

The **PRECISE** Digital Pressure Transmitter

PRECISE



PRECISE DPX Series

The PRECISE Digital Pressure Transmitter is an ultra high accuracy digital pressure and temperature sensor designed for high pressure measurement in critical applications in harsh environments where accuracy and stability of data are key to system performance.



Features & Benefits

- Pressure ranges up to 2000 bar/30000 psi
- Total accuracy $\pm 0.01\%FS$
- Long-term stability $\pm 0.01\%FS/year$
- Resolution $< 1 ppm$
- Shock & vibration resistant
- High overpressure capability
- Low current consumption
- Submersible version for deep water applications
- RS232 and RS485 communication
- 0-10V programmable pressure signal output

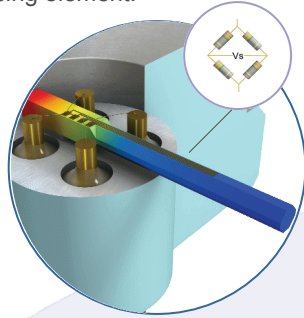


P R E S E N S
Pressure Sensor Technology

PRESENS Technology and Applications

Advanced Sensing Technology

At the core of the PRECISE sensor is PRESENS' patented tubular sensing element, well proven in subsea oil & gas applications for many years. Our piezoresistive sensors are distinguished for their reliability, robustness, long-term stability and high field accuracy. This is due to the unique features of our sensing element:



Silicon (Si) single crystal structure:

- Minimizes errors due to thermal and mechanical hysteresis
- Prevents long-term drift due to "creep"

Tubular design:

- Mechanical de-coupling of sensing area eliminates error due to mounting stress

Operation in compressive stress:

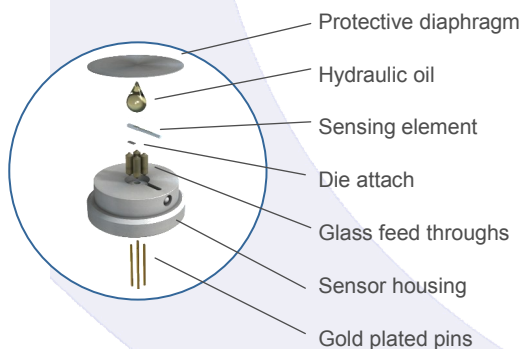
- Extreme tolerance to over-pressure and pressure spikes

Piezoresistive resistor bridge:

- Extremely stable
- Pressure and temperature measured simultaneously on same resistor bridge

Unique Pressure Module Design

- The isolation diaphragm is a perfect spring reducing pressure and temperature hysteresis
- A reduced oil volume decreases thermal errors
- A reduced oil volume improves protection against damage caused by transient step changes in pressure
- A thick isolation diaphragm improves protection against physical damage



Applications Areas

Oceanographic Applications:

- Vertical depth measurement
- Water temperature measurement
- AUVs & Submarines
- ROVs, towed arrays, bathymetry
- Tsunami detection
- Dynamic subsea positioning

High Pressure Calibration:

- Rugged high pressure transfer standard
- Laboratory reference
- Portable calibration equipment
- Pressure controllers
- Leak detection

Related Products

OEM Customized Pressure Sensor:

With our inhouse engineering facility we are able to offer focused solutions for customers with large quantity requirements using the Presens platform.



Subsea Production Wellhead Sensor:

The Asterix pT/TT Transmitter

- Pressure ranges up to 0-1035 bar/0-15000 psi
- Process temperature range -30°C to +150°C
- Accuracy up to 0.025%FS



Aerospace Pressure Sensor:

Swift Voltage Transducer

- Pressure ranges up to 0-560 bar/0-8000 psi
- Hydraulic systems
- Braking systems
- Small size & low mass
- Shock & vibration resistant



PRECISE Specifications

Models

DPX-3000: Non Submersible
DPX-3100: Submersible
DPX-2000 available upon request

Pressure Measurement

Pressure ranges *

DPX-3000:

Min. range 0 - 50bar
Max. range 0 - 2000bar

DPX-3100:

Min. depth range 0 - 50bar / 500mH₂O
Max. depth range 0 - 1100bar / 11000mH₂O **

* See ordering information for available pressure ranges

** 2000bar can be applied directly to the pressure port

Pressure References

Sealed Gauge and Absolute.

