PTE7300 Hermetic Sensor
New Product Training

December 2021

Content

- Introducing the PTE7300
- Value Proposition
- Competitive View
- Application Example 1 – Water Distribution Networks
- Application Example 2 – Gas Distribution Systems
- Application Example 3 – Fluid Power (Pneumatic and Hydraulic)
- Conversation Starters
- PTE7300 Dimensions
- PTE7300 Dimensions (Pressure Port Options)
- PTE7300 Ordering Options
- Available Collateral

Introducing the PTE7300

- 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

PTE7300 Features

- Measuring range from 0-16 bar to 0-600 bar (0-230 to 0-8700 psi)
- High accuracy
- Stainless steel design with hermetic port
- Snubber option for dampening of pressure spikes
- REACH/RoHS/UL/CE compliant
- Suitable for drinking water safe applications
- I^2C bus, allowing for multiple I^2C devices on same bus
- Low power consumption and fast response time
- Enhanced data integrity on both internal chip memory and sensor communication bus
- Good electromagnetic noise reduction
- Fully hermetic IP69K sensor or module design

Value Proposition

- Sensata's PTE7300 is the **most robust I²C pressure sensor** featuring the **highest shock and vibration resistance**, **best ingress protection**, and CRC on data and communications.

Rugged Design
Built to meet demanding applications with high vibration and shock requirements

IP69K Design
Hermetic M12 Connector option

Mid to High Pressure Range
Pressure ranges from 16-600 bar (230-8700 psi) with high proof and burst pressures

Configurable Port Design
Allows for many different port configurations

Enhanced Data Integrity
Cyclical Redundancy Check (CRC) assures you that communications and data are reliable

Easy integration
Small form factor option for flexible and easy integration

Competitive View*

*As of November 2021

	Sensata iMSG (PTE7300)	TE (M3200)	TE (MSP300)	WIKA (MPR1)
Technology	Micro-Fused Strain Gage	Micro-Fused Strain Gage	Micro-Fused Strain Gage	TBD
Max Pressure	600 bar	700 bar	1000 bar	25 bar
Accuracy (BFSL@25°C)	±0.5%	±0.25%	±1%	±0.25%
Temperature Reading	Yes	Yes	Yes	Yes
Power Consumption (Active Mode)	3.7 mA	3.5 mA	3.5 mA	2 mA
Power Consumption (Sleep Mode)	<6.5 µA Typical	5 µA	5 µA	5 µA
Response Time (from sleep mode)	<1 ms ✓	8.4 ms	8.4 ms	3 ms
Data Transmission Integrity	CRC on memory and data communication	CRC on memory	CRC on memory	CRC on memory
Sensor Diagnostics	Excellent ✓	Limited	Limited	Good
Fully Hermetic (GTMS)	Yes ✓	No	No	No
Configurability	Excellent ✓	Good	Good	Good
Proof/Burst Pressure	2.5X/10X ✓	2X/5X	2X/5X	2.5X
Shock resistance	500g ✓	50g	50g	100g
Vibration resistance	30g ✓	20g	20g	20g
Operating Temperature	-40°C to 125°C ✓	-40°C to 125°C	-20°C to 85°C	-20°C to 100°C
Ingress Protection	IP67 / IP69K ✓	IP67		None

