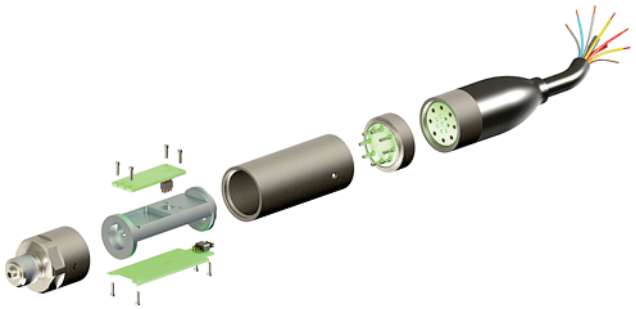
GE
Measurement & Control

The PRECISE DPS2000 Series

Digital Pressure Transmitter

The PRECISE DPS2000 Series 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 the data are key to system performance.



Features and Benefits

- Pressure ranges up to 1480 bar/21,000 psi
- Total accuracy < ±0.01% FS
- Long-term stability < ±0.01% FS/year
- Resolution < 2 ppm
- Shock and vibration resistant
- High overpressure capability
- Low current consumption
- RS-232 and RS-485 communication

Applications Areas

Oceanographic Applications:

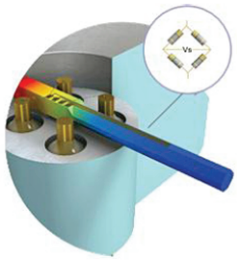
- Vertical depth measurement
- AUVs and Submarines
- ROVs, towed arrays, bathymetry
- Tsunami detection
- Dynamic subsea positioning

High Pressure Calibration:

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

Advanced Sensing Technology

At the core of the PRECISE sensor is PRESENS' patented tubular sensing element, well proven in subsea oil and gas applications for many years. Our piezoresistivesensors are distinguished for their reliability, robustness, long-term stability and high field accuracy. This is due to the unique features of the 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 decoupling of sensing area eliminates error due to mounting stress

Operation in compressive stress:

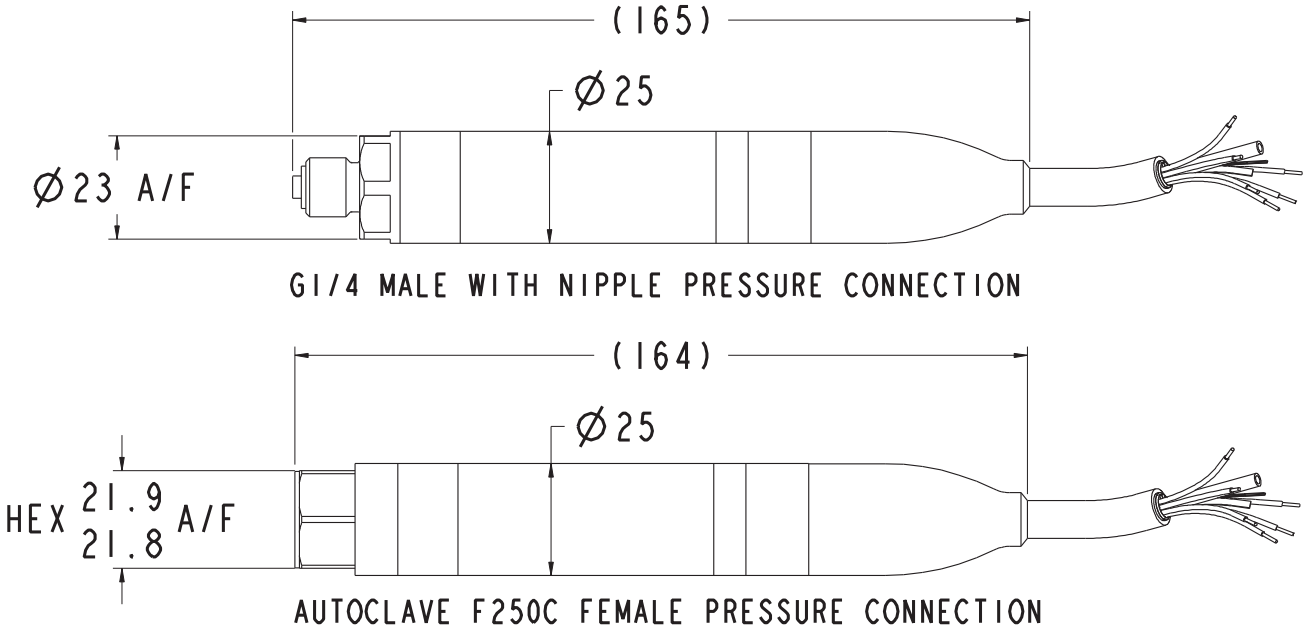
- Extreme tolerance to over-pressure and pressure spikes

