Safety Limit Switches

HLM HLM-SS Operating Instructions

HLM (Die-Cast) IP66 / IP67



HLM-SS (Stainless Steel) IP66 / IP67 / IP69K



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.

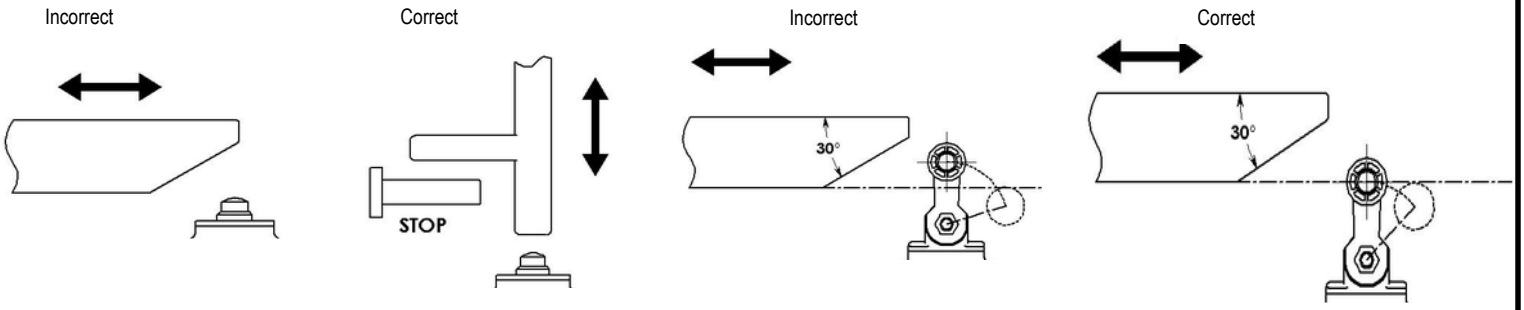
Operation:

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.**

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. 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.

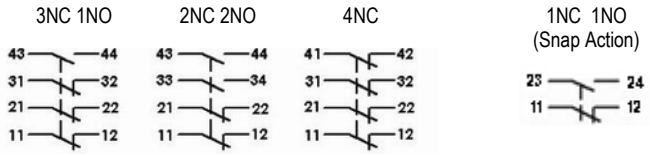


4. Always ensure that when running electrical conductors that they are routed correctly and no damage can occur to the cable insulation.
5. Always use M5 mounting bolts and ensure 2Nm tightening torque for robust fitting.
6. Ensure 1Nm tightening torque for conduit plugs and cable glands to achieve IP rating.
7. The safety functions and mechanics must be tested regularly. For applications were 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 PLe 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.

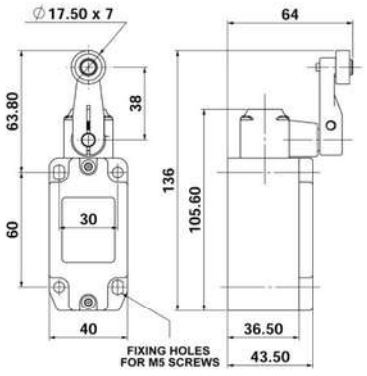
Contact Block Options:



Safety Limit Switches

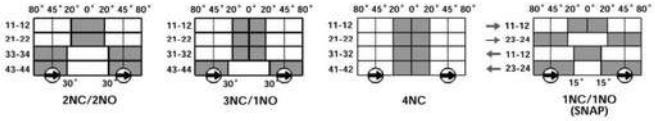
Safety Limit Switches HLM



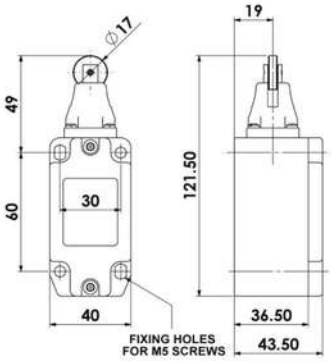


HLM Short Roller Lever	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	174001	174002	174003
3NC 1NO	174004	174005	174006
4NC	174007	174008	174009
1NC 1NO Snap	174010	174011	174012
1NC 1NO EX	174013	3m. 4 core Ex	
2NC EX	174014	3m. 4 core Ex	
2NC 2NO EX	174015	3m. 8 core Ex	

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174001-GC

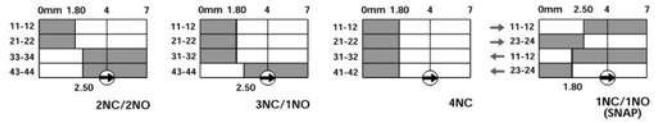




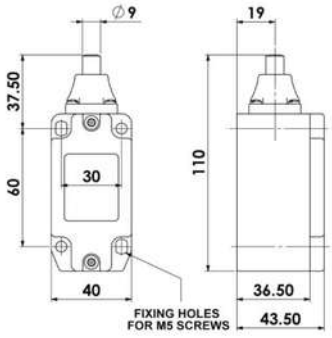


HLM Roller Plunger	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	174051	174052	174053
3NC 1NO	174054	174055	174056
4NC	174057	174058	174059
1NC 1NO Snap	174060	174061	174062
1NC 1NO EX	174063	3m. 4 core Ex	
2NC EX	174064	3m. 4 core Ex	
2NC 2NO EX	174065	3m. 4 core Ex	

