

## HMSIHLSIHNS Series Heavy Duty Limit Switches

### Features

- Heavy duty zinc die cast body
- Conform to EN 60947-5-1, IEC 60947-5-1, UL508, NEMA250, CSA22.2 Standards
- Wide range of actuator available
- High repeatability (0.03mm for linear travel)
- Available in three body styles: compact, standard and Non-plug-in

### Specifications

Operating Speed	0.05mm-2m/sec
Rated Current/Voltage	10A/600V AC (EN60947-5-1) AC15 A600 / DC13 Q300
Service Life	Mechanically 10 millions (operations) Electrically 1 million (operations)
Operating Temperature	-28.9~+85°C (-20~185°F)
Vibration Resistance	25gn (10..150 Hz, 11ms) per IEC60068-2-6
Shock Resistance	60gn (9ms) per IEC 60068-2-27
Dielectric Strength	2200VAC for 1 minute
Short Circuit Protection	10A fuse
Terminal Wire Size	12-22AWG (2.05-0.644mm <sup>2</sup> )
Degree of Protection	IP 67 conforming to IEC 60529, NEMA Types 2, 4, 6, 6P, 12, 13

### Electrical Ratings

IEC 60947-5-1 / EN 90947-5-1							
Designation & Utilization Category	Rated operational current Ie (A) at rated operational voltage Ue					VA rating	
	120V	240V	380V	480V	600V	Make	Break
AC15 A600	6A	3A	1.9A	1.5A	1.2A	7200	720
DC13 Q300	125VDC	250VDC	0.55	0.27		69	69

\* Wider operating temperature models are available. Please contact us.

**HMS**  
Compact



**HLS**  
Standard



**HNS**  
Non-plug-in



### Selection Guide:

<b>HLS</b>	<b>1</b>	<b>A</b>	<b>04</b>	<b>A</b>	<b>-</b>	<b>F</b>	<b>-</b>	<b>UR</b>	
Body Styles	Contact Block	1/2NPT Conduit (Contact us for other types)	Head Style	Applied on to Lever Arms Style		Rubber Seal Type		Indicator Light	Rotary Head Shaft Diameter
<b>HMS:</b> Compact	1: SPDT (1NO/1NC) Snap action			B: Standard		Blank: Standard		Blank: None	Blank: 11.0mm
<b>HLS:</b> Standard	2: DPDT (2NO/2NC) Snap action			A: High precision		F: Fluorite rubber		UR: Red indicator	(AB): 8.0mm
<b>HNS:</b> Non-plug-in	3: DPDT (2NO/2NC) 2 stages		2 digit or 2 digit + 1 letter	N: Low torque				light universal voltage(12V-270V)	(CH): 7.0mm
	4: DPDT (2NO/2NC) center neutral operation			D: High precision low torque					(HW): 7.3mm
	5: 4NO Slow action (for HNS only)			C: Maintained					
	6: 3NO/1NC Slow action (for HNS only)			TB: Neutral position					
	7: 2NO/2NC Slow action (for HNS only)			TA: Neutral position (high precision)					
	8: 1NO/3NC Slow action (for HNS only)			E: 360° rotation					
	9: 4NC Slow action (for HNS only)								

## HMSIHLS Series Heavy Duty Limit Switches

### Plunger type

01 Styles



12 Styles



11 Styles



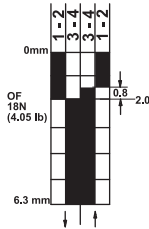
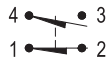
13 Styles



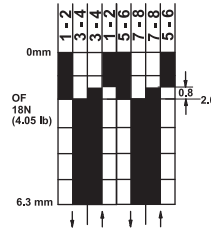
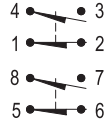
05 Styles



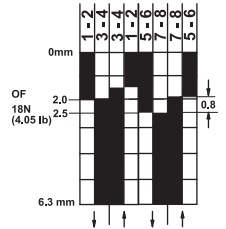
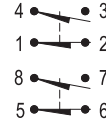
HMS-1A/  
HLS-1A  
1NO/1NC



HMS-2A/  
HLS-2A  
2NO/2NC



HMS-3A/  
HLS-3A  
2NO/2NC (2-stages)



\* Note: Operating Force (OF) is 31.1N (7 lb) for Plunger type 01 style.

### Side Plunger type

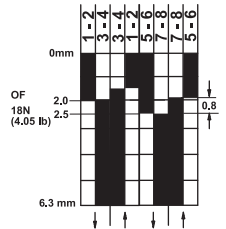
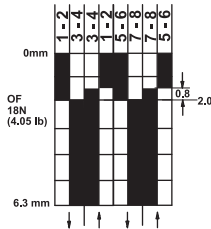
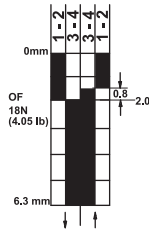
11H Styles



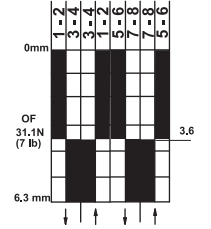
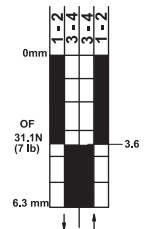
12H Styles



13H Styles



### Side Plunger (Maintained) type 10H Styles



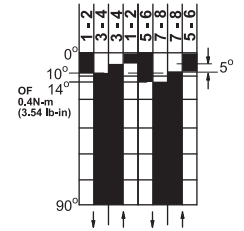
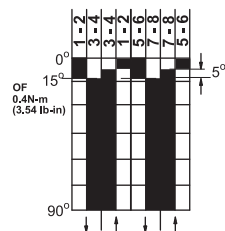
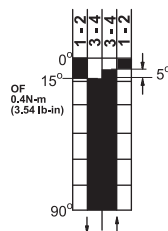
### Spring coil type



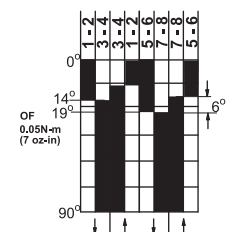
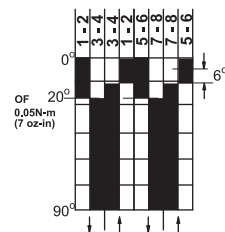
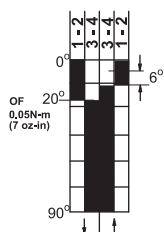
00

