Ultimate and Versatile 2D Spectroradiometer is finally released!

World First Absolute 2D Spectroradiometer with Luminance & Chromaticity Accuracy Guarantee!

The convertible model that have advantage both of Spectrum and Filter type, and having high speed and high accuracy measuring.

Spectral mode / Hybrid type / XYZ(Filter) mode
- High accurate measurement
- High speed measurement
2D measurement by spectrophotometry! It is a new solution for optical measurement.

**SR-5000 / SR-5000H**

- Catch spectral change of 1376x1024 points as 2D by spectral measurement at a time.
- Visualize phenomena that cannot be seen in the eyes.
- Visualize the change that cannot be distinguished by luminance and chromaticity’s point value.
- The light source with traceability is used to calibrate the instrument, and high accurate luminance and chromaticity is guaranteed.
- 2D measurable spectroradiometer with performance equivalent to that of a point measurement spectroradiometer.

**Spectral mode**

1. **High accuracy measurement by spectrophotometry method of each 1 nm.**
   The pitch of wavelength is selectable from 1nm, 3nm or 10nm.

2. **Measurement of designated range.**
   Only designated area in FOV can measure, and the measurement time will be faster when its area is small.

**XYZ(Filter) mode**

- **High accuracy measurement up to 0.005 cd/m² that is in ultra-low luminance range.**
  Measure luminance and chromaticity from 0.005 to 40,000 cd/m² with high accuracy by using our own optical XYZ filter.* Standard illuminant A.

- **High speed measurement.**
  Measurement for luminance and chromaticity is possible in approx.4.5 sec when luminance of light source is 100 cd/m².

- **High accurate chromaticity.**
  The newly developed high accurate XYZ optical filter that chromaticity accuracy is within ±0.008, and achieved high correlation the sensitivity of human eyes. *Standard illuminant A and standard colored glass filter.

**Common function**

1. **1.4 Mega pixel CCD sensor.**
   Measurement of 1376 x 1024 pixels is available.

2. **Arbitrary shape of measuring area setting.**
   Measurement area setting such as polygon, rectangle, circle is available freely. It can flexibly correspond to various instrument panels, design displays, etc.

3. **Synchronous measurement.**
   Measure stably by inputting the synchronization signal when measuring the blinking light source such as OLED.

4. **Frequency measurement.**
   Measure stably by setting frequency when measuring the pulse emitting light source. *4 to 2,000 Hz.

5. **Multipoint extraction & measurement.**
   Specifying multipoint of emitting area, and extracting emitting points from each specified area based on threshold value, and measuring them automatically.

6. **Layer function.**
   It is most suitable for light-shade measurement of the object that have wide dynamic range.

7. **Diagonal correction function.**
   Correcting tilting image of the measuring surface. Once a tilting correction setting is specified in a recipe, measured images in subsequent measuring are corrected automatically.

8. **Object color mode/ L*a*b*, Hue-Chroma.**
   Display the object color value by calculating standard white board and actual measurement data.
Standard application software supports measuring and evaluation efficiently by easy operation.

Language: English, Japanese

You can control the SR-5000(H) series and retrieve measured data, save data, convert measured data into image via PC. The application software conducts various types of data processing and data analyzing efficiently.

Two types mode are available for your usage.
- Measurement mode
  Full functions are available including UA-5000(H) series control.
- Review mode
  Viewer software for viewing image data and analyzing measured data, and can analyze measured data at other place without the instruments.

Main view window

<table>
<thead>
<tr>
<th>Icon/Tab</th>
<th>Pseudo color view</th>
<th>Chromaticity diagram</th>
</tr>
</thead>
</table>

*Language: English, Japanese

Measured data can paste to spreadsheet software.

Measured data in each view can save as CSV, txt, or image file (BMP/JPG/PNG), and can paste to spreadsheet software such as Excel.

**Selective data item for display**

| 1. Tristimulus values (X, Y, Z) | 4. Colorimetric system L*a*b* |
| 2. Chromaticity x, y | 5. R, G, B |

3. Pixel data

Spectrum on any pixels in measured image and various measured values are displayed.

