

STREAMFLO VELOCITY METER

Introduction

The Streamflo series of instruments are used to measure, indicate and record very low velocities of water and other conductive fluids. Designed primarily for laboratory and specialised industrial use, the miniature head of the flow sensing probe can be inserted into small ducts and channels where it has the ability to measure velocities as low as 5.0 cm/sec. It is thus suitable for measuring accurately the velocities in hydraulic models of river estuaries, dams, harbours, etc., in addition to field measurements of clean water flows.

The new 440 indicator is supplied, as standard, with a set of rechargeable batteries. It can also be mains powered via the supplied universal charger.

The use of two probes allows the range of detectable velocities to be extended up to 300 cm/sec.

All components have been chosen carefully to give a long reliable life with minimal changes in calibration within the operating ranges stated under Technical Data.

The sensing probe was originally designed by the British Department of Scientific and Industrial Research. Further development by Nixon Flowmeters has resulted in a compact system offering digital indication with optional recording facilities.

modulate a 15 kHz carrier signal, generated within the indicating instrument which in turn is applied to the electronic detector circuits. All components have been chosen carefully to give a long reliable life with minimal changes in calibration.

Automatic compensation is made for changes in liquid conductivity. Following amplification and filtering out of the carrier frequency, a square wave signal is obtained. In the digital indicator the pulses are counted over a known time period to obtain a digital reading.

Probes

- 403** Standard low speed velocity probe for the range 5.0 to 150 cm/sec
- 404** Standard high speed velocity probe for the range 60 to 300 cm/sec
- 423** 90 Degree angled probe to measure vertical velocities over the range 5.0 to 150 cm/sec

Operating Principle

The sensor probe has a small impeller at one end, and a BNC connector at the other, joined via a slim, stainless steel tube.

The measuring head comprises of a 5 bladed PVC rotor mounted on a hardened, stainless steel spindle terminated into burnished conical pivots, resulting in minimal frictional resistance. This is all assembled and enclosed in a brass shrouded frame. An insulated gold wire contained within the tube terminates 0.1 mm from the rotor blade tips. When the rotor is revolved by the movement of a conductive liquid, the passage of the rotor blades past the gold wire tip slightly varies the measurable impedance between the tip and the tube. This variation is used to



STREAMFLO VELOCITY METER

Indicator Specification

| | |
|----------------------|---|
| Indication | Dot matrix LCD display |
| Controls | On/off and A + B buttons |
| Input Socket | BNC |
| Output Socket | 3.5 mm Aux Jack |
| Output | 0.5 V DC - 100 MS update rate |
| Supply | Nickel metal hydride battery or mains power |
| Weight | 540g |

Technical Data

| | |
|-------------------------|---|
| Velocity Range | 5 to 150 & 60 to 300 cm/sec using two sensing probes |
| Accuracy | ± 1.5% of true velocity |
| Scaling | Digital indicators scaled in HZ or cm/sec Conversion to cm/sec by means of individual calibration curves |
| Operating temp. | 0 to 50°C |
| Operating Medium | Water or other fluid having similar conductive properties |

Accessories

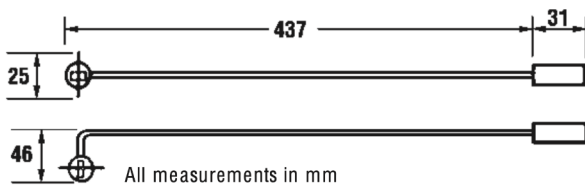
| | |
|-----------------------|---|
| Line Amplifier | (Model 407) fits onto probe. Boosts signal to permit signal transmission up to 200 metres. |
| Cable Assembly | (Model 405/5) standard 5 metre length supplied complete with plugs. Can be supplied with up to 200 metres cable length when line amplifier model 407 is used. |

Probes are supplied in a handmade, wooden storage box with lid.

With all probes, increased immersion depths can be provided to special order. The maximum length of probes is only restricted by shipping constraints. Sealed probe/cable connectors can be supplied to enable immersion of the cable and probe assembly.

Parts & Materials

| | |
|---------------------|--|
| Rotor | 11.6 mm diameter 3D printed and balanced. |
| Spindle | Hardened stainless steel with conical ends |
| Bearings | Synthetic sapphire vee jewels |
| Cage | Heavy Chromium plated brass |
| Stem | Stainless steel |
| Input Socket | BNC |
| Weight | 0.20 kg |



440 Digital Indicator

The 440 digital indicator has been designed to replace all previous models of indicator, and provides all required functions in one compact unit. The power supply/charger is truly universal and incorporates a range of mains type fittings to enable the unit to be used virtually anywhere in the world at 110 or 230 V a.c. 50 or 60 Hz. The indicator is supplied with a full set of Nickel metal hydride batteries.

The indicator can read frequency over 1 second or 10 second, can be set to count frequency, or can be programmed to read velocity directly in cm/sec using data from the individual probes calibration certificate. A 0 to 5 V DC output is available for driving data loggers and chart recorders and this can be programmed to any frequency range.

Nixon Flowmeters Ltd

Badminton Close, Naunton Lane, Leckhampton, Cheltenham, Gloucestershire GL53 7BX. UK

T: +44 (0)1242 243006 F: +44 (0)1242 222487 E: info@nixonflowmeters.co.uk www.nixonflowmeters.co.uk