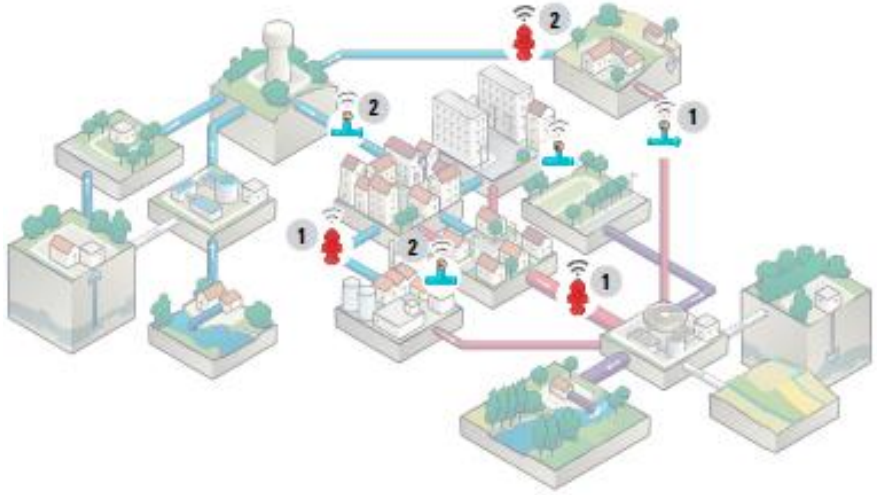
Application Example 1 – Water Distribution Networks

One of the biggest challenges the water utilities face is “non-revenue water” or the loss of water throughout their network that no one pays for. This accounts for 30-50% of the water input into the distribution networks.

As the world transitions to become smarter and more connected, water utilities are looking for innovative ways to combat this issue and cut down on non-revenue water. One of these trends is to use pressure sensors throughout the water distribution networks to be able to detect pressure drops and find locations with unnecessary water loss.

The PTE7300 is ideal for use in these applications due to its low power consumption and IP69K ingress protection rating. The PTE7300 fully hermetic design with glass-to-metal seal M12 connector ensure that no water will leak into the sensor throughout the application life.

- Low power consumption
- IP69K fully hermetic design
- Drinking water safe compatible



Application Example 2 – Gas Distribution Systems

Pressure sensors play an important role in monitoring and transporting pressurized air and medical gas throughout their distribution networks. The PTE7100/PTE7300 pressure sensors are ideal for these applications because they are designed with an all welded stainless steel port construction without the need for elastomer sealing.

Key functions that pressure transducer could be responsible for:

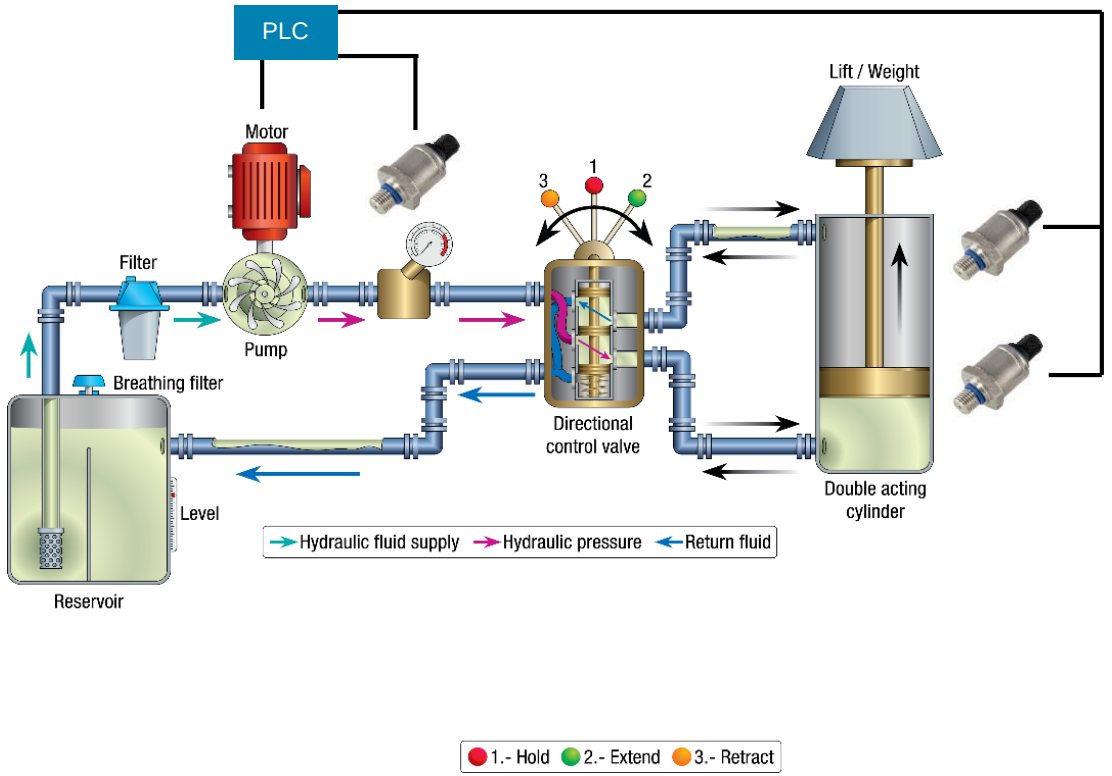
- Compressor control
- Intake and output flow-rate monitoring
- Gas cylinder depletion monitoring
- Air filter monitoring