66

69



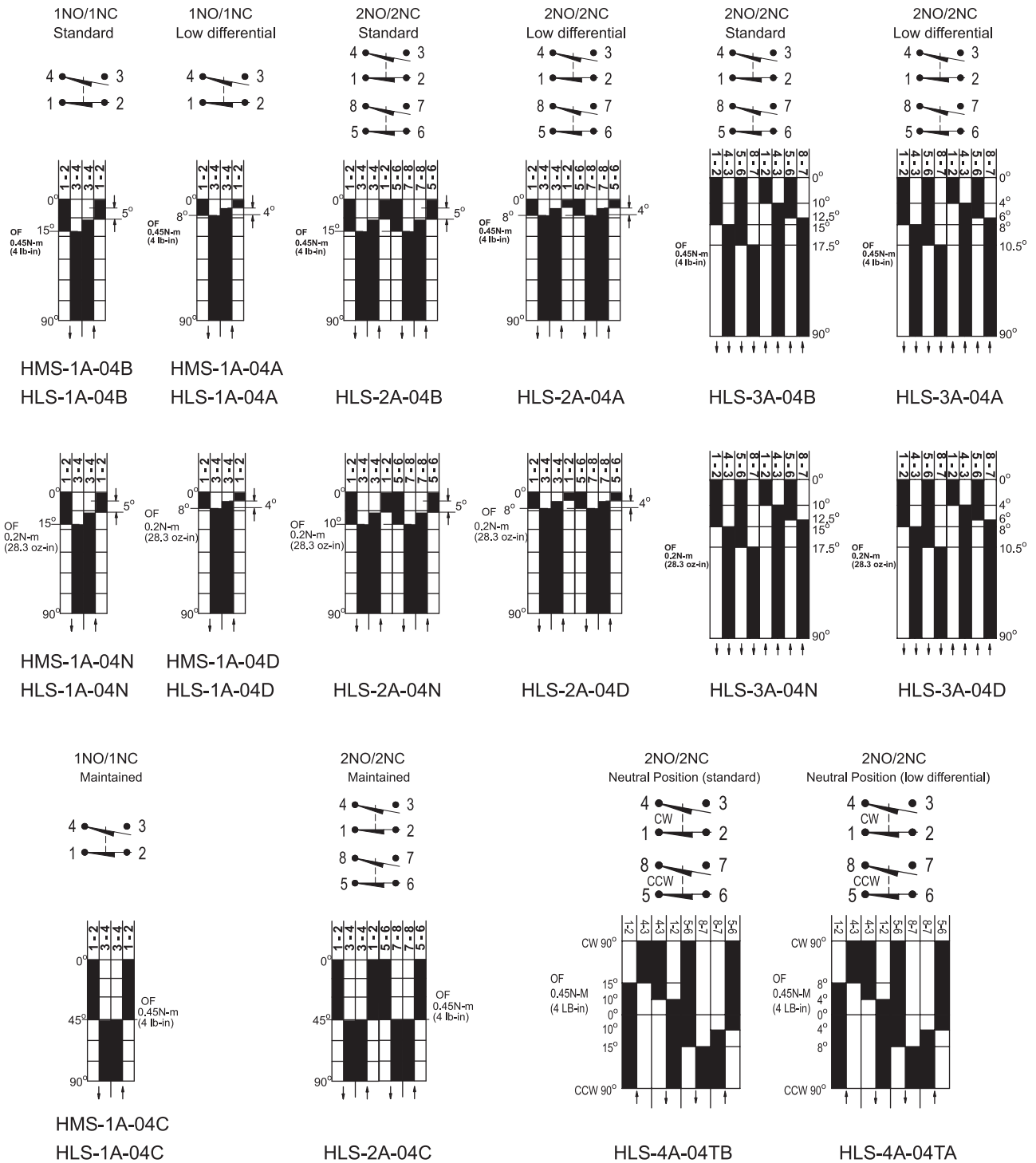
### Cat Whisker type 68 Styles



## HMSIHLs Series Heavy Duty Limit Switches



### Travel Diagram for Rotary Lever Styles



## HMS Series Heavy Duty Limit Switches

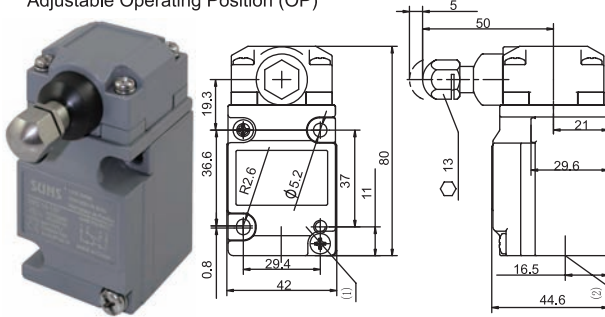
<p>Order Code HMS-1A-11: 1NO/1NC</p>	<p>Order Code HMS-1A-12: 1NO/1NC</p>
<p>Adjustable Operating Position (OP)</p>	
<p>Order Code HMS-1A-13: 1NO/1NC</p>	<p>Order Code HMS-1A-01: 1NO/1NC</p>
<p>Order Code HMS-1A-11H: 1NO/1NC</p>	<p>Order Code HMS-1A-12H: 1NO/1NC * Note: roller can be adjust to cross orientation</p>

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

(2) Conduit opening type: 1/2NPT

## HMS Series Heavy Duty Limit Switches

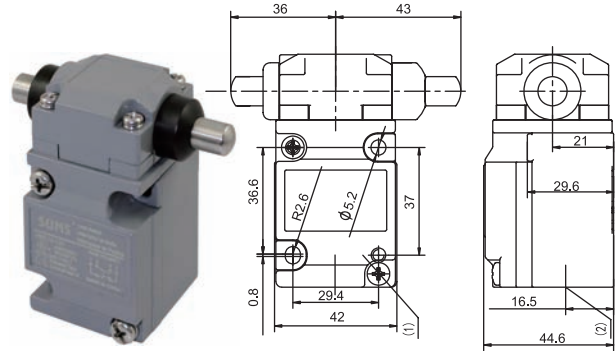
Adjustable Operating Position (OP)



Order Code

HMS-1A-13H: 1NO/1NC

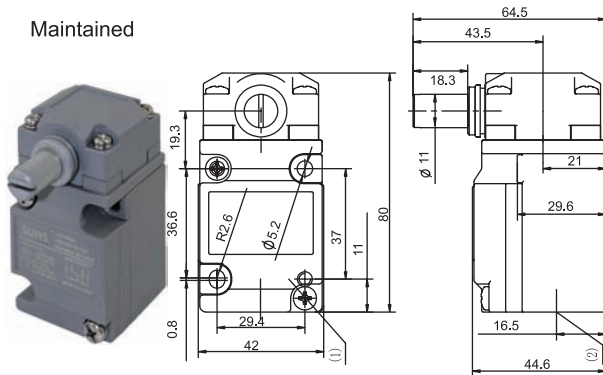
Maintained



Order Code

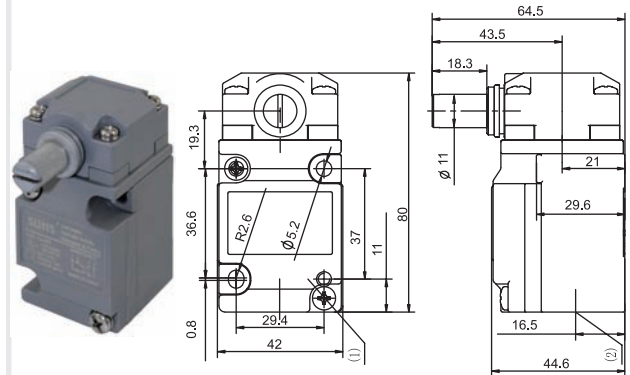
HMS-1A-10H: 1NO/1NC

Maintained



Order Code

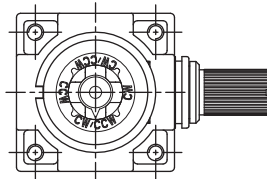
HMS-1A-04C: 1NO/1NC



Order Code

HMS-1A-04B: 1NO/1NC Standard Pretravel  
 HMS-1A-04A: 1NO/1NC Low Pretravel  
 HMS-1A-04N: 1NO/1NC Low Torque  
 HMS-1A-04D: 1NO/1NC Low Torque, Low Pretravel

