

# Safety Limit Switches Type: HLM (Die-Cast)

## APPLICATIONS:

IDEM's HLM range of heavy duty Die Cast Safety Limit Switches have been designed to be mounted for position sensing of moving applications e.g. guard doors, conveyors, machine beds and elevators. They are available with an extensive range of actuator heads and can be supplied with either slow break or snap action contacts.



## FEATURES:

- Heavy duty die cast bodies (painted red)
- Positive opening NC safety contact to EN60947-5-1
- High mechanical life over 5,000,000 cycles
- Industry standard mounting to EN50041
- Large choice of actuator heads available

## OPERATION:

Operation of IDEM Safety Limit Switches is achieved by a sliding actuation of the moving object to cause deflection of the switch plungers, rollers or levers.

For safety applications 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.



HLM-RP

HLM-SRL

HLM-PP

HLM-AL

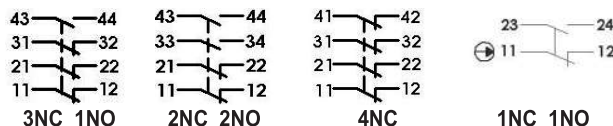
HLM-ARL

HLM-SL

HLM-TSL

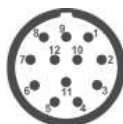
## CONTACT BLOCKS:

Contact blocks provide positively operated safety contacts to EN60947-5-1 with optional Explosion Proof versions available.



## EX CLASSIFICATION:

- Exd IIC T6 (-20 ≤ Ta ≤ +60C) Gb
- Ex tb IIIC T85C (-20 ≤ Ta ≤ +60C) Db



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



EXPLOSION PROOF MODELS ALSO AVAILABLE.  
SEE MODELS/PART NUMBERS MARKED WITH EX

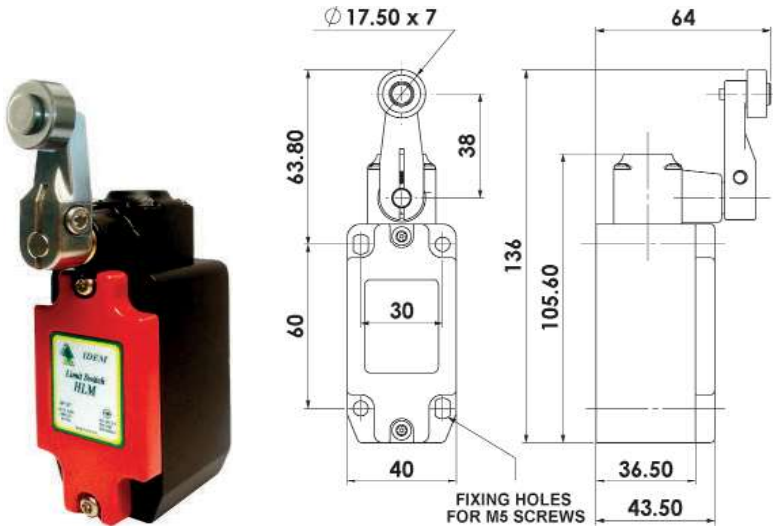
## TECHNICAL SPECIFICATIONS:

Standards: ISO14119 EN60947-5-1 EN60204-1  
ISO13849-1 EN62061 UL508

<b>Safety Classification and Reliability Data:</b>	
Mechanical Reliability B10d	2.5x10 <sup>6</sup> operations at 100mA load
ISO13849-1	Up to PLe depending upon system architecture
EN62061	Up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour/24 hours per day/365 days
	MTTFd 356 years
Positive Opening Operation	NC contacts
Utilisation Category	AC15 A300 240V 3A
Minimum Current	5V 5mA dc
Thermal Current (Ith)	10A
Rated Insulation Voltage	300Vac
Rated Impulse Withstand	2500Vac
Maximum Switching Speed	250mm/sec
Maximum Switching Frequency	6,000 operations per hour
Case Material	Die cast metal - painted red
Enclosure Protection	IP67
Operating Temperature	-25C to +80C
Mechanical Life Expectancy	5x10 <sup>6</sup> cycle min.
Electrical Life Expectancy	100,000 cycle min (at full load)
Vibration	IEC68-2-6 10-55Hz 0.35mm
Conductor Size	1.5mm <sup>2</sup>
Fixing	M5 bolts

