



# HydroTerra

Environmental Monitoring Specialists

## **Stygo 2** **Groundwater Low Latency Satellite** **IoT Sensor Hub**

Stygo 2 is a powerful yet compact multi-communications enabled IoT device designed specifically for remote environmental monitoring. Connect to any standard environmental sensor and transmit data from anywhere via Satellite. The optional patented well-cap device is designed to simplify groundwater bore monitoring, making it easy to automate the measurement of groundwater levels and quality parameters.



# Overview

The versatile device allows connection to all standard sensor types offering the ability to use across a wide variety of monitoring applications. The ease of use means that field installations can be completed in a fraction of the time of other systems offering significant cost savings and minimising risk by reducing time in the field.



Smart multi communications transmitter in one compact unit, making remote monitoring easy. Connect to any environmental monitoring sensor for transmission to DataStream.



The internal module receiver operates with extremely low current while the satellite transceiver can remain completely off for the majority of the time. The satellite transceiver only needs to be briefly powered for message transmissions.



Easily change settings, log time, transmission rate, alarms with OTA firmware updates onsite over the Iridium Satellite Network.



Simply activate Bluetooth by pressing the button and connect via our free mobile Android and Apple mobile app for all your device configuration requirements



Compact form factor 45mm x55mm x 120mm



**DataStream™**

by **HydroTerra**



Environment • Water • Geotechnical • Data

*Powered by EWS, through our  
official partnership*





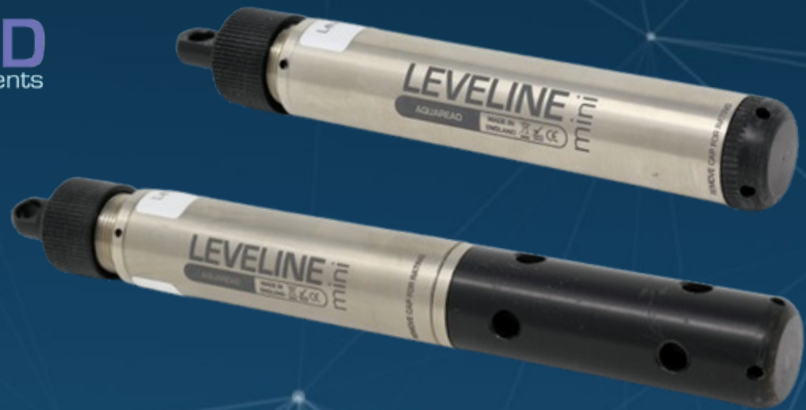
# Stygo 2

## Integrated Sensors

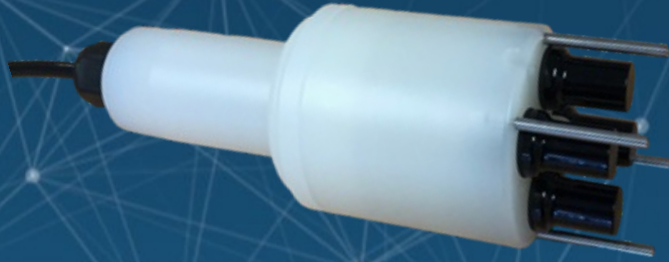
**Seametrics**



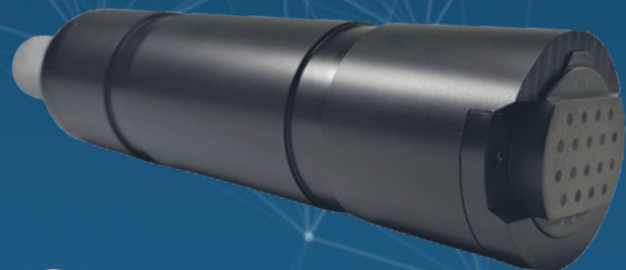
**AQUAREAD**  
water monitoring instruments



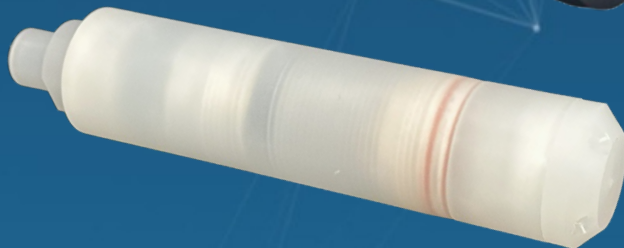
**PHATHOM**



**ANB Sensors**



**WAK**



# HydroTerra Platform

## FEATURES



Monitor environmental sensors and device locations and parameters



Configure sample rates, device outputs and variable alerts



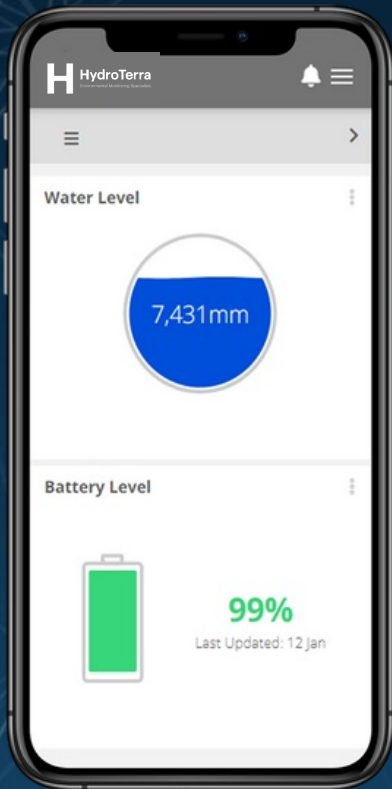
Control device outputs such as pumps, valves and gates



Receive SMS or email alerts based on variable thresholds



Download device data as csv files and images



## OVERVIEW

Sensors are remotely monitored with our custom cloud based platform. Interrogate volume and level trends, change sampling intervals and set SMS and email alerts. Our platform is flexible and modular meaning we can set it up the way you like from our library of maps, charts, gauges and controls.

