



# PT-L1/L3/L10\*

## Amplified Output Pressure Transmitters

- Cost effective
- Available ranges from vacuum up to 500 psi and 0 up to 10,000 psi
- Standard outputs: 4-20 mA, 0-5 VDC, 0-10 VDC, 1-5 VDC, and 1-6 VDC
- High overpressure capability
- Single piece stainless steel process fitting and sensor
- Zero and span adjustments
- 1/4-18 NPTM fitting standard
- True 0-5 or 0-10 VDC, can transition from vacuum to positive pressure
- $\pm 0.25\%$  accuracy of full scale;  $\pm 0.5\%$  BFSL accuracy on ranges greater than 5000 psi (voltage output only)
- Internally compliant to CE

### Options

- Color coded cable "pigtail" with optional wire lengths
- $\pm 0.1\%$  accuracy of full scale with NIST certification on selected ranges (from 0 to 30 psi up to 0 to 7,000 psi)
- Extended temperature compensation
- High vibration
- Tamper-resistant body design
- Numerous process fittings
- Other units of measure available at no extra cost
- Cleaned for oxygen service
- For OEM applications or other configurations, consult factory

### ■ Operational Description

This line of pressure transmitters offers pressure ranges from vacuum to 500 psi and from 0 up to 10,000 psi, all stainless steel construction, high burst pressure (without risk of silicon oil contamination), and high accuracy of  $\pm 0.25\%$  F.S. (B.F.S.L.). The sensor consists of silicon piezoresistive strain gages arranged in a Wheatstone bridge configuration mounted on a single piece, stainless steel diaphragm. The highly accurate sensor and electronics are packaged in a stainless steel housing for use in most environments, yet still provides 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 (3 oz.), integrated electronics, wide operating temperature range ( $-40$  to  $180^{\circ}\text{F}$ ), 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.



## ■ Specifications

<b>Performance</b>
<b>Standard Pressure Ranges</b>
<b>Compound Gauge:</b> From vac up to 500 psi
<b>Gauge or Absolute:</b> From 0 to 10,000 psi
<b>Flush Mount:</b> 0 to 5,000 psi
<b>Overpressure:</b> 2x full scale
<b>Burst Pressure:</b> 10x full scale or 20,000 psi (whichever is less)
<b>Accuracy (linearity &amp; hysteresis)</b>
<b>Standard Fitting:</b> $\pm 0.25\%$ of full scale (B.F.S.L.); NIST traceable certification also available for $\pm 0.25\%$ , $\pm 0.5\%$ and $\pm 0.1\%$ (select ranges only)
Greater than 5000 psi: $\pm 0.5\%$ of full scale (B.F.S.L.) (voltage output only)
<b>Flush Mount Fitting:</b> $\pm 1.0\%$ of full scale (B.F.S.L.); NIST traceable certification also available for $\pm 1.0\%$
<b>Stability – One Year Zero Drift:</b> <b>15-5:</b> $< \pm 0.5\%$ F.S., <b>316:</b> $< \pm 1\%$ F.S.
<b>Zero Balance Adjust:</b> $\pm 1\%$ of full scale
<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> 3 oz. (85 g)
<b>Wetted Materials:</b> 15-5 SS; 316L SS available at no extra charge (Ranges under 100 psi in 316L SS incorporate a Hastelloy® C276 diaphragm); One piece Hastelloy® fitting also available (minimum quantities required)
<b>Media:</b> Compatible with 15-5 SS, 316L SS, or Hastelloy® C276
<b>Process Cavity Volume:</b> 0.035 <sup>3</sup> in.

Specifications are subject to change without notice.

