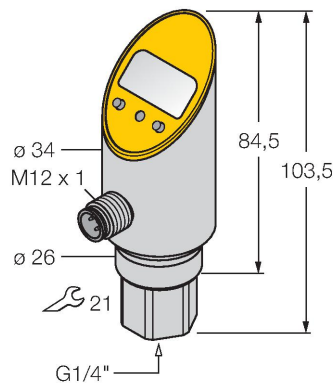


# PS040V-301-LI2UPN8X-H1141

## Pressure sensor – With Analog Output and PNP/NPN Transistor Switching Output Output 2 Reprogrammable as Switching Output



### Features

- Rigid process connection, non-rotatable body
- Reading of adjusted values without tool
- Recessed pushbutton and keylock for secure programming
- Permanent indication of pressure (bar, psi, kPa, MPa, misc)
- Peak pressure memory
- Pressure range -1...40 bar rel.

### Wiring diagram



### Technical data

|                                           |                                  |
|-------------------------------------------|----------------------------------|
| Type                                      | PS040V-301-LI2UPN8X-H1141        |
| ID                                        | 6833307                          |
| Pressure type                             | Relative pressure                |
| Pressure range                            | -1...40 bar                      |
|                                           | -14.5...580.15 psi               |
|                                           | -0.1...4 MPa                     |
| Admissible overpressure                   | ≤ 180 bar                        |
| Burst pressure                            | ≥ 180 bar                        |
| Response time                             | < 3 ms                           |
| <b>Power supply</b>                       |                                  |
| Operating voltage $U_B$                   | 18...30 VDC                      |
| Current consumption                       | ≤ 50 mA                          |
| Voltage drop at $I_B$                     | ≤ 2 V                            |
| Protective measure                        | SELV; PELV according to EN 50178 |
| Short-circuit/reverse polarity protection | yes / yes                        |
| Protection class                          | IP67<br>IP69K                    |
| Insulation class                          | III                              |
| <b>Outputs</b>                            |                                  |
| Output 1                                  | Switching output or IO-Link mode |
| Output 2                                  | Analog or switching output       |
| <b>Switching output</b>                   |                                  |
| Communication protocol                    | IO-Link                          |
| Output function                           | NO/NC, PNP/NPN                   |

### Functional principle

The pressure sensors in the PS product series operate with ceramic measuring cells. As a result of the pressure acting on the ceramic substrate, a signal that is proportional to the pressure is generated and processed electronically. The processed signal is available either as a switching or an analog output signal, depending on the sensor type used. Maximum flexibility thanks to a rigid or rotatable sensor body, a variety of thread types, front-flush or dead-space-free pressure membranes and an accuracy of 0.5 % of full scale guarantee a safe connection to the process.

## Technical data

|                                                    |                                                                                                                                                                               |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy                                           | ± 0.5 % 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.                                                                                                                                                                    |
| <b>Analog output</b>                               |                                                                                                                                                                               |
| Current output                                     | 4...20 mA                                                                                                                                                                     |
| Voltage output                                     | 0...10 V                                                                                                                                                                      |
| Load                                               | ≤ 0.5 kΩ                                                                                                                                                                      |
| Accuracy LHR                                       | ± 0.5 % FS BSL                                                                                                                                                                |
| <b>IO-Link</b>                                     |                                                                                                                                                                               |
| IO-Link specification                              | V 1.0                                                                                                                                                                         |
| Programming                                        | FDT / DTM                                                                                                                                                                     |
| Transmission physics                               | corresponds to 3-wire physics (PHY2)                                                                                                                                          |
| Transmission rate                                  | COM 2 / 38.4 kbps                                                                                                                                                             |
| Process data width                                 | 16 bit                                                                                                                                                                        |
| Measured value information                         | 14 bit                                                                                                                                                                        |
| Switchpoint information                            | 2 bit                                                                                                                                                                         |
| Frame type                                         | 2.2                                                                                                                                                                           |
| Accuracy                                           | ± 0.5 % FS BSL                                                                                                                                                                |
| Included in the SIDI GSDML                         | Yes                                                                                                                                                                           |
| <b>Temperature behaviour</b>                       |                                                                                                                                                                               |
| Medium temperature                                 | -40...+85 °C                                                                                                                                                                  |
| Temperature coefficient zero point TK <sub>0</sub> | ± 0.15 % of full scale/10 K                                                                                                                                                   |
| Temperature coefficient range TK <sub>s</sub>      | ± 0.15 % of full scale/10 K                                                                                                                                                   |
| <b>Environmental conditions</b>                    |                                                                                                                                                                               |
| 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) acc. to IEC 68-2-27                                                                                                                                              |
| 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: 1000 V, 42 Ohm<br>EN 61000-4-6 HF cable bound: 10 V |
| <b>Mechanical data</b>                             |                                                                                                                                                                               |
| Housing material                                   | Stainless-steel/Plastic, 1.4305 (AISI 303)                                                                                                                                    |
| Pressure connection material                       | Stainless steel 1.4305 (AISI 303)                                                                                                                                             |
| Material pressure transducer                       | Ceramic Al <sub>2</sub> O <sub>3</sub>                                                                                                                                        |

Technical data

|                                                |                                                                                                                                                    |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Sealing material                               | FPM spez.                                                                                                                                          |
| Process connection                             | G 1/4" female thread                                                                                                                               |
| Wrench size pressure connection / coupling nut | 21                                                                                                                                                 |
| Electrical connection                          | Connector, M12 × 1                                                                                                                                 |
| Max. tightening torque of housing nut          | 35 Nm                                                                                                                                              |
| 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)                                                                                                          |
| Programming options                            | start/end value analog output; switch/release points; PNP/NPN; NO/NC contact; hysteresis/window mode; damping; pressure unit; peak pressure memory |
| Tests/approvals                                |                                                                                                                                                    |
| Approvals                                      | cULus                                                                                                                                              |
| UL registration number                         | E183243                                                                                                                                            |
| MTTF                                           | 242 years acc. to SN 29500 (Ed. 99) 40 °C                                                                                                          |

Accessories

|           |       |
|-----------|-------|
| PTS-COVER | A9350 |
|-----------|-------|

Protective housing



Accessories

| Dimension drawing                                                                   | Type                | ID      |                                                                                                                               |
|-------------------------------------------------------------------------------------|---------------------|---------|-------------------------------------------------------------------------------------------------------------------------------|
|    | RKC4.4T-2/TXL       | 6625503 | Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval       |
|    | WKC4.4T-2/TXL       | 6625515 | Connection cable, M12 female connector, angled, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval         |
|   | RKC4.4T-P7X2-10/TXL | 6626184 | Connection cable, M12 female connector, straight, 4-pin, LED, cable length: 10 m, jacket material: PUR, black; cULus approval |
|  | WKC4.4T-2/TEL       | 6625025 | Connection cable, M12 female connector, angled, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval         |
|  | RKC4.4T-2/TEL       | 6625013 | Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval       |

Accessories

| Dimension drawing                                                                   | Type         | ID      |                                                                                                        |
|-------------------------------------------------------------------------------------|--------------|---------|--------------------------------------------------------------------------------------------------------|
|  | TBEN-S2-4IOL | 6814024 | Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A |

| Dimension drawing | Type           | ID      |                                         |
|-------------------|----------------|---------|-----------------------------------------|
|                   | USB-2-IOL-0002 | 6825482 | IO-Link Master with integrated USB port |

