



Feature

- Simultaneous monitoring of flow and pressure
- Approximate linear analog output of flow
- 3-color indicator
- 2 Analog outputs 1 ~ 5 V
- Response time ≤ 5 ms

Features highlight 2 in 1 design

- Pressure and flow rate simultaneous monitoring.

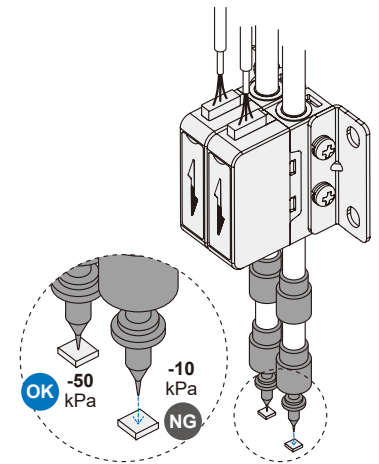
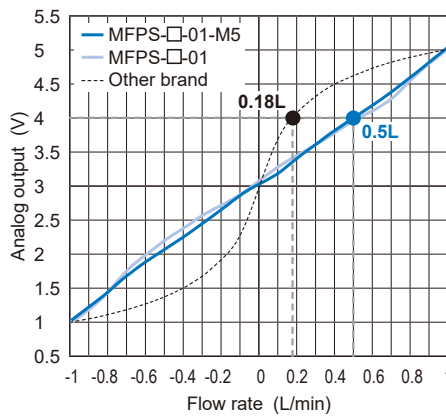
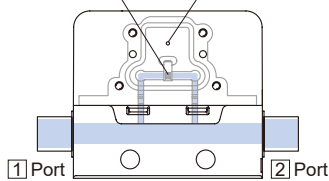
Approximate linear analog output

- Compared to existing flow sensors, it is better at monitoring flow rate for slight changes.

Equipped with pressure sensor

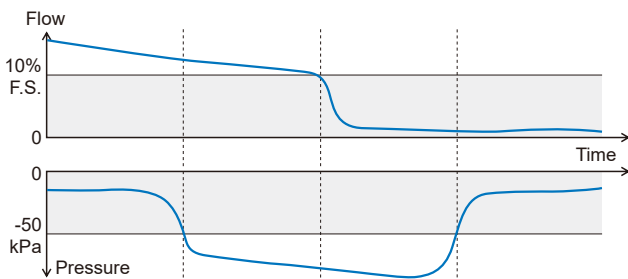
- Manage nozzle between pressure range -100 ~ 100 kPa.

| Flow sensor | | Pressure sensor |
|---------------------|-----------------------------------|--------------------------|
| Analog output 1~5 V | | Analog output 1~5 V |
| Bidirectional | 1~3~5V -F.S.~0~F.S. (L/min) | 1~3~5V -100~0~100 kPa |
| Unidirection | 1~5V 0~F.S. (L/min) | |

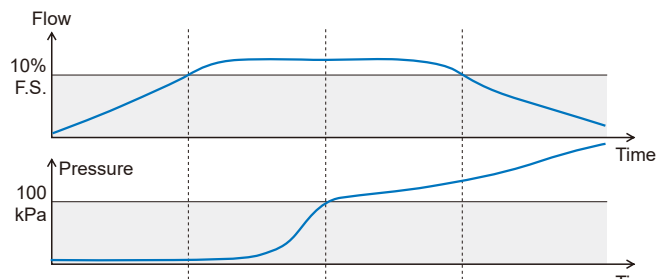
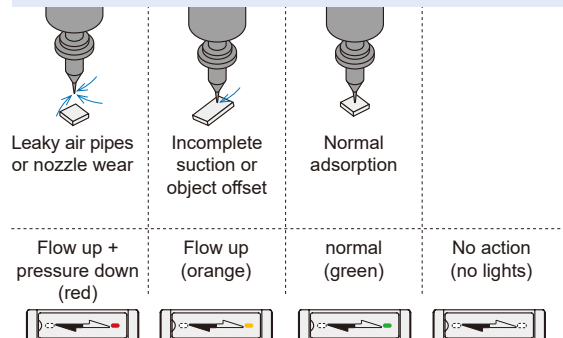


The design of 3-color indicator (signal) helps better monitor changes in flow and pressure

