

HANDHELD ULTRASONIC FLOWMETER

For Clean Liquids

FDT-21



- ✓ Accuracy 1%
- ✓ Repeatability 0.2%
- ✓ Positive, Negative and Net Totalizer
- ✓ 4-Line LCD Display
- ✓ Clamp On Transducers
- ✓ RS232 Output

FDT-21 ultrasonic flowmeter is designed to measure the fluid velocity of liquid in a full/closed pipe. It is a handheld measurement system which is both easy to install and use. The FDT-21 operates according to the difference in the transit time of flight measured, and determines the flow velocity by measuring the travel time of a pulse from one transducer to the next. Flow in the same direction takes less time to travel to the second transducer than does flow in the opposite direction. Electroacoustic transducers receive and emit brief ultrasonic pulses through the liquid of the pipe. Transducers are vertically placed at both sides of the measured pipe. Sensors are placed on the pipe and fastened by means of a clamp. The display will quickly show the flow velocity. The FDT-21 can be used for metallic, plastic and rubber tubes.

SPECIFICATIONS

Accuracy: $\pm 1\%$ of reading $>(0.2\text{m/s})$ 0.6 ft/s

Repeatability: 0.2%

Linearity: 0.5%

Response Time: 0 to 999 seconds (user configured)

Velocity: $(\pm 0.01$ to 30 m/s) ± 0.03 to 105 ft/s bi-directional

Temperature Range:

Standard: 0 to 70°C (32 to 158°F)

With High Temp Transducers: 0 to 160°C (32 to 320°F)

Pipe Size: DN 20 to 100 mm (0.75 to 4") standard
[up to DN 6000 mm (236") with optional transducers]

Transducer Frequency: 1 MHz

Rate Units (User Configured): Meter, feet, cubic meter, cubic feet, USA gallon, oil barrel, USA liquid barrel, imperial liquid barrel, million USA gallons

Totalizer: 7-digit totals for positive, negative and net flow
Liquid Types: Most liquids including clean water, sea water, waste water, chemical liquids, oil, crude oil, alcohol, beer, and more

Suspension Concentration: $\leq 20,000$ ppm (may contain very small amounts of air bubbles)

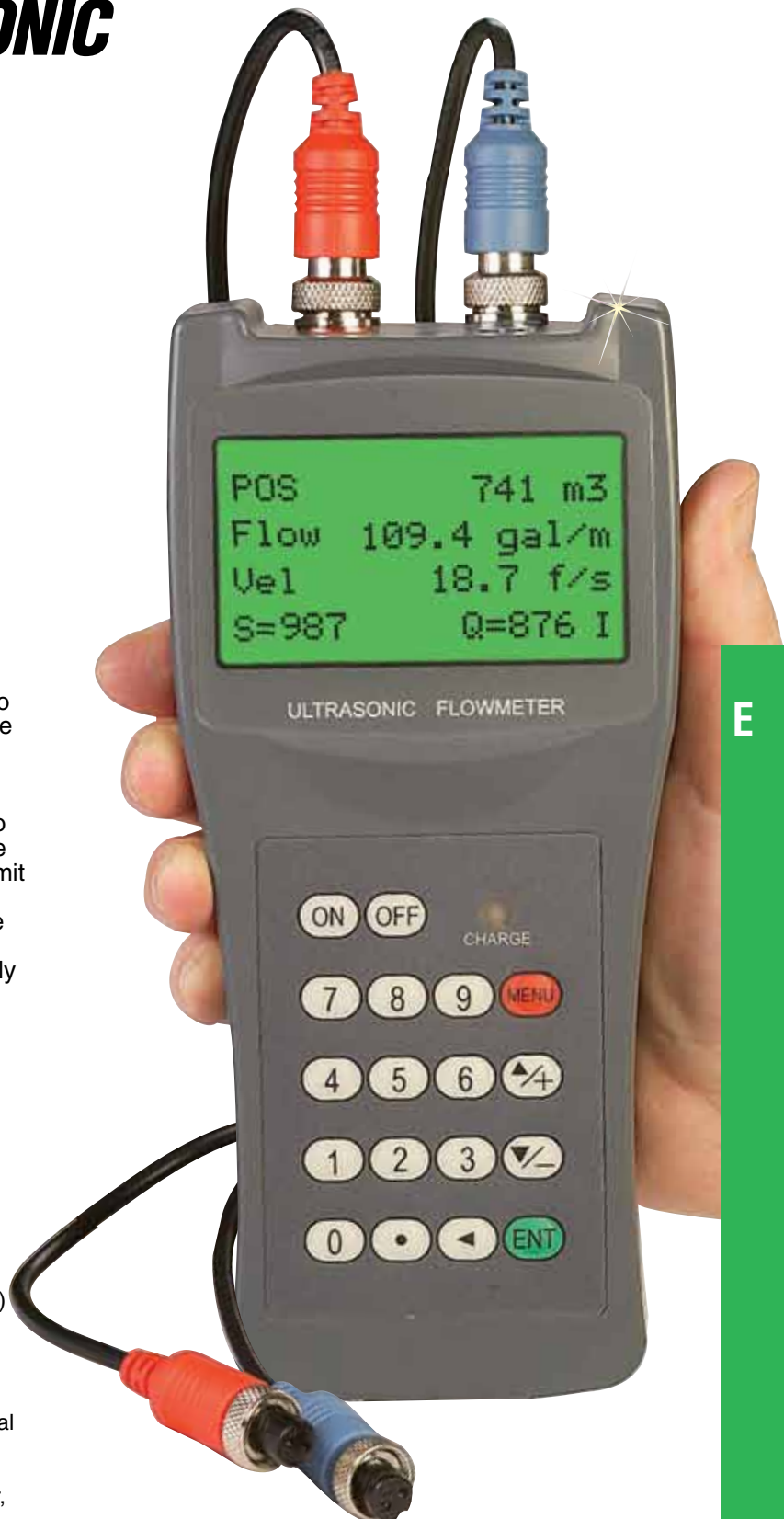
Pipe Material: All metals, most plastics and fiberglass

