



# CT2X SUBMERSIBLE SMART SENSOR

## Conductivity/Temperature with Pressure Option



### FEATURES

- Small diameter – 0.75" (1.9 cm)
- Conductivity, temperature & time with pressure option
- 10 microSiemens/cm to 100,000 microSiemens/cm - 200,000 & 300,000 optional
- Linear and nLFn temperature compensation
- Also measures TDS in mg/L
- Up to 349,000+ records / non-volatile
- 316 stainless steel, Viton® and Teflon® construction (Titanium optional)
- Polyethylene, polyurethane and FEP Teflon® cable options
- Easy export to spreadsheets & databases
- Modbus® protocol:
  - RS485 networking
  - Easy-to-use Aqua4Plus software
  - Direct read registers for use with panel meters or RTU/PLC applications
- Dual protocol available (Modbus® and SDI-12)

### DESCRIPTION

The AquiStar® CT2X is a submersible conductivity/temperature sensor with built-in datalogging. This device stores up to 349,000 records of conductivity, temperature, and time data, operates with low power, and features easy to use software with powerful features. The CT2X is also available with a pressure module, giving added functionality in the same sensor housing.

The CT2X incorporates 4-pole electrode cell measurement technology. This technology reduces fringe field interference errors, lessens inaccuracy caused by polarization effects, and lowers contact resistance problems. Four-pole electrode technology also allows users to work with one electrode over a wide range of conductivity.

The conductivity probe is constructed of epoxy/graphite, making it extremely durable for use in rugged field conditions. To clean, simply scrub with a small brush.

### OPERATION

The CT2X is powered internally with two AA alkaline batteries or with an external auxiliary power supply for data intensive or SDI-12 applications. INW offers alkaline, rechargeable, and other auxiliary power systems.

The CT2X 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 both tabular and graphic data displays.

Aqua4Plus offers easy, two-point calibration. Simply put the probe in the desired standards, and then use the built-in field calibration utility to adjust to the correct conductivity output.

Linear and non-linear temperature compensation features add flexibility to this sensor. The user can enter specific linear temperature coefficients to match the material being sampled. Alternately, for natural waters, which do not have linear temperature coefficients, the CT2X has a non-linear natural water mode meeting DIN EN 27888 standards.



**Instrumentation  
Northwest, Inc.**

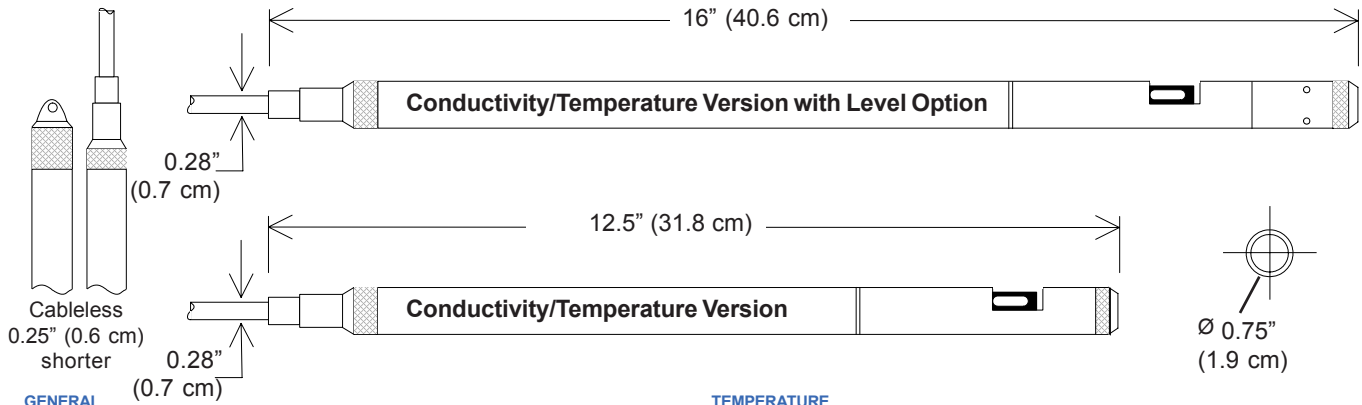
**1-800-776-9355**  
<http://www.inwusa.com>



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### DIMENSIONS AND SPECIFICATIONS



