

Level-Velocity Logger

Stingray 2.0



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Logs Level and Velocity
for Flow Studies

Includes powerful
Windows software for
Flow analysis and reporting

Measures Level, Velocity + Temperature in Open Pipes and Channels

Portable, Battery-powered

This compact new meter operates on standard alkaline batteries for extended time periods to data log level, velocity and water temperature in open channels, partially full sewer pipes and surcharged pipes without a flume or weir. It is designed for municipal stormwater, combined effluent, raw sewage, irrigation water and stream flow.

Streamlined Ultrasonic Sensor

Stingray 2.0 uses a hydrodynamic ultrasonic sensor to accurately measure both velocity and level in the channel. The submerged sensor has no moving parts and is resistant to fouling and corrosion.



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Level-Velocity Logger

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Stingray 2.0 measures level and velocity in open channels or pipes. No calibration is required. The sensor is a completely sealed ultrasonic unit with no orifices or ports. It mounts inside the pipe or at the bottom of a channel. The watertight electronics enclosure is hung in the manhole or at a convenient location. Sensor, mounting bracket, batteries, software and cables are included with each Stingray.



Stingray Installed in a Stream Flow Application

Powered by Standard Alkaline Batteries and Operates up to Four Years!

With 4 D-cell Alkaline batteries the Stingray 2.0 will operate up to 4 years! These low-cost batteries are available in stores everywhere and with an extremely low self discharge rate they will reliably power the energy-efficient Stingray 2.0 for the duration of your flow study.



Stores 130,000 Data Points

Stingray 2.0 stores up to 130,000 data points including level, velocity and water temperature. Between readings it hibernates to conserve energy.

USB Data Download

Connect your laptop or PC to the Stingray's USB output to view realtime level and velocity readings, view remaining logger and battery capacity and to set the Stingray 2.0 logging interval.

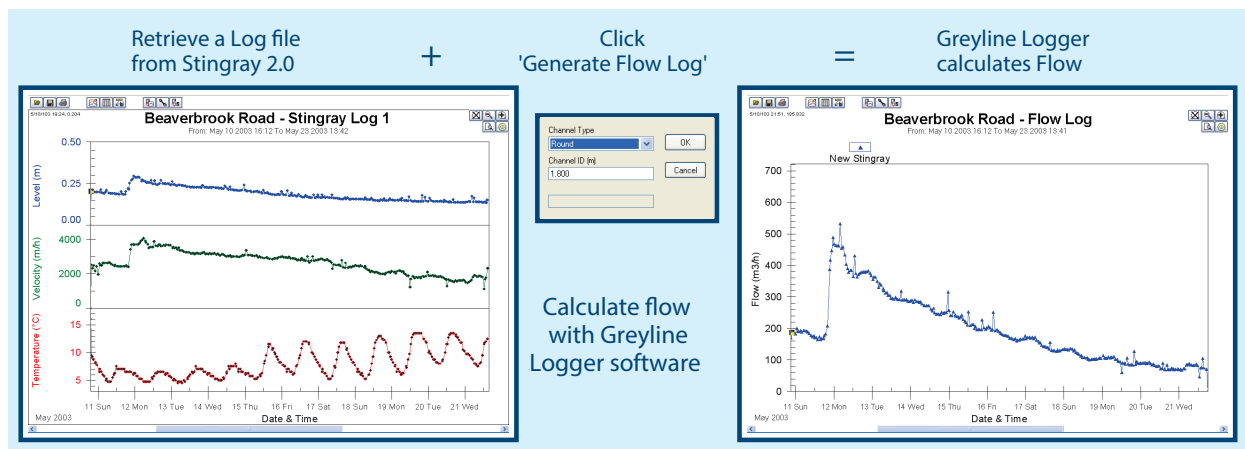
Logging Interval	Log Duration	Battery Life
10 sec	15 days	15 days
30 sec	45 days	45 days
1 min	3 months	3 months
2 min	6 months	6 months
5 min	1 year	1 year
10 min	2 years	2 years
15 min	3 years	3 years
30 min	4 years	4 years
60 min	4 years	4 years

Greyline Logger Software

Powerful Windows software is included free with each Stingray 2.0. Use it to set the logger interval, to download log files and view Level, Velocity and water temperature readings in real-time.

Greyline Logger will display log files and flow rates in graph and table formats. It will generate flow reports including minimum, maximum and average flow, calculate flow totals, and convert between common measurement units.

Reporting is easy with Greyline Logger software - you can export charts as image files and export data to use in spreadsheet or database programs.



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Stingray 2.0 Specifications

General Specifications

Greyline Stingray 2.0 Level-Velocity Logger	
Electronics Enclosure:	Watertight, airtight, dust proof (IP 67) polycarbonate
Accuracy:	Level: $\pm 0.25\%$ of Range. Velocity: $\pm 2\%$ of Reading
Display:	LCD displays: Level, Velocity, Water Temperature, Battery and Memory capacity
Operating Temp. (electronics):	-4° to 140°F (-20° to 60°C)
Instrument Set-up:	via Greyline Logger software for Windows: Logging Time Interval, Site Name
Logger Interval:	10 sec (15 days), 30 sec (45 days), 1 min (3 months), 2 min (6 months), 5 min (1 year), 10 min (2 years), 15 min (3 years), 30 min (4 years) or 60 min (4 years)
Data Logger Capacity:	130,000 data points
Power:	4 Alkaline 'D' cell batteries
Output/Communications:	USB
USB Cable:	3 ft (1 m) shielded
Software:	Greyline Logger for Windows. Supports real-time monitoring, log file download and export, graph and data table presentation, level/velocity to flow conversion
Approximate Shipping Weight:	10 lbs. (4.5 kg)

