# Product Specifications

<table>
<thead>
<tr>
<th>Ultrasonic Flow Meter for Fuel Gas (Internal Battery Type)</th>
<th>Model</th>
<th>UX [Nominal diameter] - [Pressure] BT - [Flow direction] - [Gas type]</th>
</tr>
</thead>
</table>

## 1. Specifications

### Model

UX [Nominal diameter] - [Pressure] BT - [Flow direction] - [Gas type]

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Pressure</th>
<th>Flow direction</th>
<th>Gas type</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ 40</td>
<td>□ 0 (actual flow type)</td>
<td>□ L (left to right)</td>
<td>□ 13A (city gas 13A)</td>
</tr>
<tr>
<td>□ 50</td>
<td>□ 100 (conversion flow rate type 500 kPa)</td>
<td>□ R (right to left)</td>
<td>□ PRO (propane)</td>
</tr>
</tbody>
</table>

### Connection diameter

<table>
<thead>
<tr>
<th>Model</th>
<th>UX40</th>
<th>UX50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection diameter</td>
<td>Rc1 • 1/2</td>
<td>Rc2</td>
</tr>
</tbody>
</table>

### Flow-rate range (Actual flow) [m³/h]

<table>
<thead>
<tr>
<th>Model</th>
<th>UX40</th>
<th>UX50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas type</td>
<td>13A, PRO, BTN, N2, AR</td>
<td>13A, N2, AR</td>
</tr>
<tr>
<td>Flow rate range</td>
<td>+1.6 to 80</td>
<td>+3.0 to 150</td>
</tr>
</tbody>
</table>

### Accuracy

#### Flow measurement accuracy (Actual flow) [m³/h]

<table>
<thead>
<tr>
<th>Model</th>
<th>UX40</th>
<th>UX50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas type</td>
<td>13A, PRO, BTN, N2, AR</td>
<td>13A, N2, AR</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.5%FS</td>
<td>+1.6 to 8.0</td>
</tr>
<tr>
<td></td>
<td>±1.0%FS</td>
<td>+8.0 to 80</td>
</tr>
<tr>
<td></td>
<td>±4.0%RD</td>
<td>+15.0 to 150</td>
</tr>
</tbody>
</table>

#### Conversion accuracy

±1.5%RD (at 100 kPa, 23°C)

- Conversion standard temperature: -10 to +60°C (In unit of 1°C)
- Conversion standard pressure: 0.00 to 10.00 kPa (In unit of 0.01 kPa, gauge pressure)
- Atmospheric pressure under operating environment: 0.0 to 200.0 kPa (In unit of 0.1 kPa, absolute pressure)

### Low flow cutoff

In case the measurement flow-rate is lower than Qcut, 0 m³/h is displayed for instantaneous flow-rate

Qcut (can be changed by button operation and communication)

<table>
<thead>
<tr>
<th>Model</th>
<th>UX40</th>
<th>UX50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial setting value</td>
<td>+0.3</td>
<td>+0.6</td>
</tr>
</tbody>
</table>

Unit: Correlated to unit of sub display value

- Response-ability Instantaneous flow-rate display value: 2 seconds (Smoothing by moving average method (initial setting value: 4 times))
- Pressure display value: 10 seconds (Smoothing by moving average method (initial setting value: 10 times))
- Temperature display value: 10 seconds

"Ω" are selectable item.
**Display**

Main display: The following is switched and selected using the “left button”.

- Accumulated flow volume \( (m^3) \): Trip accumulated flow volume \( (m^3) \)

Sub display: The following is switched and selected using the “right button”.

- Conversion flow type: Instantaneous flow-rate \( (m^3/h) \) · Pressure \( (kPaG) \) · Temperature \( (^\circ C) \)
- Actual flow type: Instantaneous flow rate \( (m^3/h) \) · Working gas pressure setting value \( (kPaG) \) · Temperature \( (^\circ C) \)

**Number of digits displayed**

**Main display**

- Accumulated flow volume (Forward flow) \[ m^3 \] : 00000000.0 9 digits
- Trip accumulated flow volume (Forward flow) \[ m^3 \] : 00000000.0 8 digits

**Sub display**

- Instantaneous flow-rate \[ m^3/h \] : 000.00 (less than 1000) 5 digits
  - 0000.0 (1000 or more and less than 10000) 5 digits
  - 00000 (10000 or more) 5 digits

**Unit:**
- Selected by button operation and communication
  - When NORMAL flow is selected
  - When standard flow is selected
  - When actual flow is selected

<table>
<thead>
<tr>
<th>Normal (m³)</th>
<th>Standard (m³)</th>
<th>Actual (m³)</th>
</tr>
</thead>
</table>

* In case actual flow display \( (m³) \) is selected with actual flow type or conversion flow type, "accumulated flow volume (forward flow)", "trip accumulated flow volume (Forward flow)" are displayed to the second decimal point.

