

Series DMTFP Portable

Series DMTFP Portable Transit Time Ultrasonic Flow Meter is a state-of-the-art universal transit-time flow meter 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.



▲ Transmitter & Transducer



▲ Full set of Portable



▲ Data logger

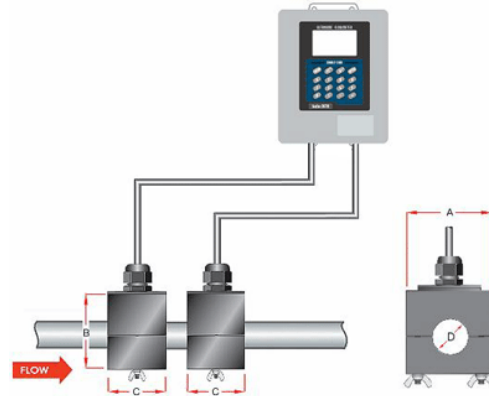
Features:

1. Advanced DSP and MultiPulse™ Technology.
2. 40-hour battery (rechargeable), back-lit 4 lines display all integrated into a rugged, watertight enclosure.
3. Cost-effective and versatile, Providing SD card data logger function, can search the event of totalized flow, flow rate, velocity etc. The SD card capacity is based on users' choice and the maximum can reach 8GB.
4. Works reliably in both clean and somewhat dirty liquids.
5. Lightweight and easily transportable in box.
6. Various outputs of 4-20mA, Frequency (for flow rate), RS232 and Data logger, etc..
7. Optional Heat flow BTU function, a pair of temperature sensors for inlet and outlet temperature display and heat flow rate, total heat flow display.

Applications:

- ◆ Water (hot water, cooling water, potable water, sea water etc.)
- ◆ Petroleum products
- ◆ Chemicals, including alcohol, acids, etc
- ◆ HVAC, energy measurement system
- ◆ Beverage, food and pharmaceutical processors
- ◆ Secondary sewage, waste treatment, etc.
- ◆ Power plants (nuclear power plants, thermal & hydropower plants), heat energy boiler feed water.
- ◆ Metallurgy and mining applications
- ◆ Pipeline leak detection, inspection, tracking and collection

Size	Material	A	B	C	D
K1: 3/4", 1"	PTFE	55	39	42	34
K2: 3/4", 1", 1-1/4"	PTFE	64	46	42	43
K3: 1-1/4", 1-3/4"	PTFE	80	46	42	61



Note: K transducers utilize the Round-Clamp method, and the transducers' transmitting and receiving sides are connected with the pipe surface thoroughly to acquire enough coupling area, better reliability, stability, etc.

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 (Δt). When the flow is still, the time difference (Δt) 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.

