



## 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.

Using indicator model 430, a completely portable system requiring no mains supply is available. This is ideal for carrying around from one measuring point to the next.

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

All components have been chosen carefully to give long reliable life with the minimum changes in calibration within the operating temperature range stated under specification.

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.

## Operating Principle

The sensing probe is a measuring head joined by a slim tube to the plug and socket which connects to the measuring instrument.

The measuring head comprises a five bladed PVC rotor mounted on a hard stainless steel spindle, itself terminating in fine burnished conical pivots which run in jewels mounted in a shrouded frame. Minimum frictional resistance is thus ensured. 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 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 long reliable life with the minimum changes in calibration within the operating temperature range stated under specification.

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

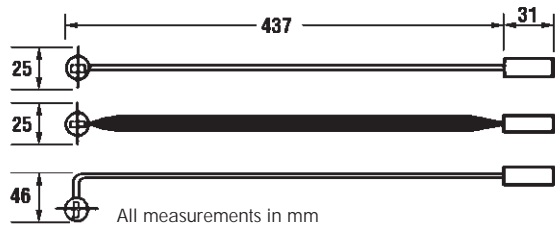
- 403** Standard low speed velocity probe for the range 5.0 to 150 cm/sec.
- 404** Standard high speed velocity probe for the range 60 to 300 cm/sec. Fitted with streamlined fairing to provide additional mechanical strength and freedom from turbulence at higher velocities. 150 cm/sec.
- 423** 90 Degree angles probe to measure vertical velocities over the range 5.0 to 150 cm/sec

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 have been supplied to enable immersion of the cable and probe assembly.



## Probe Parts & Materials

Rotor	11.6 mm diameter PVC machined from solid 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



## 430 Digital Indicator

The 430 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 220 V a.c. 50 or 60 Hz. The indicator is supplied with a full set of Nickel metal hydride batteries allowing over 7 days continuous operation on one charge.



The indicator can read frequency over 1 second or 10 second, can be set to count total pulses, 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.

## Indicator Specification

Indication	3 1/2 Digit LCD display
Controls	On/off and 1 second/10 second buttons
Input socket	BNC
Output socket	Miniature DIN type with plug supplied
Output	0.5 V DC
Supply	Nickel metal hydride battery or mains power
Weight	540 gms

## Technical Data

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

## Accessories

<b>Line Amplifier</b>	(Model 407) Fits onto probe. Boosts signal to permit signal transmission up to 200 metres.
<b>Cable Assembly</b>	(Model 405) Standard 3 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 wooden storage box with sliding lid.