



METAL-BODIED LIMIT SWITCHES: SN6 SERIES

Features:

- Aluminum body and lid
- Snap action or slow make & break contacts
- Galvanically separated contacts
- Positive Opening of NC contacts
- 4 x 90° actuator positions
- Cable entry available: M 20, PG13.5 and 1/2"NPT
- Conform to EN 50041 standard

Mounting Advantages:

- Increased wiring space
- Screw terminals with self-lifting clamps for easy wiring
- Easily exchangeable contact block with latch holding device
- Earth grounding surface on same level as switching system
- Fine adjustment of switching point via adjusting screw

Specifications

Operating Speed	0.05mm-2m/sec
Operating Frequency	Mechanical: 120ops/min Electrical: 30 ops/min
Insulation Resistance	>100MΩ@500V DC
Contact Resistance	<25mΩ
Rated Voltage	600V AC (EN60947-5-1)
Rated Thermal Current	10A
Electrical Rating (UL, cUL Approved)	AC15 A600 DC13 Q300
Dielectric Strength	1000VAC for 1 min between current carrying parts 2500VAC for 1 min between non-current carrying parts
Service Life	Mechanically 1.5 x 10 <sup>7</sup> (operations) Electrically 5 x 10 <sup>5</sup> (operations)
Operating Temperature	-10~+80°C (14~176°F)
Humidity	< 95%RH
Weight	400-450g
Degree of Protection	IP67

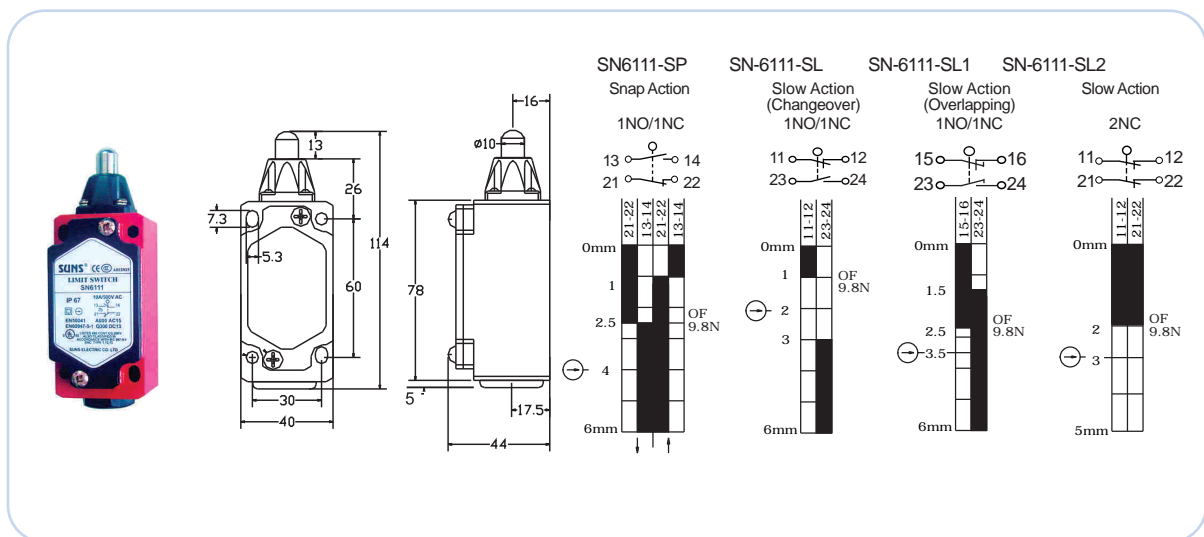
Definitions of Operating Characteristics

- |                    |                               |
|--------------------|-------------------------------|
| OF Operating Force | PT Pretravel                  |
| RF Releasing Force | MD Movement Differential      |
| OT Overtravel      | OP Operating Position         |
| TT Total Travel    | PO Travel to Positive Opening |

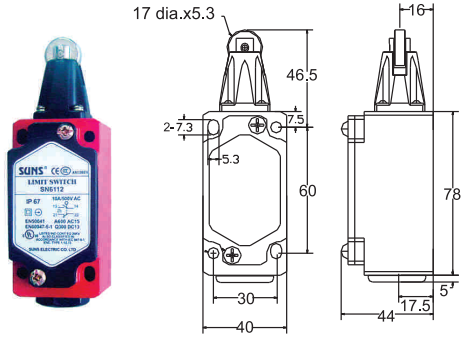


Dimensions

Unit:mm



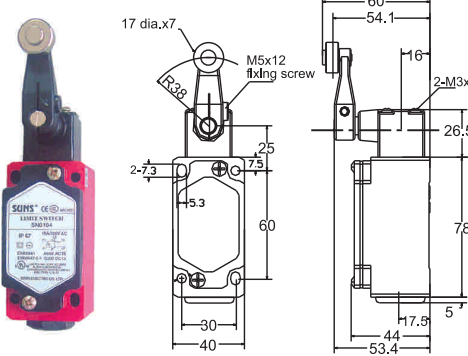
SN6111



17 dia.x5.3  
46.5  
2-7.3  
5.3  
60  
30  
40  
16  
78  
17.5  
5

SN-6112-SP	SN-6112-SL	SN-6112-SL1	SN-6112-SL2
Snap Action	Slow Action (Changeover)	Slow Action (Overlapping)	Slow Action
1NO/1NC	1NO/1NC	1NO/1NC	2NC

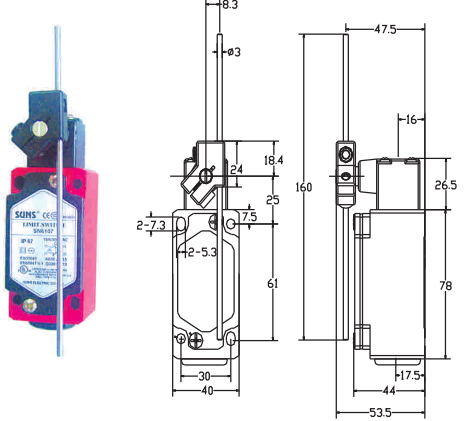
**SN6112**



17 dia.x7  
60  
54.1  
16  
2-M3x32  
26.5  
78  
2-7.3  
5.3  
60  
30  
40  
17.5  
5  
53.4

SN-6104-SP	SN-6104-SL	SN-6104-SL1	SN-6104-SL2
Snap Action	Slow Action (Changeover)	Slow Action (Overlapping)	Slow Action
1NO/1NC	1NO/1NC	1NO/1NC	2NC

**SN6104**



8.3  
160  
47.5  
16  
26.5  
78  
2-7.3  
5.3  
61  
30  
40  
17.5  
5  
53.5

SN-6107-SP	SN-6107-SL	SN-6107-SL1	SN-6107-SL2
Snap Action	Slow Action (Changeover)	Slow Action (Overlapping)	Slow Action
1NO/1NC	1NO/1NC	1NO/1NC	2NC

**SN6107**

METAL-BODIED LIMIT SWITCHES: SN6 SERIES



**SN-6108-SP**  
Snap Action  
1NO/1NC

**SN-6108-SL**  
Slow Action (Changeover)  
1NO/1NC

**SN-6108-SL1**  
Slow Action (Overlapping)  
1NO/1NC

**SN-6108-SL2**  
Slow Action

SN6108

**SN-6100-SP**  
Snap Action  
1NO/1NC

SN6100

Head choice:

Operating Force (OF) 10N  
Pretravel max (PT) 55°  
Overtravel (OT) 35°  
Movement until level reverse: 50 ± 5°

SN6105

### Specifications

Operating Speed	0.05mm-2m/sec
Operating Frequency	Mechanical: 120ops/min Electrical: 30 ops/min
Insulation Resistance	>100MΩ@500V DC
Contact Resistance	<25mΩ
Rated Voltage	500V AC (EN60947-5-1)
Rated Current	10A
Dielectric Strength	1000VAC for 1 min between current carrying parts 2500VAC for 1 min between non-current carrying parts
Service Life	Mechanically 1.0 x10 <sup>7</sup> (operations) Electrically 5 x10 <sup>5</sup> (operations)
Operating Temperature	-10~+80°C (14~176°F)
Humidity	< 95%RH
Weight	70g
Degree of Protection	IP65

### Features

- Glass-fiber reinforced plastic enclosure (94V-0)
- Hinged snap lid for quick and easy access
- Snap action or slow make & break contacts
- Lid hinges open to 135° (can also be easily detached)
- Galvanically separated contacts
- Screw terminals with self-lifting clamps for easy wiring
- Positive Opening of NC contacts
- 4 x 90° actuator positions
- Cable entry available: M 20, PG13.5 and 1/2"NPT
- Conform to EN 50047 standard

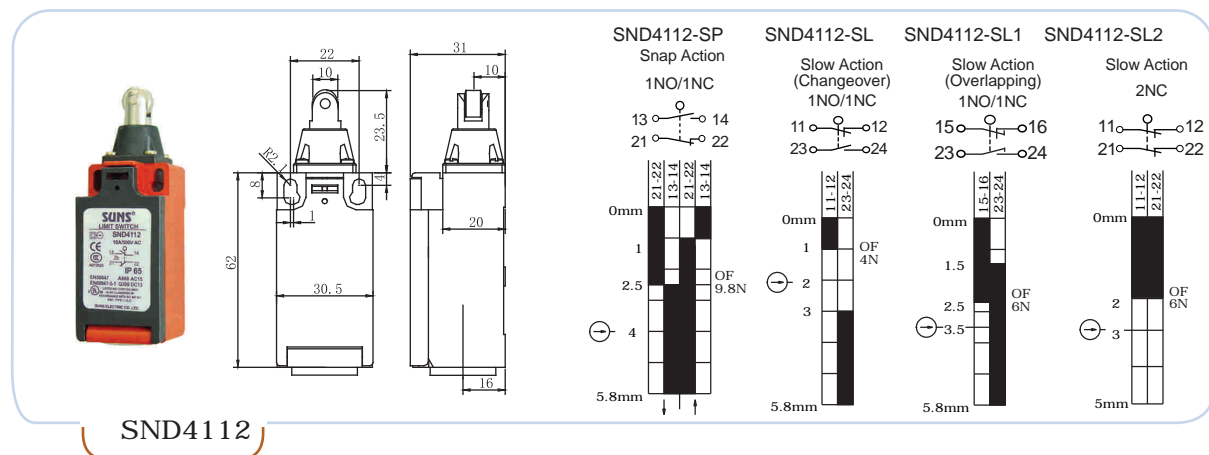
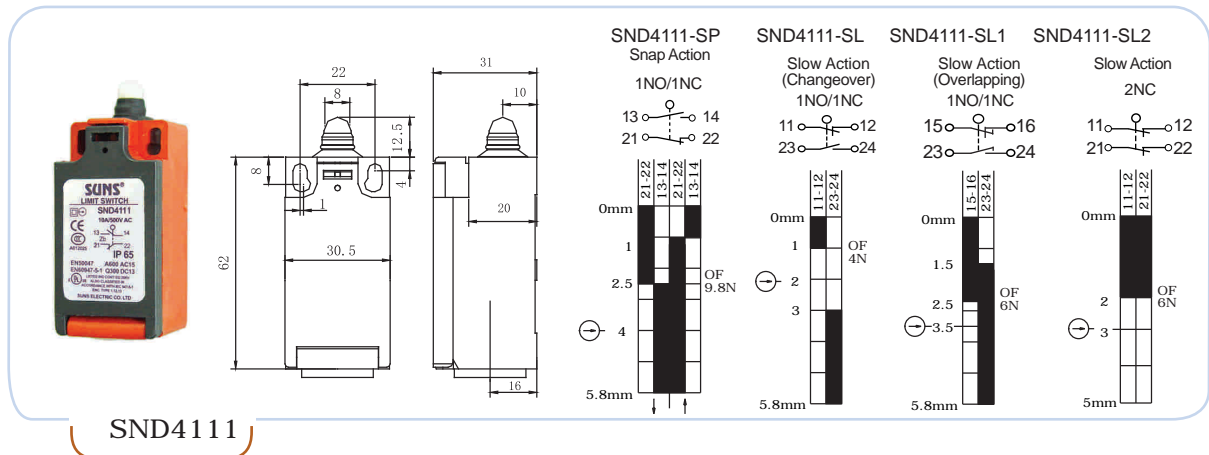
### Definitions of Operating Characteristics