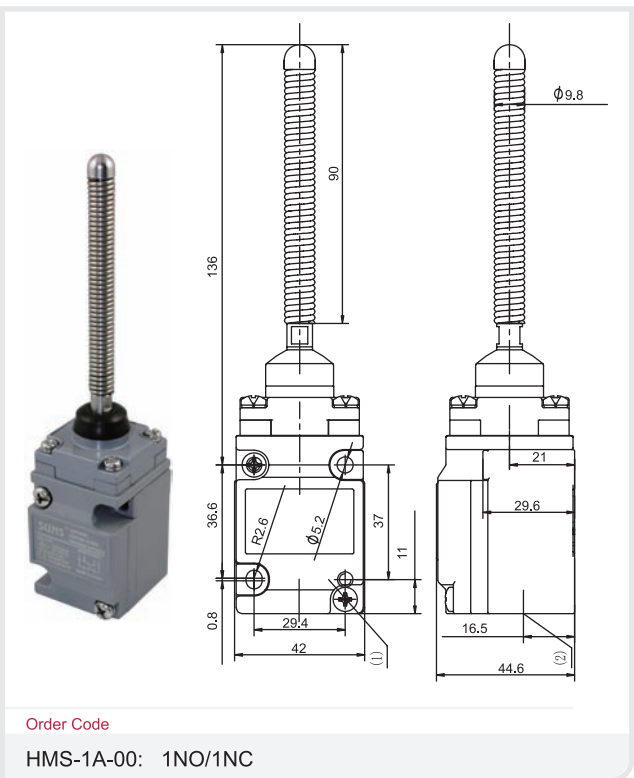
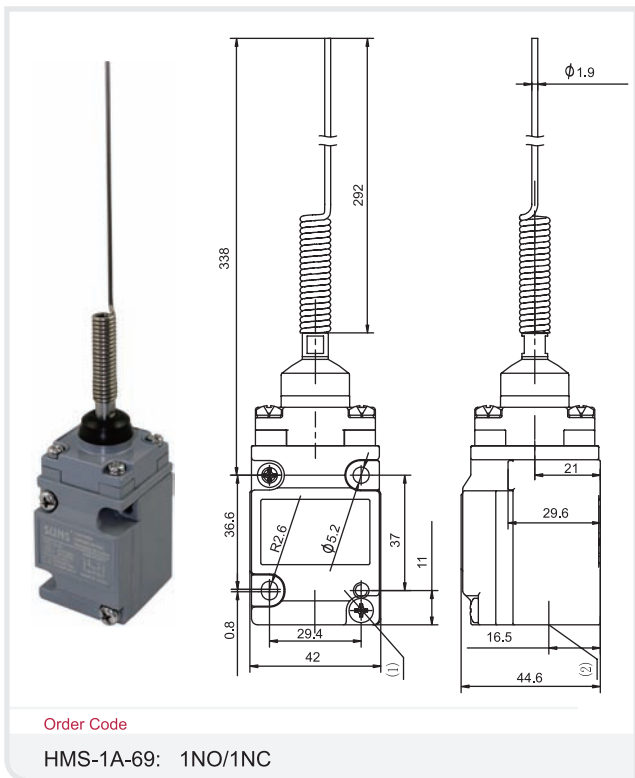
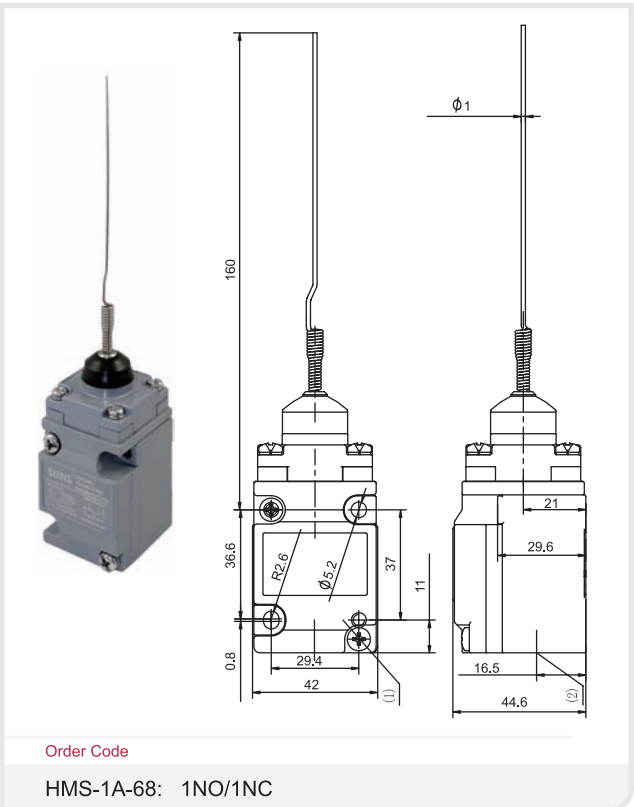
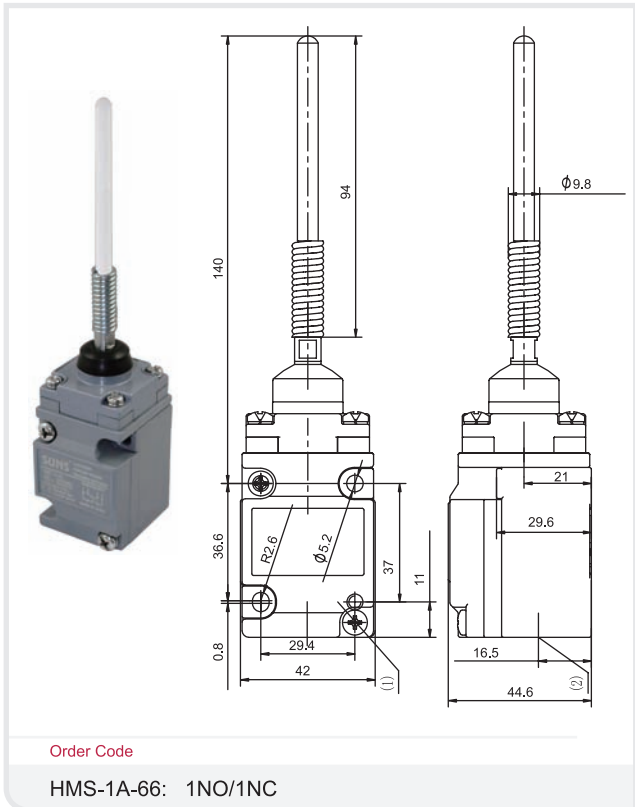
Head is factory set to operate the contacts in both the CW and CCW directions. To make change, simply pull out and rotate the arrow to the letters representing the desired direction: CW, CCW, or CW/CCW.



Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

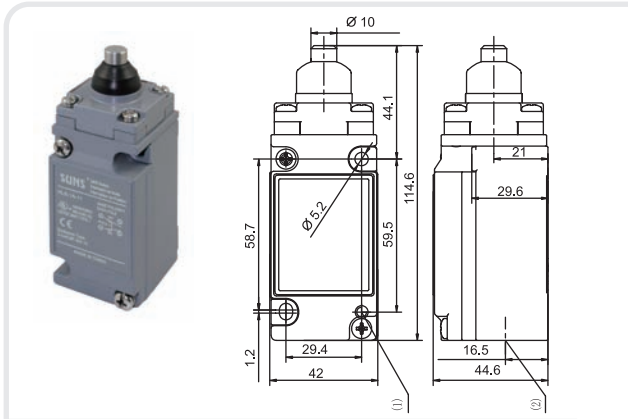
(2) Conduit opening type: 1/2NPT

## HMS Series Heavy Duty Limit Switches



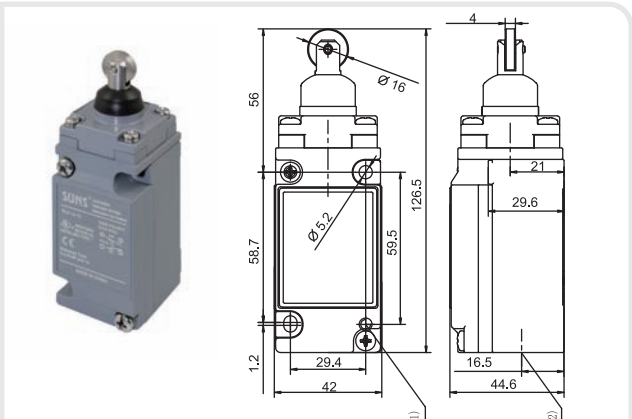
Note. (1) 2 x 10-24 UNC hole on the back for back side mounting. (2) Conduit opening type: 1/2NPT

## HLS Series Heavy Duty Limit Switches



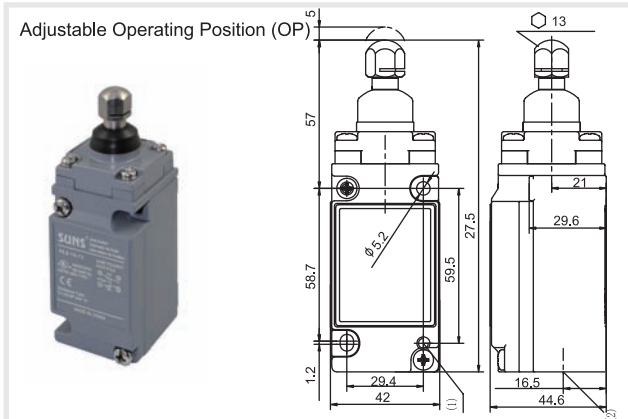
**Order Code**

- HLS-1A-11: 1NO/1NC
- HLS-2A-11: 2NO/2NC
- HLS-3A-11: 2NO/2NC (2-stage)