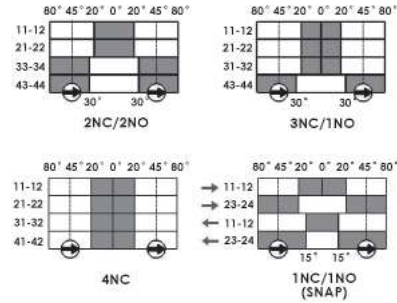
# Safety Limit Switches Type: HLM (Die-Cast)

## HLM SHORT ROLLER LEVER:

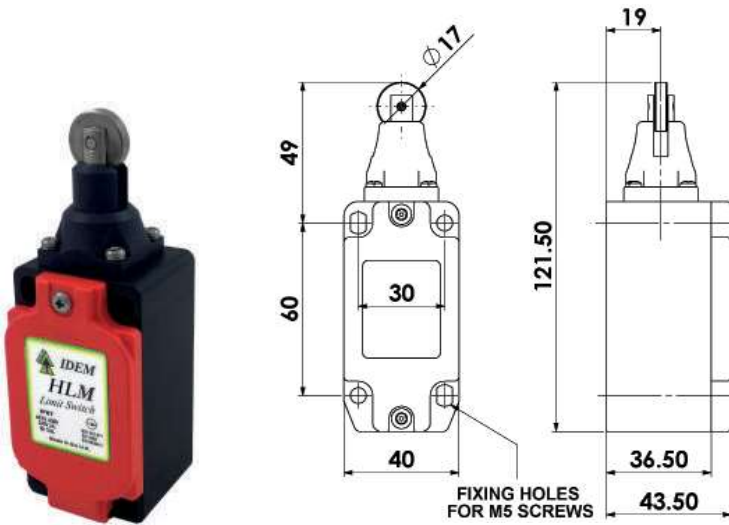


HLM SHORT ROLLER LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	174001	174002	174003
3NC 1NO	174004	174005	174006
4NC	174007	174008	174009
1NC 1NO Snap	174010	174011	174012
1NC 1NO EX	174013	3m 4 core	Ex
2NC EX	174014	3m 4 core	Ex
2NC 2NO EX	174015	3m 8 core	Ex

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

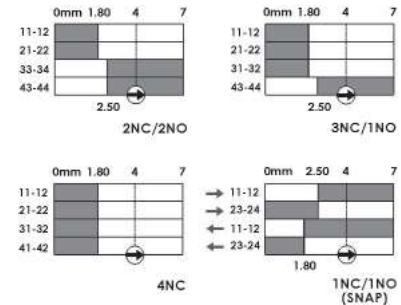


## HLM ROLLER PLUNGER:

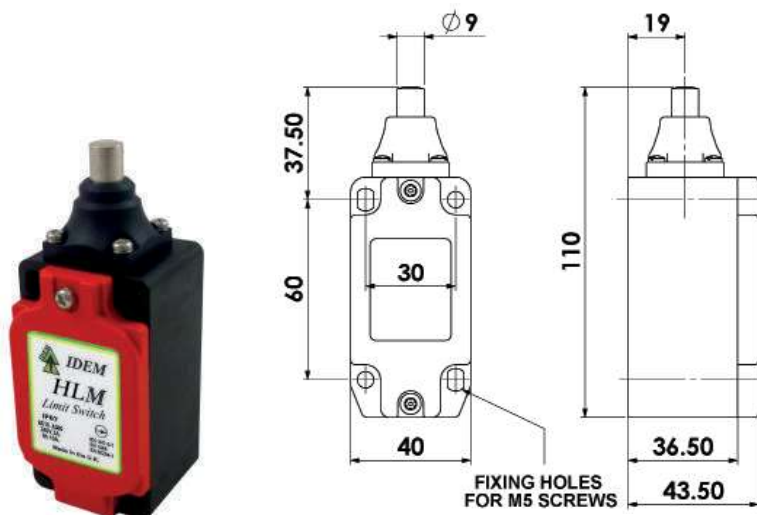


HLM ROLLER PLUNGER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	174051	174052	174053
3NC 1NO	174054	174055	174056
4NC	174057	174058	174059
1NC 1NO Snap	174060	174061	174062
1NC 1NO EX	174063	3m 4 core	Ex
2NC EX	174064	3m 4 core	Ex
2NC 2NO EX	174065	3m 8 core	Ex

