1. Specifications


<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 rate type)</td>
<td>□ L (left to right)</td>
<td>□ 13A (city gas 13A)</td>
</tr>
<tr>
<td>□ 50</td>
<td>□ 500 (conversion flow rate type 500 kPa)</td>
<td>□ R (right to left)</td>
<td>□ PRO (propane)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ D (Downward)</td>
<td>□ BTN (butane)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ U (Upward)</td>
<td>□ N2 (nitrogen)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>□ AR (argon)</td>
</tr>
</tbody>
</table>

Connection diameter

<table>
<thead>
<tr>
<th>Model</th>
<th>Connection diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>UZ40</td>
<td>JIS10K 40A flange</td>
</tr>
<tr>
<td>UZ50</td>
<td>JIS10K 50A flange</td>
</tr>
</tbody>
</table>

Flow-rate range (Actual flow) [m³/h]

<table>
<thead>
<tr>
<th>Model</th>
<th>Gas type</th>
<th>Flow rate range</th>
</tr>
</thead>
<tbody>
<tr>
<td>UZ40</td>
<td>13A, PRO, BTN, N2, AR</td>
<td>+1.6 to 80</td>
</tr>
<tr>
<td>UZ50</td>
<td>13A, N2, AR, PRO, BTN</td>
<td>+3.0 to 150</td>
</tr>
</tbody>
</table>

Accuracy

• Flow-rate measurement accuracy (Actual flow) [m³/h]

<table>
<thead>
<tr>
<th>Model</th>
<th>Gas type</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>UZ40</td>
<td>13A, PRO, BTN, N2, AR</td>
<td>±0.5%FS +1.6 to 8.0</td>
</tr>
<tr>
<td></td>
<td>13A, N2, AR, PRO, BTN</td>
<td>±4.0%RD +8.0 to 80</td>
</tr>
<tr>
<td>UZ50</td>
<td>PRO, BTN</td>
<td></td>
</tr>
</tbody>
</table>

• Conversion accuracy

±1.5%RD (at 500 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>Initial setting value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UZ40</td>
<td>+0.3</td>
</tr>
<tr>
<td>UZ50</td>
<td>+0.6</td>
</tr>
</tbody>
</table>

Unit: Correlated to unit of sub display value
Response-ability Instantaneous flow-rate 0.5 second (smoothing by moving average method display value (initial setting value: 4 times))
Pressure display value 0.5 second (smoothing by moving average method (initial setting value: 10 times))
Temperature display value 0.5 second

"Θ" are selectable items.
### Product Specifications

**Reliability**  
**Creativity Service**  
**Product Specifications**

<table>
<thead>
<tr>
<th>Ultrasonic Flow Meter for Fuel Gas (External Power Supply 100 VAC Type)</th>
<th>Model</th>
<th>Ver. 2</th>
</tr>
</thead>
</table>

#### Display
- **Main display**: The following is switched and selected using the “left button”.
  - Accumulated flow volume (m³)
  - Trip accumulated flow volume (m³)
- **Sub display**: The following is switched and selected using the “right button”.
  - **Conversion flow type**: Instantaneous flow-rate (m³/h) · Pressure (kPaG) · Temperature (°C)
  - **Actual flow type**: Instantaneous flow-rate (m³/h) · working gas pressure setting value (kPaG) · Temperature (°C)

#### Number of digits displayed
- **Main display**
  - Accumulated flow volume (Forward flow) [m³]: 00000000.0 → 9 digits
  - Trip accumulated flow volume (Forward flow) [m³]: 0000000.0 → 8 digits
- **Unit**: Selected by button operation and communication

<table>
<thead>
<tr>
<th>When NORMAL flow is selected</th>
<th>When standard flow is selected</th>
<th>When actual flow is selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL m³</td>
<td>Standard m³</td>
<td>m³</td>
</tr>
</tbody>
</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 [m³/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

<table>
<thead>
<tr>
<th>When NORMAL flow is selected</th>
<th>When standard flow is selected</th>
<th>When actual flow is selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL m³</td>
<td>Standard m³</td>
<td>m³</td>
</tr>
</tbody>
</table>

#### Pressure [kPa]
- 0000.0 (conversion flow type) → 5 digits
- 000.00 (actual flow type) → 5 digits

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

<table>
<thead>
<tr>
<th>Temperature [°C]:</th>
<th>00.0</th>
<th>3 digits</th>
</tr>
</thead>
</table>

#### 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)
  - 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

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* Aichi tokei denki co., ltd.*
## Product Specifications

### Ultrasonic Flow Meter for Fuel Gas (External Power Supply 100 VAC Type)

|-------------|---------------------------------------------------------------------|

- **Reliability**
- **Creativity Service**
- **Product Specifications**

### Ultrasonic Flow Meter for Fuel Gas (External Power Supply 100 VAC Type)

#### Model UZ

<table>
<thead>
<tr>
<th>Nominal Diameter</th>
<th>Pressure</th>
<th>Flow Direction</th>
<th>Gas Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UZ40</td>
<td>UZ50</td>
<td>UZ40</td>
<td>UZ50</td>
</tr>
</tbody>
</table>

