

# D6F-N2/-L2

MEMS Flow Sensor

## A Compact, High-accuracy Sensor That Measures Low Flow Rates.

- High accuracy of  $\pm 3\%$  FS.
- Flow rates can be measured without being affected by temperature or pressure.

Gas Analog



RoHS Compliant



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

## Ordering Information

### MEMS Flow Sensor

| Applicable fluid  | Flow rate range | Model        |
|-------------------|-----------------|--------------|
| Natural gas (13A) | 0 to 1 L/min    | D6F-01N2-000 |
|                   | 0 to 2 L/min    | D6F-02N2-000 |
|                   | 0 to 5 L/min    | D6F-05N2-000 |
| LP gas            | 0 to 2 L/min    | D6F-02L2-000 |

### Accessory (included)

| Type  | Model      |
|-------|------------|
| Cable | D6F-CABLE1 |

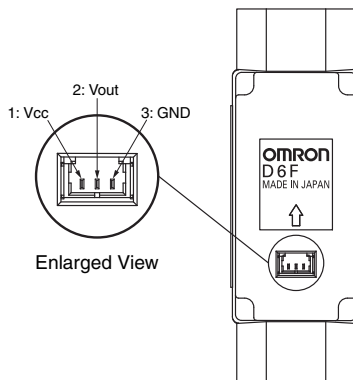
## Connections

D6F-01N2-000  
D6F-02N2-000  
D6F-05N2-000  
D6F-02L2-000

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

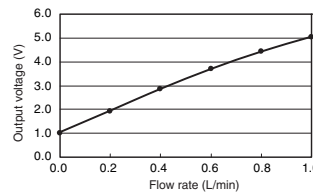
Use the following connectors for connections to the D6F:

|           |                             |
|-----------|-----------------------------|
| Housing   | 51021 (Made by Molex Japan) |
| Terminals | 50079 (Made by Molex Japan) |
| Wires     | AWG28 to AWG26              |

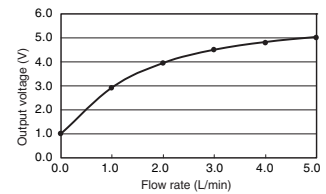


## Output Voltage Characteristics

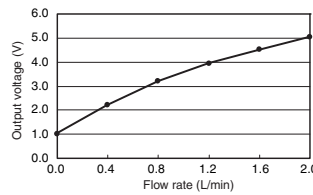
D6F-01N2-000



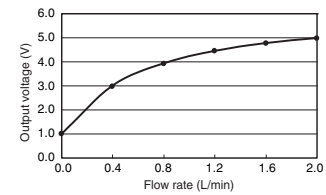
D6F-05N2-000



D6F-02N2-000



D6F-02L2-000



D6F-01N2-000

| Flow rate L/min (normal) | 0          | 0.2        | 0.4        | 0.6        | 0.8        | 1.0        |
|--------------------------|------------|------------|------------|------------|------------|------------|
| Output voltage V         | 1.00       | 1.90       | 2.81       | 3.64       | 4.37       | 5.00       |
|                          | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ |

D6F-02N2-000

| Flow rate L/min (normal) | 0          | 0.4        | 0.8        | 1.2        | 1.6        | 2.0        |
|--------------------------|------------|------------|------------|------------|------------|------------|
| Output voltage V         | 1.00       | 2.20       | 3.20       | 3.98       | 4.55       | 5.00       |
|                          | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ |

D6F-05N2-000

| Flow rate L/min (normal) | 0          | 1.0        | 2.0        | 3.0        | 4.0        | 5.0        |
|--------------------------|------------|------------|------------|------------|------------|------------|
| Output voltage V         | 1.00       | 2.91       | 3.92       | 4.47       | 4.79       | 5.00       |
|                          | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ | $\pm 0.12$ |

D6F-02L2-000

| Flow rate L/min (normal) | 0          | 0.4        | 0.8        | 1.2        | 1.6        | 2.0        |
|--------------------------|------------|------------|------------|------------|------------|------------|
| Output voltage V         | 1.00       | 3.02       | 3.95       | 4.47       | 4.79       | 5.00       |
|                          | $\pm 0.30$ | $\pm 0.08$ | $\pm 0.08$ | $\pm 0.08$ | $\pm 0.08$ | $\pm 0.12$ |

Measurement conditions: Power supply voltage of  $12 \pm 0.1$  VDC, ambient temperature of  $25 \pm 5^\circ\text{C}$ , and ambient humidity of 35% to 75%.

## Characteristics/Performance

| Model                               | D6F-01N2-000   | D6F-02N2-000  | D6F-05N2-000 | D6F-02L2-000                                  |
|-------------------------------------|--|---------------|--------------|---|
| Flow Range (See note 1.)            | 0 to 1 L/min   | 0 to 2 L/min. | 0 to 5 L/min | 0 to 2 L/min.                                 |
| Calibration Gas (See note 2.)       | Natural gas (13A)  |               |              | Propane gas                                   |
| Flow Port Type                      | Rc 1/4 thread  |               |              |   |
| 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                            | ±3% FS (25°C characteristic)   |               |              | ±2% to ±7.5% F.S. (25°C characteristic)       |
| Repeatability (See note 3.)         | ±0.2% FS   |               |              | ±0.3% 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                                | Aluminum alloy   |               |              |   |
| Degree of Protection                | IEC IP40 (Excluding tubing sections.)  |               |              |   |
| Withstand Pressure                  | 200 kPa  |               |              |   |
| Pressure Drop (See note 3.)         | 0.017 kPa  | 0.033 kPa     | 0.10 kPa     | 0.14 kPa                                      |
| 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         | ±3% FS for 25°C characteristic at -10 to 60°C  |               |              | ±4% FS for 25°C characteristic at -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                              | 35.3 g   |               |              |   |

Note: 1. Volumetric flow rate at 0°C, 101.3 kPa.

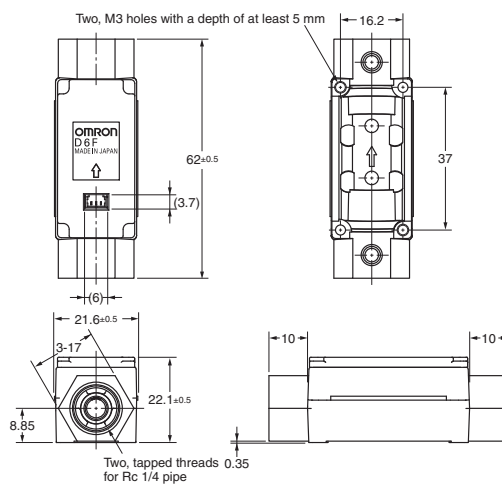
Note: 2. Dry gas. (must not contain large particles, e.g., dust, oil, or mist.)

Note: 3. Reference (typical)

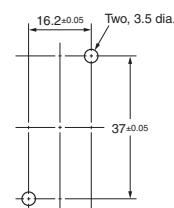
Note: 4. With no condensation or icing.

## Dimensions (Unit: mm)

**D6F-01N2-000**  
**D6F-02N2-000**  
**D6F-05N2-000**  
**D6F-02L2-000**



### Mounting Hole Dimensions



### Cable (included): D6F-CABLE1

