

# TRANSIT-TIME ULTRASONIC FLOW METER



## FDT-30 Series



FDT-31 shown smaller than actual size.

- ✓ Compact Enclosure
- ✓ Large Digital Display
- ✓ 4 to 20 mA, TTL and Turbine Simulated Outputs
- ✓ Rate and Total Displays
- ✓ Clean Liquid Compatible

The FDT-30 Series provides easy and low cost installation by clamping to the outside of existing piping systems. Non-invasive transit time system allows solids to pass through the pipe with no affect on the meter. Y-strainers or filtering devices are not needed. Greater accuracy can be attained in applications consisting of entrained gases. The FDT-30 Series will automatically correct displayed flow rates and electronic outputs. Direct interface is provided to data collection systems via 4 to 20 mA output and either TTL-pulse or simulated turbine meter outputs that are proportional to fluid flow rate. Designed to replace mechanical flow meters in applications where liquid conditions tend to

damage or impede mechanical flow meter operation. No maintenance is required. The FDT-30 Series can be used on applications such as well water and other liquids with moderate amounts of suspended solids or aeration.

FDT-30 Series is housed in an enclosure suitable for outdoor mounting. Integral mount transducers are available for pipes 50 mm (2") and smaller.

### SPECIFICATION

**Liquid Types:** Most clean liquids, or liquids containing moderate amounts of suspended solids

**Power:** 12 to 28 Vdc @ 0.25 A

**Velocity:** 0.03 to 12.4 MPS (0.1 to 40 FPS)

**4 to 20 mA Output (Standard):**

12-bit resolution; source power; 5V maximum insertion loss; 900  $\Omega$  maximum loop impedance; can share ground common with power supply-isolated from piping system

**Turbine Frequency Output**

**(TTL Pulse):** Switch selectable; non-ground referenced AC, ground referenced squarewave; 100 mV pp min/5 Vdc amplitude; 0 to 1 kHz range; 50%  $\pm$ 10% duty cycle

**Display:** 2 line x 8 character LCD alternates between rate and total in 10 second intervals

**Top Row:** 18 mm (0.7"), 7-segment

**Bottom Row:** 9 mm (0.35"), 14-segment

**Rate:** 8 digits max

**Totalizer:** 8 digits maximum; exponential multipliers from -1 to +6

**Units:** Feet, gallons, ft<sup>3</sup>, million-gal, barrels (liquid and oil), acre-feet, lbs, meters, m<sup>3</sup>, liters, million-liters, kg;

rates programmable for per: sec, min, hr, or day

**Operating Ambient:** -40 to 85°C (-40 to 185°F)

**Enclosure:** NEMA 3 ABS, PVC and Ultem, brass or SS hardware

**Dimensions:** 75 W x 150 L x 63 mm D (3 x 6 x 2.5")

**Transducer Type:** Clamp-on for pipe mount; time of flight ultrasonic

**Accuracy:**  $\pm$ 1% rdg @ rates > 0.3 MPS (1 FPS);  $\pm$ 0.003 MPS (0.01 FPS)

@ rates < 0.3 MPS (1 FPS)

**Repeatability:**  $\pm$ 0.5% rdg

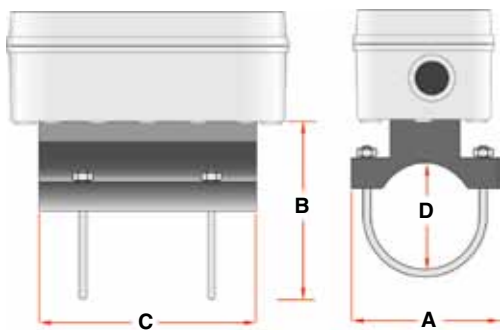
**Response Time:** 0.3 to 30 sec, adjustable

**Protection:** Reverse polarity, surge suppression

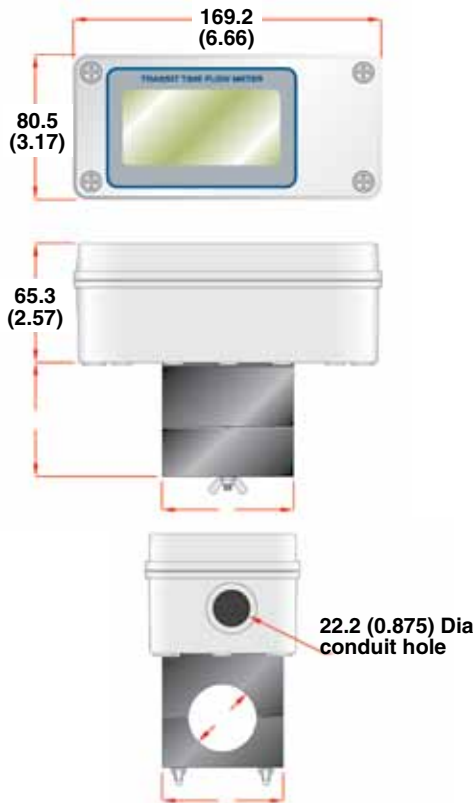
**Pipe Sizes:** 12 to 50 mm (0.5 to 2")

