

# PORTABLE DOPPLER ULTRASONIC FLOWMETERS

## FD613 Series



Standard

- ✓ Non-Invasive Clamp-On Transducer
- ✓ For Liquids Containing Suspended Solids or Entrained Gases
- ✓ User-Selected Velocity Units (FPS or MPS)
- ✓ Measures Fluid Velocities from 0.3 to 30.0 FPS (0.10 to 9.00 MPS)
- ✓ 100:1 Turndown Ratio
- ✓ Pipe Sizes from 6.3 mm (0.25")
- ✓ CE Approval Optional
- ✓ Batteries Included
- ✓ NIST Certificate Standard

The FD613 Series flowmeter employs advanced trans-phase measuring technology, providing accurate and reliable flow velocity assessments in closed piping systems. The series uses a non-invasive clamp-on transducer that is placed on the outside of a pipe. Within seconds, the large 18 mm (0.7") LCD provides stable flow-rate readings in feet per second or meters per second. This product operates on metal or plastic pipes containing liquids with more than 100 ppm of 100 micron or larger suspended solids or entrained gases.

### Principle of Operation

The FD613 Series flowmeter utilizes an advanced trans-phase measuring technique, providing accurate, non-invasive fluid velocity assessment without opening the pipe. The series uses two piezoelectric crystals contained within one transducer to transmit ultrasonic energy into the fluid stream and receive back energy reflected off discontinuities (suspended particles or entrained gases) within the moving liquid. Transformations that result from the energy reflections are processed and converted to a measurement



of fluid velocity by the sophisticated software algorithm. The processor also controls all operations of the instrument from its ultra-efficient battery management circuitry to a proprietary FIR (finite impulse response) filtration program.

### SPECIFICATIONS

**Supply Voltage:** Battery powered, non-rechargeable alkaline, four "AA" (included), providing over 30 hours of continuous operation

**Flow Range:** 0.30 to 30.00 FPS (0.10 to 9.00 MPS)

**Display:** Single line—four-digit LCD readout of velocity [18 mm (0.7") digits], signal strength, measuring units, and low battery indication

**Temperature:** -20 to 60°C (-28 to 140°F)

**Enclosure Rating/Dimensions:** NEMA 12X ABS plastic; 200 H x 100 W x 38 mm H (7.76 x 4 x 1.5")

**Weight:** 0.7 kg (1.5 lb)

**Accuracy:** ±2% FS

### SENSOR SPECIFICATIONS

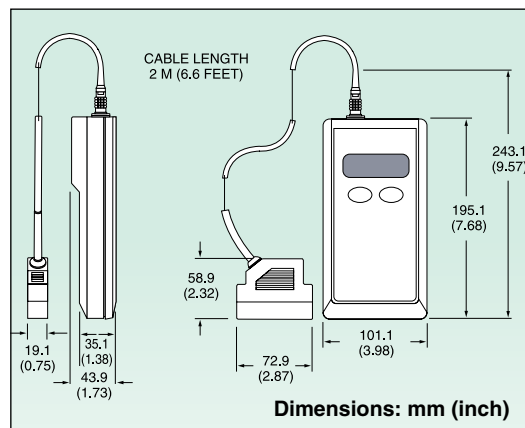
**Transducer Material:** Plated body; Ultem 1000 sensor material

**Cable:** 2 m (6.6') cable and connector

**Temperature:** -40 to 82°C (-40 to 180°F)

**Humidity:** 0 to 95% non-condensing

**Mounting Method:** Clamp-on style with Dow 111 coupling compound



### To Order

Model No.	Description
<b>FD613</b>	Handheld readout, sensor sold separately
<b>FD614-CE</b>	FD613 kit with CE approval w/sensor for pipes 1" dia. and larger
<b>FD613 Sensors</b>	
<b>FD613-S1</b>	Clamp-on sensor for ¼ to 1" diameter pipe (small pipe sensor has a two-piece clamp on head)
<b>FD613-S2</b>	Clamp-on sensor for pipes 1" diameter and larger
<b>Accessories</b>	
<b>MN1500-4</b>	Replacement Alkaline "AA" batteries (qty 4)

Comes complete with carrying case, silicone couplant, 4 "AA" batteries, NIST certificate and operator's manual.

**Ordering Examples:** **FD613**, flowmeter and **FD613-S1**, clamp-on sensor for ¼ to 1" pipe. **FD614-CE**, FD613 kit with CE approval.