MFS series

LIGHT WEIGHT **FLOW SENSOR**

mindman

User manual

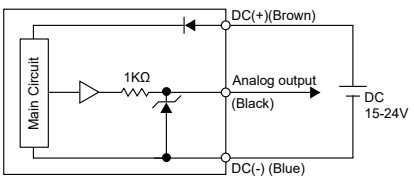
Selection table



Feature

- Response time ≤ 5 ms
- Slim size
- Light weight
- Confirmation of small object adsorption
- Leak detection
- Suitable for the semiconductor industry

Specifications

Model		003	005	010	050	100	R003	R005	R010	R050	R100
Measured flow rate range		0 ~ 0.3 L/min	0 ~ 0.5 L/min	0 ~ 1 L/min	0 ~ 5 L/min	0 ~ 10 L/min	-0.3 ~ 0.3 L/min	-0.5 ~ 0.5 L/min	-1 ~ 1 L/min	-5 ~ 5 L/min	-10 ~ 10 L/min
Flow direction		Unidirection					Bidirectional				
Rated pressure range		-100 ~ 200 kPa									
Withstand pressure		300 kPa									
Fluid		Dry air, N_2, Non-corrosive / Non-flammable gas									
Power supply voltage		15 ~ 24V DC ±10%, Ripple (P-P) ≤ 10%									
Current consumption		≤ 20mA									
Accuracy	Repeatability	≤ ± 2% F.S.									
	Linearity	Non-linearity									
	Temp. characteristic *1	≤ ± 0.6% F.S./°C					≤ ± 0.3% F.S./°C				
	Pressure characteristic *2	± 10% F.S.					± 5% F.S.				
Response time		≤ 5ms (90% Response time)									
Indicator		Green LED									
Analog output		Voltage output range: 1~5V ±5% F.S. (±0.2V) (Non-linearity), Output Impedance: 1 KΩ									
Environment	Enclosure	IP40									
	Working fluid temp.	0 ~ 50°C (No condensation or freezing)									
	Ambient temp. range	Operation : 0 ~ 50°C ; Storage : -10 ~ 60°C (No condensation or freezing)									
	Ambient humidity Range	Operation / Storage : 35 ~ 85% R.H. (No condensation)									
	Withstand voltage	1000V AC in 1-min (between case and lead wire)									
	Insulation resistance	≥ 50MΩ (500V DC, between case and lead wire)									
	Vibration	Total amplitude 1.5mm or 10G, 10 Hz - 55 Hz - 10 Hz scan for 1 minute, 2 hours each direction of X, Y and Z									
	Shock	100m/s^2 (10G), 3 times each in direction of X, Y and Z									
Lead Wire		Ø2.6 oil-resistance cable (PVC) - 26 AWG (0.15 mm^2) - 3 cores									
Weight	Product	Approx. 4 g (w/o Port) ; Approx. 9.6 g (M5 Port)									
	Lead wire (3M)	31.8 g									
Circuit wiring diagrams											

*1. Benchmark : 25°C (Temperature range : 0 ~ 50°C)
*2. Benchmark : 150 kPa (Pressure range : -100 ~ 200 kPa)

MFS Order example

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Order example

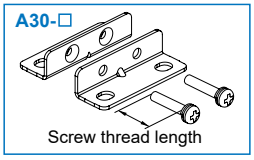
MFS – 003 – 01 – M5

MODEL	FLOW RATE RANGE	OUTPUT	PORT SIZE
	003: 0 ~ 0.3 L/min **005**: 0 ~ 0.5 L/min **010**: 0 ~ 1 L/min **050**: 0 ~ 5 L/min **100**: 0 ~ 10 L/min **R003**: -0.3 ~ 0.3 L/min **R005**: -0.5 ~ 0.5 L/min **R010**: -1 ~ 1 L/min **R050**: -5 ~ 5 L/min **R100**: -10 ~ 10 L/min	**01**: 1 Analog output (1 ~ 5V)	Blank : None **M5**: M5 female thread

Mounting accessories (Option)

