6537A-L

STARFLOW QSD ULTRASONIC DOPPLER VELOCITY, DEPTH AND CONDUCTIVITY INSTRUMENT

Model with built-in Data Logger

The Unidata 6537A-L Starflow Instrument is used to measure water velocity, depth and temperature of water flowing in rivers, streams, open channels and large pipes. Using Starlog V4 software and the built-in data logger, cross section profile can be defined to calculate flow rate and total flow.



The 6537A-L 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 6537A-L 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 6537A-L instrument's ultrasonic receiver which processes this received signal and calculates the water velocity.

The 6537A-L 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 6537A-L Starflow QSD should be connected to the 6515D 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 6537A-L Instrument has a 4 electrode electro conductivity sensor (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 in conductivity are a strong indicator of a pollution event.

The 6537A-L instrument's low profile form factor minimises disturbance to the flow it's measuring. Furthermore, 6537A-L 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.

6537A-L Starflow QSD can operate as a standalone monitoring station without an external data logger. It can still operate as a SDI-12 or Modbus velocity/level sensor with the internal logger disabled.

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
DATA LOGGER:	8MB flash memory (Abut 6 years log data recording @ 15min interval
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 SDI-12/Modbus commands
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 - Schemed defined
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:	70µA standby, peak 800mA 10ms, 150mA 1sec@12V
SDI-12:	SDI-12V 1.3
RS 485:	Modbus RTU