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

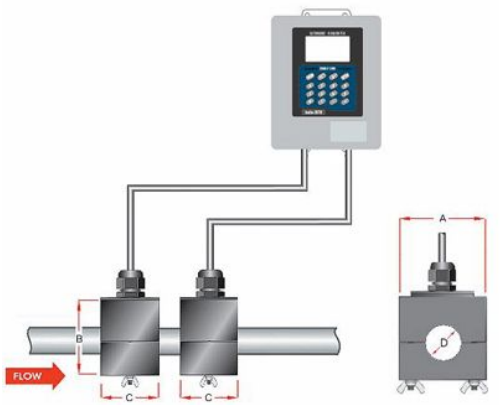
Features：

1. 40-hour battery (rechargeable), back-lit 4 lines display all integrated into a rugged, watertight enclosure.
2. Built-in large capacity memory and USB data download function. The downloaded data can be opened by EXCEL directly.
3. The heat measurement function by configuring with paired Pt1000 temperature sensors.
4. Non-invasive transducers are easy to install, cost effective, and require no pipe cutting or processing interrupt. Since the transducers do not contact with the liquid, fouling and maintenance are eliminated.
5. Wide bi-directional flow range of 0.003 m/s to 12 m/s. Wide liquid temperature range: -40℃~250℃.
6. Works reliably in both clean and somewhat dirty liquids.
7. Lightweight and easily transportable in box.

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 miming applications
- Pipeline leak detection, inspection, tracking and collection

Size	A	B	C	D
K1: 3/4", 1"	55	39	42	34
K2: 3/4", 1", 1-1/4"	64	46	42	43
K3: 1-1/4", 1-3/4", 2"	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 (△t). When the flow is still, the time difference (△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.

$$V=K*\triangle t$$

$$Q=S*V$$

Where: V Liquid velocity
K Constant
△t Difference in time of flight
Q Flow rate
S Sectional area of pipe

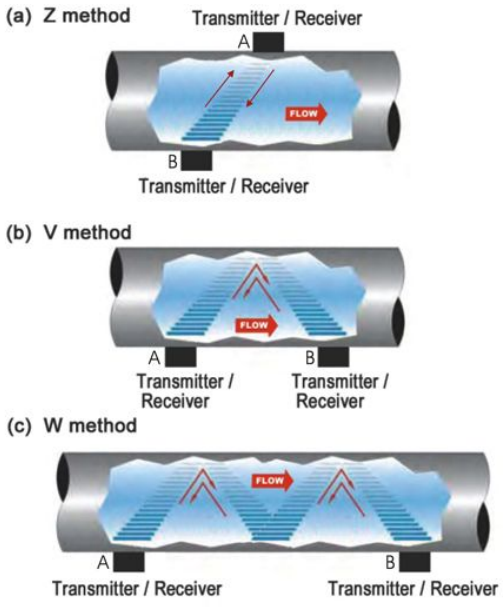


Figure 1

Specifications

Transmitter	Power Supply	Internal 12AH Charging battery, Provides 42 hrs. Of continuous operation @ 20 °C. Charging power: 100-240VAC.
	Velocity	0.003 to 12 m/s, bi-directional
	Display	4 line×16 English letters LCD, it can display total flow, flow rate, velocity and meter running status etc.
	Units Rate Totalized	User Configured (English and Metric) Rate and Velocity Display gallons, ft³, barrels, lbs, liters, m³
	Output	Data storage function, 4~20mA, Frequency (For Flow rate or Total flow), Relay (For Total flow or Alarm), RS485(Modbus-RTU) options: Wireless handheld operator, GPRS
	Accuracy	±1.0% of reading at rates >0.5 m/s)
		±0.005 m/s of reading at rates<0.5 m/s
	Sensitivity	0.003m/s
	Repeatability	0.2% of reading
	Security	Keypad lockout, access code enable
Transducer	Liquid Types Supported	Virtually most any liquid containing less than 5% total suspended solids (TSS) or aeration
	Suited Liquid Temperature	Std. Temp.: -40℃~121℃ High Temp.: -40℃~250℃
	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 POM, 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

Transducers:

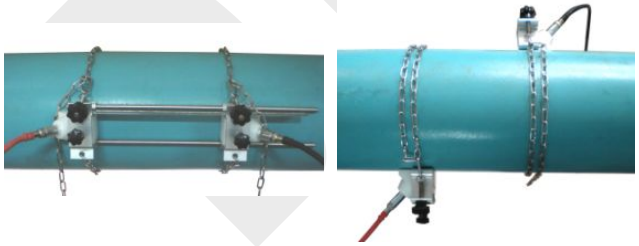
K transducer

High temperature transducer

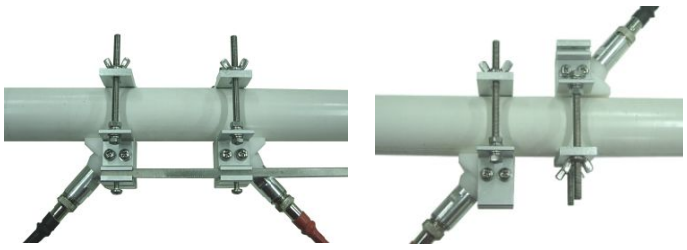
S-Transducer

M-Transducer

L-Transducer

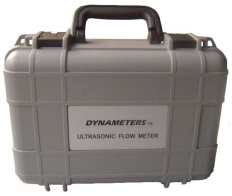


M-Mounting Frame (V method and Z method)



