6537
STARFLOW QSD ULTRASONIC DOPPLER VELOCITY, DEPTH AND CONDUCTIVITY INSTRUMENT

MODEL A

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.

Ultrasonic Doppler Principle in Quadrature Sampling Mode is utilised to measure water velocity. The 6537 Instrument transmits ultrasonic energy through its epoxy casing into the water. Suspended sediment particles, or small gas bubbles in the water reflect some of the transmitted ultrasonic energy back to the 6537 Instrument's ultrasonic receiver instrument that processes this received signal and calculates the water velocity.

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	
MATERIAL:	Epoxy-sealed body, Marine Grade 316 Stainless Steel Mounting Bracket
SIZE:	135mm x 55mm x 22mm (LxWxH)
WEIGHT:	1kg with 15m of Cable
OPERATING TEMPERATURE:	0°C to 60°C water temperature
VELOCITY RANGE:	20mm/sec to 0.8 m/sec 20mm/sec to 1.6 m/sec (default) 20mm/sec to 3.2 m/sec 20mm/sec to 13.2 m/sec Bidirectional velocity capability, set using configuration tools
VELOCITY ACCURACY:	±1% typical
DEPTH RANGE: Ultrasonic Sensor:	20mm up to 5m above top surface of the instrument 40mm up to 5m from base of the instrument
DEPTH ACCURACY:	Typical ±1%
DEPTH RANGE: Absolute Pressure sensor:	0 to 10m
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
FLOW COMPUTATION:	Flow rate, totalised flow with companion NRT/NRL
CHANNEL TYPE:	Pipe, open channel, natural stream
CABLE:	15 metre, 6 way
CABLE OPTIONS:	User specified up to 50 metres
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-12V 1.3
RS 485:	Modbus RTU

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