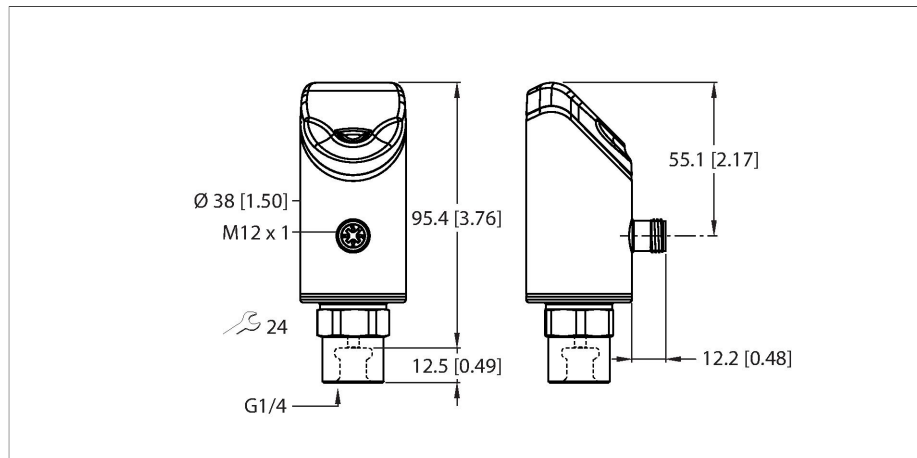


# PS510-100-01-2UPN8-H1141/X

Pressure Sensor – Relative Pressure: 0...100 Bar



## Technical data

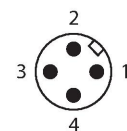
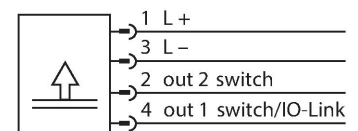
|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Type                                      | PS510-100-01-2UPN8-H1141/X                   |
| ID                                        | 100001721                                    |
| Medium temperature                        | -30...+80 °C                                 |
| <b>Pressure range</b>                     |                                              |
| Pressure type                             | Relative pressure                            |
| Pressure range                            | 0...100 bar                                  |
|                                           | 0...1450.38 psi                              |
|                                           | 0...10 MPa                                   |
| Admissible overpressure                   | ≤ 300 bar                                    |
| Burst pressure                            | ≥ 400 bar                                    |
| Response time                             | ≤ 3 ms                                       |
| Operating voltage                         | 18...33 VDC                                  |
| Short-circuit/reverse polarity protection | yes, cyclic / yes (voltage supply)           |
| Insulation class                          | III                                          |
| <b>Outputs</b>                            |                                              |
| Output 1                                  | Switching output or IO-Link mode             |
| Output 2                                  | Switching output                             |
| <b>Switching output</b>                   |                                              |
| 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 %                                      |
| Switch point:                             | (Min. + 0.005 × range)...100 % of full scale |
| Release point(s)                          | min. up to (SP - 0.005 × range)              |



## Features

- 4-digit, 2-colored, 12-segment display, rotatable by 180°
- Housing is rotatable after plugging the process connection
- Metal measuring cell
- Peak pressure aperture
- 18...33 VDC
- NO/NC contact, PNP/NPN output, IO-Link
- Process connection G1/4" female 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

|                                                 |                                                                                                                                                                                      |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Switching cycles                                | ≥ 100 mil.                                                                                                                                                                           |
| <b>IO-Link</b>                                  |                                                                                                                                                                                      |
| IO-Link specification                           | V 1.1                                                                                                                                                                                |
| 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 % FS BSL                                                                                                                                                                      |
| Included in the SIDI GSDML                      | Yes                                                                                                                                                                                  |
| <b>Programming</b>                              |                                                                                                                                                                                      |
| Programming options                             | Switching/reversing points; PNP/NPN; opener/closer; hysteresis/window mode; damping; pressure unit; printhead memory                                                                 |
| Housing material                                | Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV                                                                                                                         |
| Process connection                              | G 1/4" female thread                                                                                                                                                                 |
| Wrench size pressure connection / coupling nut  | 24                                                                                                                                                                                   |
| Max. tightening torque of housing nut           | 35 Nm                                                                                                                                                                                |
| Electrical connection                           | Connector, M12 × 1                                                                                                                                                                   |
| Protection class                                | IP66<br>IP67<br>IP69K                                                                                                                                                                |
| Ambient temperature                             | -40...+80 °C                                                                                                                                                                         |
| Storage temperature                             | -40...+100 °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 |
| <b>Tests/approvals</b>                          |                                                                                                                                                                                      |
| Approvals                                       | cULus                                                                                                                                                                                |
| UL registration number                          | E183243                                                                                                                                                                              |
| <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                                                                                                                                                                               |

## Technical data

|                                             |                                                             |
|---------------------------------------------|-------------------------------------------------------------|
| 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)                   |
| <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                                        | 110 years acc. to SN 29500 (Ed. 99) 40 °C                   |

## Technical data

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Type                                      | PS510-100-01-2UPN8-H1141/X                   |
| ID                                        | 100001721                                    |
| <b>Pressure range</b>                     |                                              |
| Pressure type                             | Relative pressure                            |
| Pressure range                            | 0...100 bar                                  |
|                                           | 0...1450.38 psi                              |
|                                           | 0...10 MPa                                   |
| Admissible overpressure                   | ≤ 300 bar                                    |
| Burst pressure                            | ≥ 400 bar                                    |
| Response time                             | ≤ 3 ms                                       |
| Operating voltage                         | 18...33 VDC                                  |
| Voltage drop at $I_o$                     | ≤ 2 V                                        |
| Short-circuit/reverse polarity protection | yes, cyclic / yes (voltage supply)           |
| Protection type and class                 | IP66<br>IP67<br>IP69K / III                  |
| <b>Outputs</b>                            |                                              |
| Output 1                                  | Switching output or IO-Link mode             |
| Output 2                                  | Switching output                             |
| <b>Switching output</b>                   |                                              |
| 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 %                                      |
| 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>IO-Link</b>                            |                                              |
| IO-Link specification                     | V 1.1                                        |

## Technical data

|                                                 |                                                                                                                                                                                      |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                        | ± 0.25 % FS BSL                                                                                                                                                                      |
| Included in the SIDI GSDML                      | Yes                                                                                                                                                                                  |
| <b>Temperature behaviour</b>                    |                                                                                                                                                                                      |
| Medium temperature                              | -30...+80 °C                                                                                                                                                                         |
| Temperature coefficient zero point Tk0          | ± 0.1 % of full scale/10 K                                                                                                                                                           |
| Temperature coefficient span T <sub>KS</sub>    | ± 0.1 % of full scale/10 K                                                                                                                                                           |
| Ambient temperature                             | -40...+80 °C                                                                                                                                                                         |
| Storage temperature                             | -40...+100 °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 |
| Housing material                                | Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV                                                                                                                         |
| Process connection                              | G 1/4" female thread                                                                                                                                                                 |
| Wrench size pressure connection / coupling nut  | 24                                                                                                                                                                                   |
| Electrical connection                           | Connector, M12 × 1                                                                                                                                                                   |
| Max. tightening torque of housing nut           | 35 Nm                                                                                                                                                                                |
| <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                                                                                                                                                                               |
| 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)                                                                                                                                            |
| <b>Programming</b>                              |                                                                                                                                                                                      |
| Programming options                             | Switching/reversing points; PNP/NPN; opener/closer; hysteresis/window mode; damping; pressure unit; printhead memory                                                                 |

