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### **Portable clamp-on ultrasonic flowmeter**

- Dual mode flowmeter (transit-time and Doppler - NoiseTrek™)
- Clamp-on sensors with no process interruption
- Non-invasive flow measurement of liquids
- No pipeline disturbance, no pressure loss
- Suitable for most pipe materials with diameters from 6 mm to 6.5 m (1/4" to 256")
- Process temperatures from -30 °C to 300 °C (-22 °F to 572 °F)
- 2 flow channels and virtual calculation channels as standard
- Integrated wall thickness measurement
- Options: heat quantity measurement, liquid sound velocity measurement



Dual Channel Portable Ultrasonic Flowmeter

The non-invasive flowmeters utilizes ultrasonic technology for the accurate flow measurement of liquids in full pipes. The measurement of flow is based on the principle that sound waves traveling in the direction of flow of the fluid require less time than when traveling in the opposite direction. The difference in transit times of the ultrasonic signals is an indication for the flow rate of the fluid. In those rare cases where the amount of gaseous or solid content in the liquid becomes too high for the transit-time mode to operate, the unit can revert to the Doppler - NoiseTrek™ mode, which relies on particles or gas bubbles flowing with the liquid. For further information on the measuring principle, see data sheet "Ultrasonic Principle".

#### **Easy to use**

The ultrasonic sensors are clamped onto the outside of the pipe, thus eliminating the need to dismantle the pipe work and interrupt the process. A ultrasonic flowmeter can be applied to any type of standard pipe carrying clean or dirty liquids. The set-up of the unit is simple through an interactive dialogue. Diameter, thickness and material of the pipe and the fluid to be measured need to be entered via the keypad. With the clamp-on sensors positioned correctly, the flow rate of the liquid can be determined in minutes.



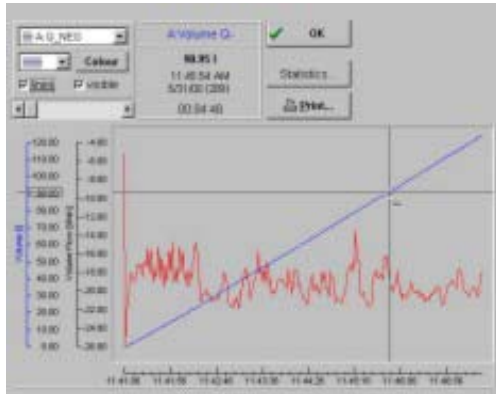
#### **Intelligent sensors**

The calibrated sensors have automatic parameter transfer to the portable unit, which facilitates easy operation avoiding installation errors. As a result, the flowmeter provides accurate measurements without the necessity of a zeroing or extensive learning procedure. Watertight sensors and integrated robust sensor cables make it possible to obtain measurements over a long period of extensive usage.

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### ***Integrated data logger***

Without a strip-chart recorder or control system connected, all data is securely captured in the unit. An internal data logger is standard and includes the necessary transmission and evaluation software. With this software, the data can be collected, visualized and printed out, or the measurements converted for further evaluation through standard PC programs. Should there be no PC available, the data can also be transferred directly to a printer.

### ***Heat quantity measurement (HQM)***

With the integrated heat quantity measurement option, it is additionally possible to measure the flow of thermal energy. The heat quantity coefficients for various media are already pre-programmed.

### ***Pipe wall thickness measurement (WTM)***

In certain applications, the pipe wall thickness is not always a known quantity. As the wall thickness is a critical parameter for clamp-on flow measurements, the portable unit can be supplied with an optional wall thickness gauge.

### ***Applications***

- **Distribution and consumption measurements**
- **Leak detection**
- **Inspection of fixed installation flowmeters**
- **Measurement of aggressive media**
- **Monitoring of coolant and heating circuits**
- **Plant start-up and commissioning**
- **Pump inspection**
- **Hygienic flow measurements**
- **CIP flow and process monitoring**
- **Survey work**
- **System balancing**