Ultrasonic Flow Meter PCE-TDS 100HS

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Measures liquid flow velocity in pipes and tubes with a diameter of 20 ... 108 mm / ≈ 3/4 ... 4 in

This is a portable handheld clamp-on ultrasonic flow meter used for non-invasive, unobstructed and highly accurate measurements of the flow velocity of liquids in metal, plastic and rubber **pipes and tubes with a diameter of 20 ... 108 mm / approx. 3/4 ... 4 in**. Ideal for use in oil and gas, water and wastewater, chemical, food and beverage, pharmaceutical, metals and mining, pulp and paper, power and heating, ventilation, air conditioning and refrigeration (HVACR) industries, this ultrasonic flow meter features user-friendly velcro-strap clamps that allow for quick and easy repositioning of the electroacoustic transducers.

Measurable liquids include: acetate, acetone, alcohol, ammonia, aniline, benzene, butyrate, chloroform, ethanol, ethyl alcohol, ethyl ether, ethylene glycol, freon R 12, petrol, glycerin, glycol, isobutanol, isobutane, isopentane, kerosene, linseed oil, methanol, methyl alcohol, engine oil, diesel oil, olive oil, peanut oil, paraffin oil, pentane, petroleum, 1-propanol, coolant, lubricating oil, silicone oil, transformer oil, trichlorethylene, 1, 1, 1 - trichloroethane, turpentine, distilled water and sea water.

Calculation of flow velocity according to the transit-time principle follows the equation:

$$v = \frac{(T_2 - T_1)}{T_1\, T_2} * \frac{L}{2cos\alpha}$$

v= measured velocity

T1 = run time of the ultrasonic signal in the flow direction

T2 = run time of the ultrasonic signal against the flow direction

L = length of the ultrasonic wave

α = ultrasonic signal angle to the flow

Subject to change

The transit-time principle requires pipes to be full and have no bubbles and no particles.

Note: To transfer data to a computer, SOFT-PCE-TDS software is required. The software is sold separately - see accessories for details.

Each PCE-TDS series meter is assembled by PCE Instruments in Germany and and factory-calibrated (without any documentation). The reference display of the in-house test stand used by PCE for calibration has a valid DAkkS calibration certificate. This ensures traceability to the Physikalisch-Technische Bundesanstalt (PTB) German national standard. Please note that the meter's measured values depend on the pipe geometry, material and coating; the medium type, temperature and speed; and the sensor type and measuring method.

- Ideal for retrofitting
- Installation without process interruption
- Easy assembly
- Accurate and reliable
- No pressure loss
- Maintenance-free, no moving parts
- Wear-free
- Portable devices for control measurements

Specifications

Handheld measuring range	-32 ... 32 m/s, -105 ... 105 ft/s
Resolution	0.0001 m/s, 0.00033 ft/s
Accuracy for DN ≥ 50 mm:	± 1.5% of measured value
for DN < 50 mm:	± 3.5% of measured value
Reproducibility	± 1.0% of measured value
Media	All liquids with an impurity <5% and a flow >0.03 m^3/h

Flow units	Cubic meter [m^3] Liter [l] Gallon (USA) [gal] Imperial gallon (UK) [igl] Million USA gallon [mgl] Cubic foot [cf] Barrel (USA) [bal] Imperial barrel (UK) [ib] Oil barrel [ob]
Time settings	Per day [/d] Per hour [/h] Per minute [/m] And per second [/s]

Data logger	60,000 measurements
Interface	USB (for online measurement and reading of the internal memory)
Protection	IP 52
Power supply	3 x AA NiMH rechargeable battery / 2100-mAh (at full charge 12h running time) 100 ... 240V AC 50/60 Hz
Dimensions	214 x 104 x 40 mm / 8.4 x 4.1 x 1.5 in
Weight	450 g / 15 oz
Sensor (only PCE-TDS 100 HS)	**Nominal width DN 15 ... 100, 20 ... 108 mm / approx.3/4 ... 4"**
Temperature of liquid	-30 ... 160°C / -22 ... 320°F
Dimensions	45 x 30 x 30 mm / 1.7 x 1.1 x 1.1 in
Weight	75 g / < 1 lb

More information

Manual

Manual P1

Video Quick Start

Video

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