

Electromagnetic Insertion Flowmeter HydrINS

HydrINS flowmeters were provide and designed for flow metering in filled pipes. The absence of mechanical moving parts and high quality of materials causing this flow meter to be capable to measure the flow of all homogeneous and nonhomogeneous (containing suspended solid particles) liquids and corroding electricity conductive liquids. These sensors can be installed easily via standard fittings or in the Hot tap status.

Specific design of this product makes it easy to measure the flow accurately in a wide range of pipe size from DN 100 to DN 8000.

This flowmeter with pulse output and 4~20mA for analyzing applications like leakage monitoring, and network analyzing and permanent applications for example flow reading was designed like a water meter. Taking the advantages of advanced data processing this flowmeter can be used for measuring low velocity flows.



✓ Main features of this devise are:

- Hot tap easy installation
- Can be used in a wide range of pipe size despite of material of the pipe
- The capability of choosing the length of sensor according to the pipe size
- Measuring system without moving parts
- Internal battery with the life time more than 2.5 To 4 years (according to the sampling time)
- Output data in the form of all measuring units
- Usable for measuring all the flow volume (Internal Totalizer)
- Easy application with other data loggers
- Accuracy 2%
- Bi-directional flow measurement
- Internal diameter 100~8000 mm
- Pulse output and RS232
- Protection: IP67
- Operating pressure: 20 bar
- Operating temperature: -20~60 °C
- Display is able to show all measuring parameters



Measurements

Flow	Measuring principle	Faraday principle with alternating DC
	Range	Bi-directional from 0.01 m/sec to 5 m/sec, limited only by physical stability of the sensor stem
	Accuracy	Point velocity: Averaged/smoothed flow: $\pm 2\text{mm/sec}$ 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	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 data
Pipe	Inside diameter range	100 to 8000 mm
	Material	No restrictions

Operational

Units		Selectable: mm, metres, feet; litres, Megalitres, m^3 , ft^3 , ImpGal, USGal, MegaImpGal, MegaUSGal; seconds, minutes, hours, days
Power supply	Internal batteries	2 off lithium D cells. Used sequentially
	Battery life [nominal]	In excess of 2½ years with unit measuring spot flow every 15 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

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 1½" BSP
Pressure tapping	½" 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 certificat	Calibrated with electromagnetic flowmeters gauge (100 and 200 mm) according to the COFRAC/NAMAS procedures