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

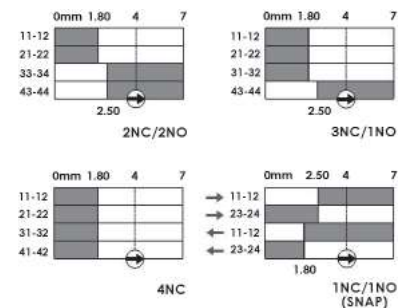


## HLM PIN PLUNGER:



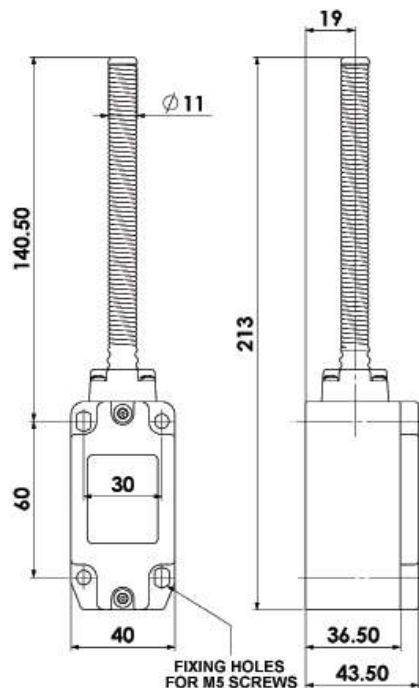
HLM PIN PLUNGER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	174101	174102	174103
3NC 1NO	174104	174105	174106
4NC	174107	174108	174109
1NC 1NO Snap	174110	174111	174112
1NC 1NO EX	174113	3m 4 core	Ex
2NC EX	174114	3m 4 core	Ex
2NC 2NO EX	174115	3m 8 core	Ex

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



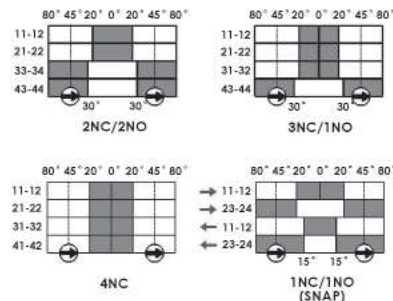
# Safety Limit Switches Type: HLM (Die-Cast)

## HLM SPRING LEVER:

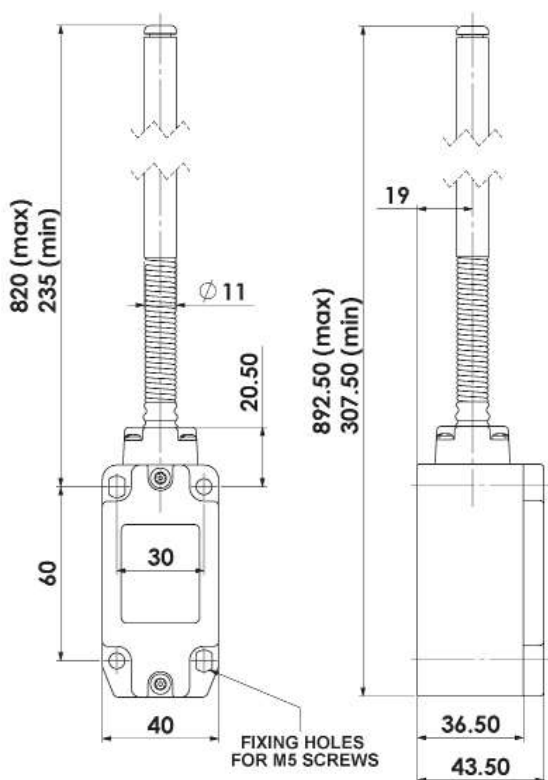


HLM SPRING LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	174151	174152	174153
3NC 1NO	174154	174155	174156
4NC	174157	174158	174159
1NC 1NO Snap	174160	174161	174162
1NC 1NO EX	174163	3m 4 core	Ex
2NC EX	174164	3m 4 core	Ex
2NC 2NO EX	174165	3m 8 core	Ex

