

# P&R INSTRUMENT SUPPLY, INC.



## PT-400

### Amplified Output Pressure Transducers

- Cost effective
- Durable all welded construction
- Available ranges from 0 up to 20,000 psi
- Standard outputs:  
4-20 mA, 0-5 VDC, 0-10 VDC
- High vibration
- High overpressure capability
- Zero and span adjustments
- 1/4-18 NPTM fitting standard
- $\pm 0.25\%$  BFSL accuracy;  $\pm 0.5\%$  BFSL accuracy on ranges greater than 5000 psi (voltage output only)
- cCSAus hazardous location approved
  - 0-5 VDC, 0-10 VDC  
Class I, Div. 2, Groups C & D  
Class I, Zone 2, Group IIB
  - 4/20 mA  
Class I, Div. 1, Groups C & D  
Class I, Zone 0, Group IIB

#### Options

- Color coded cable "pigtail" with optional wire lengths
- $\pm 0.1\%$  BFSL accuracy with NIST certification on selected ranges
- Extended temperature compensation
- Numerous process fittings
- Other units of measure available
- For OEM applications or other configurations, consult factory



#### ■ Operational Description

The PT-400 line of pressure transmitters offers pressure ranges from 0 up to 20,000 psi, all stainless steel construction, high burst pressure and high accuracy of  $\pm 0.25\%$  F.S. (B.F.S.L.). The sensor consists of a Wheatstone bridge configuration mounted on a single piece, welded stainless steel pressure fitting. The highly accurate sensor and electronics are packaged in a stainless steel housing for use in most environments, yet still provide access to zero and span adjustments.

#### ■ Applications

These pressure transmitters are the economical answer for all applications requiring high accuracy and reliability over a wide range of pressures. The unit's small size, integrated electronics, wide operating temperature range (-40 to 180°F), exceptional reliability, durability, and long life, make them the perfect instrument for most static and dynamic pressure measurements where an amplified output signal is desired.

# PT-400 Amplified Output Pressure Transducers

## ■ Specifications

<b>Performance</b>		
<b>Standard Pressure Ranges</b>		
<b>Gauge:</b>	From 0 to 1,000 psi	
<b>Compound Gauge:</b>	From VAC to 10,000 psi	
<b>Sealed:</b>	From 100 to 20,000 psi	
<b>Absolute:</b>	From 0 to 20,000 psi	
<b>Overpressure:</b> 2x full scale		
<b>Burst Pressure:</b> 3x full scale or limit of process connection (whichever is less)		
<b>Accuracy (linearity &amp; hysteresis)</b>		
± 0.25% of full scale (B.F.S.L.); NIST traceable certification also available for ±0.25, ±0.5 and ±0.1% Greater than 5000 psi: ±0.5% of full scale (B.F.S.L.) (voltage output only)		
<b>Stability – One Year Zero Drift:</b> <b>17-4:</b> < ±0.5% F.S.; <b>316L:</b> < ±0.5% F.S.		
<b>Zero Balance Adjust:</b> ±5% of full scale		
<b>Span Adjust:</b> ±5%		
<b>Life:</b> 10 million cycles minimum		
<b>Environmental</b>		
<b>Standard Compensated Temp:</b> 0 to 130°F (-17 to 54°C)		
<b>Extended Compensated Temp (Optional):</b> -40 to 180°F (-40 to 82°C)		
<b>Storage Temp:</b> -40 to 180°F (-40 to 82°C)		
<b>Operating Temp:</b> -40 to 180°F (-40 to 82°C)		
<b>Humidity:</b> 0 to 90% relative		
<b>Physical</b>		
<b>Weight:</b> 10 oz. (283 g) typical		
<b>Wetted Materials:</b> 17-4 SS, 316L SS		
<b>Media:</b> Compatible with 17-4 SS, 316L SS		
<b>Process Cavity Volume:</b> 0.035 <sup>3</sup> in.		
<b>Hazardous Location Approvals:</b> CSA/cCSAus Contract #237484		
<b>0-5 VDC, 0-10 VDC, 4-20 mA</b>		
IS: Class I, Division 2; Groups C & D; Ex nL IIB T4 Class I, Zone 2; AEx nL IIB T4 Ambient: -40 to 85°C		
<b>4/20 mA</b>		
IS: Class I, Division 1; Groups C & D; Ex ia IIB T4 Class I, Zone 0; AEx ia IIB T4 Ambient: -40 to 85°C		

Specifications are subject to change without notice.

