INTRINSICALLY SAFE, HEAVY DUTY PRESSURE TRANSMITTER SERIES: PT-400

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

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 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 quickly - typically in just 2 weeks.

Typical Applications

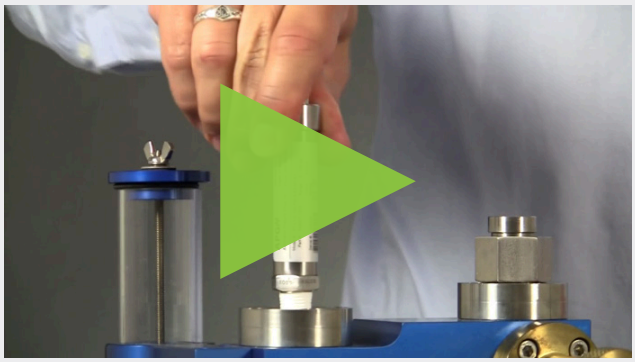
The PT-400 is perfect for a variety of applications - anywhere durability is a concern. It's ideally suited for the following:

- Fracking
- Acidizing
- Cementing
- Wellhead pressure
- Pump monitoring
- Wastewater treatment
- 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. Click the link below to read about the difference between light duty and heavy duty pressure transducers, and when to use each.
https://www.apgsensors.com/about-us/blog/heavy-vs-light-duty-pressure-transducers/

VIDEO TUTORIAL: How To Install A Threaded Pressure Transducer

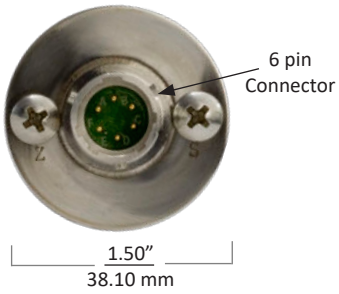


Installing pressure transducers isn't complicated, but it is critical. This video will help you do it right:
https://www.apgsensors.com/about-us/blog/videos/how-to-install-a-threaded-pressure-sensor/

PT-400 SPECIFICATIONS

Short Can Length

Long Can Length



*Overall length may vary depending on process connection.

Performance

- Accuracy (linearity, hysteresis, & repeatability):
  ±0.25% of full scale (BFSL) (1% for ≤ 1 psi)
- Standard Pressure Ranges: 0 - 30,000 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, 0.5-4.5, 1-5, 0-10 VDC (non-isolated 3 wire)
  Modbus/RTU (RS-485) with temp. output

Environmental

- Standard Compensated Temp.:

≤ 5 psi:	No temp specification
5 < x ≤ 10 psi:	0º - 60ºC / 32º - 140ºF
10 < x ≤ 1000 psi:	-10º - 70ºC / 14º - 158ºF
> 1000 psi:	-17º - 54ºC / 0º - 130ºF

- Storage Temp: -40º - 82ºC / -40º - 180ºF
- Operating Temp: -40º - 85ºC / -40º - 185ºF

Physical

- Weight: 10 oz. (283 g) typical
- Wetted Materials: 316L Stainless Steel (≤ 1,000 psi)
  17-4 Stainless Steel (> 1,000 psi)
  Incoloy (> 10,000 psi)
- Incoloy conforms to NACE MR-01-75 and ISO 15156-3

Electrical

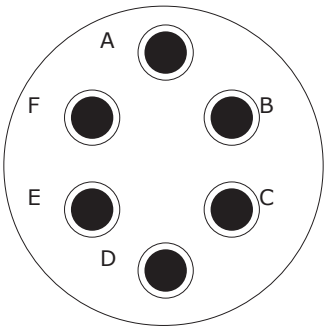
- Supply Voltage:
  4-20 mA, 0-5 / 0.5-4.5 / 1-5 VDC: 9-28 VDC
  0-10 VDC: 12.5-28 VDC
  Modbus/RTU (RS-485): 9-28 VDC
- Electrical Connection:
  Pigtail with cable or connector
- Electrical Protection:
  Protected against reverse polarity, surge per IEC 61000-4-5