- OF Operating Force
- RF Releasing Force
- OT Overtravel
- TT Total Travel
- PT Pretravel
- MD Movement Differential
- OP Operating Position
- PO Travel to Positive Opening



## Dimensions

Unit:mm



PLASTIC-BODIED LIMIT SWITCHES: SND4 SERIES



SND-4162-SP	SND-4162-SL	SND-4162-SL1	SND-4162-SL2
Snap Action 1NO/1NC	Slow Action (Changeover) 1NO/1NC	Slow Action (Overlapping) 1NO/1NC	Slow Action 2NC


SND4162

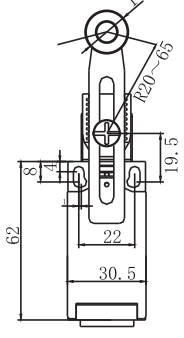
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Snap Action 1NO/1NC	Slow Action (Changeover) 1NO/1NC	Slow Action (Overlapping) 1NO/1NC	Slow Action 2NC

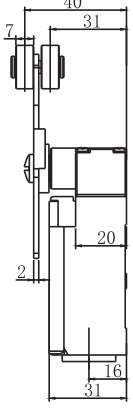
SND4172

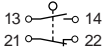
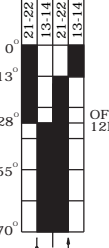
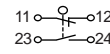
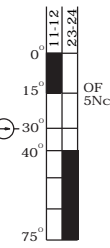
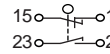
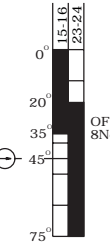
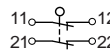
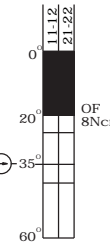
SND-4104-SP	SND-4104-SL	SND-4104-SL1	SND-4104-SL2
Snap Action 1NO/1NC	Slow Action (Changeover) 1NO/1NC	Slow Action (Overlapping) 1NO/1NC	Slow Action 2NC

SND4104




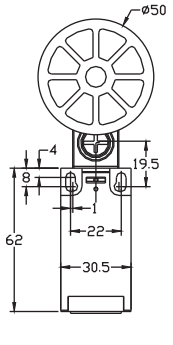


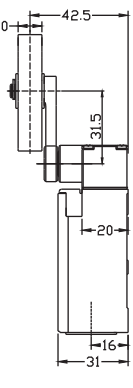


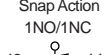
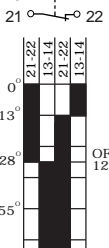
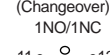
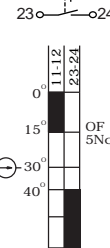
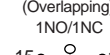
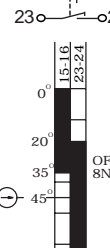
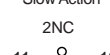
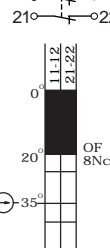
<p><b>SND-4108-SP</b></p> <p>Snap Action 1NO/1NC</p>  	<p><b>SND-4108-SL</b></p> <p>Slow Action (Changeover) 1NO/1NC</p>  	<p><b>SND-4108-SL1</b></p> <p>Slow Action (Overlapping) 1NO/1NC</p>  	<p><b>SND-4108-SL2</b></p> <p>Slow Action 2NC</p>  
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**SND4108**




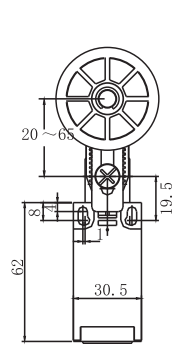


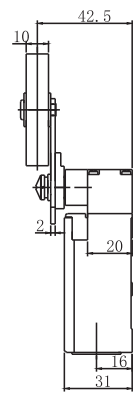



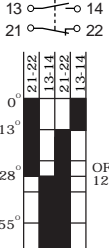
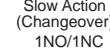
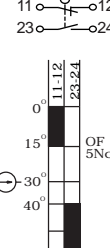
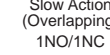
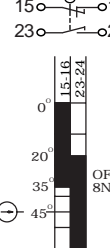
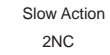
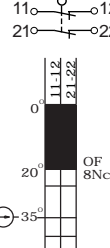
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**SND4114**







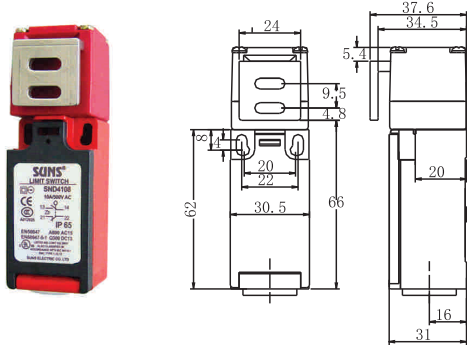
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**SND4118**

SAFETY SWITCHES



Key Operated Safety Switch



**SND-4181-SP**  
Snap Action  
1NO/1NC  
13 14  
21

**SND-4181-SL**  
Slow Action (Changeover)  
1NO/1NC  
11 12  
23 24

**SND-4181-SL2**  
Slow Action  
2NC  
11 12  
21 22

Dimensions: 24, 37.6, 34.5, 5.4, 9.5, 3.8, 20, 30.5, 66, 16, 31


Terminal Spacing: 4.5(0.18), 6(0.24), 8(0.31), 24(0.94) mm(inch)

Terminal Spacing: 4.5(0.18), 5(0.20), 6(0.24), 24(0.94) mm(inch)

Terminal Spacing: 7.5(0.30), 8.5(0.33), 24(0.94) mm(inch)

SND4191

Key Operated Safety Switch



**SN-6191-SP**  
Snap Action  
1NO/1NC  
13 14  
21

**SN-6191-SL**  
Slow Action (Changeover)  
1NO/1NC  
11 12  
23 24

**SN-6191-SL2**  
Slow Action  
2NC  
11 12  
21 22

Dimensions: 32.0 mm (1.28"), 41.3 mm (1.63"), 11.6 mm (0.46"), 2.0 mm (0.08"), 37.2 mm (1.46"), 81.5 - 89.5 mm (3.20" - 3.52"), 78 mm (3.05"), 60.0 mm (2.36"), 4 x 4.5 x 2 mm (0.20"), 33.9 mm (1.33"), 80.0 mm (3.15"), 20.0 mm (0.79"), 15 mm (0.59"), 40.0 mm (1.57"), 49.0 mm (1.93"), 30.0 mm (1.18"), 2 x 4.8 mm (0.19"), 7.5 mm (0.30")


Terminal Spacing: 9(0.35), 12(0.47), 15(0.59), 40(1.57) mm(inch)

Terminal Spacing: 9(0.35), 12(0.47), 40(1.57) mm(inch)

Terminal Spacing: 11(0.43), 15(0.59), 40(1.57) mm(inch)

SN6191

Rotary Hinge Safety Switch



**SND-4181-SL**  
Slow Action (Changeover)  
1NO/1NC  
11 12  
23 24

Dimensions: 46, 20, 13, M3, 10, 15, 84, 22, 30.5, 20, 62, 16, 31, M2.9

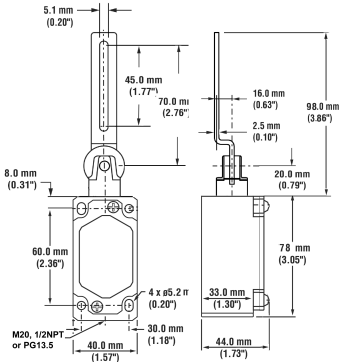
Terminal Spacing: 11-12, 23-24  
0°, 10°, 30°, 45°, 315°, 350°, 360°

SND4181

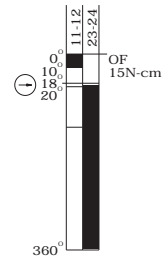
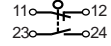
Hinge Level Safety Switch



SN6182



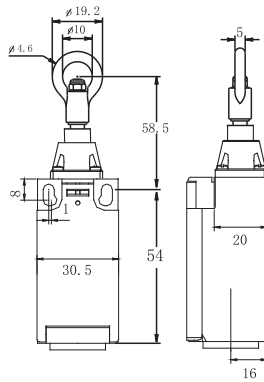
SN-6182-SL



Cable Pull Switch

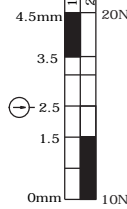
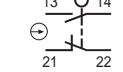


SND4170



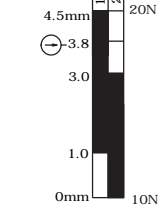
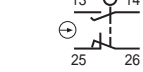
SND-4170-SL

Slow Action



SND-4170-SL1

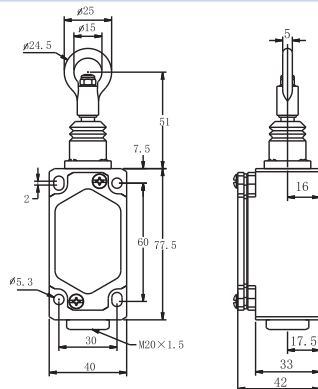
Slow Action



Cable Pull Switch

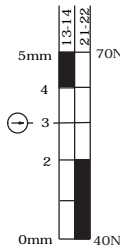
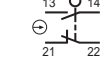


SN6170



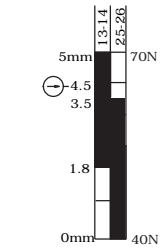
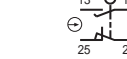
SN-6170-SL

Slow Action



SN-6170-SL1

Slow Action





3 CONDUIT METAL-BODIED LIMIT SWITCHES: SN2 SERIES



Features

- Aluminum body and lid
- Wide range of actuators available
- Positive Opening of NC contacts
- 4 x 90° actuator positions
- 3 Cable conduits for easy wiring
- Cable entry available: M 20, PG13.5 and 1/2"NPT
- EN50047 Compatible

Specifications

Operating Speed	0.05mm-2m/sec
Operating Frequency	Mechanical: 120ops/min Electrical: 30 ops/min
Insulation Resistance	>100MΩ@500V DC
Contact Resistance	<25mΩ
Rated Voltage	500V AC (EN60947-5-1)
Rated Current	10A
Dielectric Strength	1000VAC for 1 min between current carrying parts 2500VAC for 1 min between non-current carrying parts
Service Life	Mechanically 1.5 x10 <sup>7</sup> (operations) Electrically 5 x10 <sup>5</sup> (operations)
Operating Temperature	-10~+80°C (14~176°F)
Humidity	< 95%RH
Weight	300g(10.6oz)
Degree of Protection	IP66

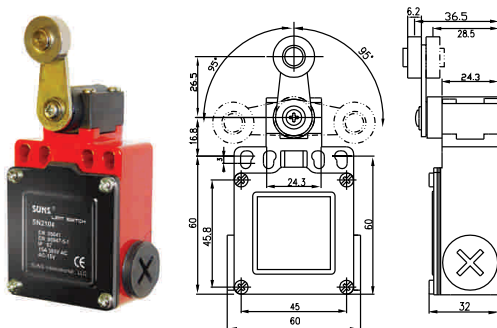
Definitions of Operating Characteristics

