

PS510-25V-05-LI2UPN8-H1141  
Pressure Sensor – Relative Pressure: -1...25 Bar



Technical data

|                                           |                                    |
|-------------------------------------------|------------------------------------|
| Type                                      | PS510-25V-05-LI2UPN8-H1141         |
| ID                                        | 100001551                          |
| Medium temperature                        | -30...+80 °C                       |
| Application area                          | Liquids and gases                  |
| Pressure range                            |                                    |
| Pressure type                             | Relative pressure                  |
| Pressure range                            | -1...25 bar                        |
|                                           | -14.5...362.59 psi                 |
|                                           | -0.1...2.5 MPa                     |
| Admissible overpressure                   | ≤ 140 bar                          |
| Burst pressure                            | ≥ 280 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                                  | ± 0.25 % 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
- Metal measuring cell
- Pressure range -1...25 bar relative
- 18...33 VDC
- NO/NC contact, PNP/NPN output, analog output (current/voltage), IO-Link
- Process connection 7/16" UNF (SAE) male thread
- Plug-in 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 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.

## 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                                                                                                                                                 |
| 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)                                                                                                                   |
| 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                                       | ± 0.25 % 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                                                                                           |
| Materials (contact with media)                 | Stainless steel 1.4404 (AISI 316L)/1.4542 (AISI 630)                                                                                                   |
| Process connection                             | 7/16"-20 UNF male thread                                                                                                                               |
| Wrench size pressure connection / coupling nut | 24                                                                                                                                                     |
| Max. tightening torque of housing nut          | 15 Nm                                                                                                                                                  |
| Electrical connection                          | Connector, M12 × 1                                                                                                                                     |
| Protection class                               | IP66<br>IP67<br>IP69K                                                                                                                                  |
| <b>Environmental conditions</b>                |                                                                                                                                                        |
| Ambient temperature                            | -40...+80 °C                                                                                                                                           |

Technical data

|                                                    |                                                                                                                                                                                      |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Storage temperature                                | -40...+80 °C                                                                                                                                                                         |
| Shock resistance                                   | 50 g (11 ms) DIN 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 |
| Tests/approvals                                    |                                                                                                                                                                                      |
| Approvals                                          | CE<br>Metrological certification (RUS)<br>cULus                                                                                                                                      |
| UL registration number                             | E183243                                                                                                                                                                              |
| 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>      | ± 0.1 % of full scale/10 K                                                                                                                                                           |
| Temperature coefficient zero point TK <sub>0</sub> | ± 0.1 % of full scale/10 K                                                                                                                                                           |
| MTTF                                               | 100 years acc. to SN 29500 (Ed. 99) 40 °C                                                                                                                                            |

Accessories

FAM-30-PA66100018384



Mounting bracket; variable wrench size 24–30 mm; removable labeling plate 20 × 9 mm

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                          |
|  | PAM-P3         | 100004416 | Damping element, protects the measuring cell from pressure peaks |