**temperature controller**

<table>
<thead>
<tr>
<th>input</th>
<th>input voltage</th>
<th>100 – 240v</th>
</tr>
</thead>
<tbody>
<tr>
<td>output</td>
<td>maximum output voltage</td>
<td>15v</td>
</tr>
<tr>
<td>output</td>
<td>maximum output current</td>
<td>7a (digital meter indication)</td>
</tr>
<tr>
<td>output</td>
<td>number of outputs</td>
<td>4-channel switching system</td>
</tr>
<tr>
<td>output</td>
<td>output current adjustment</td>
<td>manual adjustment of current output</td>
</tr>
<tr>
<td>temperature monitor</td>
<td>temperature sensor</td>
<td>w-f thermocouple</td>
</tr>
<tr>
<td>temperature monitor</td>
<td>(for high-temperature evaporation models: UE-104CT, UE-103CT, and UE-103CFT)</td>
<td></td>
</tr>
<tr>
<td>temperature monitor</td>
<td>k-type thermocouple</td>
<td>(for organic molecular evaporation models: UE-104CFT, UE-103CST, and UE-103CFT)</td>
</tr>
<tr>
<td>thermal control</td>
<td>number of channels displayed</td>
<td>1 channel (interlocking with the control channel)</td>
</tr>
<tr>
<td>thermal control</td>
<td>control circuit</td>
<td>current output pt control based on the temperature sensor input</td>
</tr>
<tr>
<td>thermal control</td>
<td>number of channels controlled</td>
<td>1 channel (4-channel switching system)</td>
</tr>
<tr>
<td>thermal control</td>
<td>set temperature input</td>
<td>input to the 10 turn potentiometer and indicated on the digital meter</td>
</tr>
<tr>
<td>size of steel case</td>
<td>approx. 430mm (w) x 350mm (d) x 100mm (h)</td>
<td></td>
</tr>
</tbody>
</table>

---

1. **multi-source high temperature thermal evaporator (UE-103C/104C series)**

<table>
<thead>
<tr>
<th>model number</th>
<th>number of elements</th>
<th>thermo couple (w-type)</th>
<th>shutter function</th>
<th>film thickness gauge function</th>
<th>temperature controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>l104c</td>
<td>4</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>l103cs</td>
<td>3</td>
<td>x</td>
<td>o</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>l103cst</td>
<td>3</td>
<td>x</td>
<td>o</td>
<td>o</td>
<td>x</td>
</tr>
<tr>
<td>104c</td>
<td>4</td>
<td>o</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>104ct</td>
<td>4</td>
<td>o</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>103cs</td>
<td>3</td>
<td>o</td>
<td>o</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>103cst</td>
<td>3</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>x</td>
</tr>
<tr>
<td>103cft</td>
<td>3</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

* ○: standard configuration *: without equipment

---

2. **multi-source thermal evaporator (UE-203C/204C series)**

<table>
<thead>
<tr>
<th>model number</th>
<th>number of elements</th>
<th>thermo couple (k-type)</th>
<th>shutter function</th>
<th>film thickness gauge function</th>
<th>temperature controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>204c</td>
<td>4</td>
<td>o</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>204ct</td>
<td>4</td>
<td>o</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>203cs</td>
<td>3</td>
<td>o</td>
<td>o</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>203cst</td>
<td>3</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>x</td>
</tr>
<tr>
<td>203cft</td>
<td>3</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

* ○: standard configuration *: without equipment

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Instrumental components are subject to change without prior notice for improvement in performance.

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**thermal evaporators**

**ue series**

**multi-source high temperature thermal evaporator (UE-103C/104C series)**

**multi-source thermal evaporator (UE-203C/204C series)**

These are compact and cost-effective three or four element crucible type evaporators.

The product lineup consists of two models: one for high-temperature evaporation (temperature range: 700 to 1700°C) and the other for organic molecular evaporation (temperature range: 150 to 800°C).

The shutter and the film thickness gauge are optional attachments.

