

# 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.:  $\leq 10$  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:  $-40^\circ$  to  $85^\circ\text{C}$   
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" NPTM 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, <b>0-15 PSI, Absolute Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C</b>
PT-405-L1-5-PSIS-E60-5-P0-N12-M1-S9	4-20 mA, <b>0-5 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, 0° - 60°C</b>
PT-405-L1-15-PSIS-E60-5-P0-N12-M1-S10	4-20 mA, <b>0-15 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C</b>
PT-405-L1-30-PSIS-E60-5-P0-N12-M1-S10	4-20 mA, <b>0-30 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C</b>
PT-405-L1-50-PSIS-E60-5-P0-N12-M1-S10	4-20 mA, <b>0-50 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C</b>
PT-405-L1-100-PSIS-E60-5-P0-N12-M1-S10	4-20 mA, <b>0-100 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C</b>
PT-405-L1-200-PSIS-E60-5-P0-N12-M1-S10	4-20 mA, <b>0-200 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C</b>
PT-405-L1-300-PSIS-E60-5-P0-N12-M1-S10	4-20 mA, <b>0-300 PSI, Sealed Gauge Pressure, 316L SS, 0.5% Accuracy, -10° - 70°C</b>
PT-405-L1-500-PSIS-E60-5-P0-N0-M1-S10	4-20 mA, <b>0-500 PSI, Sealed Gauge Pressure, 316L SS, 0.25% Accuracy, -10° - 70°C</b>
PT-405-L1-1000-PSIS-E60-5-P0-N0-M1-S10	4-20 mA, <b>0-1 kPSI, Sealed Gauge Pressure, 316L SS, 0.25% Accuracy, -10° - 70°C</b>
PT-405-L1-5000-PSIS-E60-5-P0-N0-M2-S0	4-20 mA, <b>0-5 kPSI, Sealed Gauge Pressure, 17-4 SS, 0.25% Accuracy, -17° - 54°C</b>
PT-405-L1-7500-PSIS-E60-5-P0-N0-M2-S0	4-20 mA, <b>0-5 kPSI, Sealed Gauge Pressure, 17-4 SS, 0.25% Accuracy, -17° - 54°C</b>
PT-405-L1-10000-PSIS-E60-5-P0-N0-M2-S0	4-20 mA, <b>0-10 kPSI, Sealed Gauge Pressure, 17-4 SS, 0.25% Accuracy, -17° - 54°C</b>
PT-405-L1-10000-PSIS-E60-5-P56-N12-M7-S0	4-20 mA, <b>0-10 kPSI, Sealed Gauge Pressure, Incoloy, 0.5% Accuracy, -17° - 54°C</b>
PT-405-L1-15000-PSIS-E60-5-P56-N12-M7-S0	4-20 mA, <b>0-15 kPSI, Sealed Gauge Pressure, Incoloy, 0.5% Accuracy, -17° - 54°C</b>

# Model Configuration Options



Model Number: PT-405 -      -      -      -      -      -      -      -      -      -       
                                  A      B      C      D      E      F      G      H      I      J

## A. Operation / Output

- L1**<sup>▲</sup> 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 (mmH<sub>2</sub>O), 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"/> <b>psi</b> <sup>▲</sup> | <input type="checkbox"/> <b>bar</b> | <input type="checkbox"/> <b>kPa</b>              | <input type="checkbox"/> <b>inH<sub>2</sub>O</b> | <input type="checkbox"/> <b>inWC</b> |
| <input type="checkbox"/> <b>fH<sub>2</sub>O</b>  | <input type="checkbox"/> <b>fWC</b> | <input type="checkbox"/> <b>mmH<sub>2</sub>O</b> | <input type="checkbox"/> <b>inHG</b>             |                                      |

## D. Pressure Type

- A** Absolute ( ≤ 200 psi)
- S**<sup>▲</sup> Sealed ( ≤ 30,000 psi)

## E. Electrical Connection

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

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

†† Standard for L5, L31.

<sup>▲</sup>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**<sup>▲</sup> 1/4 - 18 NPTM ( ≤ 10,000 psi)
- P1** 1/2 - 14 NPTM ( ≤ 10,000 psi)
- P5** 1/4 - 18 NPTF ( ≤ 15,000 psi)
- P6** 1/2 NPTF ( ≤ 10,000 psi)
- P38** 1 1/2 in. tri-clover with 3/4 in. diaphragm ( ≤ 1,000 psi)
- P52** 1 1/2 in. NPTM ( ≤ 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** F560C40 High Pressure (10,000 psi - 30,000 psi)

## H. Accuracy

### 1 - 5,000 PSI

- N0**<sup>▲</sup> ±0.25% (1% for pressure ≤ 1 psi)
- N1**<sup>\*</sup> ±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**<sup>▲</sup> 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**<sup>▲</sup> -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**<sup>▲</sup> 0° - 60°C / 32° - 140°F ( ≤ 10 psi)
- S10**<sup>▲</sup> -10° - 70°C / 14° - 158°F (10 < x ≤ 1000 psi)