

## BTU ENERGY ULTRASONIC FLOW METER

# FDT-24



### Features

- FDT-24 ultrasonic flow meter is designed to measure the fluid velocity of liquid in a full/closed pipe
- Temperature and heat can also be measured by connecting clamp on temperature transducer
- Widely be used in air conditioning, water supply, heat supply, chemical industry, machinery and energy resources
- There are energy and power unit in **GJ, Kc, KWh and BTU**
- Able to choose the sensor set to suit the job site and customer convenience.
- The FDT-24 can be used for metallic, plastic and rubber tubes.
- Portable type can be moved to measure on site
- Built-in printer with instant and timing print function

### Technical Data

**Measuring Range (Velocity) :**  $\pm 0.01$  to  $\pm 10$  m/s bi-directional

**Temperature range :** 0...105 °C (Pt100 3-wire)

**Flow rate Range (Flow Rate) :** see table on page 2

**Accuracy :**  $\pm 2\%$  of reading (flow rate),  $\pm 0.5^\circ\text{C}$  @ 25°C and  $\pm 0.8^\circ\text{C}$  @ 100°C

**Repeatability :** 0.2%

**Linearity :** 0.5%

**Response Time :** 0 to 999 seconds (user configured)

**Operating Temperature (Sensors) :** -30...+160 °C

**Operating Temperature (Device) :** -20...60 °C

**Operating Humidity :** 0...85 %RH

**Pipe Size :** DN 15 to 700 mm (1/2" to 28") standard sensors up to DN 6000 mm (240") (optional sensors)

**Sensor Frequency :** 1 MHz

**Units :** m<sup>3</sup>, ft<sup>3</sup>, lites, barrel, US gallon (user configured)

**Energy unit :** GJ, Kc, KWh and BTU (user configured)

**Flow Rate Units :** All units /s, /min or /hr (user configured)

**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

**Particle Concentration :** Clean liquids that have less than 3% by volume of particulate content

**Pipe Material :** All metals, most plastics such as carbon steel, cast iron stainless steel, PVC HDPE , Asbestos, etc.

**Display :** 2 x 20 english letters

**Sensors Cable Length :** 4.95 m

**Power supply :** 8 built-in Ni-MH batteries 1.2V with 90 to 230 Vac charger

**Operating Time :** fully charged lasts over 12 hrs

**Memory capacity :** SD card 2 GB

**Printer :** Available to print data in real time

**Exporting :** text file and excel

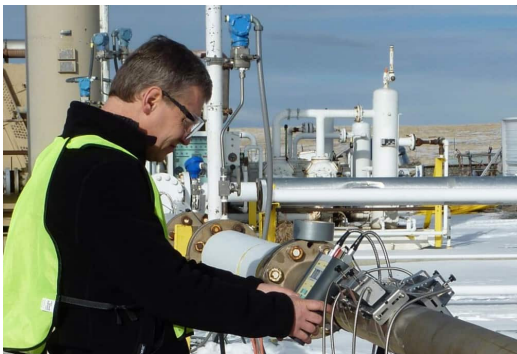
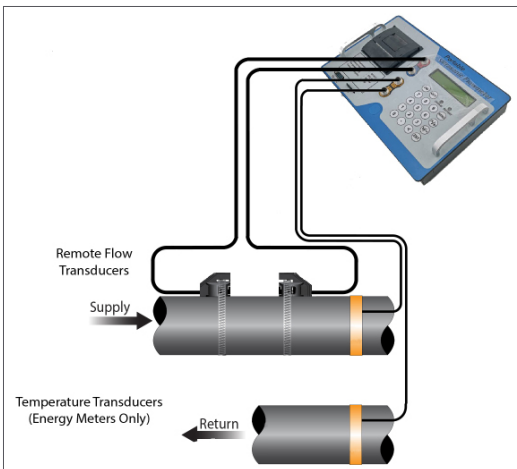
**Housing material :** aluminum alloy

**Case material :** ABS plastic

**Protection :** IP54 (device), IP65 (sensor),

**Dimensions :** 282 x 42 x 192 mm (WxHxD)

**Weight :** 4.74 kg (total), 1.75 kg (handheld), 2.99 kg (bag and accesories)



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## BTU ENERGY ULTRASONIC FLOW METER FDT-24

