High Precision Pressure Transmitter - 0-5 VDC ATM.1ST

Global Sensor Excellence

Features

- 0-5/10 & 0.5-4.5 VDC
- 0-1 to 0-20,000 psi
- Accuracies to 0.05%
- -40 to 300°F
- Barometric 18-32"Hg

Applications

- Test & Measurement
- Industrial Process
- Test Benches
- Engine Tests
- Automotive

Product Overview

The ATM.1ST is an electronically compensated pressure transmitter providing a 3-wire, analog voltage output. The transmitter offers total static accuracies down to ≤0.05%FS including linearity, hysteresis, repeatability, zero and span setting errors. Included in this static accuracy are hysteresis and repeatability of typically 0.005% which provides outstanding precision.

This performance is achieved by selecting the very best piezoresistive silicon sensor technology which STS has been refining for more than 30 years. The ATM.1ST is suitable for static and dynamic pressure measurements with a frequency response of <1ms. The modular construction provides manufacturing flexibility and offers fast delivery for all pressure ranges and standard options.

Barometric or compound pressure ranges available.

Contact

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Represented by:

Precision Pressure, Temperature and Level Measurement for Industry

Specification

Measurement

Pressure ranges

Any range from 0-1 to 0-15,000 psi FS available, in any engineering units such as psi, Pa, in H_20, bar.

Absolute	from 0-1 to 0 -15,000 psia FS
Gauge	from 0-1 to 0 - 1,000 psig FS
Sealed gauge	from 0-150 to 0-15,000 psisg FS
Barometric	18-32"Hg (others available)

Max. offset 26"Hg, min. span 12"Hg

Compound	from ±0.5 to -14.7 to 1,000 psi*

*must specify exact range. Performance related to the span.

Ranges up to 20,000 psi available. Consult factory.

Proof Pressure

FS up to 15 psi:	45 psi
FS > 15 psi to 4,000 psi:	3 x FS
FS > 4,000 psi to 9,000 psi:	12,000 psi
FS > 9,000 psi:	22,000 psi

Consult factory for higher proof pressure

Burst Pressure

FS up to 350 psi:	>3,000 psi
FS up to 9,000 psi:	>12,000 psi
FS > 9,000: psi	>22,000 psi

Consult factory for higher burst pressure

Process Temperature Range

-40 to 250°F (Fig. 1, standard)
-40 to 300°F (Fig. 2)

Compensated Temperature Range

32 to 160°F (standard)
-15 to 212°F (option)
-40 to 212°F (option)
-40 to 250°F (option)

Storage Temperature Range

-40 to 250°F

Performance

Total Error Band (±typ/±max)

≤0.4/0.6%: 32 to 160°F, ≤1.5 psi Range
≤0.2/0.4%: 32 to 160°F, >1.5 to ≤15 psi Range
≤0.15/0.3%: 32 to 160°F, >15 to ≤1500 psi Range
≤0.3/0.5%: 32 to 160°F, >1500 to ≤9000 psi Range
≤0.4/0.6%: 32 to 160°F, >9000 to ≤15,000 psi Range

Specification Continued

Total Error Band (±typ/±max) Continued

≤0.5/0.7%: -15 to 212°F, ≤ 1.5 psi Range
≤0.3/0.5%: -15 to 212°F, >1.5 to ≤15 psi Range
≤0.2/0.4%: -15 to 212°F, >15 to ≤1500 psi Range
≤0.5/0.7%: -15 to 212°F, >1500 to ≤ 9000 psi Range
≤0.7/1.0%: -15 to 212°F, >9000 to ≤ 15,000 psi Range

≤0.7/1.0%: -40 to 250°F, ≤ 1.5 psi Range
≤0.4/0.7%: -40 to 250°F, >1.5 to ≤15 psi Range
≤0.3/0.6%: -40 to 250°F, >15 to ≤1500 psi Range
≤0.7/0.9%: -40 to 250°F, >1500 to ≤ 9000 psi Range
≤1.0/1.2%: -40 to 250°F, >9000 to ≤ 15,000 psi Range

Note: TEB's for -40 to 212°F are same as -40 to 250°F

Total Error Band includes static accuracy and thermal effects over compensated range.

Accuracy

Combined linearity, hysteresis, repeatability, zero and span settings:

Ranges up to 1.5 psi	≤±0.25% FS
Ranges >1.5 psi to 15 psi	≤±0.1% FS
Ranges >15 psi to 1,500 psi	≤±0.1% FS (standard)
	≤±0.05% FS (option)*
Ranges >1,500 psi 9,000 psi	≤±0.1% FS
Ranges >9,000 psi to 15,000 psi	≤±0.2% FS

*Not available on compound or barometric ranges.