Security: Programmable lock-out code

Display: 4 x 16 english letters

Communications: RS232C (baud rate from 75 to 115,200 bps)

Transducer Cable Length: 5 m (15')



Power: 3 "AAA" Ni-H built-in batteries (included) with 90 to 230 Vac charger, fully charged lasts over 12 hrs.

Data Logger: Built-in, stores over 2000 lines of data
Totalizer/Calibration: 7-digit press-to-go for calibration

Housing: ABS plastic with aluminum alloy protective carrying case

Case: NEMA-4 (IP65)

Dimensions: 100 H x 66 W x 20 mm D (3.9 x 2.6 x 0.8")

Weight: 514 g (1.2 lb)

FDT-21, comes complete with 3 “AAA” batteries, small pipe standard and high temperature transducers (S1 and S1H), acoustic gel, tape measure, plug-in charger, RS232 cable, transducer cable, rugged carrying case and operator’s manual, shown smaller than actual size.



All accessories shown smaller than actual size.



FDT-21-M2, medium pipe, standard transducer



FDT-21-S1H, replacement small pipe, high-temperature transducer



FDT-21-M2H, medium pipe, high-temperature transducer



FDT-21-HM, medium pipe, aluminum transducer

Parameters	HS-Type	HM-Type	S1-Type	M2-Type	L2-Type	S1H-Type	M2H-Type
Pipe Size (mm)	20 to 100DN	50 to 100DN	20 to 100DN	50 to 700DN	300 to 6000DN	20 to 100DN	50 to 700DN
Pipe Size (inch)	¾ to 4	2 to 28	¾ to 4	2 to 28	12 to 240	¾ to 4	2 to 28
Material	Aluminum Alloy		ABS	Alloy		Special High-Temperature Materials	
Frequency	1 MHz						
Calibration	Calibrate with the main unit						
Magnetism	Magnetic					Non-magnetic	Magnetic
Temperature	0 to 70°C (32 to 158°F)					0 to 160°C (32 to 320°F)	
Protection Class	NEMA 4 (IP65)						
Dimensions (mm)	200 x 25 x 25	280 x 40 x 40	45 x 30 x 30	71 x 37 x 40	88 x 44 x 50	90 x 85 x 24	71 x 37 x 40
Weight g (oz)	250 (8.8)	1080 (38)	75 (2.6)	259 (9.1)	650 (22.9)	94 (3.3)	259 (9.1)
Liquid Types	Fresh water, salt water, chemical liquids, oil, crude oil, alcohol, beer, etc.						
Suspension Concentration	≤20000 ppm, may contain very small amount of air bubbles						
Pipe Material	All metals, most plastics, fiberglass, etc.						
Dedicated Shielded Transducer Cable	Standard length 5 meter x 2, can be extended to 10 meter x 2 or 15 meter x 2						

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Model No.	Description
FDT-21	Handheld transit-time ultrasonic flowmeter (includes S1 and S1H transducers)

Comes complete with 3 “AAA” batteries, small pipe standard and high temperature transducers (S1 and S1H), acoustic gel, tape measure, plug-in charger, RS232 cable, transducer cable, rugged carrying case and operator’s manual.

Accessories

Model No.	Description	Weight g (oz)	Pipe Size mm (inch)
FDT-21-S1	Replacement small pipe standard transducer	75 (2.65)	20 to 100 (0.75 to 4)
FDT-21-S1H	Replacement small pipe high temp transducer	94 (3.32)	20 to 100 (0.75 to 4)
FDT-21-HS	Small pipe aluminum transducer	250 (8.82)	20 to 100 (0.75 to 4)
FDT-21-HM	Medium pipe aluminum transducer	1080 (38.09)	50 to 700 (2 to 28)
FDT-21-M2	Medium pipe standard transducer	259 (9.1)	50 to 700 (2 to 28)
FDT-21-M2H	Medium pipe high temp transducer	259 (9.1)	50 to 700 (2 to 28)
FDT-21-L1	Large pipe standard transducer	650 (22.9)	300 to 6000 (12 to 236)
FDT-21-GREASE-S1	Acoustic gel for standard transducers		
FDT-21-GREASE-S1H	Acoustic gel for high-temperature transducers		

Ordering Example: FDT-21, handheld transit-time ultrasonic flowmeter.

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