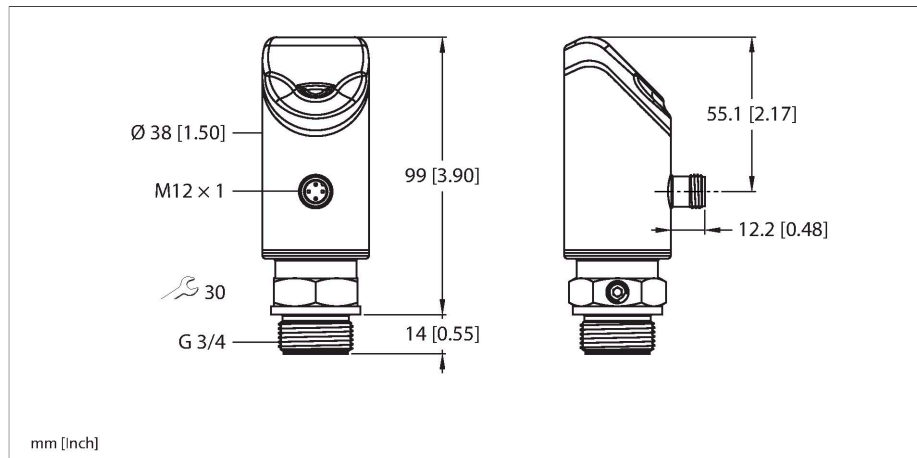


# PS311-0V-06-LI2UPN8-H1141

## Front-Flush Pressure Sensor – Relative Pressure: -1...0 Bar



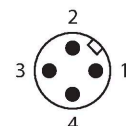
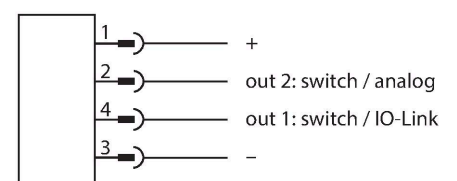
### Technical data

|                                           |                                    |
|-------------------------------------------|------------------------------------|
| Type                                      | PS311-0V-06-LI2UPN8-H1141          |
| ID                                        | 100001495                          |
| Medium temperature                        | -30...+80 °C                       |
| Application area                          | Liquids and gases                  |
| Pressure range                            |                                    |
| Pressure type                             | Relative pressure                  |
| Pressure range                            | -1...0 bar                         |
|                                           | -14.5...0 psi                      |
|                                           | -0.1...0 MPa                       |
| Admissible overpressure                   | ≤ 5.5 bar                          |
| Burst pressure                            | ≥ 5.5 bar                          |
| Response time                             | ≤ 3 ms                             |
| Electrical data                           |                                    |
| Operating voltage U <sub>B</sub>          | 18...33 VDC                        |
| Short-circuit/reverse polarity protection | yes, cyclic / yes (voltage supply) |
| Capacitive load                           | 100 nF                             |
| Insulation class                          | III                                |
| Outputs                                   |                                    |
| Output 1                                  | Switching output or IO-Link mode   |
| Output 2                                  | Analog or switching output         |
| Switching output                          |                                    |
| Communication protocol                    | IO-Link                            |
| Output function                           | NO/NC, PNP/NPN                     |
| Accuracy                                  | ± 0.5 % FS BSL                     |
| Rated operational current                 | 0.25 A                             |
| Switching frequency                       | ≤ 300 Hz                           |
| Switching point distance                  | ≥ 0.5 %                            |

### Features

- 4-digit, 2-color (red/green), 12-segment display, rotatable by 180°
- Housing is rotatable after mounting the process connection
- Ceramic measuring cell
- 18...33 VDC
- NO/NC contact, PNP/NPN output, analog output (current/voltage), IO-Link
- Pressure connection with front-flush mounted diaphragm (stainless steel)
- Process connection G3/4" front-flush male thread
- M12 × 1 connector device

### Wiring diagram



### Functional principle

The pressure sensors from the PS310 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 with an accuracy of 0.5% of full scale. The rotatable sensor body and a variety

of process connections guarantee flexible process integration.

