Precautions regarding the USHIO Optical Module

**WARNING**

- When operating the equipment, be sure to carefully read the Instruction manual provided with the unit, and observe all precautions regarding operating procedures and safety.
- Incorrect operation could result in a serious accident.
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- Fire hazard
  - When operating this equipment, be sure to carefully read the instruction manual provided with the unit, and observe all precautions regarding operating procedures and safety.
  - Incorrect operation could result in a serious accident.

- Electric shock
  - Before installation, lamp replacement, or maintenance, be sure to turn off the power. Further, avoid touching the lamp or other parts during operation.

- Burn hazard
  - The lamp and surrounding fittings become extremely hot during use. Do not touch them for at least 30 minutes after turning off the power.

**Notice**

- Equipment shown in this catalog, any products using the equipment or technologies relating to the equipment fall under the category of security control relating to freight or technologies under the provisions of the Foreign Exchange and Foreign Trade Control Law. You have to obtain permission from the Government of Japan before exporting them from Japan.

- Specifications of this product are subject to change without notice.
When scratches are present, reduced transmissivity shows up on the screen as a shadow.

Basic Model

Projection type

Device is especially made for visually inspecting glass, lenses, and film, and for checking for scratches and bubble striae in permeable resins.

Reflecting projection type

Allows visual inspection for surface scratches and contaminants by reflective projection on a screen of not just mirror surfaces, but the surfaces of all sorts of highly reflective materials, such as aluminum or copper plates.

Micro Projection Model

Imaging type

Device is especially made for visually inspecting glass, lenses, and film, and for checking for scratches and bubble striae in permeable resins.

Slit Model

Direct viewing type

Detects and dust as small as 20 microns can be clearly viewed by placing a glass plate, etc., against the slit and introducing light through the edge.

Collimator Lens Model

Projection type

Device is especially made for visually inspecting glass, lenses, and film, and for checking for scratches and bubble striae in permeable resins.

Reflecting projection type

Allows visual inspection for surface scratches and contaminants by reflective projection on a screen of not just mirror surfaces, but the surfaces of all sorts of highly reflective materials, such as aluminum or copper plates.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Projection type</th>
<th>Lamp used</th>
<th>Effective radiation diameter</th>
<th>Irradiance</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPM2-502XGC</td>
<td>Direct-viewing</td>
<td>Xenon short arc lamp UXL-500SX2</td>
<td>1,500mm</td>
<td>1,050Lx</td>
</tr>
<tr>
<td>OPM2-502HGC</td>
<td>Direct-viewing</td>
<td>Xenon short arc lamp USH-500SC2</td>
<td>1,500mm</td>
<td>1,700Lx</td>
</tr>
<tr>
<td>OPM2-252HGC</td>
<td>Direct-viewing</td>
<td>Xenon short arc lamp USH-250SC2</td>
<td>1,500mm</td>
<td>850Lx</td>
</tr>
<tr>
<td>OPM2-502XEGW</td>
<td>Reflecting</td>
<td>Xenon short arc lamp UXL-500SX2</td>
<td>1,500mm</td>
<td>1,700Lx</td>
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<tr>
<td>OPM2-502XEG</td>
<td>Reflecting</td>
<td>Xenon short arc lamp USH-500SC2</td>
<td>1,500mm</td>
<td>1,700Lx</td>
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The Collimator lens model for the Basic model has different internal optical designs, so removing the collimator lens from the former would not result in a device equivalent to the latter.

Also allows visual inspection for irregularities in coating.

<table>
<thead>
<tr>
<th>Screen</th>
<th>Slit opening</th>
<th>Min. aperture</th>
<th>Max. aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>0.5mm</td>
<td>0.25mm</td>
<td>1.0mm</td>
</tr>
<tr>
<td>Water surfaces</td>
<td>0.5mm</td>
<td>0.25mm</td>
<td>1.0mm</td>
</tr>
<tr>
<td>Wafer surfaces</td>
<td>0.5mm</td>
<td>0.25mm</td>
<td>1.0mm</td>
</tr>
<tr>
<td>UV cut filter installed inside lamp housing.</td>
<td>0.5mm</td>
<td>0.25mm</td>
<td>1.0mm</td>
</tr>
</tbody>
</table>

When slides are present, reduced transmissivity shows up on the screen as a shadow.

Also allows visual inspection for irregularities in coating.

Defects and dust as small as 20 microns can be clearly viewed by placing a glass plate, etc., against the slit and introducing light through the edge.

- UV cut filter installed inside lamp housing.
- Reflection distance: 850Lx
- Effective radiation diameter: 300mm
- Magnification ratio: 1,050Lx
- Lamp used: Xenon short arc lamp UXL-500SX2
- Sub-slide plate aperture: ±1.5mm (fine adjustment by screw). However, the sub-slide unit is removable.
- Main slide plate maximum aperture: 104

The Collimator lens model for the Basic model has different internal optical designs, so removing the collimator lens from the former would not result in a device equivalent to the latter.