

Explosion Proof, Heavy Duty Pressure Transducer Series: PT-405



The PT-405 Explosion Proof, Heavy Duty Pressure Transducer gives you reliable accuracy in harsh conditions and hazardous locations. With a CSA certification for Class I, Division 1, Explosion Proof locations, an IP65 rated sensor body, and single seal construction for the highest safety factor, the PT-405 can survive in rough environments. With a standard accuracy of 0.25% BFS, and NIST certificates available for 0.5%, 0.25%, and 0.1%, the PT-405 is sensitive enough to give you precise pressure measurements over its 30,000 psi range. Durability, reliability, and sensitivity, all in one tough little package.

Features

- Available ranges from -15 - 30,000 psi
- Standard Outputs: 4-20 mA, 0-5 VDC, 0.5-4.5 VDC, 1-5 VDC, 0-10 VDC, RS-485
- High overpressure capability
- Zero and Span adjustments
- cCSAus hazardous location approved (up to 30,000 psi)
- Single seal for highest safety protection factor



PT-405 Specifications



*Overall length may vary depending on process connection.

Performance

- Accuracy (linearity & hysteresis): $\pm 0.25\%$ of full scale (BFSL)
- Standard Pressure Ranges: -15 - 30,000 psi
- Stability - One Year Zero Drift: 17-4 / 316L: $\leq \pm 0.5\%$ FS
- Overpressure: 1.5x full scale
- Burst Pressure: up to 3x full scale or limit of process connection
- Frequency Response: Less than 5ms

Connectivity

- Output: 4-20 mA (2 wire, loop-powered)
0-5, 0.5-4.5, 1-5, 0-10 VDC (non-isolated 3 wire)
Modbus/RTU (RS-485) with temp. output

Environmental

- Standard Compensated Temp.:
 - ≤ 10 psi: $0^\circ - 60^\circ\text{C} / 32^\circ - 140^\circ\text{F}$
 - $10 < x \leq 1000$ psi: $-10^\circ - 70^\circ\text{C} / 14^\circ - 158^\circ\text{F}$
 - > 1000 psi: $-17^\circ - 54^\circ\text{C} / 0^\circ - 130^\circ\text{F}$
- Storage Temp: $-40^\circ - 82^\circ\text{C} / -40^\circ - 180^\circ\text{F}$
- Operating Temp: $-40^\circ - 85^\circ\text{C} / -40^\circ - 185^\circ\text{F}$

Electrical

- Supply Voltage: 4-20 mA, 0-5 / 0.5-4.5 / 1-5 VDC: 9-28 VDC
0-10 VDC: 12.5-28 VDC
Modbus/RTU (RS-485): 9-28 VDC
- Electrical Connection: Pigtail with flying leads (4-foot minimum length)
- Electrical Protection: Protected against reverse polarity, surge per IEC 61000-4-5

Certification

- CSA/cCSAus Contract #237484
Ambient: -40° to 85°C
Max. Working Pressure: 30,000 psi
Single Seal
4-20mA, 0-5/0.5-4.5/1-5 VDC, 0-10 VDC, RS-485/Modbus
- Explosion Proof: Class I, Div. 1, Groups C & D

Physical

- Weight: 0.9 - 1.5 lbs. (408 - 680 g) typical
- Wetted Materials: 316L Stainless Steel ($\leq 1,000$ psi)
17-4 Stainless Steel ($> 1,000$ psi)
Incoloy ($> 10,000$ psi)
- Incoloy conforms to NACE MR-01-75 and ISO 1516-3

Common Model Configurations

Short can, 1/2" Male NPT 5 ft flying leads, Standard Temperature Range

| Model Number | Model Description |
|--|--|
| PT-405-L1-15-PSIA-E60-5-P0-N12-M1-S10 | 4-20 mA, 0-15 PSI, Absolute Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C |
| PT-405-L1-5-PSIS-E60-5-P0-N12-M1-S9 | 4-20 mA, 0-5 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, 0° - 60°C |
| PT-405-L1-15-PSIS-E60-5-P0-N12-M1-S10 | 4-20 mA, 0-15 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C |
| PT-405-L1-30-PSIS-E60-5-P0-N12-M1-S10 | 4-20 mA, 0-30 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C |
| PT-405-L1-50-PSIS-E60-5-P0-N12-M1-S10 | 4-20 mA, 0-50 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C |
| PT-405-L1-100-PSIS-E60-5-P0-N12-M1-S10 | 4-20 mA, 0-100 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C |
| PT-405-L1-200-PSIS-E60-5-P0-N12-M1-S10 | 4-20 mA, 0-200 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C |
| PT-405-L1-300-PSIS-E60-5-P0-N12-M1-S10 | 4-20 mA, 0-300 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C |
| PT-405-L1-500-PSIS-E60-5-P0-N0-M1-S10 | 4-20 mA, 0-500 PSI, Sealed Gauge Pressure, 316L SS, 0.25% Accuracy, -10° - 70°C |
| PT-405-L1-1000-PSIS-E60-5-P0-N0-M1-S10 | 4-20 mA, 0-1 kPSI, Sealed Gauge Pressure, 316L SS, 0.25% Accuracy, -10° - 70°C |
| PT-405-L1-5000-PSIS-E60-5-P0-N0-M2-S0 | 4-20 mA, 0-5 kPSI, Sealed Gauge Pressure, 17-4 SS, 0.25% Accuracy, -17° - 54°C |
| PT-405-L1-7500-PSIS-E60-5-P0-N0-M2-S0 | 4-20 mA, 0-5 kPSI, Sealed Gauge Pressure, 17-4 SS, 0.25% Accuracy, -17° - 54°C |
| PT-405-L1-10000-PSIS-E60-5-P0-N0-M2-S0 | 4-20 mA, 0-10 kPSI, Sealed Gauge Pressure, 17-4 SS, 0.25% Accuracy, -17° - 54°C |
| PT-405-L1-10000-PSIS-E60-5-P56-N12-M7-S0 | 4-20 mA, 0-10 kPSI, Sealed Gauge Pressure, Incoloy, 0.5% Accuracy, -17° - 54°C |
| PT-405-L1-15000-PSIS-E60-5-P56-N12-M7-S0 | 4-20 mA, 0-15 kPSI, Sealed Gauge Pressure, Incoloy, 0.5% Accuracy, -17° - 54°C |

