

# CANADA SENSORS TECHNOLOGY INC.



Manufacturer of Advanced Technology Pressure & Level Transmitters

CRN Approval ISO 9001:2015



## PRESSURE TRANSMITTER – PROCESS 2-HYD

### HART™ Enabled Intrinsically Safe Model, HART™ Enabled General Purpose Model for High Pressure Hydrogen Service

Canada Sensors *intelligent* transmitters bring the latest technology to the pressure transmitter & related instrumentation market-place with self-diagnostic features which will maintain consistent accuracy throughout temperature and pressure scales.

#### FEATURES

- ✓ HART™ Protocol
- ✓ High Pressure Hydrogen Service
- ✓ Intrinsically Safe
- ✓ On-board Barometric Sensor
- ✓ Eliminate Output Drift
- ✓ Self-Adjusting Real Time Data
- ✓ Real Time Temperature Compensation
- ✓ On-board RTD
- ✓ Pressure Ranges 15,000 PSI, 20,000 PSI, 30,000 PSI
- ✓ Characterized Sensor Head  
(Plasma Gold Coated)
- ✓ Monolithic Block Sensor Head >100 million cycles
- ✓ Full Scale Accuracy 0.25%
- ✓ RoHS Compliant
- ✓ 1 Year Conditional Warranty

#### TECHNICAL DATA

HART™ Enabled

Two Wire 4-20 mA Output Pressure Transmitter

Process 2-HYD Pressure Transmitters are scaled & digitally mapped to temperatures from -40C to +95C

Temperature compensation, through a mathematical formula, will occur at multiple levels throughout the range of the pressure transmitter offering highly accurate information.

The Process 2-HYD transmitter has an on-board barometric calibration chip. This is a self-zeroing and self-adjusting feature with zero drift at any altitude or day or night. The transmitter does not require any external adjustments.

Highly accurate and repeatable 0.25% full scale accuracy

Intrinsically Safe

Ingress Protection is minimum IP66

Operating pressure ranges to 15,000 PSI, 20,000 PSI, 30,000 PSI

Digitally mapped error correction throughout the pressure range

Individually characterized sensor head – machined one piece monolithic block sensor head with no internal o-rings or seals which are single seal compliant to ANSI/ISA-12.27.01.2003. Autoclave 1/4" F250C Connection 316SS material only.

Standard 316SS process connection hardened for hydrogen service or with additional gold coating

Gold coating on the process connection provides protection from hydrogen molecule migration and hydrogen embrittlement to ASTM F519

Multiple Electrical Connectors & Housings Available



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**Manufacturer of Advanced Technology  
Level and Pressure Transmitters**

**Additional Features:** Powder Coated Canister  
Engraved Product Information  
Laser Welded  
1 Year Conditional Warranty (Serial Number Traceability)

**Advanced Technology ... Improving Business****Smart THROUGH and THROUGH****This transmitter packs a powerful punch****No drift. No set-up. It just works.****MISSION STATEMENT**

Canada Sensors Technology Inc. strives to build a mutually positive and beneficial relationship with our customers, ensuring their long-term success, through the understanding of their needs and the needs of their customers.

We will listen to our customers and constantly improve our technologies as our customers' needs change with time.

Canada Sensors Technology Inc. is committed to providing the highest level of product quality and customer service.

Canada Sensors Technology Inc. operates a Quality Management System that ensures compliance with the requirements of ISO 9001:2015 and relevant legislation.

**Technical Specifications - Process 2 - HYD****Performance**

|                        |                           |
|------------------------|---------------------------|
| Accuracy:              | 0.25% Full Scale Output   |
| Stability:             | < 0.25% Full Scale Output |
| Temperature Range:     | -40C to +95C Calibrated   |
| Temperature Accuracy:  | < 0.25% Full Scale Output |
| Pressure Cycles:       | > 100 Million             |
| Over Range Protection: | 2 x Full Scale Output     |
| Burst Pressure:        | 5 x Full Scale Output     |

**NOTE: Over Range Protection and Burst Pressure shall be reduced to 1.5 x Full Scale Output for pressures exceeding 10,000 PSI due to thread limitations**

**Electrical Data**

|                      |                                                              |
|----------------------|--------------------------------------------------------------|
| Excitation:          | 14-33 VDC (product accessories may alter excitation values)  |
| Comms:               | HART Protocol                                                |
| Current Consumption: | 3.8 mA                                                       |
| Zero Offset:         | 4 mA                                                         |
| Span Tolerance:      | Range or Sensor with Turndown                                |
| Output Load:         | 500 OHMS                                                     |
| Barometric Chip:     | Monitoring Range 88KPA ( 12.76 PSI ) to 108 KPA ( 15.7 PSI ) |
| RTD Temperature:     | On Board 100 ohm Platinum                                    |
| Intrinsically Safe   |                                                              |

