

HIGH PRECISION PRESSURE TRANSMITTER - 4-20 MA ATM.1ST



Features

- 4-20 mA 2-wire
- 0-1 to 0-20,000 psi
- Accuracies to 0.05%
- -40 to 300°F
- Barometric 18-32"Hg

Applications

- Engine Test
 - Automotive
 - Aviation
 - Dynamometers
- Satellite Launch Vehicles
 - Propellants
 - Chamber Pressure
 - Fuel Level
- Flight Test
 - Hydraulic Systems
 - Flight Control Systems
 - HVAC Systems
- Drone/UAV/AUV/ROV
 - Hydraulic Systems
 - Avionics
- Manufacturing
- Motorsport

Contact Us

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PRODUCT OVERVIEW

The ATM.1ST is a digitally compensated high performance pressure transmitter providing a 2-wire, 4-20 mA analog output. The transmitter offers total static accuracies down to $\leq 0.05\%FS$ 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.

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 H₂O, 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 psig 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

9-33 VDC

Influence of supply voltage < 0.05% FS

Reverse Polarity Protected

Min. Load Resistance

RL = (Vsupply - 9V)/0.02A

Influence of load resistance < 0.05% FS

Output Signal

4-20 mA, 2-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 stand-

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. 0-5 VDC, RS485, HART etc.

Lightning protection

Intrinsic safety certification

Pressure snubber and bleed port

Special oil filling for food application etc.

MECHANICAL DETAILS

Dimensions in inches

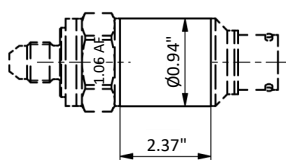


Fig 1 fluid/gas temperature to 250°F

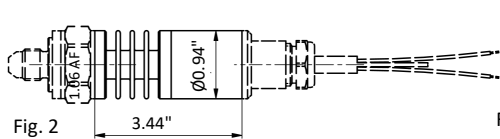


Fig 2 fluid/gas temperature to 300°F

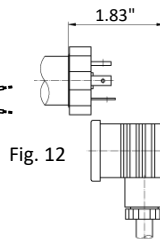


Fig. 12

Connector for gauge version

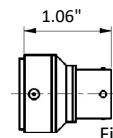


Fig. 14

Connector for absolute/sealed gauge version

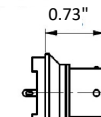


Fig. 16

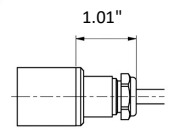


Fig. 16

STS is registered ISO 9001:2015

Sensors For:

- Temperature
- Acceleration
- Pressure
- Position
- Torque
- Speed
- Angle
- Force

Services For:

- OEM
- On-Time Delivery
- Custom Engineering
- Application Engineering