## OTHER SERVICES

- Integrate other sensors to our platform
- White label the platform with your company branding
- Send your sensor data to third party platforms



**DataStream™**

by HydroTerra

### Overview

The EWS Switch presents a powerful yet compact multi-communication enabled IoT device designed specifically for remote environmental monitoring. The name *Switch* is derived from the ability to interchange between Satellite and 4G LTE communication types allowing important data to be logged and reliably transmitted from anywhere. The versatile device allows connection to all standard sensor types offering the ability to use across a wide variety of monitoring applications. The ease of use means that field installations can be completed in a fraction of the time of other systems offering significant cost savings and minimising risk by reducing time in the field.

### Features

- ✓ Multi-Communications options; Send data via Satellite (Iridium, Swarm, Myriota) or 4GLTE.
- ✓ Reads SDI12, Modbus, 4-20mA, Pulse sensor protocols.
- ✓ Relay out.
- ✓ Internal rechargeable battery pack or long-life non-rechargeable options.
- ✓ Input for external battery pack or direct to solar (Internal solar regulator).
- ✓ Ultra-Low power draw with internal battery backup.
- ✓ Configure using Bluetooth mobile app (available on Apple and Android).
- ✓ Remotely change settings with two-way communications including via Iridium.
- ✓ Compact form factor 45mm x 55mm x 120mm.
- ✓ Rugged and robust for harsh environments - IP68.
- ✓ Out-of- Cycle alarm transmission capable.
- ✓ Encoding scheme for compression of data packet size.
- ✓ Automatic data upload directly to Orion Cloud.
- ✓ Internal storage of up to 260,000 events.



### Benefits

- ✓ Connects to all standard environmental and geotechnical sensors.
- ✓ Extremely versatile for a range of remote monitoring applications.
- ✓ Compact and discreet, reducing installation time and footprint.
- ✓ Designed and Manufactured in Australia.
- ✓ Rugged and robust - designed for harsh remote environments.
- ✓ Plug and play setup onsite.
- ✓ Very straightforward and scalable for fast deployments and large monitoring roll outs.
- ✓ Programmable and powerful for more complex monitoring applications.
- ✓ Perfect for new and retrofit instrumentation projects.



# SPECIFICATIONS

Specifications subject to change without notice.

## MECHANICAL

<b>Size</b>	Width	55 mm	Length	120mm
	Height	45 mm		
<b>Weight</b>		200 g		

## ENVIRONMENTAL

Operating Temperature	-20	-	60 °C
Storage Temperature	-40	-	65 °C
Humidity	5	-	95 % Rel

## POWER

### External Power Supply

#### Input

Input Voltage	12		24 V
Input Current	700 mA		

#### Internal Battery (Rechargeable)

Chemistry	Lion		
Terminal Voltage	6.8	7.8	8.4 V
Capacity	1.8/4.8 Ahr		

#### Internal Battery (Non-rechargeable)

Chemistry	LiMnO2		
Terminal Voltage	6.8	7.8	8.4 V
Capacity 4.8 Ahr			

#### Sensor Power Output

Output Voltage	11	12	13 V
Output Current	500 mA		

#### Digital Output

Output Voltage	11	12	13
Output Current	500 mA		

## STORAGE

### Non-volatile-Log

Size	4 MB
Events	256000 Events

## CLOCK

### RTC

Accuracy (-10 to 70°C)	20	70 ppm
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### Network Time Sync Support

Supported Networks	Iridium	Cellular
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## EXTERNAL SENSOR INPUTS

### Serial - RS485 Modbus

#### RTU

Baud Rate	300	230400 Baud
Parity	N/E/O	

#### Serial - SDI12

Analogue - 4-20mA	(2)	
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#### Current Loop

Accuracy	0.5 % f.s.	
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#### Digital - Pulse Counter

Input Voltage	1	5 V
Frequency	3 kHz	



# SPECIFICATIONS

Specifications subject to change without notice.

## BUILT-IN SENSOR CHANNELS

### **Barometer – Pressure**

Range	10	1200 mbar
Accuracy 25°C, 750 mba	-1.5	+1.5 mbar

### **Barometer – Temperature**

Range	-40	85 °C
Accuracy	-0.8	+0.8 °C

### **Battery Voltage**

### **Supply Voltage**

### **Reference Voltage**

### **Radio Signal Strength**

### **Microprocessor**

### **Temperature**

## TELEMETRY RADIO SUPPORT

### **Iridium**

Protocols	Short Burst Data
Coverage	Worldwide

### **4G Cellular LTE-M/NB-IOT**

Protocols	MQTT
Email	
Network Support	Telstra (Aus) and most major networks globally
Coverage	4 million Sqr km

### **Myriota**

Protocol	AWS Lambda
Coverage	Australia Wide

### **LoRaWAN**

Range to Gateway	10 Km
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## BLUETOOTH SUPPORT

Bluetooth Standard	5.0
Data Rate	2.5 kbps

Official Distributor

### Overview

The EWS Well-Cap leverages the power and reliability of our Switch Data logger family to deliver a cost-effective, self-contained package for simplifying **Groundwater Monitoring**. Made from extremely robust glass filled nylon with a lockable hasp, the Switch device sits safely within the top section and can be easily configured via our Bluetooth mobile app. The Well-Cap offers hassle-free and quick installation, simply connect to the sensor, place over the monitoring bore and fix in place with lock screws. Different adapters allow it flexibility to fit to any bore diameter and the flip back lid provides easy access to the bore after install for pump sampling events or calibration dips.

