

Clamp-on ultrasonic flow meter

## IFX-P200 – ULTRASONIC FLOW METER “CLAMP-ON” TYPE PORTABLE INSTRUMENT

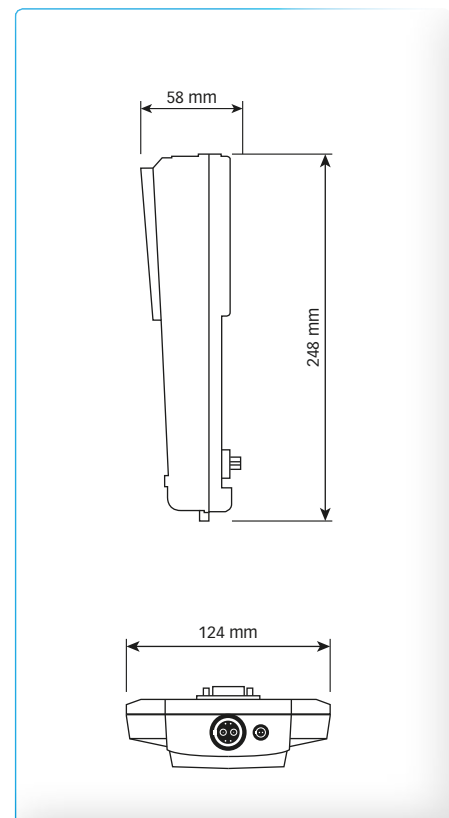


- Very robust and light portable Ultrasonic Flow Meter with graphic LCD.
- Non-intrusive portable measurement suitable for pipes in different materials and for diameters from DN10 up to DN3000 with a choice of sensors.
- Suitable for any liquid regardless conductivity, pressure or chemical characteristics.
- User friendly menu with setup assistance for easy and fast operations.
- Audible Sensor Positioning Assistant for easier sensor mounting.
- Measuring principle based on transit time with dual DSP technology for improved accuracy.
- Integral Data logger able to store up to 100.000 measurement, each including up to 10 units, and dedicated software for PC data download.
- Bidirectional measurement with totalizing function.
- Single sensor able to cover application from DN50 up to DN3000.
- Robust IP65 transport case.
- Optional magnetic rail or mounting accessory.
- Optional integral wall thickness gauge.
- Operates also connected to mains through the battery charge port.

### TECHNICAL DATA

Measuring Principle	Transit time
Velocity range	0,01 - 25 m/s
Resolution	0,25 mm/s
Repeatability	0,15% of measured value
Accuracy (Flow/Volume)	±1-3% of measured value depending on application ±0,5% of measured value with process calibration against master meter
Accuracy (velocity)	±0,5% of measured value
Measurement rate	1 Hz as standard
Response time	1 second
Damping of reading	0...99 seconds (selectable)
Solids and gas content in media	<10% in volume
Enclosure	Robust ABS housing with rubber shock protector
Protection rate	IP65
Ambient temperature	-10 +60 °C (for electronics)
Supply	Internal rechargeable batteries
Operation time	up to 24 hours with fully charged batteries
Display	LCD graphic with back light
Weight (Approx.)	0,65 kg (instrument only) 7 kg (transport case with instrument and sensors)
Operating languages	English, Spanish, Italian <i>(other on request)</i>