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

V: Liquid velocity

K: Constant

D: Distance between the two transducers

Δt : Difference in time of flight

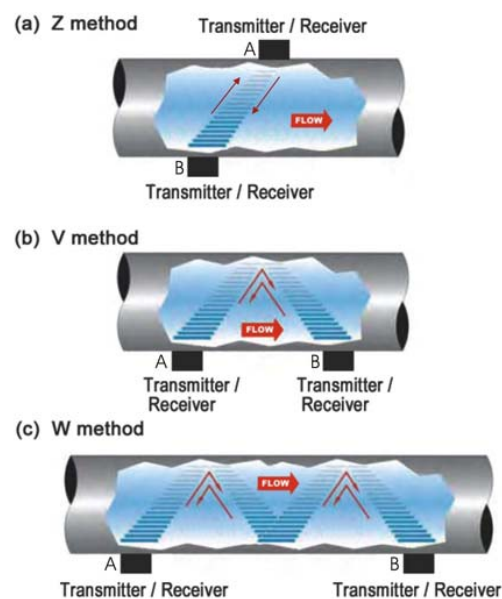


Figure 1

Specifications

Transmitter	Power Supply	Internal 12AH Charging battery, Provides 42 hrs. Of continuous operation @ 20 °C. Charging power: 110/220VAC±15%.
	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, ft³, barrels, lbs, liters, m³,kg
	Output	4~20mA, Frequency, Relay, RS232/RS485(Modbus), options: up to 8 GB Data logger
	Accuracy	±1.0% of reading at rates >0.5 m/s)
		±0.005 m/s of reading at rates<0.5 m/s
	Sensitivity	Flow Rate: 0.001f/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.: -40°C~121°C High Temp.: -40°C~250°C
	Cable Length	Std: 6m (20 feet); Opt: Maximum: 300m (990 feet)
	Pipe Size	Std M transducer: DN40-1000 L transducer: DN1000-4500 S transducer: DN20-50 K-mode round transducer: DN20-50 (For K, S transducer on the stainless steel pipe, It is better that the thickness of the pipe is more than 2.5mm. If not, please consult us, we have another solve plan.) (Above transducers material is PTFE, is you need stainless steel transducers, please contact the factory.)
	Transducer Size	S: Size:42*25*25; weight:<0.2kg M: Size:60*43*43; weight:<0.5kg L: Size:80*53*53; weight:<1.0kg

Parts Identification:

Transmitter:



Portable transmitter

Transducer:



K transducer



S-Transducer



M-Transducer



L-Transducer



Mounting Frame (V method)



Mounting Frame (Z method)

Accessories:



Portable Case



Couplant



Flexible Belts

DMTFP Portable Ultrasonic Flow Meter Selection Table

Model	DMTFP	-X	-X	-X	-X	/* (Transducers)
Portable Series						
Output						
N—N/A						
1—4-20mA						
2—Frequency (Flow rate, if need relay for totalizer output, please specify)						
3—RS232 Note: RS232 and Data logger cannot be used at the same time.						
4—Data Logger						
Output Selection 1						
Same as Output Selection 1						
Output Selection 2						
Same as Output Selection 1						
Power Supply (Charger connector type)						
A—110VAC						
B—220VAC						

Model	DP	-X	-X	-X	-X	-X
Transducer Type						
S— Small (DN20-50)						
M— Medium (DN40-1000)						
L— Large (DN1000-4500)						
Kxx— K Small-Pipe Round Clamp-on (DN20-50), xx is inside Diameter.						
(Above transducers material is PTFE, if you need stainless steel transducers, please contact the factory.)						
Transducer Mounting Frame						
N— None						
FS— for DN20-50						
FM— for DN50-1000						
Transducers Temperature						
N— - 40~121℃						
H— - 40~250℃						
Mounting Type						
N-Common						
M-Magnetic force (suitable for pipe above DN80)						
Cable Length						
8m—8 meters straight cable (STD.)						
Xm—Common cable Max 300m						
XmH—High temp. cable Max 300m						
Parts Number Construction example:						
DMTFP-1 2-A /DP-M -N-N-4m						

Description: DMTFP portable ultrasonic flow meter, 4-20mA and frequency output, with 110VAC power supply; Standard M type transducer, no mounting frame, standard temperature, 8m straight cable.

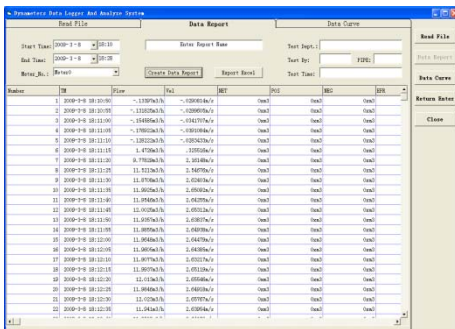
Data Logger and Software Utility

Features:

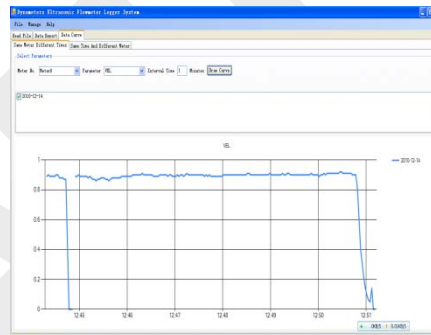
1. Provides data logging, based on SD card data memory, the memory capacity can be 512M,1GB, 2GB, 4GB, 8GB. Normally, 1GB can store 5 years data with 5 minutes logging interval.
2. Very easy to read data from SD card (just plug it out from Dynameters Data Logger, and run Dynameters Data Logging and Analyze software, browse the SD card file).
3. Data report and Data Curve functions (Figure2, Figure3).