Application Example 3 – Fluid Power (Pneumatic and Hydraulic)

- Fluid power (subdivided into hydraulics and pneumatics) is the use of pressurized fluids to generate, control and transmit power. Fluid power systems can produce high power and high forces in small volumes and have long service lives.

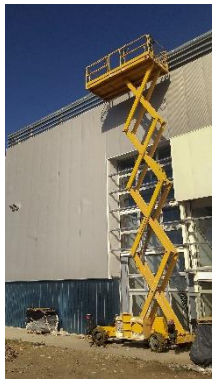
- Pressure sensors are used in a control loop with PLC to help control the fluid pump.

- Typical Industrial Fluid Power Applications include:
  - Machine tools
  - Injection molding
  - Steel making and metal extraction
  - Paper industries
  - Textile industry machinery
  - Disability lifts
  - Security and parking barriers



Conversation Starters

Opportunity Alert



PTE7300

- I need sensors with low power consumption because my application is battery powered…
- We prefer digital I^2C communication from the sensor…
- I am looking to digitize my system.

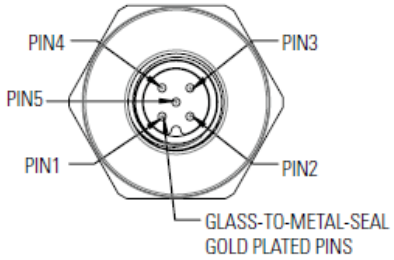
Qualifying the Customer?

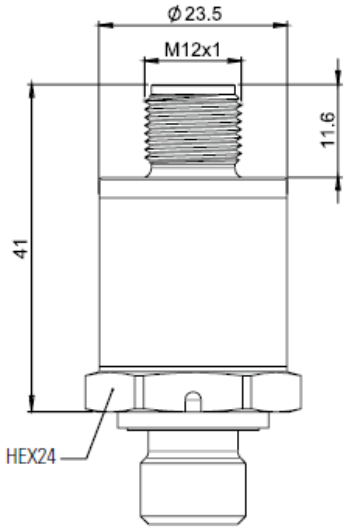
PTE7300

- Would knowing the system pressure help control your application?
- What fluid pressures are you looking to control?
- Does your application need to meet drinking water requirements?