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174051-GC

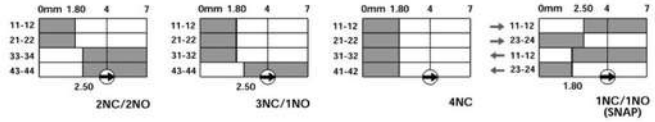




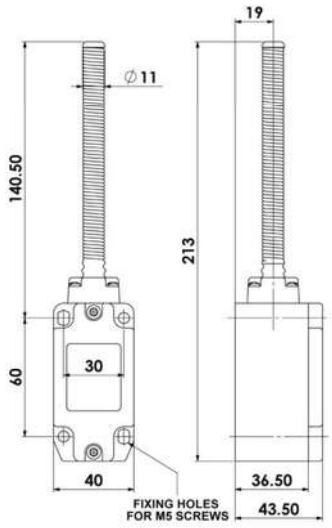


HLM Pin Plunger	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	174101	174102	174103
3NC 1NO	174104	174105	174106
4NC	174107	174108	174109
1NC 1NO Snap	174110	174111	174112
1NC 1NO EX	174113	3m. 4 core Ex	
2NC EX	174114	3m. 4 core Ex	
2NC 2NO EX	174115	3m. 8 core Ex	

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174101-GC

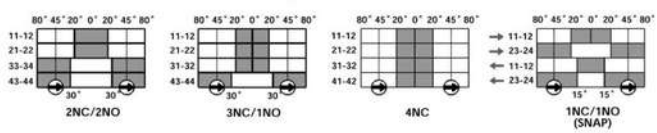






HLM Spring Lever	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	174151	174152	174153
3NC 1NO	174154	174155	174156
4NC	174157	174158	174159
1NC 1NO Snap	174160	174161	174162
1NC 1NO EX	174163	3m. 4 core Ex	
2NC EX	174164	3m. 4 core Ex	
2NC 2NO EX	174165	3m. 8 core Ex	

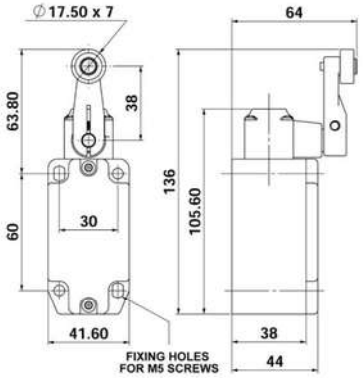
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174151-GC



Safety Limit Switches

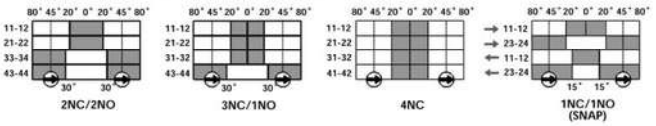
Safety Limit Switches HLM-SS



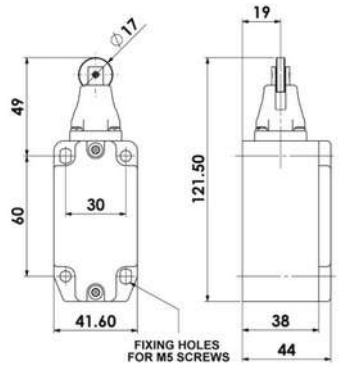


HLM-SS Short Roller Lever	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	175001	175002	175003
3NC 1NO	175004	175005	175006
4NC	175007	175008	175009
1NC 1NO Snap	175010	175011	175012
1NC 1NO EX	175013	3m. 4 core Ex	
2NC EX	175014	3m. 4 core Ex	
2NC 2NO EX	175015	3m. 8 core Ex	

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

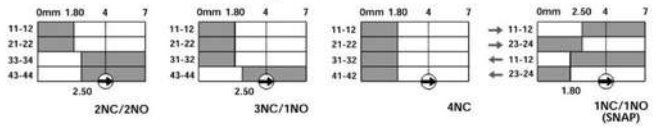




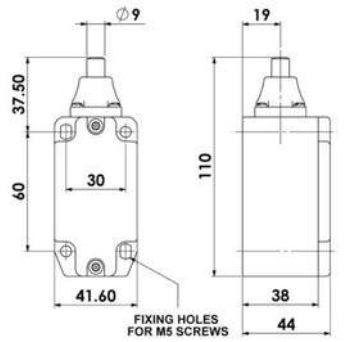


HLM-SS Roller Plunger	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	175051	175052	175053
3NC 1NO	175054	175055	175056
4NC	175057	175058	175059
1NC 1NO Snap	175060	175061	175062
1NC 1NO EX	175063	3m. 4 core Ex	
2NC EX	175064	3m. 4 core Ex	
2NC 2NO EX	175065	3m. 4 core Ex	

