# PT-400 Heavy Duty, Amplified Output Pressure Transducer

The PT-400 offers high accuracy and reliability over a wide range of pressures. The small size, integrated electronics, wide operating temperature range, ATEX and IECEx approval, and durability, make the PT-400 the perfect instrument for static and dynamic pressure measurements with an amplified output signal.

## Features

- Available ranges from 0 - 10,000 psi
- Standard Outputs: 4-20 mA, 0-5 VDC, 0-10 VDC, RS-485
- High overpressure capability
- Zero and Span adjustments
- cCSAus hazardous location approved
- ATEX Approved
- IECEx Approved

# Built For Reliability In Tough Applications

## Ideal For Extreme Vibration

In the world of heavy industry, there's a lot of big machines that can produce powerful vibrations. Big pumps, drilling rigs, large engines, you name it! The PT-400 is built for durability in these tough applications.

To ensure maximum reliability, we zero-in on the details - like using the best steel and the strongest laser welds. We carefully tie all wires down using a variety of methods. All soldering is done by IPC J-STD-001 certified technicians. We even fill the entire housing with industrial potting to dampen vibrations.


## Can Take The Shock

That tough build is good for more than just vibration. The PT-400 handles shock well, too. That's important in environments where things like water hammer or plain and simple rough handling are commonplace.

## Global Hazardous Area Certifications

The PT-400 is certified compliant with Class 1, Zone 0 requirements in North America, ATEX in Europe, and IECEx for just about anywhere else. So it's ideal for markets like the Oil & Gas or Water & Wastewater industries that deal with flammable gases.

## 2 Week Lead Time For Configured Models

We stock a variety of commonly configured PT-400 models that ship as you order. But if these won't do and you need a unique version, we'll build it quick - typically in just 2 weeks.

## Typical Applications

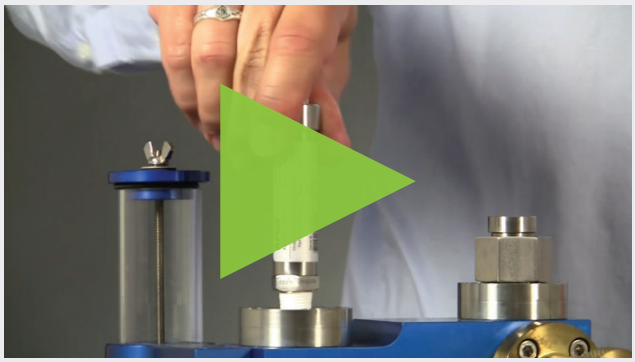
The PT-400 is perfect for a variety of applications - anywhere durability is a concern. It's ideally suited for the following:

- Fracking
- Acidizing
- Cementing
- Wellhead pressure
- Pump monitoring
- Wastewater treatement
- Gas compressors
- Engine compression
- Gas pressure chambers
- Tank level
- Chemical processing

### ARTICLE: When To Use Heavy Duty Pressure Transducers

Not sure if you need the robust design of the PT-400? It's a valid concern. Perhaps this article will help. Scan the QR code to the right to read about the difference between light duy and heavy duty pressure transducers, and when to use each.

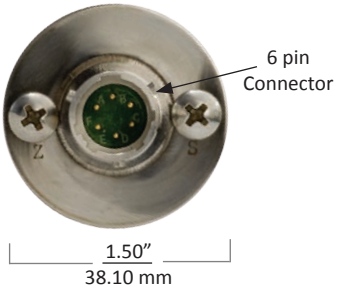
### VIDEO TUTORIAL: How To Install A Threaded Pressure Transducer



Installing pressure transducers isn't complicated, but it is critical. This video will help you do it right:

# PT-400 Specifications






*Overall length may vary depending on process connection.

## Performance

- Accuracy (linearity & hysteresis):
  ±0.25% of full scale (BFSL)
- Standard Pressure Ranges: 0 - 10,000 psi
- Stability - One Year Zero Drift:
  17-4 / 316L: <±0.5% FS
- Overpressure: 2x 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 VDC, 0-10 VDC (non-isolated 3 wire)
  Modbus/RTU (RS-485) with temp. output

## Environmental

- Standard Compensated Temp.: -17° to 54°C (0° to 130°F)
- Storage Temp: -40° to 82° C (-40° to 180°F)
- Operating Temp: -40° to 85° C (-40° to 185° F)

## Physical

- Weight: 10 oz. (283 g) typical
- Wetted Materials: 17-4 SS, 316L SS

## Electrical

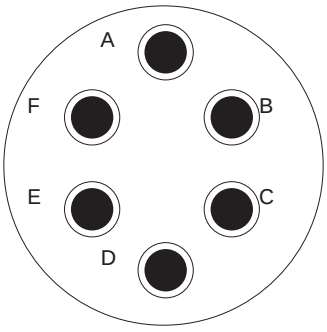
- Supply Voltage:
  4-20 mA, 0-5 VDC: 9-28 VDC
  0-10 VDC: 12.5-28 VDC
  Modbus/RTU (RS-485): 9-28 VDC
- Electrical Connection:
  Pigtail with cable or connector
- Electrical Protection:
  Protected against reverse polarity, surge per IEC 61000-4-5

