### Specifications

<table>
<thead>
<tr>
<th>In-line Brix Monitor</th>
<th>In-line Ethylene Glycol Monitor</th>
<th>In-line Salinity Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cat.No.</strong></td>
<td>CM-780N</td>
<td>CM-780N-EG</td>
</tr>
<tr>
<td><strong>Measurement scale</strong></td>
<td>Brix (ATC), according to the sample liquid, Temperature</td>
<td>E.G. (ATC), Freezing point, Temperature</td>
</tr>
<tr>
<td><strong>Measurement range</strong></td>
<td>Brix 0.0 to 78.0%, Temperature 5 to 100°C</td>
<td>E.G. 0.0 to 90.0%, Freezing point 0 to -50°C, Temperature 5 to 100°C</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>Brix 0.1%, Temperature 1°C</td>
<td>E.G. 0.1%, Freezing point 1°C, Temperature 1°C</td>
</tr>
<tr>
<td><strong>Measurement accuracy</strong></td>
<td>Brix ±0.2%, Temperature ±1°C</td>
<td>E.G. ±0.4%, Freezing point ±1°C, Temperature ±1°C</td>
</tr>
<tr>
<td><strong>Measurement temperature</strong></td>
<td>5 to 100°C (Automatic Temperature Compensation)</td>
<td></td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>5 to 40°C</td>
<td></td>
</tr>
<tr>
<td><strong>Output method</strong></td>
<td>Recorder output : DC 4 to 20mA, RS-232C output</td>
<td></td>
</tr>
<tr>
<td><strong>Wetted parts materials</strong></td>
<td>Prism : Artificial sapphire, Prism stage : SUS316</td>
<td></td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>DC24V (Power consumption 3VA)</td>
<td></td>
</tr>
<tr>
<td><strong>Accessory</strong></td>
<td>Power input cable (1m)</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum pressure</strong></td>
<td>0.98MPa</td>
<td></td>
</tr>
<tr>
<td><strong>International Protection Class</strong></td>
<td>IP64 dust-tight and splash resistant</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions and weight</strong></td>
<td>16 x 17 x 11cm, 1.8kg (Main unit only)</td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions

**Unit of length: mm**

![Dimensions diagram](image)

Weight : 1.8kg

### Q&A

**What is VARIVENT®?**

The VARIVENT® valves contribute to hygienic and fully cleanable process systems. The wetted parts of the CM-780N In-line Refractometers may be customized to work with VARIVENT® components.

*VARIVENT® is a registered trademark of GEA Tuchenhagen.*

**What is PROFIBUS?**

PROFIBUS is a communication protocol for fieldbus, industrial computer network between the field device and its controller in factory automation applications. PROFIBUS is standardized under such standards as IEC 61158/61784 and EN50170. The PRM and CM In-line Refractometers may become PROFIBUS-compatible by the use of an adapter connected to the RS-232C port.

**Devices tested and confirmed compatible**

HMS Industrial Networks
Anybus Communicator

**Process Refractometers for In-line Liquid Measurements**

**CM-780N**

- **Up to 100°C**
- **Compact**
- **In-line Salinity Monitor**

Cat.No.3543

**NEW**
Features

- The recorder output (4 to 20mA) and the RS-232C output are incorporated to enable automatic control by interlinking with external equipment.
- Automatic Temperature Compensation (ATC) allows the correct concentration (Brix) to be displayed and output, even if the temperature of the sample changes.
- Safe for Clean-In-Place (CIP) processes (power source must be turned off). (Up to 130°C)
- The sample temperature can be displayed by pressing [↓] key while measuring Brix (%).
- ATC range of 5 to 100°C, allowing for high temperature in-line samples to be measured accurately.

CIP

Applications

- Mixing, diluting and concentrating processes at food manufacturing plants
  - fruit juice, soft drinks, coffee, cocoa, alcoholic drinks, tomato paste, sauce, ketchup, vinegar, pickled liquid, wort, condensed milk, etc.
- Fermenting processes
  - soy sauce, alcohol, etc.
- Concentration shifts between different products
- Concentration of waste liquids
  - waste liquid of sugar, alcohol, chemical, etc.
- Concentration of impurities mixed in hydrocarbon detergents or petrochemical detergents

- Industrial fluid
  - cutting oil, lubricating oil, quenching oil, water-soluble detergent, starch, sodium hydroxide, alkaline solution, surfactant, amino acid, ammonia, ethanol, cesium chloride, sodium carbonate, cupric sulfate, citric acid, acetic acid, sodium glutamate, formalin, ethylene glycol, propylene glycol, coating solution, sizing agent, fire retardant, rust preventative, etc.
- Concentration control of various solutions
  - liquid sugar, fructose, glucose, syrup, albumen, edible oil, vegetable oil, sugarcane/sugar beet, isopropyl alcohol, dimethylformamide, polyvinyl alcohol, hydrogen peroxide, methylene chloride, coolant and brine solutions, undiluted solution of Chinese medicine, citrus oil glycerin, polymer, gelatin, protein, lotion, etc.

- Safe for Clean-In-Place (CIP) processes (power source must be turned off). (Up to 130°C)
- Automatic Temperature Compensation (ATC) range of 5 to 100°C, allowing for high temperature in-line samples to be measured accurately.
- “Default” function restores factory settings.

Example for use

Example for use

Installing the CM-780N directly into main piping may result in a clogged flow. Regardless of installation method, the flow of the sample solution should be in direct contact with the prism surface.

Options

- [Optional installation accessories are recommended for optimal performance.]

- Sample inlet unit
  - Hose Connector 12mmφ
  - Compression Fitting 10mmφ
- AC adapter
  - AD-32 (AC100V)
  - AD-33 (AC110-120V)
  - AD-34 (AC220-240V)
- Stand
  - Stand for mounting the CM-780N
  - AC adapter
  - Stand for mounting the CM-780N and the AC adapter

- AD-32 (AC100V)
- AD-33 (AC110-120V)
- AD-34 (AC220-240V)

- RS-232C output cable with connector (15m) [RE-5677]
- RS-232C cable (15m) [RE-5647]
- AC adapter - AD-32 [Cat.No.3527], AD-33 [Cat.No.3528], AD-34 [Cat.No.3529]
- Stand [RE-8607]
- Stand for mounting the CM-780N and the AC adapter

- These accessories are common for all CM-780N models.

Special Scales

- Contact ATAGO if you are interested in measuring other types of solution...

- In-line Ethylene Glycol Monitor CM-780N-EG
  - The CM-780N-EG is specially designed for in-line concentration measurements of ethylene glycol solutions used as coolants, brake, anti-freeze, and de-icing fluids. It also has a secondary scale for the freezing point.

- In-line Salinity Monitor CM-780N-SW
  - This is an in-line refractometer for concentrations of sodium chloride in water (0.0-28.0%). It is built to the same specifications as the original CM-780N with the Brix scale.