### Features

- ✔ Multi-Communications options; Send data via Satellite (Iridium, Swarm, Myriota) or 4GLTE.
- ✔ Reads SDI12, Modbus, 4-20mA, Pulse sensor protocols.
- ✔ Robust Glass-filled nylon material.
- ✔ Lockable hasp for added security
- ✔ External battery pack or solar options.
- ✔ Flip top lid for easy access to the bore.
- ✔ Sensor hanger to support the weight of the sensor cable.
- ✔ Fits standard 50mm or 120mm diameter bores.
- ✔ Adapters available for all bore sizes.
- ✔ Ultra-Low power draw with internal battery backup.
- ✔ Configure using Bluetooth mobile app (available on Apple and Android).
- ✔ Remotely change settings with two-way communications including via Iridium.
- ✔ Compact form factor, entire package: diameter 160mm x 180mm
- ✔ Rugged and robust for harsh environments - IP68.



### Benefits

- ✔ Simplifies remote groundwater monitoring.
- ✔ Connects to all standard environmental sensors.
- ✔ Secure and lockable for deployments in public areas. Maintain easy access to the borehole.
- ✔ Compact and discreet, reducing installation time and footprint.
- ✔ Designed and Manufactured in Australia.
- ✔ Rugged and robust - designed for harsh remote environments. Plug and play setup onsite.
- ✔ Very straightforward and scalable for fast deployments and large monitoring roll outs.
- ✔ Perfect for new and retrofit instrumentation projects.





# SPECIFICATIONS

Specifications subject to change without notice.

## MECHANICAL

<b>Size</b>	Diam 160 mm			Height 180 mm
<b>Weight</b>		900 g		

## ENVIRONMENTAL

Operating Temperature	-20	-	60 °C
Storage Temperature	-40	-	65 °C
Humidity	5	-	95 % Rel

## POWER

### External Power Supply

#### Input

Input Voltage	12	24 V	
Input Current	700 mA		

#### Internal Battery (Rechargeable)

Chemistry	Lion		
Terminal Voltage	6.8	7.8	8.4 V
Capacity	1.8/4.8 Ahr		

#### Internal Battery (Non-rechargeable)

Chemistry	LiMnO2		
Terminal Voltage	6.8	7.8	8.4 V
Capacity 4.8 Ahr			

#### Sensor Power Output

Output Voltage	11	12	13 V
Output Current	500 mA		

#### Digital Output

Output Voltage	11	12	13
Output Current	500 mA		

## STORAGE

### Non-volatile-Log

Size	4 MB		
Events	256000 Events		

## CLOCK

### RTC

Accuracy (-10 to 70°C)	20	70 ppm	
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### Network Time Sync Support

Supported Networks	Iridium	Cellular	
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## EXTERNAL SENSOR INPUTS

### Serial - RS485 Modbus

#### RTU

Baud Rate	300	230400 Baud	
Parity	N/E/O		

#### Serial - SDI12

Analogue - 4-20mA	(2)		
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#### Current Loop

Accuracy	0.5 % f.s.		
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#### Digital - Pulse Counter

Input Voltage	1	5 V	
Frequency	3 kHz		

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### **Barometer - Temperature**

Range	-40	85 °C
Accuracy	-0.8	+0.8 °C

### **Battery Voltage**

### **Supply Voltage**

### **Reference Voltage**

### **Radio Signal Strength**

### **Microprocessor**

### **Temperature**

## TELEMETRY RADIO SUPPORT

### **Iridium**

Protocols	Short Burst Data
Coverage	Worldwide

### **4G Cellular LTE-M/NB-IOT**

Protocols	MQTT
Email	
Network Support	Telstra
Coverage	4 million Sqr km

### **Myriota**

Protocol	AWS Lambda
Coverage	Australia Wide

### **LoRaWAN**

Range to Gateway	10 Km
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## BLUETOOTH SUPPORT

Bluetooth Standard	5.0
Data Rate	2.5 kbps

Official Distributor

# PT12

## SUBMERSIBLE PRESSURE/TEMPERATURE SMART SENSOR



### APPLICATIONS

Rugged construction can replace analog sensors

Monitor groundwater, well, tank, and tidal levels

Pump testing

Flow monitoring

### Features

- Modbus® RTU (RS485) and SDI-12 v1.3 interfaces
- Small diameter — 0.75" (1.9 cm)
- Pressure and temperature
- 316 stainless steel, fluoropolymer, and PTFE construction (titanium optional)
- Polyethylene, polyurethane, and ETFE cable options
- End code interchangeable with a 1/4" NPT inlet
- Specification per OSW Technical Memo 96.05 is an option on the 15 psig (10.5 mH<sub>2</sub>O) and 30 psig (21 mH<sub>2</sub>O) units

The **Seametrics PT12** Pressure/Temperature Sensor has been designed to provide trouble-free submersible operation in liquid environments. This sensor communicates via SDI-12 (v1.3) or Modbus® RTU (RS485) protocol.

