# D6F-A7/-L7/-N7

## MEMS Flow Sensor

## Reduction of Piping time by quick joint connection

Air Gas Analog

- **Low -flow rate of natural gas and LP gas can be measured.**
- **10 L/min and 30 L/min of Air can be measured.**
- **Compact size of 30 × 84.6 × 30 mm (H × W × D).**

**RoHS Compliant**

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

## Ordering Information

### MEMS Flow Sensor

| Flow Port Type | Applicable fluid | Flow rate range | Model |
|---|---|---|---|
| Quick joint P10 | Natural gas (13A) | 0 to 5 L/min | **D6F-05N7-000** |
| | LP gas | 0 to 2 L/min | **D6F-02L7-000** |
| | Air | 0 to 10 L/min | **D6F-10A7-000** |
| | | 0 to 30 L/min | **D6F-30A7-000** |

### Accessories (Sold separately)

| Type | Model |
|---|---|
| Cable | **D6F-CABLE1** |
| Quick fastener (for P10) | **D6F-FASTENER-P10** |
| Pipe fittings (for P10) | **D6F-PLG1** |

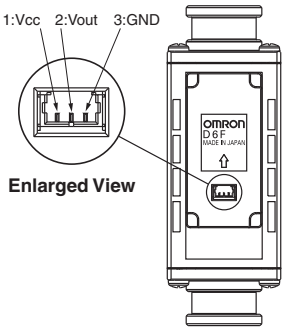
Note: Refer to *Accessories for the D6F Series* on page 39.

## Connections

**D6F-05N7-000 D6F-02L7-000**
**D6F-10A7-000 D6F-30A7-000**

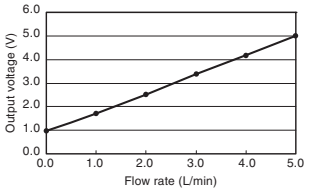
Pin No. 1: Vcc
2: Vout
3: GND
Connector 53398-03** (Made by Molex Japan)

Use the following connectors for connections to the D6F:
Housing 51021-0300 (Made by Molex Japan)
Terminals 50079 (Made by Molex Japan)
Wires AWG28 to AWG26

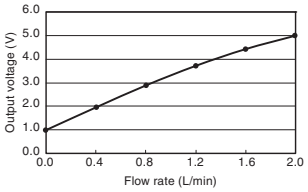



## Output Voltage Characteristics

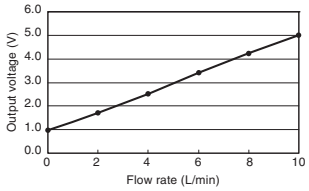
**D6F-05N7-000**



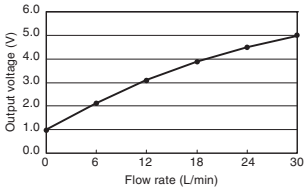

**D6F-02L7-000**




**D6F-10A7-000**




**D6F-30A7-000**




**D6F-05N7-000**

| Flow rate L/min (normal) | 0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 |
|---|---|---|---|---|---|---|
| Output voltage V | 1.00 ±0.12 | 1.68 ±0.12 | 2.47 ±0.12 | 3.31 ±0.12 | 4.15 ±0.12 | 5.00 ±0.12 |

**D6F-02L7-000**

| Flow rate L/min (normal) | 0 | 0.4 | 0.8 | 1.2 | 1.6 | 2.0 |
|---|---|---|---|---|---|---|
| Output voltage V | 1.00 ±0.12 | 1.96 ±0.12 | 2.89 ±0.12 | 3.72 ±0.12 | 4.43 ±0.12 | 5.00 ±0.12 |

**D6F-10A7-000**

| Flow rate L/min (normal) | 0 | 2.0 | 4.0 | 6.0 | 8.0 | 10.0 |
|---|---|---|---|---|---|---|
| Output voltage V | 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-30A7-000**

| Flow rate L/min (normal) | 0 | 6 | 12 | 18 | 24 | 30 |
|---|---|---|---|---|---|---|
| Output voltage V | 1.00 ±0.12 | 2.11 ±0.12 | 3.12 ±0.12 | 3.91 ±0.12 | 4.53 ±0.12 | 5.00 ±0.12 |

Measurement conditions: Power-supply voltage 12±0.1 VDC, ambient temperature 25±5°C and ambient humidity 35 to 75%RH.