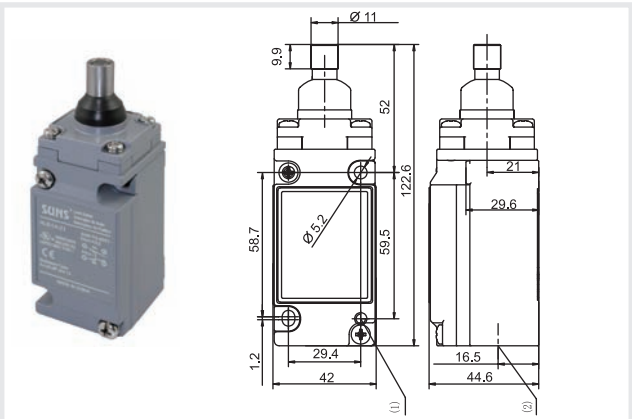
**Order Code**

- HLS-1A-12: 1NO/1NC
- HLS-2A-12: 2NO/2NC
- HLS-3A-12: 2NO/2NC (2-stage)



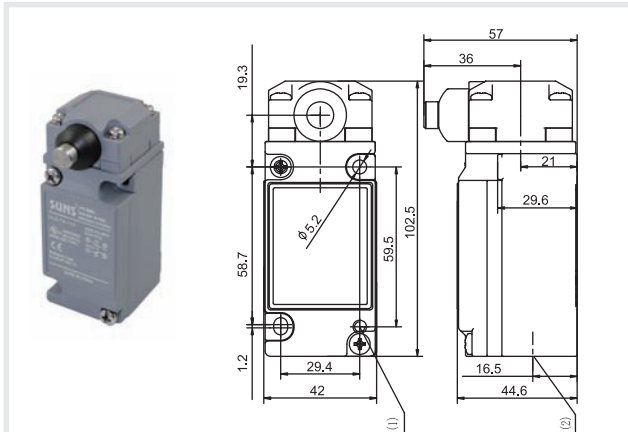
**Order Code**

- HLS-1A-13: 1NO/1NC
- HLS-2A-13: 2NO/2NC
- HLS-3A-13: 2NO/2NC (2-stage)



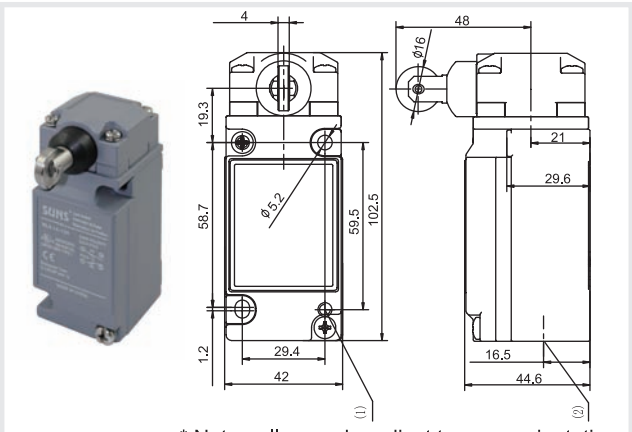
**Order Code**

- HLS-1A-01: 1NO/1NC
- HLS-2A-01: 2NO/2NC
- HLS-3A-01: 2NO/2NC (2-stage)



**Order Code**

- HLS-1A-11H: 1NO/1NC
- HLS-2A-11H: 2NO/2NC
- HLS-3A-11H: 2NO/2NC (2-stage)



\* Note: roller can be adjust to cross orientation

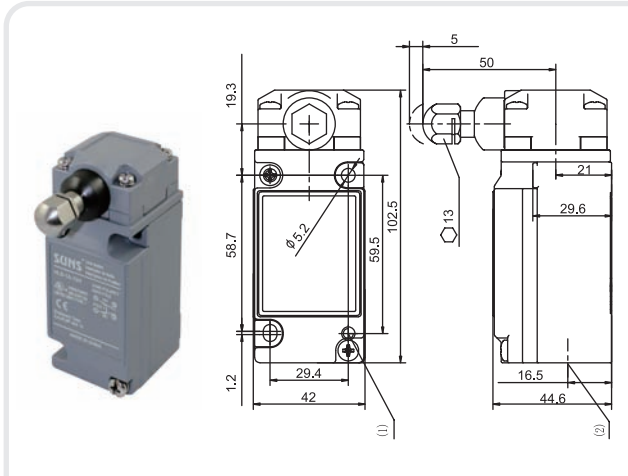
**Order Code**

- HLS-1A-12H: 1NO/1NC
- HLS-2A-12H: 2NO/2NC
- HLS-3A-12H: 2NO/2NC (2-stage)

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

(2) Conduit opening type: 1/2NPT

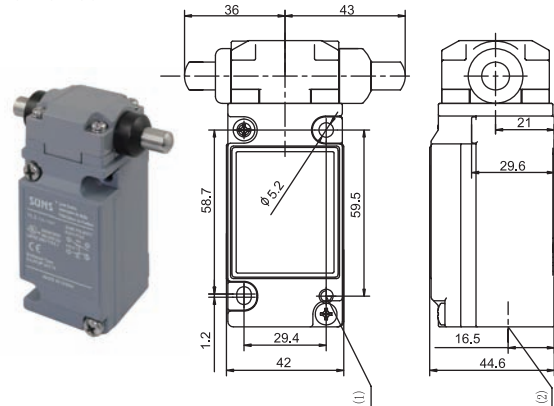
## HLS Series Heavy Duty Limit Switches



**Order Code**

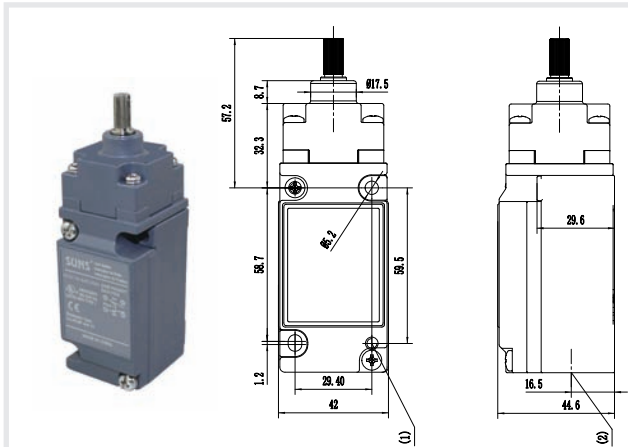
HLS-1A-13H: 1NO/1NC  
 HLS-2A-13H: 2NO/2NC  
 HLS-3A-13H: 2NO/2NC (2-stage)

**Maintained**



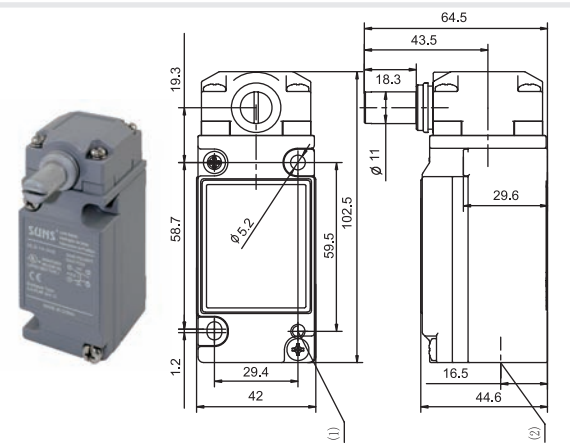
**Order Code**

HLS-1A-10H: 1NO/1NC  
 HLS-2A-10H: 2NO/2NC



**Order Code**

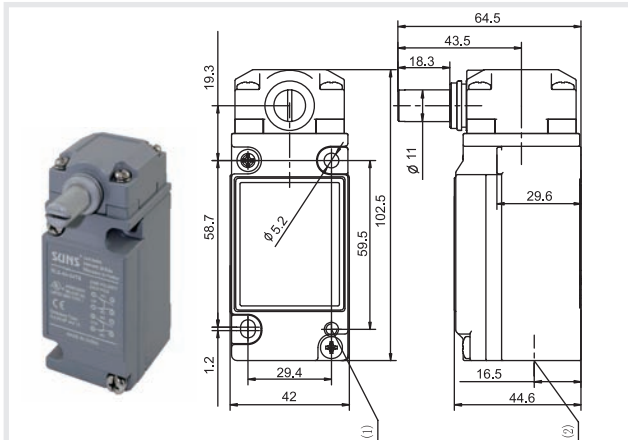
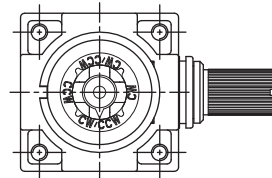
HLS-1A-05B: 1NO/1NC  
 HLS-2A-05B: 2NO/2NC



**Order Code**

HLS-1A-04B: 1NO/1NC Standard Pretravel  
 HLS-1A-04A: 1NO/1NC Low Pretravel  
 HLS-1A-04N: 1NO/1NC Low Torque  
 HLS-1A-04D: 1NO/1NC Low Torque, Low Pretravel  
 HLS-2A-04B: 2NO/2NC Standard Pretravel  
 HLS-2A-04A: 2NO/2NC Low Differential Travel  
 HLS-2A-04N: 2NO/2NC Low Torque  
 HLS-2A-04D: 2NO/2NC Low Torque, Low Pretravel  
 HLS-3A-04B: 2NO/2NC (2-stage) Standard Pretravel  
 HLS-3A-04A: 2NO/2NC (2-stage) Low Pretravel  
 HLS-3A-04N: 2NO/2NC (2-stage) Low Torque  
 HLS-3A-04D: 2NO/2NC (2-stage) Low Torque, Low Differential Travel

Head is factory set to operate the contacts in both the CW and CCW directions. To make change, simply pull out and rotate the arrow to the letters representing the desired direction: CW, CCW, or CW/CCW.