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

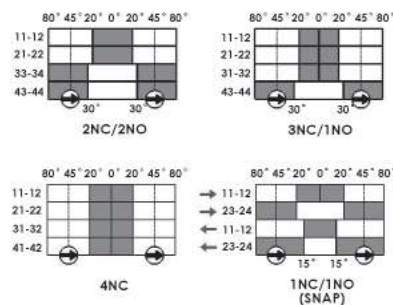


## HLM TELESCOPIC SPRING LEVER:



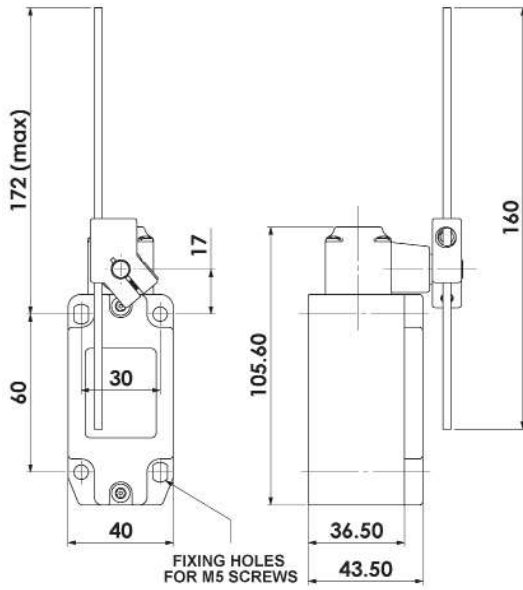
HLM TELESCOPIC SPRING LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	174201	174202	174203
3NC 1NO	174204	174205	174206
4NC	174207	174208	174209
1NC 1NO Snap	174210	174211	174212
1NC 1NO EX	174213	3m 4 core	Ex
2NC EX	174214	3m 4 core	Ex
2NC 2NO EX	174215	3m 8 core	Ex

Gold Plated Contacts available for low power circuits (5V 5mA).  
Ordering: Add GC to Part Number e.g. 174201-GC



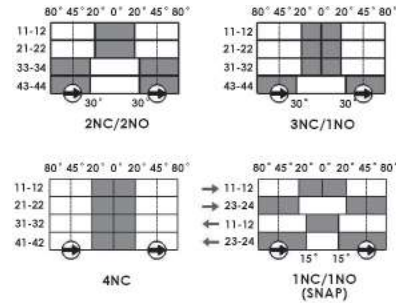
# Safety Limit Switches Type: HLM (Die-Cast)

## HLM LEVER ARM

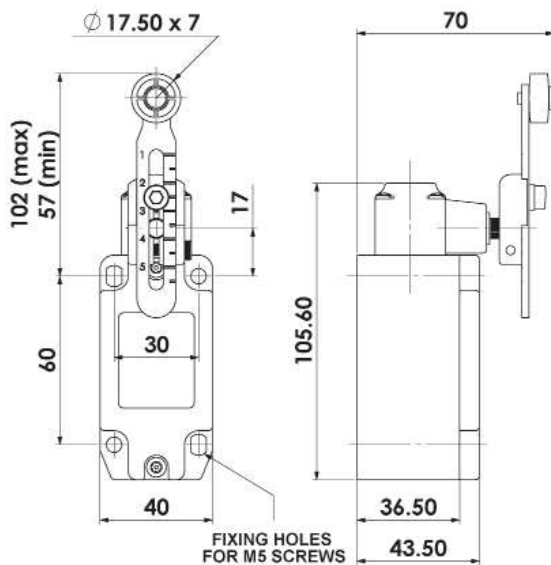


HLM LEVER ARM	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	174251	174252	174253
3NC 1NO	174254	174255	174256
4NC	174257	174258	174259
1NC 1NO Snap	174260	174261	174262
1NC 1NO EX	174263	3m 4 core Ex	
2NC EX	174264	3m 4 core Ex	
2NC 2NO EX	174265	3m 8 core Ex	

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

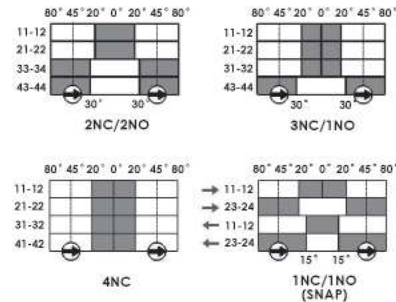


## HLM ADJUSTABLE ROLLER LEVER:



HLM ADJUSTABLE ROLLER LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	174301	174302	174303
3NC 1NO	174304	174305	174306
4NC	174307	174308	174309
1NC 1NO Snap	174310	174311	174312
1NC 1NO EX	174313	3m 4 core Ex	
2NC EX	174314	3m 4 core Ex	
2NC 2NO EX	174315	3m 8 core Ex	

Gold Plated Contacts available for low power circuits (5V 5mA).  
Ordering: Add GC to Part Number e.g. 174201-GC



# Safety Limit Switches Type: HLM-SS (S/Steel 316)

## APPLICATIONS:

IDEM's HLM-SS range of heavy duty Stainless Steel 316 Safety Limit Switches have been designed to be mounted for position sensing of moving applications e.g. guard doors, conveyors, machine beds and elevators. They are available with an extensive range of actuator heads and can be supplied with either slow break or snap action contacts. The full HLM-SS range is suitable for high temperature wash down at high temperature with detergent.



