

PS510-400-05-LI2UPN8-H1141
Pressure Sensor – Relative Pressure: 0...400 Bar



Technical data

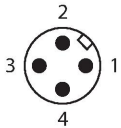
Type	PS510-400-05-LI2UPN8-H1141
ID	100002992
Medium temperature	-40...+80 °C
Application area	Liquids and gases
Pressure range	
Pressure type	Relative pressure
Pressure range	0...400 bar
	0...5801.51 psi
	0...40 MPa
Admissible overpressure	≤ 1600 bar
Burst pressure	≥ 4000 bar
Response time	Typically 1 ms (max. 2.5 ms)
Long-term stability	± 0.2 % FS, /annum
Accuracy	0.25 % FS (LHR) at +25 °C using BFSL
Electrical data	
Operating voltage U _B	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
Rated operational current	0.25 A
Switching frequency	≤ 300 Hz



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 0...400 bar relative
- 18...33 VDC
- NO/NC contact, PNP/NPN output, analog output (current/voltage), IO-Link SSP4.1.1
- Process connection 7/16" UNF (SAE) 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. Depending on the sensor variant, 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 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.
Analog output	
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
IO-Link	
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	32 bit (of which 5 bits are not used)
Measured value information	24 bit (16-bit process value + 8-bit scale)
Switching point information	3 bit
Frame type	2.2
Minimum cycle time	6 ms
Function pin 4	IO-Link
Function Pin 2	DI
Maximum cable length	20 m
Programming	FDT/DTM
Profile support	Smart Sensor Profile (SSP4.1.1)
Included in the SIDI GSDML	In preparation
Programming	
Programming options	start/end value analog output; switch/release points; PNP/NPN; NO/NC contact; hysteresis/window function; damping; pressure unit; peak pressure memory
Mechanical data	
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 1.4404 (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

Technical data

Protection class	IP66 IP67 IP69K
Environmental conditions	
Ambient temperature	-40...+80 °C
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 EN 61000-4-3 HF radiated: 15 V/m EN 61000-4-4 Burst: 2 kV EN 61000-4-6 HF cable bound: 10 V EN 61000-6-2 0.5 kV, 42 Ω EN 61326-2-3
Tests/approvals	
Approvals	CE Metrological certification (RUS) cULus
UL registration number	E183243
Reference conditions acc. to IEC 61298-1	
Temperature	-40...+85 °C
Atmospheric pressure	689...1300 hPa abs.
Humidity	10...95 % 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_s	± 0.11 % of full scale/10 K
Temperature coefficient zero point TK_0	± 0.11 % of full scale/10 K
MTTF	100 years acc. to SN 29500 (Ed. 99) 40 °C

IO-Link process data image

Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Byte n	Switching (physical OUT 1)	Switching (physical OUT 2)	Fault state						8-bit scale (pressure)							
Bit	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Byte n+1	16-bit process value															

Accessories

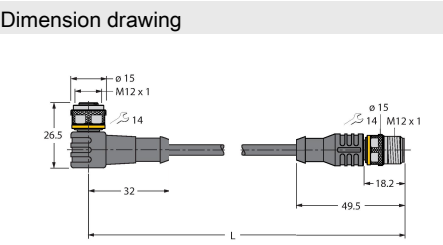
FAM-30-PA66100018384



Technical drawing of the FAM-30-PA66 mounting bracket. It shows a top view and a side view. Dimensions include: 32.5 (0.887) for the top width, 6.5 (0.26) for the top thickness, 37.0 (1.46) for the top hole diameter, 56.5 (2.23) for the top hole spacing, 16.0 (0.63) for the top hole diameter, 15.0 (0.59) for the top hole spacing, 40.0 (1.57) for the bottom width, 4.0 (0.16) for the bottom thickness, 4.0 (0.16) for the bottom hole diameter, 13.7 (0.54) for the bottom hole spacing, 15.0 (0.59) for the bottom hole spacing, 4.0 (0.16) for the bottom hole diameter, 13.7 (0.54) for the bottom hole spacing, 15.0 (0.59) for the bottom hole spacing, 4.0 (0.16) for the bottom hole diameter, 13.7 (0.54) for the bottom hole spacing. Features include: HEX 24, 30 mm, Dovetail for mounting additional brackets, and Removable label.

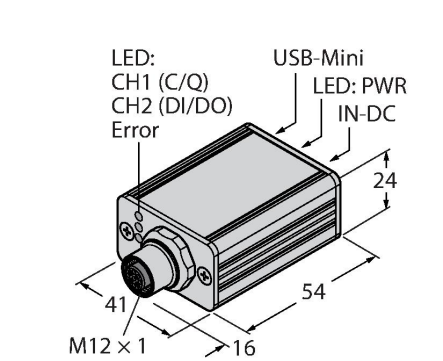
Mounting bracket; variable wrench size 24–30 mm; removable labeling plate 20 × 9 mm

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



Technical drawing of the USB-2-IOL-0002 IO-Link Master. It shows a 3D perspective view. Dimensions include: 41 for the front width, 16 for the front thickness, 54 for the side width, and 24 for the side thickness. Labels include: LED: CH1 (C/Q), LED: CH2 (DI/DO), Error, USB-Mini, LED: PWR, and IN-DC. The connector is M12 x 1.