Series DMTFF Flanged

Series DMTFF Flanged Transit Time Ultrasonic Flow Meter uses transit-time ultrasonic technology in which the signal is transmitted and received alternately between two flow sensors and the “time of flight” determines the flow rate. Applications include both commercial and consumable water measurement. Long-term stability and a wide measurement range make it possible not only to measure water consumption, but also to monitor systems for water leakage.

▲Transmitter &Transducer

▲Wireless Handheld Operator

Features:

1. Calibrated in manufacturer's lab, field setup is unnecessary.
2. Measurement is independent of fluid nature with wider applications than magnetic meters. High temp. type can be suitable for high temperature of -40℃~150℃.
3. Re-calibration or maintenance is easy, no processing interruption (just plug out the inserted transducers from pipe line, when re-calibration or maintenance is finished), can be hot-tapped.
4. Remote operation by the wireless handheld operator. No matter the pipeline in high altitude or underground, users can install or adjust the transducers more convenient.
5. The wireless handheld operator has wireless remote reading function and it also can operate the meters instead of panel operations.
6. Built-in large capacity memory and USB data download function. The downloaded data can be opened by EXCEL directly.
7. The heat measurement function by configuring with paired Pt1000 temperature sensors.

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
- Network monitoring

Principle of Measurement

DMTF transit time flow meter utilizes two transducers that function as both ultrasonic transmitters and receivers. The transducers are inserted in a closed pipe at a specific distance from each other. The transducers can be mounted 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. 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

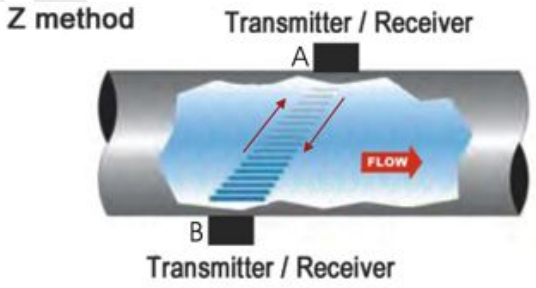


Figure 1

Specifications

Transmitter	Power Supply	100-240VAC 50/60Hz ±15% 12 - 36 VDC Solar supply 12VDC
	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
	Dimensions	Std.:261*193*80, Weight: <2.5kg Exp: 310*226*127, Weight: <7.5kg
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℃~150℃
	Cable Length	Std: 6m (20 feet); Opt: Maximum: 300m (990 feet)
	Pipe Size	Standard flange transducers: DN65~DN2000 Small flange transducers: DN20~DN50

Parts Identification:

Transmitters:

Standard wall-mounted

Explosion-proof (ATEX)

Transducers:

Standard Pipeline Flange
(DN65-DN2000)

Small Pipeline Flange
(DN20-DN50)

DMTFF Flanged Ultrasonic Flow Meter Selection Table

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

Clamp-on Series

Approvals
N—N/A
Ex—ATEX (ExdIIBT6)

Power Supply
A—110VAC
B—220VAC
E—24VDC
S—Solar supply (including solar board)

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)
5—Wireless handheld operator
6—GPRS Wireless Module (Excluding software)