**Neutral Position**

HLS-4A-04TA: 2NO/2NC (Low Pretravel)  
 HLS-4A-04TB: 2NO/2NC

**Maintained**

HLS-1A-04C: 1NO/1NC  
 HLS-2A-04C: 2NO/2NC

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

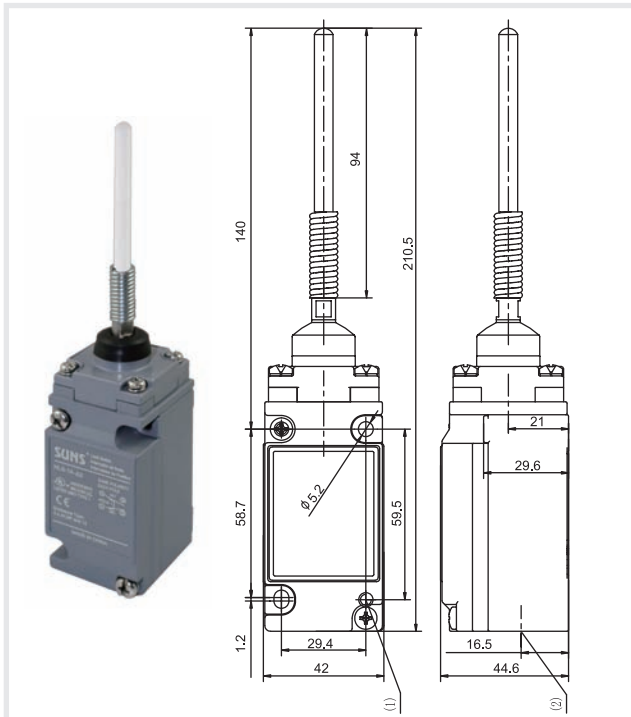
(2) Conduit opening type: 1/2NPT

## HLS Series Heavy Duty Limit Switches

<p><b>Order Code</b></p> <p>HLS-1A-04E: 1NO/1NC            HLS-2A-04E: 2NO/2NC            HLS-3A-04E: 2NO/2NC (2-stage)</p>	<p><b>Order Code</b></p> <p>HLS-1A-04E-UR(HW): 1NO/1NC            HLS-2A-04E-UR(HW): 2NO/2NC</p>

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.  
 (2) Conduit opening type: 1/2 NPT  
 (3) LED indicator light

## HLS Series Heavy Duty Limit Switches

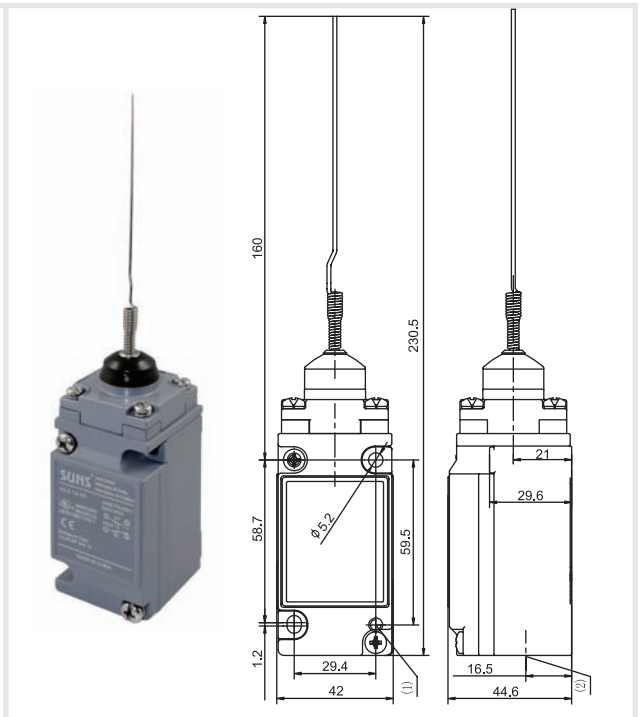


Order Code

HLS-1A-66: 1NO/1NC

HLS-2A-66: 2NO/2NC

HLS-3A-66: 2NO/2NC (2-stage)

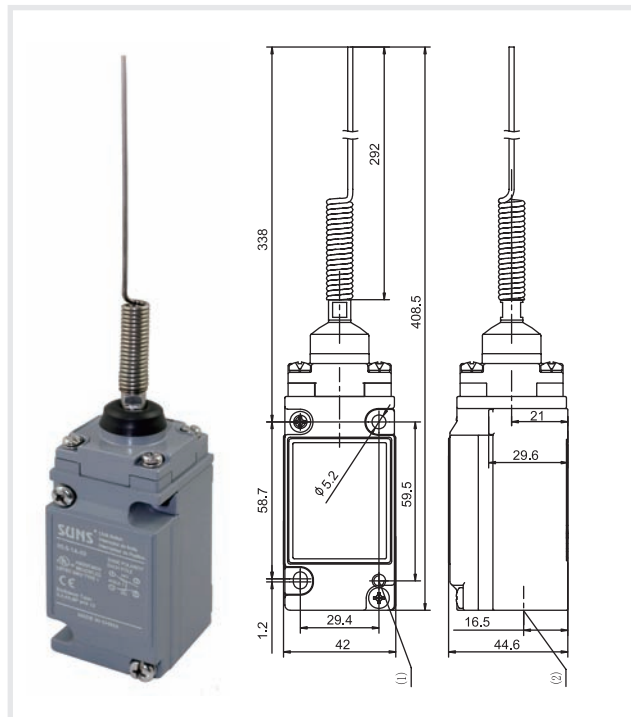


Order Code

HLS-1A-68: 1NO/1NC

HLS-2A-68: 2NO/2NC

HLS-3A-68: 2NO/2NC (2-stage)

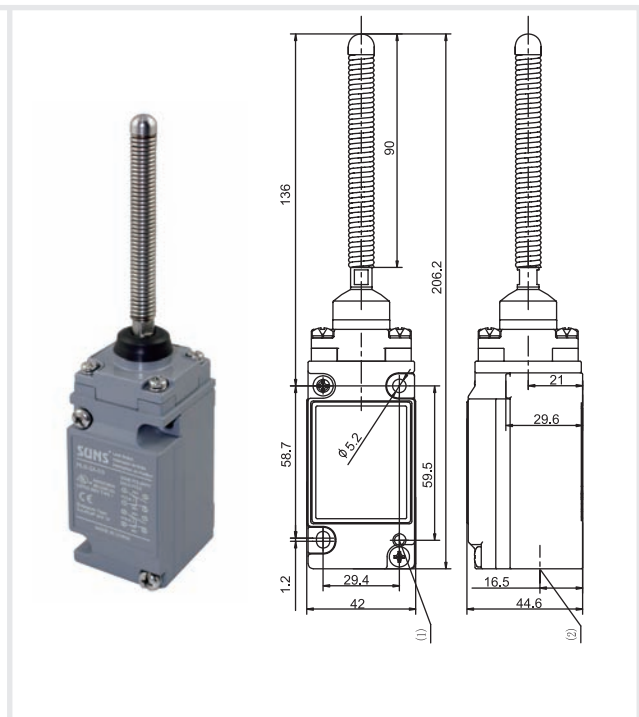


Order Code

HLS-1A-69: 1NO/1NC

HLS-2A-69: 2NO/2NC

HLS-3A-69: 2NO/2NC (2-stage)



