



H30 - Pitot tubes



H33-10 Flow meter shown with probe

### H30 - PITOT TUBES

*A range of Pitot tubes for the measurement of water velocity in open channels and closed ducts.*

#### DESCRIPTION

Tubes are in stainless steel and mounted on a supporting body with scale. They are supplied with a watertight gland for installation below water level. In order to measure velocity, the Pitot tubes must be connected to a manometer, such as the Armfield H12-8 or H12-9. When used with the H12-9, the range is 0 - 5.2m/s. When used with the H12-8 the range is 0 - 19.8m/s

#### ORDERING SPECIFICATION

- H30-1H:  
150mm Pitot tube  
150mm traverse Pitot tube supplied with connectors and 10m tubing
- H30-2H:  
300mm Pitot tube  
300mm traverse Pitot tube supplied with connectors and 10m tubing
- H30-3H:  
450mm Pitot tube  
450mm traverse Pitot tube supplied with connectors and 10m tubing

#### ACCESSORIES

- H1-10: Adjustable Tripod stand (see page 4)
- H12-8: } Portable pressure meters
- H12-9: }

#### SHIPPING SPECIFICATION

- Volume: 0.1m<sup>3</sup>
- Gross Weight: 5kg

### H33 - PROPELLER VELOCITY FLOWMETER

*Used to measure very low point-velocities in water and other conductive fluids, this flowmeter uses the impedance of a rotating multi-bladed propeller to indicate rotational speed caused by the flowing fluid. The fine diameter of the sensing head enables the meter to be used in small ducts and channels with an ability to measure fluid velocity as low as 25 mm/sec.*

*A probe and digital indicator are required in combination to perform measurements but the digital indicator is supplied separately from the probes to allow an appropriate probe to be selected to suit specific applications.*

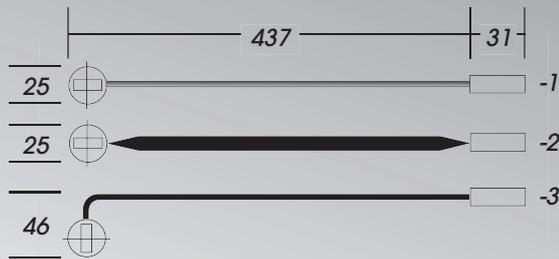
#### CAPABILITIES

- > Measurement of velocity in clean conductive fluid within the range 25 to 1500mm/sec (up to 3000mm/sec with the high speed probe)
- > Operation in confined spaces with limited intrusive effects
- > Suitable for both laboratory and field applications - battery powered (rechargeable) and fully portable
- > Measurements are indicated on the digital display and may be connected to a data logger for later analysis

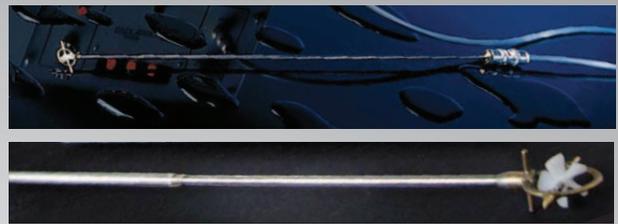
#### MINIATURE PROPELLER PROBES (H33-1/H33-2/H33-3)

*Each probe consists of a sensing head that is mounted at the end of a slim stainless steel stem. A co-axial connector at the top of the stem allows the probe to be connected to the H33-10 Digital Indicator.*

*The sensing head consists of a 5-bladed propeller that runs in jewelled bearings. The propeller is able to rotate freely within a protective shrouded cage. An insulated gold electrode terminates 0.1mm from the tip of the rotating blades and detects the change in electrical impedance as each blade passes. As there is no physical contact between the electrode and blade, the propeller can rotate freely and respond to low velocity of the surrounding fluid.*



Dimensions of the H33-1/2/3 probes:



H33-probe:

### H33 - PROPELLER VELOCITY FLOWMETER - continued

### DIGITAL INDICATOR (H33-10)

#### TECHNICAL DETAILS

Rotor:	11.6 mm diameter, machined plastic (balanced)
Spindle:	Hardened stainless steel with conical ends
Bearings:	Synthetic sapphire vee jewels
Cage:	Nickel plated bronze
Stem:	Stainless steel
Electrical connector:	Co-axial
Weight:	0.20kg
Immersion length:	420mm maximum

#### ORDERING SPECIFICATION

##### H33-1:

is a straight, low-speed probe for measuring horizontal velocities in the range 25 to 1500mm/sec.

##### H33-2:

is a straight, high-speed probe for measuring horizontal velocities in the range 600 to 3000mm/sec. This probe is fitted with a streamlined fairing to provide additional strength and freedom from turbulence at the higher velocities.

##### H33-3:

is a 90° angled, low-speed probe for measuring vertical velocities in the range 25 to 1500mm/sec.

#### ACCESSORIES

H1-11: Adjustable Tripod stand with mountings (see page 4)

#### SHIPPING SPECIFICATION -H33/1/2/3

Volume:	0.1m <sup>3</sup>
Gross Weight:	2kg

#### SHIPPING SPECIFICATION -H33-10

Volume:	0.1m <sup>3</sup>
Gross Weight:	5kg

#### DESCRIPTION

The digital indicator has been developed for use with the miniature propeller probes H33-1/2/3 where laboratory or field measurement of water velocity is required. The digital indicator may be battery powered or mains powered using the standard power adaptor supplied. The power adaptor is intended for world-wide use and has four interchangeable plugs to suit all regions. The unit can operate on 110 Volts or 230 Volts at 50Hz or 60Hz.

When connected to an appropriate probe, the unit will indicate frequency of the pulses from the propeller that can be converted to water velocity using the calibration chart supplied with the probe. The unit can be programmed to read water velocity directly in units of cm/sec by entering a calibration constant for the probe in use (obtained from the chart supplied with each probe). Alternatively the unit can be programmed to count the pulses continuously, allowing averaging of the velocity measurement over a longer (user defined) period.

A 0-5 V DC output allows the unit to be connected to a suitable data logger to provide a permanent record of the variations in water velocity with time. A co-axial lead, 3 metres long, is supplied with the digital indicator for connecting it to any of the miniature propeller probes described above.

#### TECHNICAL DETAILS

Power	Four AA rechargeable batteries (supplied)
Battery life	Typically 300 hrs on full charge
Display	3-digit liquid crystal
Controls	On/off switch, sample time switches for 1 and 10 seconds
Input	Miniature socket for co-axial cable from probe
Output	0-5V DC
Case size	190 x 136 x 55mm overall
Weight	0.55kg with batteries fitted
Case Material	Moulded ABS plastic