## ■ Thermal Shift

<b>Thermal Zero Shift</b>		
<b>Material</b>	<b>0 to 130°F</b>	<b>-40 to 180°F</b>
17-4 SS	0.02% FS/°F	0.02% FS/°F
316L SS	0.02% FS/°F	0.02% FS/°F
<b>Thermal Sensitivity Shift</b>		
<b>Material</b>	<b>0 to 130°F</b>	<b>-40 to 180°F</b>
17-4 SS	0.02% FS/°F	0.02% FS/°F
316L SS	0.02% FS/°F	0.02% FS/°F

## ■ Electrical Specifications

<b>4-20 mA Output</b>	
<b>Input Voltage (Excitation):</b>	10 VDC min (no load) to 28 VDC max
<b>Input Current:</b>	3-30 mA max
<b>Output:</b>	4-20 mA ±0.16 mA at set points
<b>Output/Input:</b>	2 wire loop powered
<b>Resolution:</b>	Infinite
<b>Protection:</b>	Reversed polarity, surge
<b>0-5 VDC Output</b>	
<b>Input Voltage (Excitation):</b>	9 to 28 VDC
<b>Input Current:</b>	15 mA max
<b>Output:</b>	0-5 VDC / ±0.05 VDC at set points
<b>Output/Input:</b>	Non-isolated 3 wire
<b>Resolution:</b>	Infinite
<b>Protection:</b>	Reversed polarity, surge
<b>0-10 VDC Output</b>	
<b>Input Voltage (Excitation):</b>	12.5 to 28 VDC
<b>Input Current:</b>	15 mA max
<b>Output:</b>	0-10 VDC / ±0.10 VDC at set points
<b>Output/Input:</b>	Non-isolated 3 wire
<b>Resolution:</b>	Infinite
<b>Protection:</b>	Reversed polarity, surge

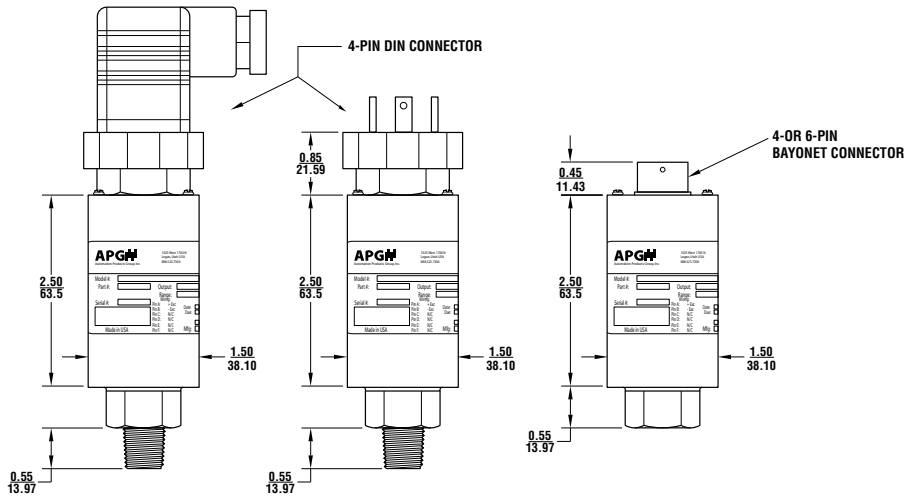
## ■ Common Pressure Ranges

Range Option	Range
15	0 to 15 psi
30	0 to 30 psi
60	0 to 60 psi
100	0 to 100 psi
200	0 to 200 psi
500	0 to 500 psi
1000	0 to 1000 psi
3000	0 to 3000 psi
5000	0 to 5000 psi
10000	0 to 10000 psi

Other ranges available.

