

WATER MONITORING SOLUTIONS



DRINKING WATER



HydrINS 2[®]

Electromagnetic
Insertion Flowmeter

- Velocity measurement as low as 2 cm/s (0.066 ft/s)
- Accuracy up to ± 2 mm/s (0.066 ft/s)
- Ease of installation with no interruption to supply
- Long battery life up to 10 years
- IP 68
- Self-checking of operation in accordance with OIML R49 Type P (Permanent) requirements



Certified to
NSF/ANSI 61



HYDREKA

www.hydreka.com

A HALMA COMPANY

Applications

The HydrINS® 2 flowmeter, developed by Hydreka, is an easily deployed and cost effective flowmeter providing highly accurate bi-directional flow measurement, for water distribution and raw water pipelines. The highly versatile unit is widely used throughout the world and available in various lengths, equally well deployed for permanent or portable applications.

HydrINS® 2 can be used throughout the water distribution network:

- Metering at reservoirs, treatment works
- Pumping stations, water pipes
- Zoning and DMA
- Night flow monitoring and meter testing



Principle

In accordance with Faraday's law, a voltage is induced in a conductor that is moved through a magnetic field. In the electromagnetic principle of flow measurement, the flowing and electrically conductive fluid represents the moving conductor and the magnetic field is generated by a coil within the sensor. The induced voltage is measured on a pair of electrodes on the sensor. The sensor is placed on the centre line of the pipeline, or at the 1/8 diameter point, depending on the particular installation. Moving the sensor also enables velocity profiling to be carried out to verify the flow profile.

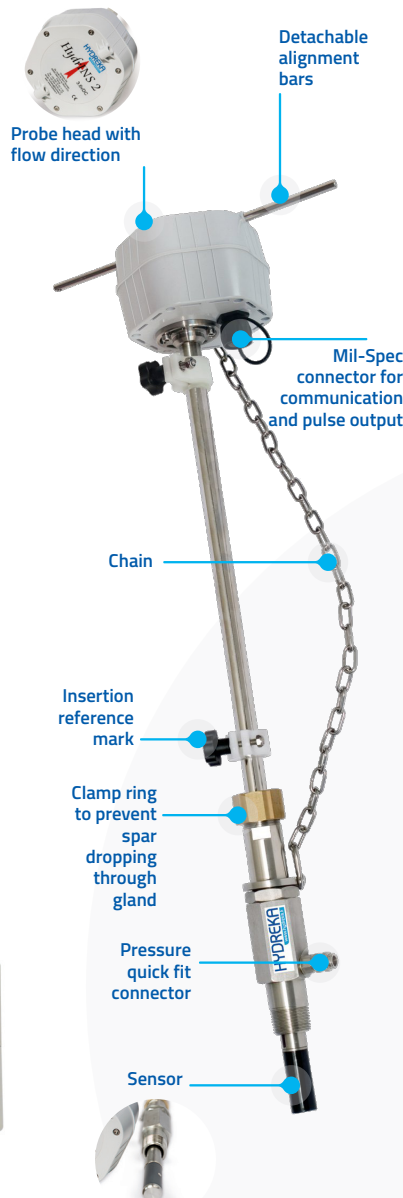
Description :

The HydrINS® 2 insertion flowmeter consists of:

- The electromagnetic sensor:
The sensor contains the electromagnetic coil and stainless steel electrodes. All materials in contact with the water are approved for use in drinking water. The sensor assembly is securely fixed to the stem, but can be replaced should damage occur during installation or handling.
- Integral processing electronics (transmitter)
All flow processing electronics are contained within the IP68 housing fixed to the top of the stem. HydrINS® 2 uses advanced processing techniques which enable a wide variety of sampling regimes to be set to suit a wide variety of applications. The electronics carries out self-checking of signal in accordance with OIML R49 Type P (Permanent) requirements, so that users can be confident that the instrument is working correctly. HydrINS® 2.1 has a wide, bi-directional measurement range from 2 cm/s to 5 m/s (0.066 ft/s to 16.40 ft/s) and its accuracy of $\pm 2\text{mm/s}$ at flows up to 10 cm/s enables precise minimum night flow monitoring (MNF).

- Gland assembly and stem
Every unit comes with gland assembly, pressure measurement port, reinforced stem with an anti-ejection chain, locking nut and insertion point clamp to ensure correct and safe installation in pressurised water networks. Communication, pulse outputs and optional external power input is via a single watertight military specification connector.