Model Configuration Options



Model Number: PT-405 - - - - - - - - - -

A B C D E F G H I J

A. Operation / Output

- L1**[▲] 4 - 20 mA output
- L3** 0 - 5 VDC output
- L10** 0 - 10 VDC output
- L12** 1 - 5 VDC output
- L20** 0.5 - 4.5 VDC output

Modbus

- L5** RS-485 (Modbus/RTU), 4-wire
Pressure reading (psi) only
- L31** RS-485 (Modbus/RTU), 4-wire
Level calculations (mmH₂O), tank volume

B. Common Pressure Ranges - PSI*

- | | | | | |
|------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|
| <input type="checkbox"/> 5 | <input type="checkbox"/> 50 | <input type="checkbox"/> 200 | <input type="checkbox"/> 1000 | <input type="checkbox"/> 5000 |
| <input type="checkbox"/> 15 | <input type="checkbox"/> 60 | <input type="checkbox"/> 300 | <input type="checkbox"/> 2000 | <input type="checkbox"/> 10000 |
| <input type="checkbox"/> 30 | <input type="checkbox"/> 100 | <input type="checkbox"/> 500 | <input type="checkbox"/> 3000 | <input type="checkbox"/> 30000 |

*Other ranges available. Please consult factory.

C. Units of Measure

- | | | | | |
|--|-------------------------------------|--|--|--------------------------------------|
| <input type="checkbox"/> psi [▲] | <input type="checkbox"/> bar | <input type="checkbox"/> kPa | <input type="checkbox"/> inH₂O | <input type="checkbox"/> inWC |
| <input type="checkbox"/> fH₂O | <input type="checkbox"/> fWC | <input type="checkbox"/> mmH₂O | <input type="checkbox"/> inHG | |

D. Pressure Type

- A** Absolute (≤ 200 psi)
- S**[▲] Sealed (≤ 30,000 psi)

E. Electrical Connection

- E60** 1/2 in. male NPT with flying leads, short cant
- E60L** 1/2 in. male NPT with lying leads, long cant†

† Standard for L1, L3, L10, L12, L20. Not available for L5, L31

†† Standard for L5, L31.

[▲]This option is standard

F. Electrical Cable Length*

- _** Number represents length of flying leads in feet
4-ft length required minimum, 25-ft maximum.
(ex. E60-10 equals short can, 10 ft leads)

*Note: All cable must be in conduit.

G. Process Connection

- P0**[▲] 1/4 - 18 male NPT (≤ 10,000 psi)
- P1** 1/2 - 14 male NPT (≤ 10,000 psi)
- P5** 1/4 - 18 female NPT (≤ 15,000 psi)
- P6** 1/2 female NPT (≤ 10,000 psi)
- P38** 1 1/2 in. tri-clover with 3/4 in. diaphragm (≤ 1,000 psi)
- P52** 1 1/2 in. male NPT (≤ 1,000 psi)
- P54** 7/16 - 20 UNJF-3A Male w/ Cone (≤ 1,000 psi)
- P56** F250C High Pressure (10,000 psi - 30,000 psi)
- P57** F562-C40 High Pressure (10,000 psi - 30,000 psi)

H. Accuracy

1 - 5,000 PSI

- N0**[▲] ±0.25% (1% for pressure ≤ 1 psi)
- N1**^{*} ±0.25% with NIST certification
- N2** ±0.1% with NIST certification
- N12** ±0.5% (required for < 500 psi)
- N13** ±0.5% with NIST certification

*Note: ±0.25% available up to 10,000 psi for 4-20 mA output only

Up to 30,000 PSI

- N12** ±0.5%
- N13** ±0.5% with NIST certification

I. Materials

- M1**[▲] 316L SS (≤ 1,000 psi)
- M2** 17-4 SS (> 1,000 psi)
- M7** Incoloy (10,000 - 30,000 psi; P56/P57 only)

J. Compensated Temperature Range

- S0**[▲] -17° - 54°C / 0° - 130°F (> 1000 psi)
- S1** -40° - 82°C / -40° - 180°F (> 1,000 psi)
- S3** -34° - 77°C / -30° - 170°F (> 1,000 psi)
- S9**[▲] 0° - 60°C / 32° - 140°F (≤ 10 psi)
- S10**[▲] -10° - 70°C / 14° - 158°F (10 < x ≤ 1000 psi)