



## MP600 SERIES

The MP600 Series are M8 and M12 cylindrical mechanical sensors. The long life sensing mechanism is designed to accurately detect two positions with a high degree of repeatability.



- 1 Device – 2 switching points
- Extended temperature range
- M8 and M12 formats
- Easy mounting and adjustment

The **MP600 series of mechanical position sensors** detect one or two positions within a single, compact electromechanical component.

Two independent commutations can sense two previously defined positions to within a few microns of accuracy. The two positions can be set specifically for each application, between 0.5mm and 1.5mm and require no further calibration. Depending on cable selection, the operating temperature can go from -30°C up to 130°C. The cable can be supplied with a connector termination, typically M8 or M12.



**Applications** are in the automation, process control and OEM industries that require today two switches for position control. The MP600 series solves the time consuming adjustments required because of the hysteresis effect caused by the sensors or snap action switches currently used. Initially designed for compact detection of status and wear of industrial safety brakes, numerous other uses are envisaged, in particular in the field of industrial automation. They include accurate position referencing as well as upper and lower threshold detection in process control applications.

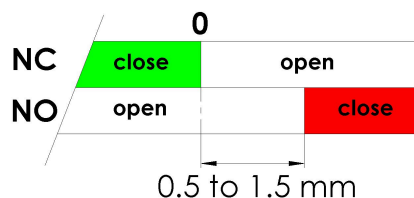
For ease of integration and enhanced functionality, custom housing shapes can be easily implemented.

## Technical Characteristics

|                             |  | <b>Options</b>                 |
|-----------------------------|--|--------------------------------|
| Approvals                   | UL 61058-1, File E314075   |                                |
| Housing                     | Brass, nickel plated - cylindrical format  | <i>Stainless steel</i>         |
| Membrane                    | HNBR elastomer   |                                |
| Mechanism Contacts          | Slow action  |                                |
| Contact material            | Gold plated  |                                |
| Degree of protection        | IP50 or IP67   |                                |
| Class of protection         | II   |                                |
| Micro-switch                | μ  |                                |
| Actuator                    | Polymer Pin  |                                |
|                             | Stainless steel Pin  | <i>other metallic material</i> |
|                             | Ball   |                                |
|                             | Telescopic   |                                |
| Contact distance NC-NO      | 0.5 to 1.5mm   | <i>custom distance</i>         |
| Circuit                     | NC+NO, NC or NO  |                                |
| Cable length                | 0.5m, 1m, 2m and 5m  | <i>custom length</i>           |
| Connector                   | M8 - M12 available, -25°C to 85°C, PUR   |                                |
| Cable material              | Cable and wire leads: Standard 0.14 mm <sup>2</sup> / 26 AWG<br>PVC -20°C to 105°C<br>PUR -30°C to 90°C<br>SI -30°C to 130°C | <i>other material</i>          |
| Power rating                | 24VDC / 5 to 100 mA  |                                |
| Repeatability               | ± 5 μm   |                                |
| Hysteresis                  | < 7 μm   |                                |
| Operating temperature range | UL 61058 -30°C to +130°C depending on cable and connector  | <i>-55°C</i>                   |
| Life span                   | 10 Mio cycles  |                                |
| B <sub>10d</sub>            | > 30 Mio, 24VDC 10m  |                                |
| Standards                   | UL61058 50'000 cycles  |                                |

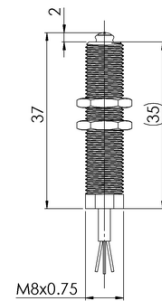
### Description

The sensors are built with a NC and a NO contact. There is no pre-travel of the pin plunger to open the NC contact. The NO closes after a customized length of travel between 0.5 mm to 1.5 mm.

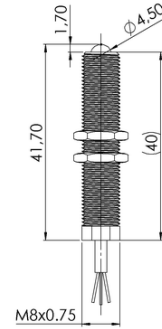


# Configurations Housing

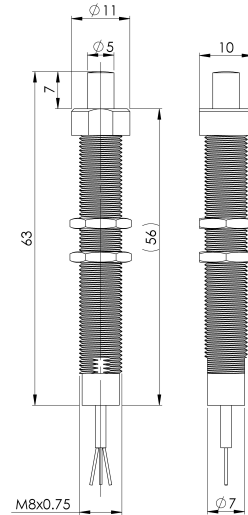
**M8**  
Pin polymer - Pin metallic



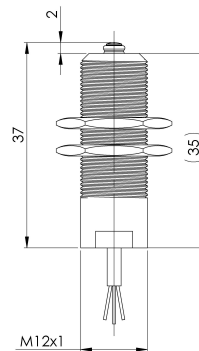
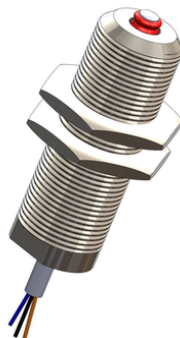
**M8 with Ball**