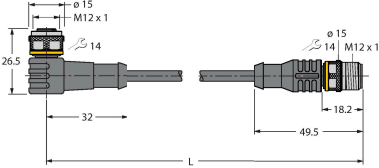
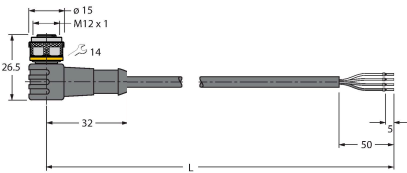
## Technical data

|                                       |                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Switch point:                         | (Min. + 0.005 × range)...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                                                                                                                                              |
| High level signal current             | 20.5 mA                                                                                                                                                |
| Low level signal current              | 3.8 mA                                                                                                                                                 |
| Load resistance current output        | ≤ 0.5 kΩ                                                                                                                                               |
| Voltage output                        | 0...10 V                                                                                                                                               |
| Load resistance voltage output        | ≥ 8 kΩ                                                                                                                                                 |
| <b>IO-Link</b>                        |                                                                                                                                                        |
| IO-Link specification                 | V 1.1                                                                                                                                                  |
| IO-Link port type                     | Class A                                                                                                                                                |
| 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                                                                                                                                                 |
| Switching point information           | 2 bit                                                                                                                                                  |
| Frame type                            | 2.2                                                                                                                                                    |
| Programming                           | FDT/DTM                                                                                                                                                |
| Accuracy                              | ± 0.5 % FS BSL                                                                                                                                         |
| Included in the SIDI GSDML            | Yes                                                                                                                                                    |
| <b>Programming</b>                    |                                                                                                                                                        |
| Programming options                   | start/end value analog output; switch/release points; PNP/NPN; NO/NC contact; hysteresis/window function; damping; pressure unit; peak pressure memory |
| <b>Mechanical data</b>                |                                                                                                                                                        |
| Housing material                      | Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5                                              |
| Materials (contact with media)        | Stainless steel 1.4435 (AISI 316L), FPM specific                                                                                                       |
| Process connection                    | G 3/4" male thread, front-flush                                                                                                                        |
| Max. tightening torque of housing nut | 35 Nm                                                                                                                                                  |
| Electrical connection                 | Connector, M12 × 1                                                                                                                                     |
| Protection class                      | IP66<br>IP67<br>IP69K                                                                                                                                  |
| <b>Environmental conditions</b>       |                                                                                                                                                        |
| Ambient temperature                   | -40...+80 °C                                                                                                                                           |
| Storage temperature                   | -40...+80 °C                                                                                                                                           |
| Shock resistance                      | 50 g (11 ms) DIN EN 60068-2-27                                                                                                                         |

Technical data

|                                                    |                                                                                                                                                                                      |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 61000-4-6 HF cable bound: 10 V<br>EN 61000-6-2 0.5 kV, 42 Ω<br>EN 61326-2-3 |
| Tests/approvals                                    |                                                                                                                                                                                      |
| Reference conditions acc. to IEC 61298-1           |                                                                                                                                                                                      |
| Temperature                                        | 15...+25 °C                                                                                                                                                                          |
| Atmospheric pressure                               | 860...1030 hPa abs.                                                                                                                                                                  |
| Humidity                                           | 45...75 % rel.                                                                                                                                                                       |
| Auxiliary power                                    | 24 VDC                                                                                                                                                                               |
| Displays/Operating elements                        |                                                                                                                                                                                      |
| Display                                            | 4-digit 12-segment display, rotatable by 180°, red or green                                                                                                                          |
| Switching state                                    | 2 × LEDs, Yellow                                                                                                                                                                     |
| Unit display                                       | 5 x LEDs green (bar, psi, kPa, MPa, misc)                                                                                                                                            |
| Temperature behaviour                              |                                                                                                                                                                                      |
| Temperature coefficient range TK <sub>s</sub>      | ± 0.15 % of full scale/10 K                                                                                                                                                          |
| Temperature coefficient zero point TK <sub>0</sub> | ± 0.15 % of full scale/10 K                                                                                                                                                          |
| MTTF                                               | acc. to SN 29500 (Ed. 99) 40 °C                                                                                                                                                      |
| Included in delivery                               | NBR70 flat seal (USIT ring, nitrile rubber), 1 pc.                                                                                                                                   |

Accessories

| Dimension drawing                                                                   | Type                  | ID      |                                                                                                                                                             |
|-------------------------------------------------------------------------------------|-----------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | WKC4.4T-2-RSC4.4T/TXL | 6625640 | Extension cable, M12 female connector, angled, 4-pin to M12 male 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                                       |

Accessories

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