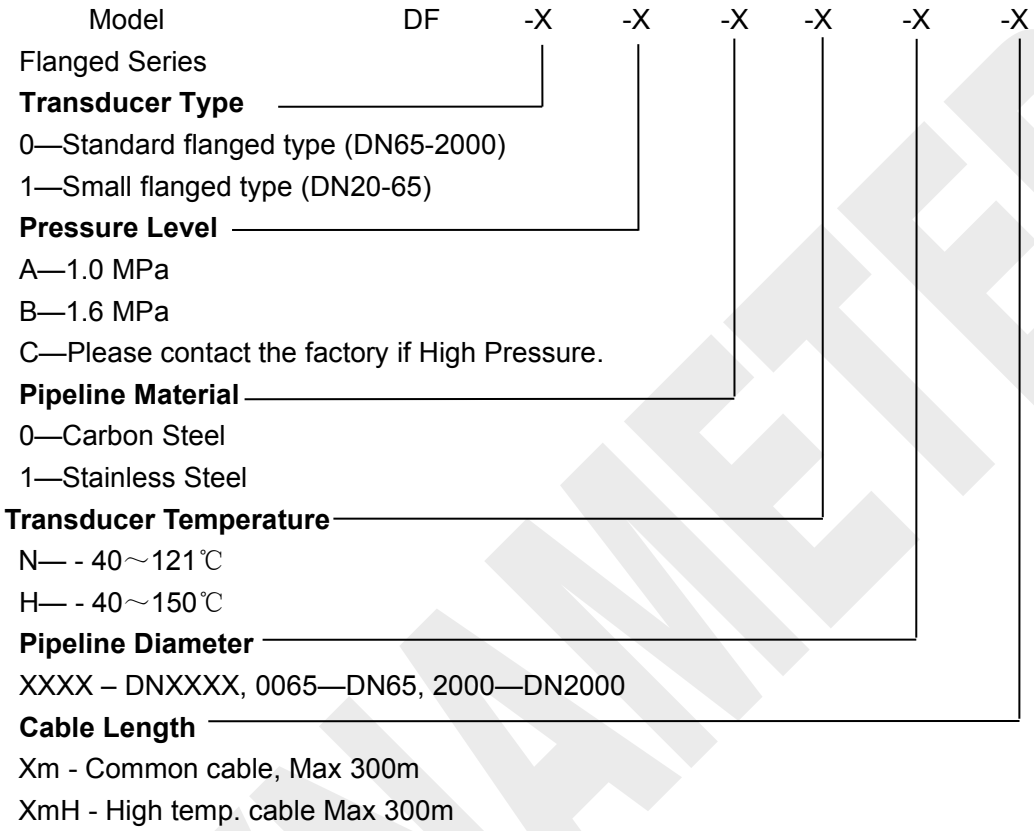
Output Selection 2
Same as above

Output Selection 3
Same as above

Output Selection 4
Same as above

Note:
Output Selections 4 and 6 can be selected one.

Transducer Selection for DMTFF Flanged Ultrasonic Flow Meter

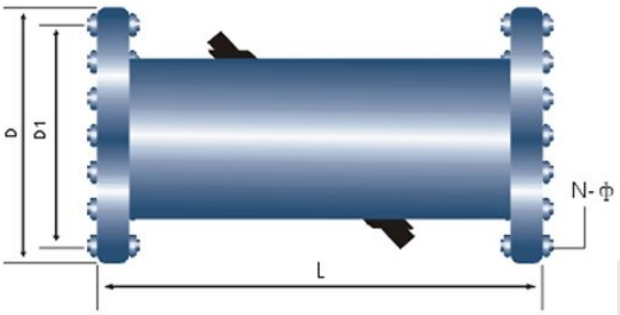


Parts Number Construction example:

DMTFF-N-B-0 4 N N/DF-0-B-0-N-DN400-030

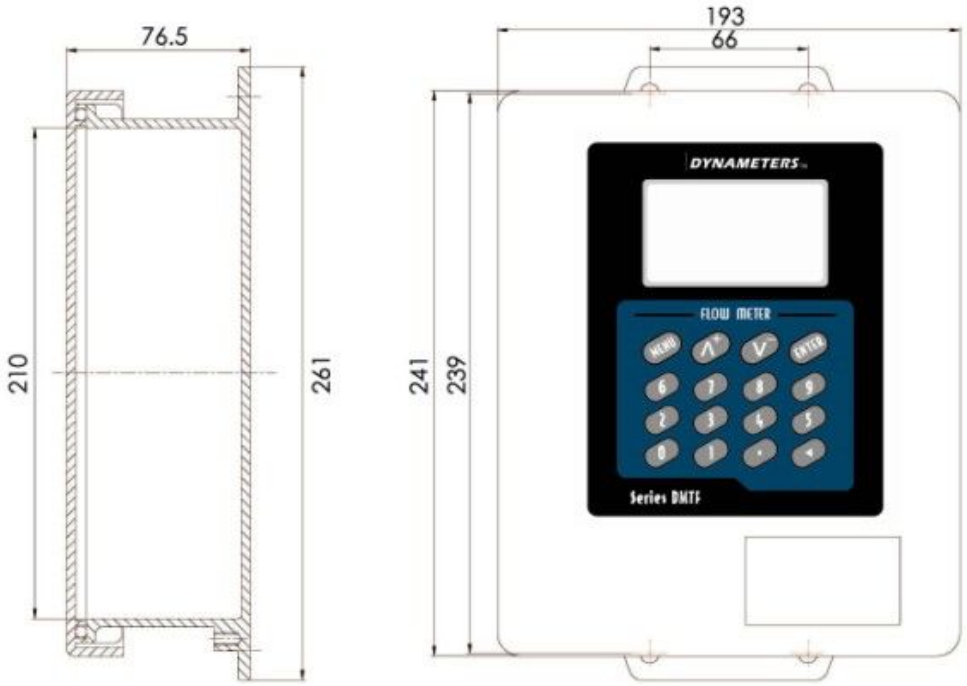
Description: DMTF Flanged ultrasonic flow meter, no explosion-proof, 220VAC power supply, Data storage function and RS485 output; Standard Flange mounting transducer, carbon steel pipeline, pressure is 1.6MPa, standard temperature, pipeline is DN400, transducer cable length is 30m.

Parameters of Flanged Transducer:

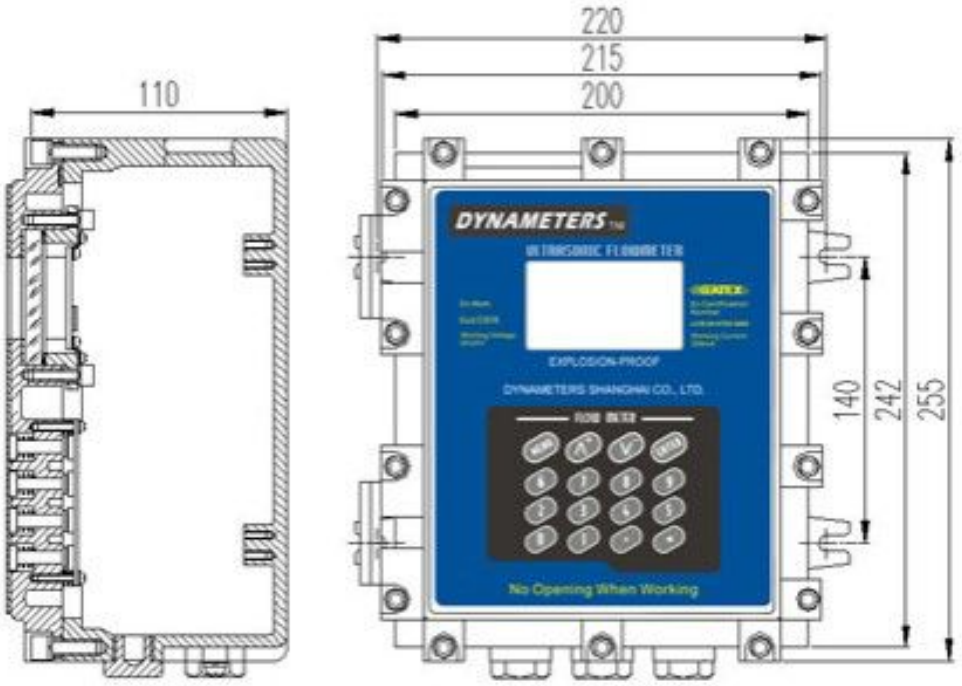


Size DN	Transducer Length	Flange Size (mm)			Rated Pressure (MPa)
(mm)	L (mm)	D	D1	N-φ	
65	200	185	145	4-18	1.6
80	225	200	160	8-18	
100	250	220	180	8-18	
125	250	250	210	8-18	
150	300	285	240	8-22	
200	350	340	295	8-22	1.0
250	450	395	350	12-22	
300	500	445	400	12-22	
350	550	505	460	16-22	
400	600	565	515	16-26	
500	800	670	620	20-26	0.6
600	1000	780	725	20-30	
700	1100	860	810	24-36	
800	1200	975	920	24-39	
900	1300	1075	1020	28-39	
1000	1400	1175	1120	28-42	
1100	1500	1355	1290	32-45	
1200	1600	1455	1310	32-48	
1400	1800	1685	1590	36-48	
1600	2000	1930	1820	40-55	
1800	2200	2130	2020	40-55	
2000	2400	2345	2220	48-60	

