

# TRANSIT TIME ULTRASONIC FLOWMETER

FDT-81



Standard



FDT-81 shown smaller than actual size.

*Comes with AC and automobile power adaptors, compartmentalized padded carrying case, coupling grease, standard sensors, straps, cables, mounting track, and complete operators manual.*

- ✓ **Automatic Reynolds Number Compensation**
- ✓ **24 Hour Integral Rechargeable Battery**
- ✓ **AC and Automobile Power Adaptors Included**
- ✓ **User-Configurable Rate and Totalizer Units**
- ✓ **Designed for Clean and Ultraclean Liquids**
- ✓ **Non-Invasive Clamp-on Transducers**

The FDT-80 Series of portable transit time flowmeters feature the world's most advanced non-invasive flow measurement technology, providing a measuring system with unsurpassed accuracy, versatility, ease of installation and dependability. Although designed primarily for cleaner liquids, the flowmeter can also reliably measure liquids containing moderate amounts of suspended solids or aeration.

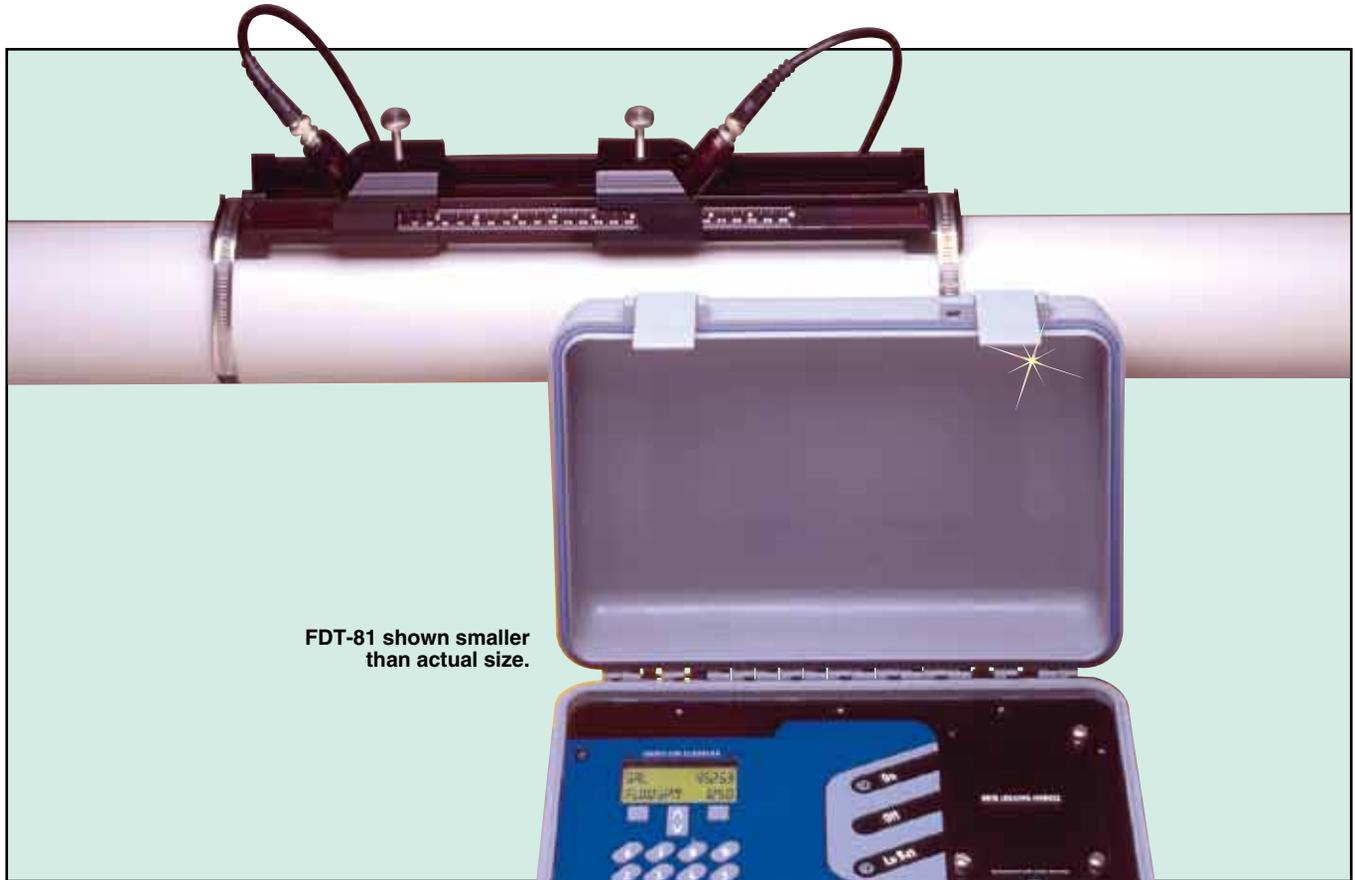
FDT-80 is designed for long or short term flow measurement surveys on full-pipe liquid systems and is ideal for verifying calibration of permanently mounted flowmeters of all types. The flowmeter features a tactile keypad, 24-hour battery (rechargeable), and a 128 x 64 pixel, back-lit graphics display—all

