Luminance & Chromaticity Uniformity Analyzer

UA-10

Achieving high speed and high precision measurement of display and back light unit uniformity.
High speed measurement as fast as 0.3 sec.
Optimized measurement algorithm enable the UA-10 to measure the uniformity at short time as fast as 0.3 sec., this help you with reduction of tact time in production line.

Small size and small weight
Small size and weight body is easy to incorporate into your production line.

Variety of view function
Focus assist.
Live view + 13 type view.
Multi point extraction (max 999 points), Time-series view.

Arbitrary shape of measuring spot
Measuring spot are selectable from polygon, square, and circle.
Various types of Instrument panels and design displays can be measured flexibly.

6 models
You can choose one among 6 models depending on object size and luminance level.

<table>
<thead>
<tr>
<th></th>
<th>0.1 to 30,000cd/m²</th>
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<td>Standard lens</td>
<td>UA-10SL</td>
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High color accuracy
Existing uniformity analyzer required correction factor settings for each color measurement. But Topcon original calibration/correction technology enable the UA-10 to achieve high accuracy of color measurement without complicated correction factor settings for each color.

Accurate measuring for Pulse light
Even when measuring flashing light, you can obtain stable measured data by setting frequency. *4

Multi-area Correction
Splitting into 64×64(Max.) area and applying correction factors to each area.

SDK *5 is standard option
UA-10 can be controlled via user host PC.

Diagonal correction
Correcting tilting image.
Once you specify a tilting correction setting in a recipe, measured images in subsequent measuring are corrected automatically.

Multipoint extraction & measurement
Specifying multipoint of bright region
-> Extracting bright points from specified area based on threshold value, and measuring them automatically.

OK/NG judgment function
It can be OK / NG judgment given in the judgment conditions area.

Usage
- Uniformity measurement for FPD module.
- Uniformity measurement for backlight and front light.
- Uniformity measurement for Illumination (Ceiling light).
- Uniformity measurement for FPD materials such as Diffusion panel and Light guide plate.
- Measuring time series variation light.

Optional accessories
- Tripod SN
Simplifies collimation of measurement object.
- Max height : 1835mm - Min height : 585mm
- Folder length : 810mm - Leg sections : 3
- Weight : 4.81Kg (including Tripod stand)
- Fine Adjustment Stand S-4
Simplifies vertical and lateral collimation.
- Elevation angle : 40° - Depression angle : 80°
- Rotation : 360° - Weight : Approx. 1.7Kg

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The data and image can be pasted to spreadsheet software. (BMP/JPG/PNG) format. Measured data on the each view can be saved as CSV, txt or Image. *Live-view/Pseudo color view/Split spot view/Standard spot view/Cross section view.

- **Live view**
  The UA-10 can show the Live view. You can check the measuring area and position on the Live-view. You can select cross target or diagonal marker.

- **Focusing assist**
  The ratio of focusing is displayed. You can refer to the ratio of focusing when focusing on a target.

- **Optimizing area**
  Measuring condition is optimized at specified area.

- **Various Operations**

  1. **Pseudo color view/Gray scale**
     Software-colored image and 4,096 steps gray scale present the difference in luminance / chromaticity on measuring area. This view is suitable for uniformity measuring.

  2. **Contour view**
     This view use contour lines to indicate the profile of each tristimulus value.

  3. **Split spot view**
     The Image dividend with grid pattern shows in this view. Average value in the each divided area is calculated.

  4. **Standard spot view**
     Four type of Measuring standard available such as JEITA standard (EIAJ ED-2522/ED-2710). You can customize the measuring spot size and the number of measuring spot.

- **SDK allows for creating software to meet your needs**

  This software is the development kit to control UA-10 through a PC on the network. This software provides required module for software development and you are able to create network program (socket communication program) using library function in the module. You can develop software for UA-10 without caring about communication protocol.

  **UA-10 SDK** (Standard accessories software)

  *Software Development Kit*

- **Operating Conditions**

<table>
<thead>
<tr>
<th>OS</th>
<th>Windows® 7 Ultimate / Professional (32bit/64bit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Windows® 8.1 Pro or more (32bit/64bit)</td>
</tr>
<tr>
<td></td>
<td>Windows® 10 Pro or more (32bit/64bit)</td>
</tr>
<tr>
<td>CPU</td>
<td>Intel® Core™ i5(Quad Core or higher) 2.8GHz or higher</td>
</tr>
<tr>
<td>Memory</td>
<td>4GB or higher</td>
</tr>
<tr>
<td>HDD</td>
<td>1GB or higher</td>
</tr>
<tr>
<td>LAN Port</td>
<td>Giga Ethernet 1Port</td>
</tr>
<tr>
<td>Display</td>
<td>1,024x768 or higher, 1,677million colors (32bit) or higher</td>
</tr>
<tr>
<td>Other</td>
<td>CD-ROM drive</td>
</tr>
</tbody>
</table>

