

Greyline

# MANTARAY

## Technical Specifications:

The MantaRay Portable Area-Velocity Flow Meter measures both level and velocity to calculate flow in an open channel or partially filled pipe. Designed for flow studies, infiltration and inflow studies, or portable area-velocity measurement. Ideal for sewage, stormwater, irrigation, and environmental flows.



### GENERAL SPECIFICATIONS

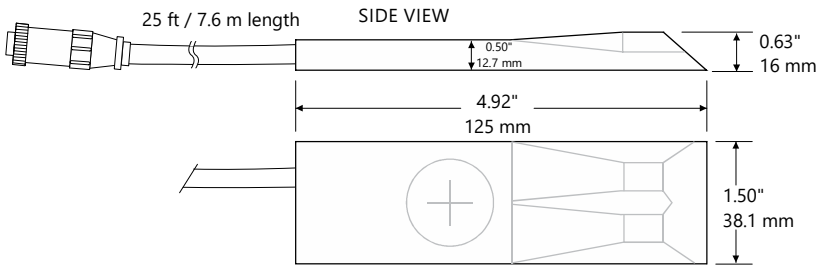
<b>Channel Types:</b>	Round pipe, rectangular, trapezoid, egg, or custom shapes
<b>Electronics Enclosure:</b>	IP67 polycarbonate
<b>Operating Temp.(Electronics):</b>	-20 °C to +60 °C (-5 °F to +140 °F)
<b>Accuracy:</b>	<ul style="list-style-type: none"> <li>Level: <math>\pm 0.25\%</math> of Range or 1 mm (0.04 in). Velocity: <math>\pm 2\%</math> of reading</li> <li>Repeatability and Linearity: <math>\pm 0.1\%</math></li> </ul>
<b>Display:</b>	White, backlit matrix — displays flow rate, totalizer, relay states, operating mode, and calibration menu
<b>Programming:</b>	Built-in 5-key calibrator with English, French, or Spanish language selection
<b>Battery:</b>	Internal rechargeable NiMH, 12 V DC, 10,000 mAh
<b>Battery Charger:</b>	6 A (100 W Max), 100-240 V AC 50/60 Hz input, UL and CE listed
<b>Output/Communications:</b>	4-20mA, 500 $\Omega$ or 0-5 V DC (100mA) by menu selection 2 solid-state Relays, 40 V AC/DC max., rated 250mA; programmable for flow and/or level alarm or flow proportional pulse (sampler/totalizer, Max frequency 0.4 Hz)
<b>Breakout Box:</b>	Connections for charger input, external battery input, 2 relays, 4-20mA (0-5 V)
<b>Electrical Surge Protection:</b>	Sensor: 4-20mA outputs and AC power input
<b>Data Logger:</b>	Programmable 2-million point data capacity, time and date stamped plus formatted flow reports including total, average, minimum, maximum, and times of occurrence. Includes USB output to Flash Drives.
<b>Logger Intervals:</b>	Programmable: 10 sec, 30 sec, 1 min, 2 min, 5 min, 10 min, 15 min, 30 min, 60 min
<b>Software:</b>	Greyline Logger for Windows. Graph and data table presentation, level / velocity to flow conversion, exports data to Excel, exports graphs.
<b>Approximate Shipping Weight:</b>	6.8 kg (15 lb)

### QZ02L TRANSDUCER SPECIFICATIONS

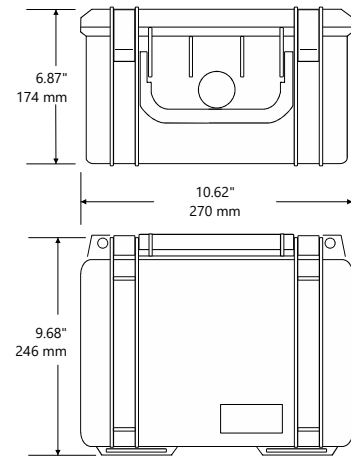
<b>Velocity Measurement Range:</b>	0.031 m/s to 6.2 m/s (0.1 ft/s to 20 ft/s) and reverse flow to -1.5 m/s (-5 ft/s)
<b>Level Measurement Range:</b>	<ul style="list-style-type: none"> <li>Minimum Head: 25.4 mm (1 in)</li> <li>Maximum Head: 4.6 m (15 ft)</li> </ul>
<b>Operating Temperature:</b>	-15 °C to +80 °C (+5 °F to +175 °F)
<b>Exposed Materials:</b>	316 stainless steel, epoxy resin, polyurethane
<b>Sensor Cable:</b>	7.6 m (25 ft) submersible polyurethane jacket, shielded, 3-coaxial
<b>Transducer Mounting:</b>	Includes MB-QZ stainless steel mounting bracket
<b>Temperature Compensation:</b>	Automatic, continuous

### POPULAR OPTIONS

<b>Transducer Cables Extension:</b>	Shielded 15.2 m (50 ft) submersible, polyurethane jacket with watertight connectors
<b>Sensor Mounting Bands:</b>	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

## Delivering the Measure of Possibility

Pulsar Measurement offers worldwide professional support for all of our products, and our network of global partners all offer full support and training. Our facilities in Malvern, UK and Largo, USA are home to technical support teams who are always available to answer your call or attend your site when required. Our global presence, with direct offices in the UK, USA, Canada, and Malaysia, allows us to create close relationships with our customers and provide service, support, training, and information throughout the lifetime of your product.

By taking a step forward in echo processing technology, Pulsar Measurement addresses applications previously thought to be beyond the scope of ultrasonic measurement. This technology improves signal processing at the transducer head which has made it possible to increase resistance to electrical noise, enabling the transducer to 'zone in' on the true echo.

For more information, please visit our website:

[www.pulsarmeasurement.com](http://www.pulsarmeasurement.com)



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