Piezoresistive resistor bridge:

- Extremely stable
- Pressure and temperature measured simultaneously

Unique Pressure Module Design

- A thick isolation diaphragm improves protection against harsh environments
- A reduced oil volume decreases thermal errors
- A reduced oil volume improves protection against damage caused by transient step changes in pressure



Dimensional Drawing (all dimensions in mm)

PRECISE Specifications

Pressure Measurement

Pressure Ranges
Min. range: 0 to 50 bar
Max. range: 0 to 1480 bar

Pressure Reference
Absolute

Overpressure
1.5 x FS ranges listed above equals 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 listed above

Pressure Scales
bar, psi, mH_2O, MPa, dbar

Temperature Measurement

Temperature range:
±0.6°C over the compensated temperature range

Pressure Performance

Accuracy
For each specification, better than
A1 ±0.04% FS
A2 ±0.02% FS
A3 ±0.01% FS

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

Compensated Temperature Range:
-5 to 35°C (23 to 95°F)

Long Term Stability (drift):
0.01% FS/year max. at reference conditions

Resolution
<2 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

Electrical

Power Supply Voltage
8.5-30 Vdc

Current Consumption
Typ 4.8 mA, 24 V, receive mode

Pulse Power Excitation
Switch on to sample time in less than 1 second

Output Signal and Protocol
RS-232, and RS-485 programmable pressure signal output, Modbus Remote Terminal Unit (RTU)

Programmable Lowpass Filter
User definable down to 30 mHz

EMC/RFI Certification
IEC 61326, basic immunity test requirements

Electrical Insulation
Greater than 1 GΩ at 100 Vdc

Physical

Pressure Connection
Autoclave F250C 9/16", G 1/4" Male

Pressure Equipment Directive (PED)
97/23/EC - SEP

Operating Temperature Range
-40 to 85°C (-40 to 185°F)

Storage Temperature Range
-50 to 100°C (-58 to 212°F)

Material
Wetted Parts: Inconel 625
Non Wetted Parts: Inconel 625 or AISI316

Electrical Connection
1 metre shielded cable

CE Approval
Designed for electromagnetic compatibility

Calibration Certificate
Each unit is supplied with a calibration certificate stating conformity to pressure performance specifications across calibrated pressure and temperature envelope. The specifications are traceable to international standards.

PRECISE Part Number

1. Specify Part String

Model

DPS	Digital Pressure Transmitter									
	Series									
	2	High Precision								
		Build								
		0	Non-Hyperbaric							
			Electrical Connection							
			2	1 m Polyurethane Screened Cable (Depth) IP68						
				Output						
				B	RS-232/RS-485 Modbus					
					Compensated Temperature Range					
					TA	-5 to 35 °C				
						Accuracy				
						A1	Industrial 0.04%			
						A2	Improved 0.02% (200 bar and above)			
						A3	Premium 0.01% (400 bar and above)			
							Calibration			
							CC	Full Thermal Calibration		
								Hazardous area approval		
								H0	None	
									Pressure Connection	
									P1	G1/4 Male w/nipple, pressure ranges to 700 bar
									P2	9/16-18UNF F250C Female

2. Specify Pressure Range

0 to (50 to 1480 bar)

3. Specify Pressure Units

bar
psi
mH_20
MPa
dbar

Examples: DPS202B-TA-A3-CC-H0-P1 0 to 450 bar
DPS202B-TA-A2-CC-H0-P2 0 to 30 MPa

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920-667A