Pollution Degree 4

Installation Category I

**NOTE: An Ex Barrier is required for any connections that cross the boundary from an Ordinary Location (Non-Classified/Non-Hazardous) to a Classified (Hazardous) location**

**Environmental Data****Temperature**

|            |                                                                  |
|------------|------------------------------------------------------------------|
| Operating: | -40C to +95C (product accessories may alter temperature ratings) |
| Storage:   | -55C to +125C                                                    |

**Thermal Limits**

|                    |                                |
|--------------------|--------------------------------|
| Compensated Range: | -40C to +95C                   |
| Temp Comp Zero:    | 0.25% Full Scale Output @ +95C |
| Temp Comp Span:    | 0.25% Full Scale Output @ +95C |

**Physical Data**

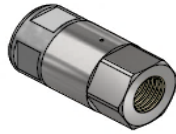
|                                                                                              |                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sensor:                                                                                      | Hardened 316SS is standard on all Monolithic Block or Gold Coated ASTM F519                                                                                                         |
| Vibration:                                                                                   | 25gRMS from 20Hz to 2000Hz                                                                                                                                                          |
| Shock:                                                                                       | 100g , half sine, 11mSec.                                                                                                                                                           |
| Sensor:                                                                                      | <b>Silicone Oil Filled NOT Available on this model</b>                                                                                                                              |
| Vibration:                                                                                   | 25gRMS from 20Hz to 2000Hz                                                                                                                                                          |
| Shock:                                                                                       | 100g , half sine, 11mSec.                                                                                                                                                           |
| <b>NOTE: Silicone Oil Filled Sensors are a factory option for low pressure</b>               |                                                                                                                                                                                     |
| Process Connection:                                                                          | 1/4" F250C                                                                                                                                                                          |
| <b>NOTE: ANSI Regulations dictate that NPT Thread should not to exceed 8,000 PSI @ +125C</b> |                                                                                                                                                                                     |
| Electrical Connection:                                                                       | 316SS Weld-on: 6 Pin 90 Degree Military Connector; 1/2" MNPT Solid Conduit; 1/2" MNPT Positional Swivel Conduit; or w/ Aluminum XP Heads; Bendix Twist Connector 6 Pin (PTIH-10-6P) |

**NOTE: 316SS Wetted Parts are the minimum requirement for NACE compliance**

**Product Weights:**

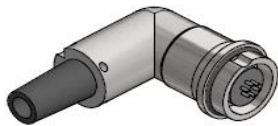
|                                                                                                                                                                      | <b>OZ</b> | <b>LBS</b> | <b>KG</b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|-----------|
| Process 2-HYD w/ F250C Autoclave & 316SS Weld-on 6 Pin 90 Degree Military Connector                                                                                  | 21.5      | 1.3        | 0.61      |
| Process 2-HYDw/ F250C Autoclave & 316SS Weld-on x 1/2 MNPT Positional Swivel Conduit Fitting (2 ft Lead)                                                             | 29.5      | 1.8        | 0.84      |
| Process 2-HYD w/ F250C Autoclave & 316SS Weld-on 1/2" MNPT Solid Conduit Fitting (2 ft Lead); Bendix Twist Connector 6 Pin (PTIH-10-6P)                              | 27.5      | 1.7        | 0.78      |
| Process 2-HYD w/ F250C Autoclave & Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting - Blank - No Window                  | 64.5      | 4.0        | 1.83      |
| Process 2-HYD w/ F250C Autoclave & Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting - Blank - No Window                              | 62.5      | 3.9        | 1.77      |
| Process 2-HYD w/ F250C Autoclave & Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting w/ 5 Digits LCD Loop Powered Display | 77.5      | 4.8        | 2.20      |
| Process 2-HYD w/ F250C Autoclave & Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting w/ 5 Digits LCD Loop Powered Display             | 75.5      | 4.7        | 2.14      |

#### Process Connections:



1/4" F250C

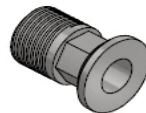
#### Electrical Connections:



6 PIN 90 DEGREE  
MILITARY CONNECTOR



1/2" MNPT POSITIONAL  
SWIVEL CONDUIT FITTING



1/2" MNPT SOLID  
CONDUIT FITTING



BENDIX TWIST CONNECTOR  
6 PIN

#### Product Accessories:

- Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting - Blank - No Window
- Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting - Blank - No Window
- Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting w/ 5 Digits LCD Loop Powered Display
- Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting w/ 5 Digits LCD Loop Powered Display