Certification

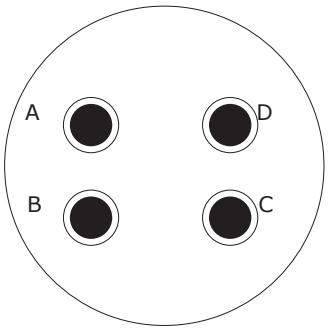
- CSA/cCSAus Contract #237484
  Ambient: -40º to 85ºC / -40º to 185ºF
  Max. Working Pressure: 10,000 psi
  Single Seal
  0-5 VDC, 0-10 VDC, 4-20mA
  - IS: Class I, Div. 2, Groups C & D; Ex nL IIB T4
  - Class I, Zone 2; AEx nL IIB T4
  4-20 mA
  - IS: Class I, Div. 1, Groups C & D; Ex ia IIB T4
  - Class I, Zone 0; AEx ia IIB T4
- ATEX
  Max. Working Pressure: 10,000 psi
  4-20 mA
  - Ex II 1G Ex ia IIB T4 Ga
- IECEx
  Max. Working Pressure: 10,000 psi
  4-20 mA
  - Ex ia IIB T4 Ga

PT-400 Pin Out Table

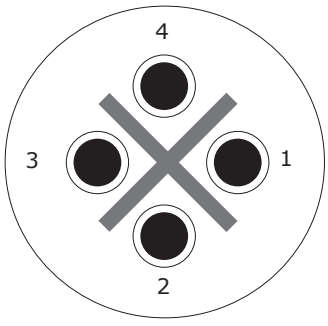
		4-20 mA	0-5 / 0.5-4.5 / 1-5 VDC	0-10 VDC	RS-485
6-Pin Bayonet	A	+ Excitation	+ Excitation	+ Excitation	+ Excitation
	B	- Excitation	+ Output	+ Output	- Excitation
	C	N/C	- Output	- Output	N/C
	D	N/C	- Excitation	- Excitation	B (Tx-)
	E	N/C	N/C	N/C	A (Tx+)
	F	N/C	N/C	N/C	Case GND
4-Pin Bayonet	A	+ Excitation	+ 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-)
Cable	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	No wire
Flying Leads	Red	+ Excitation	+ Excitation	+ Excitation	+ Excitation
	Grn	No wire	+ Output	+ Output	B (Tx-)
	Wht	No wire	- Output	- Output	A (Tx+)
	Blk	- Excitation	- Excitation	- Excitation	- Excitation
	Shld	No wire	No wire	No wire	No wire
	Grn/ Ylw	Case Ground	No wire	No wire	No wire



6 Pin Bayonet Connector



4 Pin Bayonet Connector



4 Pin M12 Micro Connector

COMMON MODEL CONFIGURATIONS

1/2" Male NPT with 5 ft cable, 1/4" Male NPT or F250C High Pressure Process Connection, Standard Temperature Range