#### Model Conversion Flow Rate

<table>
<thead>
<tr>
<th>Initial Setting Value</th>
<th>Conversion Flow Rate</th>
<th>Actual Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>600</td>
<td>80</td>
</tr>
<tr>
<td>300</td>
<td>600</td>
<td>150</td>
</tr>
</tbody>
</table>

#### Conversion Flow Type

- **Initial setting value**: 300
- **Unit**: Correlated to unit of sub display value

#### Communication

- **Communication**: Half duplex communication method (RS485 communication)
- **Communication speed**: 4800 bps, 9600 bps (Allowable range: ±1.0%)
- **Synchronization method**: Asynchronous
- **Bit configuration**: 8 bits, no parity, stop bit length 1 bit
- **Bit transmission order**: Order from b0 to b7 (low order prioritized sending)
- **Error control**: CRC

*For the detailed communication specifications, download the communication specifications from the product introduction page.*

### Current Output

- **Output method**: 4 to 20 mA
- **Discharge method**: 400 Ω or less
- **External load**: 400 Ω or less
- **Output accuracy**: ±0.1 mA (flow measurement accuracy, temperature measurement accuracy and pressure measurement accuracy are excluded)
- **Output current lower limit**: 4.0 mA (clip at 4.0 mA)
- **Output current upper limit**: 22.0 mA (clip at 22.0 mA)

#### Flow Rate Upper and Lower Limit Alarm

- **Output method**: 4.0 mA: 0 kPa, 20.0 mA: 500 kPa (fixed)
- **Output current lower limit**: 4.0 mA (clip at 4.0 mA)
- **Output current upper limit**: 22.0 mA (clip at 22.0 mA)

#### Temperature Alarm

- **Output method**: 4.0 mA: -10°C, 20.0 mA: output as +60°C (fixed)
- **Output current lower limit**: 2.0 mA (clip at 2.0 mA)
- **Output current upper limit**: 22.0 mA (clip at 22.0 mA)

*Alarm output Nch open drain output 1 channel
Accumulated value upper limit alarm and flow rate upper or lower limit alarm (either one is selected by button operation)

Accumulated value upper limit alarm
When the accumulated flow volume for 1 h becomes higher than the set accumulated flow rate upper limit volume, an alarm signal is output.
(The accumulated flow volume upper limit value can be set by communication.)
*The 1 h measurement is started when the power supply is turned on.

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.)

**Current output**

- **Output method**: 4 to 20 mA
- **Discharge method**: 400 Ω or less
- **External load**: 400 Ω or less
- **Output accuracy**: ±0.1 mA (flow measurement accuracy, temperature measurement accuracy and pressure measurement accuracy are excluded)
- **Output current lower limit**: 4.0 mA (clip at 4.0 mA)
- **Output current upper limit**: 22.0 mA (clip at 22.0 mA)

**Full scale flow rate (can be changed by button operation and communication)**

**Model Conversion flow type Actual flow type**

<table>
<thead>
<tr>
<th>Model</th>
<th>Conversion flow type</th>
<th>Actual flow type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UZ40</td>
<td>300</td>
<td>80</td>
</tr>
<tr>
<td>UZ50</td>
<td>600</td>
<td>150</td>
</tr>
</tbody>
</table>

**Unit**: Correlated to unit of sub display value

When instantaneous flow rate is selected

- **Output method**: 4.0 mA (reverse flow to low flow cutoff)
- **Output current lower limit**: 4.0 mA (clip at 4.0 mA)
- **Output current upper limit**: 22.0 mA (clip at 22.0 mA)

When pressure is selected (conversion flow rate type only)

- **Output method**: 4.0 mA: 0 kPa, 20.0 mA: 500 kPa (fixed)
- **Output current lower limit**: 4.0 mA (clip at 4.0 mA)
- **Output current upper limit**: 22.0 mA (clip at 22.0 mA)

When temperature is selected

- **Output method**: 4.0 mA: -10°C, 20.0 mA: output as +60°C (fixed)
- **Output current lower limit**: 2.0 mA (clip at 2.0 mA)
- **Output current upper limit**: 22.0 mA (clip at 22.0 mA)

**Communication**

- **Communication method**: Half duplex communication method (RS485 communication)
- **Communication speed**: 4800 bps, 9600 bps (Allowable range: ±1.0%)
- **Synchronization method**: Asynchronous
- **Bit configuration**: 8 bits, no parity, stop bit length 1 bit
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**Aichi tokei denki co., ltd.**
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<tr>
<th>Product Specifications</th>
<th>Ver. 2</th>
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<tbody>
<tr>
<td>Ultrasonic Flow Meter for Fuel Gas (External Power Supply 100 VAC Type)</td>
<td>Model</td>
</tr>
</tbody>
</table>

- **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**: 100 VAC (85 to 115 VAC, 50/60 Hz) Power consumption: 10 W or less
- **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>Model</th>
<th>UZ40</th>
<th>UZ50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass</td>
<td>7.0 kg</td>
<td>8.8 kg</td>
</tr>
</tbody>
</table>
- **Material**: ○ Measurement portion  Engineering plastic (PPS etc.), stainless alloy  ○ Outer casing Stainless alloy Display potion 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.

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