

MEMS Airflow Sensor

D6F-10A, -20A, -50A

Compact, intelligent sensor featuring MEMS technology for precision mass airflow measurement

- Precision mass airflow up to 50 LPM
- Stable output across full scale
- Manifold mounting feature with NBR 'O' ring option
- Compact size 78 (L) x 30 (W) x 30 (H) mm
- Low power consumption
- RoHS Compliant



Ordering Information

Description	Case	Applicable Gas	Flow Range**	Connection Type	Model
Mass Flow Sensor	Thermoplastic resin / Aluminum alloy	Air*	0 – 10 LPM	Right-angle manifold mount connection	D6F-10A5-000
			0 – 20 LPM		D6F-20A5-000
			0 – 50 LPM		D6F-50A5-000
			0 – 10 LPM	Straight RC1/4 (1/4" BSPT) threaded pipe*	D6F-10A6-000
			0 – 20 LPM		D6F-20A6-000
			0 – 50 LPM		D6F-50A6-000
Cable Connector Assembly	---	---	---	---	D6F-CABLE1

Note: Cable Assembly is sold separately.

* Contact Omron for other gases or thread types.

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

Application Examples

- Industrial processes
- Medical Respirators and Ventilators
- MiG and TiG welding systems
- Anesthesia Delivery
- Mass flow controllers
- Scientific / test equipment
- Fuel cell controls

Rating

Absolute maximum rating

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

Electrical Performance

Item	Term	Condition	MIN	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 24VDC $I_{OH} = 0.5$ mA	5	5.7	VDC
Output voltage (min.)	V_{OL}	$V_{CC} = 12$ to 24VDC $I_{OL} = -0.5$ mA	0	1	VDC

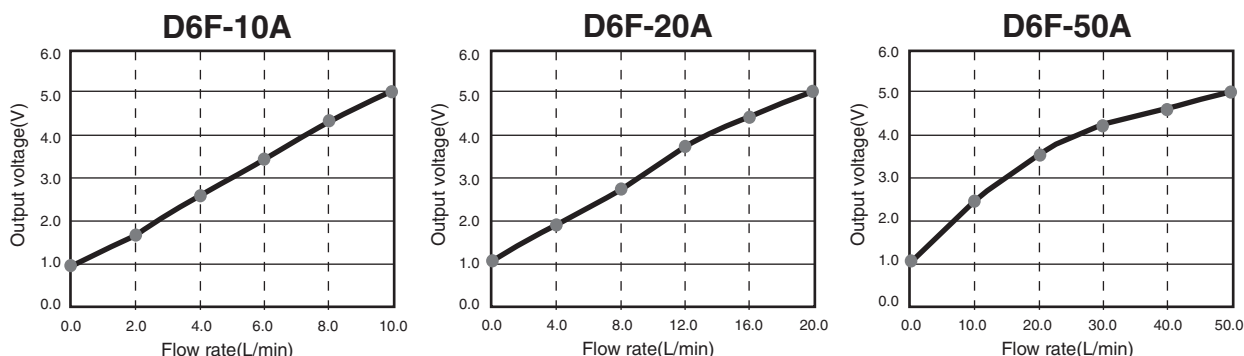
Characteristics

Model	D6F-10A□-000	D6F-20A□-000	D6F-50A□-000
Flow rate @ 0°C and 101.3 kPa	0-10 L/min	0-20 L/min	0-50 L/min
Joint type*	Manifold mount with 'O' Ring (A5 type) or Rc 1/4 (1/4" BSPT threaded)(A6 type)**		
Case material	Thermoplastic resin		
Applicable Gas**	Air		
Electrical Connection	Connector (3 wire)		
Withstand Pressure (max.)	500 kPa (about 72.5 psi)		
Accuracy	±3% F.S. max, 25°C		
Operating Temperature	-10 to +60°C (with no icing or condensation)		
Storage Temperature	-30 to +80°C (with no icing or condensation)		
Operating Humidity	85%RH max. (with no icing or condensation)		
Output Signal	1 to 5 VDC, Analog Output (non-linear output)		
Current Consumption	15 mA max. (No-Load with $V_{CC} = 12$ to 24 VDC, $V_{SS} = 0V$ and 25°C)		
Insulation Resistance	20M Ω 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		
Response Time (reference)	150 mS, typical		

* Contact Omron for other thread types (A6)