Consult factory for other accuracies, including BSL

Long Term Stability

<0.1% FS/yr for pressure ranges > 15 psi FS
Prorated for ranges below 15 psi FS
Under standard conditions

Supply Voltage

10-30 VDC (for 5V output)
12-30 VDC (for 10V output)
Influence of supply voltage < 0.05% FS
Current Consumption typically 3mA
Reverse Polarity Protected

Min. Load Resistance

RL > 10 Kohms
Influence of load resistance < 0.05% FS

Output Signal

0-5/10 VDC, 0.5-4.5 VDC, 3-wires

Response Time:

<1ms (10 to 90% FS)

Insulation Resistance

> 50 Mohms @ 500 VDC (@ 68°F)

Specification Continued

Construction

Material

All wetted parts are Stainless Steel 316L. For ranges >10,000 psi wetted parts are Inconel, 316L and Zeron®100. All material NACE compatible.

Welded, hermetic construction when using appropriate electrical connector.

Alternate construction i.e. Titanium, Hastelloy

Process Connections

¼" NPT male or female
7/16 - 20 UNF - 3A male
Other connections available at:
www.pmc1.com/connectorsATM1ST

Electrical Connection

DIN 43650 (Fig. 12) or Micro DIN
300 Series St.St. Hermetic 6-pin bayonet per MIL-C-26482 (10-6) (Fig. 14)
Polyurethane cable (Fig. 16)
Mating connectors not supplied as standard
Other connections available at:
www.pmc1.com/connectorsATM1ST

Weight

Typically 4.5oz (not including cable)

Vibration

10g, 4 to 2000 Hz,

Mechanical Shock

100g/6ms

Ordering Information

For ordering code go to:
www.pmc1.com/orderATM1st OR
Call the factory at: **203 792-8686**

Options

STS offers a wide range of options for these and other similar transmitters. Please consult the factory for any special requirements.

Examples include:

Electrical: i.e. 4-20mA, RS485, HART etc.
Lightning protection
Intrinsic safety certification
Pressure snubber and bleed port
Special oil filling for food application etc.

PMC-STS, Inc. adopts a continuous development program which sometimes necessitates specification changes without notice

MECHANICAL DETAILS

Version for fluid/gas temperature up to 250°F

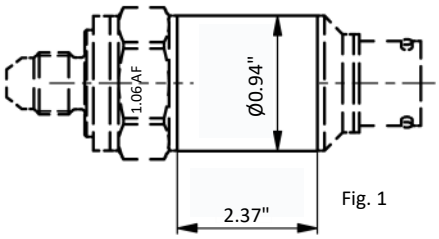

Fig. 1

Version for fluid/gas temperature up to 300°F

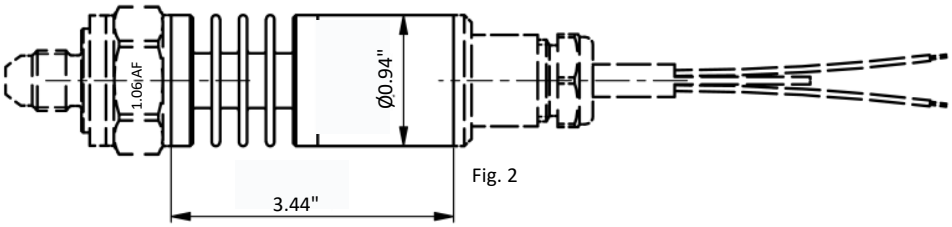

Fig. 2

Dimensions in inches

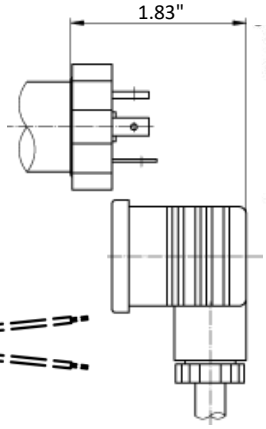

Fig. 12

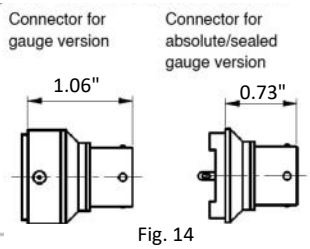

Fig. 14

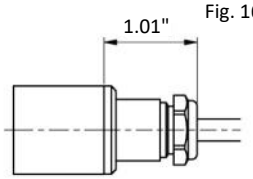

Fig. 16

Precision Pressure, Temperature and Level Measurement for Industry