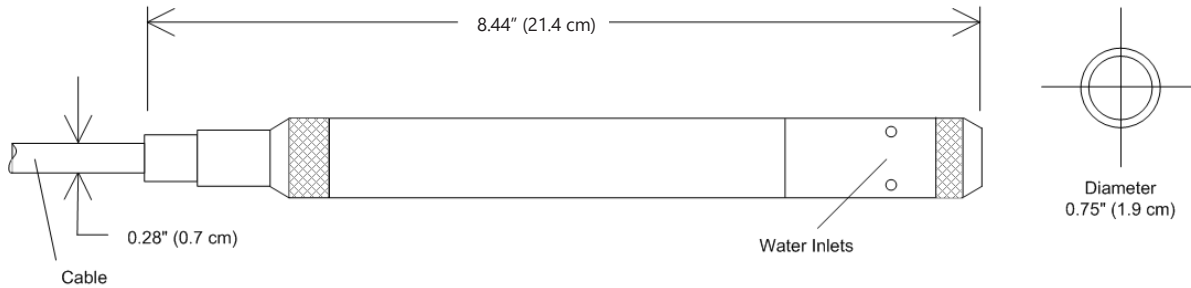
Pressure/level is measured with an extremely rugged and stable piezo-electric, media isolated pressure element and compensated for temperature using our proprietary calibration methodology. Temperature is measured using an on-board digital chip.

Seametrics also carries a special version of the PT12 designed to measure barometric pressure in reference to absolute pressure. If you are using an absolute PT12, contact your representative for details on how our PT12-BV can facilitate obtaining barometrically compensated pressure/level.

### Contact Your Supplier



## Dimensions



## Specifications\*

<b>Size</b>	<b>Weight</b>	0.8 lb. (0.4 kg)	
	<b>Length</b>	8.44" (21.4 cm)	
	<b>Diameter</b>	0.75" (1.9 cm)	
<b>Wetted Materials</b>	<b>Body Material</b>	316 stainless or titanium, Viton, Acetal	
<b>Cable</b>	<b>Cable</b>	Submersible: polyurethane, polyethylene, or ETFE; 4 lb./100 ft., 1.8 kg/30 m; 2000 ft max for Modbus®	
	<b>Desiccant</b>	1-3 mm indicating silica gel	
	<b>Field Connector</b>	Available as an option	
<b>Temperature</b>	<b>Operating Range</b>	Recommended: -15° to 55°C (5° to 131°F) Requires freeze protection kit if using pressure option in water below freezing.	
	<b>Storage Range</b>	-40° to 80°C (-40° to 176°F)	
<b>Power</b>	<b>Voltage</b>	9-15Vdc, electromagnetic & transient protection IEC-61000 - 4-3, 4-4, 4-5, 4-6	
	<b>Supply Current</b>	Active 3mA average/ 10mA peak; sleep 150 µA	
<b>Communication</b>	<b>Modbus®</b>	RS485 Modbus® RTU, output=32bit IEEE floating point	
	<b>SDI-12</b>	SDI-12 (ver. 1.3) - ASCII	
<b>Output Channels</b>	<b>Temperature</b>	<b>Temperature</b>	<b>Depth/Level</b>
	<b>Element</b>	Digital IC on board	Silicon strain gauge transducer, 316 stainless or Hastelloy
	<b>Accuracy</b>	±0.5°C — 0° to 55°C (32° to 131°F) ±2.0°C — below 0°C (32°F)	±0.05% FSO (typical, static) ±0.1% FSO (maximum, static) (B.F.S.L. 20°C)
	<b>Resolution</b>	0.06°C	0.0034% FS (typical)
	<b>Range</b>	-15° to 55°C (5° to 131°F)	Gauge PSI: 1 <sup>1</sup> , 5, 7, 15, 30, 50, 100, 300 FtH <sub>2</sub> O: 2.3 <sup>1</sup> , 12, 35, 69, 115, 231, 692 mH <sub>2</sub> O: 0.7 <sup>1</sup> , 3.5, 5, 10.5, 21, 35, 70, 210 Absolute <sup>2</sup> PSI: 30, 50, 100, 300 FtH <sub>2</sub> O: 35, 81, 196, 658 mH <sub>2</sub> O: 10, 24, 59, 200
	<b>Compensated</b>	---	0° to 40°C (32° to 104°F)
<b>Max operating pressure</b>	1.1 x full scale		
<b>Over pressure protection</b>	3x full scale up to 300psi		
<b>Burst pressure</b>	1000 psi (approx. 2000 ft or 600 m)		
<b>Environmental</b>	IP68, NEMA 6P		

\*Specifications subject to change. Please consult our web site for the most current data (seametrics.com). Modbus is a registered trademark of Schneider Electric.

<sup>1</sup> ±0.25% accuracy FSO (max) at this range

<sup>2</sup> Depth range for absolute sensors has 14.7 PSI subtracted to give actual depth allowed.

**User is responsible for reviewing end use application with their supplier for product suitability.**



# CT2X Smart Sensor

## CONDUCTIVITY/TEMPERATURE WITH DEPTH/LEVEL OPTION



### APPLICATIONS

Wetland surveys

Saltwater intrusion  
monitoring

Agricultural runoff studies

Discharge monitoring

### Features

- Measures/Records conductivity, temperature, salinity, and TDS with a depth/level option
- Low power
- Modbus® RTU (RS485) and SDI-12
- 0-300,000  $\mu\text{S}/\text{cm}$
- Linear and nLFn temperature compensation
- Small diameter — 0.75" (1.9 cm)
- 349,000 records in non-volatile memory
- Free, easy-to-use, new upgraded Aqua4Plus 2.0 software

The **Seametrics CT2X** Smart Sensor is a microprocessor-based submersible conductivity/temperature sensor with built-in data logging. This device stores thousands of records of conductivity, temperature, salinity, and total dissolved solids (TDS). The CT2X is also available with a depth/level option giving added functionality in the same sensor housing.

