OUTLINE

TM-1400 MINI CONVERTER UNIT is a power supply and indication unit which is used in combination with Tokyo Keiso’s TC-1000, TC-2000, TC-3000, and EP-TC-1000/2000V series mass flow controllers.

All necessary functions of power supply to the mass flow controllers and scaling indication of flow signal, and flow rate setting function with the change of external/manual setting are provided in DIN 72mm compact housing.

Additionally, totalizing pulse output is provided as an option for easy composition of the flow-rate regulating system of various gases. Conventionally, each independent function is integrated, and space-saving and simple installation work are attained.

STANDARD SPECIFICATION

- **Flow rate**
  - Indication: By 3-1/2 digit Red LED (10.2mm height)
  - Accuracy: ±1 digit additional to detector accuracy
  - Output: Select from the following two functions (Factory set)
    1. DC4 to 20mA Load resistance 550Ω or less
    2. DC0 to 5V Load resistance 5kΩ or more
  - Output accuracy:
    1. DC4 to 20mA ±0.1% F.S. additional to detector accuracy
    2. DC0 to 5V Detector accuracy

- **Totalizing pulse rate**
  - Scaling factor: 60 to 12000c/h (F.S.)
  - Totalizing pulse: Output Open collector pulse
    - Rating: VCE= 50V max.
    - VSAT= 1.2V max.
    - ICE= 20mA max.
  - Pulse width: 100ms (ON time)

- **Flow rate setting**
  - (1) External setting input signal
    - A mass flow controller is controlled by inputting voltage or current signal into TM-1400 from external device.
  - (2) Manual setting
    - Switching and setting ratio of the input of setting from outside are possible with the model with minimum memory 1% manual setting function and 10 rotations analog dial vernier.
    - And it is also with a compulsive control selection capability such as flow stop or full open.

- **External setting input signal**
  - Select from the following three functions. (Factory setting)
    1. DC4 to 20mA Input resistance 250Ω
    2. DC0 to 5V Input resistance 100kΩ
    3. DC1 to 5V Input resistance 100kΩ
  - Soft start function is possible as option. (Time constant: 5 seconds)

- **Other functions**
  - Power supply: AC85 to 240V (50Hz/60Hz)
  - Consumption power: 15VA
  - Electric connection:
    1. Connection with a mass flow controller: Exclusive cable with connector
    2. Connection with power supply and external device: M3 screw terminal
  - Environmental condition: 0 to 50°C / 20 to 85%RH (To be free from condensation)

MODEL CODE

<table>
<thead>
<tr>
<th>Description</th>
<th>Analog output</th>
<th>Totalizing pulse output</th>
<th>Flow rate setting method</th>
<th>External setting input signal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 DC4 to 20mA</td>
<td>2 DC0 to 5V</td>
<td>2 External setting / With manual setting change</td>
<td></td>
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<td>0 Not provided</td>
<td>1 Provided</td>
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<td></td>
</tr>
</tbody>
</table>

APPLICABLE FLOW CONTROLLERS AND EXCLUSIVE CABLE

<table>
<thead>
<tr>
<th>Applicable controller</th>
<th>Cable code</th>
<th>Cable length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC-1000, 2000, 3000</td>
<td>SC-CM</td>
<td>Standard: 2m</td>
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<tr>
<td>EP-TC-1000/2000V</td>
<td>SC-TM</td>
<td>Max.: 100m</td>
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<td></td>
<td>SC-T-EP</td>
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</tbody>
</table>

Note: SC-CM cable 100m ~ “SC-CM-100”
- Maximum cable length of SC-TM and SC-T-EP is 100m.
When a model change is made from TM-7000 series to TM-1400 series using an existing mass flow controller, a panel adapter case and an adapter cable are needed. (Please specify it at ordering.)

**CONBINATION WITH MASS FLOW CONTROLLER**

- **Connection with TC-1000, TC-2000, and TC-3000**
  - Connection with EP-TC-1000 / 2000V
  - *Recommendations: Cable CVVS 2-cores 1.25mm², Cable diameter ø 5.3mm ø 7.3.

* Specification is subject to change without notice.

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