# PT-400 Amplified Output Pressure Transducers

## ■ Dimensions — in./mm



## ■ Wiring

PT-400 Pin Out Table

	4-20 mA	0-5 VDC	0-10 VDC
6 Pin Bayonet	A + Excitation	+ Excitation	+ Excitation
	B - Excitation	+ Output	+ Output
	C N/C	- Output	- Output
	D N/C	- Excitation	- Excitation
	E N/C	N/C	N/C
	F N/C	N/C	N/C
4 Pin Bayonet	A + Excitation	+ Excitation	+ Excitation
	B - Excitation	+ Output	+ Output
	C N/C	- Output	- Output
	D N/C	- Excitation	- Excitation
4 Pin M12	1 + Excitation	+ Excitation	+ Excitation
	2 - Excitation	+ Output	+ Output
	3 N/C	- Output	- Output
	4 N/C	- Excitation	- Excitation
Pigtail	RED + Excitation	+ Excitation	+ Excitation
	GRN N/C	+ Output	+ Output
	WHT N/C	- Output	- Output
	BLK - Excitation	- Excitation	- Excitation
DIN 43650	1 + Excitation	+ Excitation	+ Excitation
	3 N/C	+ Output	+ Output
	2 - Excitation	- Output & - Excitation	- Output & - Excitation

N/C indicates no connection.

### Electrical Cable Specifications

#### Voltage Outputs

AWG: 22

Stranding: 7/30

Shield: Aluminum foil with drain wire

Jacket: PVC

#### 4/20 mA Output

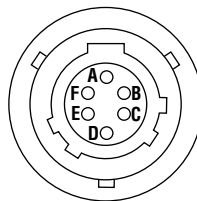
AWG: 18

Stranding: 16/30

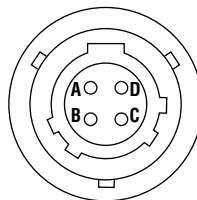
Shield: Aluminum foil with drawin wire

Jacket: PVC

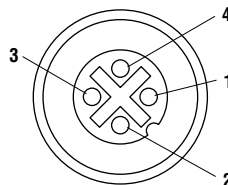
6 Pin Bayonet Connector



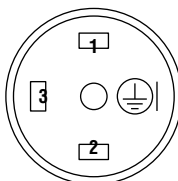
4 Pin Bayonet Connector



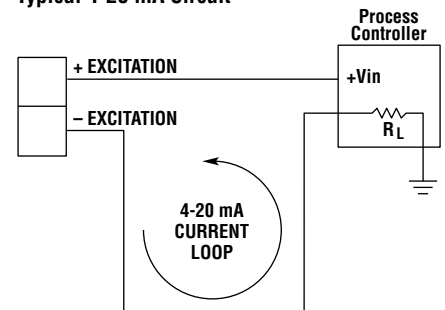
4-Pin M12 Micro Connector



DIN Connector

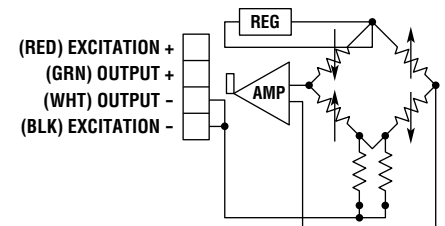


Typical 4-20 mA Circuit



Requires 10-28 VDC at the transmitter for proper operation.

