The Unidata 6537 Starflow QSD SDI-12 and Modbus Instrument is used to measure water velocity, depth, temperature and conductivity of water flowing in rivers, streams, open channels and large pipes. When used with a companion Unidata IP data logger, flow rate and total flow can also be calculated.

The 6537 Instrument is robust, reliable and easy to use. It is completely sealed against water ingress, low maintenance, low power, no calibration and no fussy power arrangements required.

The 6537 Starflow QSD incorporates ultrasonic depth sensor and an absolute pressure depth sensor. An ultrasonic depth sensor measures water depth using the ultrasonic principle and has a range of up to 5m. An absolute pressure sensor measures pressure forces applied to the strain gauge. Absolute, non-vented, sensor reports a value equal to the sum of the water pressure and the atmospheric pressure above the water. In order to compensate for the atmospheric (barometric) pressure fluctuation, the 6537 Starflow QSD should be connected to the 6515 Starflow QSD barometric reference. The absolute pressure sensor has a range of up to 10m. Having sensors using different depth measurement methods provides flexibility in depth measurement.

The 6537 Instrument has a 4 electrode electro conductivity instrument (EC) included to measure the quality of the water. Water quality is measured on an ongoing basis and this parameter can be recorded along with velocity and depth to better analyse the nature of the water in open channels and pipes. Conductivity is a very important water quality measure and any spikes on conductivity is a strong indicator of a pollution event.

The 6537 instrument's low profile form factor minimises disturbance to the flow it's measuring. Furthermore, 6537 instrument measures velocity in both directions and is suitable for use in wide range of water qualities, from sewage to potable water, sea water too.

With a companion Unidata data logger or a telemetered Neon Remote Logger the instrument can be programmed to compute flow rate and total flow in pipes and open channels of known dimensions.

### SPECIFICATIONS

#### PHYSICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Material:</th>
<th>Epoxy-sealed body, Marine Grade 316 Stainless Steel Mounting Bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size:</td>
<td>135mm x 55mm x 22mm (LxWxH)</td>
</tr>
<tr>
<td>Weight:</td>
<td>1kg with 15m of Cable</td>
</tr>
<tr>
<td>Operating Temperature:</td>
<td>0°C to 60°C water temperature</td>
</tr>
<tr>
<td>Velocity Range:</td>
<td>20mm/sec to 0.8 m/sec (default), 20mm/sec to 3.2 m/sec, 20mm/sec to 13.2 m/sec bidirectional velocity capability, set using configuration tools</td>
</tr>
<tr>
<td>Velocity Accuracy:</td>
<td>±1% typical</td>
</tr>
<tr>
<td>Depth Range:</td>
<td>20mm up to 5m above top surface of the instrument, 40mm up to 5m from base of the instrument</td>
</tr>
<tr>
<td>Depth Accuracy:</td>
<td>Typical ±1%</td>
</tr>
<tr>
<td>Depth Range: Absolute Pressure sensor:</td>
<td>0 to 10m</td>
</tr>
</tbody>
</table>

#### ELECTRICAL SPECIFICATIONS

- **Power Source:** External Battery 12V — 24V DC
- **Power Usage:** 10V to 24V DC, 50µA standby, 100mA active for 1 sec
- **SDI-12:** SDI-12 1.3
- **RS 485:** Modbus RTU
- **Flow Computation:** Flow rate, totalised flow with companion NRT/NRL
- **Channel Type:** Pipe, open channel, natural stream

#### DEPTH ACCURACY:

- Typical ±0.19% for 0m to 5m range
- Typical ±0.38% for 0m to 10m range

#### Conductivity:

- 0-200,000uS/cm Typically ±1% of measurement
- Returned either as 16-bit value (0 65535uS/cm) or 32-bit value (0-262,143uS/cm)

#### Compensation:

- Conductivity: 25°C default / set using configuration tools
- Temperature: 0°C to 60°C
- Temperature Resolution: 0.1°C