Rev. 5.08

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 transistion from vacuum to positive pressure
- ±0.25% accuracy of full scale
- Internally compliant to CE

Options

- Color coded cable "pigtail" with optional wire lengths
- ±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 ±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°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.

* The PT-L1 was formerly called the PSI-4/20.
The PT-L3 was formerly called the PSI-5000.
The PT-L10 was formerly called the PSI-10000.

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Specifications

Performance
Standard Pressure Ranges
Compound Gauge: From vac up to 500 psi
Gauge or Absolute: From 0 to 10,000 psi
Flush Mount: 0 to 5,000 psi
Overpressure: 2x full scale
Burst Pressure: 10x full scale or 20,000 psi (whichever is less)
Accuracy (linearity & hysteresis)
Standard Fitting: ± 0.25% of full scale (B.F.S.L.); NIST traceable certification also available for ±0.25% and ±0.1% (select ranges only)
Flush Mount Fitting: ±1.0% of full scale (B.F.S.L.); NIST traceable certification also available for ±1.0%
Stability – One Year Zero Drift: 15-5: < ±0.5% F.S., **316:** < ±1% F.S.
Zero Balance Adjust: ±1% of full scale
Life: 10 million cycles minimum
Environmental
Standard Compensated Temp: 0 to 130°F (-17 to 54°C)
Extended Compensated Temp (Optional): -40 to 180°F (-40 to 82°C)
Storage Temp: -40 to 180°F (-40 to 82°C)
Operating Temp: -40 to 180°F (-40 to 82°C)
Humidity: 0 to 90% relative
Physical
Weight: 3 oz. (85 g)
Wetted Materials: 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)
Media: Compatible with 15-5 SS, 316L SS, or Hastelloy® C276
Process Cavity Volume: 0.035³ in.

Specifications are subject to change without notice.

Electrical Specifications

4-20 mA Output
Input Voltage (Excitation): 10 VDC min (no load) to 36 VDC max
Input Current: 3-30 mA max
Output: 4-20 mA ±0.16 mA at set points
Output/Input: 2 wire loop powered
Resolution: Infinite
Protection: Reversed polarity

0-5 VDC Output
Input Voltage (Excitation): 9 to 33 VDC
Input Current: 15 mA max
Output: 0-5 VDC / ±0.05 VDC at set points
Output/Input: Non-isolated 3 wire
Resolution: Infinite
Protection: Reversed polarity

0-10 VDC Output
Input Voltage (Excitation): 14 to 33 VDC
Input Current: 15 mA max
Output: 0-10 VDC / ±0.05 VDC at set points
Output/Input: Non-isolated 3 wire
Resolution: Infinite
Protection: 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
30*	-30 to 0	inHg
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
5000	0 to 5000	psi
10000	0 to 10000	psi

Other ranges available.

*Requires VAC option when ordering.

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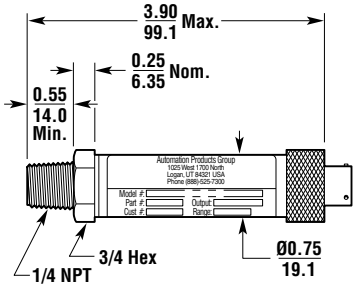
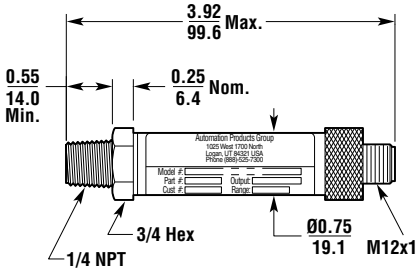
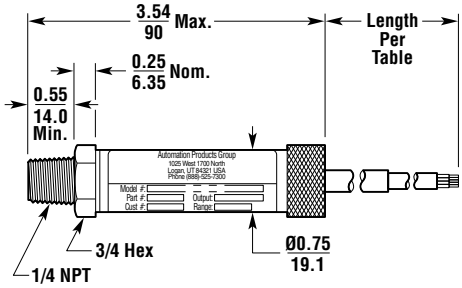
Dimensions — in./mm



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.

