Aqua TROLL® CTD Data Loggers

CONDUCTIVITY, TEMPERATURE, PLUS WATER LEVEL LOGGING

MEASURE AND RECORD WATER LEVEL, WATER PRESSURE, CONDUCTIVITY, AND TEMPERATURE WITH THE AQUA TROLL 200, OR ONLY CONDUCTIVITY AND TEMPERATURE WITH THE AQUA TROLL 100. UNIQUE CONDUCTIVITY CELL ALLOWS FOR A WIDE, ACCURATE MEASUREMENT RANGE IN A NARROW DIAMETER INSTRUMENT (SUB-1 INCH).

ACCURATE RESULTS

- Use dynamic density compensation to collect accurate water level data in environments where salinity values may vary.
- Receive 3D factory calibrated instruments that are validated with NIST®-traceable standards.
- Deploy for long-term monitoring knowing instruments operate with very low drift.

FLEXIBLE COMMUNICATIONS PROTOCOLS

- Simplify spot checking and profiling when you pair an Aqua TROLL with a TROLL® Com Plus and the VuSitu® Mobile App. The app guides you through instrument setup with user-friendly features like Calibration Assistant and Log Setup Assistant
- Streamline data collection with VuSitu's Panoramic Live Data feature. Consolidate all site information on your mobile device, and tag data with site photos and GPS coordinates.
- Integrate with VuLink® telemetry and SCADA systems for real-time data and automatic event alerts in HydroVu® Data Services. Outputs include standard Modbus/RS485, SDI-12, and 4-20 mA.
- VuSitu instantly uploads all data files to your HydroVu account for secure cloud storage and convenient access and management alongside real-time data from VuLink Telemetry.

RUGGED, COMPACT DESIGN

- Use in harsh environments such as coastal, remediation and mine water monitoring projects. Titanium construction resists fouling and is chemical- and corrosion-resistant.
- Sub-1 inch design fits narrow diameter, 1-inch wells.
- Use RuggedCable® Systems with titanium twist-lock connectors for quick, reliable connections. Integrate with the Rugged Cable Splitter to attach multiple In-Situ Shared Ecosystem instruments in a single water column with a single connector, allowing you to measure multiple parameters at various depths and simultaneously.

TOTAL FIELD SUPPORT

- One-stop shop for purchasing and support.
- Technical support is just a phone call away.
- Guaranteed 7-day service for maintenance (U.S. only**).**

Applications:

- **AQUIFER STORAGE AND RECOVERY SYSTEMS**
- **COASTAL DEPLOYMENTS–SALTWATER INTRUSION MONITORING, STORM SURGE ANALYSIS, AND ESTUARY/WETLAND RESEARCH**
- **REMEDIATION SITE AND MINE WATER MONITORING**
- **STORMWATER MONITORING PROGRAMS**

in-situ.com

Aqua TROLL® 100 and 200 Data Loggers

VUSITU MOBILE APP

Use the VuSitu Mobile App to access and manage data on your smartphone or other mobile device. This intuitive, free mobile app is an all-in-one software package that provides auto-configuration, simplified calibration, guided log setup, directed data analysis, automated report creation and more. Tag data with site photos and GPS coordinates. View results in the field and in your HydroVu Data Services account with instant backups to the cloud for secure data storage, access and management. Download through the Google Play Store or the Apple App Store.

HYDROVU DATA SERVICES

Get decision-quality data anywhere, anytime, with cloud-based HydroVu Data Services. View, graph, manage and share field data from VuSitu alongside real-time telemetry data from remote monitoring sites equipped with VuLink Telemetry.

