

# Belimo Ultrasonic Flow Meters



Accuracy &  
Repeatability

Maintenance  
Free

Low Power  
Consumption

EXPERIENCE  
**EFFICIENCY**

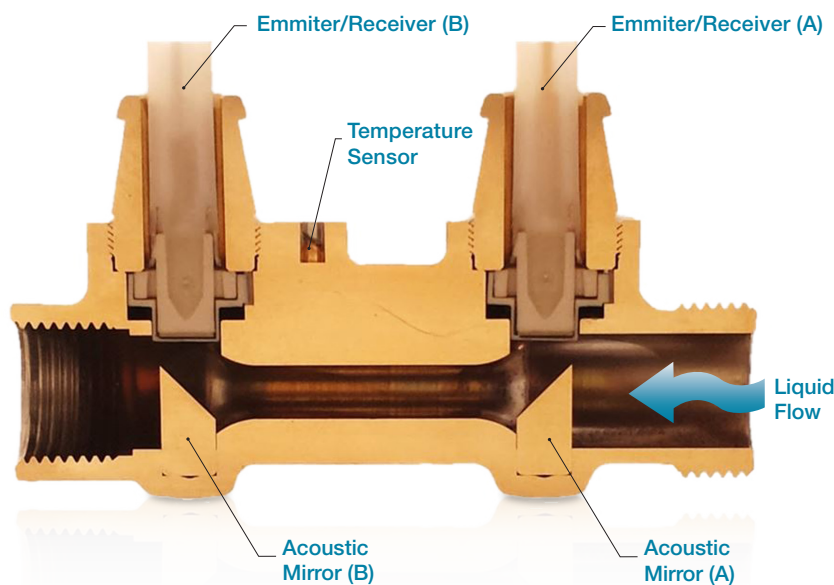
**BELIMO**

# Accurate Flow Measurement Out of the Box

Belimo's inline flow meters (½"-2") utilize ultrasonic transit time technology to provide accurate and repeatable hot or chilled water flow measurement.

- Multi-point wet calibrated to ensure accuracy and repeatability.
- Patented temperature and glycol compensation logic eliminates calibration requirements.
- ±2% accuracy of reading and ±0.5% repeatability provides accurate and precise flow measurement.
- Maintenance free design ensures reliable operation and extended product life.
- Easily integrates with building automation systems.
- Low power consumption of 0.5W saves energy and transformer capacity.
- Compact size for installation in tight spaces.

Piping Size	Model	Technology	GPM Range	Output Signal
½"	FM050	Ultrasonic	0.07 - 6.6	0 to 10 VDC
¾"	FM075	Ultrasonic	0.13 - 12.4	0 to 10 VDC
1"	FM100	Ultrasonic	0.23 - 21.8	0 to 10 VDC
1¼"	FM125	Ultrasonic	0.36 - 34.2	0 to 10 VDC
1½"	FM150	Ultrasonic	0.49 - 47.5	0 to 10 VDC
2"	FM200	Ultrasonic	1.09 - 91.2	0 to 10 VDC



## Versite Product for Many HVAC Applications.

Chilled water, hot water, and water/glycol solutions from -4°F to +250°F [-20°C to +120°C] up to 60% glycol.

## Why Use Flow Meters?

- Accurately measure flow rate.
- Sub meter HVAC heating and cooling usage
- Lower building operation costs through awareness.
- Detect and troubleshoot hydronic performance.
- Integrate with the BMS to optimize system performance.
- Contributes to achieving LEED points.



Belimo Americas

USA, Latin America, and the Caribbean: [www.belimo.us](http://www.belimo.us)

Canada: [www.belimo.ca](http://www.belimo.ca)

Brazil: [www.belimo.com.br](http://www.belimo.com.br)