- |                    |                               |
|--------------------|-------------------------------|
| OF Operating Force | PT Pretravel                  |
| RF Releasing Force | MD Movement Differential      |
| OT Overtravel      | OP Operating Position         |
| TT Total Travel    | PO Travel to Positive Opening |

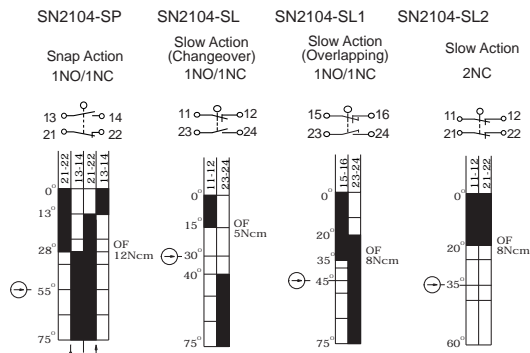


Dimensions

Unit:mm




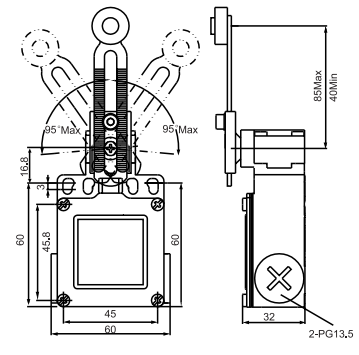
SN2104

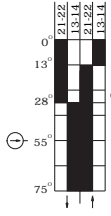
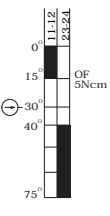
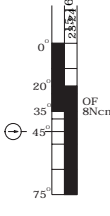
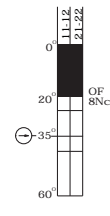


3 CONDUIT METAL-BODIED LIMIT SWITCHES: SN2 SERIES




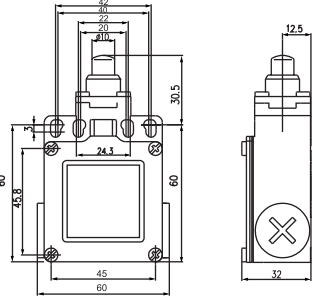


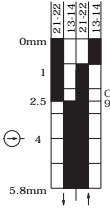
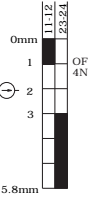
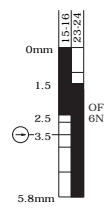
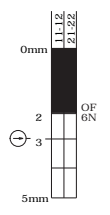


<p><b>SN2108-SP</b> Snap Action 1NO/1NC</p> <p>13  14 21  22</p> 	<p><b>SN2108-SL</b> Slow Action (Changeover) 1NO/1NC</p> <p>11  12 23  24</p> 	<p><b>SN2108-SL1</b> Slow Action (Overlapping) 1NO/1NC</p> <p>15  16 23  24</p> 	<p><b>SN2108-SL2</b> Slow Action 2NC</p> <p>11  12 21  22</p> 
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**SN2108**

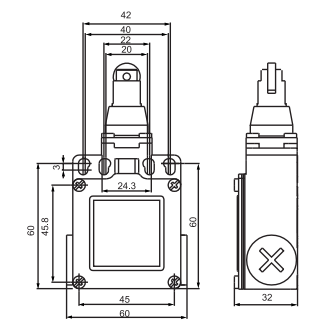


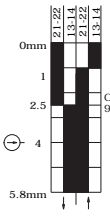
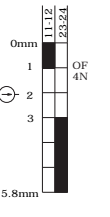
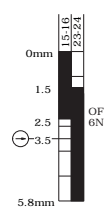
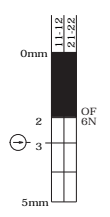


<p><b>SN2111-SP</b> Snap Action 1NO/1NC</p> <p>13  14 21  22</p> 	<p><b>SN2111-SL</b> Slow Action (Changeover) 1NO/1NC</p> <p>11  12 23  24</p> 	<p><b>SN2111-SL1</b> Slow Action (Overlapping) 1NO/1NC</p> <p>15  16 23  24</p> 	<p><b>SN2111-SL2</b> Slow Action 2NC</p> <p>11  12 21  22</p> 
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**SN2111**

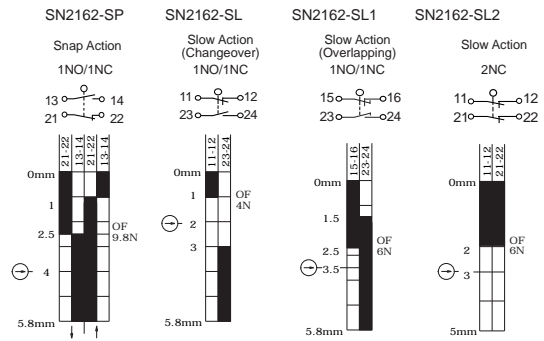
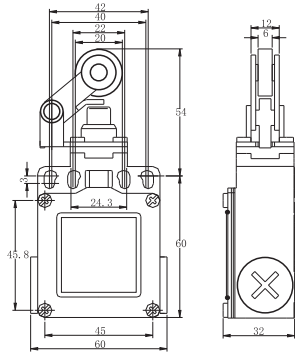




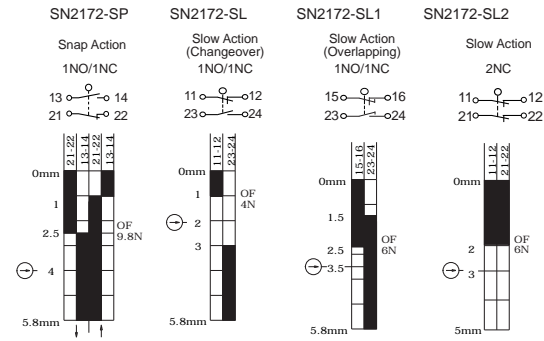
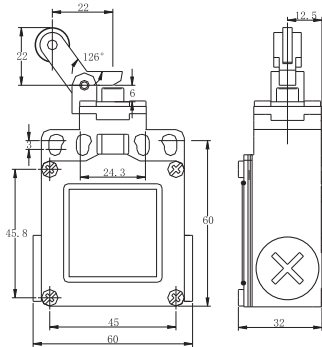
<p><b>SN2112-SP</b> Snap Action 1NO/1NC</p> <p>13  14 21  22</p> 	<p><b>SN2112-SL</b> Slow Action (Changeover) 1NO/1NC</p> <p>11  12 23  24</p> 	<p><b>SN2112-SL1</b> Slow Action (Overlapping) 1NO/1NC</p> <p>15  16 23  24</p> 	<p><b>SN2112-SL2</b> Slow Action 2NC</p> <p>11  12 21  22</p> 
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**SN2112**

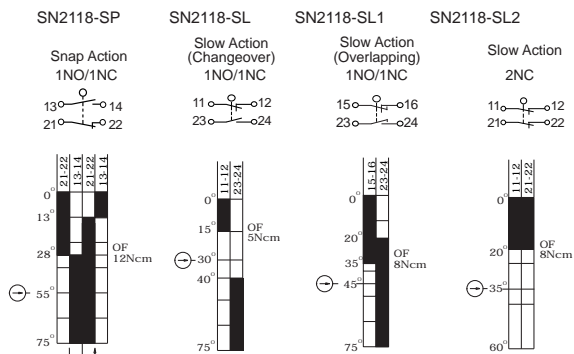
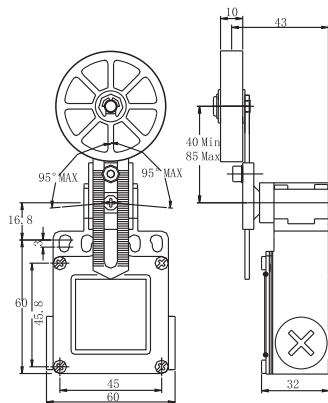
3 CONDUIT METAL-BODIED LIMIT SWITCHES: SN2 SERIES



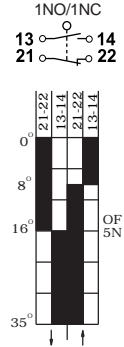
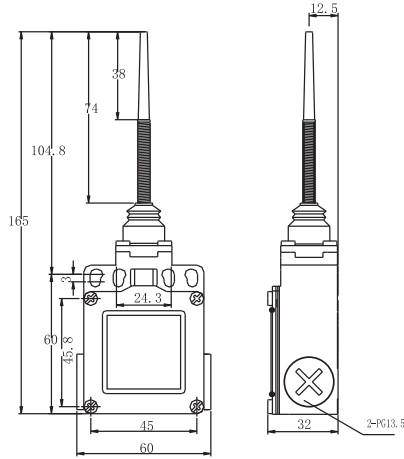
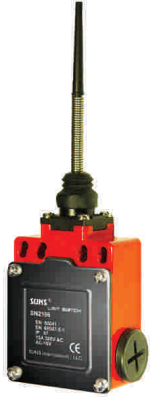
SN2162



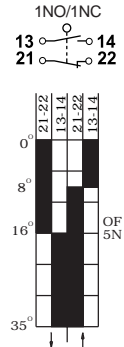
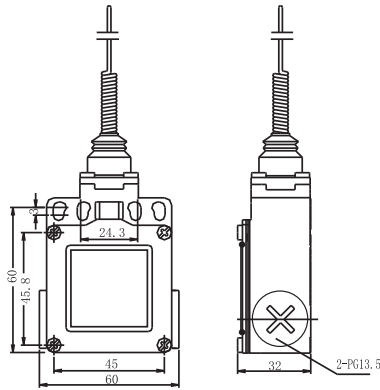
SN2172



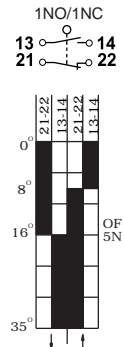
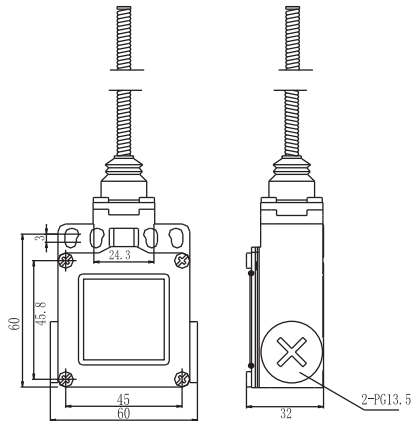
SN2118



SN2166



SN2169



SN2100

COMPACT LIMIT SWITCHES: AZ-8 SERIES



Features

- Designed for applications of small mounting space
- Constructed with Metal based and plastic cover
- Wide range of actuators available
- Pre-molded flexible cable gland for fast and simple wiring termination
- Positive Opening of NC contacts
- Improved current carrying capacity to 10A

Specifications


Operating Speed	0.05mm-2m/sec
Operating Frequency	Mechanical: 120ops/min Electrical: 30 ops/min
Insulation Resistance	>100MΩ@500V DC
Contact Resistance	<25mΩ
Rated Voltage/Current	10A/250VAC (EN60947-5-1)
Dielectric Strength	1000VAC for 1 min between current carrying parts 2000VAC for 1 min between non-current carrying parts
Service Life	Mechanically 1.0 x10 <sup>7</sup> (operations) Electrically 5 x10 <sup>5</sup> (operations)
Operating Temperature	-10~+80°C (14~176°F)
Humidity	< 95%RH
Degree of Protection	IP64

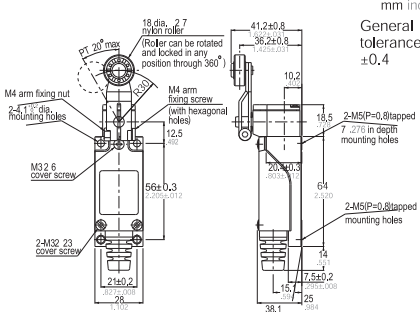
Definitions of Operating Characteristics

