PRECISION FLOW 190F
Fixed Transit Time clamp-on ultrasonic flowmeter

Features

● A cost effective clamp-on non-invasive flowmeter.

● Analog and digital outputs.

●Data logger with local display of data. (graphically or as text)

● Bi-directional measurements, with totalization in positive and negative flow directions.

● Simple setup and installation.

● Automatic liquid speed of sound measurement and Reynolds Number flow profile correction.

● Measure flow rate within a pipe without cutting the pipe or stopping processes.

● Latest correlation signal detection system.

● Easy to attach clamp-on sensors.

● Zero head loss results in improved pumping efficiency.

● Clearly laid out high tactile response keypad.

● Very large flow measuring range, with no complicated upper velocity limits on sensors.

● Suitable for all commonly used sonically conductive pipe materials and liquids.

Description

The Precision Flow 190F is a, transit time, flowmeter designed for liquid flow measurement applications, in particular where sterile conditions prevail and any invasion of the piping system could cause contamination. It is also a very economical solution to flow measurement in larger pipe applications.
Precision Flow's experience in ultrasonic technology ensures that the 190F is a high precision instrument, which can be configured and operational within minutes.

Various sensor and clamping options are available for non standard applications. Please contact us for more information.

For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

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Principle of operation

Ultrasonic waves are transmitted in the direction of flow. These are accelerated slightly by the velocity of the liquid in the pipe. When ultrasound is transmitted in the opposite direction, the flow of the liquid causes the transmitted sound to decelerate. The subsequent time difference is directly proportional to the flow velocity in the pipe. Having measured the flow velocity and knowing the cross-sectional area, the volumetric flow can be easily calculated. Time differences are measured with a resolution of 20 Pico seconds , thus giving extremely good performance in small pipes or in large pipes with low velocity flows.

Electronics

The Precision flow 190F is easily configured by selecting the options displayed in the main menu and following simple on screen instructions. The graphic display provides flow data in large highly visible characters, which is enhanced by the use of the back light facility, making it possible to read the flow rate from a distance under extremely poor lighting conditions. Error messages, signal quality, time and date are all continuously displayed, as well as flow information in either numerical or graph format, keeping the user fully aware of the measurement process.

Data Logger

The built in data logger has the capacity to store 120,000 flow readings. Data can be stored in 1-second to 1 hour intervals. Data from each logging session can be saved with a unique name and is stored in the memory until it has been cleared. The stored data can be displayed on the instrument in text or graphical format. The instrument is also capable of downloading the stored data via The RS232 output port to a printer or PC onto a standard spreadsheet. A USB option is available. The unit has a removable electronics pack so the data logger can be taken away for down load if required. (under screw fixed front panel)

Specification

Wall Electronics Enclosure
- Protection Class : IP67
- Material : Painted Steel
- Weight : 4.3 Kg
- Dimensions : 235 mm x 300 mm X 80 mm (with glands)
- Display : 240 x 64 graphics LCD with backlight
- Keypad : 17 key tactile membrane (behind front panel)
- Temperature range standard : 0ºC to +50ºC (operating) -10ºC to +50ºC (storage) extended:-40ºC to +60ºC
- Power supply 100 to 240 V AC or 12 to 36V DC
- Volumetric flow units : m^3, gallons (Imperial and US), Liters
- Velocity units : metres/sec, feet/sec
- Flow velocity range : 0.01 m/sec to 25 m/sec to 4 significant figures
(option higher if required)
- Continuous signal quality indication
- Status messages
- Analogue 4-20mA : User definable scaling
- Pulse 5 Volts or open collector (option) or Relay 5A contacts (option), User definable scaling
- Serial RS232 USB (option)
- Data Logging memory capacity 120,000 data points User definable timing.
- Data Logging output Via RS232 /USB or displayed graphically/numerically

Transducer standard temperature WPG type Pipe size : 15mm-300mm
- Protection Class : IP67
- General service temp short term :-30 to 130 ^oC
- General service temp long term :-30 to 105 ^oC

Transducer standard temperature XPG type Pipe size : 50mm-1200mm
- Protection Class : IP67
- General service temp short term :-30 to 130 ^oC
- General service temp long term :-30 to 105 ^oC

Transducer standard temperature YPG type Pipe size : 100mm-6500mm
- Protection Class : IP67
- General service temp short term :-30 to 130 ^oC
- General service temp long term :-30 to 105 ^oC

High temperature and application specific transducers are available please contact Precision Flow for details.

Repeatability ±0.5% with unchanged transducer positions
Accuracy ± 1 to± 2% or ± 0.02 m/sec whichever is the greater, depending on application.
The specification assumes turbulent flow profile.

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