



PF-333

Portable Ultrasonic Liquid Flowmeter according to Transit Time Difference Method

Description:

The portable ultrasonic liquid flow meters of the PF series measure the flow in a closed pipe according to the transit-time difference method without the need for any mechanical parts to be inserted through the pipe wall. Two ultrasonic transducers are mounted to the pipe with a fastening rail. In the course of commissioning, individual data of the measuring point, like for example the medium, pipe material, pipe diameter, wall thickness etc. is entered into the transmitter. The ideal separation distance of the two transducers is then calculated by the transmitter in response to the entered data concerning the pipe and fluid characteristics. In the measuring mode the transducers work alternating as emitter and receiver. The transit time of the ultrasound between the transducers is measured once in flow direction and once against the flow direction. Because the ultrasound transmitted in the same direction as the liquid flow is faster than against it, a time difference which is directly proportional to the flow velocity of the liquid and independent of the individual features of the fluid results. The PF-333 is capable to transmit the recorded flow data as analog output or pulse output and also in alphanumeric text or graph on the built-in LCD backlit graphic display as flow rate or velocity together with totalized values. The internal battery of the PF-333 allows up to 14 hours of operating time depending on the output utilisation and backlight usage. The internal logger can store up to 100.000k data points. By use of the provided Windows® based software the logged data can be output directly to a PC using the RS232/USB interface or stored in the instrument's non-volatile memory for downloading at a later time.

Features

- /NEW: Optional as heat meter
- / Measurement through the pipe
- / Non-contacting
- / Easy to install
- / For pipes up to 5000 mm
- / Operating temp. up to 200°C
- / Reynoldsnumber correction
- / Cost effective
- / Ideally suited for difficult media

Application:

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|--------------------------------|----------------------------|
| - Building services | - Ultrapure water |
| - Pump verification | - Hydraulik system testing |
| - Leak detection | - Heavy fuel oil |
| - Fuel oil measurement | - Balancing systems |
| - Filter sizing and inspection | and much more... |



Technical Specifications:

Equipment

PF-333.A/B/D /	evaluation unit with backlit graphic display RS232 and USB (both on board) language options: German, English, French, Spanish transducers A for pipe outer diameter 13...115 mm temperature range -20...+135°C (-20...+200°C) transducers B for pipe outer diameter 50...2000 mm temperature range -20...+135°C (-20...+200°C) transducers D for pipe outer diameter 1500...5000 mm temperature range -20...+135°C extra strong IP67 carrying case from PP foam inlay and double walls, cable, instruction manual, ancillary equipment transducer guide rails with all mounting hardware test piece for confirmation of correct system operation
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	WINDOWS® based software package which works with 2000/ XP/ Vista/ Windows 7 operating systems
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Flow range /	0.1...20 m/s, bi-directional
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Data logger /	100.000k memory points, up to 12 recording blocks with different names, data is displayed either as graph or as text in graphic display in Real Time or from the memory and can be transmitted to a WINDOWS®-based PC via RS232 or USB interface.
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Accuracy /	± 0,5% up to ± 2% of measuring value for flow velocities > 0,2 m/s and pipe inner diameters > 75 mm ± 3% of measuring value for flow velocities > 0,2 m/s and pipe inner diameters < 75 mm
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Option:

Heat meter /	Measurement Technique: Ultrasonic, cross- correlation transit time method for flow measurement and PT100 Class B 4 wire for temperature measurement.
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Heat measurement:	The Heat/Energy calculation is designed to comply with EN1434 section 6.
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Temperature sensors:	Clamp-on PT100 Class B 4 wire, range 0...200°C (32...392°F), resolution 0.1°C (0.18°F). Minimum delta T is 0.3°C
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Electrical Specifications:

Outputs /	3 x Pulse Output: Pulse or Frequency. Opto Isolated MOSFET relay. 4-20mA flow proportional output, optically isolated 1500 volts 620 ohms maximum load. Frequency max. 200 Hz Pulse > 100 V AC/DC, 150 mA
Display /	64 x 240 Pixel
Exposition /	continuous display of battery status, signal strength and flow information (counter and flow)
Keypad /	16 keys
Supply voltage /	rechargeable battery or line voltage
Battery capacity /	14 hours, 2,5 hours charge time
Line voltage /	110...240 VAC, 50 Hz ± 10%
Approval /	CE

Ordering Codes:

Order number

PF-333.

A

**PF-333 Portable Ultrasonic Liquid Flowmeter
according to Transit Time Difference Method**

Transducers /

A	= with transducers A for pipe diameters 13...115 mm
AH	= high temperature version A for -20...+200°C
B	= with transducers B for pipe diameters 50...2000 mm
BH	= high temperature version B for -20...+200°C
D	= with transducers D for pipe diameters 1500...5000 mm
AB	= with both types
ABH	= high temperature version A and B for -20...+200°C

Option /

0	= none
HM	= heat meter



Dimensions in mm:



