

WATER MONITORING SOLUTIONS

DRINKING WATER

WASTEWATER

INDUSTRY

ChronoFLO® 2

Transit time
Ultrasonic Pipe
Flowmeter



2 speed chord available
simultaneously on 1 or 2 pipes

1 month battery life
(up to 6 months with an external battery)

Robust and waterproof
(IP67/IP68)

Measurement accuracy:
Up to $\pm 0,5\%$

Non-intrusive flow measurement

Flow measured from DN 12 mm
(0,039 ft.)



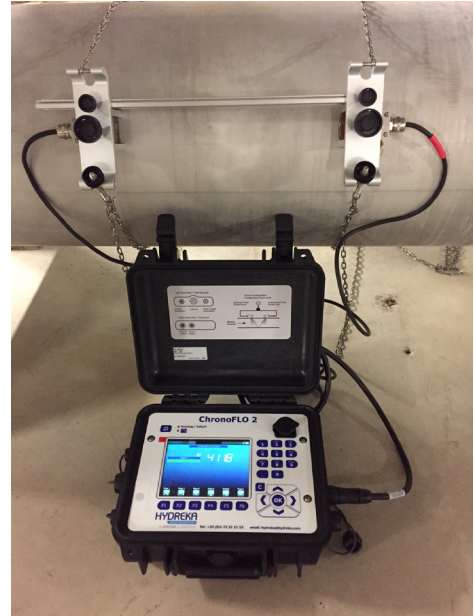
HYDREKA
www.hydreka.com
A HALMA COMPANY

Applications

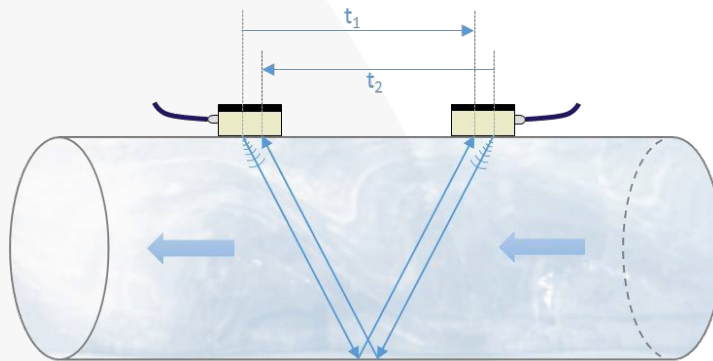
The **ChronoFLO® 2** transit time flowmeter can measure instantaneous flow rates in your flow-carrying pipes. This instrument uses a fully coded signal correlation process to obtain stable measurements even under the most challenging conditions. To cover a wide range of applications in any sector, only one signal processing unit is used. This configuration is supplied with two sensors and a mounting rail that fits a wide range of diameters.

ChronoFLO® 2 is used for the following applications:

- Diagnosis of drinking water and waste water networks,
- DMA (leak detection monitoring),
- Checking existing flowmeters,
- Calibration of lift pumps,
- Volume quantification.



Measurement Principle



The flow rate is calculated from the speed of propagation of the ultrasound signal. This signal travels faster in the direction of fluid flow than in the opposite direction (like a swimmer going downstream or upstream).

Two ultrasound pulses are emitted by the sensors, which act alternately as transmitters and receivers:

- One pulse in the direction of fluid flow (t_2),
- The other pulse in the opposite direction of the fluid flow (t_1).

The mean velocity of the fluid is obtained from the difference in transit times $\Delta t = (t_2 - t_1)$.

The flow rate is automatically deduced according to the internal cross-section of the pipe.

Installation

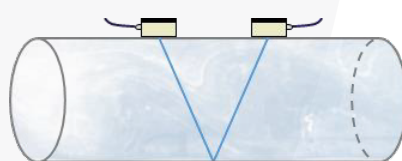
ChronoFLO® 2 can be mounted in various ways:

W Mode



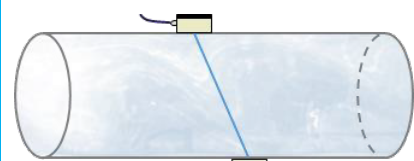
Recommendation for use on
DN < 100 mm (0,33ft.)

V Mode



Recommendation for use on
100 mm < DN < 600 mm

Direct Mode



Recommendation for use on
DN > 600 mm (1.97ft.)

The choice of installation mode also depends on the pipe material.