integrated into a rugged, watertight enclosure. The FDT-80 systems utilize proprietary dual time-base time expansion algorithm, advanced DSP and digital cross-correlation. The cost effective and versatile FDT-80 flowmeter comes complete with all accessories necessary for measuring piping systems from 50 to 2540 mm (2 to 100").

FDT-80 Series has a flow measuring range that exceeds 4000:1. This feature allows the instrument to measure normal process flow rates as well as flows resulting from leaks in piping and valves.

User configurable rate and totalizer units include: feet, gallons, ft<sup>3</sup>, million-gal, barrels, acre-feet, lbs, meters, liters, m<sup>3</sup>, million-liters and kg. Non-invasive clamp-on transducers are simple and cost efficient to install. Since the transducers do not contact the liquid, fouling and maintenance are eliminated.

Automatic Reynolds Number compensation assures accurate measurements through the laminar, transition and turbulent system flow regions. An integral 24 hour rechargeable battery allows extended operation when AC power is not available. Both AC and cigarette socket style power adaptors (battery chargers) are included. Compartmentalized and padded carrying case keeps the FDT-80 meter and all of its accessories organized and protected.



FDT-81 shown smaller than actual size.

## SPECIFICATIONS

### Transmitter

**Power Requirements:** Internal 12V lead-acid gel cell battery provides 24 hrs of continuous operation @ 20°C (68°F)

**Charging:** Wall mount power converter, 115 or 230 Vac 50/60 Hz ±15% @ 5 VA maximum; 12 to 15 Vdc @ 2.5 VA maximum

**Velocity:** -12 to +12 MPS (-40 to +40 FPS)

**Outputs:** All output modules are optically isolated from earth and system grounds. A maximum of two modules may be installed

**Analog Output:** 4 to 20 mA, 800Ω maximum; 12-bit resolution; passive or active

**Other Options:** Pulse output MOSFET, dual form C relays, heat flow and high temperature, and small pipe sensors (consult Engineering for details)

**Display:** 128 x 64 pixel graphics LCD, LED back lit. Two user selectable font sizes: 8.9 or 5.0 mm (0.35 or 0.2")

8-digit rate, 8-digit totalizer (resettable)  
**Units:** Feet, gallons, ft<sup>3</sup>, mil-gal, barrels, acre-feet, lbs., meters, liters, m<sup>3</sup>, mil-liters, kg (with Heatflow option: BTUs, calories, watts tons) [rate time: sec, min, hr, day]; Totalizer (NET, FWD, REV or BATCH): gallons, ft<sup>3</sup>, barrels, acre-feet, lbs., liters, m<sup>3</sup>, kg (with Heatflow option: BTUs, calories, watts tons) (user configured)

**Ambient Conditions:** -40 to 85°C (-40 to 185°F), 0 to 95% relative humidity, non-condensing

**Enclosure:** NEMA 4X (IP-66) while open, NEMA 6 (IP68) while closed, ABS with SS hardware

**Electronic Enclosure:** 14.8 lbs (6.7 kg), 356 W x 154 H x 268 mm D (14 x 6.06 x 10.56")

**Accuracy Flow Rate:** ±1.0% of reading at rates > 1 FPS

**Sensitivity Flow:** 0.0003 MPS (0.001 FPS)

**Repeatability:** ±0.3% of reading

**Response Time Flow:** 0.3 to 30 seconds, user configured, to 100% of value, step change in flow. Security keypad lockout, 4-digit user selected access code

**Approvals:** Ordinary area

**Cable:** 6.1 m (20')

**Pipe Sizes:** 50 to 2540 mm (2 to 100")

**Pipe Temperature:** -40 to 121°C (-40 to 250°F); NEMA 6 (IP68) housing

**Material Standard Sensor:** CPVC, Ultem® and Nylon

## To Order

Model No.	Description
FDT-81	Transit-time flowmeter

## Accessories

Model No.	Description
FDT-81-STD	Replacement standard sensor
FDT-GREASE	Coupling grease for fdt-30/80 Series

*Comes complete with AC and automobile power adaptors, carrying case, coupling grease, standard sensors, straps, cables, mounting track, NIST certificate, and operator's manual.*

*High temp and small pipe models are available, consult Flow Engineering for details.*

**Ordering Example:** FDT-81, complete transit time ultrasonic flowmeter kit, and FDT-GREASE, coupling grease.