### Dimensions



## IFX-P210 – BATTERY OPERATED “CLAMP-ON” ULTRASONIC FLOW METER DESIGNED FOR TEMPORARY SITE INSTALLATION

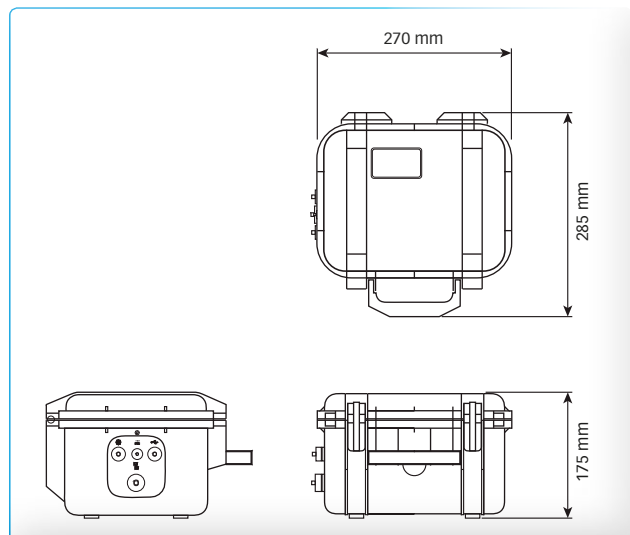


- Portable, compact flow meter designed for applications requiring rugged and waterproof instrument.
- Large battery capacity intended for long-term installation in remote areas where access to power is limited and exposure to the elements is likely.
- Robust and sealable IP67 housing granting measurement and instrument safety.
- Easy and fast to install thanks to non-invasive sensors based on transit time ultrasonic principle.
- One sensors pair to cover any process pipe from DN 50 to DN 3000.
- Integral logger allowing up to 1.000.000 of measure records.
- Modular battery packages and different operational mode to extend unattended site measuring life up to more than 3 months.
- Suitable for a variety of applications from water network for leak detection and district metering, to temporary replace in line flow meter, to industrial installation on corrosive or dangerous media.
- Delivered with dedicated software for data download and management.
- Optional 4-20 mA, pulse or relay process output.
- Optional magnetic rail or mounting accessory.
- Optional integral wall thickness gauge.
- Operates also connected to mains through the battery charge port.

TECHNICAL DATA	
Measurement principle	Ultrasonic transit-time difference
Measurement type	on line non-invasive
Flow velocity range	±0.01 ... 25 m/s
Resolution	0,25 mm/s
Repeatability	0,15% of measured value, ±0.015 m/s
Accuracy (Flow/Volume)	±1-3% of measured value depending on application ±0,5% of measured value with process calibration
Flow velocity (mean)	±0,5% of measured value
Measurement rate	100 Hz (standard)
Pipe diameter range	(25 mm) 50 mm to 3000 mm (larger pipe based on material)
Temperature range for sensors	-30 to +130 °C (-22 to +266 °F)
Housing	Rugged integrated IP 67 - portable
Display	LCD display and full keypad
Battery life	up to 100 days with internal battery
Power supply	1, 2 or 3 x LiFePo4 12.4 Ah
Power adapter	100 ... 240 V AC input, 9 V DC output
Operating time	1 Cell: up to 7 days continuous operation, 30 days in hibernation mode* 2 Cells: up to 14 days continuous operation, 60 days in hibernation mode* 3 Cells: up to 21 days continuous operation, 100 days in hibernation mode* Unlimited when connected to main through the battery charge port
Dimensions	260 (h) x 280 (w) x 200 (d) mm
Weight (Approx.)	6.0 kg
Operating languages	English, Spanish, Italian (other on request)

\* Based on normal operating conditions, with no process output enabled.

### Dimensions





## IFX-F100 – ULTRASONIC FLOW METER “CLAMP-ON” TYPE FOR FIXED INSTALLATIONS



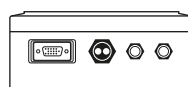
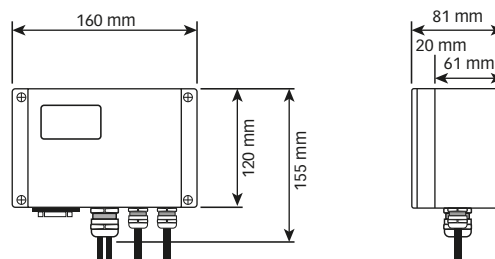
- Flow transmitter with backlight LCD display and 5 keys board programming.
- Non-intrusive fixed measurement suitable for pipes in different materials and for diameter from DN10 up to DN3000 with a choice of sensors.
- Suitable for any liquid regardless conductivity, pressure or chemical characteristics.
- User friendly menu for easy and fast operations.
- Audible Sensor Positioning Assistant for easier sensor mounting.
- Measuring principle based on transit time with dual DSP technology for improved accuracy.
- Bidirectional measurement with totalizing function.
- Optionally Digital or Analog outputs including Modbus, RTU e HART Protocol.
- On request Energy calculation function including Pt100 sensors input module. Requires clamp-on Pt100 sensors.



### TECHNICAL DATA

Measuring Principle	Transit time
Velocity range	0,01 - 25 m/s
Resolution	0,25 mm/s
Repeatability	0,15% of measured value
Accuracy (Flow/Volume)	±1-3% of measured value depending on application ±0,5% of measured value with process calibration against master meter
Accuracy (velocity)	±0,5% of measured value
Measurement rate	1 Hz as standard
Response time	1 second
Damping of reading	0...99 seconds (selectable)
Solids and gas content in media	<10% in volume
Housing	Die cast Aluminium for wall mounted
Protection rate	IP66
Ambient temperature	-10 +60 °C (for electronics)
Power supply	100...240 VAC or 9...36 VDC
Power consumption	<5 W
Display	LCD graphic with back light
Weight (Approx.)	0,75 kg
Operating languages	English, Spanish, Italian (other on request)

