## D6F-P MEMS Flow Sensor

# A Compact, High-accuracy Flow Sensor with Superior Resistance to Environments.

- Anti-dust performance is improved using the Cyclon method.
- A full lineup of models with different connector types: bamboo joints, lead terminals for direct mounting on-board, and manifolds.
- High accuracy of ±5% FS.



Air Analog

#### **RoHS Compliant**



Refer to the Common Precautions for the D6F Series on page 40.

## **Ordering Information**

#### **MEMS Flow Sensor**

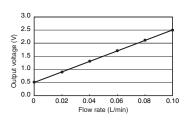
Flow Port Type	Connection	Applicable fluid	Flow rate range	Model
Bamboo joint	Lead terminals		0 to 0.1 L/min	D6F-P0001A1
		Air	0 to 1 L/min	D6F-P0010A1
	Connector			D6F-P0010A2
Manifold	Connector			D6F-P0010AM2

## Accessory (Sold separately)

Type	Model	
Cable	D6F-CABLE2	

## **Output Voltage Characteristics**

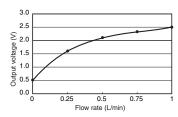
#### D6F-P0001A1



Flow rate L/min (normal)	0	0.02	0.04	0.06	0.08	0.10
Output voltage	0.50	0.90	1.30	1.70	2.10	2.50
V	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10

Measurement conditions: Power supply voltage of 5.0±0.1 VDC, ambient temperature of 25±5°C, and ambient humidity of 35% to 75%.

### D6F-P0010A1/-P0010A2/-P0010AM2



Flow rate L/min (normal)	0	0.25	0.50	0.75	1.00
Output voltage	0.50	1.60	2.10	2.31	2.50
V	±0.10	±0.10	±0.10	±0.10	±0.10

Measurement conditions: Power supply voltage of 5.0±0.1 VDC, ambient temperature of 25±5°C, and ambient humidity of 35% to 75%.

## **Characteristics/Performance**

Model	D6F-P0001A1	D6F-P0010A1	D6F-P0010A2	D6F-P0010AM2	
Flow Range (See note 1.)	0 to 0.1 L/min	0 to 1 L/min			
Calibration Gas (See note 2.)	Air				
Flow Port Type	Bamboo joint	Manifold			
now Fort Type	Maximum outside diameter: 4.	Marillolu			
Electrical Connection	Lead terminals Three-pin connector				
Power Supply	4.75 to 5.25 VDC				
Current Consumption	15 mA max. with no load and a Vcc of 5.0 V				
Output Voltage	0.5 to 2.5 VDC (Load resistance: 10 $k\Omega$ )				
Accuracy	±5% FS (25°C characteristic)	±5% FS (25°C characteristic)			
Repeatability (See note 3.)	±1.0% FS ±0.4% FS				
Output Voltage (Max.)	3.1 VDC (Load resistance: 10 kΩ)				
Output Voltage (Min.)	0 VDC (Load resistance: 10 kΩ)				
Rated Power Supply Voltage	10 VDC				
Rated Output Voltage	4 VDC				
Case	PBT				
Degree of Protection	IEC IP40 (Excluding tubing see	IEC IP40 (Excluding tubing sections.)			
Withstand Pressure (See note 3.)	50 kPa				
Pressure Drop (See note 3.)	0.005 kPa	0.19 kPa		0.67 kPa	
Operating Temperature (See note 4.)	-10 to +60°C				
Operating Humidity (See note 4.)	35% to 85%				
Storage Temperature (See note 4.)	-40 to +80°C				
Storage Humidity (See note 4.)	35% to 85%				
Temperature Characteristics	±5% FS for 25°C characteristic at an ambient temperature of -10 to +60°C				
Insulation Resistance	Between Sensor outer cover and lead terminals: 20 M $\Omega$ min. (at 500 VDC)				
Dielectric Strength	Between Sensor outer cover and lead terminals: 500 VAC, 50/60 Hz min. for 1 min (leakage current: 1 mA max.)				
Weight	8.5 g 8.0 g				

- Note: 1. Volumetric flow rate at 0°C, 101.3 kPa.

