

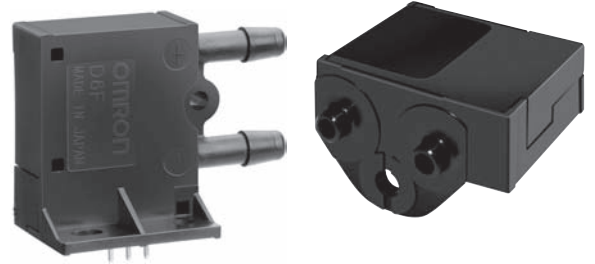
# D6F-P

MEMS Flow Sensor

▶ Air ▶ Analog

## 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  $\pm 5\%$  FS.



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	Air	0 to 0.1 L/min	<b>D6F-P0001A1</b>
			0 to 1 L/min	<b>D6F-P0010A1</b>
Connector	0 to 1 L/min		<b>D6F-P0010A2</b>	
			<b>D6F-P0010AM2</b>	
Manifold				

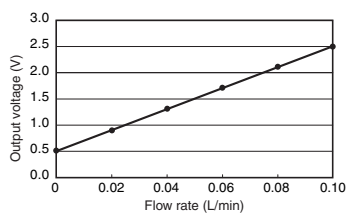
### Accessory (Sold separately)

Type	Model
Cable	<b>D6F-CABLE2</b>
	<b>D6F-CABLE2-L</b>

Note: Refer to *Accessories for the D6F Series* on page 39.

## Output Voltage Characteristics

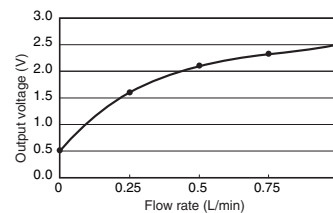
### D6F-P0001A1



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

Measurement conditions: Power supply voltage of  $5.0 \pm 0.1$  VDC, ambient temperature of  $25 \pm 5^\circ\text{C}$ , 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 V	0.50	1.60	2.10	2.31	2.50
	$\pm 0.10$	$\pm 0.10$	$\pm 0.10$	$\pm 0.10$	$\pm 0.10$

Measurement conditions: Power supply voltage of  $5.0 \pm 0.1$  VDC, ambient temperature of  $25 \pm 5^\circ\text{C}$ , 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 Maximum outside diameter: 4.9 mm, minimum outside diameter: 4.0 mm			Manifold
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 kΩ)			
Accuracy	±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 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 MΩ 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.

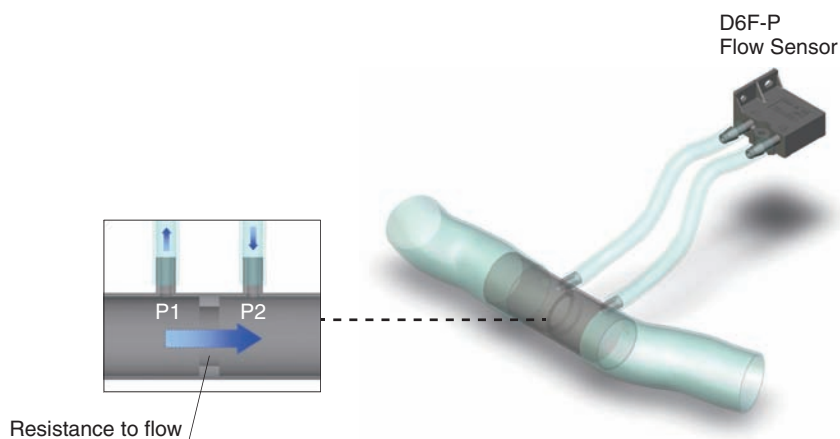
Note: 2. Dry gas. (must not contain large particles, e.g., dust, oil, or mist.)

Note: 3. Reference (typical)

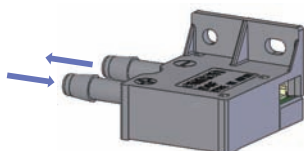
Note: 4. With no condensation or icing.

## Tubing

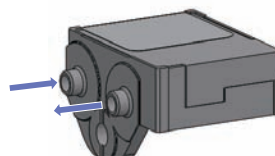
You can measure large flows by mounting the Sensor on a bypass.