- |    |                 |    |                            |
|----|-----------------|----|----------------------------|
| OF | Operating Force | PT | Pretravel                  |
| RF | Releasing Force | MD | Movement Differential      |
| OT | Overtravel      | OP | Operating Position         |
| TT | Total Travel    | PO | Travel to Positive Opening |

Dimensions

Unit:mm






mm inch  
General tolerance: ±0.4

**Operating Characteristics**


Snap Action

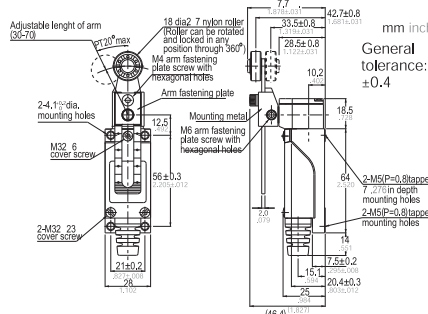


21 22

- OF<sub>max</sub> 7.35N-cm
- RF<sub>min</sub> 0.98N-cm
- PT<sub>max</sub> 20°
- OT<sub>min</sub> 75°
- MD<sub>max</sub> 12°
- PO<sub>min</sub> 55°

AZ-8104






mm inch  
General tolerance: ±0.4

**Operating Characteristics**


Snap Action

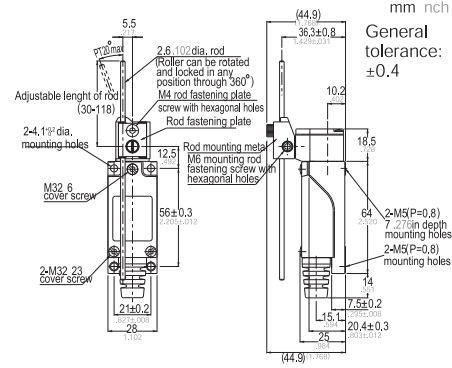


21 22

- OF<sub>max</sub> 7.35N-cm
- RF<sub>min</sub> 0.98N-cm
- PT<sub>max</sub> 20°
- OT<sub>min</sub> 75°
- MD<sub>max</sub> 12°
- PO<sub>min</sub> 55°

AZ-8108






**General tolerance: ±0.4**


**Operating Characteristics**

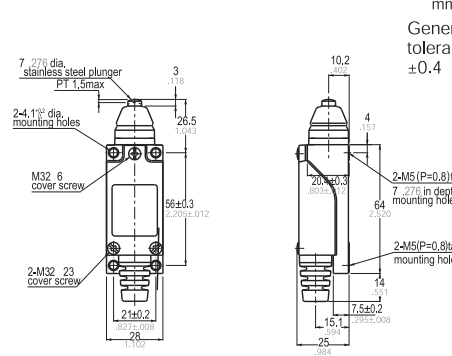
Snap Action



- OF<sub>max</sub> 7.35N-cm
- RF<sub>min</sub> 0.98N-cm
- PT<sub>max</sub> 20°
- OT<sub>min</sub> 75°
- MD<sub>max</sub> 12°
- PO<sub>min</sub> 55°

**AZ-8107**






**General tolerance: ±0.4**


**Operating Characteristics**

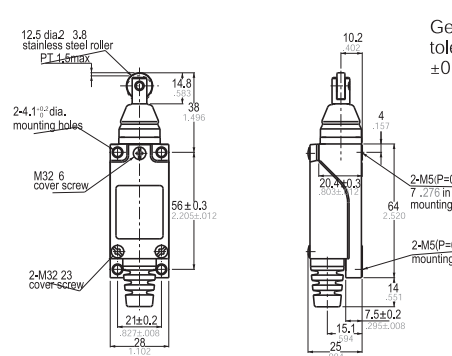
Snap Action



- OF<sub>max</sub> 8.82N
- RF<sub>min</sub> 1.47N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 4mm
- MD<sub>max</sub> 1mm
- OP 26±0.8mm
- PO<sub>min</sub> 3.0mm

**AZ-8111**






**General tolerance: ±0.4**


**Operating Characteristics**

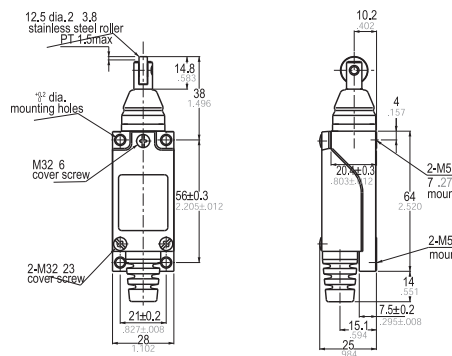
Snap Action



- OF<sub>max</sub> 8.82N
- RF<sub>min</sub> 1.47N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 4mm
- MD<sub>max</sub> 1mm
- OP 37±0.8mm
- PO<sub>min</sub> 3.0mm

**AZ-8112**






**General tolerance: ±0.4**

**Operating Characteristics**

Snap Action




- OF<sub>max</sub> 8.82N
- RF<sub>min</sub> 1.47N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 4mm
- MD<sub>max</sub> 1mm
- OP 37±0.8mm
- PO<sub>min</sub> 3.0mm

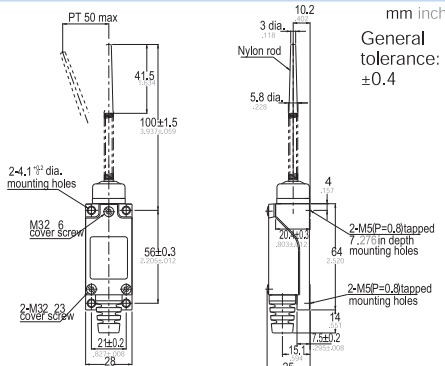
**AZ-8122**

COMPACT LIMIT SWITCHES: AZ-8 SERIES





**AZ-8166**




PT 50 max  
41.5  
100±1.5  
2-4.1<sup>38</sup> dia. mounting holes  
M32 6 cover screw  
56±0.3  
2-M32 23 cover screw  
21±0.2  
28  
1.102

10.2  
3 dia.  
Nylon rod  
5.8 dia.  
4  
2-M5(P=0.8) tapped mounting holes  
7.27±0.13 in depth  
64  
2-M5(P=0.8) tapped mounting holes  
14  
15.1  
25  
1.102


mm inch  
General tolerance: ±0.4

**Operating Characteristics**

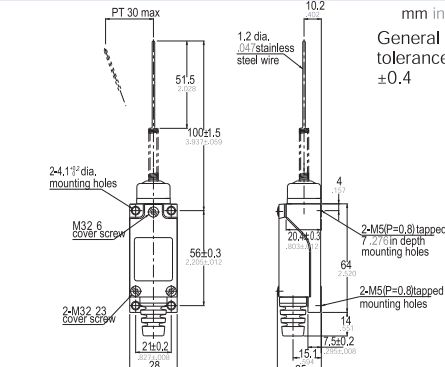
Snap Action



- OF<sub>max</sub> 1.47N
- PT<sub>max</sub> 50mm



**AZ-8169**




PT 30 max  
51.5  
100±1.5  
2-4.1<sup>38</sup> dia. mounting holes  
M32 6 cover screw  
56±0.3  
2-M32 23 cover screw  
21±0.2  
28  
1.102

10.2  
1.2 dia.  
1/4" stainless steel wire  
4  
2-M5(P=0.8) tapped mounting holes  
7.27±0.13 in depth  
64  
2-M5(P=0.8) tapped mounting holes  
14  
15.1  
25  
1.102


mm inch  
General tolerance: ±0.4

**Operating Characteristics**

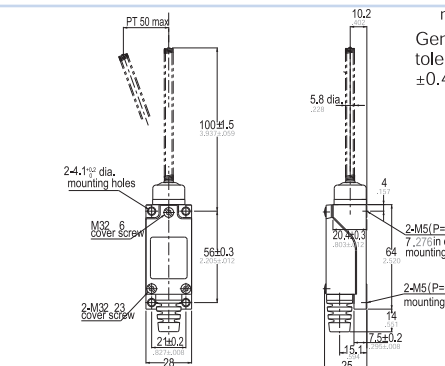
Snap Action



- OF<sub>max</sub> 1.47N
- PT<sub>max</sub> 30mm



**AZ-8200**




PT 50 max  
100±1.5  
2-4.1<sup>38</sup> dia. mounting holes  
M32 6 cover screw  
56±0.3  
2-M32 23 cover screw  
21±0.2  
28  
1.102

10.2  
5.8 dia.  
4  
2-M5(P=0.8) tapped mounting holes  
7.27±0.13 in depth  
64  
2-M5(P=0.8) tapped mounting holes  
14  
15.1  
25  
1.102

mm inch  
General tolerance: ±0.4

**Operating Characteristics**

Snap Action



- OF<sub>max</sub> 1.47N
- PT<sub>max</sub> 30mm

## COMPACT LIMIT SWITCHES SN5 SERIES



### Features

- Designed for applications with small mounting space
- Highly rigid construction (head and cover snugly fit in box)
- Wide range of actuators available
- Pre-molded flexible cable gland for fast and simple wiring termination

### Specifications

Operating Speed	0.05mm-2m/sec
Operating Frequency	Mechanical: 120ops/min Electrical: 30 ops/min
Insulation Resistance	>100MΩ@500V DC
Contact Resistance	<25mΩ
Rated Voltage	250V AC (EN60947-5-1)
Rated Current	10A
Dielectric Strength	1000VAC for 1 min between current carrying parts 2500VAC for 1 min between non-current carrying parts
Service Life	Mechanically 1.0 x 10 <sup>7</sup> (operations) Electrically 5 x 10 <sup>5</sup> (operations)
Operating Temperature	-10~+80°C (14~176°F)
Humidity	< 95%RH
Weight	130-190g(4.6-6.7oz)
Degree of Protection	IP65

### Definitions of Operating Characteristics

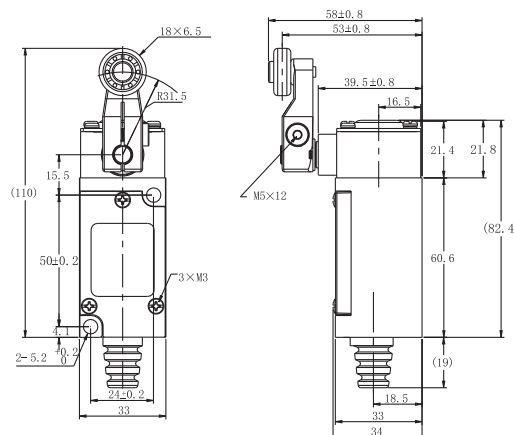
OF	Operating Force	PT	Pretravel
RF	Releasing Force	MD	Movement Differential
OT	Overtravel	OP	Operating Position
TT	Total Travel		

## Dimensions

Unit:mm



SN5104



### Operating Characteristics

#### Snap Action




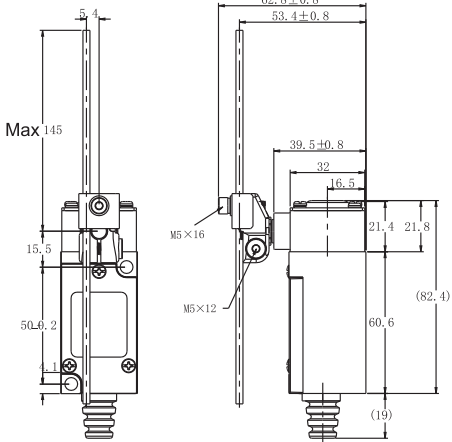
- OF<sub>max</sub> 5.88N
- RF<sub>min</sub> 0.49N
- PT<sub>max</sub> 20°
- OT<sub>min</sub> 75°
- MD<sub>max</sub> 14°