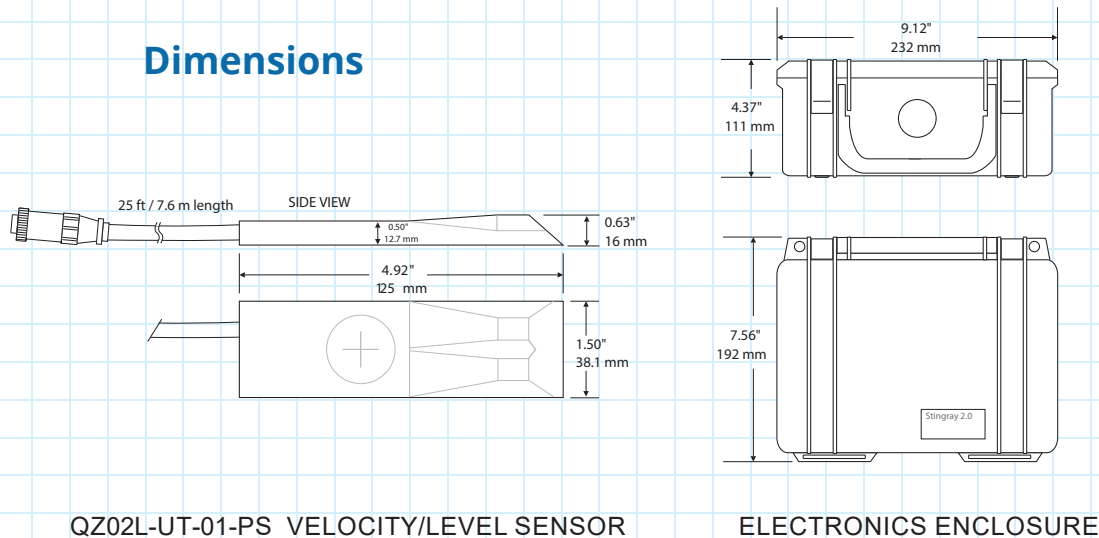
QZ02L Sensor

Velocity Measurement Range:	0.1 to 12.5 ft/sec (0.03 to 3.8 m/sec) in fluids containing bubbles or solids with a minimum size of 100 microns and a minimum concentration of 75 ppm to act as acoustic reflectors
Level Measurement Range:	Minimum Head: 1 in (25.4 mm). Maximum Head: 15 ft. (4.5 m)
Operating Temperature:	5 to 175°F (-15 to 80°C)
Exposed Materials:	316 stainless steel, polyurethane, epoxy
Sensor Cable:	25 ft. (7.6 m) submersible polyurethane jacket, shielded, 3-coaxial
Sensor Mounting:	includes MB-QZ stainless steel mounting bracket
Temperature Compensation:	Automatic, continuous

Options

Sensor Cable Extension:	shielded 50 ft. (15 m) submersible, polyurethane jacket with watertight connectors
Sensor Mounting Bands:	Stainless steel sensor mounting bands for pipes from 6" to 72" (150 to 1800 mm)
Extended Temperature Sensor:	QZ02L-HT, CPVC construction rated to 175°F (80°C)

Dimensions



Level-Velocity Logger

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New Portable Level-Velocity Logger for Flow Surveys in Sewers, Streams and Open Channels

Use Stingray 2.0 for:

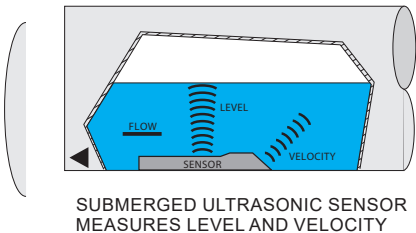
- Flow Surveys
- Inflow & Infiltration Studies
- CSO Monitoring
- Stormwater Runoff
- Irrigation Water
- Permit Compliance
- Wastewater Treatment Plant Flow Studies

Easy to Operate

No calibration is required. Just install the sensor at the bottom of the pipe or channel and the Stingray 2.0 logs level and velocity readings. Use Greyline Logger software (included) to set the logging interval, and to view readings in real-time on your laptop or PC. Stingray 2.0's built-in LCD display lets operators check level and velocity rates, remaining battery life and logger memory.

Built-in Display for Operator Confidence

Operators can check operation with the built-in LCD bar graph display. It scrolls through level, velocity and temperature readings, plus remaining battery and logger storage capacity. The display turns off automatically after 60 seconds to conserve battery power.



How it Works

The sensor transmits ultrasonic pulses that travel through the water and reflect off the liquid surface. To monitor water level, the Stingray 2.0 precisely measures the time it takes for echoes to return to the sensor.

Velocity is measured with an ultrasonic signal continuously injected into the flow. This high frequency sound is reflected back to the sensor from particles or bubbles suspended in the liquid. If the fluid is in motion, the echoes return at an altered frequency proportionate to flow velocity. The Stingray 2.0 uses this Doppler frequency shift to accurately calculate flow velocity.



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