![In-Situ]

Rugged TROLL® 100 and 200 Data Loggers

RUGGED TROLL 100 AND 200 DATA LOGGERS ARE DESIGNED FOR LONG- AND SHORT-TERM GROUNDWATER AND SURFACE WATER MONITORING. THESE NON-VENTED (ABSOLUTE) WATER LEVEL DATA LOGGERS MEASURE AND RECORD CHANGES IN WATER LEVEL, PRESSURE, AND TEMPERATURE. ENSURE ACCURATE RESULTS BY USING A RUGGED BAROTROLL® DATA LOGGER. ALL LOGGERS ARE COMPATIBLE WITH THE USER-FRIENDLY VUSITU® MOBILE APP.

AFFORDABLE TITANIUM DATA LOGGERS
- Get reliable data at a budget-friendly price.
- Use in harsh environments. Solid titanium construction offers chemical- and corrosion-resistance and outlasts specially-coated data loggers.
- Select the appropriate logging mode for your project: Linear, Fast Linear, or Event.

FLEXIBLE DEPLOYMENT OPTIONS
- Deploy zero-maintenance loggers in flood-prone areas, high-humidity environments, and remote locations.
- Choose the cable length and termination type that works best for your project.
- Use suspension wire and backshell hanger for applications requiring minimal instrument access.

TOTAL FIELD SUPPORT
- Receive quick-response technical support and online resources.
- Order data loggers and accessories directly from our website.
- Get guaranteed 7-day service for maintenance.

SIMPLIFIED SETUP AND DATA RETRIEVAL
- The VuSitu® mobile app guides you through instrument setup with user-friendly features like Calibration Assistant and Log Setup Assistant.
- VuSitu instantly uploads data files to your HydroVu® account for secure data access, storage and management, all in one place.
- Connect a cabled logger to a telemetry system, radio, controller, or a SCADA/PLC system via Modbus/RS485 or SDI-12 (with the Rugged TROLL 200 and Rugged BaroTROLL).
- Integrate with VuLink® Telemetry for real-time feedback on your remote, continuous monitoring sites in HydroVu.

EXTENDED SHELF LIFE
- The battery indicator on Rugged TROLL 100 and 200 instruments is controlled by an algorithm so that it will not count down until your unit is deployed and has taken at least 1,000 readings or is more than 9 months past its manufacturing date.

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Applications:
- **COASTAL WETLAND AND ESTUARY RESEARCH**
- **CREST STAGE GAGING AND STREAM GAGING**
- **DRILLING AND WELL DEVELOPMENT**
- **FLOOD AND STORM SURGE MONITORING**
- **LANDFILL LEACHATE MONITORING**

Rugged TROLL® 100 and 200 Data Loggers

GENERAL	RUGGED TROLL 100 & 200	RUGGED BAROTROLL
TEMPERATURE RANGES[1]	Operational: 0-50° C (32-122° F) Storage: -40-80° C (-40-176° F) Calibrated: 0-50° C (32-122° F)	Operational: 0-50° C (32-122° F) Storage: -40-80° C (-40-176° F) Calibrated: 0-50° C (32-122° F)
DIAMETER	2.62 cm (1.03 in.)	2.62 cm (1.03 in.)
LENGTH	14.43 cm (5.68 in.)	14.43 cm (5.68 in.)
WEIGHT	137 g (0.30 lb)	137 g (0.30 lb)
MATERIALS	Titanium, Acetal, FKM Fluoroelastomer, Ceramic	Titanium, Acetal, FKM Fluoroelastomer, Ceramic
OUTPUT OPTIONS	Rugged TROLL 100: USB via docking station; Wireless Rugged TROLL Com Rugged TROLL 200: USB via docking station; Wireless Rugged TROLL Com; Modbus/RS485 or SDI-12 via Rugged TROLL 200 Cable	USB or RS232 via docking station; Modbus/RS485 or SDI-12 via Rugged TROLL 200 Cable; Wireless Rugged TROLL Com Device
BATTERY TYPE & LIFE[2]	3.6V lithium; 10 years or 2M readings	3.6V lithium; 10 years or 2M readings
EXTERNAL POWER	Rugged TROLL 100: NA Rugged TROLL 200: 8-36 VDC	8-36 VDC
MEMORY Data records[3] Data logs	2.0 MB 120,000 Rugged TROLL 100: 1 log Rugged TROLL 200: 2 logs	2.0 MB 120,000 1 log
FASTEST LOGGING RATE	1 per second	1 per minute
FASTEST OUTPUT RATE	Rugged TROLL 200 only Modbus & SDI-12: 1 per second	Modbus & SDI-12: 1 per second
LOG TYPES	Linear, Fast Linear, and Event	Linear
SENSOR TYPE/ MATERIAL	**PIEZORESISTIVE; CERAMIC**	**PIEZORESISTIVE; CERAMIC**
RANGE	9 m (30 ft) (Burst: 18 m; 60 ft) 30 m (100 ft) (Burst: 40 m; 134 ft) 76 m (250 ft) (Burst: 112 m; 368 ft)	7 to 30 psi; 0.5 to 2 bar
ACCURACY	±0.05% FS from 0 to 50 °C	±0.05% FS from 0 to 50 °C
RESOLUTION	±0.01% FS or better	±0.01% FS or better
UNITS OF MEASURE	Pressure: psi, kPa, bar, mbar, mmHg Level: in., ft, mm, cm, m	Pressure: psi, kPa, bar, mbar, mmHg, inHg
TEMPERATURE SENSOR	**SILICON**	**SILICON**
ACCURACY	±0.3° C	±0.3° C
RESOLUTION	0.01° C or better	0.01° C or better
UNITS OF MEASURE	Celsius or Fahrenheit	Celsius or Fahrenheit
WARRANTY	**2 YEARS**	**2 YEARS**

