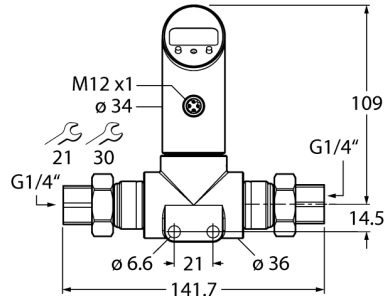


# Differential Pressure Sensor

## With current output and PNP/NPN transistor switching output

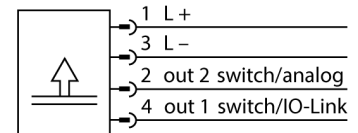
### Output 2 programmable as switching output

#### PS040D-501T-LI2UPN8X -H1141



- Pressure monitoring in harsh industrial environments
- Housing is rotatable after plugging the process connection
- Reading of adjusted values without tool
- High-side switch
- Recessed pushbutton, keylock and password for secure programming
- Permanent indication of pressure (bar, psi, kPa, MPa, misc)
- Peak pressure memory
- Pressure range 0...40 bar difference

#### Wiring Diagram



#### Functional principle

The PSD differential pressure sensors have two pressure connections with ceramic measuring cells to detect different pressures, from which the difference is formed. As a result of the pressure acting on the measuring cells, a signal that is proportional to the pressure is generated and electronically processed internally. Depending on the sensor variant, either switching or analog signals are available. All PSD variants have IO-Link.

The PSD sensors operate in various positive pressure ranges up to a differential of 250 bar. The connection with higher pressure can be configured via the menu (High-Site-Switch).

|  |   |
|--|---|
| <b>Type designation</b>                      | PS040D-501T-LI2UPN8X -H1141                     |
| Ident-No.                                    | 6834067   |
| <b>Pressure range</b>                        |   |
| Relative pressure                            | 0...40 bar rel.<br>0...580.151psi<br>0...4MPa   |
| Admissible overpressure                      | ≤ 200 bar                                       |
| Burst pressure                               | ≥ 200 bar                                       |
| Response time                                | < 3 ms  |
| <b>Power supply</b>                          |   |
| Operating voltage                            | 18...30 VDC                                     |
| Current consumption                          | ≤ 50 mA   |
| Voltage drop at I <sub>L</sub>               | ≤ 2 V   |
| Protective measure                           | SELV; PELV according to EN 50178                |
| Short-circuit/reverse polarity protection    | yes/ yes  |
| Protection type and class                    | IP67/IP69K/ III                                 |
| <b>Outputs</b>                               |   |
| Output 1                                     | Switching output or IO-Link mode                |
| Output 2                                     | analog or switching output                      |
| <b>Switching output</b>                      |   |
| Output function                              | NO/NC, PNP/NPN                                  |
| Accuracy switching output                    | ± 1 % v. E. BSL                                 |
| Rated operational current                    | 0.2 A   |
| Switching frequency                          | ≤ 180 Hz  |
| Switching point distance                     | ≥ 0.5 %   |
| Switch point:                                | (min. + 0.005 × range) up to 100% of full scale |
| Release point(s)                             | min. up to (SP - 0.005 × range)                 |
| Switching cycles                             | ≥ 100 mil.                                      |
| <b>Analog output</b>                         |   |
| Current output                               | 4...20 mA                                       |
| Operating range                              | 4...20/0...20 mA (3-wire)                       |
| Load   | ≤ 0.5 kΩ  |
| Accuracy LHR analog output                   | ± 1 % FS BSL                                    |
| <b>Temperature behaviour</b>                 |   |
| Medium temperature                           | -40...+85 °C                                    |
| Temperature coefficient zero point Tk0       | ± 0.15 % of full scale/10 K                     |
| Temperature coefficient span T <sub>KS</sub> | ± 0.15 % of full scale/10 K                     |

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#### PS040D-501T-LI2UPN8X -H1141

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#### Ambient conditions

|                      |   |
|----------------------|---|
| Ambient temperature  | -40...+80 °C  |
| Storage temperature  | -40...+80 °C  |
| Vibration resistance | 20 g (9...2000 Hz), according to IEC 68-2-6   |
| Shock resistance     | 50 g (11 ms) , according to IEC 61508   |
| EMC                  | EN 61000-4-2 ESD:4 kV CD / 8 kV AD<br>EN 61000-4-3 HF radiated: 15 V/m<br>EN 61000-4-4 Burst: 2 kV<br>EN 61000-4-5 Surge: 1000 V, 42 Ohm<br>EN 61000-4-6 HF cable bound: 10 V |

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#### Housing

|  |   |
|--|---|
| Housing material                               | Stainless-steel/Plastic, V2A (1.4305)   |
| Pressure connection material                   | Stainless steel A2 1.4305 (AISI 303)    |
| Pressure transducer material                   | Ceramics Al <sub>2</sub> O <sub>3</sub> |
| Sealing material                               | FPM spez.                               |
| Process connection                             | G $\frac{1}{4}$ " female thread         |
| Wrench size pressure connection / coupling nut | 21/ 30                                  |
| Electrical connection                          | Connector, M12 × 1                      |
| Max. tightening torque housing nut             | 35 Nm                                   |

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#### Reference conditions acc. to IEC 61298-1

|                      |                     |
|----------------------|---------------------|
| Temperature          | 15...+25 °C         |
| Atmospheric pressure | 860...1060 hPa abs. |
| Humidity             | 45...75 % rel.      |
| Auxiliary power      | 24 VDC              |

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#### Display

|                     |  |
|---------------------|--|
|                     | 4-digit 7-segment display, rotatable by 180°, disengageable  |
| Switching state     | 2 × LEDs Yellow  |
| Programming options | start/end value analog output; switch/release points; PNP/NPN; NO/NC contact; hysteresis/window function; damping; pressure unit; peak pressure memory |
| Unit display        | 5 x LEDs green (bar, psi, kPa, MPa, misc)  |