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# 20

## **METERS ULTRASONIC FLOW METERS**

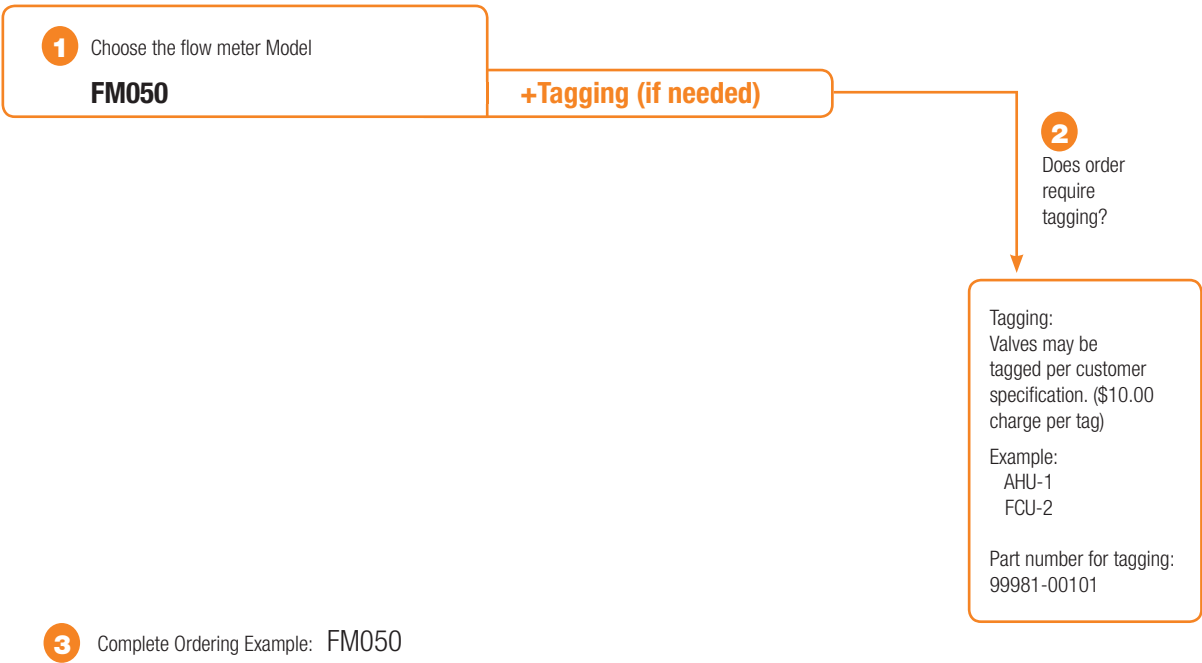
### **Accurate Flow Measurement**

- Patented logic accurately reads flow and eliminates calibration requirements.
- Saves energy with a low power consumption of 0.5W.
- Easily integrates with building automation systems.

# Flow Meter Nomenclature

FM	050			
FM = Flow Meter	<b>Valve Size</b> 050 = ½" 075 = ¾" 100 = 1" 125 = 1¼" 150 = 1½" 200 = 2"	<b>Flow Rate</b> 6.6 GPM Refer to flow meter page for full list	<b>Power Supply</b> 24 = 24 VAC/DC	<b>Output Signal</b> Analog 0-10 VDC

## Ordering Example



# Meters Product Range

## Flow Meter Product Range

	GPM Range	Valve Nominal Size		Type
		Inches	DN [mm]	2-way
NPT	0.07 - 6.6	½	15	FM050
	0.13 - 12.4	¾	20	FM075
	0.23 - 21.8	1	25	FM100
	0.36 - 34.2	1¼	32	FM125
	0.49 - 47.5	1½	40	FM150
	1.09 - 91.2	2	50	FM200



### Mode of Operation

The ultrasonic flow meter is an accurate and repeatable liquid flow measurement meter by utilizing ultrasonic transit time technology. The transducers perform as both emitter and receiver to provide accurate signal reflection.

### Product Features

The Belimo ultrasonic flow meters are designed for HVAC chilled water, hot water, and water/glycol solutions from -4°F to 250°F [-20°C to 120°C] up to 60% glycol. The flow meter incorporates an embedded temperature sensor which enables Belimo's patented temperature and glycol compensation logic to accurately read flow over a wide range of water variables.

### Flow Meter Specifications

Service	chilled or hot water, up to 60% glycol max, condenser water (open loop and steam not allowed)
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female inlet, NPT male outlet
Materials	
Sensor housing	forged brass, nickel plated
Media temp range	-4°F to +250°F [-20°C to +120°C]
Sensor housing pressure rating	250 psi [17 bar]
Flow sensor technology	ultrasonic with glycol and temperature compensation
Length to meet specified measurement accuracy	
Inlet	5x nominal pipe size (NPS)
Outlet	no requirement
Conductivity of fluid	min. 20uS/cm
Output signal	analog (0-10 VDC)
Flow measurement tolerance	± 2%
Flow measurement repeatability	± 0.5%
Electrical connection	3 ft., 18 GA plenum cable

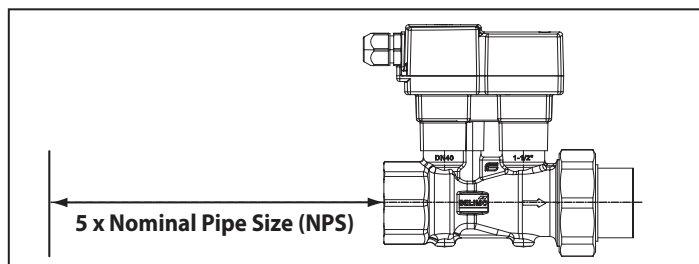
All flow accuracies are at 77°F (25°C).

### INSTALLATION

#### Inlet Length

The Flow Meter requires a section of straight pipe on the sensor housing inlet to guarantee sensor accuracy. This section should be at least 5 pipe diameters long with respect to the size of the Flow Meter.