## Certification

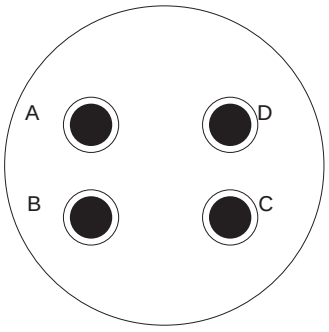
- CSA/cCSAus Contract #237484
  Ambient: -40° to 85°C
  Max. Working Pressure: 10,000 psi
  0-5 VDC, 0-10 VDC, 4-20mA
  - IS: Class I, Div. 2, Groups C & D; Ex nL IIB T4
  - Class I, Zone 2; AEx nL IIB T4
  4-20 mA
  - IS: Class I, Div. 1, Groups C & D; Ex ia IIB T4
  - Class I, Zone 0; AEx ia IIB T4
- ATEX
  4-20 mA
  - Ex II 1G Ex ia IIB T4 Ga
- IECEx
  4-20 mA
  - Ex ia IIB T4 Ga

## PT-400 Pin Out Table

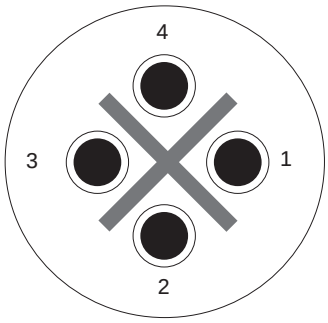
| | | 4-20 mA | 0-5 VDC | 0-10 VDC | RS-485 |
|---|---|---|---|---|---|
| 6-Pin Bayonet | A | + Excitation | + Excitation | + Excitation | + Excitation |
| | B | - Excitation | + Output | + Output | - Excitation |
| | C | N/C | - Output | - Output | N/C |
| | D | N/C | - Excitation | - Excitation | B (Tx-) |
| | E | N/C | N/C | N/C | A (Tx+) |
| | F | N/C | N/C | N/C | Case GND |
| 4-Pin Bayonet | A | + Excitation | + Excitation | + Excitation | N/A |
| | B | - Excitation | + Output | + Output | N/A |
| | C | N/C | - Output | - Output | N/A |
| | D | N/C | - Excitation | - Excitation | N/A |
| 4-Pin M12 | 1 | + Excitation | + Excitation | + Excitation | + Excitation |
| | 2 | - Excitation | + Output | + Output | A (Tx+) |
| | 3 | N/C | - Output | - Output | - Excitation |
| | 4 | N/C | - Excitation | - Excitation | B (Tx-) |
| Pigtail | Red | + Excitation | + Excitation | + Excitation | + Excitation |
| | Grn | N/C | + Output | + Output | B (Tx-) |
| | Wht | N/C | - Output | - Output | A (Tx+) |
| | Blk | - Excitation | - Excitation | - Excitation | - Excitation |
| | Shld | Ground | Ground | Ground | Ground |




6 Pin Bayonet Connector




4 Pin Bayonet Connector




4 Pin M12 Micro Connector

# Common Model Configurations

**1/2" NPTM with 5 ft cable, 1/4" NPTM Process Connection**

| Model Number | Model Description |
|---|---|
| PT-400-L1-15-PSIA-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-15 PSI, Absolute** Pressure Reference, Standard Temp. |
| PT-400-L1-5-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-5 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-15-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-15 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-30-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-30 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-50-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-50 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-100-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-100 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-200-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-200 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-300-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-300 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-500-PSIG-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-500 PSI, Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-1000-PSIS-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-1000 PSI, Sealed Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-5000-PSIS-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-5000 PSI, Sealed Gauge** Pressure Reference, Standard Temp. |
| PT-400-L1-10000-PSIS-E19-5-P0-N0-M1-S0 | 4-20 mA Output, **0-10000 PSI, Sealed Gauge** Pressure Reference, Standard Temp. |

## PT-400 Accessories

Please order separately, by part number.

| Description | Part Number |
|---|---|
| 4 pin bayonet mating connector (E3) Connector Only | 509010 |
| 4 pin bayonet mating connector (E3) with 2 ft cable (L1, L3, L10 only) | 509010-1002 |
| 4 pin bayonet mating connector (E3) with 5 ft cable (L1, L3, L10 only) | 509010-1005 |
| 4 pin bayonet mating connector (E3) with 10 ft cable (L1, L3, L10 only) | 509010-1010 |
| 4 pin bayonet mating connector (E3) with 25 ft cable (L1 only) | 509010-1025 |
| 4 pin bayonet mating connector (E3) with 50 ft cable (L1 only) | 509010-1050 |
| | |
| 6 pin bayonet mating connector (E17) Connector only | 509120 |
| 6 pin bayonet mating connector (E17) with 2 ft cable | 509120-1002 |
| 6 pin bayonet mating connector (E17) with 10 ft cable | 509120-1010 |
| 6 pin bayonet mating connector (E17) with 25 ft cable | 509120-1025 |
| 6 pin bayonet mating connector (E17) with 50 ft cable | 509120-1050 |
| | |
| 4 pin female micro connector (M12) mating connector (E4) Field wireable | 509087 |
| 4 pin female micro connector (M12) mating connector (E4) with 2 m molded cable | 135407-0002 |
| 4 pin female micro connector (M12) mating connector (E4) with 5 m molded cable | 135407-0005 |

