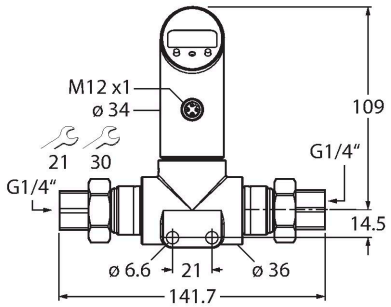
# PS040D-501T-LI2UPN8X-H1141
# Differential Pressure Sensor – With current output and PNP/ NPN Transistor Switching Output
# Output 2 Programmable as Switching Output



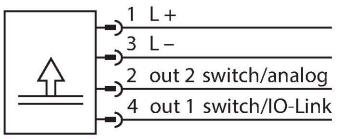

## Technical data

| | |
|---|---|
| Type | PS040D-501T-LI2UPN8X-H1141 |
| ID | 6834067 |
| Medium temperature | -40…+85 °C |
| **Pressure range** | |
| Pressure type | Differential Pressure |
| Pressure range | 0…40 bar |
| | 0…580.15 psi |
| | 0…4 MPa |
| Admissible overpressure | ≤ 200 bar |
| Burst pressure | ≥ 200 bar |
| Response time | < 3 ms |
| **Power supply** | |
| Operating voltage | 18…30 VDC |
| Current consumption | ≤ 50 mA |
| Protective measure | SELV; PELV according to EN 50178 |
| Short-circuit/reverse polarity protection | yes / yes |
| Insulation class | III |
| **Outputs** | |
| Output 1 | Switching output or IO-Link mode |
| Output 2 | Analog or switching output |

## Features

- 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 diff.

## 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).

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## Technical data

| | |
|---|---|
| **Switching output** | |
| Communication protocol | IO-Link |
| Output function | NO/NC, PNP/NPN |
| Accuracy | ± 1 % FS BSL |
| Rated operational current | 0.2 A |
| Switching frequency | ≤ 180 Hz |
| Switching point distance | ≥ 0.5 % |
| Switch point: | (Min. + 0.005 × range)…100 % of full scale |
| Release point(s) | min. up to (SP - 0.005 x range) |
| Switching cycles | ≥ 100 mil. |
| **Analog output** | |
| Current output | 4…20 mA |
| Load | ≤ 0.5 kΩ |
| Accuracy LHR | ± 1 % FS BSL |
| Included in the SIDI GSDML | Yes |
| Programming options | start/end value analog output; switch/ release points; PNP/NPN; NO/NC contact; hysteresis/window function; damping; pressure unit; peak pressure memory |
| **Mechanical data** | |
| Housing material | Stainless-steel/Plastic, 1.4305 (AISI 303) |
| Process connection | G 1/4" female thread |
| Pressure connection material | Stainless steel 1.4305 (AISI 303) |
| Pressure transducer material | Ceramic $Al_2O_3$ |
| Sealing material | FPM spez. |
| Wrench size pressure connection / coupling nut | 21/ 30 |
| Max. tightening torque of housing nut | 35 Nm |
| Electrical connection | Connector, M12 × 1 |
| Protection class | IP67<br>IP69K |
| **Environmental conditions** | |
| Ambient temperature | -40…+80 °C |
| Storage temperature | -40…+80 °C |
| Shock resistance | 50 g (11 ms) acc. to IEC 60068-2-27 |
| Vibration resistance | 20 g (9…2000 Hz), according to IEC 60068-2-6 |
| EMV | 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 |

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## Technical data

| | |
|---|---|
| | EN 61000-4-5 Surge: 1 kV, 42 Ohm<br>EN 61000-4-6 HF Cable-bound: 10 V |
| **Tests/approvals** | |
| 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 |
| Display | 4-digit 7-segment display, rotatable by 180°, with switch-off function |
| Switching state | 2 × LEDs, Yellow |
| Unit display | 5 x LEDs green (bar, psi, kPa, MPa, misc) |
| **Temperature behaviour** | |
| Temperature coefficient range $TK_s$ | ± 0.3 % of full scale/10 K |
| Temperature coefficient zero point $TK_0$ | ± 0.3 % of full scale/10 K |
| MTTF | 439 years |

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| | 0…580.15 psi |
| | 0…4 MPa |
| Admissible overpressure | ≤ 200 bar |
| Burst pressure | ≥ 200 bar |
| Response time | < 3 ms |
| **Power supply** | |
| Operating voltage | 18…30 VDC |
| Current consumption | ≤ 50 mA |
| Voltage drop at $I_e$ | ≤ 2.5 V |
| Protective measure | SELV; PELV according to EN 50178 |
| Short-circuit/reverse polarity protection | yes / yes |
| Protection type and class | IP67<br>IP69K / III |
| **Outputs** | |
| Output 1 | Switching output or IO-Link mode |

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## Technical data

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|---|---|
| Output 2 | Analog or switching output |
| **Switching output** | |
| Communication protocol | IO-Link |
| Output function | NO/NC, PNP/NPN |
| Accuracy | ± 1 % FS BSL |
| Rated operational current | 0.2 A |
| Switching frequency | ≤ 180 Hz |
| Switching point distance | ≥ 0.5 % |
| Switch point: | (Min. + 0.005 × range)…100 % of full scale |
| Release point(s) | min. up to (SP - 0.005 x range) |
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| EMV | 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: 1 kV, 42 Ohm<br>EN 61000-4-6 HF Cable-bound: 10 V |
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| Humidity | 45…75 % rel. |
| Auxiliary power | 24 VDC |
| Display | 4-digit 7-segment display, rotatable by 180°, with switch-off function |
| Switching state | 2 × LEDs, Yellow |
| Unit display | 5 x LEDs green (bar, psi, kPa, MPa, misc) |
| Programming options | start/end value analog output; switch/ release points; PNP/NPN; NO/NC contact; hysteresis/window function; damping; pressure unit; peak pressure memory |
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