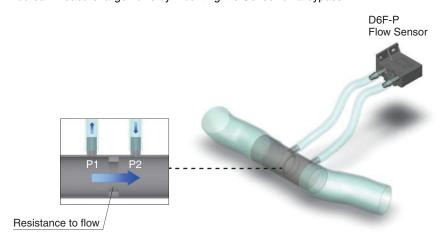
  Note: 2. Dry gas. (must not contain large particles, e.g., dust, oil, or mist.)

  Note: 3. Reference (typical)

  Note: 4. With no condensation or icing.

## **Tubing**

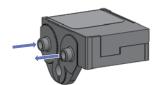
You can measure large flows by mounting the Sensor on a bypass.



**Mounting Direction PCB-mounting Sensor** 

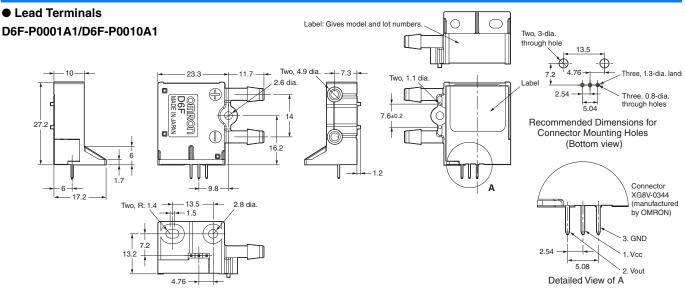
**Manifold-type Sensor** 

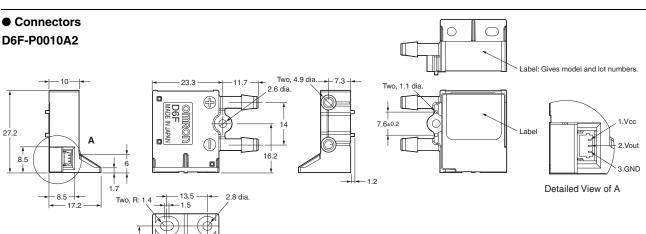




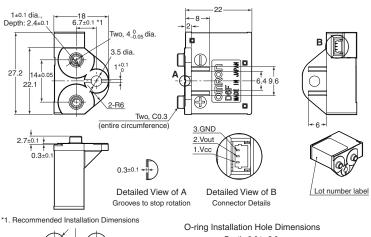
D6F-P MEMS Flow Sensor

## Connections/Dimensions (Unit: mm)





#### D6F-P0010AM2



13.2

O-ring Installation Hole Dimensions

Depth: 2.6 to 3.0

C0.4 (entire circumference)

The recommended Oring is JIS B 2401.

Pin No. 1: Vcc 2: Vout 3: GND

Connector SM03B-SRSS-TB (made by J.S.T. Mfg. Co.)

Note: Use one of the following connectors from JST Mfg. Co., Ltd. to connect to the D6F.

- Pressure welding connector Socket: 03SR-3S Wire: AWG#30
  Or
- 2) Crimp type connector Contact: SSH-003T-P0.2 Housing: SHR-03V-S Wire: AWG#32 to #28

#### Tubes

Install tubes made of materials such as rubber or urethane so that they will not come out.

For urethane tubes, tubes with an outer diameter of 6 mm and an inner diameter of 4 mm are recommended.

#### **Soldering Conditions**

Use a soldering iron for 5 s at  $350^{\circ}$ C with a pressure of 100 gf max.

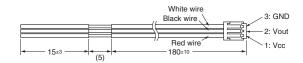
(This applies only to PCB-mounting Sensors.)

## ● Cable (Optional) D6F-CABLE2

14±0.05

Two, 7 <sup>+0.5</sup>

M3 threaded



nominal number P4