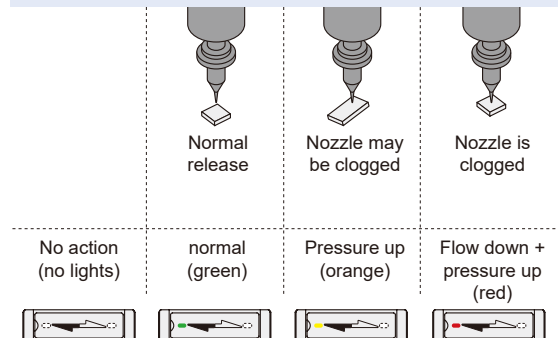
- Detect anomalies in time to reduce loss.



Vacuum Pressure : Suction



Positive Pressure : Release



| Model | | 003 | 005 | 010 | 050 | 100 | R003 | R005 | R010 | R050 | R100 | |
|---------------------------------|----------------------------|---|---------------|-------------|-------------|--------------|------------------|------------------|--------------|--------------|----------------|--|
| Flow | 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 | | | | | |
| Pressure | Rated pressure range | -100 ~ 100 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 | | ≤ 30mA | | | | | | | | | | |
| Flow | Repeatability | ≤ ± 2% F.S. | | | | | | | | | | |
| | Linearity | Non-linearity *1 | | | | | | | | | | |
| | Temp. characteristic *2 | ≤ ± 0.6% F.S./°C | | | | | ≤ ± 0.3% F.S./°C | | | | | |
| | Pressure characteristic *3 | ± 10% F.S. | | | | | ± 5% F.S. | | | | | |
| Pressure | Repeatability | ≤ ± 1% F.S. | | | | | | | | | | |
| | Linearity | ± 0.5% F.S. | | | | | | | | | | |
| | Temp. characteristic *2 | ± 2% F.S. | | | | | | | | | | |
| Response time | Flow | ≤ 5ms (90% Response time) | | | | | | | | | | |
| | Pressure | ≤ 1ms | | | | | | | | | | |
| Switch on indicator | | Green/ orange/ red | | | | | | | | | | |
| Analog Output | Flow | Voltage Output Range: 1~5V ±5% F.S. (±0.2V) (Non-linearity), Output Impedance: 1 KΩ | | | | | | | | | | |
| | Pressure | Voltage Output Range: 1~5V ±1% F.S. (±0.04V) (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 | | Ø2.9 PUR - 28 AWG (0.078 mm ²) - 4 cores | | | | | | | | | | |
| Weight (with 3 meter lead wire) | | Approx. 43 g (w/o Port) ; Approx. 47 g (M5 Port) | | | | | | | | | | |
| Circuit wiring diagrams | | | | | | | | | | | | |

*1. Approximate linearity analog output (±10% F.S.) except 0 ~ 10 L and 10 ~ 10 L.

*2. Benchmark : 25°C (Temperature range : 0 ~ 50°C)

*3. Benchmark : 0 kPa (Pressure range : -90 ~ 200kPa)

Adsorption application table

| Flow range (L/min) | Application nozzle size (mm) | Application industry |
|----------------------|--------------------------------|--|
| -0.3 ~ 0.3 | ≤ ø0.1 | Quartz crystal oscillator, solder balls, micro LEDs |
| -0.5 ~ 0.5 | ø0.2 | Chip resistors, chip capacitors, optical components, mini LEDs |
| -1.0 ~ 1.0 | ø0.3 | |
| -5.0 ~ 5.0 | Inverted pyramid wafer nozzle | Silicon wafer (bonded die), general parts |
| -10 ~ 10 | Inverted pyramid wafer nozzle | |

Order example

MFPS – 003 – 01 – M5

MODEL

FLOW RATE RANGE

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

OUTPUT

01: 2 Analog output (1 ~ 5V)

PORT SIZE

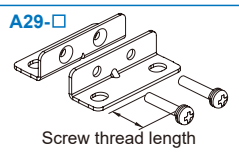
Blank: None
M5: M5 female thread

Mounting accessories (Option)

MP – A29-1

MODEL

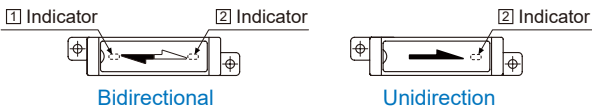
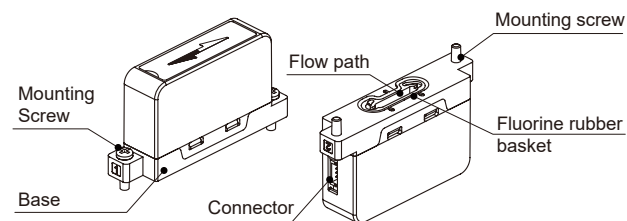
OPTION PARTS



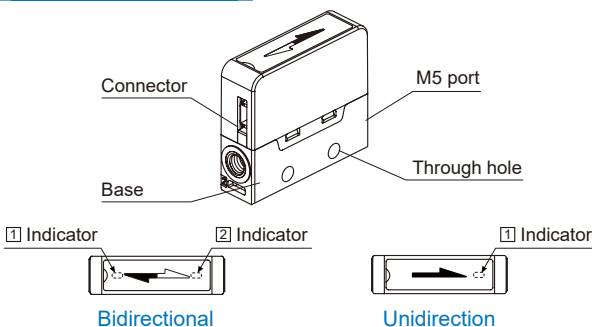
A29-1: fit with 1 sensor (Bracket + M3×0.5×15L screw)
A29-2: fit with 2 sensors (Bracket + M3×0.5×25L screw)
A29-3: fit with 3 sensors (Bracket + M3×0.5×35L screw)
A29-4: fit with 4 sensors (Bracket + M3×0.5×45L screw)
A29-5: fit with 5 sensors (Bracket + M3×0.5×55L screw)

Optional parts dimensions

MFPS-*-01

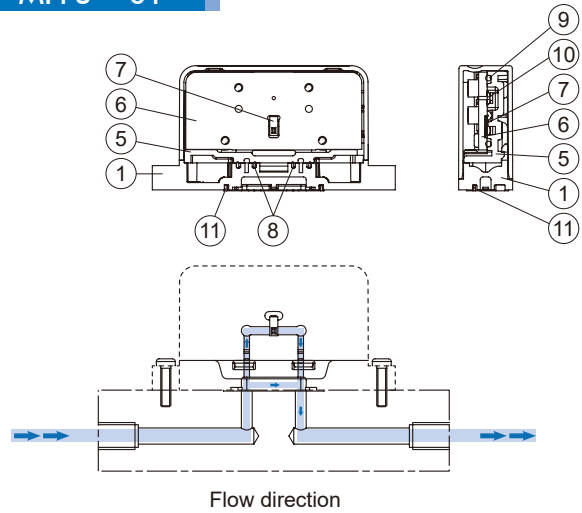


MFPS-*-01-M5

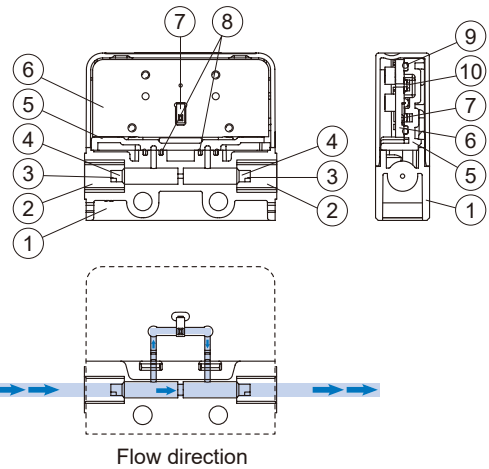


Wetted parts

MFPS-*-01



MFPS-*-01-M5



Material

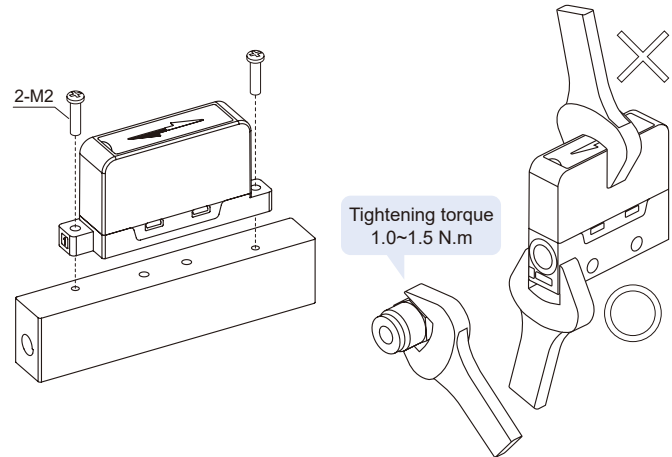
| No. | Description | Material |
|-----|--------------------|----------|
| 1 | Base | PBT |
| 2 | Fitting for piping | SUS 303 |
| 3 | Mesh holding screw | POM |
| 4 | Mesh | SUS 316 |
| 5 | PCB-Holder | PBT |
| 6 | Sensor Board | GE4F |
| 7 | Sensor | Si |
| 8 | Gasket | Viton |
| 9 | Gasket | Viton |
| 10 | Sensor | Si |
| 11 | Gasket | Viton |