▲ Data logger



▲ Figure 2



▲ Figure 3

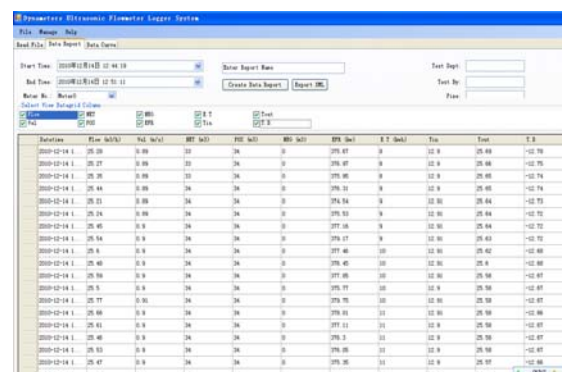
4. User can edit, generate Excel report and print it on PC (Figure 4).

5. Logging Parameters: Date and Time, Flow Rate, Velocity, Positive total flow, Negative total flow, Net total flow, Total Heat flow, Temperature in, Temperature out, Temperature difference and Heat flow rate.

If user is interested in other parameters, please consult us. Users can delete the unnecessary parameters from Excel Table and then print the data table.

6. Users can download the software from our website:

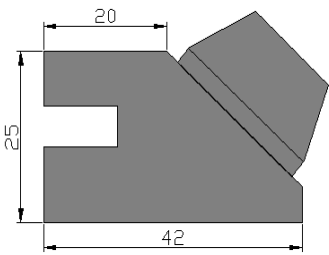
www.dynameters.com



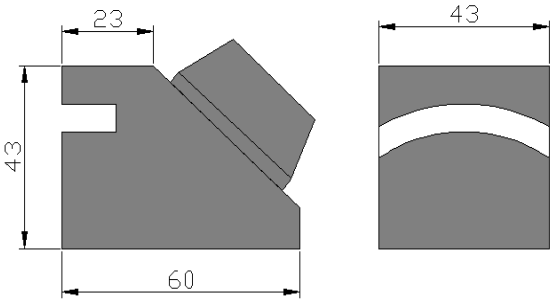
Parts & Dimensions



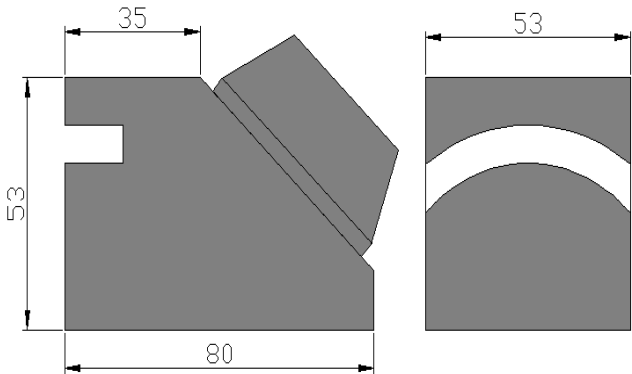
Portable Case



S Transducer



Std. M Transducer



L Transducer

Wiring Connection



Fig 1 DMTFP wiring-1



Fig2 DMTFP wiring-2

Notes for outputs:

1. Current Output:

The current output 4-20mA is connected to the terminal OUTPUT 4-20mA as showed in Fig 1.

2. OCT Output:

The frequency (OCT) output is connected to the terminal OCT Output as showed in Fig 2. Frequency output is for Flow rate output, if need relay for totalizer output, please specify.

3. Communication interface: (only one of bellow options is available at one time.)

Option 1: RS232: connected to PC or laptop through RS232 interface.

Option 2: RS485 (ModBus-ASC II)

Option 3: RS485 (ModBus-RTU)

Option 4: Hart (+4-20mA)

Option 5: GPRS

Option 6: ZigBee

4. Heat Flow Function: We provide temperature sensor Pt1000.

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

E-mail: info@dynameters.com

Web: www.dynameters.com