S-Mounting Frame (V method and Z method)

Accessories:



DMTFP Portable Ultrasonic Flow Meter Selection Table

Model DMTFP -X -X -X -X / * (Transducers)

Portable Series

Output Selection 1

N—N/A

0—Data storage function

1—4-20mA

2—Frequency Output (Flow rate or Totalizer)

3—Relay Output (Totalizer or Alarm)

4—RS485 Output (ModBus-RTU) (**Output Selections 4 and 6 can be selected one.)**

5—Wireless handheld operator

6—GPRS Wireless Module (Excluding software)

Output Selection 2

Same as Output Selection 1

Output Selection 3

Same as Output Selection 1

Power Supply （Charger connector type）

D—100-240VAC

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 POM, if you need stainless steel transducers, please contact the factory.)

Transducer Mounting Frame

N— None

FS— for DN20-50

FM— for DN40-600

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:

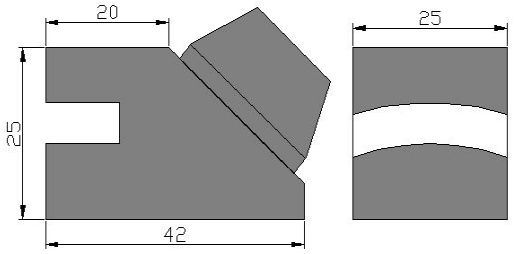
DMTFP-0 4 N-A /DP-M -N-N-4m

Description: DMTFP portable ultrasonic flow meter, Data storage function and RS485 output, with 110VAC

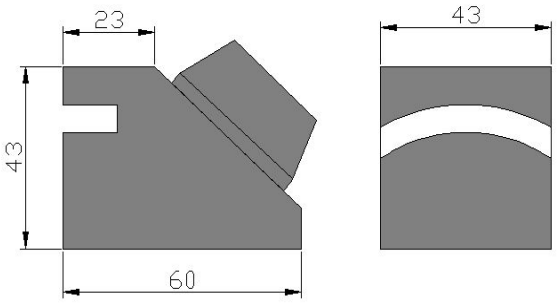
power supply; Standard M type transducer, no mounting frame, standard temperature, 8m straight cable.

Parts & Dimensions

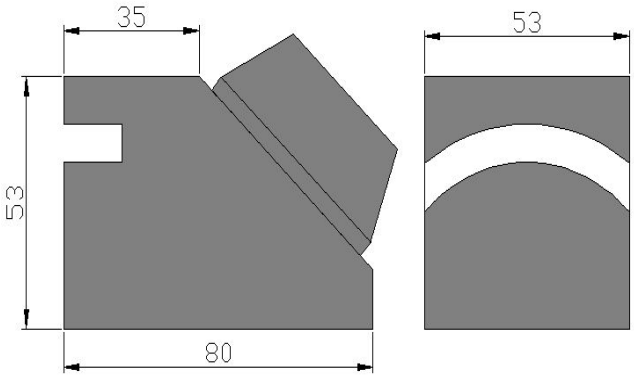
Portable Case



S Transducer



Std. M Transducer



L Transducer

Wiring Connection

Fig 1 DMTFP wiring-1

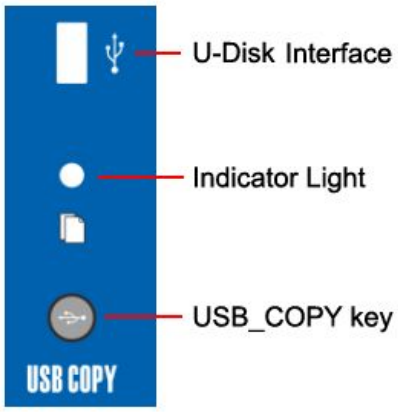


Fig2 DMTFP Data Storage Function

Notes for outputs:

1. Data Storage Function

Plug a U-Disk into U-Disk interface, and then press USB_COPY key to download data.

2. Current Output:

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

3. OCT Output:

The frequency (OCT) output is connected to the terminal OCT Output. Frequency output is for Flow rate or totalizer output.

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

Option 1: RS485 (ModBus-RTU)

Option 2: GPRS

5. Heat Flow Function

We provide temperature sensor Pt1000.

6. Wireless Handheld Operator

Read data and operate the meter by wireless communication.

DYNAMETERS TM

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