**Model Selection**

<table>
<thead>
<tr>
<th>Base model no.</th>
<th>Flow rate range</th>
<th>Display function</th>
<th>Flowing connection</th>
<th>Fluid type</th>
<th>Optional function 1</th>
<th>Optional function 2</th>
<th>Optional function 3</th>
<th>Code</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.1–10 mL/min</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.3–30 mL/min</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Parts Included**

The following parts are included with the product.

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Part No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitting (metric system), 2 sets</td>
<td>F9Y7T1</td>
<td>Same as included parts</td>
</tr>
<tr>
<td>Fitting (inch system), 2 sets</td>
<td>F9Y7T2</td>
<td>Same as included parts</td>
</tr>
<tr>
<td>Fitting (metric system), 2 sets</td>
<td>F9Y7T3</td>
<td>Same as included parts</td>
</tr>
<tr>
<td>Fitting (inch system), 2 sets</td>
<td>F9Y7T5</td>
<td>Same as included parts</td>
</tr>
<tr>
<td>Adapter for loader communication cable</td>
<td>F9Y7A1</td>
<td>Same as included parts</td>
</tr>
</tbody>
</table>

**Parts Sold Separately**

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Part No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC insulated cable, 2 m</td>
<td>F9Y7HP1</td>
<td>USB cable for usage of Adapter for loader communication cable. Use Rev. 05 or later version of the USB loader cable.</td>
</tr>
<tr>
<td>PVC insulated cable, 3 m</td>
<td>F9Y7T1</td>
<td>USB cable for communicating with PC is not included. SLP-F7M Smart Loader Package (F9Y7F1) is necessary to download it from the Azbil Corporation’s website and install it.</td>
</tr>
</tbody>
</table>
Combining a thermal MEMS sensor that is commonly used for gas flow meters and a flow path that is made of highly corrosion-resistant fused quartz glass, the product can measure both instantaneous and totalized flow value of micro flow rates under 30 mL/min, which is difficult to do with a high degree of reproducibility using traditional measurement methods. Compared with conventional methods, the measurement method used by this new product is less susceptible to changes in the fluid state (e.g., bubbles, pulsations, and fluid temperature) (although it may be necessary to change the settings parameters), and micro flow rates can be measured easily: Measuring the flow rates allows for more reliable data management by replacing alternative measures, such as managing the pump rotation speed, measuring the weight, and managing the fluid supply time. In addition, with the event functions it is possible to detect empty pipes and the presence of bubbles, and to monitor the status of pulsation.
Combining a thermal MEMS sensor that is commonly used for gas flow meters and a flow path that is made of highly corrosion-resistant quartz glass, the product uses a method of measuring micro flow rates that is less susceptible to changes in the fluid state and more reliable.

Output Characteristics Before and After Correction

The measurable range varies according to the thermal conductivity of the fluid, but the output characteristics can be adjusted by using the correction function. (See the conceptual diagrams below.)

For correction factor setting is necessary to use SLP-F7M Smart Loader Package for F7M.

Pre-Correction Output Characteristics

Post-Correction Output Characteristics

(ex. zero-point adjustment and correction factor setting)

Output Characteristics Before and After Correction

The application drawings above are conceptual images only. When installing this product, see the mounting orientation instructions on page 7.
PRODUCT SPECIFICATIONS

**Model No:**
- F7M0010
- F7M0020

**Measurable flow rate range (for H2O):**
- 0.1–5 m³/min
- 10 m³/min

**Accuracy**

**High resolution**
- ±0.1 % rdg (at 1 mL/min or more)

**Medium resolution**
- ±0.1 % rdg (at 0.1 mL/min or more)

**Accuracy guaranteed flow rate range (for H2O):**
- ±0.1 % rdg (at 1 mL/min or more)

**Response time**
- 1.0 s typ. (0.2 s response)

**Flow temperature**
- ±5 °C

**Pressure resistance**
- 250 kPa

**Vibration**
- None

**Shock (mechanical)**
- None

**Response time**
- 10 ms

**Required straight pipe length (for H2O)**
- 50 mm

**Filter inlet port**
- 1/4" NPT

**Filter outlet port**
- 1/4" NPT

**Analog output**
- 0–5 Vdc

**Output resolution**
- 0.01 %

**Function types**
- 1. Output event with hysteresis setting function (1–5 Vdc)
- 2. Output event (1–5 Vdc)

**Output type**
- Pulse

**Input/output**
- 2 (for input)
- 4 (for output)

**Power**
- Voltage: 24 Vdc
- Current: 5 Vdc max.

**Weight**
- 18 kg

**Size**
- 122 x 26 x 86 mm

**Protection rating**
- IP65

**Mounting orientation**
- Bottom to top

**Material of wetted parts**

- **Flange**
  - Stainless steel

- **Filter material**
  - PTFE, PVDF

**Materials**

- **Packing**
  - EPDM rubber

- **Seal**
  - EPDM, NBR

**Specifications**

- **Number of inputs**
  - 8

- **Number of outputs**
  - 5

- **Analog input**
  - 2

- **Analog output**
  - 4

- **Digital output**
  - 3

- **Digital input**
  - 8

- **Weight**
  - 18 kg

- **Size**
  - 122 x 26 x 86 mm

**Mounting orientation**

- Bottom to top

**SLP-F7M SMART LOADER PACKAGE FOR F7M**

**Functions**
- Setting the parameters, monitoring the flow rate and device status

**Selection precautions**

1. Do not apply pressure in excess of the operating conditions described in the specifications or use this device at a temperature outside the specified range. In addition, take care when using this device not to drop it or subject it to vibration or impact in excess of the operating conditions. Otherwise, the quartz glass tube used for the device’s fluid path may be damaged or the seal portion of the fluid path may deteriorate, causing the device to leak internally or externally to malfunction, or causing an external device to catch fire or malfunction.

2. Install this device in a place where it will not be subject to vibration. Otherwise, measurements will be incorrect and device malfunction or failure may occur.

3. Take appropriate measures to ensure that the fluid is not contaminated with foreign matter. If rust, oil mist, or other foreign matter from the pipes enters and adheres to this device, a measurement error may occur or the device may be damaged. If there is a possibility of foreign matter entering this device, install a filter upstream of the device or take other appropriate measures. Be sure to inspect and replace the filter at regular intervals.

4. If malfunction of this device can be expected to result in loss or damage, use appropriate redundancy in the system design.

**In addition to the information provided above, precautions, mounting precautions, and other relevant information can be found in the users’ manual (detailed version), document No. CF-SP14710. Please refer to this manual also when selecting a model.**