The CT2X incorporates 4-pole electrode cell measurement technology for conductivity, salinity, and TDS. 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 element is constructed of epoxy/graphite, making it extremely durable for use in rugged field conditions. To clean, simply scrub with a small brush.

Depth and level is measured with an extremely rugged and stable piezo-electric, media isolated pressure element and compensated for temperature using our proprietary calibration methodology. Temperature is measured using an epoxy bead thermistor.

The CT2X is powered internally with two replaceable AA batteries. Alternately it can be powered with an external auxiliary power supply for data intensive applications. Several CT2Xs, or a combination of CT2Xs and other Smart Sensors, can be networked together and controlled directly from a single computer.

While most will use the CT2X with our free, easy-to-use Seametrics Aqua4Plus 2.0 software, it is by no means limited to that software. You can use your own Modbus® RTU or SDI-12 software or logging equipment to read measurements, thus tying into your existing telemetry and control systems.

### Contact Your Supplier

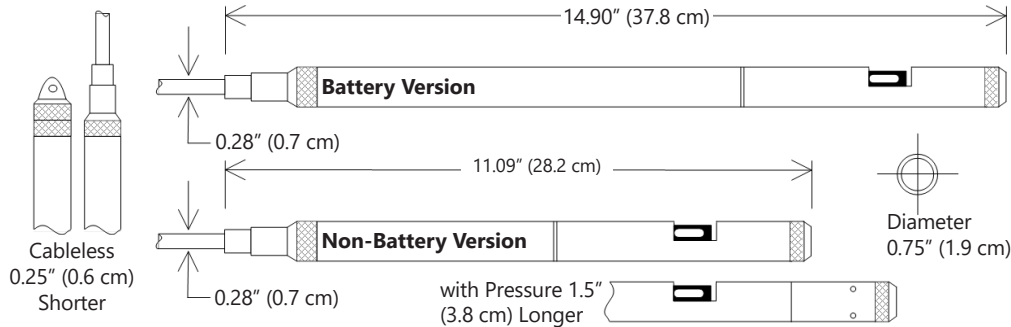


# CT2X Smart Sensor

## CONDUCTIVITY/TEMPERATURE WITH DEPTH/LEVEL OPTION



### Dimensions



### Specifications\*

<b>Wetted Materials</b>	<b>Weight</b>	1.0 lb. (0.5 kg)		
	<b>Body Material</b>	Acetal, Viton® & 316 stainless or titanium		
	<b>Cable</b>	Submersible: polyurethane, polyethylene, or ETFE (4 lb./100 ft., 1.8 kg/30 m)		
	<b>Desiccant</b>	1-3 mm indicating silica gel (PSIG sensors only)		
	<b>Field Connector</b>	Standard		
<b>Temperature</b>	<b>Operating Range</b>	Recommended: -5° to 40°C (23° to 104°F) Requires freeze protection kit if using pressure option in water below freezing.		
	<b>Storage Range</b>	Without batteries: -40° to 80°C (-40° to 176°F)		
<b>Power</b>	<b>Internal Battery</b>	Two replaceable lithium 'AA' batteries - Battery life: 12 months at 15 min. polling interval (may vary do to environmental factors)		
	<b>Auxiliary</b>	12 Vdc - Nominal, 9-15 Vdc - range		
<b>Communication</b>		RS485 Modbus® RTU (output = 32-bit IEEE floating point), SDI-12 (ver. 1.3) - ASCII		
<b>Logging</b>	<b>Memory</b>	4MB - 349,000 records		
	<b>Logging Types</b>	Variable, user-defined, profiled		
	<b>Logging Rates</b>	4x/sec maximum, no minimum		
	<b>Baud Rates</b>	9600, 19200, 38400		
	<b>Software</b>	Complimentary Aqua4Plus 2.0		
	<b>Networking</b>	32 available addresses per junction (Address range: 1 to 255)		
	<b>File Formats</b>	.a4d and .csv		
<b>Output Channels</b>		<b>Temperature</b>	<b>Depth/Level</b>	<b>Conductivity</b>
	<b>Element</b>	30K ohm thermistor, Epoxy bead/external housing, Pyrex® glass	Silicon strain gauge transducer 316 stainless or Hastelloy	Epoxy/Graphite - 4-pole
	<b>Accuracy</b>	±0.25°C	±0.05% FSO (typical, static) ±0.1% FSO (maximum, static) (B.F.S.L. 20°C)	Static: ±0.5% of measured value (0 - 100,000 µS/cm)
	<b>Resolution</b>	0.1°C	0.0034% FS (typical)	(32 bit internal) 0.1 µS/cm, 0.001 mS/cm, 0.1 mg/L (TDS), 0.001 PSU
	<b>Units</b>	Celsius, Fahrenheit, Kelvin	PSI, FtH <sub>2</sub> O, inH <sub>2</sub> O, mmH <sub>2</sub> O, mH <sub>2</sub> O, inH <sub>2</sub> O, cmHg, mmHg, Bars, Bars, kPa	µS/cm, mS/cm, mg/L, PSU
	<b>Range</b>	-5° to 40°C (23° to 104°F)	Gauge PSI: 1 <sup>2</sup> ,5,7,15,30,50,100,300 FtH <sub>2</sub> O: 2,3 <sup>2</sup> ,12,35,69,115,231,692 mH <sub>2</sub> O: 0.7 <sup>2</sup> ,3.5,5,10.5,21,35,70,210 Absolute <sup>3</sup> PSI: 30, 50, 100, 300 FtH <sub>2</sub> O: 35, 81, 196, 658 mH <sub>2</sub> O: 10, 24, 59, 200	Conductivity <sup>1</sup> : 0-300,000 µS/cm TDS: 4.9-147,000 mg/L Salinity: 2-42 PSU
	<b>Compensated</b>	---	0° to 40°C (32° to 104°F)	Thermal: None, Linear, or nLFn
	<b>Warmup Time</b>	---	---	200 msec
	<b>Max operating pressure</b>	1.1 x full scale		
	<b>Over pressure protection</b>	3x full scale up to 300psi		
<b>Burst pressure</b>	1000 psi (approx. 2000 ft or 600 m)			
<b>Environmental</b>	IP68, NEMA 6P			