Model Number	Model Description
PT-400-L1-15-PSIA-E19-5-P0-N0-M1-S10	4-20 mA, **0-15 PSI, Absolute** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-5-PSIG-E19-5-P0-N0-M1-S11	4-20 mA, **0-5 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, No Temp Spec**
PT-400-L1-15-PSIG-E19-5-P0-N0-M1-S10	4-20 mA, **0-15 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-30-PSIG-E19-5-P0-N0-M1-S10	4-20 mA, **0-30 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-50-PSIG-E19-5-P0-N0-M1-S10	4-20 mA, **0-50 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-100-PSIG-E19-5-P0-N0-M1-S10	4-20 mA, **0-100 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-200-PSIG-E19-5-P0-N0-M1-S10	4-20 mA, **0-200 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-300-PSIG-E19-5-P0-N0-M1-S10	4-20 mA, **0-300 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-500-PSIG-E19-5-P0-N0-M1-S10	4-20 mA, **0-500 PSI, Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-1000-PSIS-E19-5-P0-N0-M1-S10	4-20 mA, **0-1000 PSI, Sealed Gauge** Pressure, **316L SS, 0.25% Accuracy, -10° - 70°C**
PT-400-L1-5000-PSIS-E19-5-P0-N0-M2-S0	4-20 mA, **0-5000 PSI, Sealed Gauge** Pressure, **17-4 SS, 0.25% Accuracy, -17° - 54°C**
PT-400-L1-10000-PSIS-E19-5-P0-N0-M2-S0	4-20 mA, **0-10,000 PSI, Sealed Gauge** Pressure, **17-4 SS, 0.25% Accuracy, -17° - 54°C**
PT-400-L1-10000-PSIS-E19-5-P56-N0-M7-S0	4-20 mA, **0-10,000 PSI, Sealed Gauge** Pressure, **Incoloy, 0.25% Accuracy, -17° - 54°C**
PT-400-L1-15000-PSIS-E19-5-P56-N12-M7-S0	4-20 mA, **0-15,000 PSI, Sealed Gauge** Pressure, **Incoloy, 0.5% Accuracy, -17° - 54°C**

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
- □ **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_2O), tank volume

B. Common Pressure Ranges - PSI*

□ **5**	□ **50**	□ **200**	□ **1000**	□ **5000**
□ **15**	□ **60**	□ **300**	□ **2000**	□ **10000**
□ **30**	□ **100**	□ **500**	□ **3000**	□ **30000**

*Other ranges available. Please consult factory.

C. Units of Measure

□ **psi**▲	□ **bar**	□ **kPa**	□ **inH_2O**
□ **fH_2O**	□ **mmH_2O**	□ **inHG**	

D. Pressure Type

- □ **A** Absolute (10 - 200 psi)
- □ **S**▲ Sealed (200 psi - 30,000 psi)
- □ **G** Gauge (≤ 500 psi)
- □ **CG** Compound Gauge (-1 - 1 psi or -15 - 15 psi)

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)
- □ **E19** 1/2 in male NPT with cable, short can
- □ **E34** Junction Box
- □ **E36** 1/2 in male NPT with 6 in flying leads, long can
- □ **E40** 3 pin bayonet†††
- □ **E41** Blue Junction Box
- □ **E45** 4 pin minifast Turck

**Other connectors available. Please consult factory.

Note: Mating connectors sold separately unless noted.

†Note: Modbus output requires a long can
††Note: Not currently available with L5/L31 Modbus outputs
†††Note: L1 4-20 mA output only

F. Electrical Cable Length

- □ __ Number represents cable length, in 1-ft increments, included on E5 & E19 options. (ex. E5-10 equals pigtail, 10 ft cable)

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

*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 (5 < x ≤ 10 psi)
- □ **S10**▲ -10° - 70°C / 14° - 158°F (10 < x ≤ 1000 psi)
- □ **S11**▲ No Temperature Specification (≤ 5 psi)

▲This option is standard

PT-400 Heavy Duty Pressure Transducer

Built for Harsh Conditions and 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 applications. It was built with havoc in mind.

- **Pressure Ranges up to 30,000 psi**

- **Built-In Surge and Lightning Protection**
  - IEC 61000-4-5 compliant

Adjustable Zero and Span

- Sealed access points
- Zero and span adjustment screws inside

Global Hazardous Location Certifications

- Class 1, Div1/Zone 0 for North America
- ATEX & IECEx for global use (up to 10,000 psi)
- Single seal for highest protection

Fully Sealed Electronics

- Potted inside
- Shock and vibration cushions
- 2nd layer of protection for moisture and dust

Laser Welded Construction

- Pressure tested welds
- Built for shock and vibration