- Optional display and external power supplies
The HydrINS® 2 can also be supplied with a large LCD display unit giving instant readouts of all measurements. The display unit has three versions. Power is by internal long life lithium batteries (up to 10 years), or alternatively via external DC power. They have alarm and pulse outputs, and also a two 4-20 mA outputs option. There is also a telemetry unit including data logger and quad-band modem for data transfer via SMS or GPRS.



Installation :

The HydrINS 2® is a robust, watertight and compact flowmeter. The integral transmitter enables multiple telemetry options or simple totalizer. Available in different lengths to suit pipe diameter from 100 mm to over 2000 mm (0.32 ft to over 6.56 ft). It is equally well deployed for permanent or portable applications inserted through standard under pressure taping with no interruption to supply (1» NPT - optional). The flowmeter HydrINS® is used by inserting the electromagnetic sensor at the centre line or 1/8. The insertion stem length is validated by a preliminary measurement of the pipe Internal diameter by using the diameter gauge. Push fit connector at the tip of the probe enables pressure measurement.

Software :

The Winfluid software enables the programming, data retrieval and data processing of the HydrINS® 2 and any logger connected to it.

Hydreka has developed, since many years, expertise on flow measurements and in particular on velocity profile for flow analysis.



Deployment Modes



HydrINS 2® with display G & Built-in remote GPRS data logger

200 meters (656.16 ft) max between HydrINS 2® and display. Data transmission through SMS or GPRS.

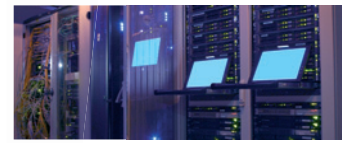
HydrINS 2® with radio transmission

HydrINS 2® pulse output can be connected to any kind of radio module.

HydrINS 2® with data logger

Direct connection to
 - LoLog, Vista+ loggers.
 For local recording and download
 - Octopus LX for recording and GPRS data transmission
 - Other data loggers with pulse input.

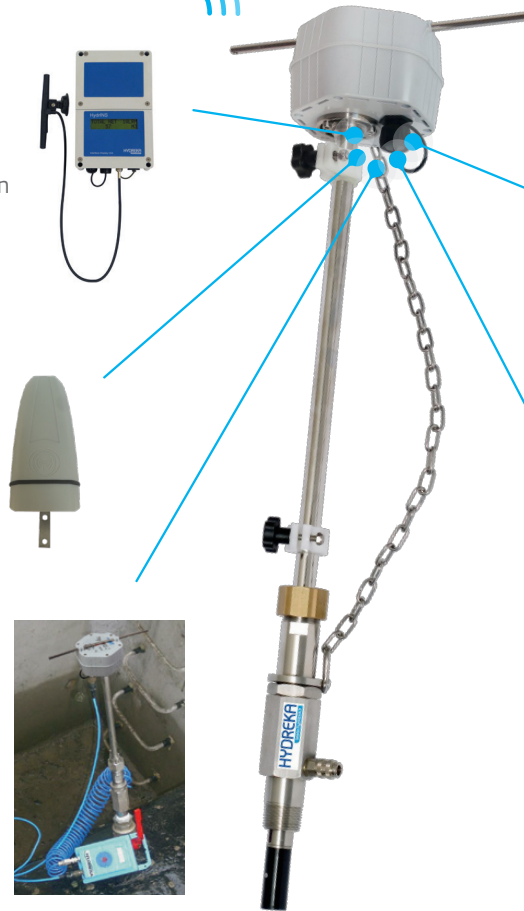
HydrINS 2® with connection to SCADA



HydrINS 2® pulse output connected to SCADA. 500 meters (1640.41 ft) maximum between HydrINS 2® and SCADA system.

HydrINS 2® with display connected to SCADA

The display receives data from HydrINS 2® probe and forwards it to SCADA system up to 500 meters (1640.41 ft) distance, for instantaneous flow and alarms processing.