## FEATURES:

- Heavy duty Stainless Steel 316 bodies
- Positive opening NC safety contact to EN60947-5-1
- High mechanical life over 5,000,000 cycles
- Industry standard mounting to EN50041
- Large choice of actuator heads available

## OPERATION:

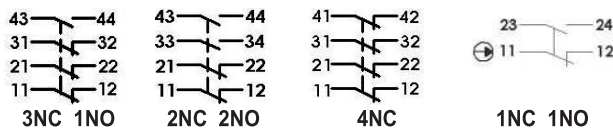
Operation of IDEM Safety Limit Switches is achieved by a sliding actuation of the moving object to cause deflection of the switch plungers, rollers or levers.

For safety applications 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:

Contact blocks provide positively operated safety contacts to EN60947-5-1 with optional Explosion Proof versions available.



S/STEEL 316 GLAND	SALES NUMBER
M20	140120
1/2" NPT	140121



**IDEM recommend using our Stainless Steel 316 Gland with this switch.**



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

## EX CLASSIFICATION:

- Exd IIC T6 (-20 ≤ Ta ≤ +60C) Gb
- Ex tb IIIC T85C (-20 ≤ Ta ≤ +60C) Db



EXPLOSION PROOF MODELS ALSO AVAILABLE. SEE MODELS/PART NUMBERS MARKED WITH EX

## TECHNICAL SPECIFICATIONS:

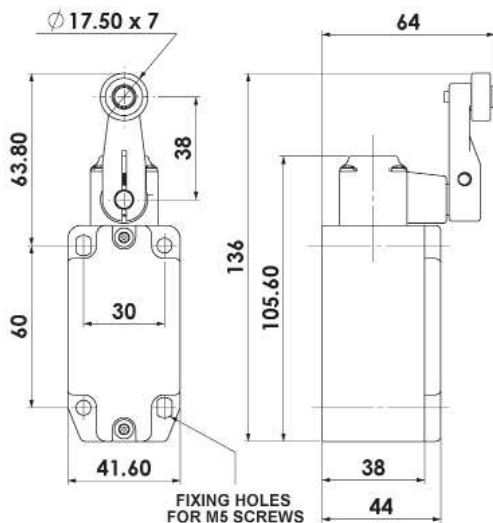
Standards: ISO14119 EN60947-5-1 EN60204-1  
ISO13849-1 EN62061 UL508

### Safety Classification and Reliability Data:

Mechanical Reliability B10d	2.5x10 <sup>6</sup> operations at 100mA load
ISO13849-1	Up to PLe depending upon system architecture
EN62061	Up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour/24 hours per day/365 days
	MTTFd 356 years
Positive Opening Operation	NC contacts
Utilisation Category	AC15 A300 240V 3A
Minimum Current	5V 5mA dc
Thermal Current (Ith)	10A
Rated Insulation Voltage	300Vac
Rated Impulse Withstand	2500Vac
Maximum Switching Speed	250mm/sec
Maximum Switching Frequency	6,000 operations per hour
Case Material	Stainless Steel 316
Enclosure Protection	IP67/IP69K
Operating Temperature	-25C to +80C
Mechanical Life Expectancy	5x10 <sup>6</sup> cycle min.
Electrical Life Expectancy	100,000 cycle min (at full load)
Vibration	IEC68-2-6 10-55Hz 0.35mm
Conductor Size	1.5mm <sup>2</sup>
Fixing	M5 bolts

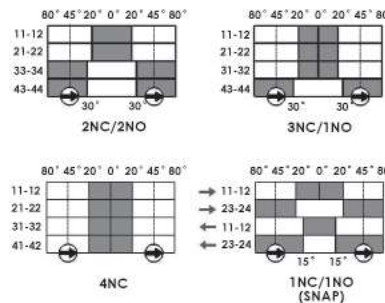
# Safety Limit Switches Type: HLM-SS (S/Steel 316)

