



PF-330

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-330 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-330 allows up to 20 hours of operating time depending on the output utilisation and backlight usage. The internal logger can store up to 98.000 measured values. 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

/ 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:

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



Technical Specifications:

Equipment
PF-330.A/B/D / evaluation unit with backlit graphic display
 built-in datalogger with 98k memory
 0/4...20 mA-output
 5 Volt pulse output
 RS232 and USB (both on board)
 language options:
 German, English, French, Dutch, Italian,
 Norwegian, Portuguese, Russian, 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
 WINDOWS® based software package
 which works with 2000/ XP/ Vista/
 Windows 7 operating systems

Flow range / 0.1...20 m/s, bi-directional
Data logger / 200k memory points, up to 20 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.
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

Electrical Specifications:

Outputs / 0/4...20 mA opto-isolated,
 5 V pulse output,
 Programmable Pulse 2-500ms
Display / 64 x 240 Pixel
Exposition / continuous display of battery status,
 signal strength and flow information
 (counter and flow)
 10 different languages
Keypad / 16 keys
Supply voltage / rechargeable battery or line voltage
Battery capacity / 20 hours
Line voltage / 110...240 VAC, 50 Hz ± 10%
Approval / CE

Ordering Codes:

Order number	PF-330.	A
PF-330 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		



Dimensions in mm:



