FUJI ULTRASONIC CONCENTRATION METER

FUD-1 series
Model-12 / Model-22 (Explosion Proof Type)
Model-52 / Model-62 (Explosion Proof Type)

In Line Use

Fuji Ultrasonic Engineering Co., Ltd.
**FUD-1 Model-12**

![Image of FUD-1 Model-12](image)

**Features**
- This analyzer measures concentration in real time and controls the concentration systematically by Alarm output and Error output besides the output of the concentration to the indicator, recorder and computer.
- By measuring with ultrasonic waves, our analyzers are not influenced from the circumstances such as vibrations, noises, flow speeds, liquid colours, liquid dusts and so on. Also, our analyzers don't contaminate any solutions, so that it makes the maintenance very easy.
- Our transducers are made from various kinds of materials for good corrosion resistance and durability. (SUS316, Tetlon-coated, Titanium, PFA and e.t.c. Please refer to the Specifications for more details.)

**Applications**
- Quality control for various chemicals at caustic soda manufacturing companies (NaOH, HCl, NaClO, etc.)
- Quality check for various chemicals at chemical manufacturing companies (H2SO4, NH4OH, HNO3, etc.)
- Concentration control of coolant oil or oil remover at iron and steel companies
- Concentration control of ingredients or oil at chemical fiber manufacturing companies
- We have a lot of experiences including the above applications. (more than 4,000 data as of June '03)
- Concentration control for polarizer(NaOH)
- Concentration control for stripper(MEA in MEA + DMSO)

**Principle of measurements**

The ultrasonic velocity in a liquid has a characteristic that it is determined by the concentration and the temperature of the liquid. This analyzer measures the temperature and the ultrasonic velocity of the liquid accurately, then calculates the concentration of the liquid from the temperature and the ultrasonic velocity measured by the calibration curves recorded in the Data ROM. In addition, the measurements for different kinds of liquids or different measuring ranges are available by storing relevant Data ROM for each situation.

- The transmitter has two types of Panel Mount and Wall Mount. Wall Mount Type has two types of with rain proof case and no rain proof case.
### Specifications

<table>
<thead>
<tr>
<th>Name</th>
<th>Model-12, Model-22 (Explosion Proof Type)</th>
<th>Model-52, Model-62 (Explosion Proof Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principle of measurement</strong></td>
<td>Ultrasonic velocity and temperature</td>
<td>LCD (concentration, temperature, velocity, various parameters)</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>LCD (concentration, temperature, velocity, various parameters)</td>
<td>LCD (concentration, temperature, velocity, various parameters)</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>Analog: DC1−20mA (adjustable on a concentration figure)</td>
<td>Two Analog: DC1−20mA (adjustable on a concentration figure)</td>
</tr>
<tr>
<td></td>
<td>Digital: RS232C (concentration, temperature, velocity, error code) * 2</td>
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</tr>
<tr>
<td></td>
<td>Alarm: high/lowest, high/lowest</td>
<td>Two Alarms: high/lowest, low/lowest</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>AC 100−240V 50/60Hz, 30VA</td>
<td>Panel Mount Type (DIN Standard Type)</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td>Panel Mount Type (DIN Standard Type)</td>
<td>Panel Mount Type (DIN Standard Type)</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Temp. 0−50°C, RH less than 95% (No dew condensation)</td>
<td>Temp. 0−50°C, RH less than 95% (No dew condensation)</td>
</tr>
<tr>
<td><strong>Temp. of liquid</strong></td>
<td>0−10°C, −10−160°C (100°C span) (Option)</td>
<td>0−10°C, −10−160°C (100°C span) (Option)</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Output setting, Alarm output setting, Average times setting, Offset and Gain setting, Self-diagnosis, Fail Safe Mode, Auto Error Correction Mode.</td>
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</tr>
<tr>
<td><strong>Option</strong></td>
<td>RS485 Output (Alternative choice with RS232C)</td>
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</tr>
<tr>
<td><strong>Channel</strong></td>
<td>max 10ch.</td>
<td>max 7ch.</td>
</tr>
<tr>
<td><strong>Cable</strong></td>
<td>10m (normal), Max. 30m (A Repeater is required for more than 10m)</td>
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</tr>
<tr>
<td><strong>Explosion Proof Type / Repeater Transducer</strong></td>
<td>Ex II BT4</td>
<td>Ex II CT4</td>
</tr>
<tr>
<td><strong>Material of Transducer</strong></td>
<td>SUS316(L), SUS304(L), Teflon coated, Hastelloy, Titanium, Nickel, Tantalum</td>
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</tr>
</tbody>
</table>

### Dimension of Transmitter

#### Panel Mount Type

- **Panel Mount Type**
  - **Ex II BT4**
  - **Ex II CT4**

#### Rack Type

- **Rack Type**
  - **Ex II BT4**
  - **Ex II CT4**

### Dimension of Transducer

#### Flange JIS 10K 50A

- **Flange JIS 10K 50A**
  - The Flange Size is based on JIS B 2210 10K 50A FF.

#### Flange JIS 10K 25A

- **Flange JIS 10K 25A**
  - The Flange Size is based on JIS B 2210 10K 25A FF.