Order Code

HLS-1A-00: 1NO/1NC

HLS-2A-00: 2NO/2NC

HLS-3A-00: 2NO/2NC (2-stage)

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

(2) Conduit opening type: 1/2NPT

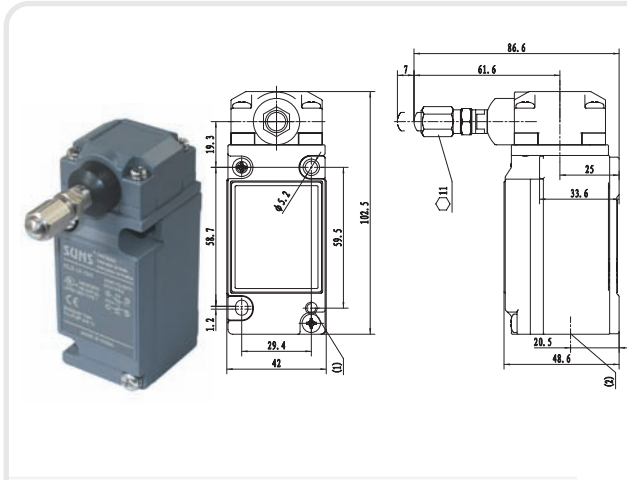
## HLS (AB) Series Heavy Duty Limit Switches

<p><b>Order Code</b></p> <p>HLS-1A-11(AB): 1NO/1NC                      HLS-2A-11(AB): 2NO/2NC                      HLS-3A-11(AB): 2NO/2NC (2-stage)</p>	<p><b>Order Code</b></p> <p>HLS-1A-12(AB): 1NO/1NC                      HLS-2A-12(AB): 2NO/2NC                      HLS-3A-12(AB): 2NO/2NC (2-stage)</p>
<p>Adjustable Operating Position (OP)</p>	
<p><b>Order Code</b></p> <p>HLS-1A-13(AB): 1NO/1NC                      HLS-2A-13(AB): 2NO/2NC                      HLS-3A-13(AB): 2NO/2NC (2-stage)</p>	<p><b>Order Code</b></p> <p>HLS-1A-01(AB): 1NO/1NC                      HLS-2A-01(AB): 2NO/2NC                      HLS-3A-01(AB): 2NO/2NC (2-stage)</p>
<p><b>Order Code</b></p> <p>HLS-1A-11H(AB): 1NO/1NC                      HLS-2A-11H(AB): 2NO/2NC                      HLS-3A-11H(AB): 2NO/2NC (2-stage)</p>	<p><b>Order Code</b></p> <p>HLS-1A-12H(AB): 1NO/1NC                      HLS-2A-12H(AB): 2NO/2NC                      HLS-3A-12H(AB): 2NO/2NC (2-stage)</p>

\* Note: roller can be adjust to cross orientation

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting. (2) Conduit opening type: 1/2NPT

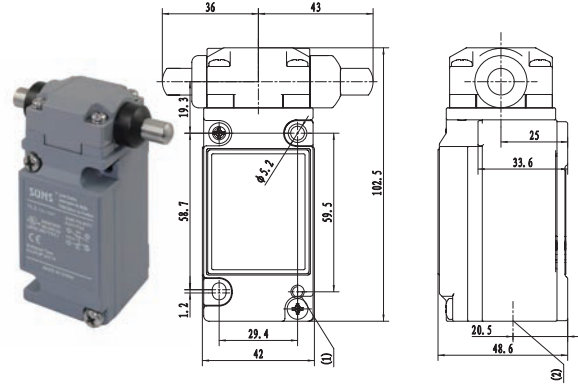
## HLS(AB) Series Heavy Duty Limit Switches



**Order Code**

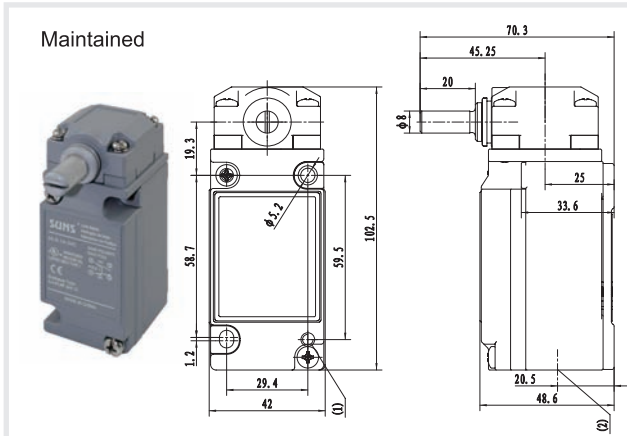
HLS-1A-13H(AB): 1NO/1NC  
 HLS-2A-13H(AB): 2NO/2NC  
 HLS-3A-13H(AB): 2NO/2NC (2-stage)

**Maintained**



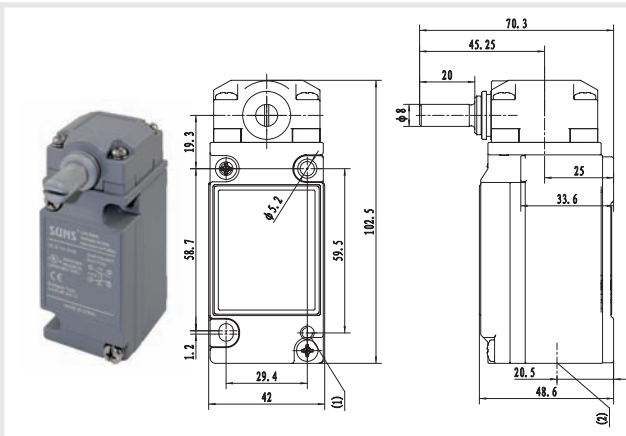
**Order Code**

HLS-1A-10H(AB): 1NO/1NC  
 HLS-2A-10H(AB): 2NO/2NC



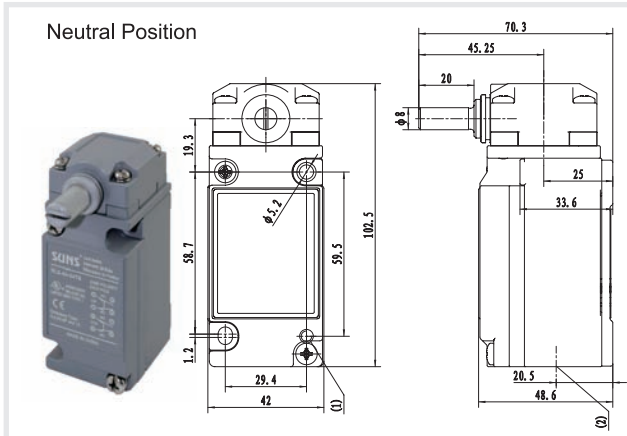
**Order Code**

HLS-1A-04C(AB): 1NO/1NC  
 HLS-2A-04C(AB): 2NO/2NC



**Order Code**

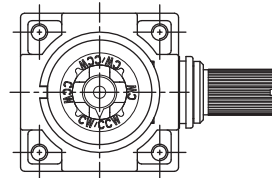
HLS-1A-04B(AB): 1NO/1NC Standard Pretravel  
 HLS-1A-04A(AB): 1NO/1NC Low Pretravel  
 HLS-1A-04N(AB): 1NO/1NC Low Torque  
 HLS-1A-04D(AB): 1NO/1NC Low Torque, Low Pretravel  
 HLS-2A-04B(AB): 2NO/2NC Standard Pretravel  
 HLS-2A-04A(AB): 2NO/2NC Low Differential Travel  
 HLS-2A-04N(AB): 2NO/2NC Low Torque  
 HLS-2A-04D(AB): 2NO/2NC Low Torque, Low Pretravel  
 HLS-3A-04B(AB): 2NO/2NC (2-stage) Standard Pretravel  
 HLS-3A-04A(AB): 2NO/2NC (2-stage) Low Pretravel  
 HLS-3A-04N(AB): 2NO/2NC (2-stage) Low Torque  
 HLS-3A-04D(AB): 2NO/2NC (2-stage) Low Torque, Low Differential Travel



**Order Code**

HLS-4A-04TA(AB): 2NO/2NC (Low Pretravel)  
 HLS-4A-04TB(AB): 2NO/2NC

Head is factory set to operate the contacts in both the CW and CCW directions. To make change, simply pull out and rotate the arrow to the letters representing the desired direction: CW, CCW, or CW/CCW.



Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

(2) Conduit opening type: 1/2NPT

## HLS (AB) Series Heavy Duty Limit Switches

<p><b>Order Code</b>                  HLS-1A-66(AB): 1NO/1NC                  HLS-2A-66(AB): 2NO/2NC                  HLS-3A-66(AB): 2NO/2NC (2-stage)</p>	<p><b>Order Code</b>                  HLS-1A-68(AB): 1NO/1NC                  HLS-2A-68(AB): 2NO/2NC                  HLS-3A-68(AB): 2NO/2NC (2-stage)</p>

<p><b>Order Code</b>                  HLS-1A-69(AB): 1NO/1NC                  HLS-2A-69(AB): 2NO/2NC                  HLS-3A-69(AB): 2NO/2NC (2-stage)</p>	<p><b>Order Code</b>                  HLS-1A-00(AB): 1NO/1NC                  HLS-2A-00(AB): 2NO/2NC                  HLS-3A-00(AB): 2NO/2NC (2-stage)</p>

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting. (2) Conduit opening type: 1/2NPT

## HMS Series Heavy Duty Limit Switches

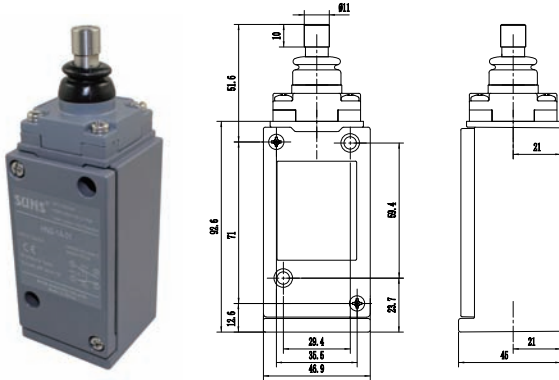
<p>Order Code HNS-1A-11: 1NO/1NC</p>	<p>Order Code HNS-1A-12: 1NO/1NC</p>
<p>Adjustable Operating Position (OP)</p>	
<p>Order Code HNS-1A-13: 1NO/1NC</p>	<p>Order Code HNS-1A-11H: 1NO/1NC</p>
<p>Order Code HNS-1A-12H: 1NO/1NC</p>	<p>Order Code HNS-1A-13H: 1NO/1NC</p>
<p>* Note: roller can be adjust to cross orientation</p>	

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

(2) Conduit opening type: 1/2NPT

## HNS Series Heavy Duty Limit Switches

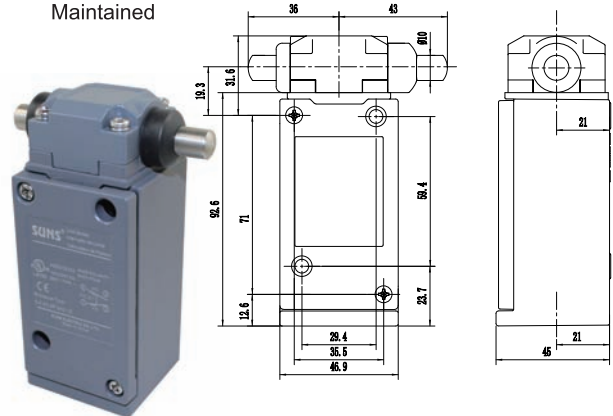
Adjustable Operating Position (OP)



Order Code

HNS-1A-01: 1NO/1NC

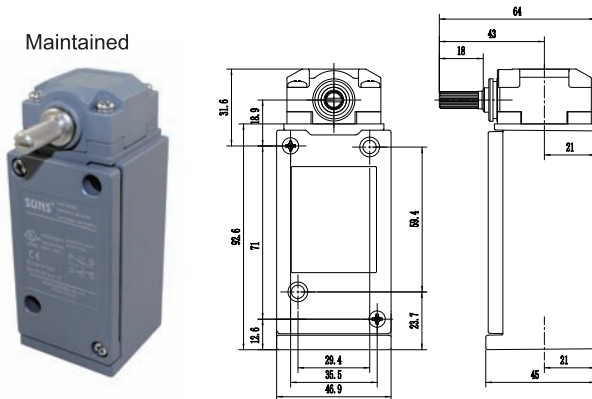
Maintained



Order Code

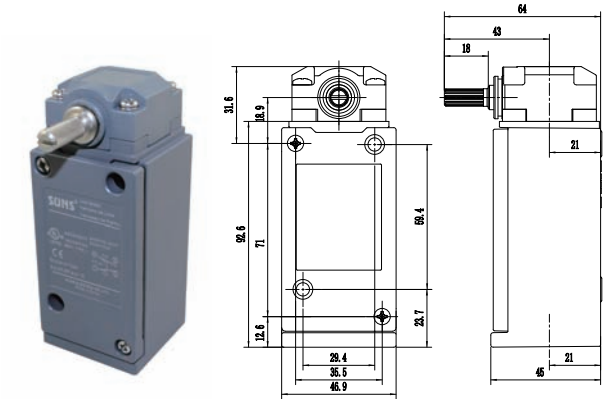
HNS-1A-10H: 1NO/1NC

Maintained



Order Code

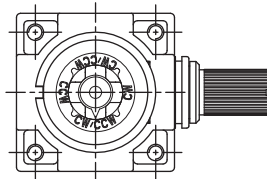
HNS-1A-04C: 1NO/1NC



Order Code

HNS-1A-04B: 1NO/1NC Standard Pretravel  
 HNS-1A-04A: 1NO/1NC Low Pretravel  
 HNS-1A-04N: 1NO/1NC Low Torque  
 HNS-1A-04D: 1NO/1NC Low Torque, Low Pretravel

Head is factory set to operate the contacts in both the CW and CCW directions. To make change, simply pull out and rotate the arrow to the letters representing the desired direction: CW, CCW, or CW/CCW.

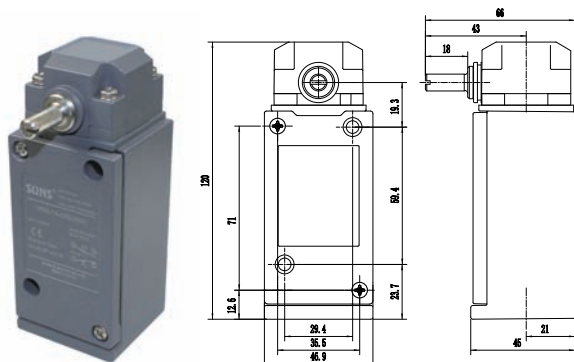


Note. (1) 2 x 10-24 UNC hole on the back for back side mounting.

(2) Conduit opening type: 1/2NPT

## HNS Series Heavy Duty Limit Switches

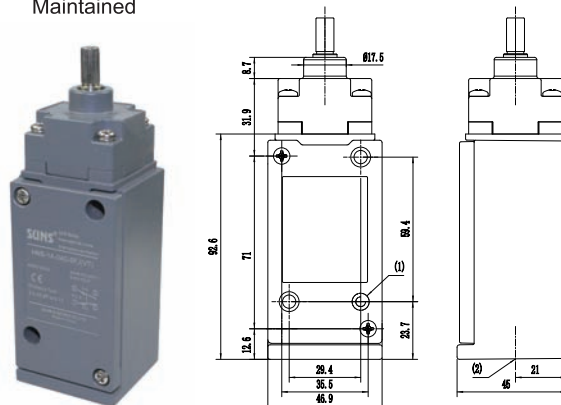
Adjustable Operating Position (OP)



