



# IN-SITU RUGGED TROLL®

100 and 200 Data Loggers



## 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 and Win-Situ® PC Software.

### 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.

### World Class Support

- Receive 24/7 technical support and online resources.
- Order data loggers and accessories directly from our website.
- Get guaranteed 7-day service for maintenance (U.S.A. only).

### Simplified Setup and Data Retrieval

- Use the VuSitu Mobile App to consolidate all site information on your smartphone and tag data with site photos and GPS coordinates. Simply connect the instrument to a Wireless Rugged TROLL Com, launch the mobile app, and start reading results.
- Save time and reduce errors with the intuitive Win-Situ Software platform. Quickly program loggers, download data, graph results, and more.
- 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 In-Situ Tube and Cube Telemetry Systems and HydroVu™ Data Services for real-time feedback on your remote monitoring sites.

### Applications

- Coastal wetland and estuary research
- Crest stage gaging and stream gaging
- Drilling and well development
- Flood and storm surge monitoring

General	Rugged TROLL 100 & 200	Rugged BaroTROLL
<b>Temperature ranges<sup>1</sup></b>	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)
<b>Diameter</b>	2.62 cm (1.03 in.)	2.62 cm (1.03 in.)
<b>Length</b>	14.43 cm (5.68 in.)	14.43 cm (5.68 in.)
<b>Weight</b>	137 g (0.30 lb)	137 g (0.30 lb)
<b>Materials</b>	Titanium body; Delrin <sup>®</sup> nose cone, hanger, backend	Titanium body; Delrin nose cone, hanger, backend
<b>Output options</b>	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
<b>Battery type &amp; life<sup>2</sup></b>	3.6V lithium; 10 years or 2M readings	3.6V lithium; 10 years or 2M readings
<b>External power</b>	Rugged TROLL 100: NA Rugged TROLL 200: 8-36 VDC	8-36 VDC
<b>Memory Data records<sup>3</sup> Data logs</b>	2.0 MB 120,000 Rugged TROLL 100: 1 log Rugged TROLL 200: 2 logs	2.0 MB 120,000 2 logs
<b>Fastest logging rate</b>	1 per second	1 per minute
<b>Fastest output rate</b>	Rugged TROLL 200 only Modbus & SDI-12: 1 per second	Modbus & SDI-12: 1 per second
<b>Log types</b>	Linear, Fast Linear, and Event	Linear
<b>Sensor Type/Material</b>	Piezoresistive; Ceramic	Piezoresistive; Ceramic
<b>Range</b>	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
<b>Accuracy (FS)<sup>4</sup></b>	±0.1%	±0.1%
<b>Resolution</b>	±0.01% FS or better	±0.01% FS or better
<b>Units of measure</b>	Pressure: psi, kPa, bar, mbar, mmHg Level: in., ft, mm, cm, m	Pressure: psi, kPa, bar, mbar, mmHg, inHg
<b>Temperature Sensor</b>	Silicon	Silicon
<b>Accuracy</b>	±0.3° C	±0.3° C
<b>Resolution</b>	0.01° C or better	0.01° C or better
<b>Units of measure</b>	Celsius or Fahrenheit	Celsius or Fahrenheit
<b>Warranty</b>	2 years	2 years
<b>Notes:</b> <sup>1</sup> Temperature range for non-freezing liquids. <sup>2</sup> Typical battery life when used within the factory-calibrated temperature range. <sup>3</sup> 1 data record = date/time plus 2 parameters logged for a total of 360,000 data points, no wrapping. <sup>4</sup> Across factory-calibrated pressure and temperature ranges. 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™ smartphone or tablet when connected to the Wireless Rugged TROLL Com. Consolidate all site information and tag data with site photos and GPS coordinates. Log data to your smartphone and download results in a standard .csv file format.

### Rugged TROLL® 200 Cable

Access real-time data by using Rugged TROLL 200 Cable with a Rugged TROLL 200 or a Rugged BaroTROLL. Use a Cable Suspension Kit to anchor the cable in place. Available configurations:

- Modbus/RS485 stripped-and-tinned cable or SDI-12 stripped-and-tinned cable—Use with PLC, telemetry system, or logger.
- Modbus/RS485 top-of-well cable—Use with Rugged TROLL Com Device and a RuggedReader® Handheld PC or a PC.

<b>Jacket options</b>	TPU (thermoplastic polyurethane)
<b>Conductors</b>	4 conductors, 24 AWG, polypropylene insulation
<b>Diameter</b>	Cable: 5.1 mm (0.200 in.) Connector: 26.1 mm (1.03 in.)
<b>Cable lengths</b>	Modbus/RS485: Customizable up to 300 m (1,000 ft) SDI-12: Standard lengths up to 60 m (200 ft)
<b>Minimum bend radius</b>	5X cable diameter
<b>Break strength</b>	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 RuggedReader Handheld PC or a laptop/PC.

<b>Operating temp. range</b>	-5-50° C (23-122° F), 95% relative humidity, non-condensing
<b>Storage temp. range</b>	-20-50° C (-4-122° F), 95% relative humidity, non-condensing*
<b>Materials</b>	PC/ABS blend, Silicon, Urethane, Stainless Steel, Brass, Santoprene, Poron, Polyethylene, Versapor, Titanium, PEEK, Viton
<b>Environmental rating</b>	IP67
<b>Dimensions (LxWxH)</b>	6.3 x 1.710 x 1.210 in.
<b>Weight (with batteries)</b>	165 g
<b>Communication Protocol</b>	Android: SPP; Windows: SPP or USB
<b>Output connection</b>	Bluetooth and USB communication
<b>Battery type</b>	1 3.7V 8600mWhr Lithium Rechargeable cell (UBBL19-FL)
<b>Charging requirements</b>	5VDC USB charger (1A or 500 mA)
<b>Certifications</b>	CE, FCC (SSSBC127-X), WEEE
<b>Warranty</b>	1 year