\*Specifications subject to change. Please consult our web site for the most current data (seametrics.com).

Modbus is a registered trademark of Schneider Electric. Pyrex is a registered trademark of Corning Incorporated.

<sup>1</sup> Accuracy reduced at levels < 10 µS/cm and > 100,000 µS/cm

<sup>2</sup> ±0.25% accuracy FSO (max) at this range

<sup>3</sup> Depth range for absolute sensors has 14.7 PSI subtracted to give actual depth allowed.

**User is responsible for reviewing end use application with their supplier for product suitability.**



## LevelLine-MINI Water Level sensors

The LevelLine-Mini is a highly accurate water level and temperature sensor. It can be used in a wide range of groundwater and surface water applications. Housed inside the sealed body is a temperature and level sensor.

The LevelLine-Mini Absolute uses a piezoresistive ceramic pressure sensor to provide excellent durability and long-term stability whilst delivering an impressive accuracy of 0.05% FS. A variety of level ranges are available and all of them are temperature compensated across a scale of -20 to 80 deg. C. A wide variety of cable configurations are available as well as an absolute or gauge option.

Across the range of LevelLine water level loggers we use an all Titanium body. Titanium is widely regarded as the best material to use in any water level logger but especially important when deploying into harsh or saline environments ensuring dependable long-term deployment.

### Features

- 0.05% FS accuracy.
- Titanium body.
- 2 year warranty.
- SDI-12, RS485/MODBUS direct out communications.
- Vented option available
- LevelLine Mini-CTD version available for salinity and EC measurements.

### Applications

- Groundwater level monitoring, pump tests, slug tests etc.
- Stream, lake and reservoir water level measurement.
- Wetland and flood water monitoring.
- Coastal monitoring.
- Tank level measurement.
- Long term continuous monitoring in boreholes, surface water and seawater applications.
- Process applications.
- Flood warning systems.

### Deployment and Communication

The LevelLine-Mini is a transducer so it outputs level and temperature readings automatically once connected to a suitable data logger, display or other controller which utilises SDI-12, MODBUS/RS485 protocols.

Absolute and gauge versions are available along with vented and non vented cable options.

### LevelLine Mini – CTD

The LevelLine-Mini can be purchased with a conductivity sensor included to give level, temperature, conductivity and salinity readings. This sensor comes with a connector on the back end of the probe so it can be connected to the Leveline PC kit for calibration using the LevelLink PC software.



The LevelLine-Mini-CTD uses the same 4 ring stainless steel conductivity as our multiparameter water quality probes for robust EC and salinity measurements.



# LevelLine-Mini Water Level sensor

## Specifications



		LevelLine-Mini	LevelLine-Mini-CTD
GENERAL	Temperature ranges	Operational: -20-80° C (-4-176° F) Storage: -40-80° C (-40-176° F) Compensated: -20-80° C (-4-176° F)	Operational: -20-80° C (-4-176° F) Storage: -40-80° C (-40-176° F) Compensated: -20-80° C (-4-176° F)
	Diameter	22mm	22mm
	Length	87mm	146mm
	Weight	120g	210g
	Materials	Titanium body, Delrin nose cone	Titanium body, Delrin nose cone
	Output options	Modbus/RS485, SDI-12, Aquaread proprietary	Modbus/RS485, SDI-12, Aquaread proprietary
	Battery type & life	3.6V lithium; up to 10 years (see note 1)	N/A
	External power	6 - 24 VDC	6 - 24 VDC
MEMORY	Size	N/A	N/A
	Data records	N/A	N/A
	Log types	N/A	N/A
	Fastest logging rate & Modbus rate	10 per second	1 per second
	Fastest SDI-12 output rate	1 per second	1 per second
	Real-time clock	N/A	N/A
SENSOR	Type / Material	Piezoresistive; ceramic	
	Range (Gauge & Absolute)	10.0M (32.8 ft) 50.0M (164 ft), 20.0M (65.6 ft), 100M (326 ft)	10.0M (32.8 ft) 50.0M (164 ft), 20.0M (65.6 ft), 100M (326 ft)
	Maximum pressure	Max 2x range, Burst 2.5x range	
	Accuracy @ 15° C (note 2)	±0.05% FS	
	Accuracy (FS) (note 3)	±0.1% FS	
	Resolution	0.002% FS or 1mm whichever is greater	
	Units of measure	Pressure: mbar (psi, kPa, bar, mbar, mmHg, inHg, cmH2O, inH2O, Level: in, ft, mm, cm and m available in LevelLink	
Electrical Conductivity	Range	NA	0 - 200mS/cm (0 - 200,000µS/cm)
	Resolution	NA	1µS
	Accuracy	NA	± 1% reading or ±1µS whichever is greater (see note 5)
Salinity (note 4)	Range	NA	0 - 70 PSU / 0 - 70 ppt (g/Kg)
	Resolution	NA	0.01PSU / 0.01 ppt
	Accuracy	NA	±1% reading or ± 0.1 unit if greater
Temperature sensor	Accuracy & resolution	±0.1° C; 0.01° C	
	Units of measure	Celsius (fahrenheit available in LevelLink)	
Warranty	Standard	2 years on all LevelLine-Mini versions	
	Extended	Options Available	