Parts & Dimensions



Standard Transmitter

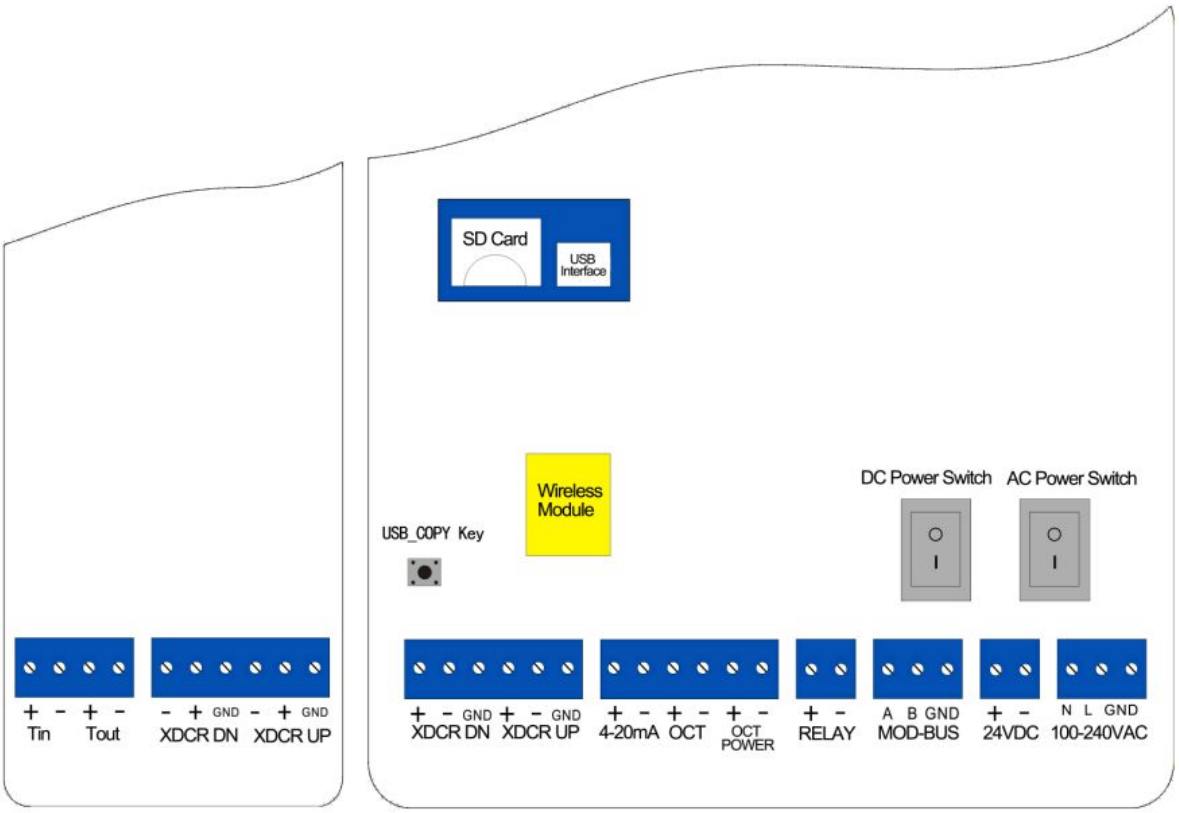


Explosion-proof Transmitter

Wiring Terminals

Conduit holes: M18×1.5 for DMTFF, and M20×1.5 for DMTF-Ex.

Housing: NEMA 4 X [IP65], aluminum alloy diecasting for DMTFF.
NEMA 4 X [IP65], aluminum casting alloy for DMTF-Ex.



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