## HLM-SS SHORT ROLLER LEVER:

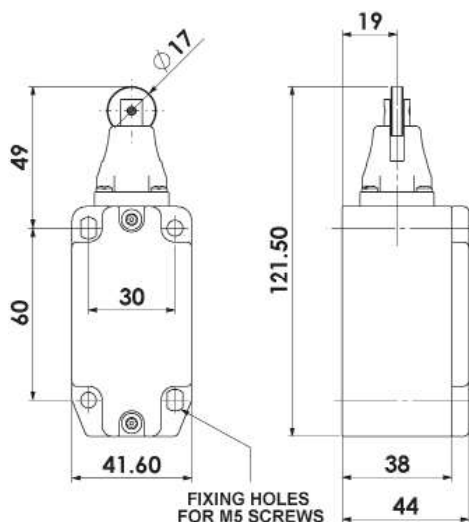


HLM-SS SHORT ROLLER LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	175001	175002	175003
3NC 1NO	175004	175005	175006
4NC	175007	175008	175009
1NC 1NO Snap	175010	175011	175012
1NC 1NO EX	175013	3m 4 core Ex	
2NC EX	175014	3m 4 core Ex	
2NC 2NO EX	175015	3m 8 core Ex	

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

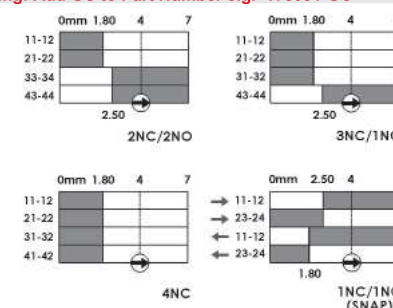


## HLM-SS ROLLER PLUNGER:

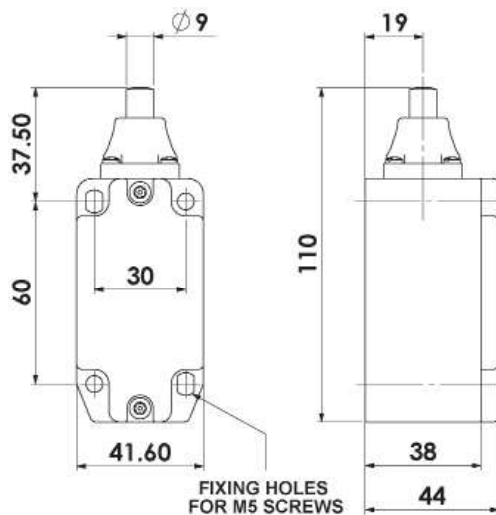


HLM-SS ROLLER PLUNGER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	175051	175052	175053
3NC 1NO	175054	175055	175056
4NC	175057	175058	175059
1NC 1NO Snap	175060	175061	175062
1NC 1NO EX	175063	3m 4 core Ex	
2NC EX	175064	3m 4 core Ex	
2NC 2NO EX	175065	3m 8 core Ex	

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

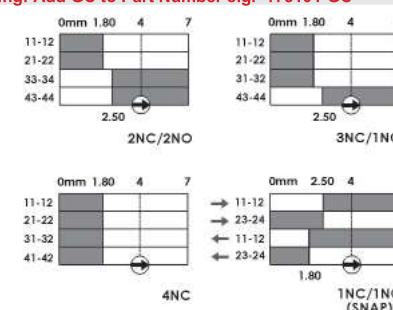


## HLM-SS PIN PLUNGER:



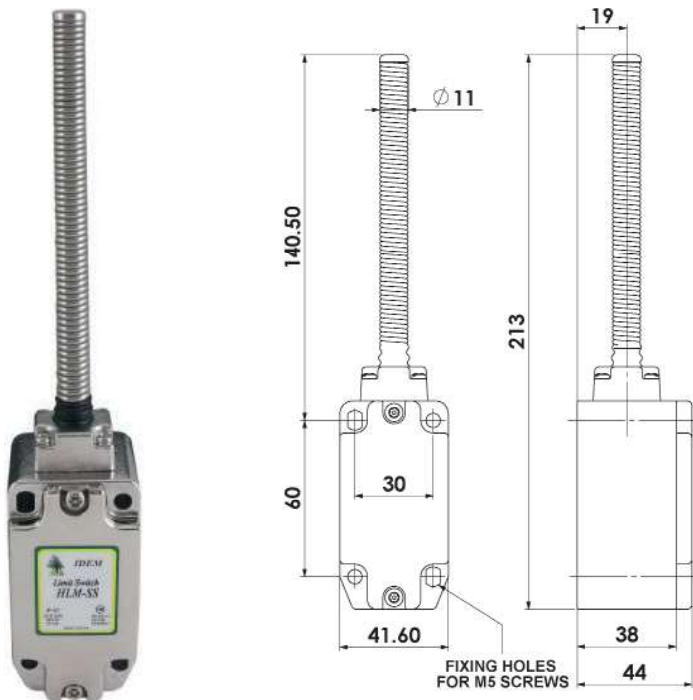
HLM-SS PIN PLUNGER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	175101	175102	175103
3NC 1NO	175104	175105	175106
4NC	175107	175108	175109
1NC 1NO Snap	175110	175111	175112
1NC 1NO EX	175113	3m 4 core Ex	
2NC EX	175114	3m 4 core Ex	
2NC 2NO EX	175115	3m 8 core Ex	

