

## 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.)	$V_{OH}$	$V_{CC} = 12 \text{ to } 24 \text{ VDC } I_{OH} = 5 \text{ mA}$	5	—	5.7	VDC
Output voltage (min.)	$V_{OL}$	$V_{CC} = 12 \text{ to } 24 \text{ VDC } I_{OH} = 5 \text{ mA}$	0	—	1	VDC

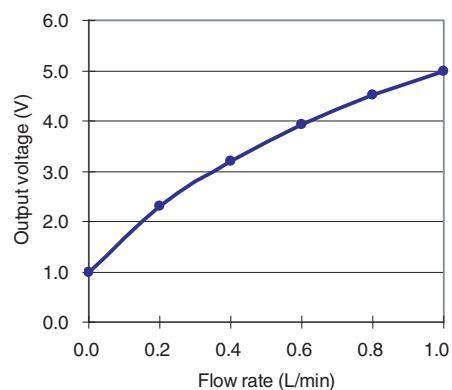
# Characteristics

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

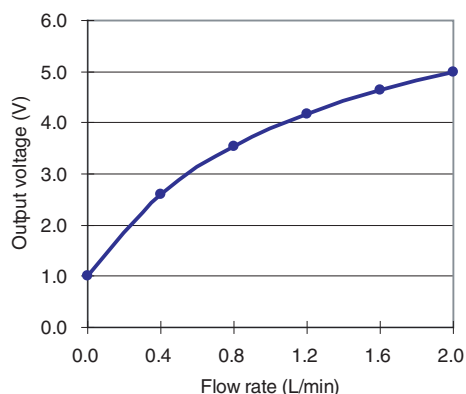
\* Contact Omron for other gases.

# Operating Characteristics

**D6F-01A1-110**



**D6F-02A1-110**



**D6F-01A1-110**

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

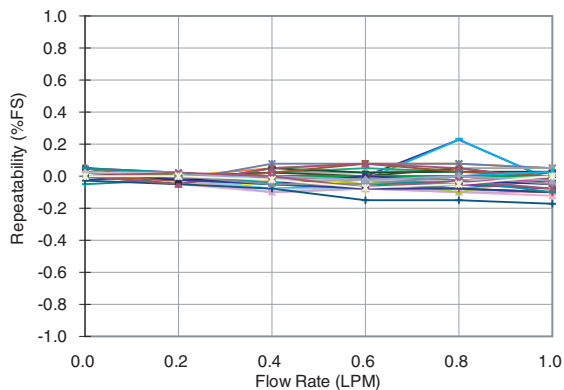
**D6F-02A1-110**

<b>Flow Rate (LPM)</b>	0	0.4	0.8	1.2	1.6	2.0
<b>Output Voltage (VDC)</b>	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)

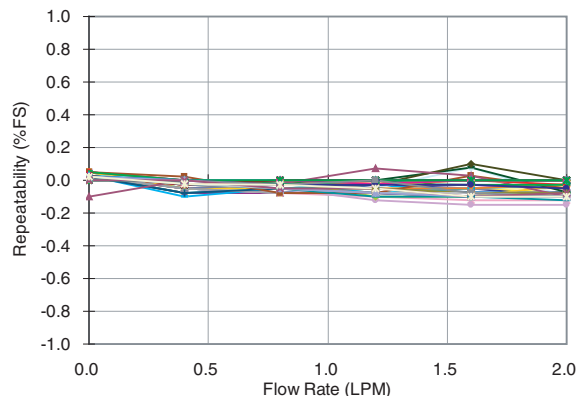
## D6F-01A1 Repeatability

(5 samples, repeated 10 times each)



## D6F-02A1 Repeatability

(5 samples, repeated 10 times each)

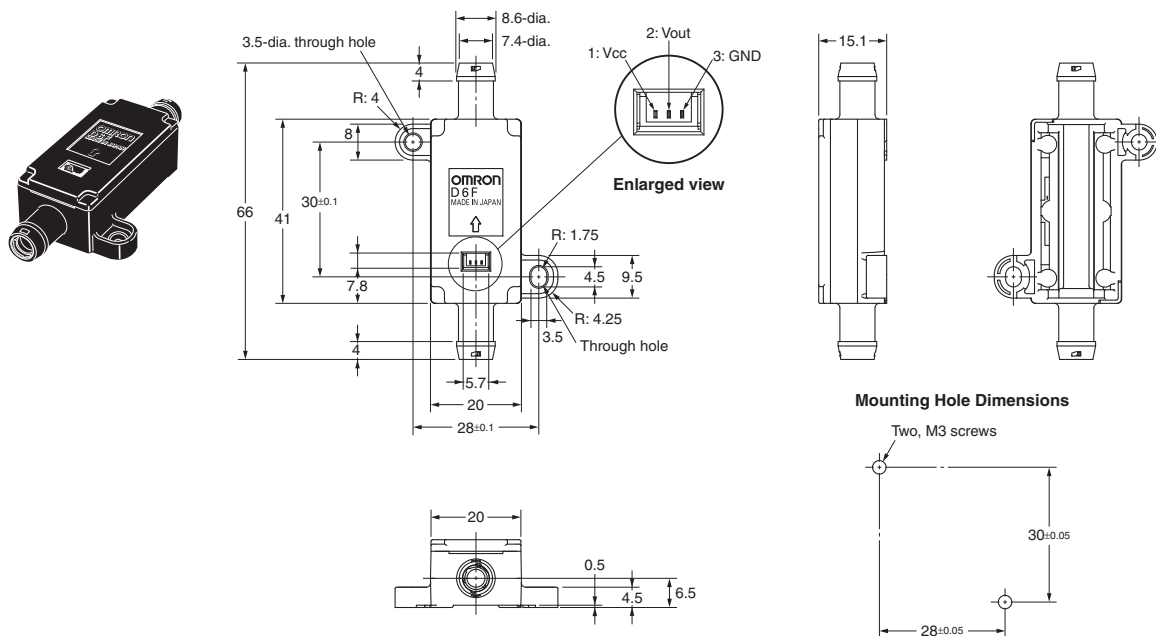


# Dimensions

Unit: mm

D6F-01A1-110

D6F-02A1-110

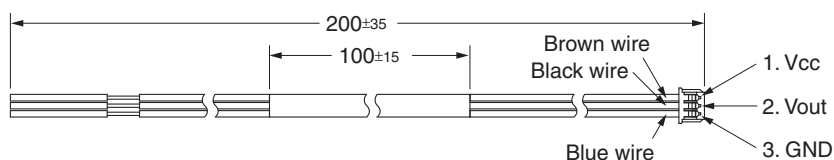


**Note:** 1. Mount using an M3 pan head screw, tightened to 0.59 N•m max. torque.

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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Specifications subject to change without notice

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