D6F-W

MEMS Flow Sensor

A Compact Sensor That Uses OMRON's Unique Flow Path Structure for High-performance Flow Rate Measurement.

Air Analog

- **Anti-dust performance enhanced by OMRON's unique three-dimensional flow path structure.**
- **High accuracy of ±5% FS.**

RoHS Compliant

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

Ordering Information

MEMS Flow Sensor

Applicable fluid	Flow rate range	Model
Air	0 to 1 m/s	**D6F-W01A1**
	0 to 4 m/s	**D6F-W04A1**
	0 to 10 m/s	**D6F-W10A1**

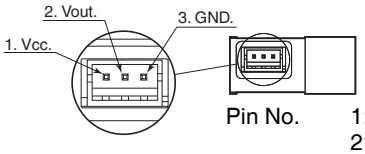
Accessory (Sold separately)

Type	Model
Cable	**D6F-W CABLE**
	D6F-W CABLE-L

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

Connections

D6F-W01A1
D6F-W04A1
D6F-W10A1



Enlarged View

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

Connector S3B-ZR-SM2-TF
(made by J.S.T. Mfg. Co.)

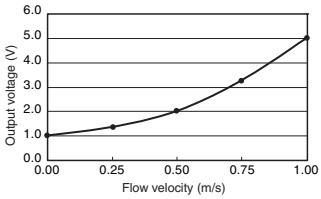
Use the following connectors from J.S.T. Mfg. Co. Ltd. to connect the D6F:

Housing: ZHR-3

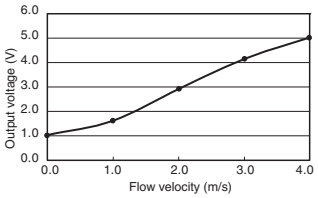
Contacts: SZH-002T-P0.5
Wires: AWG28 to AWG26
Or
Contacts: SZH-003T-P0.5
Wires: AWG32 to AWG28

Output Voltage Characteristics

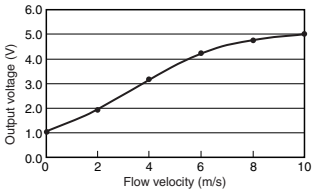
D6F-W01A1



D6F-W04A1



D6F-W10A1



D6F-W01A1

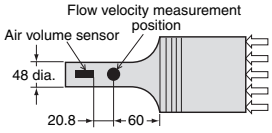
Flow velocity m/s	0	0.25	0.50	0.75	1.00
Output voltage V	1.00±0.2	1.35±0.2	2.01±0.2	3.27±0.2	5.00±0.2

D6F-W04A1

Flow velocity m/s	0	1.0	2.0	3.0	4.0
Output voltage V	1.00±0.2	1.58±0.2	2.88±0.2	4.11±0.2	5.00±0.2

The flow velocity is the value calculated from the mass flow rate in OMRON's specified 48-mm-dia. wind tunnel. It does not indicate the flow velocity determined by the Measurement Law of Japan. The wind tunnel conditions are shown in *Figure 1*, below.

Figure 1: Wind Tunnel



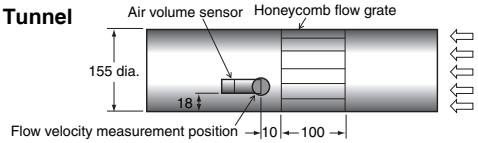
Measurement conditions: Power supply voltage of 12 VDC, ambient temperature of 25°C, and ambient humidity of 35% to 75%.

D6F-W10A1

Flow velocity m/s	0	2.0	4.0	6.0	8.0	10.0
Output voltage V	1.00±0.24	1.94±0.24	3.23±0.24	4.25±0.24	4.73±0.24	5.00±0.24

The flow velocity is the value calculated from the mass flow rate in OMRON's specified 155-mm-dia. wind tunnel. It does not indicate the flow velocity determined by the Measurement Law of Japan. The wind tunnel conditions are shown in *Figure 2*, below.

Figure 2: Wind Tunnel



Measurement conditions: Power supply voltage of 12 VDC and ambient temperature of 25°C

Characteristics/Performance

Model	D6F-W01A1	D6F-W04A1	D6F-W10A1
Flow Range (See note 1.)	0 to 1 m/s	0 to 4 m/s	0 to 10 m/s
Calibration Gas (See note 2.)	Air		
Electrical Connection	Three-pin connector		
Power Supply	10.8 to 26.4 VDC		
Current Consumption	15 mA max. with no load, with a Vcc of 12 to 24 VDC, and at 25°C		
Output Voltage	1 to 5 VDC (non-linear output, load resistance of 10 kΩ)		
Accuracy	±5% FS (25°C characteristic)		±6% FS (25°C characteristic)
Repeatability (See note 3.)	±0.4% FS		
Output Voltage (Max.)	5.7 VDC (Load resistance: 10 kΩ)		
Output Voltage (Min.)	0 VDC (Load resistance: 10 kΩ)		
Rated Power Supply Voltage	26.4 VDC		
Rated Output Voltage	6 VDC		
Case	PPS		
Degree of Protection	IEC IP40 (except for flow inlet and outlet)		
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	6.3 g		

Note: 1. Volumetric flow rate at 25°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.

Dimensions (Unit: mm)

● **MEMS Flow Sensors**

D6F-W01A1
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