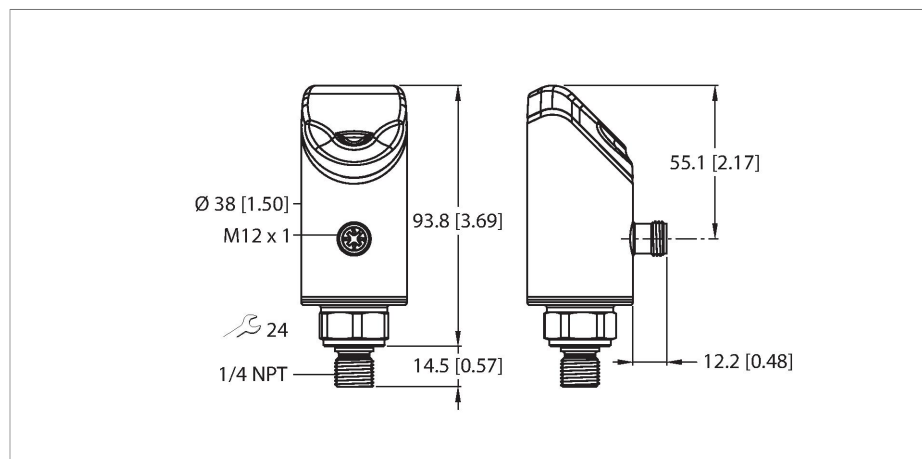


# PS510-16V-03-LI2UPN8-H1141

Pressure sensor – Relative Pressure: -1...16 Bar



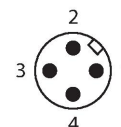
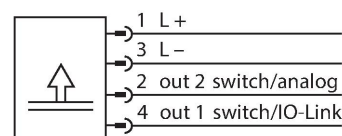
## Technical data

|                                           |                                                     |
|-------------------------------------------|-----------------------------------------------------|
| Type                                      | PS510-16V-03-LI2UPN8-H1141                          |
| Ident. no.                                | 100001539                                           |
| Medium temperature                        | -30...+80 °C                                        |
| Application area                          | Liquids and gases                                   |
| <b>Pressure range</b>                     |                                                     |
| Relative pressure bar                     | -1...16 bar rel.                                    |
|                                           | -14.5...232.06 psi                                  |
|                                           | -0.1...1.6 MPa                                      |
| Admissible overpressure                   | ≤ 70 bar                                            |
| Burst pressure                            | ≥ 140 bar                                           |
| Response time                             | ≤ 3 ms                                              |
| <b>Electrical data</b>                    |                                                     |
| Operating voltage                         | 18...33 VDC                                         |
| Short-circuit/reverse polarity protection | yes, cyclic / yes (voltage supply)                  |
| Capacitive load                           | 100 nF                                              |
| Insulation class                          | III                                                 |
| <b>Outputs</b>                            |                                                     |
| Output 1                                  | Switching output or IO-Link mode                    |
| Output 2                                  | Analog output (current/voltage) or switching output |
| <b>Switching output</b>                   |                                                     |
| Communication protocol                    | IO-Link                                             |
| Output function                           | NO/NC, PNP/NPN                                      |
| Accuracy                                  | ± 0.25 % of final value BSL                         |

## Features

- 4-digit, two-colored, 14-segment display, rotatable by 180°
- Housing is rotatable after plugging the process connection
- Metal measuring cell
- 18...33 VDC
- NO/NC contact, PNP/NPN output, analog output (current/voltage), IO-Link
- Process connection 1/4" NPT male thread
- Connector device, M12 × 1

## Wiring diagram



## Functional principle

The pressure sensors from the P510 product series operate with fully welded metal measuring cells. As a result of the pressure acting on the metal 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

## Technical data

analog output with an accuracy of 0.25% of full scale. The rotatable sensor body and a variety of process connections guarantee flexible process integration.

|                                                |                                                                                                                                                        |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated operational current                      | 0.25 A                                                                                                                                                 |
| Switching frequency                            | ≤ 300 Hz                                                                                                                                               |
| Switching point distance                       | ≥ 0.5 %                                                                                                                                                |
| Switch point:                                  | (min. + 0.005 x range) up to 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                                                                                                                                              |
| 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                                                                                                                                                 |
| Accuracy LHR                                   | ± 0.25 % FS BSL                                                                                                                                        |
| <b>IO-Link</b>                                 |                                                                                                                                                        |
| IO-Link specification                          | V 1.1                                                                                                                                                  |
| IO-Link port type                              | Class A                                                                                                                                                |
| Transmission physics                           | corresponds to 3-wire physics (PHY2)                                                                                                                   |
| Frame type                                     | 2.2                                                                                                                                                    |
| Transmission rate                              | COM 2/38.4 kbps                                                                                                                                        |
| Process data width                             | 16 bit                                                                                                                                                 |
| Measured value information                     | 14 bit                                                                                                                                                 |
| Switchpoint information                        | 2 bit                                                                                                                                                  |
| Programming                                    | FDT/DTM                                                                                                                                                |
| Accuracy                                       | ± 0.25 % of full scale 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                                                                                           |
| Materials (contact with media)                 | Stainless steel 1.4404 (AISI 316L)/1.4542 (AISI 630)                                                                                                   |
| Process connection                             | 1/4" NPT male thread                                                                                                                                   |
| Wrench size pressure connection / coupling nut | 24                                                                                                                                                     |

## Technical data

|                                                 |                                                                                                                                                                                      |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. tightening torque of housing nut           | 35 Nm                                                                                                                                                                                |
| Electrical connection                           | Connector, M12 × 1                                                                                                                                                                   |
| Protection class                                | IP6K6K / 6K7 / 6K9K                                                                                                                                                                  |
| <b>Environmental conditions</b>                 |                                                                                                                                                                                      |
| Ambient temperature                             | -40...+80 °C                                                                                                                                                                         |
| Storage temperature                             | -40...+100 °C                                                                                                                                                                        |
| Shock resistance                                | 50 g (11 ms) , EN 60068-2-27                                                                                                                                                         |
| 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 61000-4-6 HF cable bound: 10 V<br>EN 61000-6-2 0.5 kV, 42 Ω<br>EN 61326-2-3 |
| <b>Reference conditions acc. to IEC 61298-1</b> |                                                                                                                                                                                      |
| Temperature                                     | 15...+25 °C                                                                                                                                                                          |
| Atmospheric pressure                            | 860...1030 hPa abs.                                                                                                                                                                  |
| Humidity                                        | 45...75 % rel.                                                                                                                                                                       |
| Auxiliary power                                 | 24 VDC                                                                                                                                                                               |
| <b>Display functions</b>                        |                                                                                                                                                                                      |
| Display                                         | 4-digit 12-segment display, rotatable by 180°, red or green                                                                                                                          |
| Switching state                                 | 2 × LEDs, Yellow                                                                                                                                                                     |
| Unit display                                    | 5 × LEDs green (bar, psi, kPa, MPa, misc)                                                                                                                                            |
| <b>Temperature behaviour</b>                    |                                                                                                                                                                                      |
| Temperature coefficient span $T_{KS}$           | ± 0.1 % of full scale/10 K                                                                                                                                                           |
| Temperature coefficient zero point $T_{K0}$     | ± 0.1 % of full scale/10 K                                                                                                                                                           |
| MTTF                                            | 100 years acc. to SN 29500 (Ed. 99) 40 °C                                                                                                                                            |