MP – A30–1

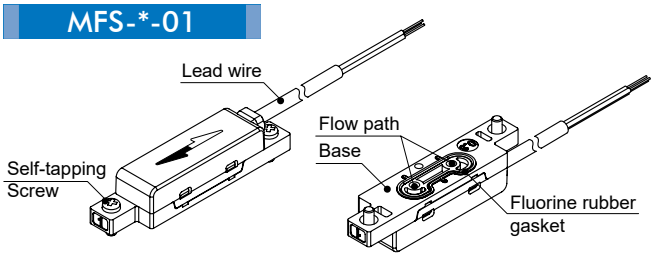
MODEL	OPTION PARTS



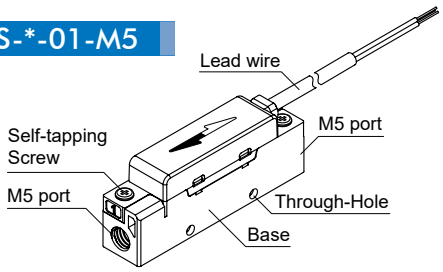
A30-1: fit with 1 sensor (Bracket + M2×0.4×15L screws)
A30-2: fit with 2 sensors (Bracket + M2×0.4×25L screws)
A30-3: fit with 3 sensors (Bracket + M2×0.4×35L screws)
A30-4: fit with 4 sensors (Bracket + M2×0.4×45L screws)
A30-5: fit with 5 sensors (Bracket + M2×0.4×55L screws)

Optional parts dimensions

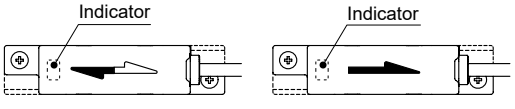
MFS-*-01



MFS-*-01-M5

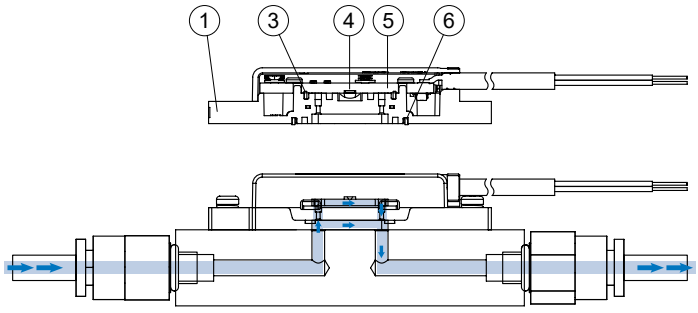


* Do not set the self-tapping screws repeatedly.

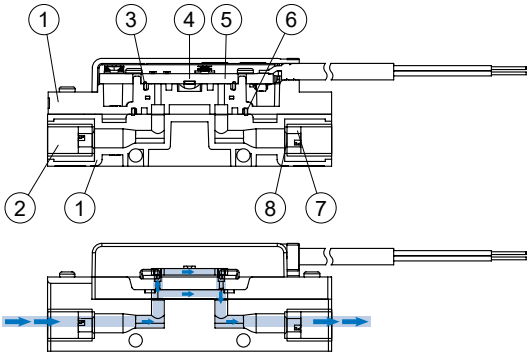


Wetted parts

MFS-*-01



MFS-*-01-M5



Material

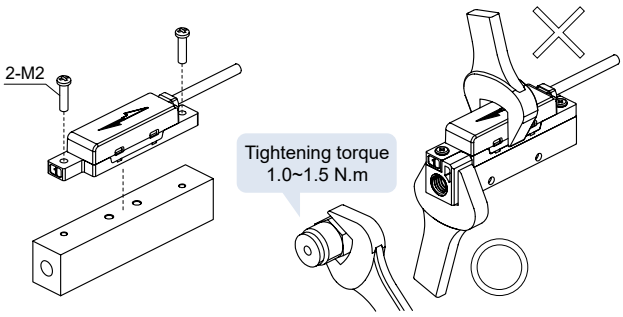
No.	Description	Material
1	Base	PBT
2	Fitting for piping	SUS 303
3	Gasket	Viton
4	Sensor	Si
5	Sensor Board	GE4F
6	Gasket	Viton
7	Mesh holding screw	POM
8	Mesh	SUS 304

Installation precautions

1. This product can be installed in any direction; top, bottom, left, or right.
2. MFS-☐-01 can be installed with 2 through holes (ø2).