# Model Configuration Options

Model Number: PT-400 - ____ - ____ - ____ - ____ - ____ - ____ - ____ - ____ - ____ - ____

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

## Modbus

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

## B. Common Pressure Ranges - PSI*

| | | | | |
|---|---|---|---|---|
| □ **5** | □ **50** | □ **200** | □ **1000** | □ **5000** |
| □ **15** | □ **60** | □ **300** | □ **2000** | □ **10000** |
| □ **30** | □ **100** | □ **500** | □ **3000** | |

*Other ranges available. Please consult factory.

## C. Units of Measure

□ **psi**▲ □ **bar** □ **kPa** □ **kgcm²** □ **fsw**

## D. Pressure Type

- □ **A** Absolute (≤ 500 psi)
- □ **S**▲ Sealed (≥ 500 psi)
- □ **G** Gauge (≤ 500 psi)
- □ **CG** Compound Gauge (≤ 500 psi)
- □ **V** VAC

## E. Electrical Connection

- □ **E3** 4 pin bayonet (PT 1H-8-4P or equiv.)
- □ **E4** 4 pin M12 micro connector.
- □ **E5**▲ Pigtail with cable (specify cable length below)
- □ **E6** 4 pin per DIN 43650, short can
  (mating connector included)
- □ **E17** 6 pin bayonet (PT02E-10-6P) short can
- □ **E18** 1/2 in NPTM with 6 in flying leads, short can
- □ **E19** 1/2 in NPTM with cable, short can
- □ **E36** 1/2 in NPTM with 6 in flying leads, long can
- □ **E38** 1/2 in NPTM with cable, long can
- □ **E39** 4 pin per DIN 43650 w/Solderless screw, long can
  (mating connector included)
- □ **E45** 4 pin minifast Turck

Note: Mating connectors sold separately unless noted.

▲This option is standard

## F. Electrical Cable Length

- □ __ Number represents cable length, in 5-ft increments, included on E5, E19, & E38 options.
  (ex. E5-10 equals pigtail, 10 ft cable)

## G. Process Connection

- □ **P0**▲ 1/4 - 18 NPTM, 316L SS
- □ **P1** 1/2 - 14 NPTM
  17-4 SS above 500 psi; 316L SS below 500 psi
- □ **P5** 1/4 - 18 NPTF
  17-4 SS above 500 psi; 316L SS below 500 psi
- □ **P6** 1/2 NPTF
  17-4 SS above 500 psi; 316L SS below 500 psi
- □ **P9** H.P. SnoTrik female (F-250C, Autoclave female)
- □ **P30** H.P. SnoTrik male (M-250C, Autoclave male)
- □ **P38** 1 1/2 in. tri-clover with 3/4 in. diaphragm
  Available on ranges below 500 psi, 316L SS
- □ **P52** 1 1/2 in. NPTM flushmount w/ 1/2in. diaphragm
  Available on ranges below 5K, 316L SS

## H. Accuracy

**1-5,000 PSI**

- □ **N0***▲ ±0.25%
- □ **N1*** ±0.25% with NIST certification
- □ **N2** ±0.1% with NIST certification

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

**10,000 PSI**

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

## I. Materials

- □ **M1**▲ 316L SS (available on ranges up to 5,000 psi)
- □ **M2** 17-4 SS (available on ranges > 200 psi)

## J. Temperature

- □ **S0**▲ Standard: 0º - 130ºF (-17º - 54ºC)
- □ **S1** Extended: -40º - 180ºF (-40º - 82ºC)
- □ **S4** Extended: 0º - 185ºF (-17º - 85ºC)

# PT-400 Heavy Duty Pressure Transducer

## Built for Harsh Conditions in Hazardous Locations

Not all pressure measurements are simple. Changing weather, hazardous environments, intense shock, and severe vibration can all wreak havoc on a pressure transducer.

The PT-400 heavy duty pressure transducer lives for these types of applications. It was built with havoc in mind.


## Laser Welded Construction

- Pressure Tested Welds
- Built for Shock & Vibration
- No Leaks

## Fully Sealed Electronics

- Fully potted inside
- Cushions shock & vibration
- 2nd layer of protection for moisture & dust

## Built-In Surge and Lightning Protection

- Protection built right into the sensor
- IEC 61000-4-5 compliant

## Adjustable Zero & Span

- Sealed access points
- Zero & span adjustment screws inside

## Global Hazardous Location Certifications

- Class 1, Div 1/Zone 0 for North America
- ATEX & IECEx for global use