

## FMT-25W Wall Mount Ultrasonic Transit Time Flow Meter

- Works with Most Liquids
- Pipe Sizes from 1 Inch to 240 Inch
- 4-20mA, RS485 and Open Collector and Relay Output.
- Positive, Negative and Net Totalizers
- Programmable for Heat Flow Measurement (requires two PT100 sensors)
- Built in Alarm Buzzer
- AC or DC Powered



The FMT-25W is a high-quality, low-cost transit time ultrasonic flow meter used to measure liquid flow in a full or closed pipe. The meter is designed with ease of operation, high accuracy and outstanding reliability. It can be used in a wide range of flow meter measurements including flow rate measurement of ultra-pure liquids, potable water, chemicals, raw sewage, reclaimed water, cooling water, river water, plant effluent, etc. Because the instrument and transducers are non-contacting and have no moving parts, the flow meter will not be affected by system pressure, fouling or wear. The included transducers are rated to 90°C. Higher temperatures can be accommodated with optional transducers (contact IOThrifty for more details). With the use of two PT100 RTD sensors the FMT-25W can also measure heat flow.

### Theory of Operation

The FMT-25W uses two transducers that function as both an ultrasonic transmitter and receiver. The transducers are clamped on the outside of a pipe at a specific distance from one another. The distance is calculated by the flow meter after entering pipe size dimensions and fluid properties. The flow meter operates by alternately transmitting and receiving a modulated burst of sound energy between the transducers and measuring the transit time it takes for the sound to travel between the transducers. The difference in transit time measured is directly and exactly related to the velocity of liquid in the pipe. The flow meter can report the flow rate as a velocity or convert it to volumetric flow rate units.

### Analog, RS485 and Discrete Outputs

The FMT-25W includes several outputs including an analog current output, bi-directional RS485 and open collector and SPST relay. The analog output is fully scalable and can be programmed to be either 4-20mA or 0-20mA. It will transmit a signal which linearly proportional to the flow rate, flow speed or heat flow. The analog current output can also be controlled directly from an external device using the RS485 connection. The FMT-25W also has bidirectional half duplex RS485 communications using MODBUS ASCII, MODBUS RTU or Fuji Extended Protocol. The RS485 can be used to read all the measurement data as well as read or write the configuration parameters. The RS485 port can also be connected to a printer to send measurement data at preset time intervals. There is also an open collector and relay output. Both outputs can be configured for several output options including flow rate alarms, signal quality alarms, batch control output and totalizer pulse. The open collector output can also be configured for flow rate pulses.

## Two Enclosure Styles

The FMT-25W is available in two base models with different form factors and enclosure styles. The FMT-25W-AE is housed in a rugged cast aluminum enclosure very well suited for an industrial environment. The FMT-25-AB is more compact more economical version which is housed in a ABS plastic enclosure. Other than the enclosure and form factor both flow meter versions have the same features and specifications.



*FMT-25W-AB Flow meter  
with ABS plastic enclosure*



*FMT-25W-AE Flow meter with  
ABS aluminum enclosure*

## Transducers for Pipe Sizes from 1 Inch to 240 Inches

The pipe size which the FMT-25W works with is determined by its transducer. We offer transducers in 3 sizes: small transducer for pipe diameters 1 to 4 inches, medium transducers for pipe diameters 2 to 28 inches and large transducers for pipe sizes 12 to 240 inches. Each flow meter includes a pair of small, medium or large transducers. Additional transducers are available for purchase and may installed in the field.



*Small, Medium and Large Transducers  
(FMT-25W-TS-2, FMT-25W-TM-1, FMT-25W-TL-1)*

### **Best Used with Relatively Clean Liquids with Full Pipes**

For proper operation the flow meter requires a full pipe. Also, since the flow meter measures flow rate by transmitting an ultrasonic signal between the two transducers, particulates in the liquid can obstruct the signal and impact the accuracy of the measurement. Applications with liquids containing less than 50ppm of particulates 50 microns or less in diameter are typically good applications for this transit time flow meter. If your liquid contains higher amounts of particulates, please contact us and we will be happy to discuss your application.

FMT-25W comes complete with:

- 1 ea. Wall Mounted Ultrasonic Flow Meter
- 2 ea. Clamp on Transducers(size is model dependent)
- 1 ea. Hexagonal Wrench
- 2 ea. Steel clamps for mounting the transducer
- 1 ea. Acoustic gel
- 1 ea. AC Power Cord

**Popular Models** - To order click on the model number (or scroll to the top of the page and choose the desired options from the drop down menus) then **ADD TO CART**

