



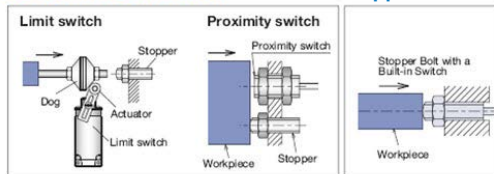
# Precision Limit Switches

## Stopper Bolt Precision Limit Switches

### Overview

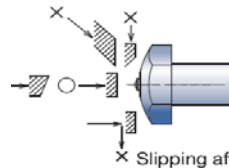
Stopper bolt precision limit switches incorporate a mechanical stop along with the limit switch function, eliminating the need for a separate mechanical stop in many situations. They can also absorb the high-impact forces required to stop a load.

**Stopper Bolt Limit Switches can reduce parts count**  
 conventional switches      stopper bolt switch



### Features

- 2 tasks with one device
- Housing a high-accuracy built-in switch in a stopper bolt
- Provides higher contact force ideal for indexing/positioning
- 10 micron (µm) repeat accuracy
- No movement differential
- Stainless steel housing



O indicates correct target approach and orientation.

X indicates approach and orientation that should be avoided.

### Stopper Bolt Precision Limit Switches Selection Chart

| Part Number                | Price    | Drawing Link        | Actuator/Head Type*                       | Barrel Type | Barrel Diameter/Thread | Stroke | Switching Output | Contact Force | Connection Type          |
|----------------------------|----------|---------------------|---|-------------|------------------------|--------|------------------|---------------|--------------------------|
| <a href="#">STP100UA-L</a> | \$,2bv,: | <a href="#">PDF</a> | Ø 5.5mm plunger with upward cover Ø 5mm   | Threaded    | M10×1.5                | 0.7mm  | (1) N.O.         | 4N            | Cable<br>2m<br>[6.56 ft] |
| <a href="#">STP100DA-L</a> | \$2bx0:  | <a href="#">PDF</a> | Ø 5.5mm plunger with downward cover Ø 5mm | Threaded    | M10×1.5                | 0.7mm  | (1) N.O.         | 4N            |                          |
| <a href="#">STS060PA</a>   | \$6boy:  | <a href="#">PDF</a> | Ø 1.5mm plunger, 3.4mm flat               | Threaded    | M6×1.0                 | 0.7mm  | (1) N.O.         | 2N            |                          |
| <a href="#">STS060PA-L</a> | \$45h#:  | <a href="#">PDF</a> | Ø 1.5mm plunger, 3.4mm flat               | Threaded    | M6×1.0                 | 0.7mm  | (1) N.O.         | 2N            |                          |
| <a href="#">STS080PA-L</a> | \$2bx1:  | <a href="#">PDF</a> | Ø 1.5mm plunger, 4.5mm flat               | Threaded    | M8×1.25                | 0.7mm  | (1) N.O.         | 2N            |                          |
| <a href="#">STS100PA-L</a> | \$2bx2:  | <a href="#">PDF</a> | Ø 1.5mm plunger, 4.5mm flat               | Threaded    | M10×1.5                | 0.7mm  | (1) N.O.         | 2N            |                          |
| <a href="#">STE060PA-L</a> | \$,45h!: | <a href="#">PDF</a> | Ø 1.5mm plunger, 3.4mm flat with hex      | Threaded    | M6×1.0                 | 0.7mm  | (1) N.O.         | 2N            |                          |
| <a href="#">STE080PA-L</a> | \$2bx3:  | <a href="#">PDF</a> | Ø 1.5mm plunger, 4.5mm flat with hex      | Threaded    | M8×1.25                | 0.7mm  | (1) N.O.         | 2N            |                          |
| <a href="#">STE100PA-L</a> | \$2bx4:  | <a href="#">PDF</a> | Ø 1.5mm plunger, 4.5mm flat with hex      | Threaded    | M10×1.5                | 0.7mm  | (1) N.O.         | 2N            |                          |

\* Ø = diameter

#### STP Series (Stopper With Protective Cover)



[STP100UA-L](#)

#### STS Series (Straight Stopper Bolt)



[STS060PA-L](#)

#### STE Series (Hexagonal Stopper Bolt)



[STE060PA-L](#)



[STP100DA-L](#)



[STS080PA-L](#)



[STE080PA-L](#)



[STS060PA](#)



[STS100PA-L](#)



[STE100PA-L](#)



# Precision Limit Switches

## Stopper Bolt Precision Limit Switches Specifications

| Series  | STP   | STS    | STE |
|---|---|--------|-----|
| Environmental   |   |        |     |
| Degree of Protection  | IP67**  | IP65** |     |
| Temperature Range   | Operating: 0 to 80°C [32 to 176°F] (Ice-free)   |        |     |
| Mechanical Ratings  |   |        |     |
| Enclosure Material  | Stainless steel   |        |     |
| Torque (for nuts on threaded barrels, set screws on smooth barrels) | See Torque Limit Figure   |        |     |
| Vibration   | 10–55Hz total amplitude 1.5 for X, Y, Z each direction  |        |     |
| Shock   | 300 m/s² for X, Y, Z each direction   |        |     |
| Repeat Accuracy   | Both On-Off, Off-On/ 0.01 (range)<br>(At operating speed 50-200mm/min) *2                                   |        |     |
| Recommended Minimum Operating Speed                                 | 50mm (1.96in)/minute  |        |     |
| Withstand Load  | 5000N   |        |     |
| Electrical Ratings  |   |        |     |
| Contact Life  | 10 million (No bungle caused by vibration and use under contact rating)                                     |        |     |
| Impact resistance   | 0.4J  |        |     |
| Contact Voltage   | 5–24VDC   |        |     |
| Steady Current Rating   | 10mA or less  |        |     |
| Max In-rush Current Rating  | 20mA without LED indicator, 10mA with LED indicator   |        |     |
| Connection Type   | Standard length 2m [6.56 ft] oil resistant 2.8 / 2 cores, 26AWG<br>Tensile strength 30N, minimum bending R7 |        |     |
| Indicating  | -L models: LED indicator (mounted in cable 120mm from the switch)   |        |     |

\* At operating speed 50-200 mm/minute. Operating speed slower than 10 mm/min is not recommended.

\*\* At normal temperature (0–80°C [32–176°F]).

## Circuit Diagram

| Without LED                 | With LED (-L models)        |
|-----------------------------|-----------------------------|
| <p>Normally open (N.O.)</p> | <p>Normally open (N.O.)</p> |

## Torque Limits

| Applicable models | Tightening torque                                  |
|-------------------|--|
| <b>STS060PA-L</b> | L1: 5 N•m [3.68 lb•ft]<br>L2: 2.5 N•m [1.84 lb•ft] |
| <b>STE060PA-L</b> |  |
| <b>STS060PA</b>   |  |
| <b>STS080PA-L</b> | 10 N•m [7.38 lb•ft]                                |
| <b>STE080PA-L</b> | 10 N•m [7.38 lb•ft]                                |
| <b>STS100PA-L</b> | 25 N•m [18.44 lb•ft]                               |
| <b>STE100PA-L</b> | 25 N•m [18.44 lb•ft]                               |
| <b>STP100UA-L</b> | 25 N•m [18.44 lb•ft]                               |
| <b>STP100DA-L</b> | 25 N•m [18.44 lb•ft]                               |