## ■ Electrical Specifications

<b>4-20 mA Output</b>
<b>Input Voltage (Excitation):</b> 10 VDC min (no load) to 36 VDC max
<b>Input Current:</b> 3-30 mA max
<b>Output:</b> 4-20 mA $\pm 0.16$ mA at set points
<b>Output/Input:</b> 2 wire loop powered
<b>Resolution:</b> Infinite
<b>Protection:</b> Reversed polarity
<b>0-5 VDC Output</b>
<b>Input Voltage (Excitation):</b> 9 to 33 VDC
<b>Input Current:</b> 15 mA max
<b>Output:</b> 0-5 VDC / $\pm 0.05$ VDC at set points
<b>Output/Input:</b> Non-isolated 3 wire
<b>Resolution:</b> Infinite
<b>Protection:</b> Reversed polarity
<b>0-10 VDC Output</b>
<b>Input Voltage (Excitation):</b> 14 to 33 VDC
<b>Input Current:</b> 15 mA max
<b>Output:</b> 0-10 VDC / $\pm 0.05$ VDC at set points
<b>Output/Input:</b> Non-isolated 3 wire
<b>Resolution:</b> Infinite
<b>Protection:</b> Reversed polarity

## ■ Thermal Shift

Thermal Zero Shift		
Material	0 to 130°F	-40 to 180°F
15-5 PH	0.02% FS/°F	0.02% FS/°F
316L SS	0.02% FS/°F	0.03% FS/°F
Thermal Sensitivity Shift		
Material	0 to 130°F	-40 to 180°F
15-5 PH	0.02% FS/°F	0.02% FS/°F
316L SS	0.02% FS/°F	0.03% FS/°F

Note: For flush mount fittings, add 0.01% to all values.

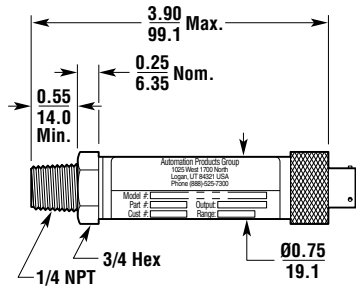
## ■ Common Pressure Ranges

Range Option	Range	Unit of Measure
<b>30*</b>	-30 to 0	inHg
<b>30</b>	0 to 30	psi
<b>60</b>	0 to 60	psi
<b>100</b>	0 to 100	psi
<b>200</b>	0 to 200	psi
<b>500</b>	0 to 500	psi
<b>1000</b>	0 to 1000	psi
<b>5000</b>	0 to 5000	psi
<b>10000</b>	0 to 10000	psi

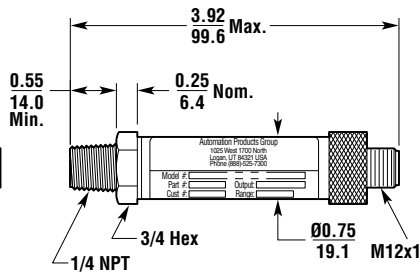
Other ranges available.

\*Requires VAC option when ordering.

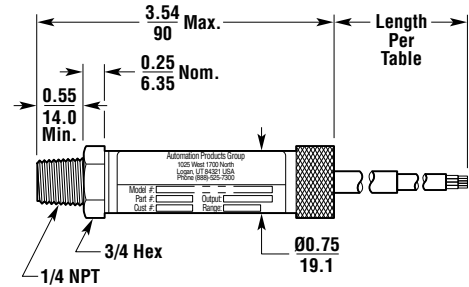
■ Dimensions — in./mm



4- or 6-PIN BAYONET



4-PIN M12



PIGTAIL

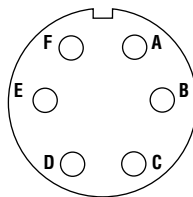
■ Wiring

PT-L1/3/10 Pin Out Table

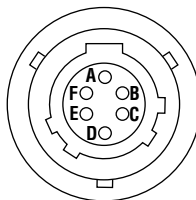
		4-20 mA	0-5 VDC	0-10 VDC
6 Pin Circular	A	+ Excitation	+ Excitation	+ Excitation
	B	- Excitation	+ Output	+ Output
	C	N/C	- Output	- Output
	D	N/C	- Excitation	- Excitation
6 Pin Bayonet	A	+ Excitation	+ Excitation	+ Excitation
	B	- Excitation	+ Output	+ Output
	C	N/C	- Output	- Output
	D	N/C	- Excitation	- 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

N/C indicates no connection.