** Contact Omron for other gases.

Operating Characteristics



D6F-10A

Flow Rate L/min (normal)	0	2	4	6	8	10
Output Voltage (VDC)	1.00 ±0.12	1.75 ±0.12	2.60 ±0.12	3.45 ±0.12	4.25 ±0.12	5.00 ±0.12

D6F-20A

Flow Rate L/min (normal)	0	4	8	12	16	20
Output Voltage (VDC)	1.00 ±0.12	1.93 ±0.12	2.87 ±0.12	3.70 ±0.12	4.41 ±0.12	5.00 ±0.12

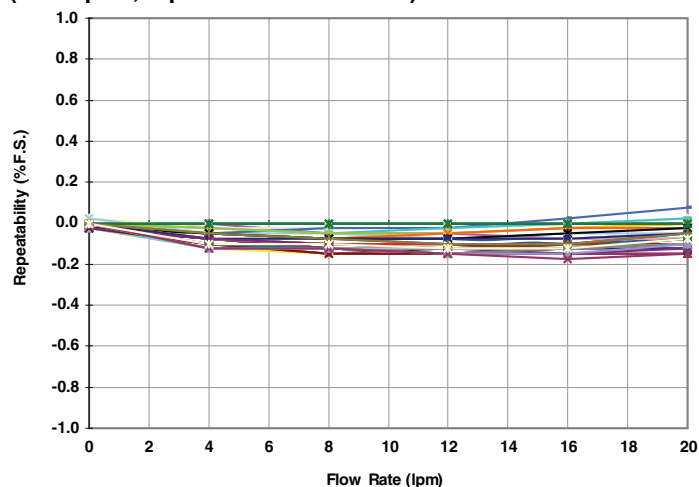
D6F-50A

Flow Rate L/min (normal)	0	10	20	30	40	50
Output Voltage (VDC)	1.00 ±0.12	2.45 ±0.12	3.51 ±0.12	4.20 ±0.12	4.66 ±0.12	5.00 ±0.12

Test Results (typical performance)

D6F-20A□

(5 samples, repeated 10 times each)



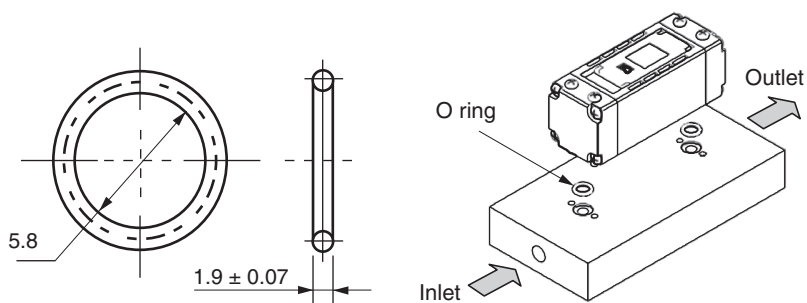
Installation: D6F-□A5-000

Recommendation for right-angle, manifold mount connection;

Use M3 panhead screws for mounting, and tighten them to a maximum torque of 0.59 N•m. Please seal INLET and OUTLET with 'O' rings. Please install the product as shown below. Incorrect mounting may cause product failure and make it impossible to obtain correct measurements.

Recommended 'O' ring for sealing inlet and outlet orifice;