AQUA TROLL 100 AND 200 INSTRUMENTS	
TEMPERATURE RANGES[1]	Operational: -5 to 50° C (23 to 122° F) Storage: -40 to 65° C (-40 to 149° F) Calibrated: 0 to 50° C (32 to 122° F)
DIMENSIONS & WEIGHT	Diameter (OD): 1.83 cm (0.72 in.) Length: 31.5 cm (12.4 in.) Weight: 188 g (0.41 lb)
MATERIALS	Titanium, PVC, FKM Fluoroelastomer, EPDM, Acetal
OUTPUT OPTIONS	Modbus/RS485, SDI-12, and 4-20 mA
BATTERY TYPE & LIFE[2]	3.6V lithium. 5 years or 200,000 readings3
EXTERNAL POWER	8-36 VDC; Measurement current: 15 mA; Sleep current: 40 µA
MEMORY Data records[4] Data logs	4.0 MB 190,000 50
LOG TYPES[5]	Linear, Linear Average, and Event
FASTEST LOGGING RATE	Linear: 1 per minute. Linear Average: 1 per minute. Event: 1 per second
FASTEST OUTPUT RATE	1 per second
ENVIRONMENTAL RATING	IP 68 with cable attached IP 67 without cable attached

CONDUCTIVITY SENSOR – TYPE: Balanced 4-electrode cell		
METHODS	EPA Method 120.1; Standard Methods 2510	
RANGE, ACCURACY, & RESOLUTION	Range: 0 to 100,000 µS/cm Accuracy: ± 0.5% of reading + 1 µS/cm when reading less than 80,000 µS/cm ± 1.0% of reading when reading above 80,000 µS/cm Resolution: 0.1 µS/cm)	
PARAMETERS SUPPORTED[6] Actual conductivity Specific conductivity[7] Salinity[8] Total dissolved solids Resistivity Density (water salinity)	Range 0 to 100,000 µS/cm 0 to 100,000 µS/cm 0 to 42 PSU 0 to 82 ppt 10 to 200,000 Ohms-cm 0.98 to 1.14 g/cm3	Units µS/cm, mS/cm µS/cm, mS/cm PSU ppt, ppm Ohms-cm g/cm3

PRESSURE/LEVEL/SENSOR[9] – TYPE: Piezoresistive. Pressure/level are available only on the Aqua TROLL 200 Instrument.		
RANGE	Absolute (non-vented) 30 psia: 11 m (35 ft) 100 psia: 60 m (197 ft) 300 psia: 200 m (658 ft)	Gauged (vented) 5 psig: 3.5 m (11.5 ft) 15 psig: 11 m (35 ft) 30 psig: 21 m (69 ft) 100 psig: 70 m (231 ft) 300 psig: 210 m (692 ft)
BURST PRESSURE	Maximum 2x range; burst > 3x range	
MAX PRESSURE FOR AQUA TROLL 100	300 psi (692 ft))	
ACCURACY & RESOLUTION[10]	Accuracy: ±0.05%FS or better; Resolution: ±0.01%FS or better	
LONG-TERM STABILITY[12]	<0.1% FS	
UNITS OF MEASURE	Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH20, inH20. Level: in, ft, mm, cm, m	

TEMPERATURE SENSOR[13]	
METHOD	EPA Method 170.1
ACCURACY & RESOLUTION	Accuracy: ±0.1° C. Resolution: 0.01° C or better
UNITS OF MEASURE	Celsius or Fahrenheit
WARRANTY	2 years. Up to 5-year (total) extended warranties available.

[1] Temperature range for non-freezing liquids
[2] Typical battery life when used within the factory-calibrated temperature range, dependent on site conditions
[3] 1 reading = date/time plus all available parameters polled or logged from device
[4] 1 data record = date/time plus 3 parameters logged (no wrapping) from device
[5] External power or battery pack is recommended when using Linear Average or Event logging modes.
[6] Parameters derived from temperature at 25° C and actual conductivity range of 0 to 100,000 µS/cm with a ±0.5% + 1 µS/cm accuracy
[7] Derived from Standard Methods 2510B
[8] Defined by the Practical Salinity Scale 1978; Standard Methods 2520B
[9] Real-time level compensation based on water density
[10] Accuracy with 4-20 mA output option: ±0.25% FS
[11] Includes linearity and hysteresis over 1 year.
[12] Temperature response varies by temperature change and environmental conditions. Under typical field conditions, T95<5 min.

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