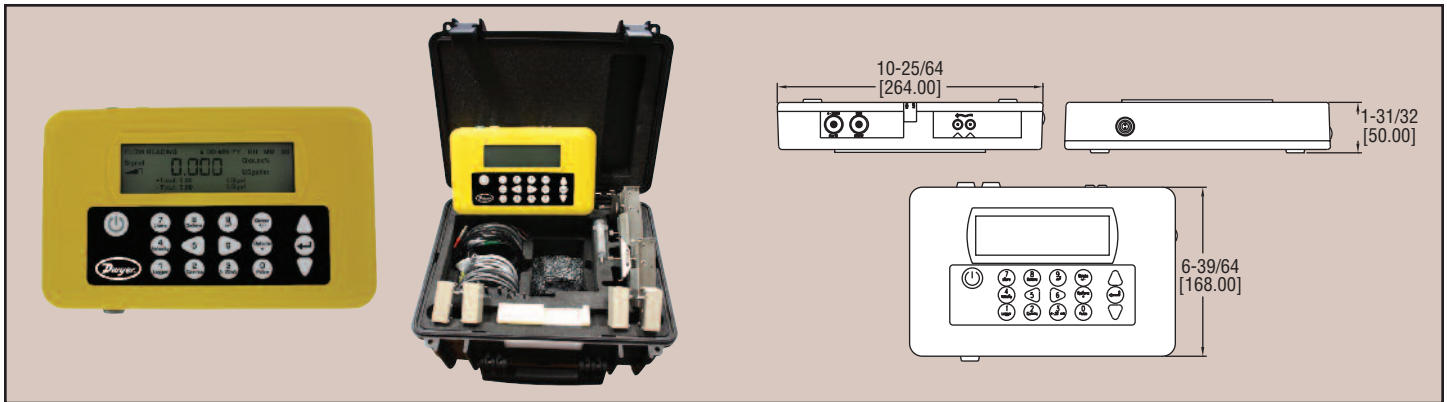




Series
PUF

Portable Ultrasonic Flowmeter Kit

Portable, Non-Invasive and Data Logging Capability



The Series PUF Portable Ultrasonic Flowmeter Kit utilizes the transit-time difference for measuring flow rates in pipes non-invasively. It is a compact and lightweight instrument incorporating the latest electronics and signal processing technologies, realizing high performance and easy operation. This device is capable of 20 hours continuous operation with its built-in battery. The PUF comes with an IP67 rated carrying case with molded foam inserts to hold and protect all equipment against dust and water. The screen offers easy to read text with a convenient backlight for visual comfort. The efficient layout of the function keys add to this unit's easy to use programming. The unit comes with RS232 and USB connections to allow for easy connection to any personal computer or printer.

PRINCIPLES OF OPERATION

Two sensors are placed on the exterior of the pipe, and each transmits an ultrasonic pulse through the pipe and fluid to the other. The velocity of the liquid flowing through the pipes causes the pulse to accelerate or decelerate. The difference in the transit times of the two pulses is used to calculate the flow rate. The use of transit time allows the flowmeter to be unaffected by pressure or temperature changes.

APPLICATIONS

- Treated Water
- River Water
- Sea Water
- Potable Water
- Demineralized Water
- Glycol/water mix
- Hydraulic System
- Diesel Oil

Kit Includes:

- Converter
- Set of Transducers (Both Sets for Model PUF-1001)
- Transducer Holders
- Set Transducer Cables (6.56 ft (2 m))
- USB, RS232, 4 to 20 mA Communication Cables
- 12 VDC Power Supply
- Ultrasonic Coupling Grease
- Set of Chains
- Ruled Guide Rail
- Test Block
- Carrying Case

Model	Pipe Size Range	Price
PUF-1001	0.5 to 78" (13 to 2000 mm)	\$6803.00 [Ⓢ]
PUF-1002	0.5 to 4.5" (13 to 115 mm)	6087.00 [Ⓢ]
PUF-1003	2 to 78" (50 to 2000 mm)	6087.00 [Ⓢ]

[Ⓢ] Items are subject to Schedule B discounts.

For non-data logging version see Series PUB.

For permanent version (data logging and non), see Series UFC and Series UFB.

SPECIFICATIONS

Service: Homogeneous liquids that do not contain air bubbles capable of ultrasonic wave propagation.

Inputs: Lemo connector cable from sensors.

Range: 0.33 to 65.62 ft/s (0.1 to 20 m/s).

Display: 240 x 64 pixel graphic display, high contrast black on white with backlight;

Languages: English, French, German, Swedish, Italian, Spanish, Portuguese, Russian, Norwegian, and Dutch; 5.2" W x 1.5" H (132.1 x 38.1 mm).

Accuracy:

± 0.5 to 2% of flow reading for flow rate > 0.66 ft/s (0.2 m/s) and Pipe ID > 3 in (75 mm).

± 3% of flow reading for flow rate > 0.66 ft/s (0.2 m/s) and Pipe ID in range 0.5 to 3 in (13 to 75 mm).

± 6% of flow reading for flow rate < 0.66 ft/s (0.2 m/s).

Power Requirements: 9 to 24 VDC; (1) 5-Cell NiMH battery, internal, factory replaceable (continuous operation time: 20 hours with back light and output off); (recharging time: 6.5 hours, power adapter used).

Power Consumption: 10.5 W.

Power Adapter: 110/240 VAC adapter; UK, US, European adapters included.

Temperature Limits: -4 to 275°F (-20 to 135°C).

Outputs:

Analogue:

1 opto-isolated output: 4 to 20 mA, 0 to 16 mA or 0 to 20 mA (selectable);

Error current: 0 to 26 mA (selectable);

Load resistance: 620 Ω max;

Pulse:

1 opto-isolated MOSFET relay, 150 mA max, 500 pps max, 200 Hz max.

Serial Communications: USB; RS-232.

Enclosure Rating: Transducers: IP51; Carrying Case: IP67; Converter: IP54.

Materials: Flame retardant injection molded ABS plastic.

Repeatability: ±0.5 % of measured value or ±0.066 ft/s (0.02 m/s).

Electrical Connections: Multi-pin Lemo plugs.

Turbidity: <3% by volume of particulate content.

Permissible Air Content: <3% by volume.

Response Time: <500 ms.

Weight: Unit without accessories: 2.30 lb (1.06 kg);

Unit with accessories in carrying case: 14.40 lb (6.52 kg).

Agency Approvals: CE.

Applicable Pipe Material: Carbon steel, SS, copper, UPVC/PVDF, concrete, galvanized steel, mild steel, glass, brass.

Applicable Pipe Lining: Rubber, glass, concrete, epoxy, steel, other*.

Pipe Wall Thickness: 0.04 to 3" (1 to 75 mm).

Pipe Lining Thickness: < 1" (< 25 mm).

*Selectable option for special material with known propagation rate of the lining material.

FLOW

Flow Transmitters,
Ultrasonic