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



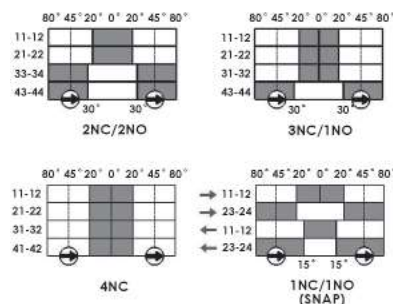
# Safety Limit Switches Type: HLM-SS (S/Steel 316)

## HLM-SS SPRING LEVER:

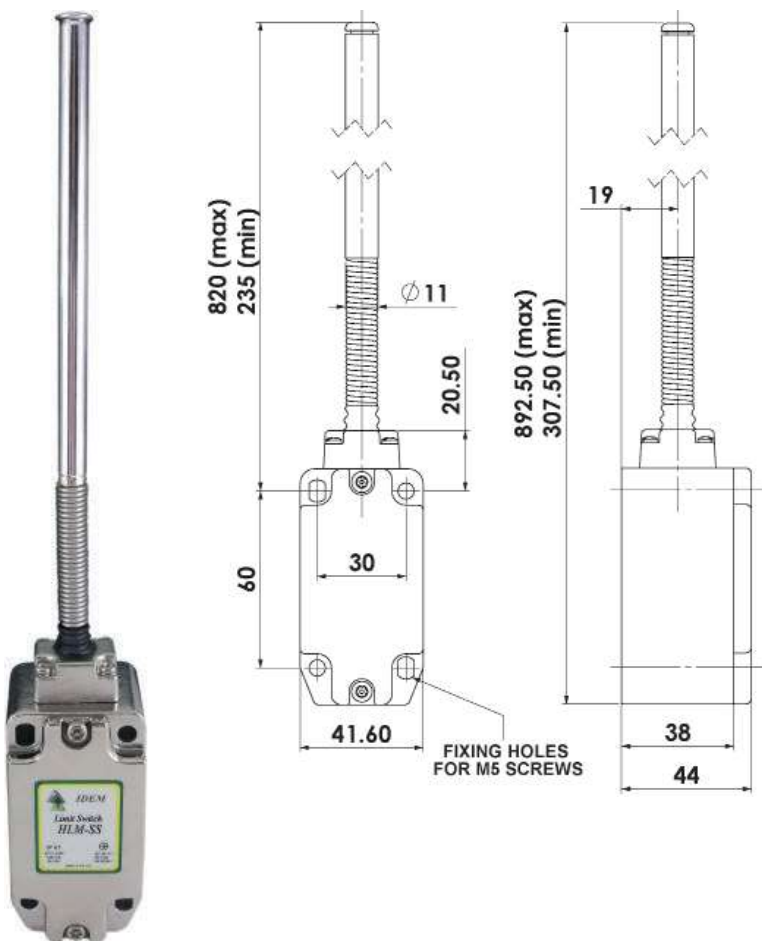


HLM-SS SPRING LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	175151	175152	175153
3NC 1NO	175154	175155	175156
4NC	175157	175158	175159
1NC 1NO Snap	175160	175161	175162
1NC 1NO EX	175163	3m 4 core	Ex
2NC EX	175164	3m 4 core	Ex
2NC 2NO EX	175165	3m 8 core	Ex

