
 Reliability Creativity Service	Product Specifications		FZ01-359B1	1/4
	Microstream Flow Sensor		Model	OF□□Z□T-□R

1. Common Specifications

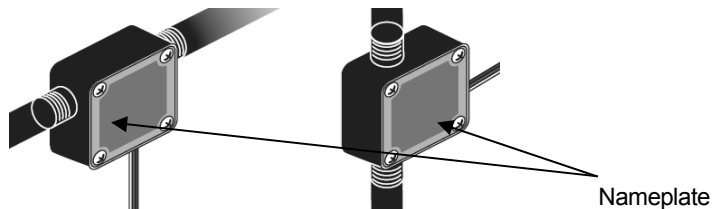
Model		OF05ZAT-□R	OF10ZAT-□R	OF05ZZT-□R	OF10ZZT-□R	
Nominal diameter		5mm	10mm	5mm	10mm	
Accuracy guaranteed flow-rate range	Fluid viscosity: 0.3 to 0.8mPa·s	0.085 to 0.85 L/min	0.7 to 5 L/min	0.085 to 0.85 L/min	0.7 to 5 L/min	
	Fluid viscosity: 0.8 to 2.0mPa·s (Equivalent to cool/hot water or kerosene)	0.05 to 0.85 L/min	0.35 to 5 L/min	0.05 to 0.85 L/min	0.35 to 5 L/min	
	Fluid viscosity: 2.0 to 5.0mPa·s (Equivalent to light oil)	0.017 to 0.85 L/min	0.17 to 5 L/min	0.017 to 0.85 L/min	0.17 to 5 L/min	
	Fluid viscosity: 5.0 to 200mPa·s (Equivalent to heavy oil)	0.0085 to 0.85 L/min	0.085 to 5 L/min	0.0085 to 0.85 L/min	0.085 to 5 L/min	
Accuracy		±2%RS (in standard installation position)				
Fluid to be measured		Cool/hot water, kerosene, light oil, heavy oil		Weak acid/weak alkaline, Cool/hot water, kerosene, light oil, heavy oil		
Fluid viscosity range		0.3 to 200 mPa·s				
Fluid temperature range		-10 - +70°C (No freezing)				
Working ambient temperature/humidity range		-10 to +70°C 35 to 85%RH (No dew condensation)				
Maximum working pressure		0.5MPa (at the fluid temperature of 20°C)				
Pressure drop (at the accuracy guaranteed maximum flow-rate)		4 kPa or less	10 kPa or less	4 kPa or less	10 kPa or less	
Output Signals	Voltage pulse output (Z□T-AR)	Pulse specifications	Load resistance 10kΩ or more Duty ratio 2:8<ON:OFF<8:2	Applied voltage	High	Low
				3VDC	2VDC or more	1VDC or less
				12VDC	10VDC or more	
	24VDC	20VDC or more				
NPN Open collector pulse output (Z□T-MR)	Pulse specifications	Maximum load: 24VDC 6mA DC				
		Cable	Cable length: Approximately 600mm 4-core AWG26 Flat cable (Red: Power supply+/White: Output/Black: GND/Blue: Feedback)			
NPN Open collector pulse output (Z□T-AR)	Pulse specifications	Cable length: Approximately 480mm 3-core AWG26 Flat cable (Red: Power supply +/White: Output/Black: GND)				
		Cable	Cable length: Approximately 600mm 4-core AWG26 Flat cable (Red: Power supply+/White: Output/Black: GND/Blue: Feedback)			

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	Microstream Flow Sensor	Model	OF□□Z□T-□R

Model	OF05ZAT-□R	OF10ZAT-□R	OF05ZZT-□R	OF10ZZT-□R
Pulse constant	0.46 mL/P	2.5 mL/P	0.46 mL/P	2.5 mL/P
Maximum frequency (at the accuracy guaranteed maximum flow-rate)	Approximately 31Hz	Approximately 34Hz	Approximately 31Hz	Approximately 34Hz
Minimum pulse ON time	Approximately 6.5 msec	Approximately 6 msec	Approximately 6.5 msec	Approximately 6 msec
Standard Installation Position	Position the nameplate is vertical to the ground			
Flow direction	Arrow direction indicated on the product			
Pipe connection	R 1/4	R 1/2	R 1/4	R 1/2
Protection grade	Indoor specification (equivalent to IP X4)			
Power supply	3 to 24VDC * For the open collector pulse output, apply the same voltage to the sensor power supply (red - black) and pulse output (blue/white - black).			
Current consumption	0.2VA or less			
Weight	Approximately 100 g	Approximately 140 g	Approximately 100 g	Approximately 140 g
Main materials of wetted parts ^{*3}	Casing	PPS		
	Rotor	PPS		
	O-ring	NBR		FKM
	Shaft	SUS304		SiC
Others	RoHS directive compliant.			