Overpressure

1.5 x FS ranges detailed above.

The maximum pressure that can be applied to a transducer without damage or change in performance beyond the specified tolerance.

Pressure Containment (Burst Pressure)

2 x FS ranges detailed above.

Pressure Scales

Bar, PSI, mH₂O, MPa, dBar.

Temperature Measurement

Temperature range:

-40 to 85°C / -40 to 185°F (max range).

Pressure Performance Specification

Accuracy Better than 0.01%FS within calibrated temperature range.

Hysteresis better than 0.005%FS.

Repeatability better than 0.01%FS.

Alternative accuracies available upon request.

Long Term Stability (drift)

0.01%FS/year max at reference conditions.

Resolution

Up to 1 ppm FS.

Acceleration (positional) Sensitivity

Less than 1 mbar/g.

Shock

IEC 60068-2-27: 30 g, 11 ms half-sine, 3x4 bidirectional shocks.
Operating within requirements.

Vibration

IEC 60068-2-6: Sinusoidal 5-1000 Hz, 20 g, 10 ct/min
IEC 60068-2-64: Random 20-2000 Hz, 6 grms, 2 hours
Operating within requirements.

Total Error Band

Defined as pressure hysteresis, temperature hysteresis, temperature effects, repeatability, non-linearity, zero offset and uncertainty of calibration equipment over a defined calibrated temperature range.

Better than 0.01%FS (FS ≥ 400bar) within calibrated temperature range.

Electrical Specification

Power Supply Voltage

9-30V.

Current Consumption

Typ. 4mA, Vdd = 24V, receive mode.

Pulse Power Excitation

Switch on to sample time in less than 1 second.

Output Signal and Protocol

RS232, RS485, 0 -10V programmable pressure signal output, Modbus Remote Terminal Unit (RTU).

Programmable Lowpass Filter

User definable down to 30 mHz.

EMC/RFI Certification

IEC 61326, 61000-6-2, 61000-6-3, 61000-6-4

Electrical Insulation

Greater than 100 Mohm at 100 VDC.

Physical Specification

Pressure Connection

Autoclave F250C 9/16", 10-32 UNF-2B, G 1/4" Male, G 1/4" Male with cone, 1/4" NPT Male.

Pressure Equipment Directive (PED)

97/23/EC - SEP.

Maximum Hyperbaric Pressure

DPX3100: 11000 mH₂O.

Operating Temperature Range

-40 to 85°C/-40 to 185°F (max range)

Storage Temperature Range

-50 to 100°C/-58 to 212°F.

Material

DPX3000:

Wetted Parts: Inconel 625.

Non Wetted Parts: Inconel 625 or AISI316.

DPX3100:

Wetted Parts: Inconel 625.

Non Wetted Parts: Inconel 625.

Electrical Connection

DPX3000:

1 meter shielded cable (Alphawire 45274). Longer cable lengths are available upon request.

DPX3100:

Burton 5506-1508 submersible connector.

SubConn BH8M submersible connector.

Seacon HUMK-12-BCR submersible connector.

CE Approval

Designed for electromagnetic compatibility.

Calibration Certificate

Unit supplied with a calibration certificate stating conformity to pressure performance specifications across calibrated pressure and temperature envelope. Traceable to international standards.

Warranty

Standard 2 year warranty. Optional extended 3 year warranty.