## Product Nomenclature

**MODEL: Pressure Transmitter - Process 2-HYD**

PN Example: A-B-C-D-E-F-G-H-I-J

02-HYD-01-01-01-034-09-02-08-03-02:

Process 2-HYD Transmitter, 4-20 mA, HART Enabled, Gauge (PSIG), 0 - 15000 PSI, 1/4" F-250C, 316SS Wetted Parts, 316SS Weld-on 1/2" MNPT Solid Conduit Fitting with 4 ft Lead Extension Wire, Gold Coated, 0.25% Accuracy

| Model                                                                                                                                         | A | B | C | D | E | F | G | H | I | J |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|
| <b>02-HYD</b> - Process 2-HYD                                                                                                                 |   |   |   |   |   |   |   |   |   |   |
| <b>Output</b>                                                                                                                                 |   |   |   |   |   |   |   |   |   |   |
| <b>01</b> - 4-20 mA                                                                                                                           |   |   |   |   |   |   |   |   |   |   |
| <b>Calibration Adjustment</b>                                                                                                                 |   |   |   |   |   |   |   |   |   |   |
| <b>01</b> - HART Enabled                                                                                                                      |   |   |   |   |   |   |   |   |   |   |
| <b>Pressure Reference</b>                                                                                                                     |   |   |   |   |   |   |   |   |   |   |
| <b>01</b> - Gauge (PSIG)                                                                                                                      |   |   |   |   |   |   |   |   |   |   |
| <b>Pressure Range</b>                                                                                                                         |   |   |   |   |   |   |   |   |   |   |
| <b>033</b> - 0 - 15000 PSI                                                                                                                    |   |   |   |   |   |   |   |   |   |   |
| <b>034</b> - 0 - 20000 PSI                                                                                                                    |   |   |   |   |   |   |   |   |   |   |
| <b>035</b> - 0 - 30000 PSI                                                                                                                    |   |   |   |   |   |   |   |   |   |   |
| <b>Process Connection</b>                                                                                                                     |   |   |   |   |   |   |   |   |   |   |
| <b>09</b> - 1/4" F250C                                                                                                                        |   |   |   |   |   |   |   |   |   |   |
| <b>Wetted Parts</b>                                                                                                                           |   |   |   |   |   |   |   |   |   |   |
| <b>02</b> - 316SS                                                                                                                             |   |   |   |   |   |   |   |   |   |   |
| <b>Electrical Connection</b>                                                                                                                  |   |   |   |   |   |   |   |   |   |   |
| <b>01</b> - 316SS Weld-on 6 Pin 90 Degree Military Connector                                                                                  |   |   |   |   |   |   |   |   |   |   |
| <b>02</b> - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting (2 ft Lead Extension Wire)                                              |   |   |   |   |   |   |   |   |   |   |
| <b>03</b> - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting (4 ft Lead Extension Wire)                                              |   |   |   |   |   |   |   |   |   |   |
| <b>04</b> - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting (6 ft Lead Extension Wire)                                              |   |   |   |   |   |   |   |   |   |   |
| <b>05</b> - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting (10 ft Lead Extension Wire)                                             |   |   |   |   |   |   |   |   |   |   |
| <b>07</b> - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting (2 ft Lead Extension Wire)                                                          |   |   |   |   |   |   |   |   |   |   |
| <b>08</b> - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting (4 ft Lead Extension Wire)                                                          |   |   |   |   |   |   |   |   |   |   |
| <b>09</b> - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting (6 ft Lead Extension Wire)                                                          |   |   |   |   |   |   |   |   |   |   |
| <b>10</b> - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting (10 ft Lead Extension Wire)                                                         |   |   |   |   |   |   |   |   |   |   |
| <b>31</b> - Weld-on Bendix 6-Pin - Aluminum                                                                                                   |   |   |   |   |   |   |   |   |   |   |
| <b>33</b> - Weld-on Bendix 6-Pin - 316SS                                                                                                      |   |   |   |   |   |   |   |   |   |   |
| <b>34</b> - Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting - Blank - No Window                  |   |   |   |   |   |   |   |   |   |   |
| <b>35</b> - Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting - Blank - No Window                              |   |   |   |   |   |   |   |   |   |   |
| <b>40</b> - Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Positional Swivel Conduit Fitting w/ 5 Digits LCD Loop Powered Display |   |   |   |   |   |   |   |   |   |   |
| <b>41</b> - Aluminum XP Head (1/2" FNPT x 3) - 316SS Weld-on 1/2" MNPT Solid Conduit Fitting w/ 5 Digits LCD Loop Powered Display             |   |   |   |   |   |   |   |   |   |   |
| <b>Environmental Treatment</b>                                                                                                                |   |   |   |   |   |   |   |   |   |   |
| <b>02</b> - No Treatment                                                                                                                      |   |   |   |   |   |   |   |   |   |   |
| <b>03</b> - Gold Coating                                                                                                                      |   |   |   |   |   |   |   |   |   |   |
| <b>Accuracy</b>                                                                                                                               |   |   |   |   |   |   |   |   |   |   |
| <b>02</b> - 0.25 %                                                                                                                            |   |   |   |   |   |   |   |   |   |   |