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

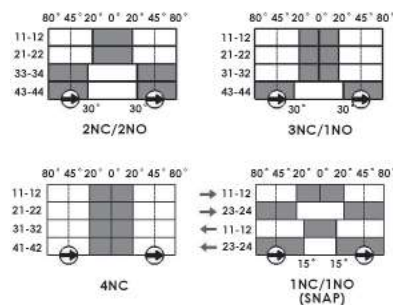


## HLM-SS TELESCOPIC SPRING LEVER:



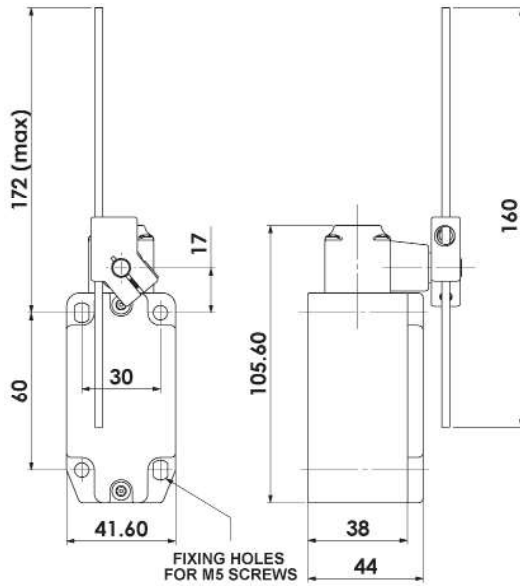
HLM-SS TELESCOPIC SPRING LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	175201	175202	175203
3NC 1NO	175204	175205	175206
4NC	175207	175208	175209
1NC 1NO Snap	175210	175211	175212
1NC 1NO EX	175213	3m 4 core	Ex
2NC EX	175214	3m 4 core	Ex
2NC 2NO EX	175215	3m 8 core	Ex

Gold Plated Contacts available for low power circuits (5V 5mA).  
Ordering: Add GC to Part Number e.g. 175201-GC



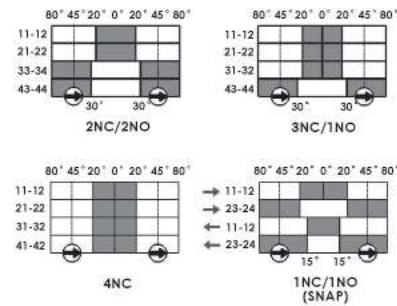
# Safety Limit Switches Type: HLM-SS (S/Steel 316)

## HLM-SS LEVER ARM

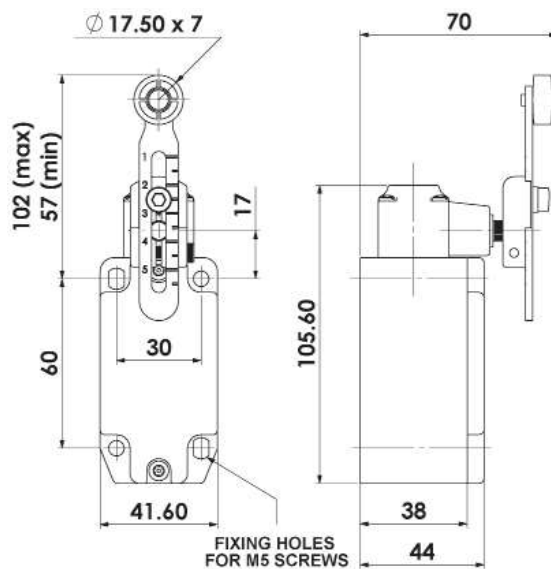


HLM-SS LEVER ARM	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	175251	175252	175253
3NC 1NO	175254	175255	175256
4NC	175257	175258	175259
1NC 1NO Snap	175260	175261	175262
1NC 1NO EX	175263	3m 4 core Ex	
2NC EX	175264	3m 4 core Ex	
2NC 2NO EX	175265	3m 8 core Ex	

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



## HLM-SS ADJUSTABLE ROLLER LEVER:



HLM-SS ADJUSTABLE ROLLER LEVER	SALES NUMBERS		
	M20	1/2"NPT	QC M23
2NC 2NO	175301	175302	175303
3NC 1NO	175304	175305	175306
4NC	175307	175308	175309
1NC 1NO Snap	175310	175311	175312
1NC 1NO EX	175313	3m 4 core Ex	
2NC EX	175314	3m 4 core Ex	
2NC 2NO EX	175315	3m 8 core Ex	

Gold Plated Contacts available for low power circuits (5V 5mA).  
Ordering: Add GC to Part Number e.g. 174201-GC

