

## Series DMTFP Portable

**Series DMTFP Portable Transit Time Ultrasonic Flow Meter** is a state-of-the-art universal transit-time flow meter designed using MultiPulse™ technology and low-voltage broadband pulse transmission, feature the worlds 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 flow meter can reliably measure liquids containing moderate amounts of suspended solids or aeration. DMTFP is designed for long- or short-term flow measurement surveys on full-pipe liquid systems and is ideal for verifying calibration of permanently mounted flow meters of all types.

### Features:

- ◆ Advanced DSP and MultiPulse™ Technology
- ◆ 40-hour battery (rechargeable), back-lit 4 lines letters display all integrated into a rugged, watertight enclosure.
- ◆ cost-effective and versatile
- ◆ Providing SD card data logger functions. The SD card capacity can be up to 8GB.
- ◆ Works reliably in both clean and somewhat dirty liquids.
- ◆ Lightweight and easily transportable in case
- ◆ 4-20 mA, OCT pulse (flow rate or total flow) output as standard output
- ◆ Optional Heat flow BTU function, two temperature transmitters 4-20ma input for inlet and outlet temperature display and heat flow rate, total heat flow display.



### Applications:

- ◆ Water, including hot water, chilled water, city water, sea water, etc.
- ◆ Sewage and drainage water with small particle quantity.
- ◆ Oil, including crude oil, lubricating oil, diesel oil, fuel oil, etc.
- ◆ Chemicals, including alcohol, acids, etc.
- ◆ Solvents
- ◆ Beverage and food processors
- ◆ HVAC hot and cool water, water /glycol solutions.
- ◆ Water and waste treatment
- ◆ Power plants, heat energy boiler feed water.
- ◆ Energy consumption supervision and water conservation management
- ◆ Metallurgy and miming applications (e.g., acid recovery)
- ◆ Marine operation and maintenance
- ◆ Pulp and paper industries
- ◆ Pipeline leak detection, inspection, tracking and collection
- ◆ Energy measurement and balancing
- ◆ Network monitoring

## Principle of Measurement

DMTF transit time flow meter utilizes two transducers that function as both ultrasonic transmitters and receivers. The transducers are clamped on the outside of a closed pipe at a specific distance from each other. The transducers can be mounted in V-method in which case the ultra sound transverses the pipe twice, or W-method in which case the ultra sound transverses the pipe four times, or in Z-method in which case the transducers are mounted on opposite sides of the pipe and the ultra sound transverses the pipe only once. The selection of mounting method depends on pipe and liquid characteristics. When the flow meter works, the two transducers transmits and receives ultrasonic signals amplified by multi beam which travels firstly downstream and then upstream (Figure 1). Because ultra sound travels faster downstream than upstream, there will be a difference of time of flight( $\Delta t$ ). When the flow is still, the time difference( $\Delta t$ ) is zero. Therefore, as long as we know the time of flight both downstream and upstream, we can work out the time difference, and then the flow velocity (V) and flow volume (Q) via the following formula.