**E: Alternate Pressure Range Units**

|                                  |                                |   |                                        |
|----------------------------------|--------------------------------|---|----------------------------------------|
| <b>kPa</b>                       |                                |   |                                        |
| kPa                              | <b>033 - kPa</b>               | - | 0 - 100000 kPa                         |
| kPa                              | <b>034 - kPa</b>               | - | 0 - 140000 kPa                         |
| kPa                              | <b>035 - kPa</b>               | - | 0 - 200000 kPa                         |
| <b>mBar</b>                      |                                |   |                                        |
| mBar                             | <b>033 - mBar</b>              | - | 0 - 1000000 mBar                       |
| mBar                             | <b>034 - mBar</b>              | - | 0 - 1400000 mBar                       |
| mBar                             | <b>035 - mBar</b>              | - | 0 - 2000000 mBar                       |
| <b>mm Hg</b>                     |                                |   |                                        |
| mm Hg                            | <b>033 - mm Hg</b>             | - | 0 - 800000 mm Hg                       |
| mm Hg                            | <b>034 - mm Hg</b>             | - | 0 - 1000000 mm Hg                      |
| mm Hg                            | <b>035 - mm Hg</b>             | - | 0 - 1500000 mm Hg                      |
| <b>in H<sub>2</sub>O (60° F)</b> |                                |   |                                        |
| in H <sub>2</sub> O (60° F)      | <b>033 - in H<sub>2</sub>O</b> | - | 0 - 400000 in H <sub>2</sub> O (60° F) |
| in H <sub>2</sub> O (60° F)      | <b>034 - in H<sub>2</sub>O</b> | - | 0 - 500000 in H <sub>2</sub> O (60° F) |
| in H <sub>2</sub> O (60° F)      | <b>035 - in H<sub>2</sub>O</b> | - | 0 - 800000 in H <sub>2</sub> O (60° F) |
| <b>mm H<sub>2</sub>O (4° C)</b>  |                                |   |                                        |
| mm H <sub>2</sub> O (4° C)       | <b>033 - mm H<sub>2</sub>O</b> | - | 0 - 1000000 mm H <sub>2</sub> O (4° C) |
| mm H <sub>2</sub> O (4° C)       | <b>034 - mm H<sub>2</sub>O</b> | - | 0 - 1400000 mm H <sub>2</sub> O (4° C) |
| mm H <sub>2</sub> O (4° C)       | <b>035 - mm H<sub>2</sub>O</b> | - | 0 - 2000000 mm H <sub>2</sub> O (4° C) |
| <b>in Hg (32° F)</b>             |                                |   |                                        |
| in Hg (32° F)                    | <b>033 - in Hg</b>             | - | 0 - 30000 in Hg (32° F)                |
| in Hg (32° F)                    | <b>034 - in Hg</b>             | - | 0 - 40000 in Hg (32° F)                |
| in Hg (32° F)                    | <b>035 - in Hg</b>             | - | 0 - 60000 in Hg (32° F)                |
| <b>Bar</b>                       |                                |   |                                        |
| Bar                              | <b>033 - Bar</b>               | - | 0 - 1000 Bar                           |
| Bar                              | <b>034 - Bar</b>               | - | 0 - 1400 Bar                           |
| Bar                              | <b>035 - Bar</b>               | - | 0 - 2000 Bar                           |
| <b>ata (kg/cm<sup>2</sup>)</b>   |                                |   |                                        |
| ata (kg/cm <sup>2</sup> )        | <b>033 - ata</b>               | - | 0 - 1000 ata (kg/cm <sup>2</sup> )     |
| ata (kg/cm <sup>2</sup> )        | <b>034 - ata</b>               | - | 0 - 1400 ata (kg/cm <sup>2</sup> )     |
| ata (kg/cm <sup>2</sup> )        | <b>035 - ata</b>               | - | 0 - 2100 ata (kg/cm <sup>2</sup> )     |