Notes: 1) Dependent on logging rate. 2) Across factory-calibrated pressure range at a constant temperature. 3) Across factory-calibrated pressure and temperature ranges. 4) Readings calculated from EC and temperature values. 5) At the calibration point at 25°C





# Submersible Pressure Transducers - Level

High performance, accurate and stable submersible hydrostatic pressure transmitter. Multiple material options for housing and cable depending on the water characteristics (salty, corrosive, mineralised) and type of liquid (water, diesel, gasoline, kerosene).



## TECHNICAL SPECIFICATIONS

### Level Accuracy

Level 0.2% FS

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### Stability

Level 0.25% FS/year

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### Pressure Reference

Vented Gauge

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### Temperature

-20 ~ 85 °C

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### Cable Length

5m Standard

10m to 200m Optional

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### Materials

#### Housing

Stainless Steel 304 (Standard Option)

Stainless Steel 316 (Saline Water)

Polypropylene (Corrosive and Acidic Water)

#### Cable

Polyvinyl Fluoride (Standard Option)

PTFE (Corrosive Medium)

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### IP Rating

IP68

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### Dimensions

Standard - 110mm L x 23 mm diameter


Sludge Head - 116mm L x 47.5mm diameter

## FEATURES


### 1 High Durable and Anti-corrosion

- ▶ Thickened SS304/ SS316L housing
  - ▶ Anti corrosive cables PE/PTFE
- 


### 2 Good Ingress Protection

- ▶ Double o-ring provide better sealing
  - ▶ Special gasket inclination design
- 

### 3 High Accuracy 0.2%FS

- ▶ High performance diffused silicon pressure sensor
- 

### 4 Various outputs

- ▶ Modbus RS485, 4~20mA, 1-5V  
I2C, SPI, 0.5-4.5V, 0-5V  
and other outputs for other model
- 





 ANB Sensors

# AQ series of next generation, calibration-free pH sensors

ANB Sensors, a leading UK scientific technology company have developed ground-breaking solid-state sensors for pH, conductivity & temperature. These innovative and revolutionary sensors, require NO calibration, operate to depths of 50 metres in any orientation in fresh or saltwater environments. Uniquely they can be stored wet or dry, require simple maintenance, are extremely rugged and have exceptionally low on-going costs ideally suited for long term, cost effective remote monitoring in harsh and demanding environments. Thus, removing the fundamental issues seen with the conventional, fragile glass electrodes which require frequent manual calibration.

These intelligent and easy to use, calibration-free sensors, are ideally suited for use in any sensing platform in freshwater, saltwater and aquaculture applications.

## **CALIBRATION-FREE:**

unlike other pH sensors that need frequent re-calibration, ANB's patented technology means that the sensor is automatically calibrated in-situ without the need for manual intervention.

## **ADAPTABLE:**

these calibration-free pH sensors can be deployed autonomously or fit on any vehicle, sonde or monitoring platform.

## **ROBUST & RELIABLE:**

these solid-state sensors can be stored wet or dry without any degradation of performance, have no special handling requirements and operate in any orientation, delivering consistent & reliable performance in demanding environments.

## **AFFORDABLE:**

being cost effective and extremely low maintenance, these revolutionary sensors deliver up to 70% savings against operating costs of conventional sensors.

## **INTELLIGENT:**

constantly monitoring themselves these sensors provide real time feedback on sensor performance, continuously self-calibrating and automatically notifying an operator should user intervention be required.

## **CHOICE:**

2 models are available for operating at different depths and applications, choose from sensors designed to operate up to 5m & 50m depths, plus an integration kit that allows incorporation to existing sensing platforms and vehicles.

## **FLEXIBLE:**

automated operation for schedule and sample frequency plus manual command and sleep mode, data can be accessed via RS232 or RS485 communications, with analogue connectivity scheduled for future implementation.

## **STORAGE:**

on board 8GB memory allows storage of >15 million sensor readings of pH, conductivity, and temperature.

## **BIOFOULING:**

these sensors are designed to stop biofouling as standard, by electrochemically inhibiting the formation of biofilm on the transducer.





**((•)) ANB Sensors**

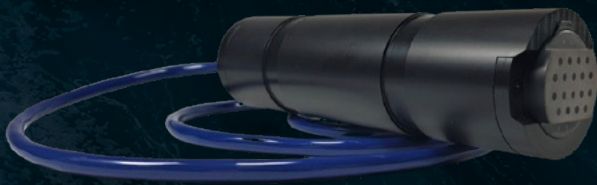
# AQ series of next generation, calibration-free pH sensors

## APPLICATIONS:

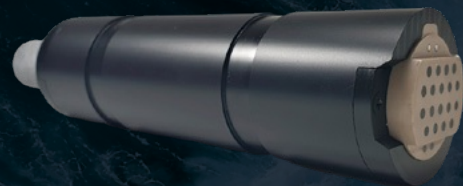
Oceans, Coastal, Estuaries, Rivers, RAS facilities, Offshore, Aquaculture Farms, Profiling, Ponds, Well Boats & Lakes.