$$V = K * D * \Delta t$$

V: Liquid velocity

K: Constant

D: Distance between the two transducers

$\Delta t$  : Difference in time of flight

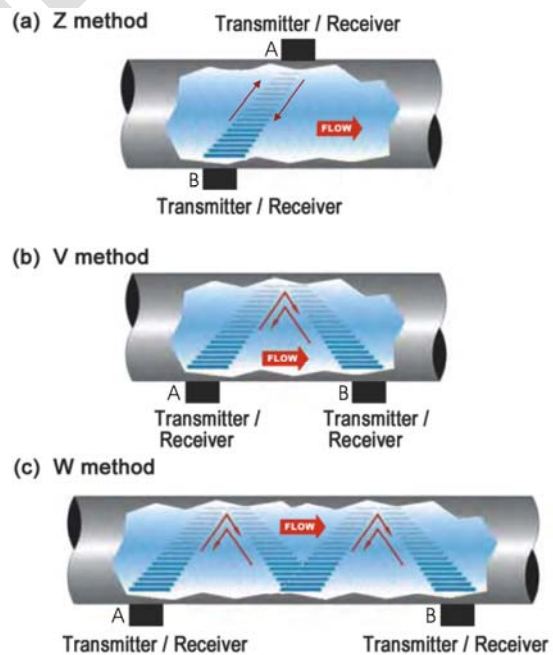


Figure 1

## Selection Table of DMTFP Transit Time Flow Meter

Model	DMTFP	-	X	X	X	-	X	/	*	(Transducers)
Portable Series										
<b>Output</b>										
N—N/A										
1—4-20mA										
2—OCT Pulse (Flow rate or Totalizer Output)										
3—RS232										
4—Data Logger										
9—Heat Flow										
(Two loops temperature transmitter 4-20mA input)										
<b>Output Selection 1</b>										
Same as Output Selection 1										
<b>Output Selection 2</b>										
Same as Output Selection 1										
<b>Power Supply (charger connector type)</b>										
A—115VAC( Two Round Terminals )										
B—230 VAC( Two Round Terminals )										
C—100VAC( Standard, Two Rectangular Terminals and One Round Terminal )										
D—230 VAC(Standard, Two Rectangular Terminals and One Round Terminal )										
Model	DP	-X			X					
<b>Transducer Type</b>										
S—Small(12-40mm)										
M—Middle(40-1000mm)										
L—Large(1000-4570mm)										
K—Small-Pipe Round Clamp-on(12-50mm)										
<b>Transducers Temperature</b>										
N—-40~121℃										
H—-40~250℃ (Exclusive the High-Temperature Series)										
<b>Cable Length</b>										
S1 -- 4m Flexible cable										
L1 -- 8m Flexible cable										
S2 -- 5m non-Flexible cable										
L2 -- 10m non-Flexible cable										

### Parts Number Construction example:

For example: DMTFP-2NN-A/D-P3-MNS1

**Description:** DMTFP portable ultrasonic flow meter, OCT pulse output, Non-multiple output selections, with 115VAC charger connector type; welded directly for the pipe of transducers, standard M type transducer, standard temperature, 4 m flexible cable.