- ½" [DN15] 5 x nominal pipe size = 2.5" [64 mm]
- ¾" [DN20] 5 x nominal pipe size = 3.75" [95 mm]
- 1" [DN25] 5 x nominal pipe size = 5" [127 mm]
- 1¼" [DN32] 5 x nominal pipe size = 6.25" [159 mm]
- 1½" [DN40] 5 x nominal pipe size = 7.5" [191 mm]
- 2" [DN50] 5 x nominal pipe size = 10" [254 mm]



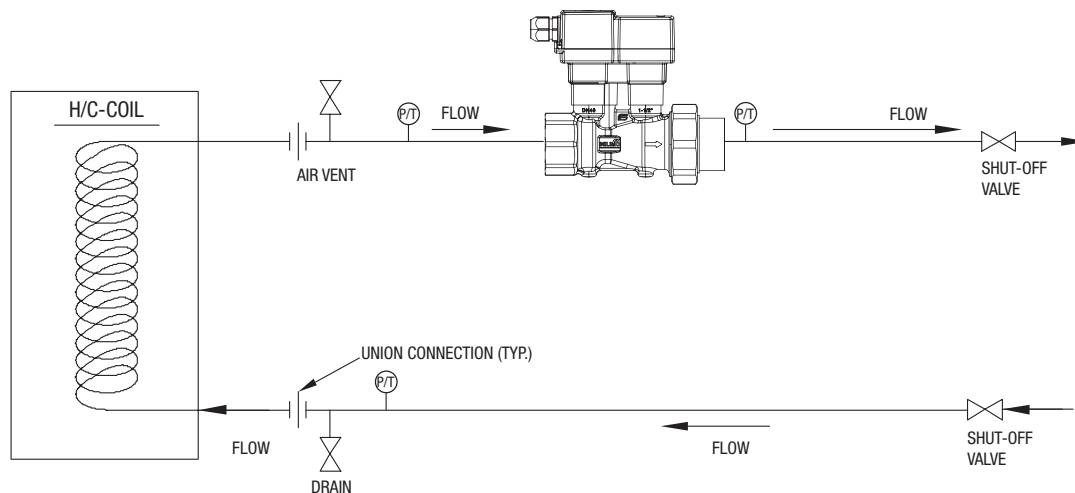
#### Outlet Length

No requirements for outlet length.

Elbows can be installed directly after the valve.

### PIPING

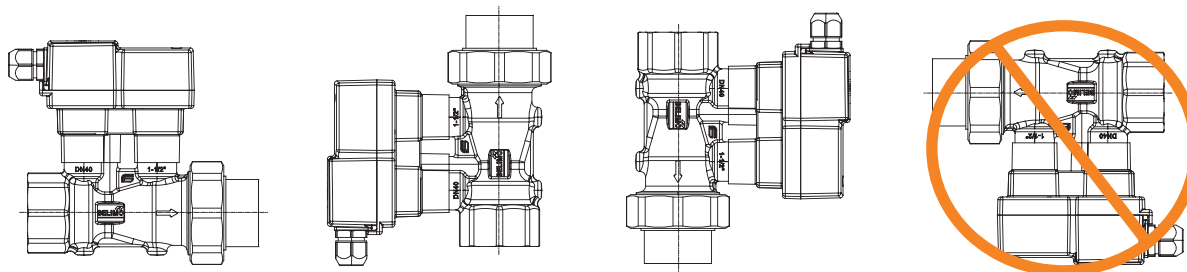
The Flow Meter is suitable for volumetric flow measurement of chilled or hot water in closed loop systems. If the Flow Meter will be installed to measure flow through a heat exchange device, it is recommended to be installed on the return side of the heat exchange device. PT ports are recommended on either side of the flow meter and the supply side of the heat transfer device to allow for pressure/flow measurement calculation.



### ORIENTATION

Flow Meter shall be installed with flow in the direction of the arrow on the sensor housing.

The Flow Meter can be installed in a vertical or horizontal arrangement, as long as the sensor is positioned to avoid condensation from dripping onto the flow sensor.



Flow Meter Specifications

Service	chilled or hot water, up to 60% glycol max, condenser water (open loop/ steam not allowed)
End Fitting	NPT female inlet, NPT male outlet
Sensor Housing	forged brass, nickel plated
Media Temperature Range	-4°F to +250°F [-20°C to +120°C]
Max. Differential Pressure	50 psi
Inlet Length to Meet Specified Measurement Accuracy	inlet: 5X nominal pipe size (NPS) outlet: no requirement
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Electrical Connection	3 ft., 18 GA plenum cable



Model #	GPM Range	Size [mm]	Body Pressure Rating [psi]	
FM050	0.07-6.6	0.5" [15]	250	\$582
FM075	0.13-12.4	0.75" [20]		\$590
FM100	0.23-21.8	1" [25]		\$780
FM125	0.36-34.2	1.25" [32]		\$1,210
FM150	0.49-47.5	1.5" [40]		\$1,300
FM200	1.09-91.2	2" [50]		\$1,500