GENERAL	
Length	12.5" (31.8 cm) 16.0" (40.6 cm) w/ pressure
Diameter	0.75" (1.9 cm)
Weight	1.0lb. (0.5 kg)
Body Material	Delrin® & 316 Stainless or Titanium
Wire Seal Materials	Viton® and Teflon®
Submersible Cable	Polyurethane, Polyethylene, FEP or Tefzel® available
Cable Weight	4lbs./100 ft (1.8 kg/30 m)
Protection Rating	IP68, NEMA 6P
Desiccant	1-3mm indicating silica gel (high or standard capacity)
Terminating Connector	Available
Communication	RS485 Modbus SDI-12 (ver.1.3)
Operating Temp. Range <sup>3</sup>	-15°C to 55°C
Storage Temp. Range	-20°C to 80°C

LOGGING	
Memory	Up to 4MB - 349,000 records
Log Types	Variable, User-Defined, Logarithmic, Profiled
Programmable Baud Rate	9600, 19200, 38400
Logging Rate	4x/sec
Software	Complimentary Aqua4Plus or Aqua4Push
Networking	32 available addresses per junction w/ batching capabilities (up to 255)
File Formats	.xls/.csv/.a4d

POWER	
Internal Battery	2x1.5V AA Alkaline <sup>2</sup>
Auxiliary Power	12VDC - Nominal 6-15VDC - Range
Exp. Battery Life	18 months at 15m polling interval

TEMPERATURE	
Element Type	150K Ohm Thermistor
Element Material	Epoxy bead/external housing
Accuracy	±0.5°C
Resolution	0.01°C or 0.1°C
Range	-5°C to 100°C
Units	Celsius, Fahrenheit, Kelvin

PRESSURE	
Transducer Type	Silicon Strain Gauge
Transducer Material	316SS or Class II, Hastelloy Titanium
Pressure Ranges	
Gauge	
PSIG <sup>5</sup>	1,2,5,5,15,30,50,100,300
mH <sub>2</sub> O <sup>5</sup>	0.7,1.75,3.5,10.5,21,35,70,210
Absolute	
PSIA <sup>5</sup>	20,30,50,100,300
mH <sub>2</sub> O <sup>5</sup>	14,21,35,70,210
Units	Psi, FtH <sub>2</sub> O, inH <sub>2</sub> O, cmH <sub>2</sub> O, mmH <sub>2</sub> O, mH <sub>2</sub> O, inHg, cmHg, mBars, kPa
Static Accuracy	±0.06%FSO typical ±0.1%FSO maximum (B.F.S.L. 25°C)
Resolution	16 bit
Maximum Zero Offset	±0.25%FSO (@ 25°C)
Maximum Operating Pressure	1.1 x FS
Burst Pressure <sup>4</sup>	3.0 x FS
Compensated Range	0°C to 40°C

CONDUCTIVITY	
Probe Material	Epoxy/Graphite
Electrode	4-pole
Static Accuracy	±0.5% of measured value
Resolution	32 bit
Ranges	
Conductivity <sup>6</sup>	0-100,000 or 0-200,000 or 0-300,000 µS/cm
TDS	4.9 - 49,000 or 4.9 - 98,000 or 4.9 - 147,000 mg/L
Units	µS/cm, mS/cm, mg/L 0.1 µS/cm
Resolution	0.001 mS/cm 0.1 mg/L (TDS)
Warm-Up Time	200 msec
Thermal Compensation	None, Linear, or nLFn
Method (conductivity)	

<sup>1</sup> Storage without batteries  
<sup>2</sup> Lithium available upon request  
<sup>3</sup> Requires freeze protection kit if using pressure option in water below freezing  
<sup>4</sup> Burst reduced at PSI>300  
<sup>5</sup> Higher pressure ratings available upon request  
<sup>6</sup> Accuracy reduced at levels <10 µS/cm

Information in this document is subject to change without notice.

## Instrumentation Northwest, Inc.

**Sales and Service Locations**  
 8902 122nd Avenue NE, Kirkland • Washington 98033 USA  
 (425) 822-4434 • (425) 822-8384 FAX • info@inwusa.com  
 4620 Northgate Boulevard, Suite 170 • Sacramento, California 95834  
 (916) 922-2900 • (916) 648-7766 FAX • inwsw@inwusa.com