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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.

Jennifer Kennen, Graphic Designer

Flow Meter Nomenclature

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

Ordering Example

1 Choose the Flow Meter Model

FM050

+Tagging (if needed)

2 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($10.00 charge per tag)

Example:
AHU-1
FCU-2

Part number for tagging:
99981-00101

3 Complete Ordering Example: FM050

Meters Product Range

Flow Meter Product Range

		Valve Nominal Size		Type
	GPM Range	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

5 YEAR WARRANTY

Mode of Operation

The ultrasonic flow meter is an accurate and repeatable liquid flow measurement meter 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

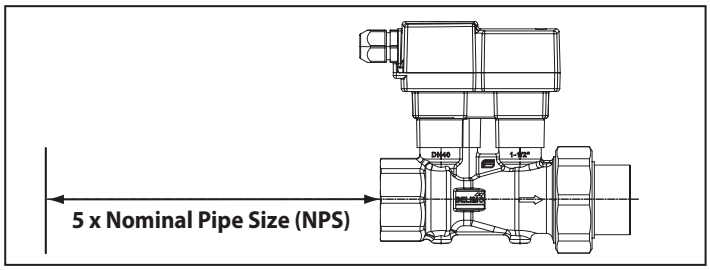
Service	chilled or hot water, up to 60% glycol max, condenser water (open loop and steam not allowed)
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female inlet, NPT male outlet
Materials	
Sensor housing	forged brass, nickel plated
Media temp range	-4°F to +250°F [-20°C to +120°C]
Sensor housing pressure rating	360 psi
Flow sensor technology	ultrasonic with glycol and temperature compensation
Length to meet specified measurement accuracy	
Inlet	5x nominal pipe size (NPS)
Outlet	no requirement
Output signal	analog (0-10 VDC)
0V	sensor has no supply voltage
0.3V	sensor has supply voltage but is in error state
0.5V	0% of V'nom
10V	100% of V'nom
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.

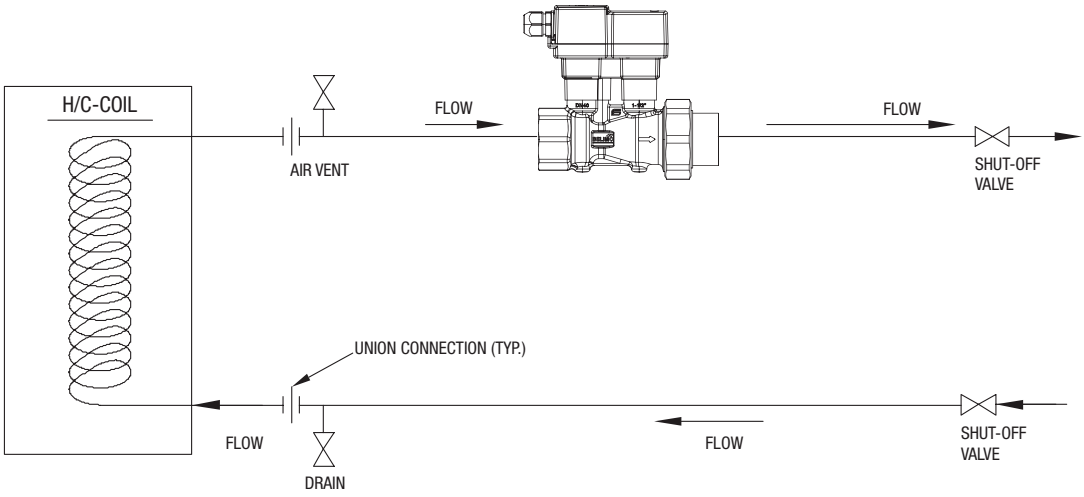
½" [DN15] 5 x nominal pipe size = 2.5" [64 mm]
¾" [DN20] 5 x nominal pipe size = 3.75" [95 mm]
1" [DN25] 5 x nominal pipe size = 5" [127 mm]
1¼" [DN32] 5 x nominal pipe size = 6.25" [159 mm]
1½" [DN40] 5 x nominal pipe size = 7.5" [191 mm]
2" [DN50] 5 x nominal pipe size = 10" [254 mm]



Outlet Length
No requirements for outlet length.
Elbows can be installed directly after the valve.

PIPING

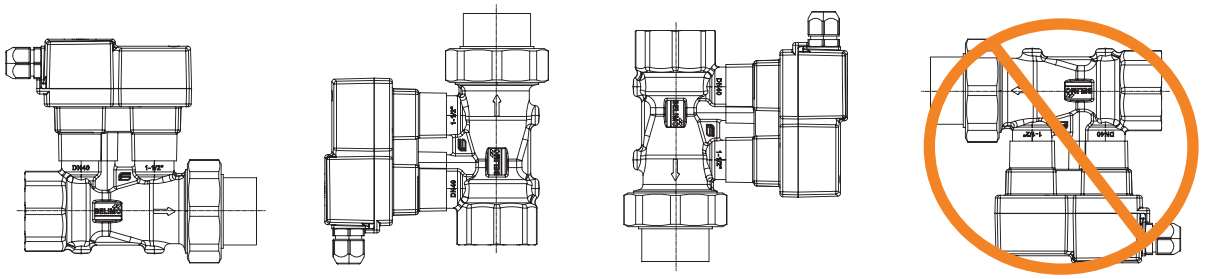
The Flow Meter is suitable for volumetric flow measurement of chilled or hot water in closed loop systems. If the Flow Meter will be installed to measure flow through a heat exchange device, it is recommended to be installed on the return side of the heat exchange device.



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]
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

5 YEAR WARRANTY

Model #	GPM Range	Size [mm]	Body Pressure Rating [psi]	C_V	Pressure Drop at V'nom [psi]	
FM050	0.07-6.6	0.5" [15]	360	5	1.74	$582
FM075	0.13-12.4	0.75" [20]		9	1.89	$590
FM100	0.23-21.8	1" [25]		20	1.18	$780
FM125	0.36-34.2	1.25" [32]		36	0.90	$1,210
FM150	0.49-47.5	1.5" [40]		47	1.02	$1,300
FM200	1.09-91.2	2" [50]		62	2.16	$1,500