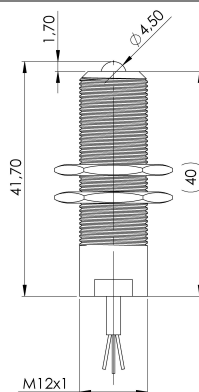
**M8 with Telescopic**



**M12**  
Pin polymer - Pin metallic



**M12 with Ball**



### Configurations Actuator - Circuit

Type

**L0X : Pin polymer**

**L2X : Pin metallic**



|                          | Contact distance (mm) - Circuit | Pre-travel (mm)                       | Over-travel min. (mm)  | Fa max. (N)                             |
|--------------------------|---------------------------------|---------------------------------------|------------------------|---|
| <b>L00</b><br><b>L20</b> | 0.5 mm NC+NO                    | 0 mm to open NC<br>0.5 mm to close NO | 1.5 mm after NO signal | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L01</b><br><b>L21</b> | 1 mm NC+NO                      | 0 mm to open NC<br>1 mm to close NO   | 1 mm after NO signal   | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L02</b><br><b>L22</b> | 1.5 mm NC+NO                    | 0 mm to open NC<br>1.5 mm to close NO | 0.5 mm after NO signal | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L03</b><br><b>L23</b> | NC only                         | 0 mm to open NC                       | 2 mm                   | 1.2 (N) to open NC                      |
| <b>L04</b><br><b>L24</b> | 0.5 mm NO only                  | 0.5 mm to close NO                    | 1.5 mm after NO signal | 3 (N) to close NO                       |
| <b>L05</b><br><b>L25</b> | 1 mm NO only                    | 1 mm to close NO                      | 1 mm after NO signal   | 3 (N) to close NO                       |
| <b>L06</b><br><b>L26</b> | 1.5 mm NO only                  | 1.5 mm to close NO                    | 0.5 mm after NO signal | 3 (N) to close NO                       |

Type

**L1X : Ball**



|            | Contact distance (mm) - Circuit | Pre-travel (mm)                       | Over-travel min. (mm)  | Fa max. (N)                             |
|------------|---------------------------------|---------------------------------------|------------------------|---|
| <b>L10</b> | 0.5 mm NC+NO                    | 0 mm to open NC<br>0.5 mm to close NO | 1.2 mm after NO signal | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L11</b> | 1 mm NC+NO                      | 0 mm to open NC<br>1 mm to close NO   | 0.7 mm after NO signal | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L12</b> | 1.5 mm NC+NO                    | 0 mm to open NC<br>1.5 mm to close NO | 0.2 mm after NO signal | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L13</b> | NC only                         | 0 mm to open NC                       | 1.7 mm                 | 1.2 (N) to open NC                      |
| <b>L14</b> | 0.5 mm NO only                  | 0.5 mm to close NO                    | 1.2 mm after NO signal | 3 (N) to close NO                       |
| <b>L15</b> | 1 mm NO only                    | 1 mm to close NO                      | 0.7 mm after NO signal | 3 (N) to close NO                       |
| <b>L16</b> | 1.5 mm NO only                  | 1.5 mm to close NO                    | 0.2 mm after NO signal | 3 (N) to close NO                       |

Type

**L5X : Telescopic** not available with M12 housing



|            | Contact distance (mm) - Circuit | Pre-travel (mm)                       | Over-travel min. (mm)  | Fa max. (N)                             |
|------------|---------------------------------|---------------------------------------|------------------------|---|
| <b>L50</b> | 0.5 mm NC+NO                    | 0 mm to open NC<br>0.5 mm to close NO | 6 mm after NO signal   | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L51</b> | 1 mm NC+NO                      | 0 mm to open NC<br>1 mm to close NO   | 5.5 mm after NO signal | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L52</b> | 1.5 mm NC+NO                    | 0 mm to open NC<br>1.5 mm to close NO | 5 mm after NO signal   | 1.2 (N) to open NC<br>3 (N) to close NO |
| <b>L53</b> | NC only                         | 0 mm to open NC                       | 6.5 mm                 | 1.2 (N) to open NC                      |
| <b>L54</b> | 0.5 mm NO only                  | 0.5 mm to close NO                    | 6 mm after NO signal   | 3 (N) to close NO                       |
| <b>L55</b> | 1 mm NO only                    | 1 mm to close NO                      | 5.5 mm after NO signal | 3 (N) to close NO                       |
| <b>L56</b> | 1.5 mm NO only                  | 1.5 mm to close NO                    | 5 mm after NO signal   | 3 (N) to close NO                       |

