

# | 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 0-10 bar to 0-600 bar (0-145 to 0-8700 psi)
- Best in class accuracy and fast response time to meet the highest performance applications
- Digital pressure output and I<sup>2</sup>C 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 /UKCA compliant<sup>(1)</sup>

### 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

|   |  |
|---|--|
| <b>Pressure Ranges</b>                  | 0-10 bar to 0-600 bar (0-145 psi to 0-8700 psi)  |
| <b>Pressure Reference</b>               | Gauge (Module) and Sealed Gauge (fully hermetic sensor)  |
| <b>Supply Voltage</b>                   | 3.3VDC to 5.5VDC   |
| <b>Digital Interface</b>                | I <sup>2</sup> C with CRC (memory integrity, and data transmission)                                      |
| <b>Device Address</b>                   | 0xDA (including CRC)<br>0x6C (excluding CRC)   |
| <b>Operating Current In Sleep Mode</b>  | 6.5 uA (typical)   |
| <b>Operating Current In Active Mode</b> | 3.7mA typical (4mA maximum)  |
| <b>Available Data</b>                   | Pressure (int16)<br>Bridge temperature (int16) <sup>(2)</sup><br>Status (int16)<br>Device serial (int32) |
| <b>Resolution</b>                       | 15 bit   |
| <b>Response Time</b>                    | < 1 ms @ Default setting and active mode   |
| <b>Probe Configurations</b>             | On-demand, single cycle  |

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

## Physical

|                            |  |
|----------------------------|--|
| <b>Proof Pressure</b>      | 60bar for full scale pressure <sup>(1)</sup> = 10-29bar (145-420 PSI)<br>200bar for full scale pressure = 30-100bar (420-1450 PSI)<br>500bar for full scale pressure = 101-250bar (1450-3625 PSI)<br>800bar for full scale pressure = 251-400bar (3625-5800 PSI)<br>1200bar for full scale pressure = 401-600bar (5800-8700 PSI) |
| <b>Burst Pressure</b>      | 200bar for full scale pressure <sup>(1)</sup> = 10-29bar (145-420 PSI)<br>2000bar for full scale pressure = 30-100bar (420-1450 PSI)<br>2500bar for full scale pressure = 101-250bar (1450-3625 PSI)<br>4000bar for full scale pressure = 251-600bar (3625-5800 PSI)   |
| <b>Vibration</b>           | IEC 60068-2-6 with 2.0mm displacement, Sensor: 30g (10...2000Hz); Module: 20g (10...2000Hz)  |
| <b>Mechanical Shock</b>    | IEC 60068-2-27, 50g min (Module); IEC 60068-2-27, 500g min (fully hermetic sensor)   |
| <b>Drop (any Axis)</b>     | 1m   |
| <b>Water Hammer</b>        | 1.6X full scale pressure for 100k cycles, 1.3xFS for 200k cycles   |
| <b>Ingress Protection</b>  | IP00 (Module), IP69K (fully hermetic sensor)   |
| <b>Media Compatibility</b> | Fluids and Gases compatible with 17-4PH stainless steel  |

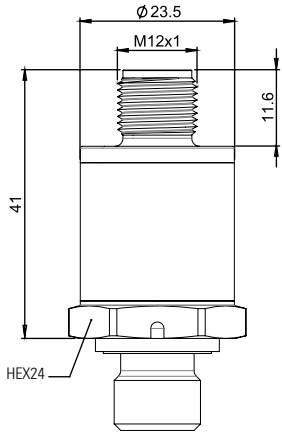
## Performance

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

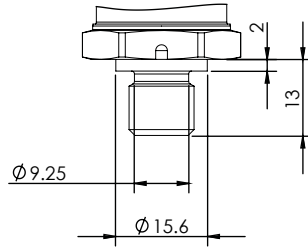
# DIMENSIONS

All dimensions are in millimeters

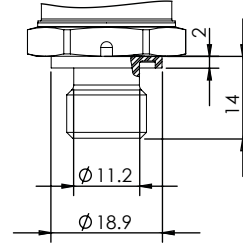
## Overall Dimensions



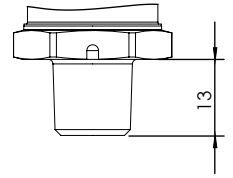
7/16-20 UNF-2A (MALE)



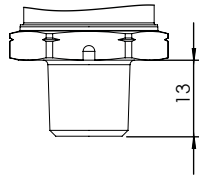
G1/4A DIN 3852-E



1/4-19 PT (R1/4)

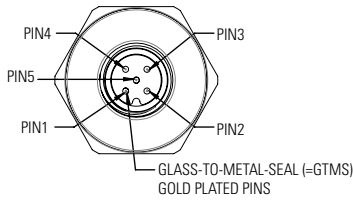


1/4-18 NPTF

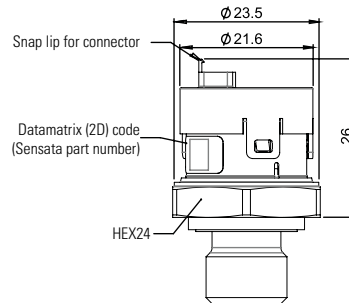
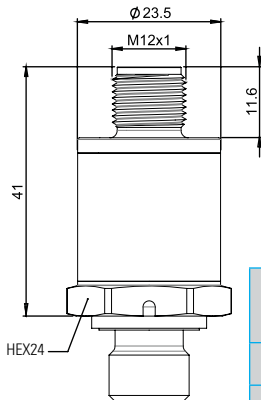
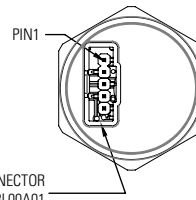