COMPACT LIMIT SWITCHES SN5 SERIES









**Operating Characteristics**

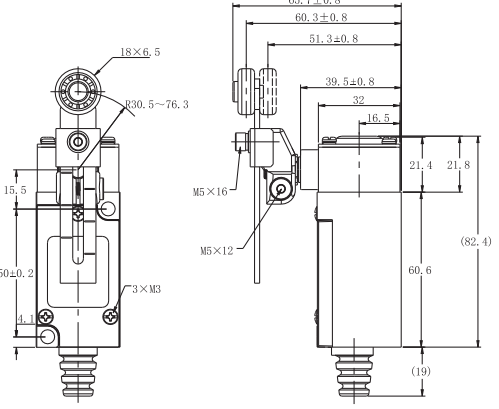
Snap Action



- OF<sub>max</sub> 7.84-1.99N
- RF<sub>min</sub> 0.49-0.12N
- PT<sub>max</sub> 20°
- OT<sub>min</sub> 75°
- MD<sub>max</sub> 14°


SN5107






**Operating Characteristics**

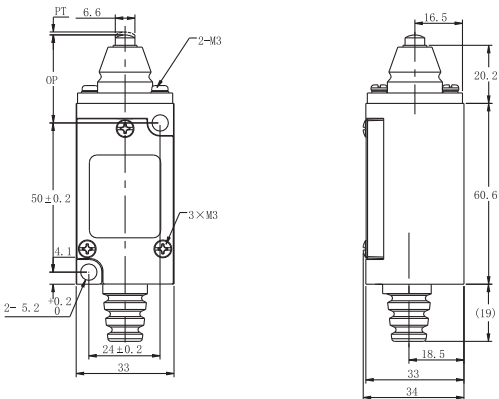
Snap Action



- OF<sub>max</sub> 7.84-3.35N
- RF<sub>min</sub> 0.49-0.21N
- PT<sub>max</sub> 20°
- OT<sub>min</sub> 75°
- MD<sub>max</sub> 14°


SN5108





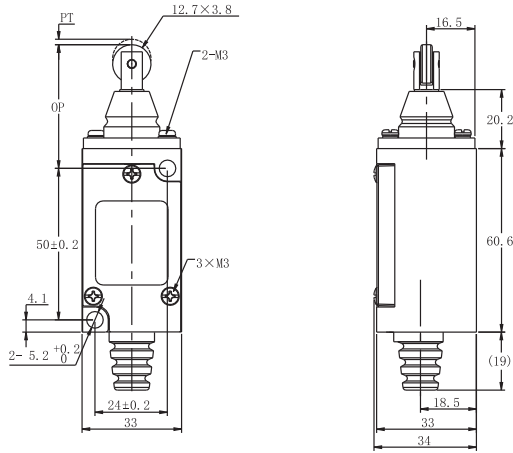
**Operating Characteristics**

Snap Action



- OF<sub>max</sub> 8.82N
- RF<sub>min</sub> 1.47N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 4mm
- MD<sub>max</sub> 1mm

SN5111



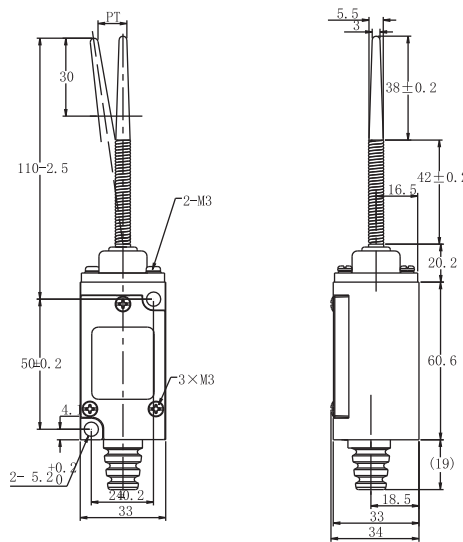
Operating Characteristics

Snap Action



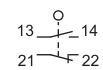
- OF<sub>max</sub> 8.82N
- RF<sub>min</sub> 1.47N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 4mm
- MD<sub>max</sub> 1mm

SN5112



Operating Characteristics

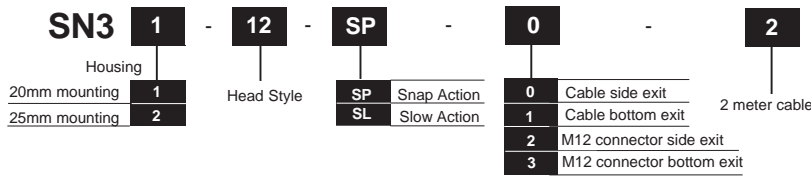
Snap Action



- OF<sub>max</sub> 0.88N
- PT<sub>max</sub> 50mm
- PT<sub>max</sub> 20mm

SN5166

# SN3 SERIES COMPACT LIMIT SWITCHES



## Specification

Operating Speed	0.05mm-2m/sec
Operating Frequency	Mechanical: 120ops/min Electrical: 30 ops/min
Insulation Resistance	>100MΩ@500V DC
Contact Resistance	<25mΩ
Rated Voltage	300V AC (EN60947-5-1)
Rated Thermal Current	10A
Electrical Rating	AC15 A300 DC13 Q300
Dielectric Strength	1000VAC for 1 min between current carrying parts 2500VAC for 1 min between non-current carrying parts
Service Life	Mechanically 1.0 x10 <sup>7</sup> (operations) Electrically 5 x10 <sup>5</sup> (operations)
Operating Temperature	-25~+85°C without formation of ice
Humidity	< 95%RH
Cable	5 core, 0.75mm <sup>2</sup>
Degree of Protection	IP67

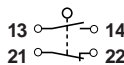
## Electrical Ratings

IEC 947-5-1 / EN 90947-5-1									
Designation & Utilization Category	Rated operational current Ie (A) at rated operational voltage Ue						VA rating		
	120V	240V	380V	480V	500V	600V	Make	Break	
AC15 A300	6	3	-	-	-	-	7200	720	
	125VDC		250VDC						
DC13 Q300	0.55	0.27					69	69	

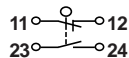
## Operating Characteristics

Prewired Type:

Snap Action  
1NO/1NC

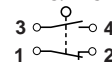


Slow Action (Changeover)  
1NO/1NC

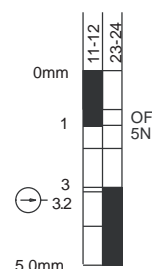
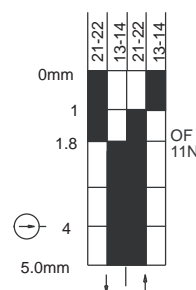
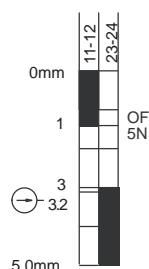
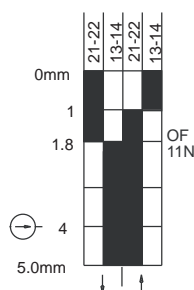
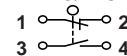


M12 Connector Type:

Snap Action  
1NO/1NC



Slow Action (Changeover)  
1NO/1NC



SN3 SERIES COMPACT LIMIT SWITCHES



Series	Side view	Front view	Series	Side view	Front view
SN3101			SN3131		
SN3111			SN3132		
SN3112			SN3142		
SN3122			SN3121		
SN3104					

Series	Side view	Front view	Series	Side view	Front view
SN3201			SN3221		
SN3211			SN3231		
SN3212			SN3232		
SN3222			SN3242		
SN3204					

## SN1 Series Compact Limit Switch

### Features:

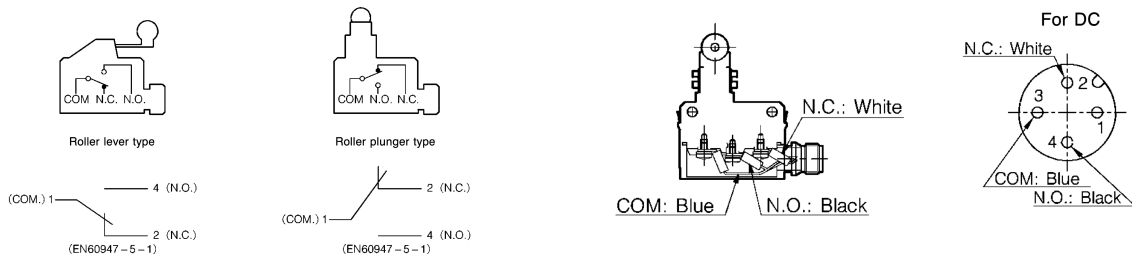
- Robust metal enclosure design
- Compact, space-saving and tightly gang mounting possible
- Positive opening of NC contacts
- High sealability, oil-resistant/Immersion-proof type
- Long mechanical life of 20 million operations
- High sensitivity. (M.D. =0.1mm)
- Gold plated contact available for low current applications
- M12 connector type available



### Specifications

Operating Speed	0.02mm-0.5m/sec	
Operating Frequency	120 ops/min	
Insulation Resistance	>100MΩ@500V DC	
Contact Resistance	<25mΩ	
Electrical Rating	Standard Load Type (Silver contacts)	10A/250VAC or 10A/30VDC
	Low Current Type (Gold Plated Contacts)	0.1A/250VAC or 0.1A/30VDC
Dielectric Strength	1000VAC for 1 min between current carrying parts 2500VAC for 1 min between non-current carrying parts	
Service Life	Mechanically	2 x 10 <sup>7</sup> (operations)
	Electrically	5 x 10 <sup>5</sup> (operations)
Operating Temperature	-30~+80°C (-22~176°F)	
Humidity	< 98%RH	
Degree of Protection	IP67	

### Wiring Diagram



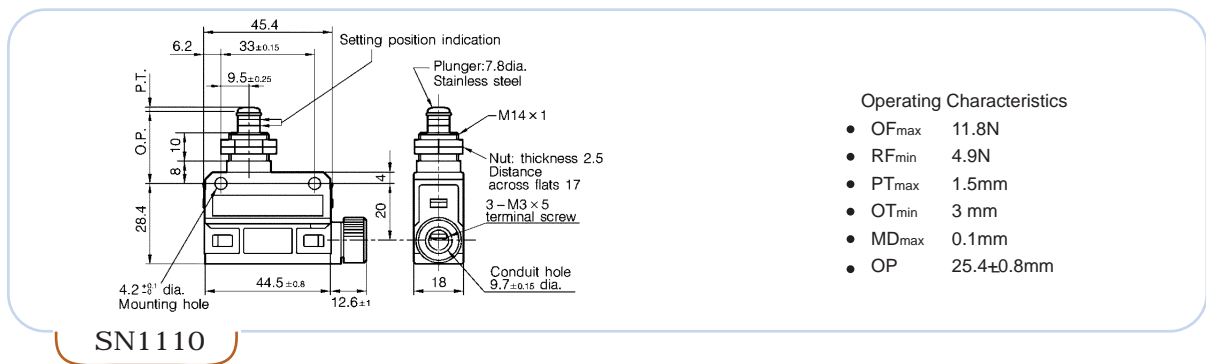
### Definitions of Operating Characteristics

- OF Operating Force
- RF Releasing Force
- OT Overtravel
- TT Total Travel

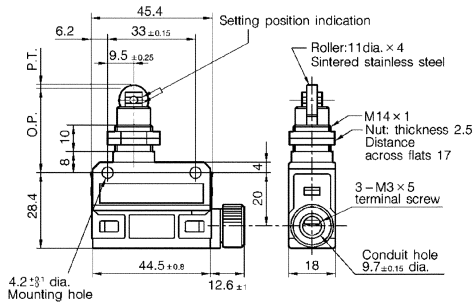
- PT Pretravel
- MD Movement Differential
- OP Operating Position
- PO Travel to Positive Opening

