

## DMTFB - FIXED CLAMP ON ULTRASONIC FLOW TRANSMITTER

Advanced transit-time technology improves accurate flow measurement. Designed for flow measurement on pipes as small as DN10 mm. (3/8"). Non intrusive, clamp-on technology. No drifting problem on small pipes. Easy installation. No pipe cutting, no hole-drilling. Non moving parts. Maintenance free. Bi-directional. Wide measurement range +/-16 m/s. Highly accurate and reliable due to the adoption of high performance digital signal processing (DSP) technologies. Accuracy +/- 1% of reading, plus +/- 0,006 m/s in velocity. Suitable for all commonly used pipe materials. Suitable for most pure liquids and liquids with moderate suspended solids or aeration.

### Applications:

- water, including hot water, chilled water, city water, sea water, etc.
- sewage, waste treatment, etc.
- oil, including crude oil, diesel oil, fuel oil, lubricating oil, etc.
- chemicals, including alcohol, acids, etc
- solvents, beverage, food and pharmaceutical processor
- HVAC, energy measurement systems, etc.



## TECHNICAL SPECIFICATIONS

Accuracy:	+/- 1% of reading, plus +/- 0,5 m/s +/-0,005 m/s to <0,5 m/s
Repeatability:	better than +/- 0,2%
Velocity:	- 12...+12 m/s bi-directional
Units:	metric or English (US), Flow rate could be GPM, LPM, m3/hour, l/hour, etc
Output:	standard current output 4/20 mA for flow rate Digital output two channels, opto isolated. Can be programmed as pulse signal for flow totalization (positive, negative and net rates); ON-OFF signal for relay drive or alarm drive.
Display:	local 4x16 character LCD and one push button to select display content (flow rate, flow total, velocity, sound speed, transit-time, etc).
Datalogger:	RS232 on 8 GB, or at request ModBus
Communication interface:	RS232 or RS485
Enclosure:	plastic IP65 weather proof, rack mounting support.
Dimensions:	240x193x76,5 mm
Liquid types::	Virtually all liquids (full pipe). Suspension concentration <2% in volume, on the particle size <75micron
Liquids Temperature:	-40...+121°C or -40...+250°C depending on transducer type
Pipe size:	type S= DN12...DN50; type M= DN40...DN1000; type L= DN1000...4570; type K= 12...50 mm
Pipe Material:	all metals, most plastics, fiber glss, etc. Allows for pipe liner.
Straight pipe section:	Longer than >15D where D is pipe diameter. If a pump is near upstream, the straight pipe section following the pump should be >30D
Cable:	shielded transducer cable. Standard length 6 m. Can be extended to 300 m on demand
Ambient temperature:	-10...+70°C
Humidity:	main unit 85%RH
Supply:	standard 10...28 Vdc 2,5 VA max, 115/230V ac 50/60 Hz +/-15% 5VA max
Weight:	2,5 kg (electronic unit)
Approval:	Ce approval



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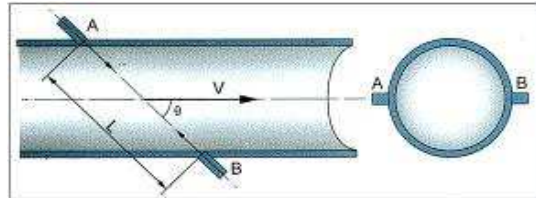
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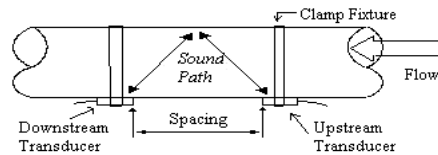
## MEASUREMENT PRINCIPLE

The DMTFB flow transmitter is based on the transit-time measurement principle, as shown in the figure on the right. A typical transit-time flow measurement system utilizes two transducers (A and B) that function as both ultrasonic transmitter and receiver. The transducers are clamped on the outside of a closed pipe at a specific distance from each other. The flow transmitter operates by alternately transmitting and receiving a coded burst of sound energy between the two transducers and measuring the transit time it takes for sound to travel between the two transducers. The difference in the transit time measured corresponds directly to the velocity of the liquid in the pipe. The transducers can be mounted using three methods, Z-method, V-method and W-method, depending on the pipe size.

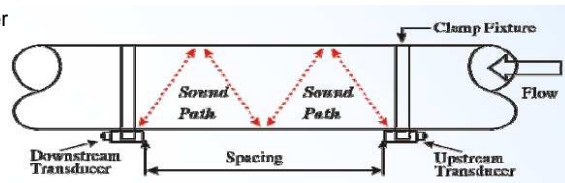
The Z-method is used for large pipes. The two transducers are installed on opposite sides of the pipe.



The V-method is used for medium-size pipes. The two transducers are on the same side, thus, the sound transverses the flow twice.



The W-method is usually used for small pipes. The sound transverses the flow four times.



## SENSORS



TYPE L



TYPE S



TYPE M



TYPE K



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