## Electrical Connector

GTMS SENSOR  
M12x1 5-POLE  
IP69K



MODULE  
IP00



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

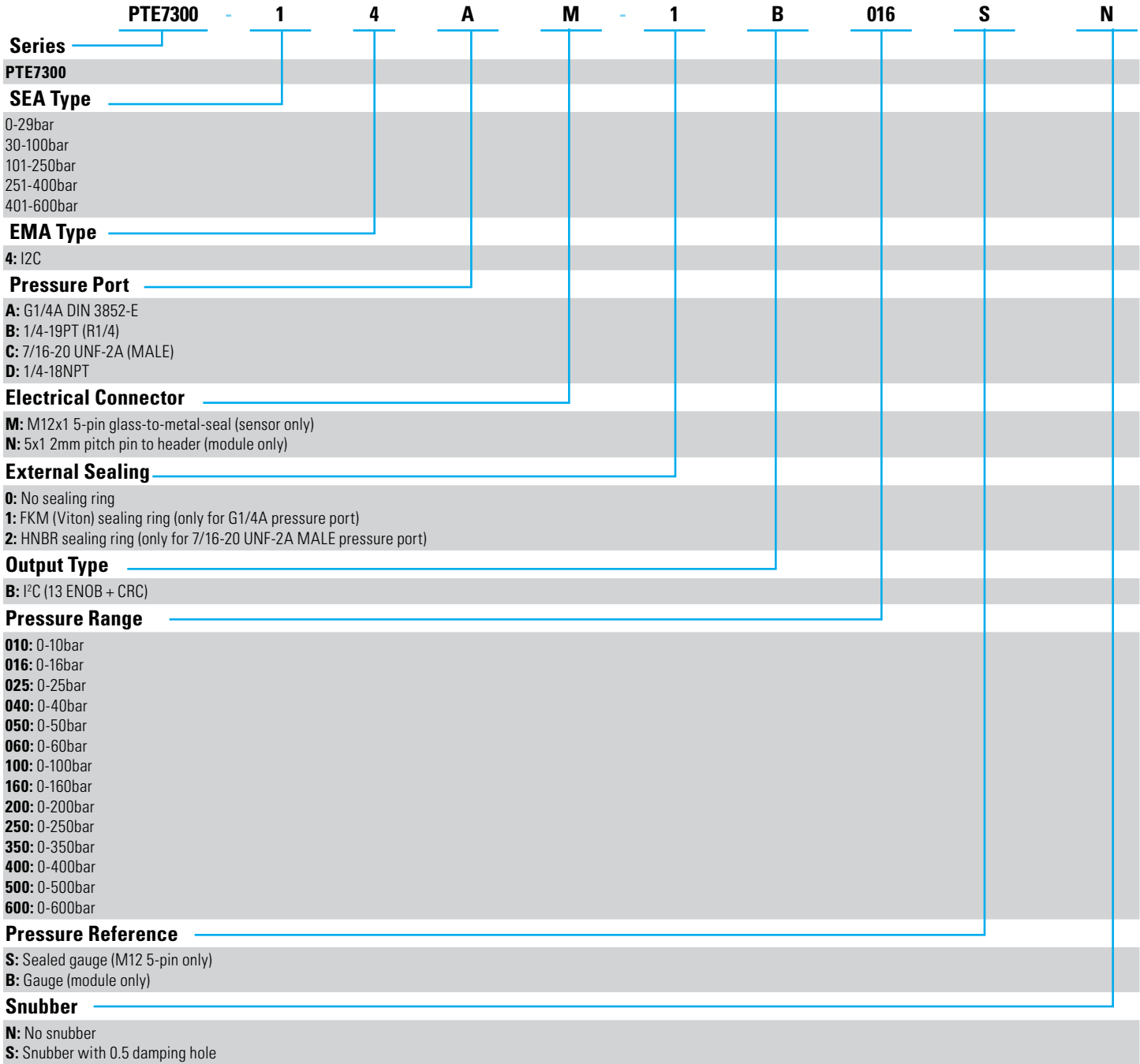
| Pin Number | Description |
|------------|-------------|
| 1          | (ALARM)     |
| 2          | VSUPPLY     |
| 3          | GND         |
| 4          | SDA         |
| 5          | SDC         |

# ORDERING OPTIONS

Example : PTE7300-14AM-1B016SN

PTE7300-XXXM-XXXXXXSX = GTMS-Sensor (Seal Gauge)  
 PTE7300-XXXN-XXXXXXBX = Module (Gauge)

PTE7300 with G1/4A thread with external FKM o-ring seal, M12x1 hermetic connector, I<sup>2</sup>C with 15 bit resolution output, 16bar full scale pressure, sealed gage, with no snubber.



# AGENCY APPROVALS & CERTIFICATIONS<sup>(1)</sup>



## GENERAL NOTES

- <sup>(1)</sup> If applicable, the customer shall verify if the pressure module (PTE7300-XXXN-XXXXXB) is compliant to the CE EMC directive: 2014/30/EU in the customer's application
- <sup>(2)</sup> Temperature is indirectly measured at the sensing element and is for reference only
- <sup>(3)</sup> Best fit straight line accuracy includes errors from non-linearity, non-repeatability, and hysteresis
- <sup>(4)</sup> Total error band accuracy includes errors from non-linearity, non-repeatability, hysteresis, zero offset, full span offset, and thermal effects

## WARNINGS



### 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.**



### 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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