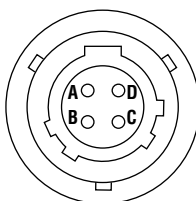
6 Pin Connector



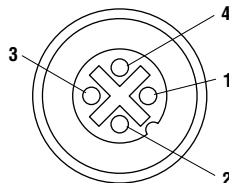
6 Pin Bayonet Connector



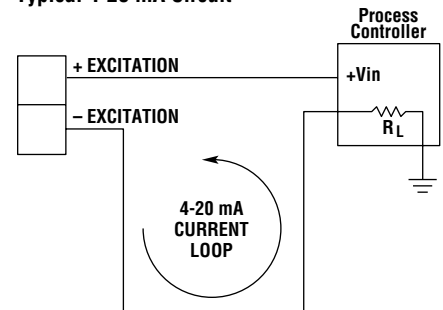
4 Pin Bayonet Connector



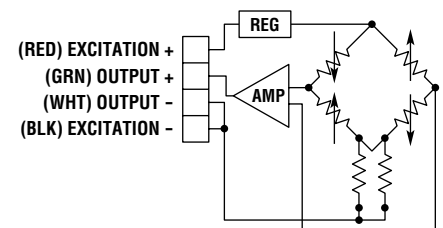
4 Pin M12 Micro Connector



Typical 4-20 mA Circuit



Typical 0-5 and 0-10 VDC Circuit



Electrical Cable Specifications

AWG: 26

Stranding: 7/34

Type: MIL-W-16878E

Shield: 36 AWG TPC Braid

Jacket: PVC

## ■ Option Tables

### Operation Table

<b>L1</b>	4-20 mA output
<b>L3</b>	0-5 VDC output
<b>L10</b>	0-10 VDC output
<b>L11</b>	1-6 VDC output
<b>L12</b>	1-5 VDC output

### Unit of Measure Table

There are 9 choices available:

psi ▲	mmHg
bar	inHg
mbar	kgcm <sup>2</sup>
kPa	fsw
inH2O	

Other units of measure available.

### Electrical Connection Table

<b>E1</b>	Connector Option: 6 pin circular R04-R6M or equivalent (optional); Mating Connector (not included): 6 pin circular R04-J6F or equivalent
<b>E3 ▲</b>	Connector Option: 4 pin bayonet PT1H-8-4P or equivalent (standard); Mating Connector (not included): 4 pin bayonet PT06A-8-4S (SR) or equivalent
<b>E4</b>	Connector Option: 4 pin M12 micro connector or equivalent; Mating Connector (not included): 4 pin female micro connector (M12) or equivalent
<b>E5</b>	Pigtail with cable (2 ft. standard)
<b>E17</b>	6-pin bayonet PT02E 10-6P (mating connector not included), Requires K4 can assembly

