



SMART RANGEABLE PRESSURE TRANSMITTER

Models 411, 411X/P



This rugged, harsh-environment transmitter is small in size and designed to solve your worst weather nightmare. GP:50 Model 411 features HART communications protocol and microprocessor based electronics in a small, rugged package. HART communication allows simpler system commissioning and start up, while digital compensation provides enhanced accuracy and rangeability.

Because HART allows simultaneous analog and digital communication, this instrument is fully compatible with existing analog systems. Communication is most commonly done with a HART hand-held communicator, but can also be done with commercially available PC-based software. All-welded and hermetically sealed, it can be submersed to 100 feet with submersible conduit. The all-welded construction and 17-4 and 316 SST used in the pressure cavity make the 411 watertight and strong against corrosion. The unit is designed without and "O"-ring & insures reliability. For sour gas & other corrosive media, the 411 is available with 316 SST, Inconel or Hastelloy wetted parts.

Pressure ranges include 0 through 100,000 PSI and are available in sealed gauge, absolute and sealed vacuum.



FEATURES:

- 4-20 mA with HART
- 50 Through 100,000 PSI Ranges in PSISG, PSIA & PSIV
- 4-20 mA Loop Powered
- 5:1 Ranging
- Secondary Containment
- FM/CSA Explosion Proof available (411X/411P), Class I, II, III, Division I, II, Groups A, B, C, D, E, F & G

Approvals



APPLICATIONS:

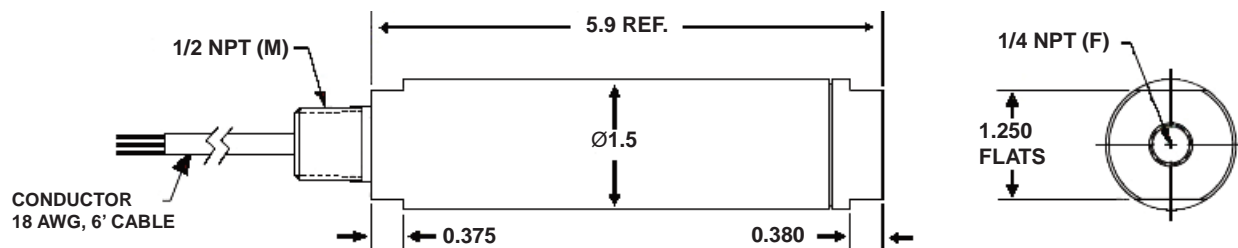
- Off Shore Rigs and Pumping Platforms
- Pipelines and Processing
- Shipboard and Marine Applications
- Plastics and paper

WIRING:

411

RED BLACK	+EXC./SIGNAL
GREEN	-EXC./SIGNAL
DRAIN WIRE	CASE GROUND

Some options will affect dimensions. Consult factory if important.



A5SL-411.00 Rev B



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Ordering: Specify model, and pressure range and indicate modifications or accessories required.

*Measured fluid temperature in excess of the compensated temperature limits may be acceptable depending on ambient temperature conditions.

Full Scale Pressure Range (FSPR):

0-5, 10, 15 PSIG, A, SV and 3-15 PSIG 0-20, 25, 30, 50, 75, 100, 150, 200, 300, 400, 500, 750, 1000, 1500, 2000, 3000, 4000, 5000, 7500, 10,000, 15,000, 20,000, 25,000, 30,000, 40,000, 50,000, 75,000, 100,000 PSIG, PSIA

Full Scale Temperature Range:

0-170°F, unless customer specified
(only applies when ordered with QF option)

Supply Voltage: 12-36 Vdc

Regulations:

Less than 0.02% FSO/V over supply voltage range.

Output Signal:

Two wire 4-20 mA. Digital process signal superimposed on a 4-20 mA signal, available to any host computer system conforming to HART protocol.

Load Impedance: 250 ohms at 17 Vdc

Accuracy: Greater than 0.25% of calibrated span including errors due to linearity, hysteresis and repeatability, RSS

Combined Zero & Span Temperature Effects on Accuracy:

At 1:1 is less than 0.25% FSO per 50°F
At 5:1 is less than 0.5% FSO per 50°F

Compensated Temperature Limits: *

0 thru +170°F based on actual operating temperature.

Operating Temperature Limits: -40 to +185°F

Range Adjustments: 5:1 (ranges 0-100 psi thru 1-15,000 psi only)

Circuit Protection: Reverse polarity protected Units are protected against voltage transients above 45V to 20A at 0.02 milliseconds.

RFI/EMI Suppression:

Negligible effect to 500 Mhz at 5 watts direct contact.

Insulation Resistance: Better than 10 megohms at 50V DC

Proof Pressure: 5 to 50 PSI 100 PSI 75 to 15,000 2xFSPR or 20,000 PSI, whichever is less 20,000 to 100,000 PSI 1.2x FSPR or 125,000 PSI whichever is less.

NOTE:

Specifications reflect standard product, improved performance / mechanical options available.

Modifications may alter specs, consult factory for more information.

Burst Pressure:

0-5 thru 0-50 PSIG, A, SV and 3-15 PSIG 250 PSI.
0-75 thru 0-15,000 PSIG, A-5 X full scale pressure range or 22,500 PSIG, whichever is less.
0-20,000 thru 0-100,000 PSIG, A-1.5 times full scale pressure range or 125,000 PSIG, whichever is less.

Long-Term Stability:

Greater than 0.25% FSPR over six months.

Resolution: 12 bit

Frequency Response:

Analog output response to a step change in pressure will be from 0.070 sec minimum to 40 sec maximum for one time constant & is adjustable through software.

Shock & Vibration Without Change: 100 g's PK to PK

Enclosure Materials: 316 SST

Measured Fluids:

Any gas or liquid compatible with 17-4 PH, 316 SS, Inconel X750, Hastelloy C-276 optional.

Standard Process Pressure Connection:

0-5 thru 0-15,000 PSI -1/4" Female Connection
0-20,000 thru 0-50,000 PSI - 9/16"-18 gland thread, pressure relieved. 1/4" OD high pressure tube, 60° cone. Conforms to Autoclave type F- 250-C.
0-61,000 thru 0-75,000 PSI - 5/8" -18 gland thread pressure relieved. 5/16" OD high pressure tube, 60° cone. Conforms to Autoclave type F- 312-C150.

Electrical Connection:

1/2" NPT male, 2 conductor w/Ground + Drain wire, 18 AWG, 72" L.

Enclosure Classification: NEMA 3, 4

Weight: Less than 24 oz.

Accessories:

Mounting Bracket, Conduit connection box, HART Communicator.

Approved Options:

QF - Temperature output over second 4-20 mA loop.