info@idemsafety.com](mailto:info@idemsafety.com)

# Limit Switches

## Installation Guide: Correct Mounting of Limit Switches is critical to obtain optimum performance and ensure safety reliability.

Installation 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. Ensure 2Nm tightening torque for rods and levers.
3. For switches with 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.



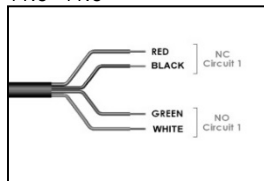
4. Always ensure that when running electrical conductors that they are routed correctly and no damage can occur to the cable insulation.
5. Always use M5 mounting bolts and ensure 2Nm tightening torque for robust fitting.
6. Ensure 1Nm tightening torque for conduit plugs and cable glands to achieve IP rating.
7. The safety functions and mechanics must be tested regularly. For applications where infrequent guard access is foreseeable, the system must have a manual function test to detect a possible accumulation of faults. At least once per month for PLc Cat3/4 or once per year for PLd Cat3 (ISO13849-1). Where possible it is recommended that the control system of the machine demands and monitors these tests, and stops or prevents the machine from starting if the test is not done. (See ISO14119).

## Maintenance:

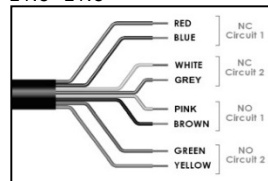
Every Month: Check switch actuator and body for signs of mechanical damage and wear. Replace any switch showing damage.  
 Every 6 Months: Isolate power and remove cover. Check screw terminal tightness and check for signs of moisture ingress. Never attempt to repair any switch.

## Wiring and ratings for EX versions:

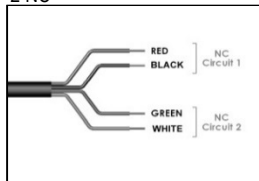
1 NC 1 NO



2 NC 2 NO



2 NC



## Optional EX circuits:

| Type           | IDEM LS-EX internal switch                                       |
|----------------|--|
| Classification | Ex d IIC T6 (-20C Ta 60C) Gb<br>Ex tb IIIC T85C (-20C Ta 60C) Db |
| Rated Voltage  | 250V ac/dc   |
| Rated Current  | 2 pole 4A. 4 pole 2.5A.  |

## IMPORTANT:

### SPECIFIC CONDITION OF USE:

THE INTEGRAL CABLE SHALL BE SUITABLY PROTECTED FROM PHYSICAL DAMAGE AND ABRASION.  
 THE INTEGRAL CABLE IS TO BE TERMINATED IN A SUITABLE TERMINAL FACILITY.