Order Code

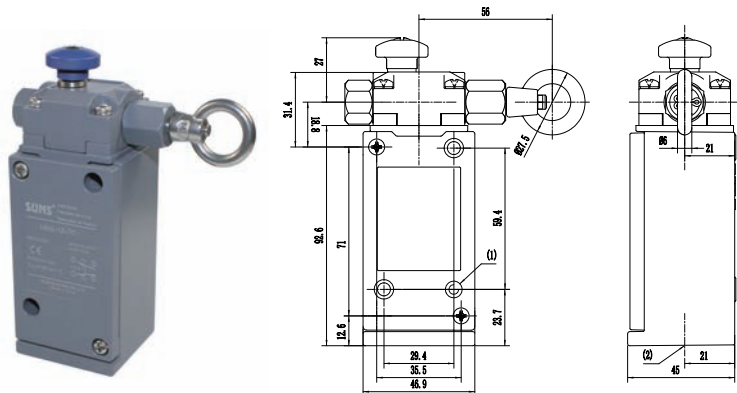
HNS-1A-04E: 1NO/1NC

Maintained



Order Code

HNS-1A-05B: 1NO/1NC



Order Code

HNS-1A-70: 1NO/1NC

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting. (2) Conduit opening type: 1/2NPT

## HNS Series Heavy Duty Limit Switches

Order Code  
HNS-1A-66: 1NO/1NC

Order Code  
HNS-1A-68: 1NO/1NC

Order Code  
HNS-1A-69: 1NO/1NC

Order Code  
HNS-1A-00: 1NO/1NC

Note. (1) 2 x 10-24 UNC hole on the back for back side mounting. (2) Conduit opening type: 1/2NPT

## Levers for Rotary Heads (HMS/HLS/HNS/HES/HCX Heavy Duty Limit Switches)



### Cast Aluminum Lever Arms with Roller

Add '-P' suffix for nylon roller (following part numbers are with steel roller)

Arm Length in. (mm)	Roller Diameter in. (mm)	Roller Width in. (mm)	Part Number
1.38 (35)	0.75 (19)	0.25 (6.3)	H-04B1
		0.63 (16)	H-04B2
	0.63 (16)	0.25 (6.3)	H-04B3
		0.63 (16)	H-04B4
		1 (25.4)	H-04B5
1.5 (38)	0.75 (19)	0.25 (6.3)	H-04C1
		0.63 (16)	H-04C2
	0.63 (16)	0.25 (6.3)	H-04C3
		0.63 (16)	H-04C4
		1 (25.4)	H-04C5
		1.97 (50)	H-4C5
2 (51)	0.75 (19)	0.25 (6.3)	H-04D1
		0.63 (16)	H-04D2
	0.63 (16)	0.25 (6.3)	H-04D3
		0.63 (16)	H-04D4
2.5 (63.5)	0.75 (19)	0.25 (6.3)	H-04E1
		0.63 (16)	H-04E2
	0.63 (16)	0.25 (6.3)	H-04E3
		0.63 (16)	H-04E4
3 (76)	0.75 (19)	0.25 (6.3)	H-04F1
		0.63 (16)	H-04F2
	0.63 (16)	0.25 (6.3)	H-04F3
		0.63 (16)	H-04F4

\* Mounting hole center to roller center distance

### 90° Forked Cast Aluminum Lever Arms with Roller

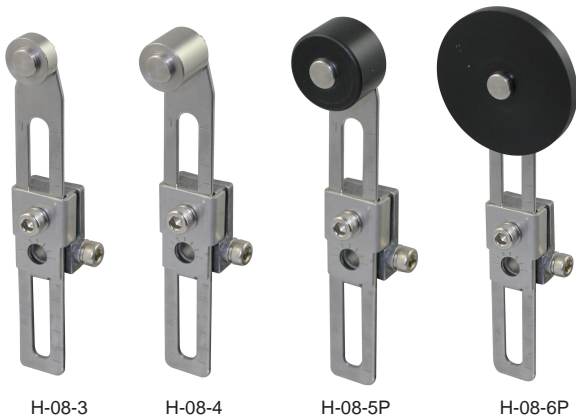
Add '-P' suffix for nylon roller (following part numbers are with steel roller)



Arm Length in. (mm)	Roller			Part Number
	Roller Position	Diameter in. (mm)	Width in. (mm)	
1.5 (38)	Rollers on same side	0.75 (19)	0.25 (6.3)	H-05-1
		0.63 (16)	0.25 (6.3)	H-05-3
	R.H. Rollers on opposite side	0.75 (19)	0.25 (6.3)	H-05-1RH
		0.63 (16)	0.25 (6.3)	H-05-3RH
	L.H. Rollers on opposite side	0.75 (19)	0.25 (6.3)	H-05-1LH
		0.63 (16)	0.25 (6.3)	H-05-3LH

\* Mounting hole center to roller center distance

### Adjustable Length Lever Arm with Steel Roller



Lever Length in. (mm)	Roller Dia. in. (mm)	Roller Width in. (mm)	Part Number
Non-bendable, adjustable from 22-101mm	0.63 (16)	0.25 (6.3)	H-08-3
	0.63 (16)	0.63 (16)	H-08-4
	0.75 (19)	0.25 (6.3)	H-08-5
Bendable, adjustable from 22-101mm	0.63 (16)	0.25 (6.3)	H-08B-3
	0.63 (16)	0.63 (16)	H-08B-4
	0.75 (19)	0.25 (6.3)	H-08B-5

### Adjustable Length Lever Arm with Nylon Roller

Lever Length in. (mm)	Roller Dia. in. (mm)	Roller Width in. (mm)	Part Number
Non-bendable, adjustable from 22-101mm	0.63 (16)	0.25 (6.3)	H-08-3P
	1 (25.4)	0.63 (16)	H-08-5P
	0.75 (19)	0.25 (6.3)	H-08-7P
Bendable, adjustable from 22-101mm	0.63 (16)	0.25 (6.3)	H-08B-3P
	1.0 (25.4)	0.63 (16)	H-08B-5P
	2 (51)	0.25 (6.3)	H-08B-6P

\* Mounting hole center to roller center distance

\* For used with 11mm shaft (suffix blank); 7.0mm and 7.3mm shaft (suffix -HW); and 8.0mm shaft (suffix -AB)

## Levers for Rotary Heads (HMS/HLS/HNS/HES/HCX Heavy Duty Limit Switches)

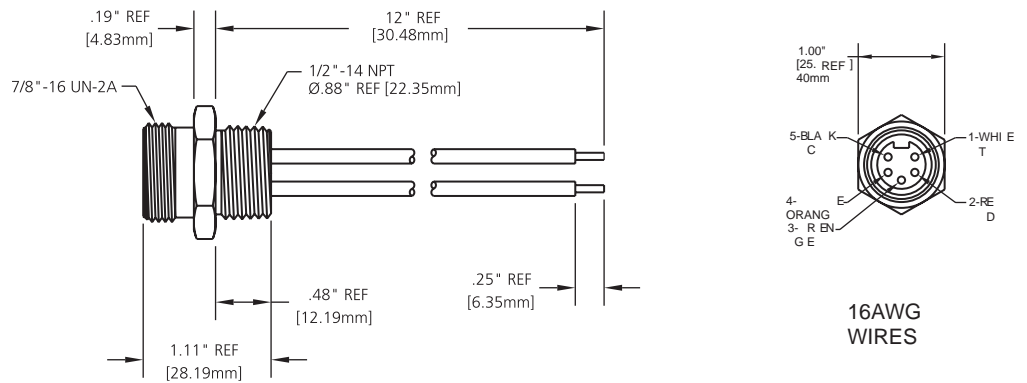


### Rod Type Lever Arms

Description	Length in. (mm)	Part Number
Stainless Steel Rod	10 (254)	H-07-10
Spring Rod, Steel	12 (304)	H-07S-12
Spring Rod, Delrin	12 (304)	H-07P-12
Looped Delrin Rod Arm	160MM(6.3IN.)	H-06
Looped Delrin Rod Arm	228MM(9IN.)	H-09

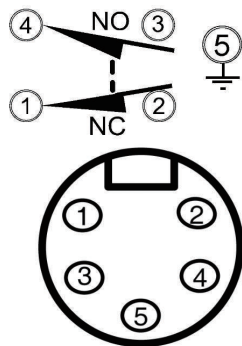
\* For used with 11mm shaft (suffix blank); 7.0mm shaft (suffix -CH); 7.3mm shaft (suffix -HW) and 8.0mm shaft (suffix -AB)

### NPT12-16-5P MALE STRAIGHT WITH 1/2" - 14NPT THREADS (5-PIN)



For prewired limit switches with NPT-12-16-5P connector, add -Q1 or -Q9 suffix

#### -Q1: wiring diagram



#### -Q9: wiring diagram