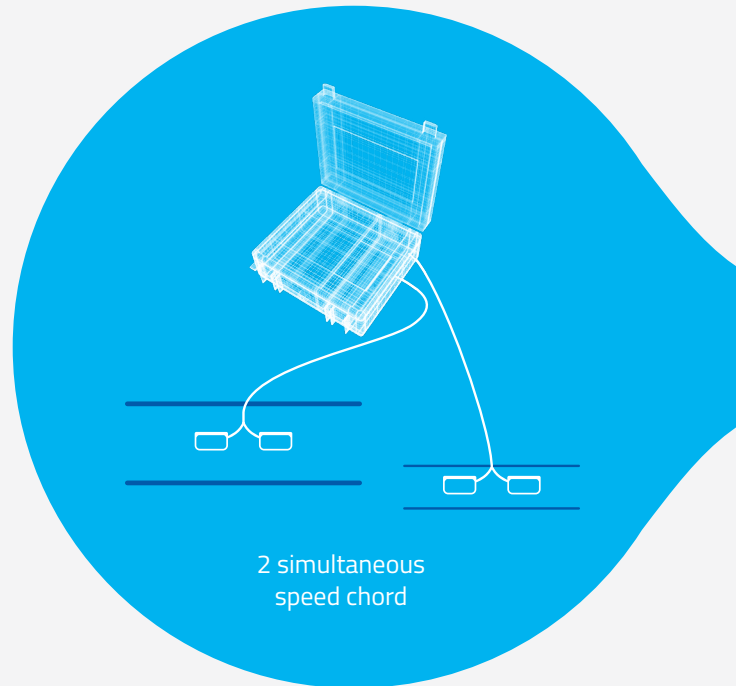
Technology Advantages

Operational

- Two-way flow measurement,
- Quick and easy installation (less than 5 min.) without shutting down the network,
- Easy to remove and calibrate,
- A single unit that adapts to a wide range of pipes (from 12 mm to 3200 mm),
- One month of battery life for one measurement every 5 minutes (low consumption mode). Up to 6 months with an external battery,
- Non-intrusive measurement:
 - No loss of head,
 - No risk of leakage,
 - No process distribution shut-down,
 - No risk of contamination,
 - No contact with the fluid.
- Use on any uniform pipe type,
- Signal quality allowing the measurement of low velocities (night flows monitoring) with high accuracy: up to $\pm 0.5\%$,
- Fully coded signal correlation process to obtain stable quantification even under the most challenging measurement conditions,
- 2 * 4-20 mA inputs (active and passive) allows connection of pressure sensors, temperature sensors...
- Pulse outputs for alarms, servo-control or connection to a SCADA system,
- Color LCD display.

Economical

- Just one flowmeter for both drinking water and waste water, for occasional or continual measurements,
- Economical flow measurement,
- A **ChronoFLO® 2** flowmeter is inexpensive to install compared to any type of electromagnetic flow meter,
- Improve the efficiency of your network thanks to night-time flow measurements (low velocities),
- Better volume control thanks to continual monitoring by your flow meters,
- Simple to disassemble for easy inspection and maintenance, to optimise the working life of the instrument.



Benefits



Battery life



Waterproof



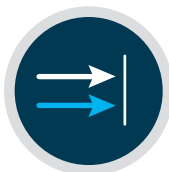
Data recovery by USB key



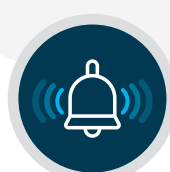
Remote telemetry



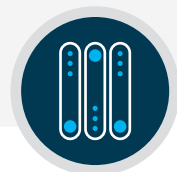
Ease of programming and installation



2 x 4-20 mA sensor connection



Alarms



Connection to SCADA System

Technical specifications

| | | |
|-----------------------------------|---|--|
| Measurement range | Two-way up to 25 m/s (82,02ft/s) Measurement up to 20g/l TSS | |
| Accuracy | Up to $\pm 0,5\%$, depending on the application and the number of sensors used | |
| Repeatability | Up to $\pm 0,1\%$ without moving the sensor | |
| Autonomy | - One month of battery life for one measurement every 5 minutes - > 140h in continuous measurement in low power mode | |
| CPU | <i>Memory</i> | 1 000 000 data points |
| | <i>Language</i> | English, French and Spanish. For other language, please consult us |
| | <i>Waterproofing</i> | IP67 |
| | <i>Operating temperature</i> | -10 to +50 °C (14 to 122 °F) |
| Power supply | <i>Internal</i> | Rechargeable Lithium-Ion |
| | <i>External</i> | Mains or battery |
| Inputs | 2 * 4-20 mA inputs (active or passive) | |
| Outputs | 2 * pulses outputs – Used for alarms, servo-control or connection to SCADA systems | |
| Communication | By USB key (text file) | |
| Data analysis | Import data into Winfluid software or into a spreadsheet | |
| Sensors | <i>1 MHz (standard)</i> | - DN between 40 mm and 1000 mm (0,13 to 3,28 ft.) with 4 ml (13,12 ft.) cable length - IP68 / Operating temperature: -20 to +80 °C (-4 to 176 °F) |
| | <i>2 MHz (optional)</i> | - DN between 12 mm and 114 mm (0,039 to 0,37 ft.) 4 ml (13,12 ft.) cable length - IP67 / Operating temperature: -10 to +120 °C (14 to 248 °F) |
| | <i>0.5MHz (optional)</i> | - DN between 100 mm and 2500 mm (0,33 to 8,2 ft.) 5 ml (16,40 ft.) cable length - IP68 / Operating temperature: -20 to +80 °C (-4 to 176 °F) |
| | <i>0.5MHz (optional) HIGH PERFORMANCE</i> | - DN between 100 mm and 3200 mm (0,33 to 10,5 ft.) 5 ml (16,40 ft.) cable length - IP68 / Operating temperature: -20 to +120 °C (-4 to 248 °F) |
| Installation | - Mounting rail with chains for diameters < 1000 mm (3,28ft) - Straps for large diameters (optional) | |
| Storage temperature | -20 to +70 °C (-4 to 158 °F) | |
| Dimensions | 1 MHz sensors: 67,4 x 35,5 x 45 mm (0,22 x 0,12 x 0,15 ft.) CPU: 290 x 245 x 120 mm (0,95 x 0,80 x 0,39 ft.) | |
| Weight | 1 MHz sensors: 0.1 kg each CPU: 2,7 kg | |
| Compatible pipes | Any homogeneous material that conducts sound | |
| Warranty | 24 months | |
| Calibration | On COFRAC traceable hydraulic bench in Hydreka technical hub or Hydreka dealer | |
| Metrological certification | Calibrated using electromagnetic flow meters (100 and 200 mm) calibrated according to COFRAC procedures | |

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