

## PORTABLE TRANSIT TIME ULTRASONIC FLOWMETER

# TRM1010-F

**CLEAN FLUIDS FLOW  
MEASUREMENT PRECISION  
TUBES OUTSIDE**

*Displays, Totalizes*

*Transmits and Controls*

Backlit LCD Display, Simple –16 key Calibration,

Non-contacting measuring , Built-in data-logger

Built-in rechargeable battery , High accuracy measuring,

Wide measuring range, Small and light,

RS-232 serial interface



### *Non-Contacting Flow Measurement*

Ultrasonic transducers mount on the outside of plastic or metal pipes to measure flow rate of clean, non-aerated fluids like water, chemicals, and oils. The clamp on transducers can be mounted without shutting down flow. There is no pressure drop and no obstruction. Transducer separation distance is calculated by the flowmeter according to pipe diameter and wall thickness.

### *User-Friendly Operating System*

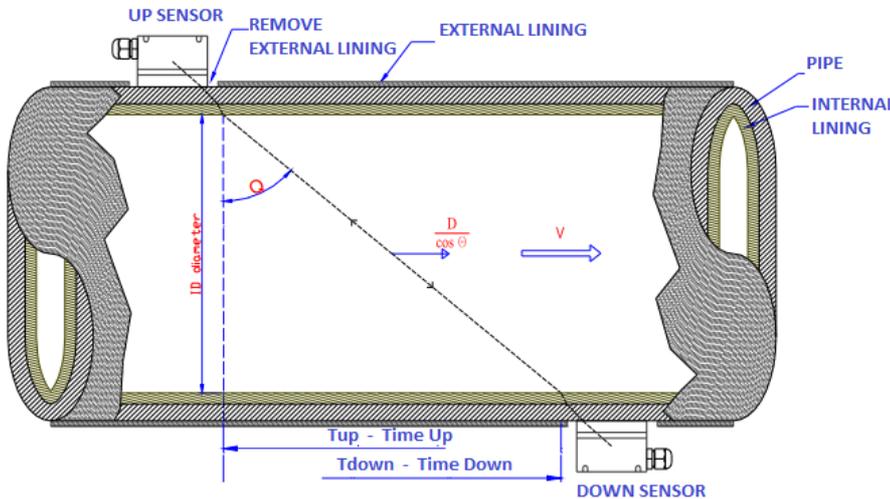
Use the built-in keypad for fast, easy calibration with menu selection of pipe diameter, wall thickness, pipe material, liner material, liner thickness, liquid type, mounting method, and measurement units (gallons, liters etc.) Calibration values and totalizer are retained during power interruptions.

**RELIABLE MEASUREMENT AND CONTROL**

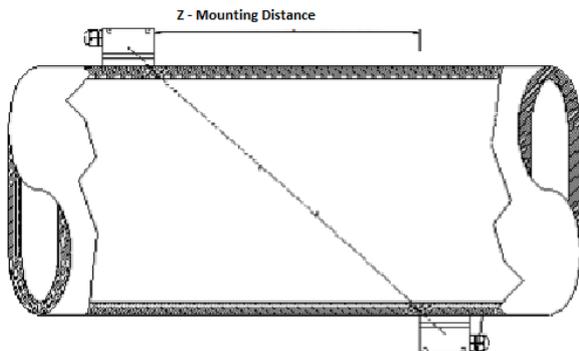
[www.trodeks.com](http://www.trodeks.com)

TheTRM1010-F Portable Transit Time Flow Meter works by measuring the “transit time” or “time of flight” for ultrasonic sound pulses transmitted from one transducer to another. The transit time in the direction of flow is faster than the transit time against the flow. By comparing these differences with precision timing circuits, theTRM1010-F is able to accurately calculate the flow rate.

Choice of V, Z or W mounting method depends on the application and pipe diameter. VMount is the most common method while Z-Mount is used for larger pipes or weak signal applications and W-Mount for smaller pipes.



