

WATER MONITORING SOLUTIONS



DRINKING WATER



HydrINS 2.1[®]

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)
- Temperature measurement included (standard size only)
- Ease of installation with no interruption to supply
- Long battery life up to 10 years
- IP 68



Certified to
NSF/ANSI 61

WRAS^{*}
Water Regulations Advisory Scheme



WINFLUID NG



WEBFLUID NG

HYDREKA
www.hydreka.com
A Halma company

* All component used in contact with water are certified

Applications

The HydrINS® 2.1 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® 2.1 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® 2.1 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® 2.1 uses advanced processing techniques which enable a wide variety of sampling regimes to be set to suit a wide variety of applications.

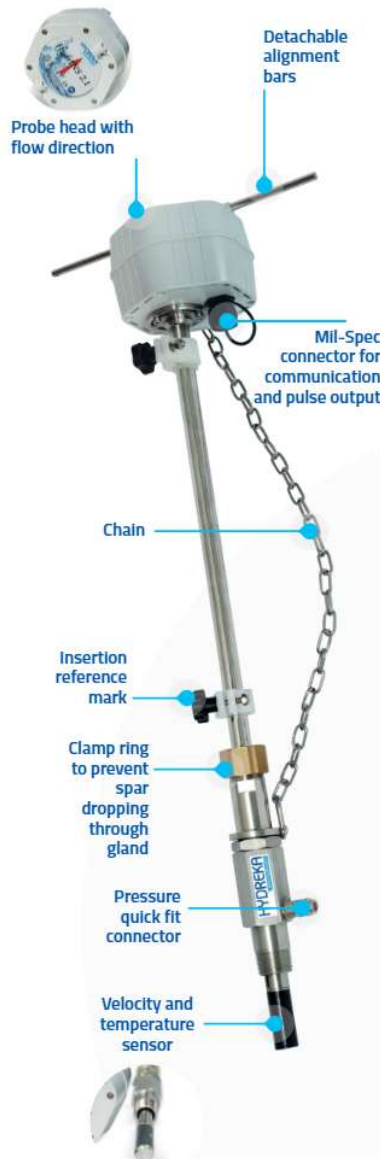
The electronics carries out self-checking of signal in accordance with OIML R49 Type P (Permanent) requirements, so that users can be confident that the instrument is working correctly.

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.



Installation :

The HydrINS® 2.1 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® 2.1 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.

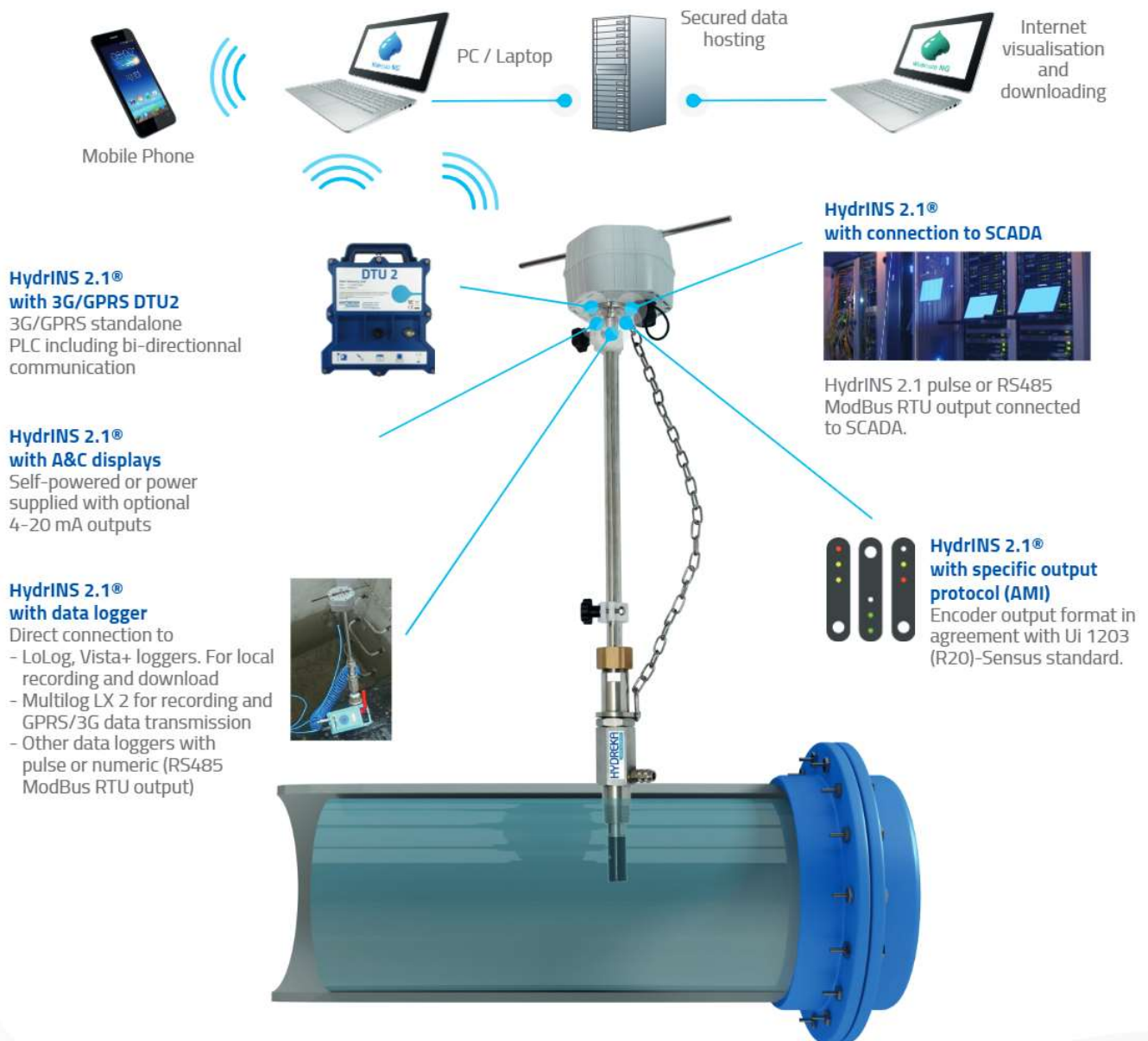
Software :

