

# HydrINS

Electromagnetic insertion flowmeter



Halma Water Management



## Introduction

The HydrINS electromagnetic flowmeter is designed for measurement of the velocity of water in full pipes. The flowmeter can be installed in any pipeline of internal diameter from 100 mm to 8000 mm through a small tapping (1" BSP).

The HydrINS ( with both pulse and 4-20 mA outputs) has been designed for use in survey applications such as leakage monitoring, network analysis and in permanent locations.

The HydrINS uses advanced processing techniques to provide the highest accuracy even at low flow rates. This process combined with an on board micro-controller enables a wide variety of sampling options to be set, including signal quality, to suit a wide variety of applications.



USER  
FRIENDLY  
DESIGN

REALTIME  
DATA

GSM &  
SMS DATA  
LOGGERS

HIGH  
ACCURACY

## Features

- Ease of installation, with hot-tap capability
- Same unit on a wide range of pipe sizes
- Choice of stem lengths
- Full pressure sealed stem and sensor design to ensure no fluid leakage to outside even if sensor is damaged in situ
- Submersible transmitter
- No moving components
- Internal battery and external DC power
- Sequential, independent internal battery usage allows wide time window for cell replacement
- Internal batteries provide up to 4 years life (dependent on sampling regime)
- Fast sampling available for fast flow variability investigations

- Electronics provide wide choice of sampling, averaging, smoothing and data output scenarios, with all data in engineering units
- Burst sampling enables flow quality (noise) measurement
- All calibration, serial number, pipe and site data held within unit
- User selected serial data and two pulse outputs
- Can operate as stand alone totaliser flow meter
- Internal totaliser count for increased security
- Ease of use with external loggers or SCADA systems Worldwide use with user filter setting for 50 or 60 Hz local mains



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FLOW MEASUREMENT

DATA LOGGING

LEAK DETECTION

PRESSURE MANAGEMENT

## PRODUCT SPECIFICATION

### Measurements

Flow	Measuring principle	Faraday principle with alternating DC
	Range	Bi-directional up to 5 m/sec, limited only by physical stability of the sensor stem
	Accuracy	Point velocity: Averaged/smoothed flow: $\pm 2$ mm/sec or $\pm 2\%$ flow whichever is the greater Mean velocity and volumetric flow: refer ISO 7145-1982
Flow condition		Volumetric flow computation assumes fully developed profile [ref. ISO 7145-1982]
Fluids data	Types	Electrically conductive $> 50\mu\text{S/cm}$
	Sediment/air levels	Entrapped air within the fluid at the point of measurement will increase the noise level of
Pipe	Inside diameter range	100 to 8000 mm
	Material	No restrictions

### Operational

Units		Selectable: mm, metres, feet; litres, Megalitres, m <sup>3</sup> , ft <sup>3</sup> , ImpGal, USGal, MegalimpGal, MegaUSGal; seconds, minutes, hours, days
Power supply	Internal batteries	2 off lithium D cells. Used sequentially
	Battery life [nominal]	Up to 4 years with unit measuring spot flow every 30 seconds
	External DC	9-28VDC. Internal isolation provided. Connection over-rides internal cells.
Digital connection		RS232 [8 data, 1 stop bit, none]. Baud rate settable 4800, 9600, 19200, 38400. 4800 baud enables data transmission over at least 100 metres cable
Sensor details		Internal calibration, serial numbers, calibration dates, history file
Internal logging		Negative volume / Positive volume / Cumul
Settings		Units, sample rate, burst length, cycle time, smoothing type and time constant, insertion factor, profile factor, mains filter frequency, pipe diameter, site information, user gain and offset and deadband, pulse multiple, totaliser reset
Outputs	Digital data	RS 232 port for SCADA interfacing and set up. Selectable from: Point velocity, mean pipe velocity, volumetric flow rate, flow noise, totaliser
	Totaliser [pulse]	2 x Opto-isolated open collector outputs. Software set to be either 1 for positive and 1 for negative flow, or set to 1 for flow and 1 for direction. 50 Hz maximum frequency [50% duty]
External Connections		10 way mil-spec connector
Software		Interfaced with WINFLUID (version 1.71)

### Physical

Operating temperature range		Electronics: -20 to +60 °C, Fluid: non freezing to +60 °C
Storage temperature range		-20 to +70 °C
Waterproofing		IP68/NEMA6 for submersion to 10m indefinitely [with mating connector fitted].
Pressure rating		Internal pipeline pressure to 20 bar or 50 bar (optional)
Mounting		Requires valve with 25mm [1 in] minimum clearance. Connection: 1" BSP or 1 1/2" BSP
Pressure tapping		1/4" BSP
Insertion length		Dependent of stem length ordered: 300, 500, 700 and 1000 mm
Safety		Probe anti bounce chain
Dimensions		Sensor diameter: 22mm. stem diameter: 19mm. Electronics 106 mm diameter x 80 mm long
Weight		<3.5 kg
Materials		Wetted parts: 316 Stainless steel, Nitrile rubber, polyurethane moulding & silver or PVC, External parts: stainless steel, nitrile rubber, anodised aluminium
Guarantee		12 months
EMC certification		In conformity with Council Directive 89/336EEC (EMC directive)/EN61000-6-4/EN61000-6-2
Calibration certificate		Calibrated with electromagnetic flowmeters gauge (100 and 200 mm) according to the COFRAC/NAMAS procedures

HWM reserve the right to change the specification of any product without prior notice.

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