Flow rate table

Nominal diameter		Flow range (m <sup>3</sup> /hr)
DN	inch.	
15	1/2"	0-19.09
20	3/4"	0-33.94
25	1"	0-54.04
32	1" 1/4	0-86.89
40	1" 1/2	0-135.77
50	2"	0-212.14
65	2" 1/2	0-358.52
80	3"	0-543.09
100	4"	0-848.57
125	5"	0-1,325.89
150	6"	0-1,909.29
200	8"	0-3,394.29
250	10"	0-5,303.57
300	12"	0-7,637.14
350	14"	0-10,395.00
400	16"	0-13,577.14
450	18"	0-17,183.57
500	20"	0-21,214.29
600	24"	0-30,548.57
700	28"	0-41,580.00

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## BTU ENERGY ULTRASONIC FLOW METER FDT-24

### Tube types & Installation

- Tube types**

The types of pipes that can be used with a portable flow meter are as follows:



Carbon steel tube



Stainless steel tube



Cast iron tube



Copper tube



Aluminium tube



PVC tube

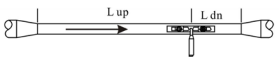
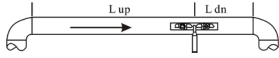
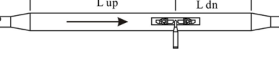
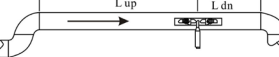


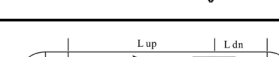


Asbestos tube



Fiber glass tube

- Installation**

Type of pipe characteristic and the sensor location	Upstream	Downstream
	Distance <b>before</b> the center of the sensor ( <b>L up</b> )	Distance <b>After</b> the center of the sensor ( <b>L dn</b> )
	10 x diameter	5 x diameter
	15 x diameter	5 x diameter
	15 x diameter	5 x diameter
	15 x diameter	5 x diameter
	20 x diameter	5 x diameter
	30 x diameter	5 x diameter
	30 x diameter	5 x diameter

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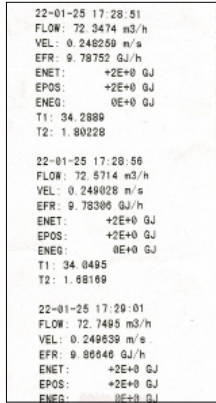
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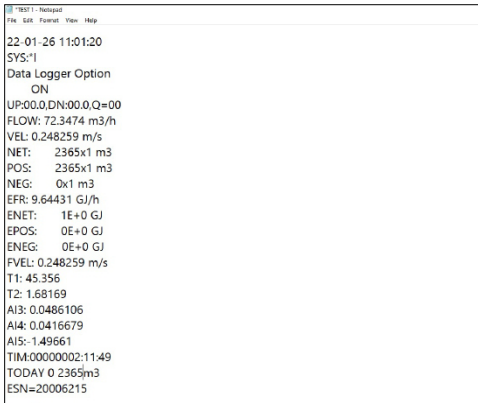
## BTU ENERGY ULTRASONIC FLOW METER FDT-24

### Exporting file

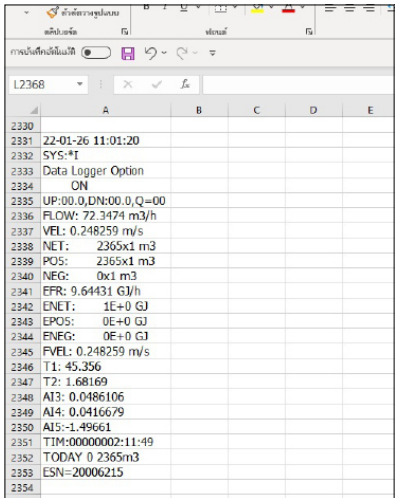
- Printed



- Text file



- Excel file



# Technical Data Sheet

## Ultrasonic Flow Meter FDT-24

### Ultrasonic Thickness Gauge meter : UTG-100 (Option)

#### Features

- Small and compact, Easy to use
- Used for measuring thickness and corrosion of pressure vessels, chemical equipment, boilers, oil storage tanks, etc. in industries of petroleum, shipbuilding, power station, and machine manufacturing.
- Compatible with the ultrasonic flow meter FDT-21, FDT-22, FDT-24