<b>Model</b>	<b>Description</b>
FMT-25W-AB-S	FMT-25W Ultrasonic Flow Meter with ABS Enclosure and Small Transducers (1 to 4 inch pipe size)
FMT-25W-AB-M	FMT-25W Ultrasonic Flow Meter with ABS Enclosure and Medium Transducers (2 to 28 inch pipe size)
FMT-25W-AB-L	FMT-25W Ultrasonic Flow Meter with ABS Enclosure and Large Transducers (12 to 240 inch pipe size)
FMT-25W-AE-S	FMT-25W Ultrasonic Flow Meter with Aluminum Enclosure and Small Transducers (1 to 4 inch pipe size)
FMT-25W-AE-M	FMT-25W Ultrasonic Flow Meter with Aluminum Enclosure and Medium Transducers (2 to 28 inch pipe size)
FMT-25W-AE-L	FMT-25W Ultrasonic Flow Meter with Aluminum Enclosure and Large Transducers (12 to 240 inch pipe size)

### **Spare Transducers**

<b>Model</b>	<b>Description</b>
FMT-25W-TS-2	Spare Transducers for FMT-25W, 1 to 4 inch pipe size
FMT-25W-TM-1	Spare Transducers for FMT-25W, 2 to 28 inch pipe size
FMT-25W-TL-1	Spare Transducers for FMT-25W, 12 to 240 inch pipe size

## SPECIFICATIONS

### Main Unit Specifications

**Principle:** Transit-time

**Accuracy:** +/-1% of reading at rates >0.2mps

**Linearity:** 0.5%

**Repeatability:** 0.2%

**Response Time:** 0-999 seconds, user configurable

**Flow Totalizers:** 7-digit totals for net, positive and negative flow respectively

**Display:** LCD with backlight showing instantaneous flow rate, accumulated flow rate, fluid velocity, heat flow

**Fluid Velocity:** up to 32 m/s, bidirectional

Pipe Diameter (in).*	Maximum Flow(GPM)	Minimum Flow(GPM)**
1	280	2
2	1,090	7
3	2,410	15
4	4,160	25
5	6,540	40
6	9,450	60
8	16,360	100
10	25,790	160
12	36,610	230
14	44,250	275
16	57,800	360
18	73,170	455
20	90,920	570
24	131,500	820

\* Schedule 40 pipe

\*\* Minimum flow is the lowest flow rate for which the FMT-25 will read flow at the rated accuracy.

**Rate Units:** Cubic Meter, Liter, USA Gallon, Imperial Gallon, Million USA Gallon, Cubic Feet, USA Liquid Barrel, Oil Barrel, (Time can be per day, per hour, per minute or per second)

**Inputs:** Two PT100 temperature sensor for heat flow measurement, one 4-20mA

**Output:** One channel isolated 4-20mA or 0-20mA. Isolated RS485 output, one channel open collector output, one relay

**RS485 Communication Protocol:** MODBUS ASCII, MODBUS RTU or Fuji Extended Protocol

**Power:** 8-36Vdc, 100-264 Vac 50/60HZ(FMT-25W-AE), 85-264 Vac 50/60HZ(FMT-25W-AB)

**Power Consumption:** Less than 1.5W

**Temperature Range:** -30°C to 80°C

**Humidity:** 85% RH

**Protection Rating:** IP65 for FMT-25W-AB(ABS enclosure), IP67 for FMT-25W-AB(aluminum enclosure), Transducers have IP65 rating

### Transducer Specifications

**Pipe Size:** 1 to 240 inches transducers dependent (small: 1-4 in., medium: 2-28 in., large: 12-240 in.)

**Cable Length:** 15 Ft

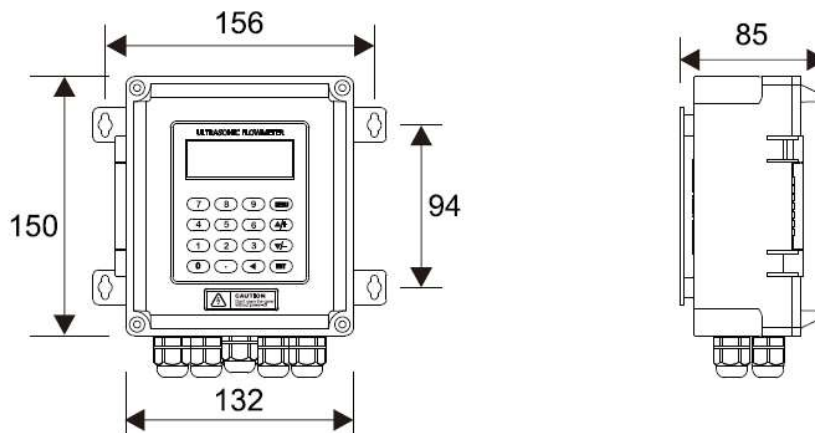
**Protection Rating:** IP65

### Pipe/Liquid Specifications

**Pipe Material:** Standard entry for Carbon steel, Stainless Steel, Cast Iron, Ductile Iron, Copper, PVC, Aluminum, Fiberglass-epoxy, other pipes by entering material sound speed

**Liquids:** Direct entry for water, salt(sea) water, kerosene, gasoline, fuel oil, crude oil, liquid propane, butane, diesel oil, castor oil, peanut oil, alcohol, other liquids supported by entering sound speed and viscosity

**FMT-25W-AB Dimensions(mm)**



**FMT-25-AE Dimensions(mm)**