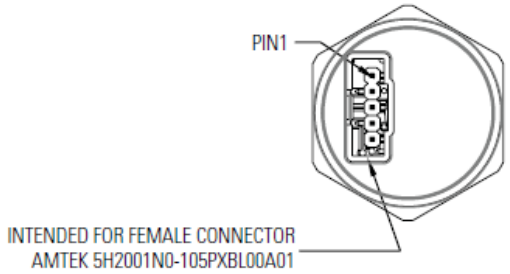
PTE7300 Dimensions

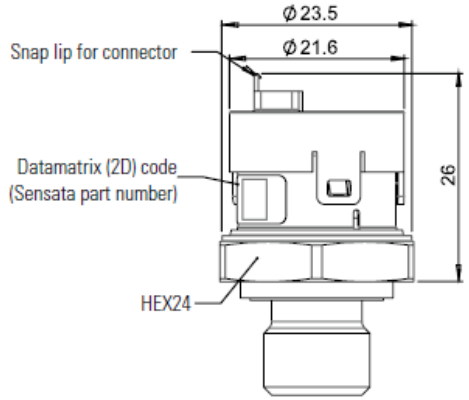
M12x1 5-POLE
IP69K





MODULE

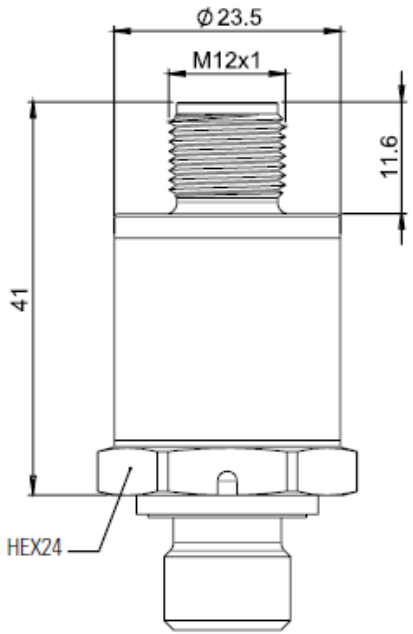




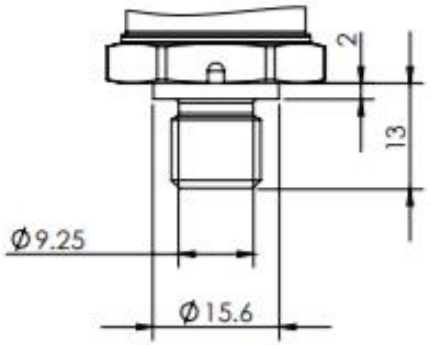
Pin Number	Description
1	(ALARM)
2	VSUPPLY
3	GND
4	SDA
5	SDC

PTE7300 Dimensions (Pressure Port Options)

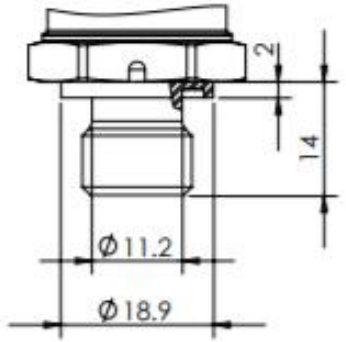
Overall Dimensions



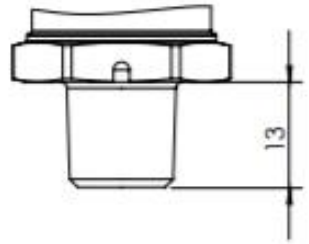
7/16-20 UNF-2A (MALE)



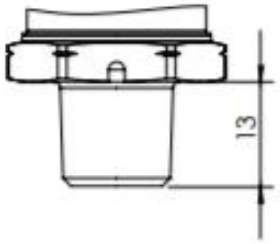
G1/4A DIN 3852-E



1/4-19 PT (R1/4)



1/4-18 NPTF



PTE7300 Ordering Options

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

Family

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
E: 7/16-20 UNF-2B (FEMALE)

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

A: I²C+ EOC

Pressure Range

016: 0-16bar
050: 0-50bar
100: 0-100bar
200: 0-200bar
250: 0-250bar
350: 0-350bar
400: 0-400bar
600: 0-600bar

Pressure Reference

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

Snubber

N: No snubber
S: Snubber with 0.5 damping hole(6)

Application Note

- **Adding Pressure Sensors to Water Distribution Networks** available at: http://sensata.com/resources/application-note-adding-pressure-sensors-water-distribution-networks

Collateral

- **PTE7300 Series I²C Pressure Sensor Installation & Communication Guide** available at: http://sensata.com/pte7300-series-i2c-pressure-sensor-installation-communication-guide

- **PTE7300 Series New Product Highlight Flyer** available in the brochures section: https://www.sensata.com/resources?f%5B0%5D=type%3Abrochures

- **Pressure Sensor Selection Guide** available at: http://sensata.com/resources/pressure-sensor-selection-guide-brochure

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