pulsar MEASUREMENT

Greyline

STINGRAY 2.0

Portable, level-velocity logger measures area-velocity flow in open channels & pipes

Measures Level, Velocity, & Temperature in Open Pipes & Channels

Portable, Battery-powered

This compact meter operates on standard alkaline batteries for extended 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 streamflow.

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.

Portable Area-Velocity Meter

The Greyline Stingray 2.0 measures both level and velocity in open channels or pipes, with no calibration required. The sensor is a completely sealed ultrasonic unit with no orifices or ports and mounts inside the pipe or at the bottom of a channel with the IP67 rated controller hung in the manhole or at a nearby location. The unit comes with a sensor, mounting bracket, batteries, software, and cables, so you have everything you need to get started right away!

THE RIGHT METER FOR

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

Powered by Standard Alkaline Batteries & Operates up to 4 Years!

With 4 D-cell Alkaline batteries, the Stingray 2.0 will operate for 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.

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

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 real-time level and velocity readings, view the remaining logger and battery capacity, and to set the Stingray 2.0 logging interval.

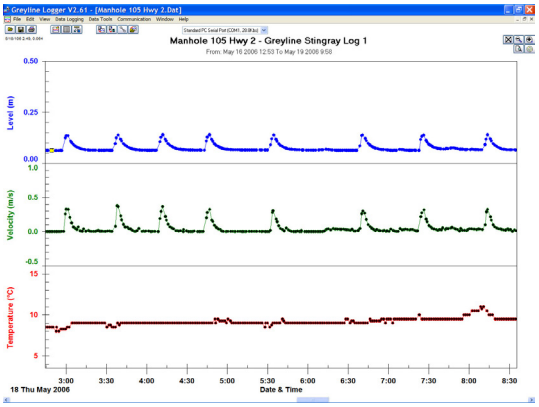
Greyline Logger Software

The Greyline Stingray 2.0 comes with powerful Windows software, where users can set the logger interval, download log files, and view level, velocity, and water temperature readings in real-time.

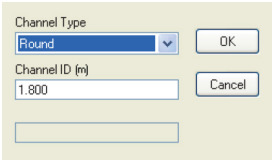
The Greyline Logger software will display log files and flow rates in graphical and table formats. It is able to generate flow reports that include minimum, maximum, and average flow, calculate flow totals, and easily converts between common measurement units!

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

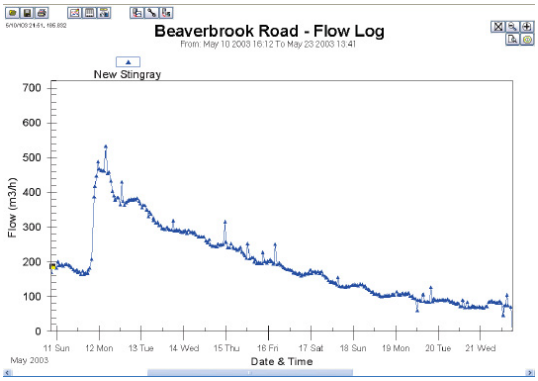
Calculate Flow with Greyline Logger Software



Greyline Logger Calculates Flow



Click 'Generate Flow Log'



Retrieve a Log file from Stingray 2.0

Technical Specifications

GENERAL SPECIFICATIONS

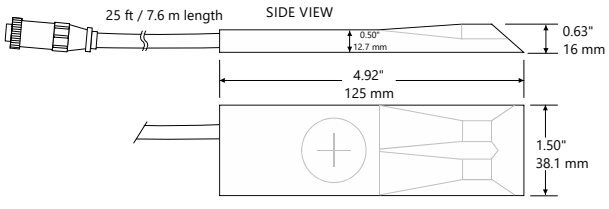
Electronics Enclosure:	IP67 polycarbonate
Accuracy:	Level: ±0.25% of Range. Velocity: ±2% of Reading
Display:	LCD: level, velocity, water temperature, battery, and memory capacity
Operating Temp.(Electronics):	-20 °C to +60 °C (-4 °F to +140 °F)
Instrument Set Up:	Via Greyline Logger software for Windows: 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 • 60 min: 4 years
Data Logger Capacity:	130,000 data points
Power Input:	4 Alkaline 'D' cell batteries
Output/Communications:	USB
USB Cable:	914.4 mm (36 in) 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:	4.5 kg (10 lb)

TRANSDUCER SPECIFICATIONS

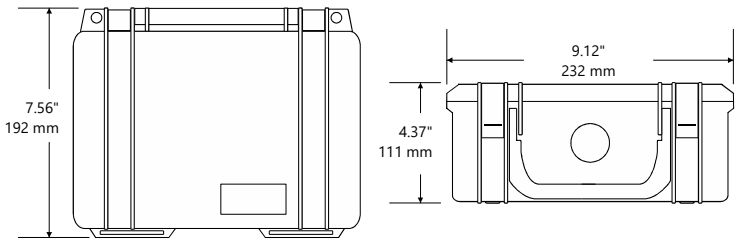
Velocity Measurement Range:	0.031 m/s to 3.8 m/s (0.1 ft/s to 12.5 ft/s) in fluids containing bubbles or solids with a minimum size of 100 microns and a minimum concentration of 75 ppm to act as acoustic reflectors
Level Measurement Range:	• Minimum Head: 25.4 mm (1 in) • Maximum Head: 4.6 m (15 ft)
Operating Temperature:	-15 °C to +80 °C (+5 °F to +175 °F)
Exposed Materials:	316 stainless steel, Ultem, epoxy
Sensor Cable:	7.6 m (25 ft) submersible PVC jacket, shielded, 3-coaxial
Transducer Mounting:	Includes MB-QZ stainless steel mounting bracket
Temperature Compensation:	Automatic, continuous

POPULAR OPTIONS

Transducer Cables Extension:	Shielded 15.2 m (50 ft) submersible, PVC jacket with watertight connectors
Sensor Mounting Bands:	Stainless steel sensor mounting bands for pipes from 152.4 mm to 1.8 m (6 in to 6 ft)



QZ02L-SS-01-PS Velocity / Level Sensor



Electronics Enclosure

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

Easy to Operate

The sensor is simply installed in the bottom of a pipe or channel with no calibration required. Use the included Greyline Logger software to set the logging interval and to get real-time flow readings on your laptop or PC. The built-in LCD display lets users check level and velocity rates, remaining battery life, and logger memory.

Built-in Display for Operator Confidence

Users can check operation with the built-in LCD bar graph display. The Greyline Stingray 2.0 can scroll through level, velocity, and temperature readings, and indicates the units remaining battery life and logger storage capacity. To help with battery life, the display will turn off automatically after 60 seconds to conserve battery power.

Submerged ultrasonic sensor measures level and velocity

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 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.

pulsar MEASUREMENT

Delivering the Measure of Possibility

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