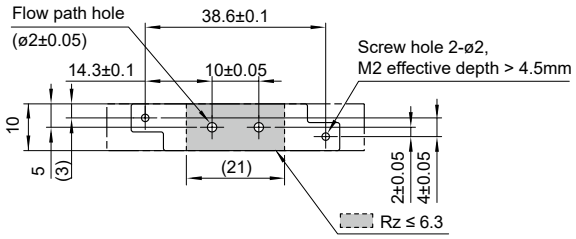
Port thread	Tightening torque N.m
M2	0.2~0.3

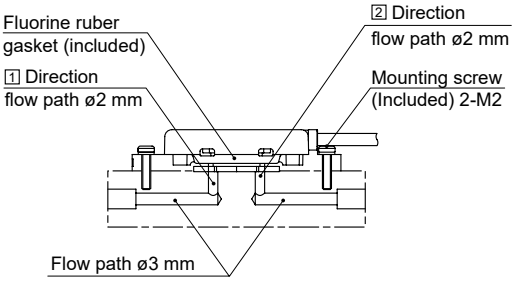
3. When mounting, please use wrench on specified position as below.
   Using on other parts of the product with a wrench may damage the product.
4. Please ensure the size of fittings are within the width of MFS-☐-01-M5 while connecting multiple sensors side by side.
5. Please be aware the tightening torque when mounting.
6. After installing, please take a leakage test to ensure the installation is appropriate.



