| PTE7300 SERIES

HERMETIC DIGITAL PRESSURE SENSOR

The PTE7300 pressure sensor is the sensing platform from Sensata Technologies offering best in class accuracy with excellent mechanical shock resistance and EMC protection to meet the most demanding applications in mid to high pressure ranges. Available with a wide range of ports, low power consumption, fast response time, and increased sensor diagnostics capabilities, enable customers to standardize and simplify designs.

Features

- Cyclical Redundancy Check (CRC) assures you that communications and data are reliable.
- Pressure ranges from 0-16 bar to 0-600 bar (0-230 to 0-8700 psi)
- Best in class accuracy and fast response time to meet the highest performance applications
- Digital pressure output and I²C bus for connecting multiple devices
- Low power consumption to optimize energy efficiency
- High Resistance to Electromagnetic Noise (EMC)
- Stainless steel, fully hermetic, IP69K sensor package and hermetic port modules available to meet the harshest environments
- Snubber option for dampening of pressure spikes due to hammer and cavitation
- REACH/RoHS/CE compliant [1]
- NSF61 [6] (drinking water certifications)

Applications

- Smart Water Networks and Smart Fire Hydrants
- Medical and Industrial Gas Monitoring
- OEM Hydraulic and Process Control
- Hydraulics and Pneumatics
- Mobile Hydraulics and Off-Highway Vehicles
- Pumps and Compressors
- Air Conditioning and Refrigeration Systems
- Plant Engineering and Automation

SPECIFICATIONS

Electrical

Pressure Ranges	0-16 bar to 0-600 bar (0-230 psi to 0-8700 psi)
Pressure Reference	Gauge (Module) and Sealed Gauge (fully hermetic sensor)
Supply Voltage	2.7VDC to 5.5VDC
Digital Interface	I²C with CRC (memory integrity, and data transmission)
Device Address	0xDA (including CRC) 0x6C (excluding CRC)
Operating Current In Sleep Mode	6.5 uA (typical)
Operating Current In Active Mode	3.7mA typical (4mA maximum)
Available Data	Pressure (int16) Bridge temperature (int16) [2] Status (int16) Device serial (int32)
Resolution	13 bit
Response Time (13 bit)	< 1 ms
Probe Configurations	On-demand, single cycle

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Recommended pull-up resistors	1kOhm to 10kOhm, depending on cable length
External Capacitive Load for I2C Bus Line	400 pF max (depends on the cable length)
ESD [1]	±4KV Contact; ±8KV Air
Radiated Immunity [1]	80-1000MHz 3V/m 1400-2000MHz 3V/m 2000-2700MHz 1V/m
Conducted Immunity [1]	0.15-80MHz 3Vrms
Magnetic Immunity [1]	3 A/m for 5 minutes

Physical

Proof Pressure	2.5X full scale pressure
Burst Pressure	5X full scale pressure
Vibration	IEC 60068-2-6 with 2.0mm displacement, Sensor: 30g (10...2000Hz); Module: 20g (10...2000Hz)
Mechanical Shock	IEC 60068-2-27, 50g min (Module); IEC 60068-2-27, 500g min (fully hermetic sensor)
Drop (any Axis)	1m
Water Hammer	1.6X full scale pressure for 100k cycles, 1.3xFS for 200k cycles
Ingress Protection	IP00 (Module), IP69K (fully hermetic sensor)
Media Compatibility	Fluids and Gases compatible with 17-4PH stainless steel

Performance

Pressure (Best Fit Straight)[3]	±0.25% FS @ 25°C
Pressure (Total Error Band)[4]	+/-1.5%FS @-20° to 85°C
Operating Endurance	>10M cycles
Operating Ambient Temperature	-40° to +100°C
Operating Media Temperature	-40° to +125°C
Storage Temperature	-40° to +125°C

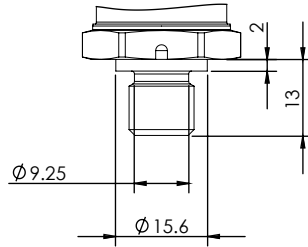www.sensata.com

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⬤ DIMENSIONS

All dimensions are in millimeters

Overall Dimensions

7/16-20 UNF-2A (MALE)

Ø 9.25
Ø 15.6
2
13

G1/4A DIN 3852-E

Ø 11.2
Ø 18.9
2
14

1/4-19 PT (R1/4)