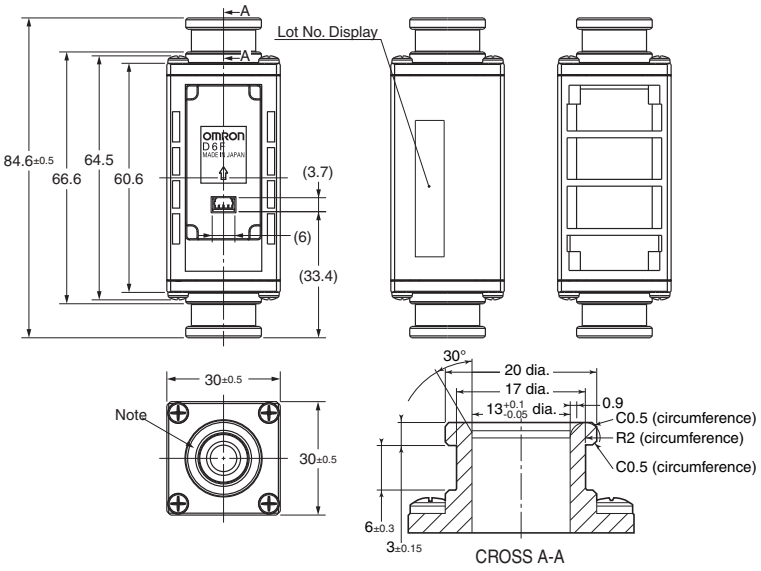
## Characteristics/Performance

| Model | D6F-05N7-000 | D6F-02L7-000 | D6F-10A7-000 | D6F-30A7-000 |
|---|---|---|---|---|
| Flow Range (See note 1.) | 0 to 5 L/min | 0 to 2 L/min | 0 to 10 L/min | 0 to 30 L/min |
| Calibration Gas (See note 2.) | Natural gas (13A) | LP gas | Air | |
| Flow Port Type | Quick joint P10 | | | |
| Electrical Connection | Three-pin connector | | | |
| Power Supply | 10.8 to 26.4 VDC | | | |
| Current Consumption | 15 mA max. with no load and Vcc of 12 to 24 VDC, GND = 0 VDC, 25°C | | | |
| Output Voltage | 1 to 5 VDC (non-linear output, load resistance of 10 kΩ min.) | | | |
| Accuracy | ±3%F.S. (25°C characteristic) | | | |
| Repeatability (See note 3.) | ±0.3%F.S. | | | |
| 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 (Excluding tubing sections.) | | | |
| Withstand Pressure | 500 kPa | | | |
| Pressure Drop (See note 3.) | 0.06 kPa | 0.03 kPa | 0.32 kPa | 2.19 kPa |
| Operating Temperature (See note 4.) | –10 to +60°C | | | |
| Operating Humidity (See note 4.) | 35 to 85%RH | | | |
| Storage Temperature (See note 4.) | –10 to +80°C | | –30 to +80°C | |
| Storage Humidity (See note 4.) | 35 to 85%RH | | | |
| Temperature Characteristics | ±3%F.S. 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 | 72 g | | | |

Note: 1. Volumetric flow rate at 0°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.

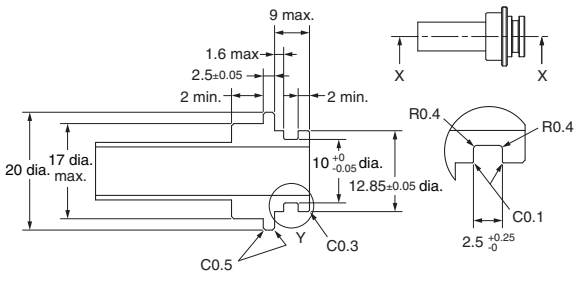
## Dimensions (Unit: mm)

● **MEMS Flow Sensors**
**D6F-05N7-000**
**D6F-02L7-000**
**D6F-10A7-000**
**D6F-30A7-000**




Note. The Port type of pipe fitting based on "Quick Joint P10 Type".
* P10 shows the name of an O-ring prescribed by JIS B 2401.
* The port of O-ring ditch is based on P10 of JIS B 2406.
* Please obtain a male joint separately.

### Recommended Quick joint male P10 type




If using a Rc3/8 converter joint, the following is recommended.
REGAL JOINT CO., LTD http://www.rgl.co.jp/
Converter male joint (Rc3/8-Quick male joint): Adapter Rc3/8-QJM10
O ring: O ring P10 fluororubber (material)