NOTES: 1 Temperature range for non-freezing liquids. 2 Typical battery life when used within the factory-calibrated temperature range. 3 1 data record = date/time plus 2 parameters logged for a total of 360,000 data points, no wrapping. Delrin is a registered trademark of E.I. du Pont de Nemours & Co. Specifications are subject to change without notice. Android is a trademark of Google Inc.

VUSITU MOBILE APP FOR WIRELESS CONNECTION

Use the VuSitu Mobile App to view results instantly from your Android™ or iOS™ smartphone or tablet when connected to the Wireless Rugged TROLL Com or the Wireless Rugged TROLL Com. Consolidate all site information and tag data with site photos and GPS coordinates. VuSitu instantly uploads all logs, live recordings, calibration reports and other files to your HydroVu account for secure data storage and convenient access and sharing from any browser or mobile device.

RUGGED TROLL® 200 CABLE

Use the Rugged TROLL Direct-Read Cable to connect your Rugged TROLL 200 Data Logger or Rugged BaroTROLL Data Logger directly to a controller or logger. The cable comes in 2 communication modes:

• Direct Read Cable for SDI-12 (always Stripped and Tinned)

• Direct Read Cable for RS485

- Twist-lock connector for connection to VuLink or Wireless TROLL Com

- Top of Well connector for connection to Wireless Rugged TROLL Com or Rugged TROLL Com

- Stripped and Tinned for connection to third-party telemetry/ data loggers

JACKET OPTIONS	TPU (thermoplastic polyurethane)
CONDUCTORS	4 conductors, 24 AWG, polypropylene insulation
DIAMETER	Cable: 5.1 mm (0.200 in.) Connector: 26.1 mm (1.03 in.)
CABLE LENGTHS	Modbus/RS485: Customizable up to 300 m (1,000 ft) SDI-12: Standard lengths up to 60 m (200 ft)
MINIMUM BEND RADIUS	5X cable diameter
BREAK STRENGTH	68 kg (150 lbs)

WIRELESS RUGGED TROLL® COM COMMUNICATION DEVICE

Use the Wireless Rugged TROLL Com Device for communication between a cabled Rugged TROLL 100/200 or a cabled Rugged BaroTROLL and a VuSitu Mobile App or a laptop/PC.

OPERATING TEMP. RANGE	-5-50° C (23-122° F), 95% relative humidity, non-condensing
STORAGE TEMP. RANGE	-20-50° C (-4-122° F), 95% relative humidity, non-condensing*
MATERIALS	PC/ABS blend, Silicon, Urethane, Stainless Steel, Brass, Santoprene, Poron, Polyethylene, Versapor, Titanium, PEEK, Viton
ENVIRONMENTAL RATING	IP67
DIMENSIONS (LXWXH) WEIGHT (WITH BATTERIES)	6.3 x 1.710 x 1.210 in. 165 g
COMMUNICATION PROTOCOL	Android: SPP; Windows: SPP or USB
OUTPUT CONNECTION	Bluetooth and USB communication
BATTERY TYPE	1 3.7V 8600mWHr Lithium Rechargable cell (UBBL19-FL)
CHARGING REQUIREMENTS	5VDC USB charger (1A or 500 mA)
CERTIFICATIONS	CE, FCC (SSSBC127-X), WEEE
WARRANTY	1 year

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