## Specifications

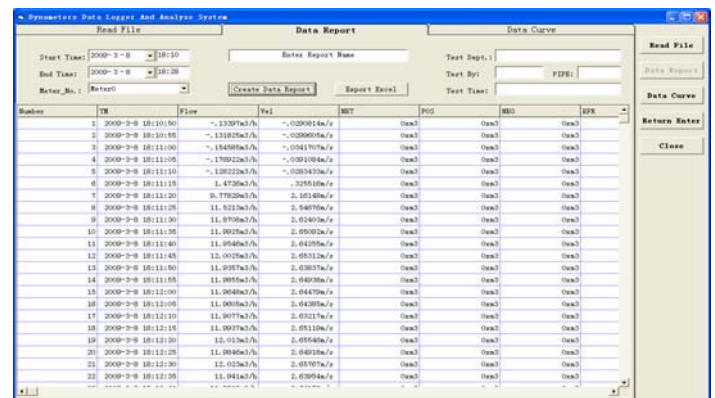
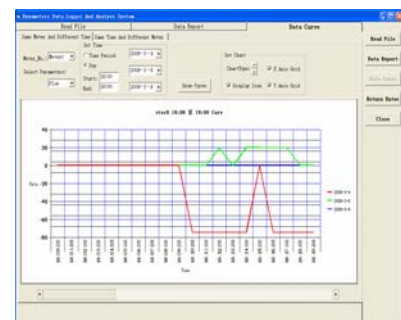
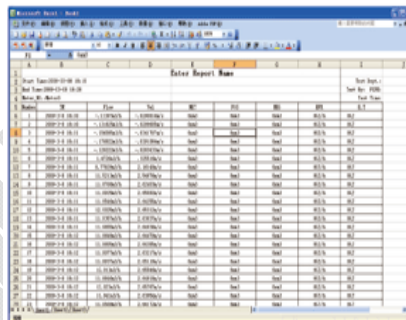
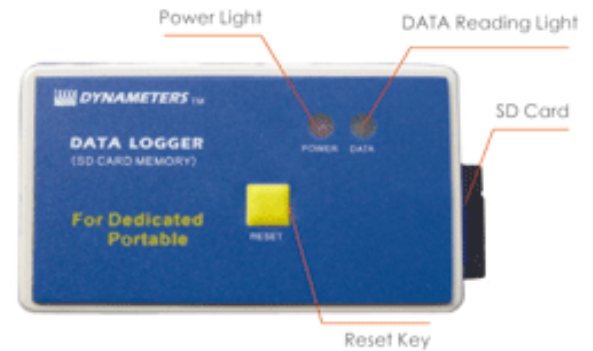
Transmitter	Power Supply	Internal 7.2AH Charging battery, Provides 42 hrs. Of continuous operation @ 20 °C. Charging power: 220VAC±15%. Solar energy
	Velocity	0 ~ ± 40 ft/s (0 ~ ±12m/s), bi-directional
	Display	4 line×16 English letters LCD back lit, can display total flow, flow rate, velocity and meter run status etc.
	Units Rate Totalized	User Configured (English and Metric); Rate and Velocity Display; (FWD, NET, REV or BATCH) gallons, ft <sup>3</sup> , barrels, lbs, liters, m <sup>3</sup> ,kg
	Output	4~20mA, Pulse, Relay, RS232C or RS485, options: up to 8 GB Data logger, Hart +(4~20mA), Modbus
	Accuracy	±1.0% of reading at rates >0.5 m/s);
		±0.003 m/s of reading at rates<0.5 m/s
	Sensitivity	Flow Rate: 0.001ft/s (0.0003m/s)
	Repeatability	0.2% of reading
	Security	Keypad lockout, access code enable
Transducer	Liquid Types Supported	Virtually most any liquid containing less than 2% total suspended solids (TSS) or aeration
	Suited Liquid Temperature	Std. Temp. Transducer: -40°C ~ 121°C High Temp. Transducer: -40°C ~ 250°C
	Cable Length	Std: 20 feet (6m); Opt: Maximum: 990 feet (300m)
	Pipe Size	Std M transducer: 40-1000mm L transducer: 1000-4570mm S transducer: 12-50mm K-mode round transducer: 12-50mm
	Transducer Size	S: Size: 42*25*25; weight: <0.3kg M: Size: 60*43*43; weight: <0.6kg L: Size: 80*53*53; weight: <1.0kg
Accessories	Couplant	Dow Corning 111 or 732 (112 for high temp.)
	Elastic Belts	2 bundles
	Battery Charger	1 pcs
	Data Logger	Optional 512M to 8GB SD card
	Software	Windows-based Software Utility, data logging, data report, and data curve and analyze.