### Electrical Cable Length Table

### Cable Length

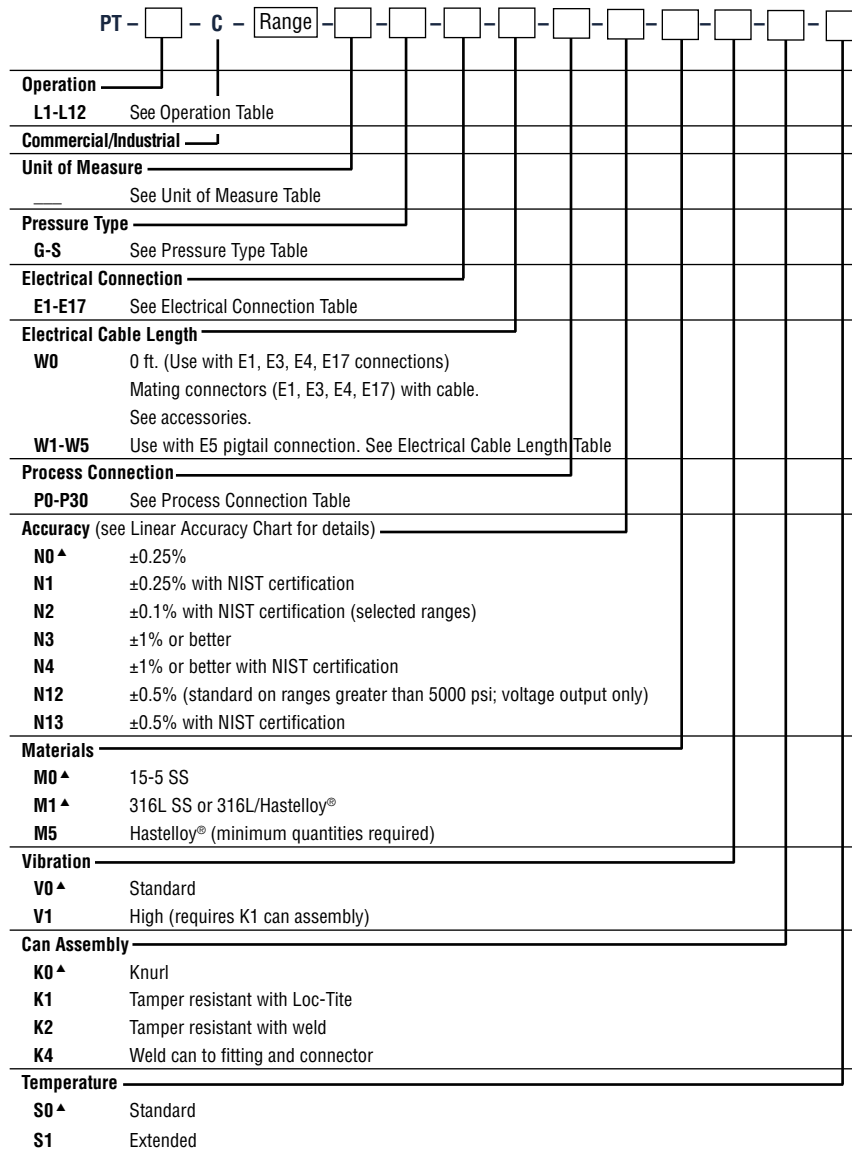
<b>W0</b>	0 ft.
<b>W1</b>	2 ft. (0.6 m)
<b>W2</b>	5 ft. (1.5 m)
<b>W3</b>	10 ft. (3 m)
<b>W4</b>	25 ft. (7.6 m)
<b>W5</b>	50 ft. (15.2 m)

### Process Connection Table

<b>P0▲</b>	1/4-18 NPTM
<b>P2</b>	1 1/2 in. sanitary
<b>P4</b>	Flush mount 7/16-SAE male
<b>P5</b>	1/4-18 NPTF
<b>P7</b>	7/16-20 SAE male
<b>P14</b>	1/8-27 NPTM
<b>P16</b>	PT 1/4 (BSPM 1/4)
<b>P22</b>	G3/8 (3/8 BSPP) male
<b>P23</b>	G1/2 (BSPP 1/2) male
<b>P26</b>	7/16-20 UNF male with cone
<b>P30</b>	High pressure Sno Trik (M-250C, Autoclave male)

Other options available.

## ■ Ordering Information



▲ This option is standard.

### Pressure Type Table

<b>G</b>	Gauge
<b>CG</b>	Compound gauge
<b>V</b>	Vac
<b>A</b>	Absolute
<b>S</b>	Sealed

### Linear Accuracy Chart

	Standard	Accuracy
Full Scale PSI	Linear Accuracy	Options
≥ 15 but < 30	0.25%	N0, N1
≥ 30 but < 7000	0.25%	N0, N1, N2
≥ 7000 but < 10000	0.25%	N0, N1
> 5000 (voltage output only)	0.5%	N12, N13

**Note:** This table refers to linear accuracy for standard fittings and specific ranges. Contact APG for non-standard fittings and a linear accuracy explanation.

## Accessories

Please order separately, by part number.

Description	Part Number
4-pin bayonet mating connector (E3)	509010*
4-pin female (M12) mating connector (E4)	135407-000X**
(**Specify X as 2 or 5 m cable)	
6-pin circular mating connector (E1)	509110*
6-pin bayonet mating connector (E17)	509165*

\*To order a connector with cable, you will need to specify the operation and cable length by adding “-X0XX” to the part number.

Specify operation: L1=1, L3 and L10=2;

Specify cable: 2, 5, 10, 25 or 50 ft.

Example: 509010-1025 has 4/20 mA output with 25 ft. cable