Installation precautions

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

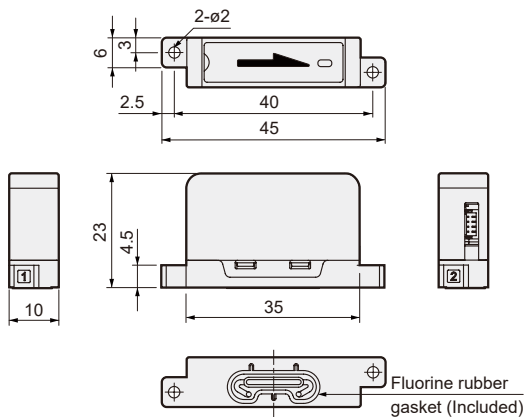
| Port thread | Tightening torque N.m |
|-------------|-----------------------|
| M2 | 0.2~0.3 |

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 MFPS-□-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.



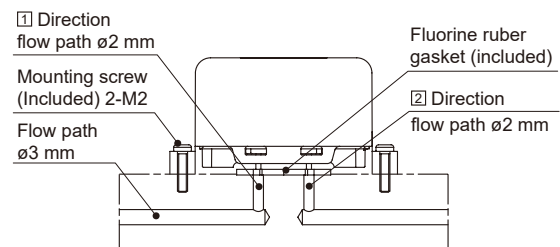
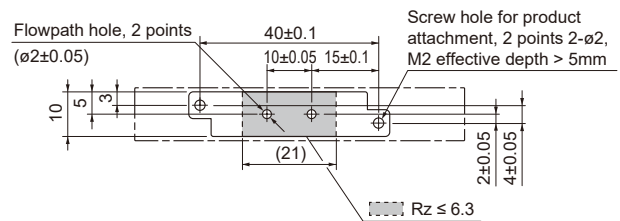
Dimensions