An evaporator with no shutter mechanism is composed of four elements, while that with the shutter function is composed of three. The temperature can be controlled independently for each element.
Multi-Source High Temperature Thermal Evaporator (UE-103C/104C series)

**Structure**
- Evaporator: Crucible-type evaporator
- Heating Method: Direct resistance heating by filament
- Inner Volume of Crucible: 3mm (dia.) x 6mm (depth) (material: alumina)
- Number of Elements (Crucibles): 4 for an evaporator with no shutter function; 3 for an evaporator with shutter function
- Mounting Flange: KF 75
- Cooling Mechanism: A water-cooling jacket is provided as standard (amount of water: 15 ml/min)
- Distance from the Flange Face to the Crucible Head Tip: At least 100mm from the mounting flange face to the crucible head tip (with no shutter)
- Vacuum Chamber Mounting Direction: The vacuum chamber must be mounted at an angle of at least 30° from the horizontal

**Performance**
- Heating Temperature Range: 700 – 1700°C (Recommended temperature during continuous use is 700 – 1600°C)
- Heating Current: Max. 7.5A – 14V
- Baking Temperature: <200°C

**Evaporation Element**
- Material Form: Powder, granule, wire, and other forms that can be placed in the crucible.
- Material Fill Volume: The recommended amount is 1/3 of the volume of the crucible or smaller (depending on the mounting angle)
- Evaporation Material that can be used: Elements that evaporate at 1700°C or lower. Note that elements that evaporate at 1700°C or lower are hard to control
- Temperature measurement: Temperature measurement is not available if the evaporator has no thermostat.

**Shutter Function**
- Provided as standard for the L103C5/104C5 series
- Shutter Plate: Size: 34mm dia.; Rotation diameter: 30mm
- Switching Mechanism: Manual switching using the rotary motion feedthrough (with a rotation stopper)

**Film Thickness Gauge Function**
- Provided as standard for the L103C5/104C5 series
- Film Thickness Gauge Element (Measuring Position): Shutter plate surface
- Film Thickness Gauge Element: Crystal oscillator
- Film Thickness Monitor: Inficon film thickness gauge element monitor (OTM-2) is provided as standard

Multi-Source Thermal Evaporator (UE-203C/204C series)

**Structure**
- Evaporator: Crucible-type evaporator
- Heating Method: Direct resistance heating by filament
- Inner Volume of Crucible: 2-6mm (dia.) x 6mm (depth) (material: tantalum)
- Number of Elements (Crucibles): 4 for an evaporator with no shutter function; 3 for an evaporator with shutter function
- Mounting Flange: KF 75
- Cooling Mechanism: A water-cooling jacket is provided as standard (amount of water: 15 ml/min)
- Distance from the Flange Face to the Crucible Head Tip: At least 100mm from the mounting flange face to the crucible head tip (with no shutter)
- Vacuum Chamber Mounting direction: The vacuum chamber must be mounted at an angle of at least 30° from the horizontal

**Performance**
- Heating Temperature Range: 150 – 800°C
- Heating Current: Max. 7.5A – 14V
- Baking Temperature: <200°C

**Evaporation Element**
- Material Form: Powder, granule, wire, and other forms that can be placed in the crucible.
- Material Fill Volume: The recommended amount is 1/3 of the volume of the crucible or smaller (depending on the mounting angle)
- Evaporation material that can be used: Elements that evaporates at 800°C or lower. Elements that do not react with tantalum
- Recommended Elements: Various organic molecules
- Temperature measurement: Temperature measurement is not available if the evaporator has no thermostat.

**Shutter Function**
- Provided as standard for the 203C5 series
- Shutter Plate: Size: 34mm dia.; Rotation diameter: 30mm
- Switching Mechanism: Manual switching using the rotary motion feedthrough (with a rotation stopper)

**Film Thickness Gauge Function**
- Provided as standard for the 203C5 series
- Film Thickness Gauge Element (Measuring Position): Shutter plate surface
- Film Thickness Gauge Element: Crystal oscillator
- Film Thickness Monitor: Inficon film thickness gauge element monitor (OTM-2) is provided as standard