MEMS Flow Sensor

D6F-01A1, -02A1

High Accuracy Mass Flow Sensing

- Small size
- Fast response
- Applicable to air, non-corrosive gas
- Applications include: medical respiratory equipment, analysis apparatus, pick and place systems, spectroscopy, leak detection, environmental comfort controls and mass flow controllers.
- RoHS Compliant

Ordering Information

Case	Gas	Flow range**	Notes	Model
PPS	Air*	0-1L/min	Integral orifice	**D6F-01A1-110**
		0-2L/min		**D6F-02A1-110**

* Contact Omron for other gases.

**Mass flow converted to volumetric flow (standard liters per minute) at 0°C and 1 atm.

Ratings

■ Absolute Maximum Rating

Item	Symbol	Rating	Unit
Power supply	V_{CC}	26.4	VDC
Output voltage	V_{OUT}	6	VDC

■ Electrical Performance

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply	V_{CC}	—	10.8	—	26.4	VDC
Operating temperature	T_{OPR}	No condensation or icing	-10	—	60	°C
Output voltage (max.)	V_{OH}	V_{CC} = 12 to 24 VDC I_{OH} = 5 mA	5	—	5.7	VDC
Output voltage (min.)	V_{OL}	V_{CC} = 12 to 24 VDC I_{OH} = 5mA	0	—	1	VDC

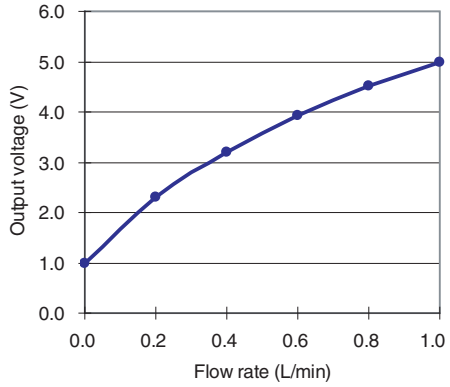
Characteristics

Model	D6F-01A1-110	D6F-02A1-110
Flow rate @ 0°C and 101.3 kPa	0-1L/min	0-2L/min
Joint type	Press-fit type (External diameter: 7.4 mm to 8.6 mm. Passage diameter: 4 mm)	
Case material	PPS	
Applicable gas	Air*	
Withstand pressure (max.)	200kPa (about 30 psi)	
Accuracy	±3% F.S. max	
Operating temperature	-10 to 60°C (with no icing or condensation)	
Storage temperature	-40 to 80°C (with no icing or condensation)	
Operating and Storage humidity	85% RH max. (with no icing or condensation)	
Output signal	1 to 5 VDC, Analog Output	
Current consumption	15 mA max. (No-Load with V_{CC} = 12 to 24 VDC, V_{SS} = 0V and 25°C)	
Insulation resistance	20MΩ min. at 500 VDC, between lead terminal and case	
Dielectric strength	500 VAC, 50/60 Hz, for 1 minute (Leakage current typ <1 mA.), between the lead terminals and the base	
Orifice	Integral	
Response Time (reference)	150 mS, typical	

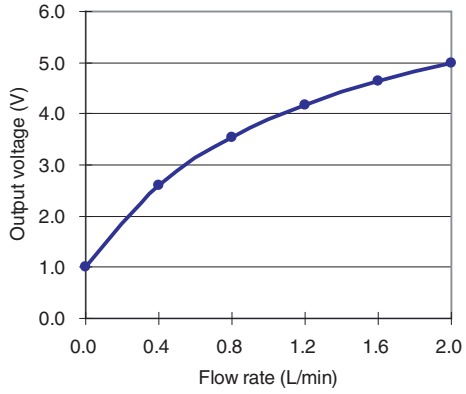
* Contact Omron for other gases.

Operating Characteristics

D6F-01A1-110



D6F-02A1-110



D6F-01A1-110

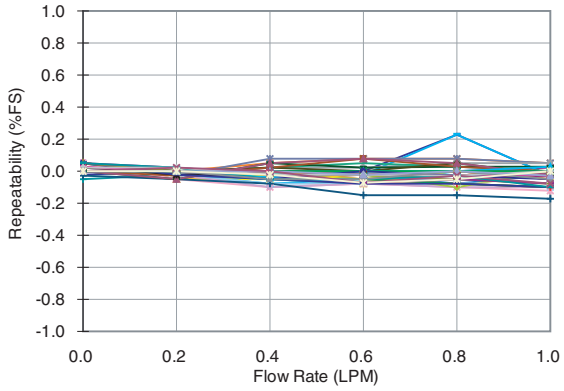
Flow Rate (LPM)	0	0.2	0.4	0.6	0.8	1.0
Output Voltage (VDC)	1.00 ± 0.12	2.31 ± 0.12	3.21 ± 0.12	3.93 ± 0.12	4.51 ± 0.12	5.00 ± 0.12