PRESENS PRECISE DPX Series

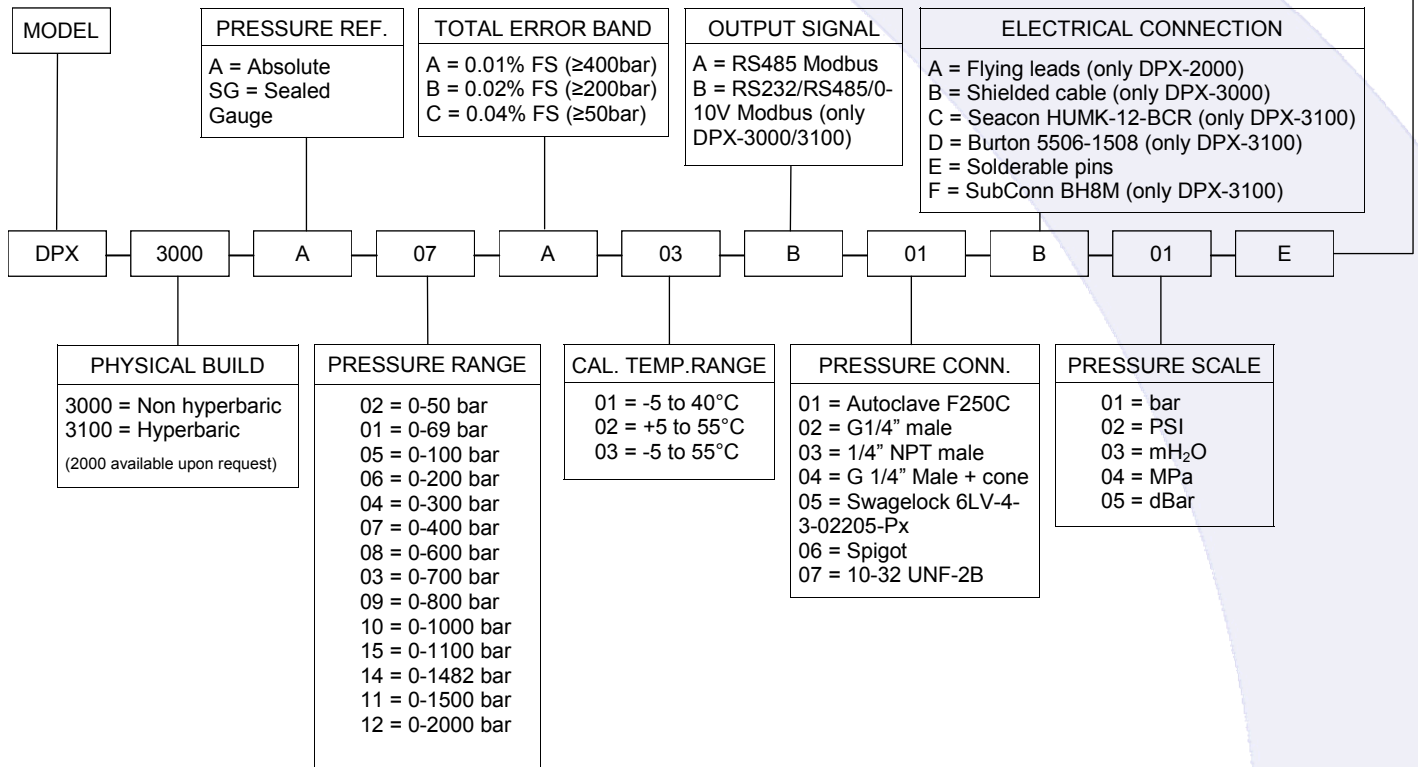
Ordering Information

Example Part Number: DPX-3000-A-07-A-03-B-01-B-01-E

Non-hyperbaric, absolute pressure reference, 0-400bar, $\pm 0.01\%$ FS, -5 to 55°C , RS232/RS485/0-10V Modbus, Autoclave F250C, shielded cable, bar, output filter rate set up.

Options

- A = Customized Calibration Certificate
- B = Customized Pressure Range
- C = Customized Interface Convertors
- D = Pressure Connection Sealing Washers
- E = Output Filter Rate Set Up
- F = Customized Calibrated Temperature Range
- G = Extended Warranty
- H = Additional Cable length
- I = Alternative Accuracy Definition



Dimensions