**Sub display**

- Instantaneous flow-rate \[ m^3/h \]: 000.00 (less than 1000) 5 digits
  - 0000.0 (1000 or more and less than 10000) 5 digits
  - 00000 (10000 or more) 5 digits

**Unit:**
- Selected by button operation and communication

<table>
<thead>
<tr>
<th>Normal (m³)</th>
<th>Standard (m³)</th>
<th>Actual (m³)</th>
</tr>
</thead>
</table>

**Pressure \[ kPa \] :**

- 0000.0 (Conversion flow type) 5 digits
- 000.00 (Actual flow type) 5 digits

* In the conversion flow type, in case the pressure measurement value is less than 5 kPa, 0 kPa is displayed.

**Temperature \[ ^\circ C \] :**

- 00.0 3 digits

**Contact output**

- Nch open drain output 2 channels

  * Pulse output
    - Nch open drain output 1 channel
      - Pulse unit: 1000 L/P (Initial setting value) (Can be changed by button operation)
        - Can be changed to 10, 100, 1000 and 10000 L/P
      - Maximum load: 24 VDC·50 mA
      - Duty: 20 to 80%
      - Saturated voltage when ON: 1.5 V or less
      - Current when OFF: 50 μA or less
      - Maximum frequency: 10 Hz
• Alarm output Nch open drain output 1 channel
  Battery voltage decrease alarm and flow rate upper or lower limit alarm (Either one is selected by button operation)

  Battery voltage decrease alarm
  When five years have passed since a battery is installed, an alarm signal is output as a battery replacement period.

  Flow-rate upper and lower limit alarm output
  When the instantaneous flow rate becomes higher or lower than the set flow rate, an alarm signal is output.
  (The alarm output upper and lower limit flow rate and alarm judgment value hysteresis width can be set by button operation.)

Measurable fluid  City gas (13A), butane (butane 70%, propane 30%), propane (propane 98%, butane 2%), nitrogen, argon
Working fluid temperature  -10 to +60°C
Working pressure  0 to 500 kPa (gauge pressure)
Working ambient temperature  -10 to +60°C  90%RH or less (There must be no condensation)
Storage ambient temperature  -20 to +70°C  90%RH or less (There must be no condensation)
Power supply  Internal lithium battery  Battery life: 5 years (At environment temperature of 20°C and humidity of 65%RH)
  *A lithium battery can be replaced on-site.

<table>
<thead>
<tr>
<th>Model</th>
<th>CR17450A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of pieces</td>
<td>Six pieces</td>
</tr>
<tr>
<td>Lithium content</td>
<td>0.85 g (per piece)</td>
</tr>
<tr>
<td>Type</td>
<td>Assembled battery</td>
</tr>
</tbody>
</table>

Protection structure  IP 64 (JIS C0920: dust-proof, splash-proof type) which can be installed outdoors
Flow direction  Free in upward, downward, left to right, and right to left (Direction indicated by arrow is forward flow)
Installation position  Horizontal or vertical (Cannot be installed with the position that the display portion faces downward or the cable introduction portion faces upward)
Pressure drop  500 Pa or less (Air, standard atmospheric pressure, at maximum flow rate)
Mass

<table>
<thead>
<tr>
<th>Mass</th>
<th>UX40</th>
<th>UX50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>UX40</td>
<td>UX50</td>
</tr>
<tr>
<td>Mass</td>
<td>4.8 kg</td>
<td>6.4 kg</td>
</tr>
</tbody>
</table>

Material
  ○ Measurement portion  Engineering plastic (PPS etc.), stainless alloy
  ○ Outer casing  Stainless alloy
  Display portion casing  Aluminum alloy
  *○ symbol indicates the gas contacting parts.

Standard working period  10 years (At ambient temperature of 20°C and ambient humidity of 65%RH)
  *10 years is not the warranty period
Accessories  M4 Hexagonal wrench
2. Precautions in handling

2-1. Installation environment

(1) Although the high weather-proof electronic display is adopted, in case of installation at a place subjected to direct sunlight, provide a sunshade.

(2) Do not install the flow meter at a place with much electromagnetic noise, in corrosive atmosphere, or with high humidity liable to cause dew condensation.

(3) This product is designed for outdoor installation, but avoid areas where there is a risk of water submergence and water always splashes.

2-2. Piping conditions

(1) In case propane or butane is the fluid to be flown, make sure to use the flow meter under conditions that the fluid does not become oil mist state due to re-liquefaction, etc.

(2) Even though the meter is installed indoor, it cannot be installed with the position that the display portion faces downward or the cable introduction portion faces upward.

(3) When installing it at the upstream or downstream of the governor, install it 10D or more away from the governor.