Typical 0-5 and 0-10 VDC Circuit



# PT-400 Amplified Output Pressure Transducers

## Ordering Information

PT-400 - [ ] - Range - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]	
<b>Operation</b>	
L1	4-20 mA output
L3	0-5 VDC output
L10	0-10 VDC output
<b>Unit of Measure</b>	
psi <sup>▲</sup>	
bar	
kPa	
kgcm <sup>2</sup>	
fsw	
<b>Pressure Type</b>	
A	Absolute
S <sup>▲</sup>	Sealed (100 PSI or greater)
G	Gauge (less than 1000 PSI)
CG	Compound Gauge
V	VAC
<b>Electrical Connection</b>	
E3	Connector Option: 4 pin bayonet PT1H-8-4P or equivalent (Mating connector sold separately. See accessories.)
E4	Connector Option: 4 pin M12 micro connector (Mating connector sold separately. See accessories.)
E5 <sup>▲</sup>	Pigtail with cable (specify 2, 5, 10, 25, 50 ft.)
E6	Connector Option: 4 pin per DIN 43650 (includes mating connector)
E17	Connector Option: 6 pin bayonet PT02E-10-6P or equivalent (Mating connector sold separately. See accessories.)
<b>Electrical Cable Length</b> (See Electrical Cable Table)	
W0 <sup>▲</sup>	0 ft. (Use with E3, E4, E6 (no cable), E17 connections) Mating connectors (E3, E4, E17) with cable. See accessories.
W1	2 ft. (0.6 m) (Use with E5 pigtail and E6 DIN connections)
W2	5 ft. (1.5 m) (Use with E5 pigtail and E6 DIN connections)
W3	10 ft. (3 m) (Use with E5 pigtail and E6 DIN connections)
W4	25 ft. (7.6 m) (Use with E5 pigtail and E6 DIN connections)
W5	50 ft. (15.2 m) (Use with E5 pigtail and E6 DIN connections)
<b>Process Connection</b>	
P0 <sup>▲</sup>	1/4-18 NPTM
P1	1/2-14 NPTM
P5	1/4-18 NPTF
P40	1 1/2 in. tri-clover with 1/2 in. diaphragm
<b>Accuracy</b>	
N0 <sup>▲</sup>	±0.25%
N1	±0.25% with NIST certification
N2	±0.1% with NIST certification (selected ranges)
N12	±0.5% (standard on ranges greater than 5000 psi; voltage output only)
N13	±0.5% with NIST certification
<b>Materials</b>	
M1 <sup>▲</sup>	316L SS (15 to 10,000 psi)
M2	17-4 SS (available on ranges greater than 5,000 psi)
<b>Temperature</b>	
S0 <sup>▲</sup>	Standard
S1	Extended

▲ This option is standard.

## Option Table

### Electrical Cable Length Table

Cable Length	Output		
	4-20	0-5	0-10
W0 <sup>▲</sup> 0 ft.	✓	✓	✓
W1 2 ft. (0.6 m)	✓	✓	✓
W2 5 ft. (1.5 m)	✓	✓	✓
W3 10 ft. (3 m)	✓	✓	✓
W4 25 ft. (7.6 m)	✓	n/a	n/a
W5 50 ft. (15.2 m)	✓	n/a	n/a

### Accessories

Please order separately, by part number.

Description	Part Number
4-pin bayonet mating connector (E3)	509010
4-pin bayonet mating connector (E3) with cable (See note below)	509010-X0XX*
6-pin bayonet mating connector (E17)	509165
6-pin bayonet mating connector (E17) with cable (See note below)	509165-X0XX*
4 pin M12 mating connector (E4) with cable (*Specify X as 2 or 5 m cable)	135407-000X**

\*To order a 4 or 6-pin bayonet mating connector with cable, you will need to specify the operation and cable length. Specify operation: L1=1, L3 and L10=2; Specify cable: 2, 5, 10, 25 or 50 ft. Example: 509010-1025 is a 4-pin bayonet mating connector with 4/20 mA output and 25 ft. cable.