



PT2X SUBMERSIBLE PRESSURE/TEMPERATURE SMART SENSOR WITH DATA LOGGING



FEATURES

- RS485/RS232 interface
- Small diameter
- Pressure, temperature & time
- 130,000+ records / non-volatile
- 316 stainless steel, Viton® and Teflon® construction
- Polyethylene, polyurethane and FEP Teflon® cable options
- Cableless version available
- MODBUS® protocol for RTU & PLC applications
- Easy export to spreadsheets & databases

DESCRIPTION

INW's patented AquiStar® PT2X submersible pressure transmitter represents the latest in state-of-the-art level measurement technology. Building on years of successful experience, this industry standard digital RS485 interface device offers great noise immunity, thermal performance and transient protection. In addition, this device stores over 130,000 records of pressure, temperature and time data, operates with low power, and features easy to use software with powerful features.

The transmitter's end cone is interchangeable with a 1/4" NPT inlet which allows for increased application use and easy hookup. The modular-designed AquiStar® PT2X can be factory serviced and repaired saving on future upgrade and repair costs.

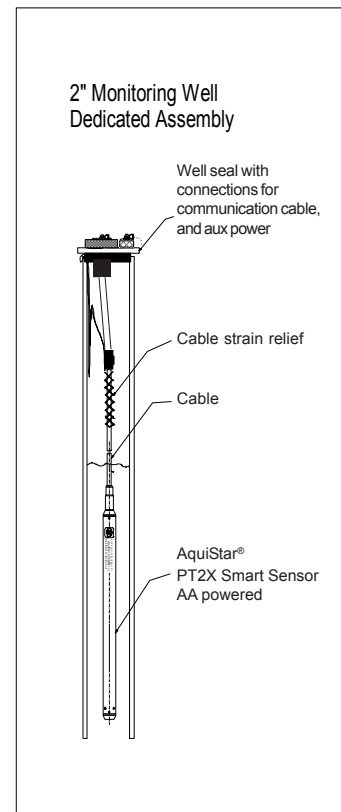
OPERATION

The PT2X is powered internally with two AA batteries or with an auxiliary power supply for data intensive applications. INW offers alkaline, rechargeable, and other auxiliary power systems. At the rate of four measurements per hour, the unit will run for a year on its internal AA batteries.

The PT2X comes with powerful, easy-to-use, Windows®-based Aqua4Plus software, affording the user extensive control, including real time monitoring, flexible programming, easy field calibration, and a delayed start feature. Aqua4Palm is available for Palm®-based handhelds, allowing the user to create test sessions, examine data, and monitor real time readings with the convenience and portability of a PDA.

APPLICATIONS

Due to its rugged construction, proven reliability, and datalogging capability, the AquiStar® PT2X can be used to replace analog sensors with separate dataloggers. Units can be used to monitor groundwater, well, tank and tidal levels, as well as for pump testing and flow monitoring.

