

SERIES 800 FLOWMETERS

Type 810 ATEX Doppler Flowmeter



Teledyne Valeport Water's Type 810 is a self-contained continuous wave Doppler flowmeter that offers industry standard performance coupled with robust build quality and reliability, all backed up by Teledyne Valeport Water's exceptional customer service and support mechanisms.

It incorporates all of the low noise electronics to drive propriety Digital Signal Processing techniques that provide measurements in both waste and clean water with flow rates as low as 0.01ms^{-1} and up to 5ms^{-1} . Even in very shallow water (0.15 to 0.20m) accuracies of better than 0.01ms^{-1} can be achieved.

The Type 810 has its own height \ surface lookup tables. With a real time height data interface (Modbus or SDI-12), flow volume can be calculated directly.

Used stand-alone or as part of an integrated solution the Type 810 is compatible with 3rd party data loggers, telemetry and SCADA systems:

- SDI-12 | RS232 | RS485 direct from the unit.

The Type 810 derives a quality figure for the calculated flow measurement

The level of integrity of flow measurement is calculated using two factors, Flow Balance and Signal Level:

- Flow Balance is an indication of how laminar the flow is
- Signal Level is the spread of point measurements compared to the final calculated flow value over a period of observation.

A quick, simple metric that gives you confidence in the system's performance.

Key Features:

- High accuracy flow velocity measurement, even in very shallow water
 - temperature and sound speed corrected
- Low power consumption
- Bi-directional flow measurement
- Digital signal processing and filtering
- Integrated temperature
- Direct data output - open protocol
 - Velocity | Quality Metric | Volume (volume requires level input)
- Expert mode for data diagnostics
- 3 year warranty

Operations:

- Open Channel and Pipeline Flow Monitoring for:
- Industrial & Treatment plants | Wastewater networks | Sewers | Canals | Rivers | Streams
 - Trade Effluent & Discharge surveys
 - Diagnostics
 - Flow check surveys
 - Flood & CSO monitoring
 - Stand-alone & Integrated solutions
 - Telemetry solutions
 - Permanent installation
 - Temporary deployment

DATA SHEET

Product Details



DOPPLER-SHIFT



FLOWMETER



UTILITY SOFTWARE
CONFIGURE

CERTIFICATION



ATEX | UKEX IECEx

Sensor: Technical Specifications

The Type 810 Flowmeter measures the flow of water using the principle of Doppler shift. A signal of 1MHz is transmitted from a dedicated transmit transducer, the reflected signal is received at a dedicated receive transducer. The change in frequency is resolved using DSP techniques and a flow speed determined.

The speed of sound in water, important for accurate Doppler shift determination, can be a fixed value or constantly updated through temperature observation and a user defined conductivity value.

Operational Performance

Flow: Bi-Directional

from a minimum of 0.01 ms⁻¹
to a maximum of 5.0 ms⁻¹

Accuracy

Steady, fully developed flow ^{note 1}
Less than 0.5 ms⁻¹ ±0.01 ms⁻¹
Greater than 0.5 ms⁻¹ ±2%
with uniform velocity profile and known water conductivity
Resolution 0.001 ms⁻¹
^{note 1} Field performance is site specific

Temperature Measurement

from a minimum of -10° C
to a maximum of +60° C
Accuracy ±0.5° C
Resolution 0.5° C

Minimum Water Level

15mm to 20mm above the base of the sensor
transducers must be fully submerged

Electrical

External Power

ATEX: 9 to 12.6 V DC
non-ATEX: 9 to 28 V DC

Power Consumption (at 12 volts)

standby: 14mA
operating: 25mA

Cable

10 core, 8 mm diameter Polyether Polyurethane cable with integral strain cord

Termination

Un-terminated

Connectors

Amphenol (metal): 62GB-56T12-10SN
Souriau (plastic): UTS6JC12E10S

Length

10 ... 100m^{note 2} ATEX
10 ... 300m^{note 2} non ATEX
^{note 2} in 10 metre steps

Calibration

The Type 810 is tested to an in-house specification. These tests are conducted using procedures defined by the manufacturer

Operational Characteristics

Temperature

Operational
from a minimum of -20° C
to a maximum of +60° C

Storage
from a minimum of -20° C
to a maximum of +70° C

Immersion IP68 | NEMA 6

Units - user selectable options ms⁻¹ | fs⁻¹
°C | °F

Modes Single measurement
Multi-measurements
Continuous measurement

Outputs Flow Speed | Temperature | Quality Metric | Diagnostics

Digital Communication

Hardware \ Protocol RS232 \ # commands
RS485 \ Modbus RTU
SDI-12 \ SDI-12

Physical Characteristics

Materials PVDF | Polyurethane | Stainless Steel 316

Dimensions Length 122 mm
Breadth 46 mm
Height 19 mm

Weight 1.1 kg with 10m of cable

Mounting Underside: 3x M3 female mounting points

Software

Teledyne Valeport Water supply windows configuration software for instrument set up

Ordering

0810010-xx-N: un-terminated
0810010-xx-A: Amphenol (metal) connector
0810010-xx-S: Souriau (plastic) connector

Where xx is the cable length