## DEPLOYMENTS:

Profilers, Buoys, Vehicles, Moorings, River Stations, Sondes, Ferry boxes, Flow-through Systems & Flow Lines.



**AQ5**  
5m rated



**AQ50**  
50m rated

## SPECIFICATIONS

**pH range:** 2 – 10

**Resolution:** 0.01 pH

**Accuracy:** +/- 0.05 pH

**Response:** Instantaneous

**Salinity:** 0 – 40 ppt

**Temperature Resolution:** 0.1C

**Operational Temperature:** -5 - 40°C

**Communications:** RS232 / RS485 / USB

**Power:** 5 – 42 VDC

**Power Consumption:** 90 mA

**Sleep Mode Consumption:** <1 mA

**Operational Modes:** timed / polled / continuous

**On Board Storage:** 8GB

**Dimensions:** AQ5 165mm / AQ50 191mm  
long x 41mm Ø

**AQ5 Weight:** 0.26Kg (air) 0.04Kg (water)

**AQ50 Weight:** 0.30Kg (air) 0.08Kg (water)

**AQ5 Cable** 1m supplied as standard

**AQ50 Cable** Optional purchased separately

**AQ5 / AQ50 DTU** Optional purchased separately

**Replacement transducer:** AQ5/50ST  
purchased separately

**AQ5 Connection:** via pigtail

**AQ50 Connection:** via 6 pin MCBH6M connector

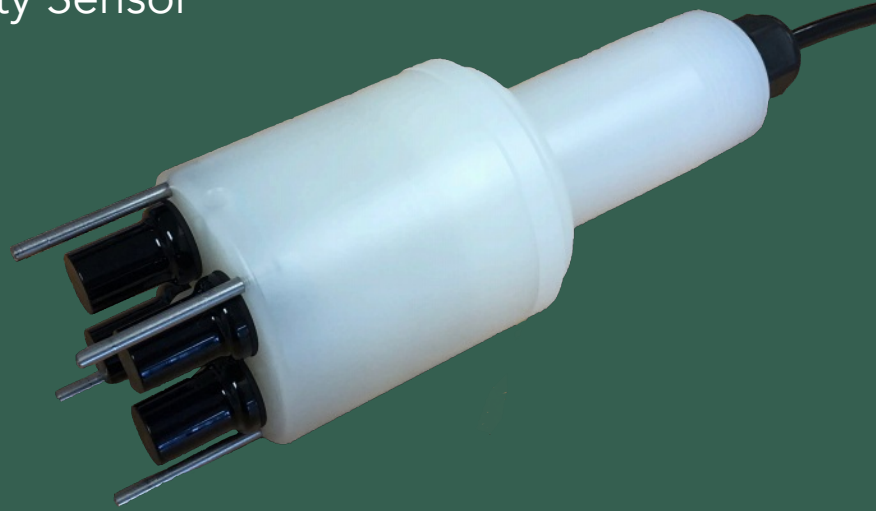


# T30-SWW

## Suspended Solids / Turbidity Sensor

Get better control and monitoring of your Stormwater run-off, Sediment, Raw Water and Surface Water. Bringing sophisticated process control suspended solids sensors to Stormwater and Waste

- Four beam self compensating sensor, virtually eliminates drift due to contamination or electronic ageing.
- Immersion style.
- Simple user interface.
- Accurate, repeatable & reliable.
- Low power suitable for remote installations
- Connects directly with 4-20mA and Modbus RS485, or SDI-12



T30-SWW Measurement Range, 0 to 1000 NTU, 0 to 750mg/l SiO<sub>2</sub>

**Multi-beam sensor using both attenuated and 90° scattered light. The multi-beam system compensates for fouling of surface and ageing of electronics providing a very repeatable output.**

**Applications include;**

- Stormwater sediment runoff monitoring
- Flocculant dosing and control
- Wastewater monitoring and control
- Monitoring of clarifier overflow weirs
- Raw water inlet turbidity measurement to water treatment plants
- Surface water monitoring
- Solids loading in rivers and streams
- Final outlet of effluent from DAF plants
- Filtration Monitoring and control

## Specifications

Measuring Range	Immersion Sensor: 0 to 1000 NTU 0 to 750mg/l SiO <sub>2</sub> (the measuring range will vary according to media and particle characteristics)
Accuracy	+/- 2% of reading
Repeatability	+/- 1% of reading
Temperature	0 to 50°C operating range
Pressure	5 Bar
Cable	Polyurethane covered cable rated to 95°C. Extension cables can be supplied to extend the cable up to 100m.
Outputs	Modbus RS485, 4-20mA and 1 x solid state relay or SDI-12 only
Power Requirement	Modbus only - 0.25W at 3.7V 4-20mA and Modbus - 9 to 32V DC SDI-12 - 0.1W (working), 0.002W (asleep) at 3.7 to 32V DC

## Model Number Selection Guide

Body Style	T30-SWW - Immersion Body
Wave Length	880nm - Standard.
Body Material	PP - Polypropylene, Fingers - Polysulfone
Cable	10- Supplied with a 10m cable as standard. Other lengths available
Output	MB - Modbus RS485, or SD - SDI-12
Jet Nozzle	Requires water or airflow. Air to 5 Bar

Sample model no; T30-SWW-880-PP-10-MB

Calibration Shipped with PC based App and USB Dongle