Installation

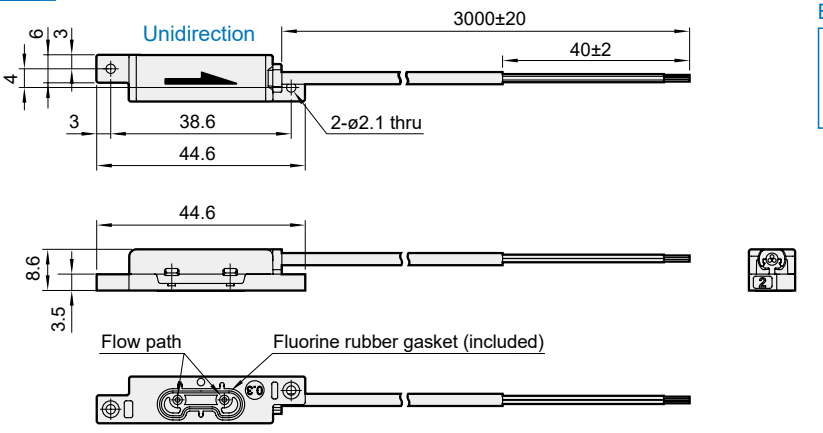
MFS-*-01



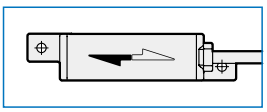


Dimensions

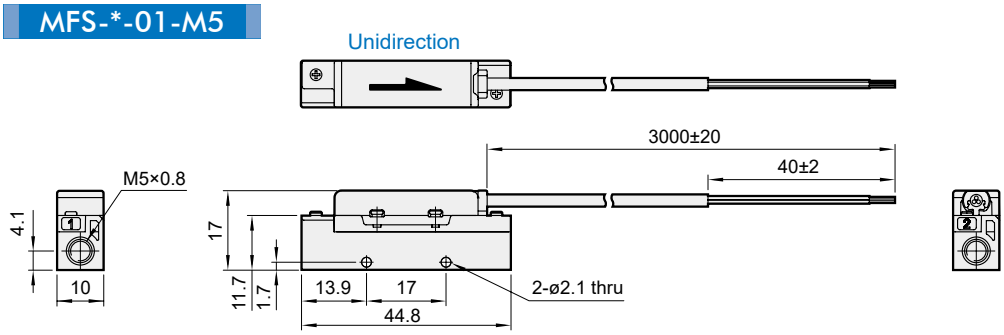
MFS-*-01



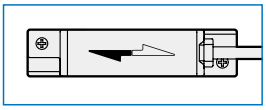
Bidirectional



MFS-*-01-M5

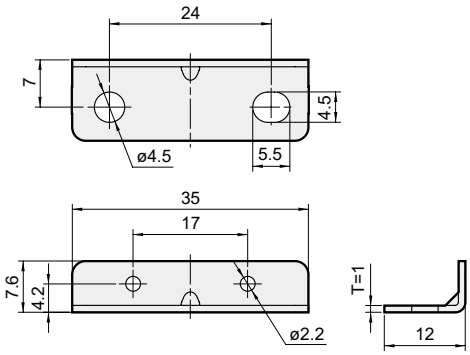


Bidirectional

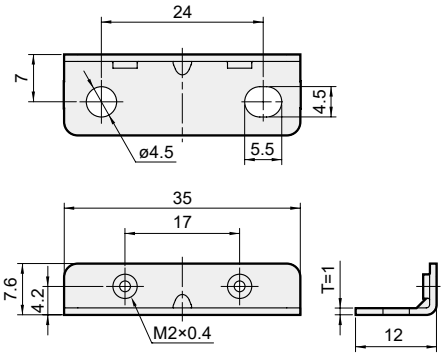


Mounting accessories

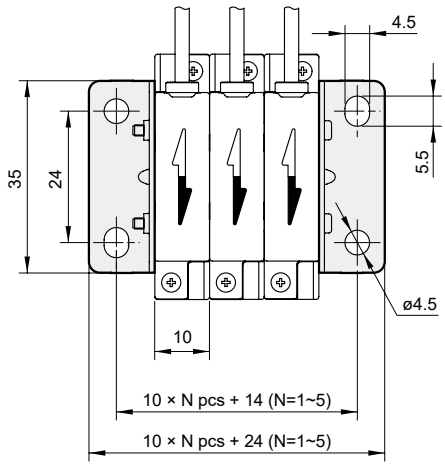
Bracket (Through hole)

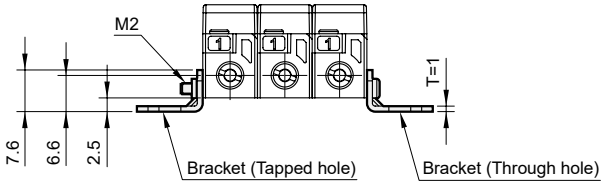


Bracket (Tapped hole)



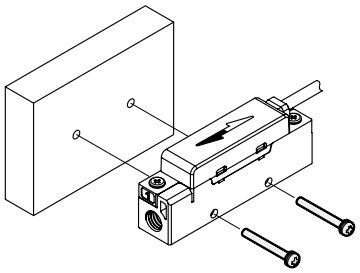
Installation dimension of bracket



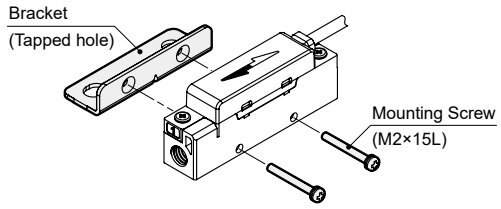


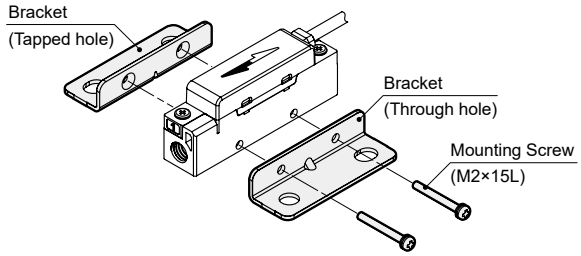
Mounting bracket

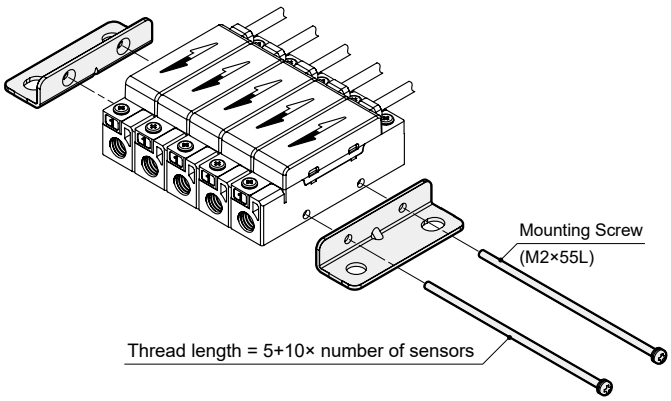
Horizontal mounting



Bracket mounting







Port thread	Tightening torque N·m
M2	0.2 ~ 0.3