D6F-W

MEMS Flow Sensor

A Compact Sensor That Uses OMRON's Unique Flow Path Structure for High-Performance Flow Velocity* Measurement.

Air Analog



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

* The flow velocity is the value calculated from the mass flow rate in OMRON's specified wind tunnel. It does not indicate the flow velocity determined by the Measurement Law of JAPAN.

RoHS Compliant

Refer to the *Common Precautions for the D6F Series* on page 39.

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**

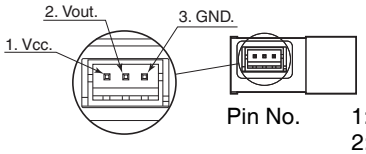
Accessory (Sold separately)

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

Note: Refer to *Accessories for the D6F Series* on page 38.

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.)

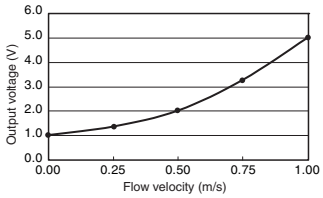
Use the following connectors from J.S.T. Mfg. Co. Ltd. to connect the D6F:

Housing: ZHR-3

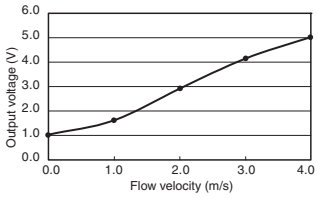
Contacts: SZH-002T-P0.5
Wires: AWG28 to AWG26
Or
Contacts: SZH-003T-P0.5
Wires: AWG32 to AWG28

Output Voltage Characteristics

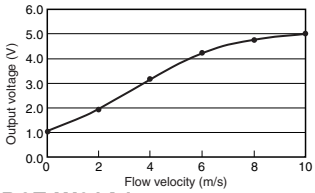
D6F-W01A1



D6F-W04A1



D6F-W10A1



D6F-W01A1

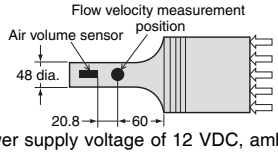
Flow velocity m/s	0	0.25	0.50	0.75	1.00
Output voltage V	1.00±0.2	1.35±0.2	2.01±0.2	3.27±0.2	5.00±0.2

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



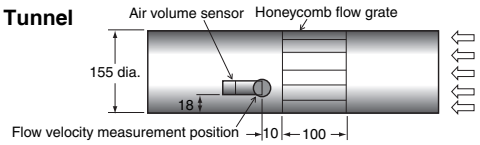
Measurement conditions: Power supply voltage of 12 VDC, ambient temperature of 25°C, and ambient humidity of 35% to 75%.

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

CAD Data **Please visit our CAD Data website, which is noted on the last page.** (Unit: mm)

● MEMS Flow Sensors

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CAD Data

