

# azbil

## Thermal

# Micro Flow Rate Liquid Flow Meter

## Model F7M

Thermal Micro Flow Rate  
Liquid Flow Meter that achieves  
high-functionality measurement  
and usability



### Measures micro flow rates of several mL/min

- Operates on the thermal measurement principle using MEMS sensing technology. The measurement of micro flow rates of several mL/min, which traditionally has been difficult, is now possible. (Measurement range: 0.1 to 10 mL/min, 0.3 to 30mL/min, 0.5 to 50mL/min)



### Compact, light-weight, and easy to install

- This model is more compact and lighter than its predecessors.
- By using the included mounting bracket, it can be easily installed on a surface (for horizontal pipe connection). It can also be installed for vertical pipe connection.



### Flexible installation and wide range of fluids

- Compliant with IP65 protection rating.
- The non-metallic outer surface gives this product increased resistance to corrosives.
- Can be used with various fluids. (Fluids that do not corrode quartz glass or fluorocarbon resin)

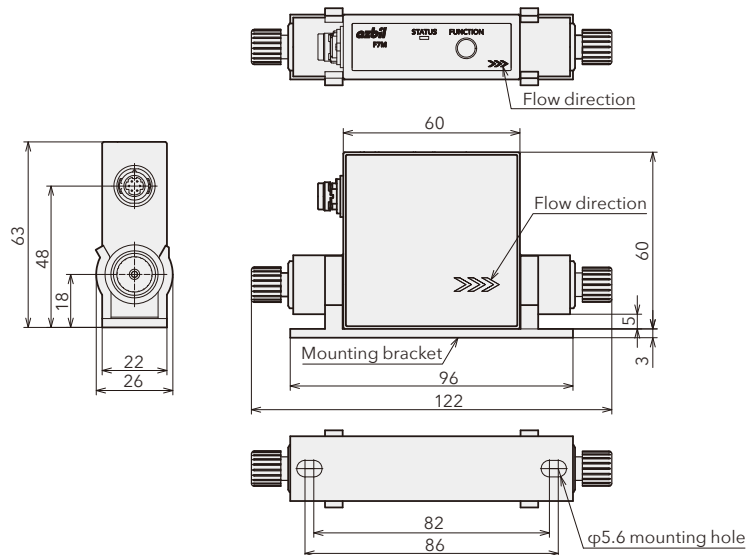


### Straight flow path

- The straight flow channel means pressure loss is lower and cleaning is easier, with no puddles of liquid.

## External Dimensions

Unit: mm



## SPECIFICATIONS

Model No.	F7M9010	F7M9030	F7M9050
Measurable flow rate range (for water (H <sub>2</sub> O))	0.1-10 mL/min	0.3-30 mL/min	0.5-50 mL/min
Measurement accuracy	±5 % rdg. (at 20 % or more of the flow rate range), ±1 % FS (at less than 20 % of the range) The instrumental error in the volumetric flow rate was measured by Azbil's fluid flow rate calibration equipment under standard conditions*1		
Repeatability	±1 % rdg. (at 20 % or more of the flow rate range), ±0.2 % FS (at less than 20 % of the range) Instrumental error discrepancies in the volumetric flow rate measured by Azbil's fluid flow rate calibration equipment under standard conditions*1		
Measurable fluid	Fluid that does not clog the flow path and does not corrode or damage the fused silica glass tube or the PFA fitting used in the flow path. The measurement range differs for fluids other than water (H <sub>2</sub> O).		
Accuracy- and repeatability-guaranteed fluid	Water (H <sub>2</sub> O)		
Accuracy- and repeatability-guaranteed flow rate range (for water (H <sub>2</sub> O))	0.2-10 mL/min	0.6-30 mL/min	1-50 mL/min
Temperature characteristic (where the fluid and ambient temperatures are the same)	Where the fluid and ambient temperatures are the same and within 10-35 °C Within 0.5 % rdg. / °C of the output value under standard conditions*1		
Fluid temperature range (operation-guaranteed range)	5-50 °C*2		
Ambient temperature range (operation-guaranteed range)	5-50 °C*2		
Ambient humidity (operation-guaranteed range)	10-90 % RH (without condensation on the exterior or the product)*2		
Process fluid pressure range	0-500 kPa		
Pressure resistance	700 kPa		
Mounting orientation	Horizontal or vertical (flow direction: bottom to top)*3		
Straight pipe length	50 mm (for water (H <sub>2</sub> O))		
Fitting pullout strength	30 N		
Drive power voltage	24 V DC ± 10 %, 0.7 W max.		
Output signal	Instantaneous flow rate output: 1-5 V DC*4 (1 output) (External load resistance: 250 kΩ min. Maximum output voltage: 5.6 V) External contact output (open collector): event output or totalized flow pulse*5, 30 V DC, 30 mA max. (1 output)		
External contact input	1 Non-voltage contacts or open collector Allowable ON resistance: 250 Ω max. Allowable OFF resistance: 100 kΩ min. Allowable ON residual voltage: 0.8 V max. ON terminal current: 0.5 mA (when contact resistance is 250 Ω)		
Weight	85 g (including the mounting bracket but excluding the cable)		
Protection rating	IP65		
Noise immunity	EN61326-1, EN61326-2-3		

For details on the product specifications, refer to the user's manual (CP-SP-1421E).

\*1. "Standard conditions" means that both the ambient and fluid temperatures are 23 °C. Please contact us for other conditions.

\*2. Depending on the ambient humidity, condensation can occur if the temperature of the fluid drops below the ambient temperature.

\*3. For vertical mounting, there is an output shift of about ± 1 % rdg. in measurements when compared with horizontal mounting.

\*4. If the flow rate is below the lowest measurable rate, the output signal is always 0 % (1 V). Up to 115 % (5.6 V) of the highest measurable flow rate can be output.

\*5. A dedicated PC loader is required to change parameter settings.

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