### Dimensions

Unit:mm



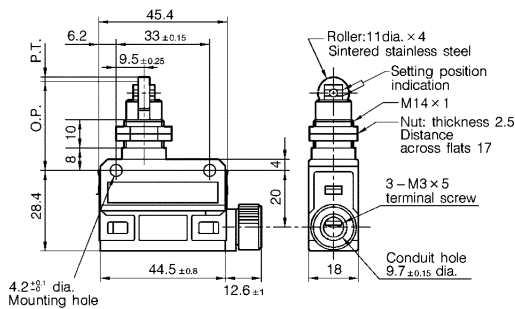
SN1 Series Compact Limit Switch



SN1111

Operating Characteristics

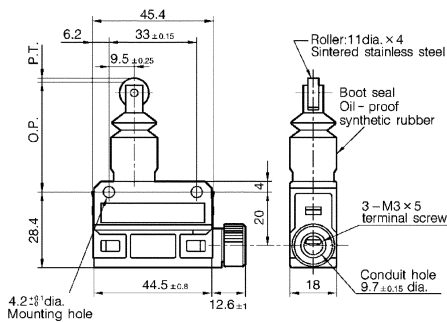
- OF<sub>max</sub> 11.8N
- RF<sub>min</sub> 4.9N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 3 mm
- MD<sub>max</sub> 0.1mm
- OP 31.4±0.8mm



SN1112

Operating Characteristics

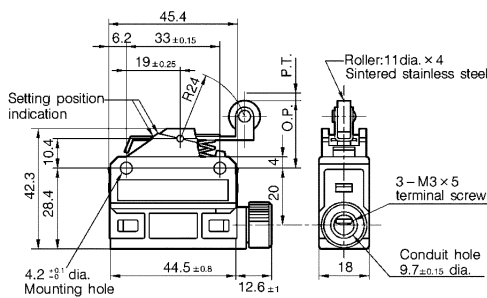
- OF<sub>max</sub> 11.8N
- RF<sub>min</sub> 4.9N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 3 mm
- MD<sub>max</sub> 0.1mm
- OP 31.4±0.8mm



SN1121

Operating Characteristics

- OF<sub>max</sub> 11.8N
- RF<sub>min</sub> 4.9N
- PT<sub>max</sub> 1.5mm
- OT<sub>min</sub> 3 mm
- MD<sub>max</sub> 0.1mm
- OP 41.4±0.8mm



SN1141

Operating Characteristics

- OF<sub>max</sub> 4.0 N
- RF<sub>min</sub> 0.78 N
- PT<sub>max</sub> 2 mm
- OT<sub>min</sub> 4 mm
- MD<sub>max</sub> 0.3 mm
- OP 23.1±0.8mm

## MINIATURE LIMIT SWITCHES SN7 SERIES



### SPECIFICATIONS

Operating Speed	0.05mm-0.5m/sec (panel mount plunger)
Operating Frequency	Mechanical: 120ops/min Electrical: 30 ops/min
Contact Resistance	<15MΩ
Insulation Resistance	>100MΩ min at 500V DC
Rated Current/Voltage	10A/250VAC
Operating Temperature	-20 ~ +60°(14~+140°F)
Dielectric Strength	1000V AC (For 1 min)between current carrying parts 2000V AC (For 1 min)between non-current carrying parts
Service Life	Mechanically 1.0x10 <sup>7</sup> (operations) Electrically 5 x10 <sup>5</sup> (operations)
Humidity	<95%RH
Weight	~60g
Degree of Protection	IP64 (switch)

### Definitions of Operating Characteristics

OF Operating Force  
RF Releasing Force  
OT Overtravel  
TT Total Travel

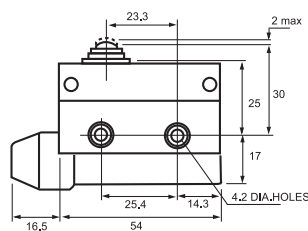
PT Pretravel  
MD Movement Differential  
OP Operating Position  
PO Travel to Positive Opening

### Dimensions

Unit:mm



SN7100

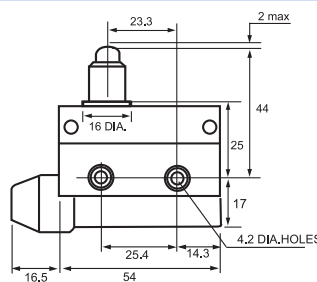


#### Operating Characteristics

- OF<sub>max</sub> 5.88N
- RF<sub>min</sub> 0.98N
- PT<sub>max</sub> 2.0mm
- OT<sub>min</sub> 0.8mm
- MD<sub>max</sub> 0.8mm
- OP 30±0.8mm



SN7110

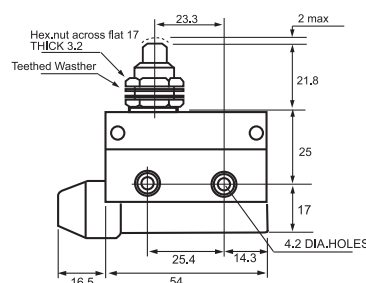


#### Operating Characteristics

- OF<sub>max</sub> 5.88N
- RF<sub>min</sub> 0.98N
- PT<sub>max</sub> 2.0mm
- OT<sub>min</sub> 5.0mm
- MD<sub>max</sub> 0.8mm
- FP<sub>max</sub> 46mm
- OP 44±1.2mm



SN7310



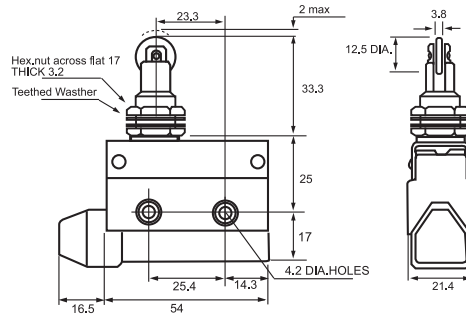
#### Operating Characteristics

- OF<sub>max</sub> 5.88N
- RF<sub>min</sub> 0.98N
- PT<sub>max</sub> 2.0mm
- OT<sub>min</sub> 6.0mm
- MD<sub>max</sub> 0.8mm
- FP<sub>max</sub> 23.8
- OP 21.8±0.8mm





**SN7311**

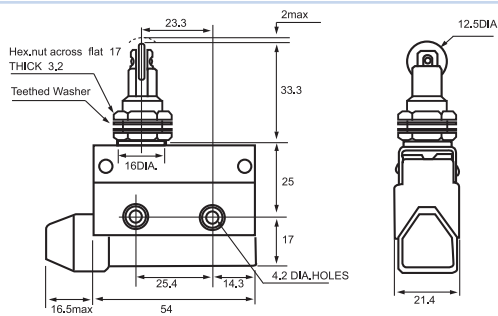


Operating Characteristics

- OF<sub>max</sub> 5.88N
- RF<sub>min</sub> 0.98N
- PT<sub>max</sub> 2.0mm
- OT<sub>min</sub> 6.0mm
- MD<sub>max</sub> 0.8mm
- FP<sub>max</sub> 35.3mm
- OP 33.3±1.2mm



**SN7312**

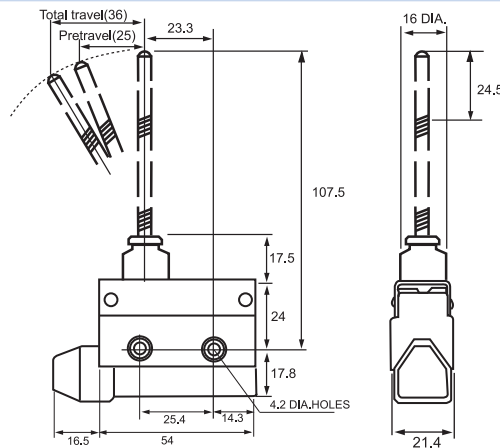


Operating Characteristics

- OF<sub>max</sub> 5.88N
- RF<sub>min</sub> 0.98N
- PT<sub>max</sub> 2.0mm
- OT<sub>min</sub> 6.0mm
- MD<sub>max</sub> 0.8mm
- FP<sub>max</sub> 35.3mm
- OP 33.3±1.2mm



**SN7166**

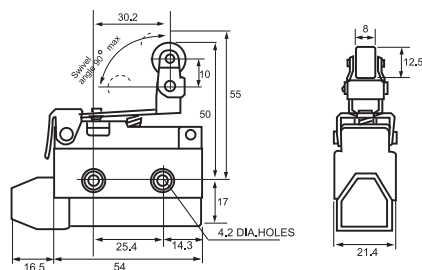


Operating Characteristics

- OF<sub>max</sub> 1.18N
- PT<sub>max</sub> 25mm
- OT<sub>min</sub> 11mm
- OP 36mm



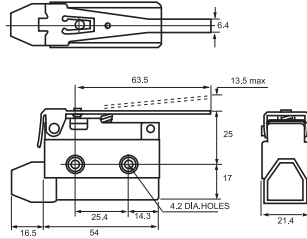
**SN7144**



Operating Characteristics

- OF<sub>max</sub> 2.75N
- RF<sub>min</sub> 0.98N
- PT<sub>max</sub> 6.5mm
- OT<sub>min</sub> 2.0mm
- MD<sub>max</sub> 1.5mm
- FP<sub>max</sub> 56mm
- OP 50±1.6mm

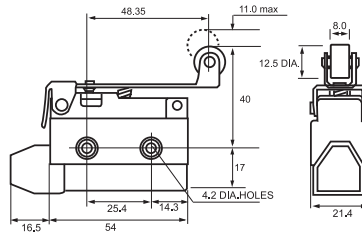
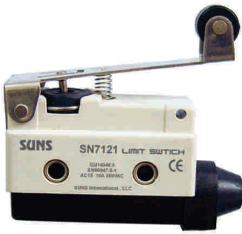
MINIATURE LIMIT SWITCHES SN7 SERIES



Operating Characteristics

- OF<sub>max</sub> 1.47N
- RF<sub>min</sub> 0.39N
- PT<sub>max</sub> 13.5mm
- OT<sub>min</sub> 4.0mm
- MD<sub>max</sub> 3.2mm
- FP<sub>max</sub> 38.5mm
- OP 25±2.0mm

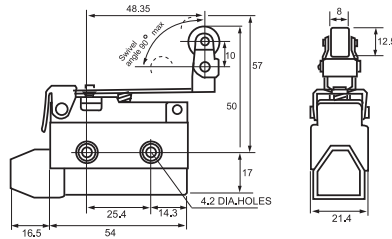
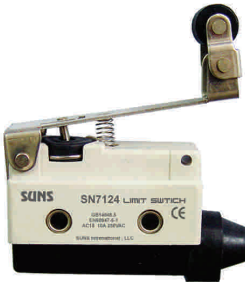
SN7120



Operating Characteristics

- OF<sub>max</sub> 1.77N
- RF<sub>min</sub> 0.49N
- PT<sub>max</sub> 11.0mm
- OT<sub>min</sub> 3.0mm
- MD<sub>max</sub> 2.4mm
- FP<sub>max</sub> 51mm
- OP 40±1.9mm

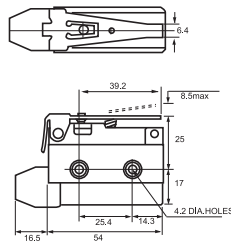
SN7121



Operating Characteristics

- OF<sub>max</sub> 2.16N
- RF<sub>min</sub> 0.59N
- PT<sub>max</sub> 11.0mm
- OT<sub>min</sub> 3.0mm
- MD<sub>max</sub> 2.4mm
- FP<sub>max</sub> 57
- OP 50±2.0mm