13

Ø 23.5
M12x1
11.6
41
HEX24

1/4-18 NPTF

13
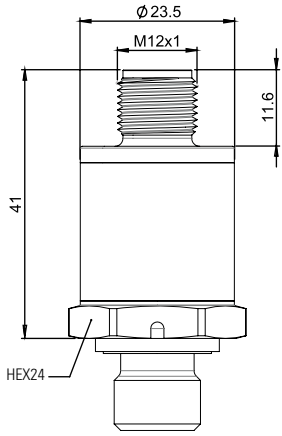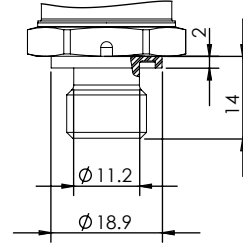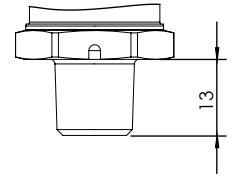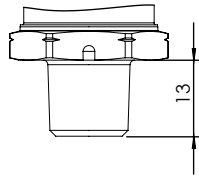
Electrical Connector

M12x1 5-POLE
IP69K

PIN4
PIN3
PIN5
PIN1
PIN2

GLASS-TO-METAL-SEAL
GOLD PLATED PINS

Ø 23.5
M12x1
11.6
41
HEX24

Pin Number	Description
1	(ALARM)
2	VSUPPLY
3	GND
4	SDA
5	SDC

MODULE

PIN1
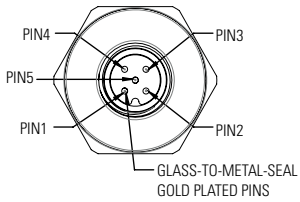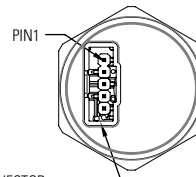
INTENDED FOR FEMALE CONNECTOR
AMTEK 5H2001N0-105PXBL00A01
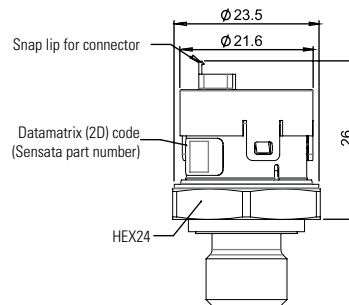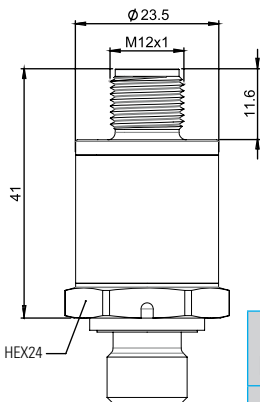
Ø 23.5
Ø 21.6
Snap lip for connector
Datamatrix (2D) code
(Sensata part number)
26
HEX24

Pin Number	Description
1	(ALARM)
2	VSUPPLY
3	GND
4	SDA
5	SDC

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ORDERING OPTIONS

PTE7300 with G1/4A thread with external FKM o-ring seal, M12 hermetic connector, I²C with 13 bit resolution output, 16bar full scale pressure, sealed gage, with no snubber.

| PTE7300 | - | XX* | A | M | - | 1 | B | 016 | S | N |

Series

PTE7300

Pressure Port

A: G1/4A DIN 3852-E
B: 1/4-19PT (R1/4)
C: 7/16-20 UNF-2A (MALE)
D: 1/4-18NPT

Electrical Connector

M: M12 5-pin glass-to-metal-seal (sensor only)
N: 5x1 2mm pitch pin to header (module only)

External Sealing

0: No sealing ring
1: FKM (Viton) sealing ring (only for G1/4A pressure port)
2: HNBR sealing ring (only for 7/16-20 UNF-2A MALE pressure port)

Output Type

B: I²C (13 ENOB + CRC)

Pressure Range

016: 0-16bar
050: 0-50bar
100: 0-100bar
200: 0-200bar
250: 0-250bar
350: 0-350bar
400: 0-400bar
500: 0-500bar (sensor only)
600: 0-600bar (sensor only)

Pressure Reference

S: Sealed gauge (M12 5-pin only)
B: Gauge (module only)

Snubber

N: No snubber
S: Snubber with 0.5 damping hole [5]

** Factory Specified

AGENCY APPROVALS & CERTIFICATIONS [1]

GENERAL NOTES

[1] If applicable, the customer shall verify if the pressure module is compliant to the CE EMC directive: 2014/30/EU in the customer's application

[2] Temperature is indirectly measured at the sensing element and is for reference only

[3] Best fit straight line accuracy includes errors from non-linearity, non-repeatability, and hysteresis

[4] Total error band accuracy includes errors from non-linearity, non-repeatability, hysteresis, zero offset, full span offset, and thermal effects

[5] Snubber not covered in drinking water safe approvals and certifications

[6] Drinking water approval pending

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WARNINGS

DANGER

RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE
• The product's side panels may be hot, allow the product to cool before touching
• Follow proper mounting instructions including torque values
• Do not allow liquids or foreign objects to enter this product
Failure to follow these instructions can result in serious injury, or equipment damage.

**Danger
Electric shock
risk**

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH
• Disconnect all power before installing or working with this equipment
• Verify all connections and replace all covers before turning on power
Failure to follow these instructions can result in death or serious injury.

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