



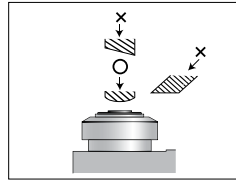
# Precision Limit Switches

## High Precision Touch and Tool Setter Limit Switches

### Features

- Tool setter for blade positioning, wear detection, breakage, etc.
- 0.5 micron ( $\mu\text{m}$ ) repeat accuracy
- No movement differential
- No temperature drift
- Dustproof / water-resistant (IP67)
- LED indicator

**Tool Setter**



O indicates correct target approach and orientation.

X indicates approach and orientation that should be avoided.

**High Precision Touch and Tool Setter Limit Switches Selection Chart**

| Part Number                          | Price     | Drawing Link               | Actuator/Head Type*           | Mounting Direction | Mounting Hole | Stroke | Switching Output | Contact Force | Connection Type   |
|--------------------------------------|-----------|----------------------------|-------------------------------|--------------------|---------------|--------|------------------|---------------|-------------------|
| <a href="#"><u>P11DDB-DLD</u></a>    | \$06bop:  | <a href="#"><u>PDF</u></a> | Ø 16mm plunger, Ø5mm flat     | downward           | (2) Ø 4.6     | 3mm    | (1) N.C.         | 1.5N          | Cable 3m [9.8ft]  |
| <a href="#"><u>P11DDB-DULD</u></a>   | \$01n8o:  | <a href="#"><u>PDF</u></a> | Ø 16mm plunger, Ø 5mm flat    | upward             | (2) Ø 4.6     | 3mm    | (1) N.C.         | 1.5N          | Cable 3m [9.8ft]  |
| <a href="#"><u>P11DMB-DULD</u></a>   | \$06boq:  | <a href="#"><u>PDF</u></a> | Ø 16mm plunger, Ø 5mm flat    | upward             | (2) M4        | 3mm    | (1) N.C.         | 1.5N          | Cable 3m [9.8ft]  |
| <a href="#"><u>P11EDB-DULD</u></a>   | \$02bvk:  | <a href="#"><u>PDF</u></a> | Ø 16mm plunger, Ø 5mm flat    | upward             | (2) Ø 4.6     | 5mm    | (1) N.C.         | 1.5N          | Cable 3m [9.8ft]  |
| <a href="#"><u>P21EDBP-22-28</u></a> | \$-02bvl: | <a href="#"><u>PDF</u></a> | Ø 18.5mm plunger, Ø 10mm flat | upward             | (2) Ø 4.6     | 5mm    | (1) N.C.         | 1.5N          | Cable 5m [16.4ft] |

\* Ø = diameter

-xxLD: LED indicator (attached to sensor)

[P21EDBP-22-28](#) includes M5 air inlet



**[P11DDB-DLD](#)**



**[P11DDB-DULD](#)**



**[P11DMB-DULD](#)**



**[P11EDB-DULD](#)**



**[P21EDBP-22-28](#)**



# Precision Limit Switches

## High Precision Touch and Tool Setter Limit Switches Specifications

| Series  | P11   | P21  |
|---|---|--|
| Environmental   |   |  |
| Degree of Protection  | IP67  |  |
| Temperature Range   | Operating: 0 to 80°C [32 to 176°F] (Ice-free)   |  |
| Mechanical Ratings  |   |  |
| Enclosure Material  | Aluminum  |  |
| Pretravel   | 0*  | 1st signal 0*, 2nd signal 2.5 mm (0.098 in)  |
| Torque (for nuts on threaded barrels, set screws on smooth barrels) | N/A   |  |
| 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: 0.0005 mm (range)**  |  |
| Recommended Minimum Operating Speed                                 | 50mm [1.96in]/minute  |  |
| Electrical Ratings  |   |  |
| Contact Life  | 3 million operations  |  |
| Contact Voltage   | 5–24VDC   |  |
| Steady Current Rating   | 10mA or less  |  |
| Max In-rush Current Rating  | 10mA (limit current to protect LED indicator)   |  |
| Connection Type   | Cable: 3m (9.84 ft) oil resistant Ø5/2 cores (P08: Ø4/2 cores)<br>Tensile strength 30N, minimum bending R7, 30AWG | Cable: 5m (16.40ft) oil resistant Ø3.7/4 cores (P08: Ø4/2 cores),<br>Tensile strength 30N, minimum bending R7, 30AWG |
| Indicating  | -L: LED indicator (mounted in cable 120mm from the switch)  |  |

\* Adjust the installed location of the switch by the signal switching point.

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

## Circuit Diagrams

### P21 Wiring

| Without LED   | With LED   |
|---|--|
| <p>Normally closed (N.C.)</p> <p>Brown<br/>Blue</p> | <p>Normally closed (N.C.)</p> <p>Brown +<br/>Blue -</p> <p>LED Normally On</p> |

| With LED  |
|---|
| <p>2-signal type (P21)</p> <p>First Signal</p> <p>Normally closed (N.C.)</p> <p>Orange +<br/>Black -</p> <p>Second Signal</p> <p>Normally closed (N.C.)</p> <p>Yellow<br/>Green</p> |