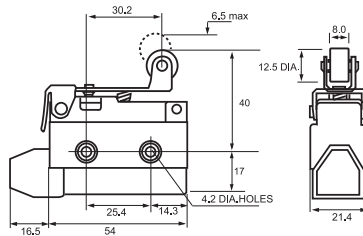
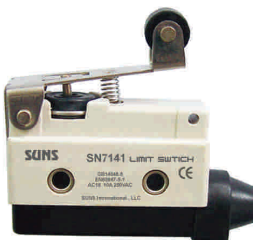
SN7124



Operating Characteristics

- OF<sub>max</sub> 2.16N
- RF<sub>min</sub> 0.59N
- PT<sub>max</sub> 8.5mm
- OT<sub>min</sub> 2.5mm
- MD<sub>max</sub> 2.0mm
- FP<sub>max</sub> 33.5mm
- OP 25±1.3mm

SN7140



Operating Characteristics

- OF<sub>max</sub> 2.35N
- RF<sub>min</sub> 0.87N
- PT<sub>max</sub> 6.5mm
- OT<sub>min</sub> 2.0mm
- MD<sub>max</sub> 1.5mm
- FP<sub>max</sub> 46.5mm
- OP 40±1.6mm

SN7141

Specifications

Operating Frequency	Mechanical 240 ops/min Electrical 20 ops/min
Service Life	Mechanically 1.0 x 10 <sup>6</sup> (operations) Electrically 5 x 10 <sup>5</sup> (operations)
Rated Voltage/Current	15A@250VAC
Rated Insulation Voltage	600VAC
Operating Temperature	-20~+80°C (-4~176°F)
Dielectric Strength	2500VAC 50/60Hz (For 1 min)
Degree of Protection	IP63

Definitions of Operating Characteristics

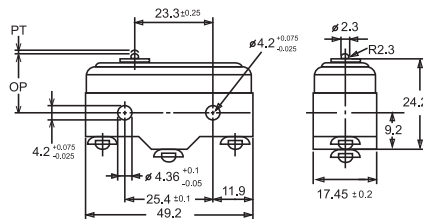
- |                    |                               |
|--------------------|-------------------------------|
| OF Operating Force | PT Pretravel                  |
| RF Releasing Force | MD Movement Differential      |
| OT Overtravel      | OP Operating Position         |
| TT Total Travel    | PO Travel to Positive Opening |

Dimensions

Unit:mm



Z-15G

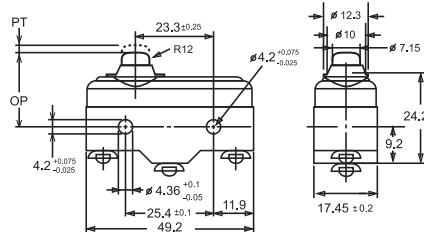


Operating Characteristics

- OF<sub>max</sub> 3.43N
- RF<sub>min</sub> 1.12N
- PT<sub>max</sub> 0.4mm
- OT<sub>min</sub> 0.13mm
- MD<sub>max</sub> 0.05mm
- OP 15.9±0.4mm



Z-15GD

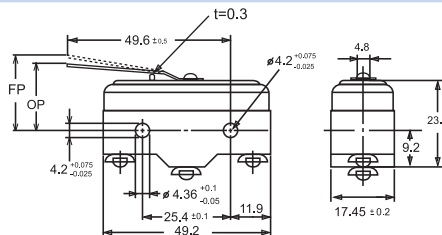


Operating Characteristics

- OF<sub>max</sub> 3.43N
- RF<sub>min</sub> 1.12N
- PT<sub>max</sub> 0.4mm
- OT<sub>min</sub> 1.6mm
- MD<sub>max</sub> 0.05mm
- OP 21.5±0.5mm



Z-15GL

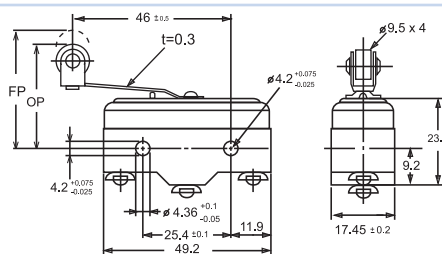


Operating Characteristics

- OF<sub>max</sub> 1.47N
- RF<sub>min</sub> 0.14N
- PT<sub>max</sub> 4mm
- OT<sub>min</sub> 1.6mm
- MD<sub>max</sub> 1.3mm
- FP 20.6mm
- OP 17.4±0.8mm



Z-15GL2




Operating Characteristics

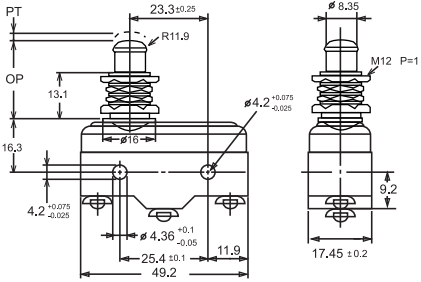
- OF<sub>max</sub> 1.47N
- RF<sub>min</sub> 0.14N
- OT<sub>min</sub> 1.6mm
- PT<sub>max</sub> 4mm
- MD<sub>max</sub> 1.3mm
- FP 31.8mm
- OP 28.6±0.8mm

GENERAL-PURPOSE MICRO SWITCHES Z-15 SERIES






**Z-15GQ**

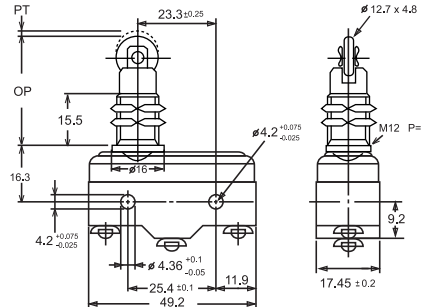


**Operating Characteristics**

- OF<sub>max</sub> 3.43N
- RF<sub>min</sub> 1.12N
- PT<sub>max</sub> 0.4mm
- OT<sub>min</sub> 5.5mm
- MD<sub>max</sub> 0.05mm
- OP 21.8±0.8mm




**Z-15GQ22**

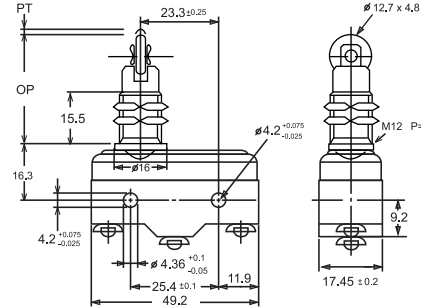


**Operating Characteristics**

- OF<sub>max</sub> 3.43N
- RF<sub>min</sub> 1.12N
- PT<sub>max</sub> 0.4mm
- OT<sub>min</sub> 3.58mm
- MD<sub>max</sub> 0.05mm
- OP 33.4±1.2mm




**Z-15GQ21**

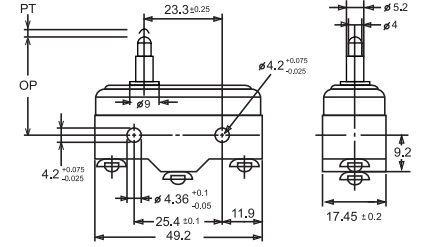


**Operating Characteristics**

- OF<sub>max</sub> 3.43N
- RF<sub>min</sub> 1.12N
- PT<sub>max</sub> 0.4mm
- OT<sub>min</sub> 3.58mm
- MD<sub>max</sub> 0.05mm
- OP 33.4±1.2mm



**Z-15GS**



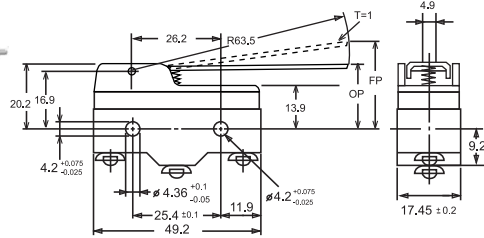
**Operating Characteristics**

- OF<sub>max</sub> 3.43N
- RF<sub>min</sub> 1.12N
- PT<sub>max</sub> 0.4mm
- OT<sub>min</sub> 1.6mm
- MD<sub>max</sub> 0.05mm
- OP 28.2±0.6mm

GENERAL-PURPOSE MICRO SWITCHES Z-15 SERIES



**Z-15GW**

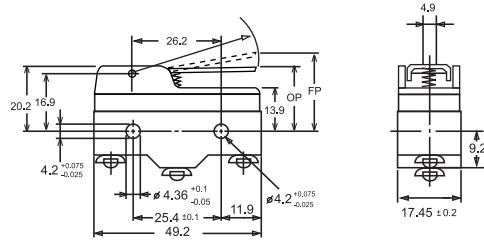


Operating Characteristics

- OF<sub>max</sub> 0.69N
- RF<sub>min</sub> 0.14N
- PT<sub>max</sub> 10mm
- OT<sub>min</sub> 5.6mm
- MD<sub>max</sub> 2mm
- FP<sub>max</sub> 28.2mm
- OP 19.1±0.7mm



**Z-15GW1**

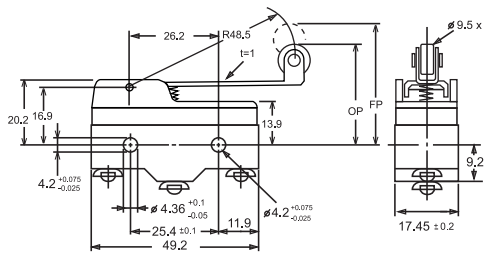


Operating Characteristics

- OF<sub>max</sub> 1.03N
- RF<sub>min</sub> 0.21N
- PT<sub>max</sub> 6.6mm
- OT<sub>min</sub> 3.7mm
- MD<sub>max</sub> 0.85mm
- FP<sub>max</sub> 24.5mm
- OP 18.4±0.5mm



**Z-15GW2**

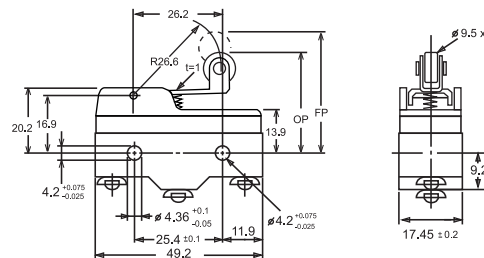


Operating Characteristics

- OF<sub>max</sub> 0.98N
- RF<sub>min</sub> 0.21N
- PT<sub>max</sub> 7.1mm
- OT<sub>min</sub> 4mm
- MD<sub>max</sub> 1.02mm
- FP<sub>max</sub> 36.5mm
- OP 30.2±0.8mm



**Z-15GW22**

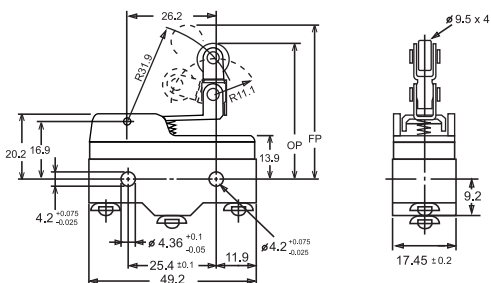


Operating Characteristics

- OF<sub>max</sub> 1.57N
- RF<sub>min</sub> 0.41N
- PT<sub>max</sub> 2.7mm
- OT<sub>min</sub> 2.4
- MD<sub>max</sub> 0.8mm
- FP<sub>max</sub> 32.5mm
- OP 30.2±0.4mm