Electrical Cable Specifications

AWG: 26

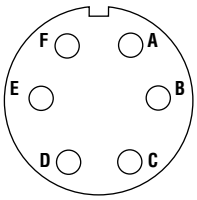
Stranding: 7/34

Type: MIL-W-16878E

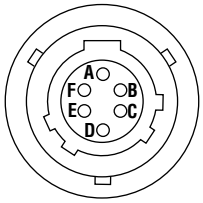
Shield: 36 AWG TPC Braid

Jacket: PVC

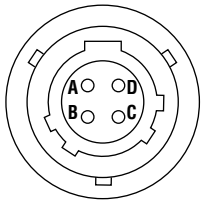
6 Pin Connector



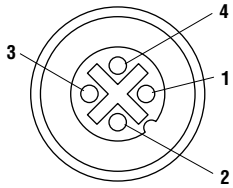
6 Pin Bayonet Connector



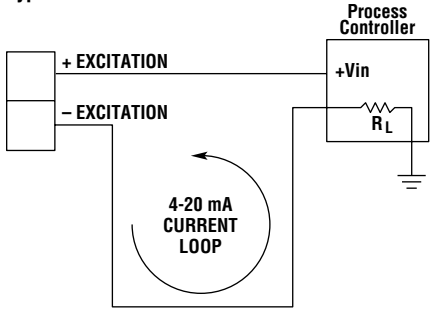
4 Pin Bayonet Connector



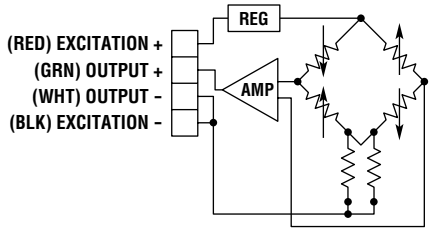
4 Pin M12 Micro Connector



Typical 4-20 mA Circuit



Typical 0-5 and 0-10 VDC Circuit



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pressure products

Option Tables

Operation Table

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

Unit of Measure Table

There are 9 choices available:

psi ▲	**mmHg**
bar	**inHg**
mbar	**kgcm²**
kPa	**fsw**
inH2O	

Other units of measure available.

Electrical Connection Table

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

Electrical Cable Length Table

		Output				
Cable Length		**4-20**	**0-5**	**0-10**	**1-5**	**1-6**
W0 ▲	0 ft.	✓	✓	✓	✓	✓
W1	2 ft. (0.6 m)	✓	✓	✓	✓	✓
W3	10 ft. (3 m)	✓	✓	✓	✓	✓
W4	25 ft. (7.6 m)	✓	n/a	n/a	n/a	n/a
W5	50 ft. (15.2 m)	✓	n/a	n/a	n/a	n/a

Process Connection Table

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

Other options available.

Ordering Information

PT – [ ] – C – Range – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Operation
- **L1-L12** See Operation Table

Commercial/Industrial

Unit of Measure
- ___ See Unit of Measure Table

Pressure Type
- **G-S** See Pressure Type Table

Electrical Connection
- **E1-E17** See Electrical Connection Table

Electrical Cable Length
- **W0** 0 ft. (Use with E1, E3, E4, E17 connections) Mating connectors (E1, E3, E4, E17) with cable. See accessories.
- **W1-W5** Use with E5 pigtail connection. See Electrical Cable Length Table

Process Connection
- **P0-P22** See Process Connection Table

Accuracy (see Linear Accuracy Chart for details)
- **N0** ▲ ±0.25%
- **N1** ±0.25% with NIST certification
- **N2** ±0.1% with NIST certification (selected ranges)
- **N3** ±1% or better
- **N4** ±1% or better with NIST certification

Materials
- **M0** ▲ 15-5 SS
- **M1** 316L SS or 316L/Hastelloy®
- **M5** Hastelloy® (minimum quantities required)

Vibration
- **V0** ▲ Standard
- **V1** High (requires K1 can assembly)

Can Assembly
- **K0** ▲ Knurl
- **K1** Tamper resistant with Loc-Tite
- **K2** Tamper resistant with weld
- **K4** Weld can to fitting and connector

Temperature
- **S0** ▲ Standard
- **S1** Extended

▲ This option is standard.

Pressure Type Table

G ▲	Gauge
CG	Compound gauge
V	Vac
A	Absolute
S	Sealed

Linear Accuracy Chart

Full Scale PSI	Standard Linear Accuracy	Accuracy Options
≥ 15 but < 30	0.25%	N0, N1
≥ 30 but < 7000	0.25%	N0, N1, N2
≥ 7000 but < 10000	0.25%	N0, N1

Notes:
1. This table refer to linear accuracy for standard fittings. Contact APG for linear accuracies for non-standard fittings.
2. These tables list linear accuracies for specific ranges. For an explanation of how linear accuracy is calculated, please contact APG.

Accessories

Please order separately, by part number.

Description	Part Number
4-pin bayonet mating connector (E3)	509010*
4-pin female (M12) mating connector	509087*
6-pin circular mating connector (E1)	509110*
6-pin bayonet mating connector (E17)	509165*

*For connector with cable, specify 2, 5, 10, 25 or 50-ft. length by adding "-10XX" to part number. Example: 509010-1025.
*E4 specify 2 m or 5 m.

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