  *Windows is a registered trademark of Microsoft Corporation in the US and or other countries.
  *Intel is a registered trademark of Intel Corporation.
### Specification

**Photo detector**  
1.3Miliion-Pixel Color CCD

**Objective lens**  
Single focus UA-10SL / SH: F=8.0mm  
UA-10WL / WH: F=3.5mm

**Number of measurement points**  
1,280x960

**Data bit**  
12bit

**Luminance measurement range**  
0.1 to 30,000 cd/m²  
10 to 1,000,000 cd/m²

**Luminance linearity**  
±2% (1 cd/m² or more)  
±2% (50 cd/m² or more)

**Chromaticity accuracy**  
±0.003 (1 cd/m² or more)  
±0.003 (50 cd/m² or more)

**In-plane unevenness uniformity**  
Luminance : ±2%

**Chromaticity**  
±0.003

**Repeat characteristic**  
Luminance : ±5% (20)

**Measurement Time**  
UA-10SL / WL : Fastest about 0.3sec (100 cd/m²)

**Stability**  
Luminance : ±1%

**Repeatability**  
Luminance : ±2%

**Temperature characteristic**  
Luminance : ±3% At 0 to 40ºC (reference : 25ºC)

**Humidity characteristic**  
Luminance : ±3% (Humidity : 85%RH and below, No condensation)

**Interface**  
LAN (Gigabit Ethernet)

**Power supply**  
100 to 240 V (AC) 50/60Hz

**Power Consumption**  
Photo detector 100V 38VA

**Operating conditions**  
Temperature : 0 to 40ºC, Humidity : 85%RH and below (No condensation)

**Storage condition**  
Temperature : 5 to 50ºC, Humidity : 85%RH and below (No condensation)

**Outer dimensions**  
UA-10SL / WL / TH : 85.1(L)x34.0(W)x34.4(H)mm

**Weight**  
UA-10SL : about 185g  
UA-10SH : about 155g

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### Dimensions

#### UA-10SL / UA-10SH Area

<table>
<thead>
<tr>
<th>Measurement distance (mm)</th>
<th>200</th>
<th>500</th>
<th>1,000</th>
<th>1,500</th>
<th>2,000</th>
<th>2,500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>inch</strong></td>
<td>5.5</td>
<td>13.3</td>
<td>26.6</td>
<td>39.9</td>
<td>53.1</td>
<td>66.4</td>
</tr>
<tr>
<td><strong>Horizontal (mm)</strong></td>
<td>110.8</td>
<td>270.0</td>
<td>540.0</td>
<td>810.0</td>
<td>1,080.0</td>
<td>1,350.0</td>
</tr>
<tr>
<td><strong>Vertical (mm)</strong></td>
<td>83.1</td>
<td>202.5</td>
<td>405.0</td>
<td>607.5</td>
<td>810.0</td>
<td>1,012.5</td>
</tr>
</tbody>
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#### UA-10WL / UA-10WH Area

<table>
<thead>
<tr>
<th>Measurement distance (mm)</th>
<th>100</th>
<th>200</th>
<th>500</th>
<th>1,000</th>
<th>1,500</th>
<th>2,000</th>
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<tbody>
<tr>
<td><strong>inch</strong></td>
<td>6.7</td>
<td>13.4</td>
<td>33.4</td>
<td>66.8</td>
<td>100.2</td>
<td>135.5</td>
<td>166.9</td>
</tr>
<tr>
<td><strong>Horizontal (mm)</strong></td>
<td>135.7</td>
<td>271.4</td>
<td>678.4</td>
<td>1,356.8</td>
<td>2,095.2</td>
<td>2,713.6</td>
<td>3,393.0</td>
</tr>
<tr>
<td><strong>Vertical (mm)</strong></td>
<td>101.8</td>
<td>293.5</td>
<td>588.8</td>
<td>1,017.6</td>
<td>1,526.4</td>
<td>2,035.2</td>
<td>2,544.0</td>
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#### UA-10TL / UA-10TH Area

<table>
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<th>500</th>
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<td>2.9</td>
<td>5.8</td>
<td>8.7</td>
<td>11.5</td>
<td>14.4</td>
</tr>
<tr>
<td><strong>Horizontal (mm)</strong></td>
<td>23.5</td>
<td>58.7</td>
<td>117.4</td>
<td>176.1</td>
<td>234.8</td>
<td>293.5</td>
</tr>
<tr>
<td><strong>Vertical (mm)</strong></td>
<td>17.6</td>
<td>44.0</td>
<td>88.0</td>
<td>132.1</td>
<td>176.1</td>
<td>228.1</td>
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### SAFETY PRECAUTIONS

Make sure to carefully read the "Manual" to ensure that you use the product properly and safely.  
Always connect the instrument to the specified power supply voltage. Improper connection may cause a fire or electric shock.

For more information please visit our website.

http://www.topcon-techno.co.jp/en/