# Ultrasonic Flow Meter Kit PCE-TDS 100HSH



**PCE-TDS 100HSH Ultrasonic Flow Meter Kit**

**Measures liquid flow velocity in pipes and tubes with a diameter of 20 ... 720 mm (approx. 3/4" ... 28")**

PCE-TDS 100HSH is a portable handheld clamp-on ultrasonic flow meter kit 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 ... 720 mm / approx. 3/4" ... 28". 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 kit 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

**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. SOFT-PCE-TDS software 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.

- 0.5% linearity
- 0.2% repeatability
- Bi-directional flow measurement
- Quick and adjustable response time
- Eliminates interfering frequencies
- Includes data logger functionality
- Stores up to 2000 measurement values
- Auto power-off battery-saving function (can be disabled)
- Saves time- and date-stamped measurement data to internal memory
- Rechargeable, battery-operated flow measuring device

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# Specifications

| | |
|---|---|
| Measuring range | -32 ... 32 m/s, -105 ... 105 ft/s |
| Resolution | 0.0001m/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 |
| Units | Meters, feet, cubic meters, liters, cubic feet, gallon, oil barrel, liquid barrel, million gallon |
| Response time | 0 ... 999 seconds, freely configurable |
| Pipe diameter | **DN 15 ... 700, 20 ... 720 mm / approx. 3/4" ... 28"** |
| Measuring media | All liquids with an impurity <5% and a flow >0.03 $m^3/h$ |
| Heads | Type M1 and S1 |
| Cable length | Approx.5 m / 16.4 ft each (x 4) |
| Display | 4 x16 LCD, 7 digits for net flow, positive and negative flow |
| Power supply | 3 x AAA Ni-H rechargeable batteries |
| Battery life | Approx. 10 hours continuous use at full charge |
| Battery charger | 100.. 240V / AC |
| Interface | RS-232C |
| Memory | Stores up to 60,000 values |
| Housingmaterial | ABS plastic |
| Dimensions | Device:<br>100x 66 x 20 mm / 3.93 x 2.60 x 0.79 in<br>Transducers:<br>2 x M1 each 60 x 45 x 45 mm / 2.36 x 1.77 x 1.77 in<br>2 x S1 each 90 x 85 x 24 mm / 3.54 x 3.35 x 0.95 in |
| Operating temp. | 0... 70ºC / 32 ... 158ºF |
| Weight | 514g / 1.14 lb (with batteries) |

# More information

**Manual**

**Manual P1**

**Video Quick Start**

**Video**

**More product info**

**Similar products**

Subject to change