MFPS-* -01

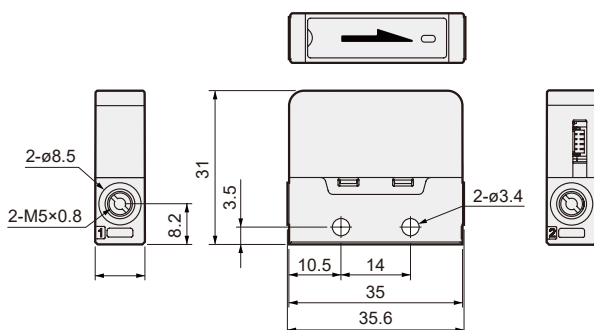


Installation

MFPS-* -01

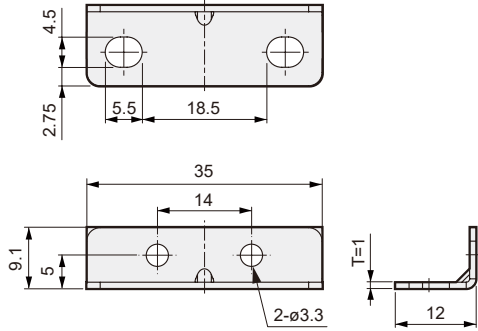


MFPS-* -01-M5

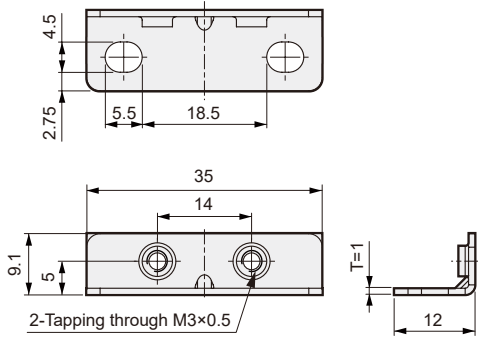


Mounting accessories

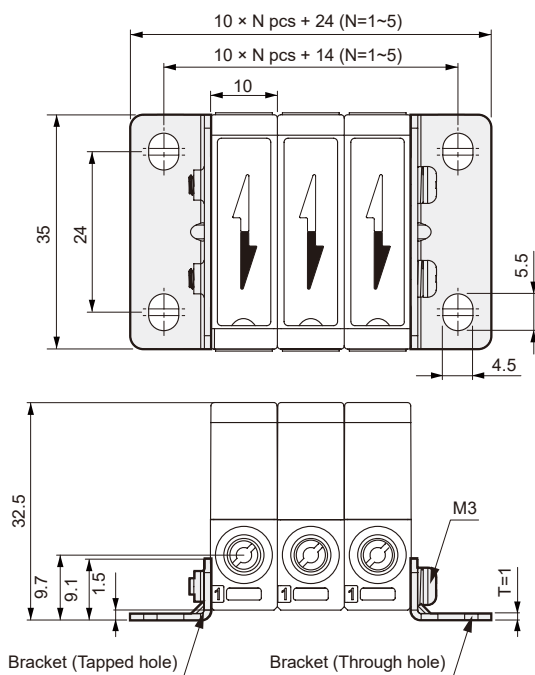
Bracket (Through hole) **MP-A29***



Bracket (Tapped hole)

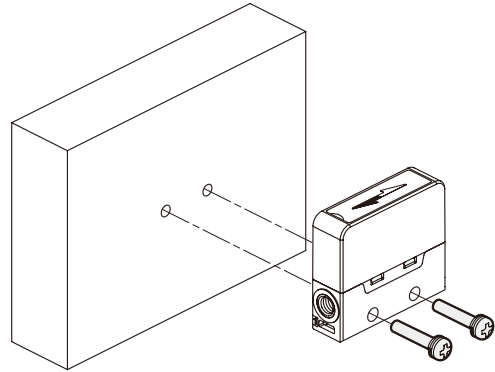


Installation dimension of bracket

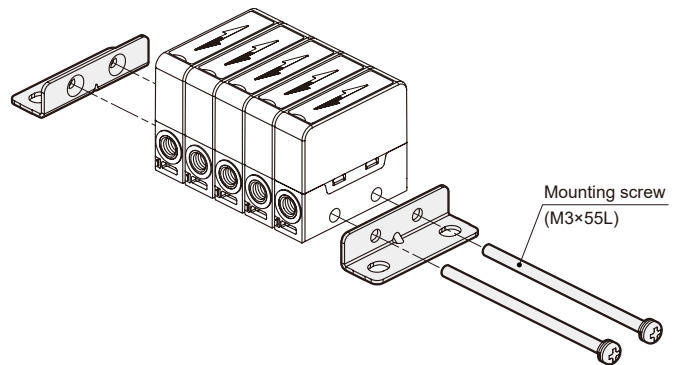
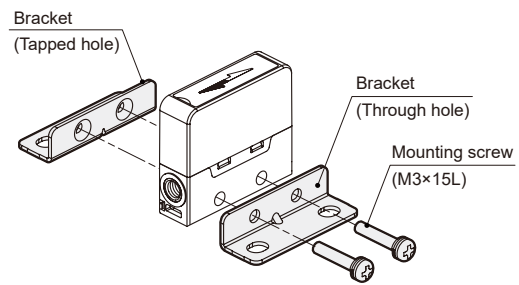
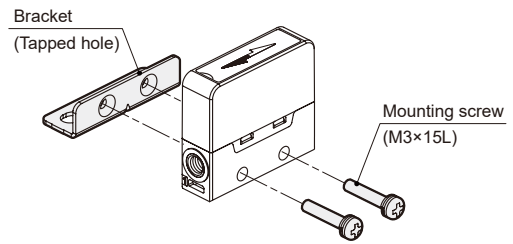


Mounting bracket

Horizontal mounting



Bracket mounting



| Port thread | Tightening torque N·m |
|-------------|-----------------------|
| M3 | 0.2 ~ 0.3 |