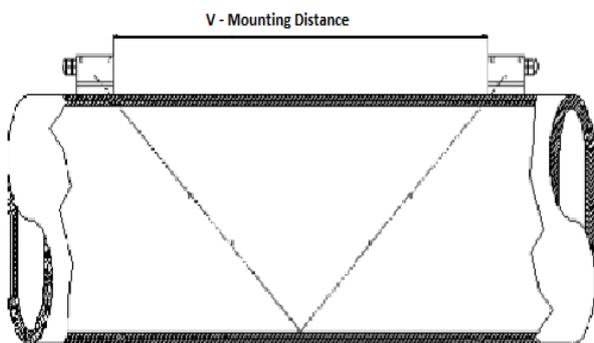
**“Z”METH**



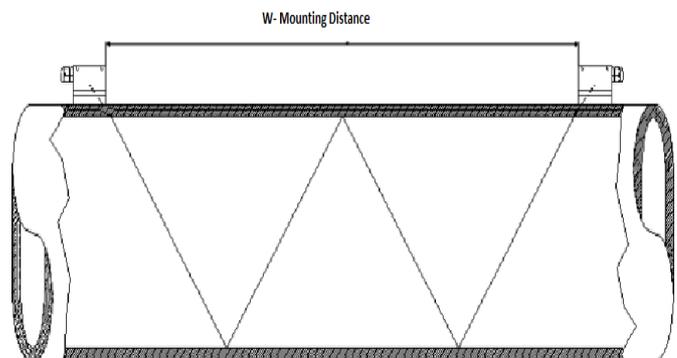
**Transducers Installation Methods :**

TRM1010-F transducers can be mounted on vertical or horizontal pipes. The pipe must be full. Choice of V, Z or W mounting method depends on the application and pipe diameter. V-Mount is the most common method while Z-Mount is used for larger pipes or weak signal applications and W-Mount for smaller pipes.

**“V” METHOD**



**“W” METHOD**



# TRM1010-F PORTABLE ULTRASONIC FLOWMETER

## GENERAL SPECIFICATIONS

<b>Operating</b>	: For clean liquids in a full pipes with Less than 1 % solids or gas bubbles, particles
<b>Configuration</b>	: with built-in keypad
<b>Transmitter</b>	
<b>Display</b>	: 4x16 English letters, backlit
<b>Accuracy</b>	: $\pm 1\%$ of reading value, Linearity $\pm 0.5\%$ , Repeatability: $\pm 0.2\%$
<b>Power Supply</b>	: 3 AAA built-in Ni-H batteries. When fully recharged it will last over 12 hours of operation. 100V-240VAC for the charger
<b>Com. Interface</b>	: RS-232, baud-rate: from 75 to 57600. Protocol made by the manufacturer and compatible with that of the FUJI ultrasonic flow meter. User protocols can be made by user requirements
<b>Engineering Units</b>	: Meter, Feet, M3, feet3, USA Galon, Imperial Galon, USA, Million galon
<b>Operating temp.</b>	: -20...40° C
<b>Protection</b>	: IP 20

### *Transducer Specifications*

<b>Protection</b>	: IP68
<b>Pipe Materials</b>	: Any metal or plastic sonic conducting material including carbon steel, stainless steel, ductile iron, cast iron, PVC, PVDF, fiberglass, copper, brass, aluminum and pipes with bonded liners including epoxy, rubber and Teflon
<b>Transducer and Operating Ranges</b>	: TS-1 DN15-100mm (-30...+90°C) TM-1 DN50-1000mm (-30...+90°C) TL-1 DN300-6000mm (-30...+90°C) HTS-1 DN15-100mm (-30...+160°C) HTM-1 DN50-600mm (-30...+160°C)
<b>Transducer Moun. Kit</b>	: Includes set of stretcher, coupling compound and tape ruler
<b>Cable Lenght</b>	: Standard 5m x 2, Optional 10m x 2

RELIABLE MEASUREMENT AND CONTROL

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## ***Portable Ultrasonic Flowmeter TRM1010-F for Clean Liquids in Metal and Plastic Pipes***

### ***Easy to Install***

Install the TRM1010-F Transit Time Flowmeter without cutting pipe or shutting down flow. Operates on a wide range of metal and plastic pipe sizes takes just a few minutes to calibrate and start-up.

The flowmeter works by injecting sound through the pipe wall and into the flowing liquid. The transducers transmit ultrasonic signals back and forth. The up and downstream “transit times” are precisely measured and compared to calculate the flow rate. Advanced signal processing software and electronics suppress interference and measure flow with high repeatability and accuracy.

### ***Easy to Calibrate***

Use the 16-button keypad and menu system to set up the flowmeter by entering the pipe material, diameter and wall thickness. The TRM1010-F calculates the transducer separation distance and mounting method automatically.

### ***Recommended For:***

- Potable water**
- River water**
- Cooling water**
- Demineralized water**
- Water/glycol solutions**
- Hydraulic oil**
- Diesel and fuel oils**
- Chemicals**

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**RELIABLE MEASUREMENT AND CONTROL**

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