### Dimensions



## ULTRASONIC SENSORS FOR PORTABLE METERS



### SENSOR TYPE K1N / K1E

Pipe diameter	50...3000 mm
Sensor dimensions	60 x 30 x 34 mm
Sensor head material	Stainless Steel
Cable conduit material	Stainless Steel
Working temperature	-30 +130 °C (-30 + 250 °C for K1E)
Protection rate	IP 68
Cable length	4 m standard (on request other lengths)

### SENSOR TYPE K4N / K4E

Pipe diameter	10...250 mm
Sensor dimensions	43 x 18 x 22 mm
Sensor head material	Stainless Steel
Cable conduit material	Stainless Steel
Working temperature	-30 +130 °C (-30 + 250 °C for K4E)
Protection rate	IP 68
Cable length	2,5 m standard (on request other lengths)

## ULTRASONIC SENSORS FOR FIXED METERS



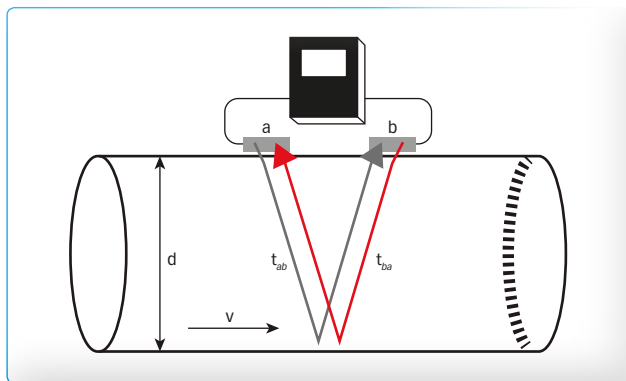
### SENSOR TYPE K1P / K1L / K1N / K1E

Pipe diameter	50...3000 mm
Sensor dimensions	60 x 30 x 34 mm
Sensor head material	Stainless Steel (plastic for K1P)
Cable conduit material	PVC (Stainless Steel for K1E/K1N)
Working temperature	K1P -20 +50 °C K1L -30 +80 °C K1N -30 +130 °C K1E -30 + 250 °C
Protection rate	IP 68
Cable length	K1P: 3 m K1L: 5 m K1N / K1E: 4 m (on request other lengths)

### SENSOR TYPE K4L / K4N / K4E

Pipe diameter	10...250 mm
Sensor dimension	43 x 18 x 22 mm
Sensor head material	Stainless Steel
Cable conduit material	PVC (Stainless Steel for K4E/K4N)
Working temperature	K4L -30 +80 °C K4N -30 +130 °C K4E -30 + 250 °C
Protection rate	IP 68
Cable length	K4L: 5 m K4N / K4E: 2,5 m (on request other lengths)

## Measuring principle



Transit time measuring principle.

Sensors "a" and "b" work alternately to send and receive ultrasonic pulses.

The sound waves "a" to "b" travelling with the flow move faster than those "b" to "a" travelling against it; the time difference is the flow velocity.

Figure shows typical V reflection mounting, where sensors are installed on the same external side of pipe, different installation ways can be used to manage different pipe size and material.

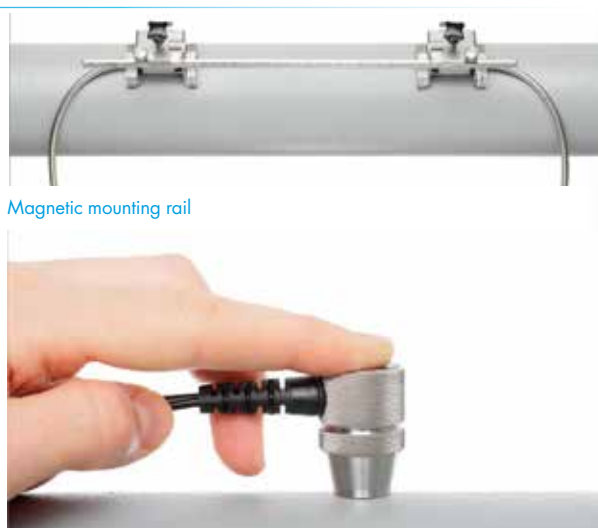
### ACCESSORIES

A list of accessories are available for easy mounting or for improving the measuring results like:

- Integral wall thickness gauge for IFX-P200 or IFX-P210 – for direct connection on the meter
- External wall thickness gauge also suitable for fixed meters
- Magnetic rails
- Clamp on temperature sensors for energy measurement
- Clips and Mounting accessories
- Acoustical Paste
- Extension cables



PT100 transducer fixed to pipe



Magnetic mounting rail

Wall tickness gauge

The ultrasonic flow meter specifically designed for water treatment and chemical industry.



Information shown in this brochure are not exhaustive, for detailed characteristics refer to individual data sheet.