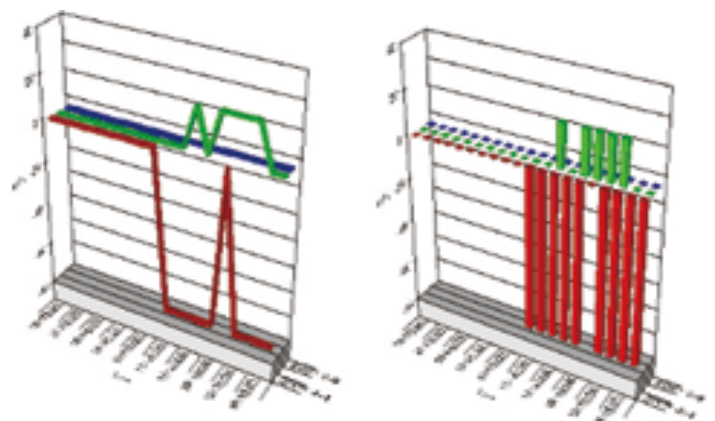
## Data Logger and Software Utility

### Features:

1. Provides data logging, based on SD card data memory, the memory capacity can be 512M, 1GB, 2GB, 4GB, 8GB. Normally, 1GB can store 5 year data with 5 minutes logging interval.
2. Very easy to read data from SD card (just plug it out from Dynameters Data Logger, and run Dynameters Data Logging and Analyze software, browse the SD card file).
3. Data report and Data Curve functions (showed in the right)).
4. User can edit and Excel report and print it on PC (showed in the right)).
5. Analyze Functions Included (showed in the right)).
6. Logging Parameters: Flow Rate, Velocity, Positive total flow, Negative total flow, Net total flow, Total Heat flow, and Heat flow rate. If user is interested in other parameters, please consult us.
7. We have two types of data logger, one for dedicated (including DMTFB, DMTFC, DMTFD, DMTFF, DMHF) and Portable (DMTFP) Series, the other for Handheld (DMTFH) Series.





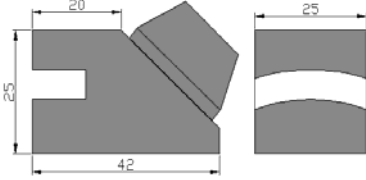
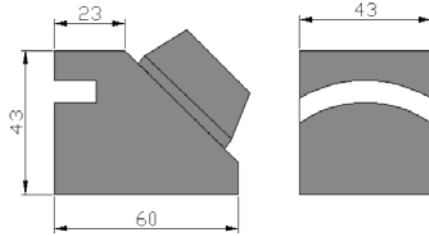
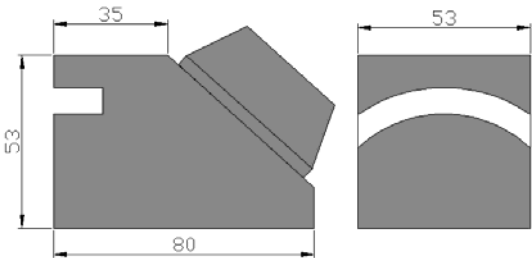
Users can download the software from our website: [www.dynameters.com](http://www.dynameters.com)



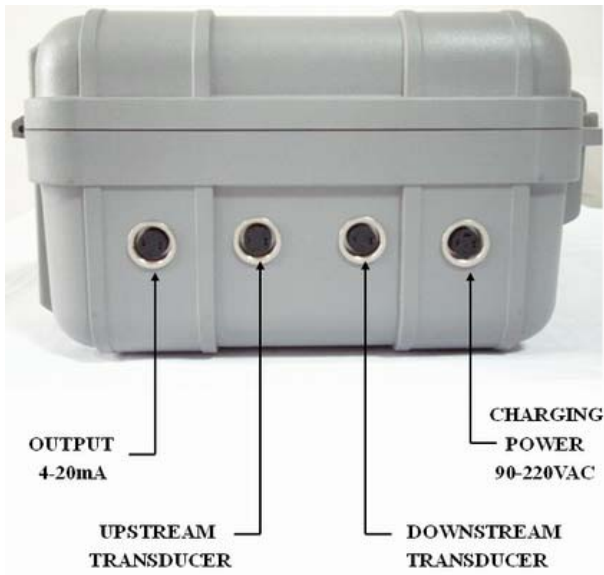
## Parts & Dimensions

<p>Portable Transmitter</p> 	<p>Portable Case</p> 	
 <p>L Transducer</p>	 <p>S Transducer</p>	
 <p>Std. M Transducer</p>	 <p>K mode round</p>	
<p>S-S Belts</p> 	<p>Couplant</p> 	<p>Elastic Belts</p> 

## Parts & Dimensions

	
<h3>Portable Case Dimensions</h3>	
	
<h3>S Transducer</h3>	<h3>Std. M Transducer</h3>
	
<h3>L Transducer</h3>	

## Wiring Terminals

**DYNAMETERS™****Dynameters Shanghai Co., Ltd**

No.751 Shulin Rd, Eastward New Area,

Songjiang Industrial Zone, Shanghai 201611

Tel : ( 86)21 6760 2289 Fax : ( 86)21 6760 2287