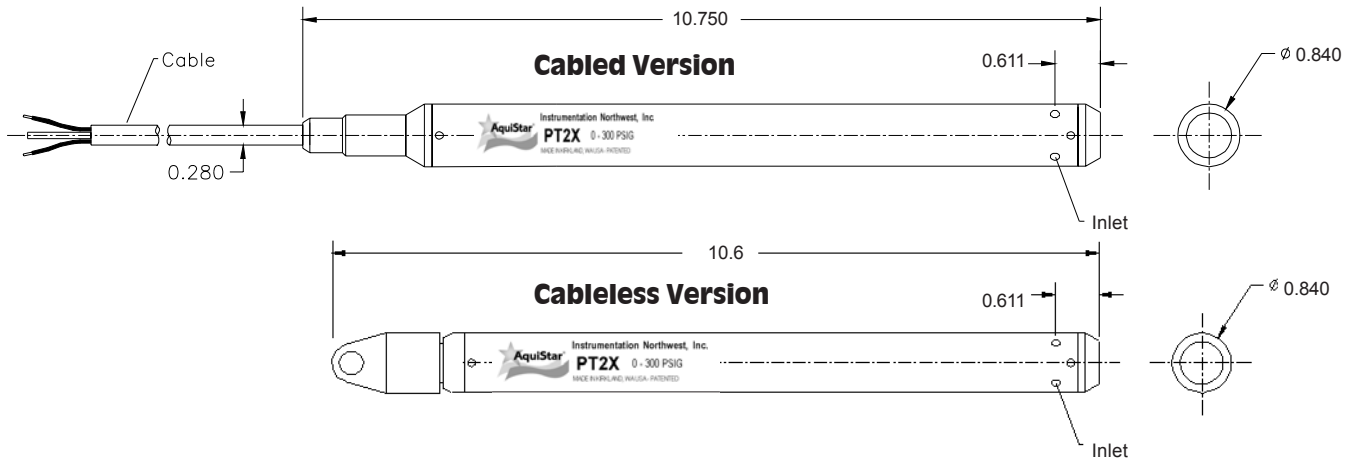


**INSTRUMENTATION
NORTHWEST, INC.**



PT2X SUBMERSIBLE PRESSURE/TEMPERATURE SMART SENSOR

DIMENSIONS AND SPECIFICATIONS



HOW TO ORDER

- Choose the transmitter with the required pressure range.
- Determine cable type and specify length.
- Contact INW for a full list of accessories.

PT2X PRESSURE RANGES - CABLE VERSION

3C351	5 PSIG	3C356	50 PSIA
3C352	15 PSIG	3C357	100 PSIG
3C353	30 PSIG	3C358	100 PSIA
3C354	30 PSIA	3C359	300 PSIG
3C355	50 PSIG	3C360	300 PSIA

PT2X PRESSURE RANGES - CABLELESS VERSION

3C370	20 PSIA	3C373	100 PSIA
3C371	30 PSIA	3C375	300 PSIA
3C372	50 PSIA		

PT2X CABLE OPTIONS

6E540	Vented PU INW Label
6E543	Vented FEP INW Label
6E542	Vented HDPE

PT2X MISCELLANEOUS OPTIONS

6E410	1/4" NPT adapter	3B835	Interface cable
6E517	Cable strain relief kit	6E520	200' capacity reel
6E475	Desiccant tube refill	6E525	500' capacity reel
3P902	2" well seal adaptor	6E530	1500' capacity reel
3P904	4" well seal adaptor	3B830	RS485/RS232 adaptor w/Aqua4Plus software

AQUA4PALM KIT - HANDHELD CONTROLLER

6D150	Aqua4Palm Kit with Palm®
6D151	Aqua4Palm Kit w/o Palm®

Information in this document is subject to change without notice.

MECHANICAL

TRANSMITTER

Body Material	316 stainless steel
Wire Seal Materials	Viton® and Teflon®
Desiccant	High- and standard-capacity packs
Terminating Connector	Available
Weight	.80 lbs.

CABLE

OD	0.28" maximum
Break Strength	138 lbs.
Maximum Length	2000 feet
Weight	4 lbs. per 100 feet

ELECTRICAL

Pressure

Static Accuracy (B.F.S.L. 25° C)*	±0.1% FSO (maximum) ±0.06% FSO (typical) <i>0.06% available on request.</i>
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Temperature Error (reference 25° C)	±0.5% FSO (maximum) ±0.25% FSO (typical)
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Maximum Zero Offset at 25° C	±0.25% FSO
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Resolution	16 bit
Over Range Protection	2x (except 300 PSIA)

Temperature

Accuracy	±0.75° C (maximum)
Resolution	0.1° C

Time

Accuracy	±4 min/yr (maximum) ±2 min/yr (typical)
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Recommended Operating Temperature Range	0° C to 40° C
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**Typical Specification
for *PT2X Smart Sensor* and
*Aqua4Plus Host Software***