**Z-15GW2277**



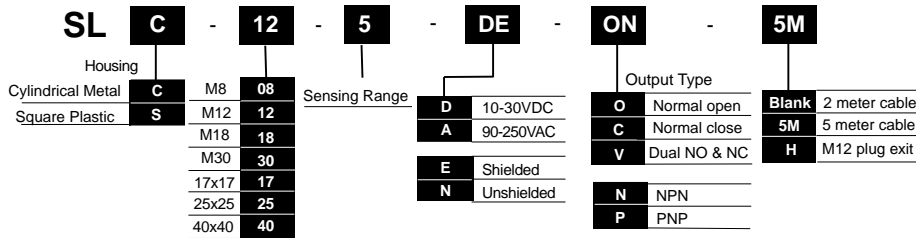
Operating Characteristics

- OF<sub>max</sub> 1.67N
- RF<sub>min</sub> 0.41N
- PT<sub>max</sub> 3mm
- OT<sub>min</sub> 2.4mm
- MD<sub>max</sub> 0.8mm
- FP<sub>max</sub> 43.5mm
- OP 41.3±0.8mm

# Inductive Proximity Switches

## SLC Series (Cylindrical Type)

### Ordering codes



### Specifications

3-wire DC Proximity Switch	M8		M12		M18		M30			
	Models		SLC-08-1DE	SLC-08-3DN	SLC-12-2DE	SLC-12-5DN	SLC-18-5DE	SLC-18-10DN	SLC-30-10DE	SLC-30-15DN
	SHIELD	UNSHIELD	SHIELD	UNSHIELD	SHIELD	UNSHIELD	SHIELD	UNSHIELD	SHIELD	UNSHIELD
Sensing Range Sn	1.5mm	3mm	2mm	5mm	5 mm	10mm	10mm	15 mm		
<b>Output</b>	Load current (max)	200mA		200mA		400mA		400mA		
	Leakage current (max)	10µA		10µA		10µA		10µA		
	Voltage drop	<2V DC		<2V DC		<2V DC		<2V DC		
	Short circuit and overload protection	Yes		Yes		Yes		Yes		
	Reverse Polarity Protection	Yes		Yes		Yes		Yes		
Supply voltage	10-30V DC		10-30V DC		10-30V DC		10-30V DC			
Switching frequency	2500Hz		2000Hz		1000Hz		500Hz			
Repeatability	5%		5%		5%		5%			
Hysteresis	10%		10%		10%		10%			
LED indicator	Red:output energized,360 visibility		Red:output energized,360 visibility		Red:output energized,360 visibility		Red:output energized,360 visibility			
Transient Noise Protection	Yes		Yes		Yes		Yes			
False Pulse Protection	Yes		Yes		Yes		Yes			
Temperature range	-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)			
Degree of protection	IP67		IP67		IP67		IP67			
Housing material	nickel plated brass		nickel plated brass		nickel plated brass		nickel plated brass			

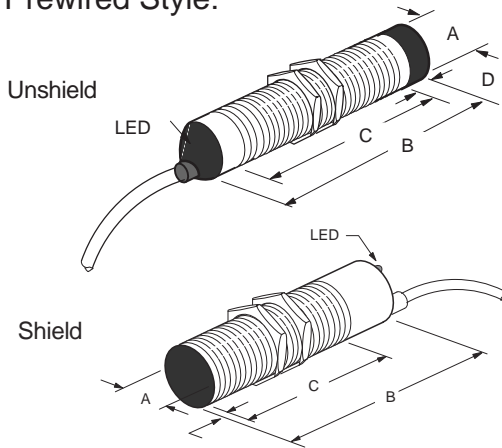
2-wire AC Proximity Switch	M8		M12		M18		M30			
	Models		SLC-08-1AE	SLC-08-3AN	SLC-12-2AE	SLC-12-5AN	SLC-18-5AE	SLC-18-10AN	SLC-30-10AE	SLC-30-15AN
	SHIELD	UNSHIELD	SHIELD	UNSHIELD	SHIELD	UNSHIELD	SHIELD	UNSHIELD	SHIELD	UNSHIELD
Sensing Range Sn	1.5mm	3mm	2mm	5mm	5 mm	10mm	10mm	15 mm		
<b>Output</b>	load current	5-100mA		5-300mA		5-500mA		5-500mA		
	Leakage current	<2mA		<2mA		<2mA		<2mA		
	Inrush current	<1.7A/20ms		<1.7A/20ms		<1.7A/20ms		<1.7A/20ms		
	Voltage drop	<7V AC		<7V AC		<7V AC		<7V AC		
Supply voltage	90-250VAC		90-250VAC		90-250VAC		90-250VAC			
Switching frequency	25Hz		25Hz		25Hz		25Hz			
Repeatability	5%		5%		5%		5%			
Hysteresis	10%		10%		10%		10%			
LED indicator	Red:output energized,360 visibility		Red:output energized,360 visibility		Red:output energized,360 visibility		Red:output energized,360 visibility			
Transient Noise Protection	Yes		Yes		Yes		Yes			
False Pulse Protection	Yes		Yes		Yes		Yes			
Temperature range	-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)			
Degree of protection	IP67		IP67		IP67		IP67			
Housing material	nickel plated brass		nickel plated brass		nickel plated brass		nickel plated brass			

# Inductive Proximity Switches

## SLC Series (Cylindrical Type)



### Prewired Style:

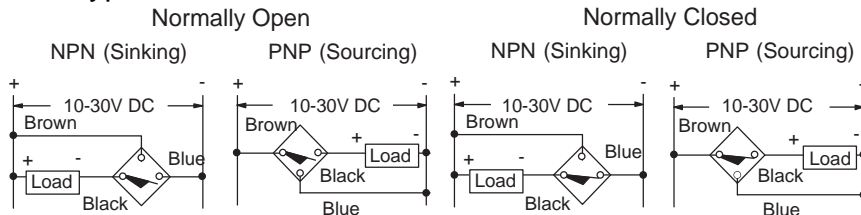


### Dimensions mm (inches)

Thread Size		mm (inches)			
		A	B (max)	C (min)	D (max)
M8 X 1	Shield	8 (0.31)	45(1.77)	35(1.38)	5.0 (0.20)
	Unshield		50(1.97)		
M12 X 1	Shield	12 (0.47)	55(2.17)	40(1.57)	5.0 (0.20)
	Unshield		60(2.36)		
M18 X 1	Shield	18 (0.71)	62(2.44)	45(1.77)	8.5(0.33)
	Unshield		70(2.76)		
M30 X 1.5	Shield	30 (1.18)	57(2.24)	45(1.77)	13(0.51)
	Unshield		70(2.76)		

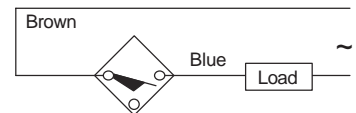
### Wiring Diagram:

#### DC Type

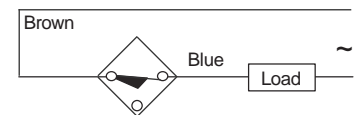


#### AC Type

##### Normal Open



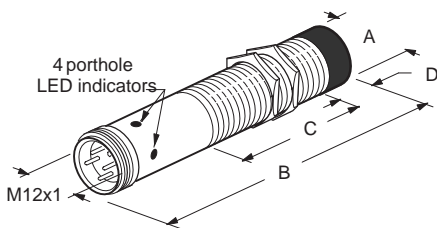
##### Normal Close



NOTE: Load can be switched to brown wire.

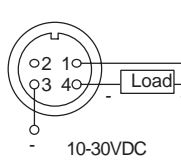
### Quick Connector (M12 Connector) Style:

#### Dimensions mm (inches)

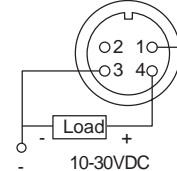


#### Normally Open

##### NPN (Sinking)

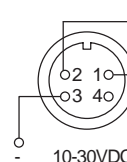


##### PNP (Sourcing)

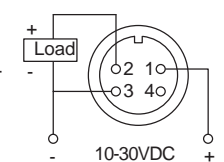


#### Normally Closed

##### NPN (Sinking)



##### PNP (Sourcing)



Thread Size		mm (inches)			
		A	B (max)	C (min)	D (max)
M8 X 1	Shield	8 (0.31)	55(2.17)	35(1.38)	5.0 (0.20)
	Unshield		60(2.36)		
M12 X 1	Shield	12 (0.47)	60(2.36)	40(1.57)	5.0 (0.20)
	Unshield		65(2.56)		
M18 X 1	Shield	18 (0.71)	62(2.44)	45(1.77)	8.5(0.33)
	Unshield		70(2.76)		
M30 X 1.5	Shield	30 (1.18)	63(2.48)	45(1.77)	13(0.51)
	Unshield		76(2.99)		

# Inductive Proximity Switches

## SLS series (Rectangular Type)



<b>SL</b>	<b>S</b>	-	<b>17</b>	-	<b>10</b>	-	<b>DN</b>	-	<b>ON</b>	-	<b>5M</b>
Housing			Sensing Range			Output Type					
Cylindrical Metal	<b>C</b>	M8	<b>08</b>	<b>D</b>	10-30VDC	<b>O</b>	Normal open	<b>Blank</b>	2 meter cable		
Square Plastic	<b>S</b>	M12	<b>12</b>	<b>A</b>	90-250VAC	<b>C</b>	Normal close	<b>5M</b>	5 meter cable		
		M18	<b>18</b>	<b>E</b>	Shielded	<b>V</b>	Dual NO & NC	<b>H</b>	M12 plug exit		
		M30	<b>30</b>	<b>N</b>	Unshielded	<b>N</b>	NPN				
		17x17	<b>17</b>			<b>P</b>	PNP				
		25x25	<b>25</b>								
		40x40	<b>40</b>								

### Specifications

2-wire AC Proximity Switch	25x25mm		40x40mm	
	SLS-25-10AE	SLS-25-15AN	SLS-40-15AE	SLS-40-15AN
Models	SHIELD	UNSHIELD	SHIELD	UNSHIELD
Sensing Range Sn	10mm	15mm	15mm	20mm
Output Load current	5-500mA		5-500mA	
Leakage current	<2mA		<2mA	
Inrush current	<1.7A/20ms		<1.7A/20ms	
Voltage drop	<7V AC		<7V AC	
Supply voltage	90-250VAC		90-250VAC	
Switching frequency	25Hz		25Hz	
Repeatability	5%		5%	
Hysteresis	10%		10%	
LED indicator	Yes		Yes	
Transient Noise Protection	Yes		Yes	
False Pulse Protection	Yes		Yes	
Temperature range	-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)	
Degree of protection	IP67		IP67	
Housing material	Plastics		Plastics	



3-wire DC Proximity Switch	17x17mm		25x25mm		40x40mm	
	SLS-17-5DE	SLS-17-10DN	SLS-25-10DE	SLS-25-15DN	SLS-40-15DE	SLS-40-20DN
Models	SHIELD	UNSHIELD	SHIELD	UNSHIELD	SHIELD	UNSHIELD
Sensing Range Sn	5mm	10mm	10mm	15mm	15 mm	20mm
Output Load current (max)	400mA		400mA		400mA	
Leakage current (max)	10µA		10µA		10µA	
Voltage drop	<2V DC		<2V DC		<2V DC	
Short circuit and overload protection	Yes		Yes		Yes	
Reverse Polarity Protection	Yes		Yes		Yes	
Supply voltage	10-30V DC		10-30V DC		10-30V DC	
Switching frequency	1000Hz		500Hz		500Hz	
Repeatability	5%		5%		5%	
Hysteresis	10%		10%		10%	
LED indicator	Yes		Yes		Yes	
Transient Noise Protection	Yes		Yes		Yes	
False Pulse Protection	Yes		Yes		Yes	
Temperature range	-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)		-25 ° to 70 °C (-13 ° to 158 °F)	
Degree of protection	IP67		IP67		IP67	
Housing material	Plastics		Plastics		Plastics	
Dimension (mm)						