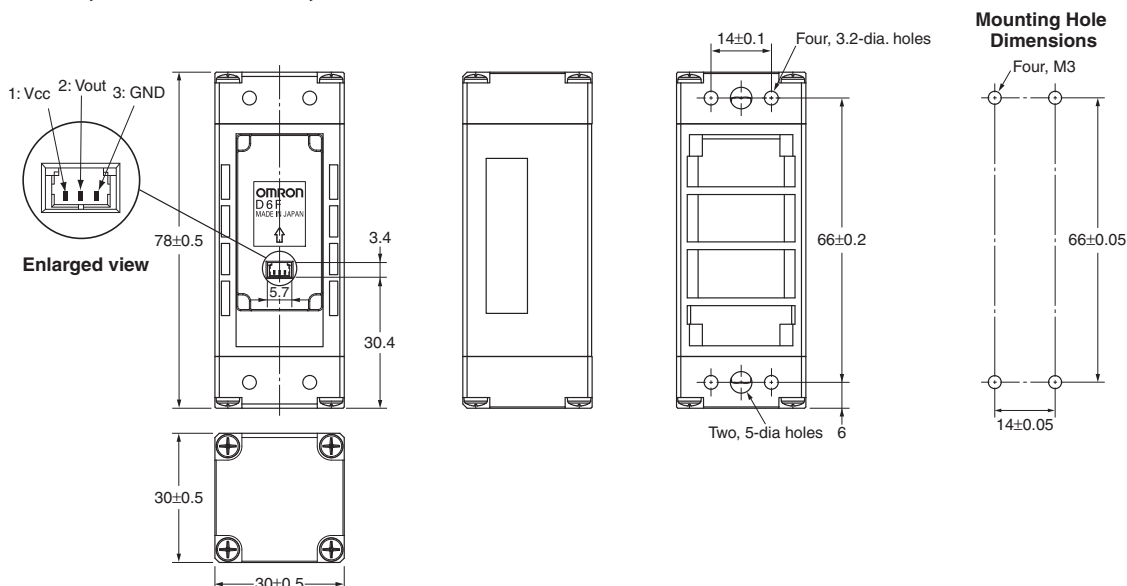
- Material: NBR70 (recommended for all applications including medical and food processing.)
- Example part number: JASO part number: CO 0003
- Alternative manufacturers with similar DO and W dimensions may be used



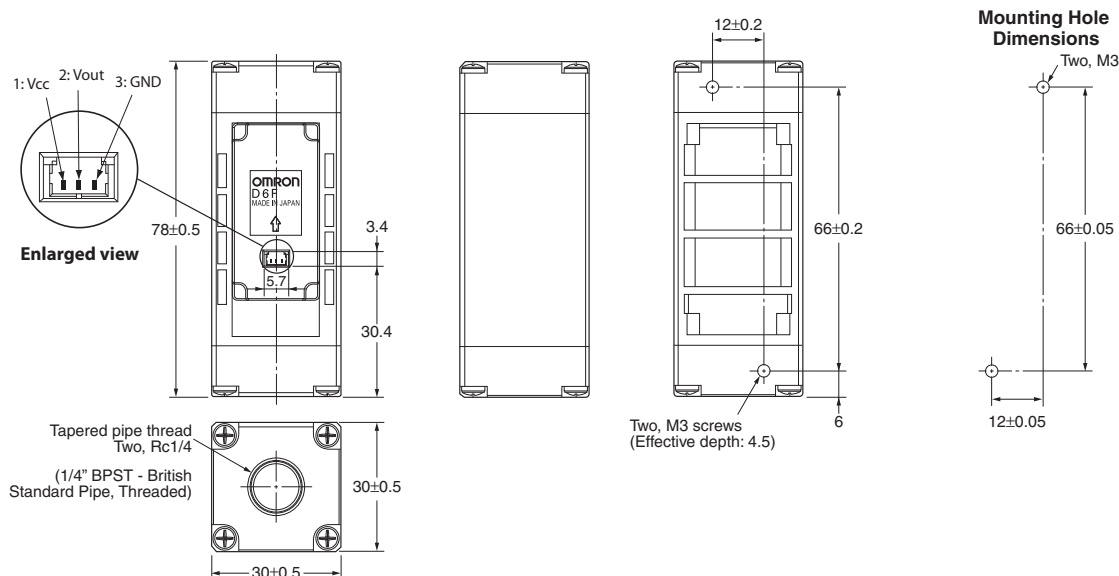
Dimensions

Unit: mm

D6F-10A5-000, D6F-20A5-000, D6F-50A5-000

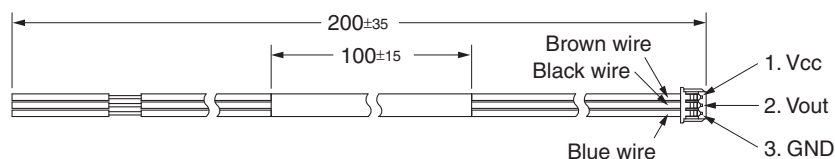


D6F-10A6-000, D6F-20A6-000, and D6F-50A6-000



Applicable Cable for D6F-□A□-000 (Optional - sold separately)

part number: D6F-CABLE1



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.

The image displays a 1000x1000 grid of small squares. Each square contains a unique combination of symbols from the set: a vertical line, a horizontal line, a top-left corner, a top-right corner, a bottom-left corner, a bottom-right corner, and a cross. The symbols are arranged in a way that each square is a unique combination of these symbols, creating a complex, non-repeating pattern across the entire grid.

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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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