



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 user-friendly Win-Situ® Software, which guides you through programming steps, automates level corrections, and accelerates report generation.

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.

Outstanding Service

- 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

- Save time and reduce errors with the intuitive Win-Situ 5 and Win-Situ Mobile Software platform. Quickly program loggers, download data, graph results, and more.
- Use a Rugged TROLL Docking Station for programming and downloading data.
- Connect a cabled logger to a telemetry system, radio, controller, or a SCADA/PLC system via Modbus/RS485 or SDI-12 (only 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
- Landfill leachate monitoring

General	Rugged TROLL 100 & 200	Rugged BaroTROLL
Temperature ranges¹	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	170 g (0.37 lb)	170 g (0.37 lb)
Materials	Titanium body; Delrin [®] nose cone, hanger, backend	Titanium body; Delrin nose cone, hanger, backend
Output options	Rugged TROLL 100: USB or RS232 via docking station Rugged TROLL 200: USB or RS232 via docking station; 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
Battery type & life²	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 records³ Data logs	2.0 MB 120,000 Rugged TROLL 100: 1 log Rugged TROLL 200: 2 logs	2.0 MB 120,000 2 logs
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
Accuracy⁴	±0.1% full scale (FS) typical ±0.3% FS max.	±0.1% FS typical ±0.3% FS max.
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. ⁴ 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.		

Rugged BaroTROLL® Data Logger

Use the titanium Rugged BaroTROLL with either a Rugged TROLL 100 or 200 Data Logger. Win-Situ® Baro Merge® Software simplifies post-correction of water level data for barometric pressure changes.

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.

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)

Rugged TROLL® Com Communication Device

Use the Rugged TROLL Com Device for communication between a cabled Rugged TROLL 200 or a cabled Rugged BaroTROLL and a RuggedReader Handheld PC or a laptop/PC.

Operating temp. range	0-50° C (32-122° F)
Storage temp. range	-40-80° C (-40-176° F)
Materials	Delrin, rubber, copper pins
Environmental rating	IP67 with battery cover closed
Dimensions (LxWxH)	8.9 x 2.9 x 4.8 cm (3.5 x 1.14 x 1.88 in.)
Input connection	Modbus/RS485
Output connection	Available with either USB or RS232
Power source	9V alkaline battery, user-replaceable
Cable	Black polyurethane, 91 cm (3 ft) long

Rugged TROLL® Docking Station

Use the docking station to program and download data from a Rugged TROLL 100 or 200 or from a Rugged BaroTROLL. The docking station is available with either a USB or RS232 communication interface. USB allows fast data transfer to a PC. Use the RS232 version with a laptop/PC or a RuggedReader Handheld PC.