#### Application

- Applicable to measure the thickness of many materials
- e.g. Steel, Cast iron, Aluminum, Red copper, Brass, Zinc, Quartz glass, Polyethylene, PVC, Gray cast iron, Nodular cast iron



Carbon steel tube



Stainless steel tube



Cast iron tube



Copper tube



Aluminium tube



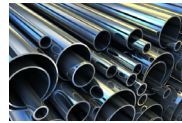
PVC tube



Asbestos tube



Fiber glass tube



Zinc tube



Brass tube

### Technical Data

**Measuring range :** 1.0 - 200.0 mm

**Sensor type :** Ultrasonic

**Resolution :** 0.1 mm

**Accuracy :**  $\pm 0.5$  % of reading + 0.1

**Display :** LCD display 4 digits

**Power supply :** x4 Battery AAA 1.5V

**Ambient temperature :** 0 - 40 °C

**Ambient humidity :** 30 - 85 %RH

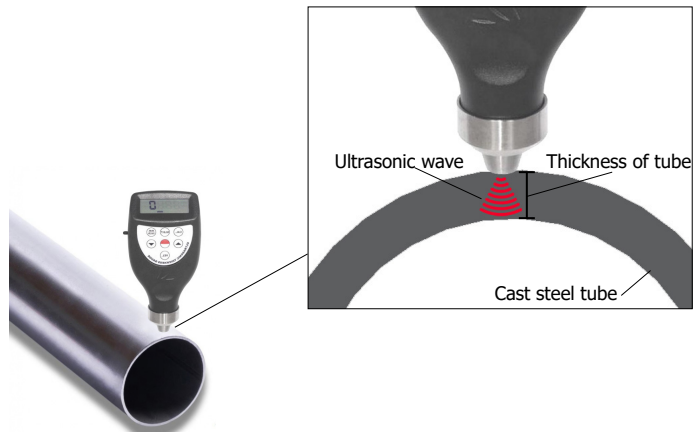
**Dimensions :** 135 x 65 x 27 mm

**Weight :** 120 g (not including battery)



Packaging

#### Measuring a thickness of tube



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Transducer Type	CT-1 (TEMP SENSOR) 	TS-2-HT (FLOW SENSOR) 	TM-1-HT (FLOW SENSOR) 	TL-1-HT (option) (FLOW SENSOR) 
Pipe size (mm)	All sizes	DN25 to 100	DN50 to 700	DN300 to 6000
Pipe size (inch)	All sizes	1" to 4"	2" to 28"	12" to 240"
Material	Aluminium	ABS		
Frequency	-	1 MHz		
Calibration	Calibrate with the main unit			
Magnetism	-	Magnetic		
Temperature	0...105 °C	-30 to 160 °C		
Protection Class	IP67	IP65		
Dimensions (WxHxD)	11.4 x 16 x 43.6 mm	28 x 33 x 45.3mm	39 x 42.8x 64.6 mm	97 x 53 x 54 mm
Weight g (oz)	83.3 (2.6)	79.6 (2.8)	198 (7)	1080 (38)
Liquid Types	Fresh water, salt water, chemical liquids, oil, crude oil, alcohol, beer, etc.			
Suspension Concentration	Clean liquids that have less than 3% by volume of particulate content			
Pipe Material	All metals, most plastics, fiberglass, etc.			
Dedicated Shielded Transducer Cable	4.9 m meters	4.95 meters		

### Option

**TL-1-HT** : Large pipe high temperature transducer

**UTG-100** : Ultrasonic Thickness Gauge Meter

**CAL-FW-9001** : Calibration certificate according with ISO 9001/9002

**CAL-FW-17025** : Calibration certificate according with ISO17025

**B-FDT21** : Battery for Ultrasonic flow meter

**G-FDT21** : Grease for Ultrasonic flow meter

### Delivery scope :

- 1 x Carry case
- 1 x Handheld device
- 1 x TS-2-HT (flow sensor)
- 1 x TM-1-HT (flow sensor)
- 1 x CT-1 (Temperature sensor)
- 1 x Connected cable flow sensor
- 1 x Velcro cable for temperature sensor
- 1 x Chain cable for flow sensor
- 1 x Tape measure
- 1 x SD card reader
- 1 x Power supply cable

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