### Termination

|     | With Cable    | With Circular connector 4 pins |  |
|-----|---------------|--------------------------------|--|
| COM | Brown / Brown | 1                              |  |
| NC  | Black / White | 2                              |  |
| NO  | Blue / Green  | 4                              |  |

**Standard Configuration - Ordering information**

|   | <u>MP6</u> | <u>0</u> | <u>1</u> | <u>-L</u> | <u>0</u> | <u>0</u> | <u>-C</u> | <u>1</u> | <u>0</u> | <u>PVC</u> |
|---|------------|----------|----------|-----------|----------|----------|-----------|----------|----------|------------|
| <b>Housing</b>  |            |          |          |           |          |          |           |          |          |            |
| 0 : M8 Metal IP67   |            |          |          |           |          |          |           |          |          |            |
| 2 : M12 Metal IP67  |            |          |          |           |          |          |           |          |          |            |
| 5 : M8 Metal IP50   |            |          |          |           |          |          |           |          |          |            |
| 7 : M12 Metal IP50  |            |          |          |           |          |          |           |          |          |            |
| <b>Contact</b>  |            |          |          |           |          |          |           |          |          |            |
| 1 : Gold plated contact   |            |          |          |           |          |          |           |          |          |            |
| <b>Actuator</b>   |            |          |          |           |          |          |           |          |          |            |
| 0 : Pin polymer   |            |          |          |           |          |          |           |          |          |            |
| 1 : Ball  |            |          |          |           |          |          |           |          |          |            |
| 2 : Pin metallic  |            |          |          |           |          |          |           |          |          |            |
| 5 : Telescopic - not available with M12 housing                           |            |          |          |           |          |          |           |          |          |            |
| <b>Contact Distance - Circuit</b>   |            |          |          |           |          |          |           |          |          |            |
| 0 : 0.5mm NC+NO   |            |          |          |           |          |          |           |          |          |            |
| 1 : 1.0mm NC+NO   |            |          |          |           |          |          |           |          |          |            |
| 2 : 1.5mm NC+NO   |            |          |          |           |          |          |           |          |          |            |
| 3 : NC only   |            |          |          |           |          |          |           |          |          |            |
| 4 : NO only 0.5mm   |            |          |          |           |          |          |           |          |          |            |
| 5 : NO only 1.0mm   |            |          |          |           |          |          |           |          |          |            |
| 6 : NO only 1.5mm   |            |          |          |           |          |          |           |          |          |            |
| <b>Cable length</b>   |            |          |          |           |          |          |           |          |          |            |
| 0 : 0.5m  |            |          |          |           |          |          |           |          |          |            |
| 1 : 1m  |            |          |          |           |          |          |           |          |          |            |
| 2 : 2m  |            |          |          |           |          |          |           |          |          |            |
| 5 : 5m  |            |          |          |           |          |          |           |          |          |            |
| <b>Connector</b>  |            |          |          |           |          |          |           |          |          |            |
| 0 : Without   |            |          |          |           |          |          |           |          |          |            |
| 1 : Circular M12 - 4 pin PUR Cable  |            |          |          |           |          |          |           |          |          |            |
| 2 : Circular M8 - 4 pin PUR Cable, not available with telescopic Actuator |            |          |          |           |          |          |           |          |          |            |
| <b>Termination material</b>   |            |          |          |           |          |          |           |          |          |            |
| PVC : Polyvinyl Chloride  |            |          |          |           |          |          |           |          |          |            |
| PUR : Polyurethane  |            |          |          |           |          |          |           |          |          |            |
| SI : Silicone, not available with circular connector                      |            |          |          |           |          |          |           |          |          |            |
| <b>Termination outlet</b>   |            |          |          |           |          |          |           |          |          |            |
| FL : Free wires   |            |          |          |           |          |          |           |          |          |            |