*1: In case the fluid to be measured is weakly acid or weakly alkaline solution, ensure that the wetted parts' materials have corrosion resistance against the fluid.


*2: The standard installation position means the position that the nameplate is vertical against the ground.
Accuracy is not guaranteed for installation positions other than the standard installation position.



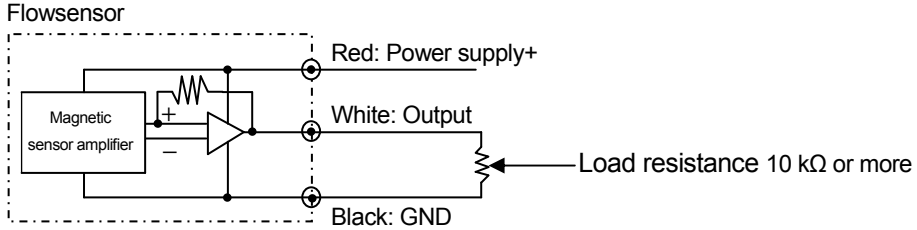
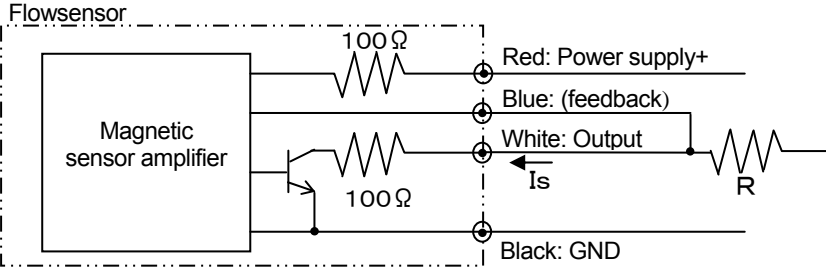
• In case particle foreign substances can be contained in the fluid to be measured, provide a strainer of 200 meshes or finer before the flowsensor.


*3: Material symbols

PPS	Polyphenylene Sulfide
NBR	Nitrile Rubber (Acrylonitrile-Butadiene Rubber)
FKM	Fluoro Rubber
SUS304	Stainless
SiC	Silicon Carbide Ceramic

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2. Wiring

Voltage pulse Output (Z□T-AR)	 <p>Be sure to connect the load resistance of 10 kΩ or more between white and black.</p>
NPN Open collector pulse output (Z□T-MR)	 <p>The pull-up resistance R on the NPN open collector output side should be 50kΩ or less. However, the output sink current "Is" must be not more than 6mA.</p> $I_s(\text{output sink current: mA}) = \frac{V (\text{Power supply voltage: Volt})}{R (\text{Pull-up resistance: k}\Omega)} \leq 6\text{mA}$ <p>Applied voltage of sensor power supply (Red – Black) and pulse output (Blue/White-Black) shall be the same.</p>

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3. Precautions for handling

3-1. Working environment, fluid to be measured

- (1) Ensure that the wetted parts' materials have corrosion resistance against fluid to be measured.
- (2) Keep the product away from a strong magnetic field or a source of electric noise.
- (3) The product is not explosion-proof specification. Do not use the product in an explosive atmosphere such as flammable gas, etc.
- (4) In case pulsation exists in reverse flow, the measurement accuracy is to be affected. Prevent reverse flow using a check valve, etc.
- (5) Avoid installation at a place exposed to direct sunlight and/or rain (Indoor specification).

3-2. Precautions for piping

- (1) No air shall be in the fluid to be measured. The measurement accuracy is to be affected.
Do not install the product at a place where air accumulation can easily occur (e.g. upstream side of a falling pipe). Also, before start measurement, remove air sufficiently.
- (2) The product can be installed in vertical and horizontal piping. However, the installation position shall be such that its nameplate is vertical against the ground.
- (3) Devices such as a flow-rate adjusting valve, etc., which disturb flow shall be installed in the downstream of the flowsensor.
- (4) Avoid installing the product where it is exposed to excessive pressure, such as water hammer, etc.
- (5) In case foreign substances, oil, etc., exist in the piping, install the flowsensor after cleaning inside of the pipe.
- (6) Make sure to align the flow direction of the fluid with the flow direction indicated by the arrow on the main body.
- (7) Around the place of installation, provide enough space for maintenance.
- (8) Fluid containing foreign substances cannot be measured. In case they can be in the fluid, provide a strainer of 200 meshes or finer to remove them.