1.0 Scope

- 1.1 The system shall collect and store pressure, temperature and time data.
- 1.2 The sensor shall fit inside 1-inch, schedule 40 and schedule 80 PVC casing or larger.
- 1.3 The system shall be able to network up to 32 sensors, which can be controlled from one location.
- 1.4 The system shall accommodate a combined cable run of up to 4000 feet.
- 1.5 The system shall use MODBUS[®] RTU interface protocol.
- 1.6 The system shall be delivered fully assembled and custom-sized for each well.
- 1.7 The system shall be a *PT2X Smart Sensor with Aqua4Plus Host Software*, manufactured by Instrumentation Northwest.

2.0 Sensor/Datalogger Design

- 2.1 The sensor/datalogger shall measure and record pressure, temperature and time.
- 2.2 Pressure measurements shall be accurate to $\pm 0.05\%$ FSO at 25° C (typical).
- 2.3 The sensor/datalogger shall have at least one megabyte of non-volatile memory, with the ability to collect at least 130,000 records of pressure, temperature and time.
- 2.4 The sensor/datalogger shall be available in absolute or gauge pressure versions.
- 2.5 All pressure readings shall be compensated for variation in fluid temperature.
- 2.6 The sensor/datalogger shall be able to use user-replaceable AA batteries and be capable of collecting at least 130,000 records before replacement is needed.
- 2.7 The sensor shall monitor remaining battery life.
- 2.8 The sensor shall be no larger than .84" in diameter.

3.0 Software Design

- 3.1 The software shall be capable of communicating with the sensor or sensor network via a serial or USB port at 38.4K Baud.
- 3.2 The software shall display real time readings from the sensor.
- 3.3 The software shall be able to create and save multi-phased, variable-interval test sequences and send these test sequences to the sensor/datalogger.
- 3.4 The software shall upload and save test data from the sensor/datalogger.
- 3.5 The software shall display uploaded test data.
- 3.6 The software shall export test data to a format easily accessed by common Windows[®] based spreadsheets and databases.
- 3.7 The software shall print uploaded test data.
- 3.8 The software shall control up to 32 sensors/dataloggers.

4.0 Cable Assembly Design

- 4.1 The cable shall be polyurethane, Teflon®, or polyethylene jacketed.
- 4.2 The cable shall be vented to atmosphere, with a dessicant assembly at the well-head to prevent buildup of moisture in the vent tube, for gauge version sensors.
- 4.3 The cable shall be continuous with no splices.
- 4.4 The cable connection to the sensor shall be waterproof up to a pressure of at least 325 psi to prevent leakage of fluid inside the sensor housing.
- 4.5 The cable shall have a breaking strength of at least 138 lbs.
- 4.6 All connecting fittings shall be capable of supporting a working tensile load of 50 lbs.

5.0 Well Seal Design

- 5.1 The well seal shall provide a water-tight barrier at the top of the monitoring well casing.
- 5.2 The well seal shall be capable of installation without the use of special tools.
- 5.3 When installed in two-inch or four-inch PVC casing, no component of the well seal shall protrude more than 3.5" inches above the top of the monitoring well. A low-profile option shall also be available.
- 5.4 The well seal shall have a minimum of two ports, one port for a communication connection to the sensor, and one port to allow access to the well.
- 5.5 Each port on the well seal shall have a water-tight cap that provides a barrier against water infiltration to the well when attached by hand. The caps shall be secured to the top surface of the well seal with a flexible lanyard.
- 5.6 Connection to the communication leads shall be of a quick-disconnect type.
- 5.8 The well seal design shall provide an eye-bolt or equivalent method for load transfer from the cable assembly to the top of the monitoring well casing and some method for suspending the cable from the eye-bolt to provide strain relief.
- 5.9 The well seal shall have a non-corrosive identification tag bearing at least the following information: well I.D., installation depth, system serial number, and model number.