**Pipe Materials:** Carbon steel, stainless steel, copper and plastic

**U-Bolt Connections  
(ANSI & Copper 2" Models)**



**Standard System**



**Dimensions: mm (inch)**

Pipe Size	Pipe Material	A	B	C	D	Measuring Range
1/2"	ANSI	62.5 (2.46)	59.9 (2.36)	67.6 (2.66)	21.3 (0.84)	2 to 100 LPM 0.5 to 25 GPM
	Copper	62.5 (2.46)	59.9 (2.36)	84.6 (3.33)	15.9 (0.63)	2 to 100 LPM 0.5 to 25 GPM
	Tubing	62.5 (2.46)	57.9 (2.28)	94.5 (3.72)	12.7 (0.50)	2 to 100 LPM 0.5 to 25 GPM
3/4"	ANSI	62.5 (2.46)	65.3 (2.57)	67.6 (2.66)	26.7 (1.05)	4 to 200 LPM 1 to 55 GPM
	Copper	62.5 (2.46)	63.5 (2.50)	90.4 (3.56)	22.2 (0.88)	4 to 200 LPM 1 to 55 GPM
	Tubing	62.5 (2.46)	57.9 (2.50)	94.5 (3.56)	12.7 (0.75)	4 to 100 LPM 1 to 55 GPM
1"	ANSI	62.5 (2.46)	74.2 (2.92)	72.6 (2.86)	33.4 (1.32)	8 to 375 LPM 2 to 100 GPM
	Copper	62.5 (2.46)	72.9 (2.87)	96.5 (3.80)	28.6 (1.13)	8 to 375 LPM 2 to 100 GPM
	Tubing	62.5 (2.46)	69.9 (2.75)	96.5 (3.80)	25.4 (1.00)	8 to 375 LPM 2 to 100 GPM
1 1/4"	ANSI	71.0 (2.80)	80.8 (3.18)	79.8 (3.14)	42.2 (1.66)	15 to 570 LPM 4 to 150 GPM
	Copper	62.5 (2.46)	76.2 (3.00)	102.6 (4.04)	34.9 (1.38)	15 to 570 LPM 4 to 150 GPM
	Tubing	62.5 (2.46)	76.2 (3.00)	102.6 (4.04)	31.8 (1.25)	15 to 570 LPM 4 to 150 GPM
1 1/2"	ANSI	76.7 (3.02)	86.9 (3.42)	84.6 (3.33)	48.3 (1.90)	18 to 830 LPM 5 to 220 GPM
	Copper	68.8 (2.71)	72.6 (2.86)	108.7 (4.28)	41.3 (1.63)	18 to 830 LPM 5 to 220 GPM
	Tubing	68.8 (2.71)	84.1 (3.31)	108.7 (4.28)	38.1 (1.50)	18 to 830 LPM 5 to 220 GPM
2"	ANSI	94.0 (3.70)	86.9* (3.42)	139.7 (5.50)	60.3* (2.375)	30 to 1500 LPM 8 to 400 GPM
	Copper	94.0 (3.70)	85.9* (3.38)	139.7 (5.50)	54.0* (2.125)	30 to 1500 LPM 8 to 400 GPM
	Tubing	81.5 (3.21)	98.0 (3.85)	120.7 (4.75)	50.8 (2.00)	30 to 1500 LPM 8 to 400 GPM

\* Varies due to U-bolt configuration

**To Order**

Model No.	Description	Range LPM (GPM)
FDT-31	Transit-time ultrasonic flow meter, 1/2" ANSI pipe	2 to 100 (0.5 to 25)
FDT-32	Transit-time ultrasonic flow meter, 3/4" ANSI pipe	4 to 200 (1 to 55)
FDT-33	Transit-time ultrasonic flow meter, 1" ANSI pipe	8 to 375 (2 to 100)
FDT-34	Transit-time ultrasonic flow meter, 1 1/4" ANSI pipe	15 to 570 (4 to 150)
FDT-35	Transit-time ultrasonic flow meter, 1 1/2" ANSI pipe	18 to 830 (5 to 220)
FDT-36	Transit-time ultrasonic flow meter, 2" ANSI pipe	30 to 1500 (8 to 400)

**Accessories**

Model No.	Description
FDT-GREASE	Coupling grease for FDT-30/80 series

Comes complete with operator's manual and coupling grease.

For copper pipe applications, add suffix "-C" to model number, no additional charge.

For plastic tubing applications, add suffix "-T" to model number, no additional charge.

**Ordering Examples:** FDT-32, transit-time ultrasonic flow meter for 3/4" ANSI pipe.

FDT-33-C, transit-time ultrasonic flow meter for 1" copper pipe, FDT-GREASE, coupling grease.