The Winfluid software enables the programming, data retrieval and data processing of the HydrINS® 2.1 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



Benefits



Sanitary Conformity Certification



Low velocity



Measurement accuracy



Velocity profiling



Temperature



Battery life



Large range of pipe diameters



No interruption to supply



Waterproof



Digital sensor

Technical specifications

Physical characteristics	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: $\pm 2\%$ if $V \geq 10$ 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, MegaUS-Gal, seconds, minutes, hours, days, KiloUSGal, KiloUKGal, KiloFt3, Kilom3
	Temperature measurement (standard size only)		- Range: 0-50 °C - Accuracy: 0.5 °C - Unity: Celcius or Fahrenheit
	Power supply		- Internal lithium batteries as standard (+ External additional battery pack in option) - AC-DC external power supply in option
	Sensor		Information Calibration, serial N°, date of factory calibration, files historical, settings and user notes
	Calibration		Factory calibration against traceable standards
	Connector		IP68/NEMA 6 Watertight 10 way mil-spec connector during 72 hours
	Software		Winfluid NG programming
	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
	Installation		Connection on a 1" hot tap BSP (25 mm), 1" NPT in option
	Security		Safety chain
	Insertion lengths	<i>Standard size</i>	300 mm (11.81"), 500 mm (19.69"), 700 mm (27.56") and 1000 mm (39.37")
		<i>Mini size</i>	200mm (7.87")
	Dimensions	<i>Standard size</i>	Sensor diameter 22 mm (0.87"), stem diameter 19 mm (0.75"), head diameter 106 x 80 mm (4.17" x 3.15")
		<i>Mini size</i>	Sensor diameter 15 mm (0.6"), stem diameter 12.3 mm (0.48"), head diameter 106 x 80 mm (4.17" x 3.15")
	Weight		<3.5 kg (<7.7 lb)
Outputs configuration	Construction		All materials in contact with the water are ACS, NSF/ANSI 61 & WRAS approved Insertion components: Stainless Steel 316. PVC WRAS approved / ACS approved / NSF/ANSI61 approved External components: Stainless Steel 316. Bronze C2121- Probe head: Strengthened ABS.
	Ingress Rating		IP 68/ NEMA6 immersed in 10 meters (32.81") of water during 72 hours (with connectors secured)
	Warranty		36 months
	Certification		Calibrated to reference meters to COFRAC procedures and traceability
	Analog	<i>Protocol</i>	2 pulse outputs, isolated open collector, maximum frequency 50 Hz
		<i>Data</i>	1 channel positive flow and 1 channel negative flow or 1 channel flow and 1 direction
		<i>Battery life</i>	More than to 4 years of battery life for 1 measurement/minute. Optional external battery pack to increase battery life
	Digital	<i>Protocol</i>	RS485 Modbus RTU
		<i>Data</i>	Programmable point velocity, average velocity, instantaneous flow, totalized volume positive, totalized volume negative, totalized net volume & temperature (standard size only)
		<i>Battery life</i>	More than to 2 years of battery life for 1 measurement/minute. Optional external battery pack to increase battery life
	Encoder (AMI)	<i>Protocol</i>	Sensus Ui1203 (R20) encoder output protocol, fixed or variable format
		<i>Data</i>	- Fixe format: totalized net volume or totalized positive volume or totalized negative volume, - Variable format: serial number, totalized net volume, totalized positive volume, totalized negative volume and instantaneous flowrate
		<i>Battery life</i>	Up to 3 years of battery life for 1 measurement/minute. Optional external battery pack to increase battery life
Accessories	Displays		Please refer to the user manual
	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

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

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