### Mounting Direction Bamboo joint Sensor



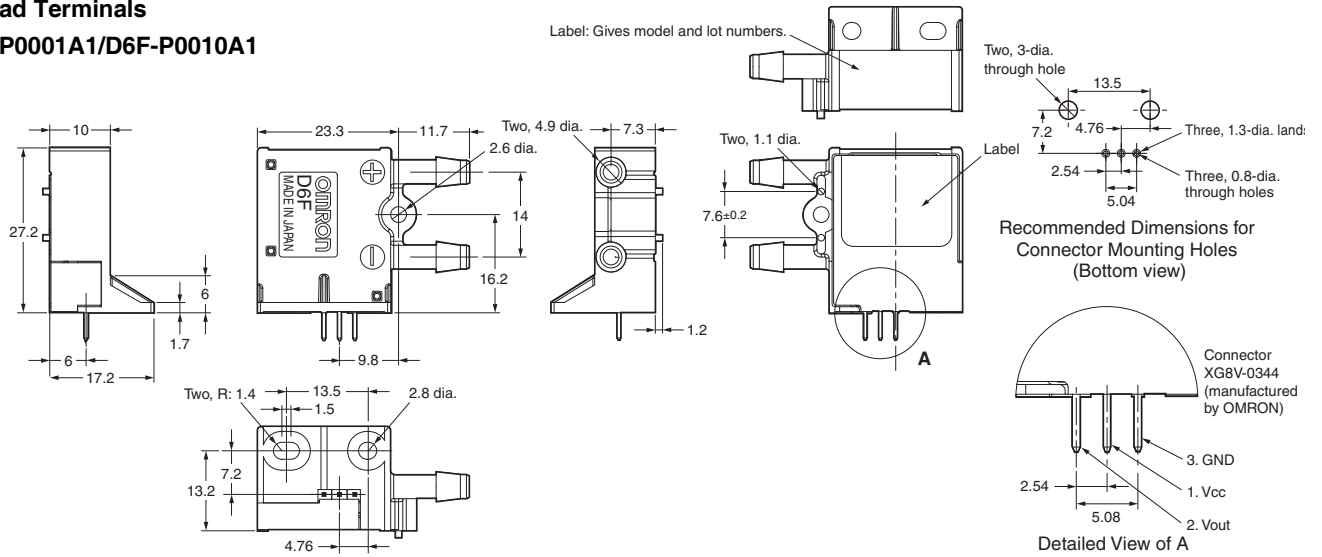
### Manifold-type Sensor



## Connections/Dimensions (Unit: mm)

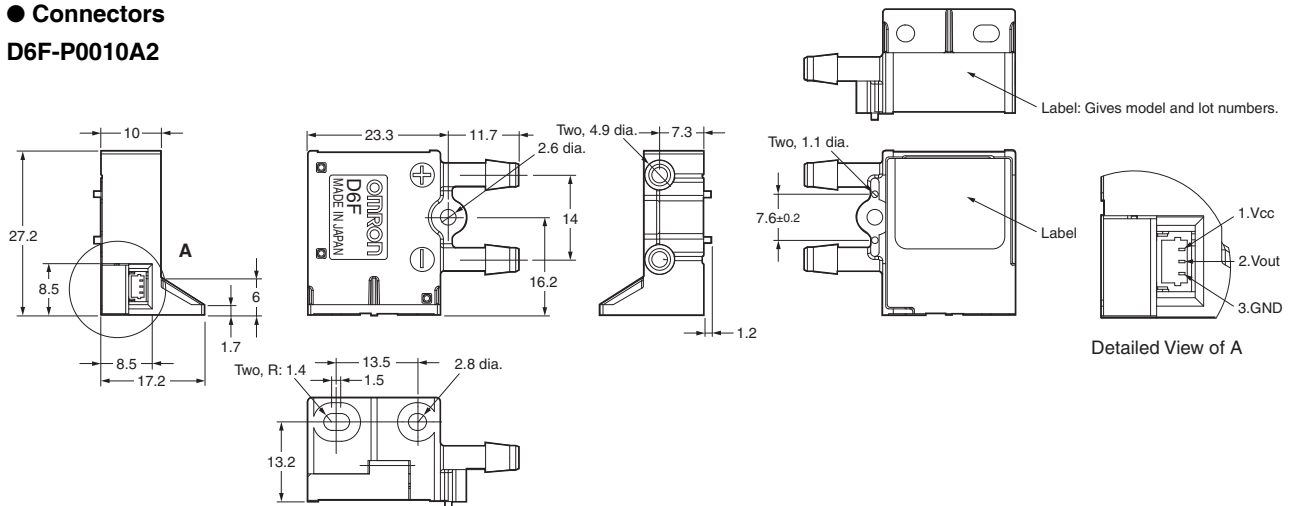
### ● Lead Terminals

#### D6F-P0001A1/D6F-P0010A1

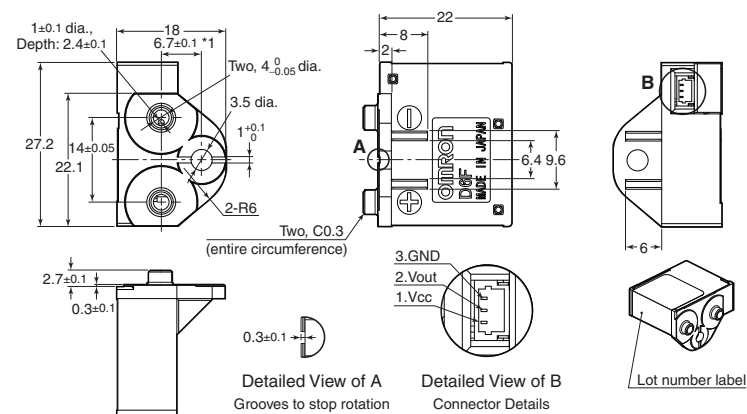


### ● Connectors

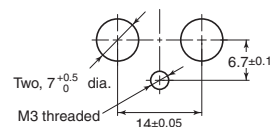
#### D6F-P0010A2



#### D6F-P0010AM2

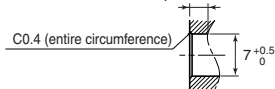


\*1. Recommended Installation Dimensions



O-ring Installation Hole Dimensions

Depth: 2.6 to 3.0



The recommended O-ring is JIS B 2401, nominal number P4.

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.

- 1) 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°C with a pressure of 100 gf max.

(This applies only to PCB-mounting Sensors.)