

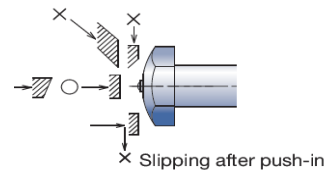
# Precision Limit Switches

## Stopper Bolt Precision Limit Switches

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.

- 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 ( $\mu\text{m}$ ) repeat accuracy
- No movement differential
- Stainless steel

### Stopper Bolt



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    |
|---------------------|-------|---------------------|-------------------------------------|-------------|------------------------|--------|------------------|---------------|--------------------|
| <b>Stopper Bolt</b> |       |                     |                                     |             |                        |        |                  |               |                    |
| STP100UA-L          |       | <a href="#">PDF</a> | Ø 5.5mm plunger with upward cover   | Threaded    | M10×1.5                | 0.7mm  | N.O.             | 4N            | 2m (6.56 ft) cable |
| STP100DA-L          |       | <a href="#">PDF</a> | Ø 5.5mm plunger with downward cover | Threaded    | M10×1.5                | 0.7mm  | N.O.             | 4N            | 2m (6.56 ft) cable |
| STS060PA-L          |       | <a href="#">PDF</a> | Ø 1.5mm plunger                     | Threaded    | M6×1.0                 | 0.7mm  | N.O.             | 2N            | 2m (6.56 ft) cable |
| STS080PA-L          |       | <a href="#">PDF</a> | Ø 1.5mm plunger                     | Threaded    | M8×1.25                | 0.7mm  | N.O.             | 2N            | 2m (6.56 ft) cable |
| STS100PA-L          |       | <a href="#">PDF</a> | Ø 1.5mm plunger                     | Threaded    | M10×1.5                | 0.7mm  | N.O.             | 2N            | 2m (6.56 ft) cable |
| STE060PA-L          |       | <a href="#">PDF</a> | Ø 1.5mm plunger                     | Threaded    | M6×1.0                 | 0.7mm  | N.O.             | 2N            | 2m (6.56 ft) cable |
| STE080PA-L          |       | <a href="#">PDF</a> | Ø 1.5mm plunger                     | Threaded    | M8×1.25                | 0.7mm  | N.O.             | 2N            | 2m (6.56 ft) cable |
| STE100PA-L          |       | <a href="#">PDF</a> | Ø 1.5mm plunger                     | Threaded    | M10×1.5                | 0.7mm  | N.O.             | 2N            | 2m (6.56 ft) cable |

\* Ø = diameter

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



STP100UA-L



STP100DA-L

#### STS Series (Straight Stopper Bolt)



STS060PA-L



STS080PA-L



STS100PA-L

#### STE Series (Hexagonal Stopper Bolt)



STE060PA-L



STE080PA-L



STE100PA-L

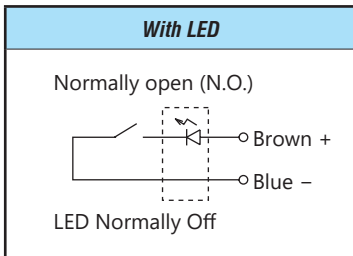
# Precision Limit Switches

| Stopper Bolt Precision Limit Switches Specifications                |   |        |     |
|---|---|--------|-----|
| Series  | STP   | STS    | STE |
| <b>Environmental</b>  |   |        |     |
| Degree of Protection  | IP67**  | IP65** |     |
| Temperature Range   | Operating: 0–80°C (32–392°F) (Ice-free)   |        |     |
| <b>Mechanical Ratings</b>   |   |        |     |
| Enclosure Material  | Stainless steel   |        |     |
| Torque (for nuts on threaded barrels, set screws on smooth barrels) | See Torque Limit Figure   |        |     |
| Oscillation   | 10–55Hz total amplitude 1.5 for X, Y, Z each direction  |        |     |
| Impact  | 300 m/s <sup>2</sup> 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                                 | 10 mm (0.394 in)/minute   |        |     |
| Withstand Load  | 5000N   |        |     |
| <b>Electrical Ratings</b>   |   |        |     |
| 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  |        |     |
| Connection Type   | Standard length 2m (6.56 ft) oil resistant 2.8 / 2 cores, 26AWG<br>Tensile strength 30N, minimum bending R7 |        |     |
| Indicating  | -L: 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



## Torque Limits

| Applicable models | Tightening torque        |
|-------------------|--------------------------|
| STS060PA          | L1: 4 N•m (2.95 lb•ft)   |
| STE060PA          | L2: 2.5 N•m (1.84 lb•ft) |
| STS080PA          | 10 N•m (7.38 lb•ft)      |
| STE080PA          | 10 N•m (7.38 lb•ft)      |
| STS100PA          | 25 N•m (18.44 lb•ft)     |
| STE100PA          | 25 N•m (18.44 lb•ft)     |
| STP100UA          | 25 N•m (18.44 lb•ft)     |
| STP100DA          | 25 N•m (18.44 lb•ft)     |