Benefits



Sanitary Conformity Certification



Low velocity



Measurement accuracy



Velocity profiling



Winfluid/ Webfluid



Up to 10 years

Battery life



Large range of pipe diameters



No interruption to supply



Waterproof



Connection to SCADA system

Technical specifications



HydrINS 2®



Gauge

Measurement range	Bidirectional from 0.02 m/s to 5 m/s (0.06 ft/s to 16.40 ft/s), limited only by the stability of the probe in the flow. Fluid conductivity needs to be minimum of 20 µs/cm.
Accuracy	Point velocity: in average or smoothed flow: ± 2% if V ≥ 10 cm/s and ± 2 mm/s (0.33 ft/s and ± 0.006 ft/s) of reading value for V < 10 cm/s (0.33 ft/s). Average velocity and volume : refer to the standard ISO 7145-1982
Units	Selectable: mm, meters, feet, litres, Megalitres, m³, ft³, ImpGal, USGal, MegalmpGal, MegaUSGal, seconds, minutes, hours, days, KiloUSGal, KiloUKGal, KiloFt³, Kilom³
Power	External power supply by using a display unit Internal lithium batteries giving up to 4 years of battery life for 1 measurement/minute. 10 years possible as an option
Sensor	Information Calibration, serial N°, date of factory calibration, settings and user notes.
Calibration	Factory calibration against traceable standards
Self-checking	Internal checking in accordance with OIML R49 Type P (Permanent) requirements.
Internal logging	Negative Totalizer / Positive Totalizer / Net Totalizer.
Outputs	RS 232 programmable point velocity, average velocity, instantaneous flow, totalized volume, signal quality, 2 pulse outputs, isolated open collector. Can be 1 channel positive flow and 1 channel negative flow or 1 channel flow and 1 direction. Maximum frequency 50 Hz.
Connector	IP68/NEMA 6 Watertight 10 way mil-spec connector during 72 hours
Software	Winfluid.
Temperature Range	Electronics -20°C to +60°C (-4°F to 140°F). Insertion element: non frozen water up to +60 °C (140°F).
Max Pressure	20 bars (290 PSI). Integral BSP quick fit pressure connector.
Ingress Rating	IP 68/ NEMA6 (immersed in 10 meters of water for up to 72 hours) with connectors secured
Installation	Connection on a 1 inch hot tap BSP (25 mm) (1» NPT: option). Safety chain.
Insertion lengths	300 mm (11.81"), 500 mm (19.69"), 700 mm (27.56") and 1000 mm (39.37").
Dimensions	Sensor diameter 22 mm (0.87"), stem diameter 19 mm (0.75"), head diameter 106 x 80 mm (4.17" x 3.15").
Weight	<3.5 kg (<7.7 lb).
Construction	All materials in contact with the water are WRAS and ACS approved Insertion components: Stainless Steel 316. PVC WRAS approved n° 1207559 / ACS approved N° 13ACCLY528 / NSF/ANSI61 approved N° C0286058 Nitrile joints WRAS approved N° 1410504 / 1301500. External components: Stainless Steel 316. Bronze C2121 - Probe head: Strengthened ABS.
Warranty	36 months.
Certification	Calibrated to reference meters to COFRAC procedures and traceability.
Gauge	Internal pipe measuring gauges available. 1» diameter in either 880, 1040 or 1250 mm lengths, 1.5» diameter in 1250 mm length or 2» diameter in 1250 mm length.

Display A



Outputs	<i>RS 232. 2 pulse outputs.</i> <i>Internal lithium batteries of 3.6 V, 38Ah.</i> <i>Up to 10 years battery life depending on setup options.</i>	LCD : 2 lines of 16 characters with backlight. Magnetic switch to control displaying of velocity, flow, positive totalizer, negative totalizer, net totalizer, alarms.
Power Supply	<i>External batteries (option) or 9-28VDC power supply.</i> <i>Battery compartment sealed from electronics.</i>	Alarms : 2 dry contacts software programmable via RS232. No water, sensor fault, low battery, low or high flow, power failure.

Display C



Outputs	<i>RS232. 2 x 4-20 mA actives outputs and 4 pulse outputs.</i>	Cable : 5 m (16.40 ft) display to flowmeter supplied as standard, up to 200 m (656 ft) on demand.
Power Supply	<i>Continuous voltage: 20-36 VDC, Reverse polarity protection.</i>	Communications : Flowmeter and display programming by RS232. Firmware upgradable by RS232. Winfluid interfaced Optional Bluetooth available.

Display G Logger



Outputs	<i>2 pulse outputs: flow forward/reward or flow/direction.</i> <i>RS 232 outputs. Optional Bluetooth available.</i>	Ingress Rating : IP 68/ NEMA6 (immersed in 2 meters of water for up to 72 hours) with connectors secured.
Power Supply	<i>Lithium batteries of 3.6 V, 57Ah? 5 years internal battery life supplied as standard with a measurement every 15 minutes and 1 sending/day, up to 10 years depending on setup options.</i>	Dimensions : 154 mm / 248 mm / 56 mm (6.06» / 9.76» / 2.20»).
Communication	<i>Data sent via SMS or GPRS.</i>	Weight : 1 kg (2.2lb). Warranty : 36 Months

Products available for sales and rental.
Please contact us for more information.

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