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

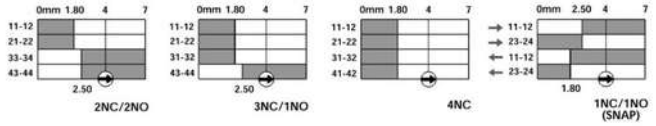




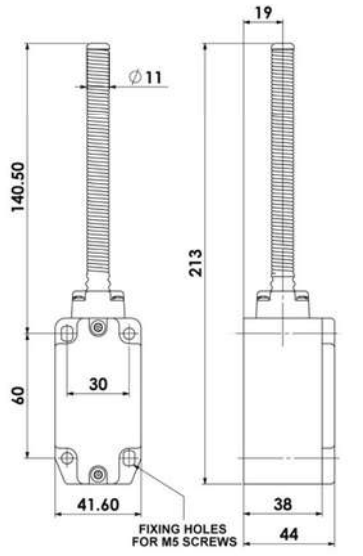


HLM-SS Pin Plunger	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	175101	175102	175103
3NC 1NO	175104	175105	175106
4NC	175107	175108	175109
1NC 1NO Snap	175110	175111	175112
1NC 1NO EX	175113	3m. 4 core Ex	
2NC EX	175114	3m. 4 core Ex	
2NC 2NO EX	175115	3m. 8 core Ex	

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

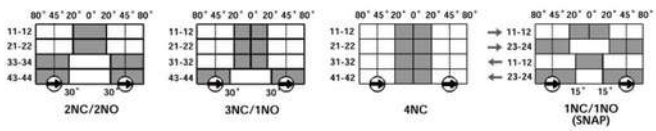






HLM-SS Spring Lever	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	175151	175152	175153
3NC 1NO	175154	175155	175156
4NC	175157	175158	175159
1NC 1NO Snap	175160	175161	175162
1NC 1NO EX	175163	3m. 4 core Ex	
2NC EX	175164	3m. 4 core Ex	
2NC 2NO EX	175165	3m. 8 core Ex	

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



Safety Limit Switches

Safety Classification and Reliability Data:

Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
ISO 13849-1	Up to PLe depending upon system architecture
Safety Data – Annual Usage	8 cycles per hour / 24 hours per day / 365 days
	MTTFd 356 years

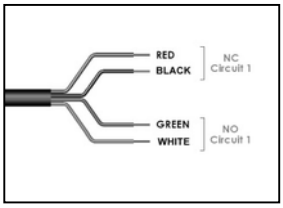
Technical Specification:

Conforming to standards	ISO14119 IEC947-5-1 UL60947-5-1 EN50041 ISO13849-1
Positive Opening Operation (NC Contacts)	Linear Types 18N. Rotary Types 0.4Nm. Spring Lever Types 2N.
Utilization Category	AC15 A300 240V. 3A.
Min Current	5V, 5mA, DC
Thermal Current (Ith)	10A
Rated Impulse Withstand Volt	2500VAC

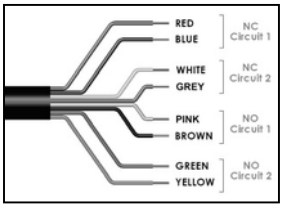
Case Material	HLM (Die Cast Painted Red) HLM-SS (Stainless Steel 316)
Enclosure Protection	HLM IP66 / IP67 HLM-SS IP66 / IP67 / IP69K
Operating Temperature	Min. -25°C Max 80°C
Mechanical Life Expectancy	2,500,000 Cycles
Vibration	IEC 68-2-6, 10-55Hz 0.35mm
Conductor size	1.5 sq.mm

Pre-Wired EX versions:

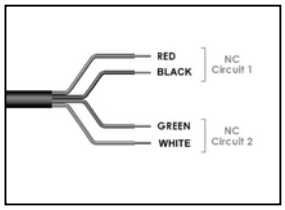
1 NC 1 NO



2 NC 2 NO



2 NC



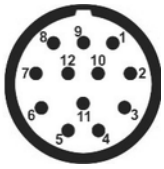
Optional EX circuits:

Type	IDEM LS-EX internal switch
Classification	Ex d IIC T6 (-20C Ta 60C) Gb 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.

Quick Connect Version:



Quick Connect (QC) M23 12 Way Male (connector length 26mm) (Pin View from Switch)	Switch Circuit
1 3	11 / 12
4 6	21 / 22 or 23 / 24
7 8	33 / 34 or 31 / 32
9 10	41 / 42 or 43 / 44
12	Earth

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.

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

Original Instructions.

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Para solicitar esta hoja de datos en Español, por favor contacto con info@idemsafety.com

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