D6F-02A1-110

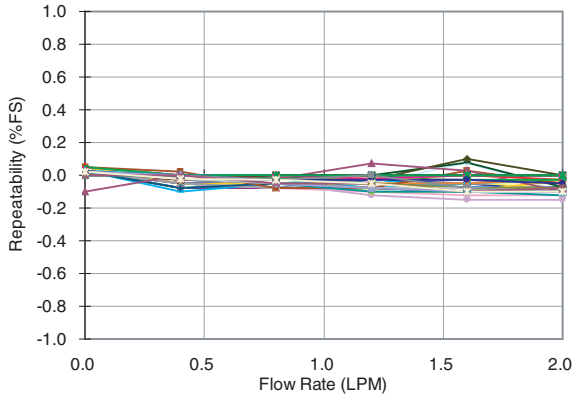
Flow Rate (LPM)	0	0.4	0.8	1.2	1.6	2.0
Output Voltage (VDC)	1.00 ± 0.12	2.59 ± 0.12	3.53 ± 0.12	4.18 ± 0.12	4.65 ± 0.12	5.00 ± 0.12

Test Results (typical performance)

D6F-01A1 Repeatability
(5 samples, repeated 10 times each)



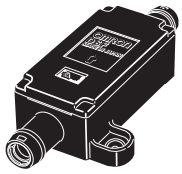
D6F-02A1 Repeatability
(5 samples, repeated 10 times each)

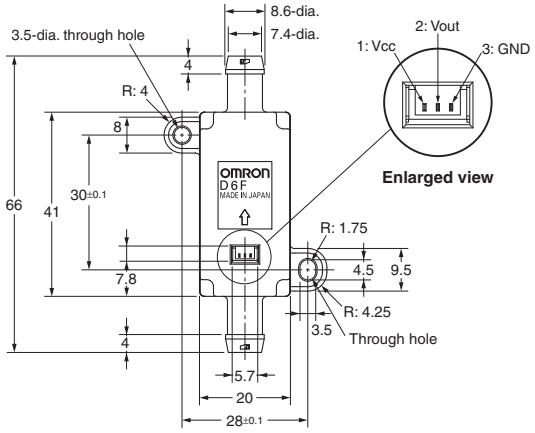


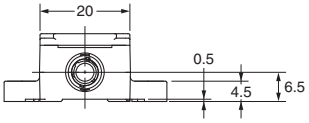
Dimensions

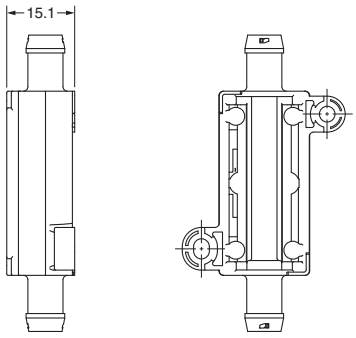
Unit: mm

D6F-01A1-110
D6F-02A1-110

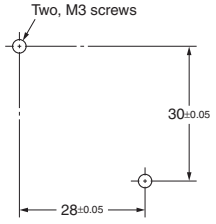








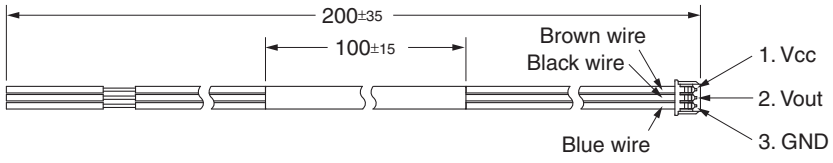
Mounting Hole Dimensions



Note: 1. Mount using an M3 pan head screw, tightened to 0.59 N•m max. torque.

2. Install tubes made of materials such as rubber or urethane so that they will not disconnect. For urethane tubes, tubes with an outer diameter of 12 mm and an inner diameter of 8 mm are recommended.

Applicable Cable for D6F (included)
part number: D6F-CABLE1 (for replacement cables)



Housing: Molex - 51021
Terminal: Molex - 50079
Wire: 26-28 AWG

Note: Be sure to read the precautions and information common to all D6F sensors, contained in the Technical User's Guide, "D6F Technical Information" for correct use.

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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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