14. L*a*b*

Chromaticity L*a*b* of each spot is plotted on the chromaticimetry diagram, and color distribution can confirm. Also, chromaticity diagram is possible to zoom up for checking where plotted points concentrated.

15. Spectral radiance image

Measured data is displayed as an image for each wavelength.

16. Backlight simulation

Analysis of liquid crystal cell itself excluding the influence of unevenness of backlight is available.
Principal use

- Evaluation of uniformity in luminance, chromaticity, spectrum that is for LCD, LCD related materials, OLED, QD, Laser and Micro LED etc.
- Evaluation of light distribution, spectrum that is for interior lighting, meter panel of automotive etc.
- Evaluation of uniformity in luminance, chromaticity and spectrum that is for light-emitting part of LED and OLED illumination.
- Evaluation of spectrum the indoor and all objects of outdoor scenery.
- Evaluation of spectroscopic spectra for textile fabrics.
- Detection of skin spot and pigmentation.
- Analysis of absorption, reflection, transmission characteristics.
- Measurement for Unevenness of film and glass coating, and interference fringe.
- Moire evaluation of touch panel.

Usage examples

- Evaluation of luminance, chromaticity and spectrum unevenness for OLED, LCD and related members etc.

![Smartphone](image)

Pseudo color view (Luminance)

"Color shift" occurs due to low durability of OLED's RGB organic matter, and it is detected the failure by spectrum, luminance and chromaticity change amount.

- Evaluation for automotive interior and exterior lamp.

![Pseudo color view (Luminance)](image)

RGB image view

Evaluation for luminance unevenness, spectrum of specified points, luminance or chromaticity of object such as indicator.

- Backlight simulation

![BLU Spectral characteristics (Actual value)](image)

LCM Spectral characteristics (Actual value)

Evaluation for luminance unevenness, spectrum of specified points, luminance or chromaticity of object such as indicator.

Defect analysis for LCD module and film.

* LCM:Liquid Crystal Module, BLU:Back Light Unit
Evaluation for moire of touch sensor

Spectral search

Matching analysis of spectrum unevenness

SR-5000M + Micro scope application example

Evaluation of unevenness and interference fringe of film and glass coating

Evaluation of spectrum unevenness

Spectral search

Visibility simulation by age group

The object colors measured under arbitrary light source can simulate the object colors in case of other light source.

"Object color simulation" function under different light sources
**Lineup**

Standards lens  
*SR-5000S SR-5000HS*

Wide lens  
*SR-5000WS SR-5000HWS*

Telephoto lens  
*SR-5000HT*

Macro lens  
*SR-5000M SR-5000HM Custom-made-product*

---

**SDK (Software Development Kit)**

Development kit is composed of header file and library to control SR-5000 through a network PC.

It is possible to create customized software according to external communication and the needs of user.

It can acquire and display only the necessary data, and it is also possible to reduce the file size of measurement data.

Sample program is also included.

---

**Dimension**

*SR-5000S / SR-5000HS*

- Dimensions:
  - Length: 200.0 mm
  - Width: 150.0 mm
  - Height: 120.0 mm

*SR-5000WS / SR-5000HWS*

- Dimensions:
  - Length: 200.0 mm
  - Width: 180.0 mm
  - Height: 120.0 mm
Optional accessories

**Tripod SN**
- Easy collimation of measurement object.
- Max height: 1835 mm
- Min height: 585 mm
- Folder length: 810 mm
- Leg section: 3 steps
- Weight: Approx. 4.8 kg including tripod head

**Fine adjustment stand S-4**
- It is easy collimation each direction up / down / left / right by removing the tripod 5N head and installing this unit.
- Elevation angle: 40º
- Depression angle: 80º
- Rotation: 360º
- Weight: Approx. 1.7 kg

Standard package
- SR-5000 or SR-5000H main body: 1 pcs
- Attachment wide lens AL-5001: 1 pcs
- Tripod 5N: 1 pcs
- AC adapter: 1 pcs
- USB 3.0 cable: 1 pcs
- DVD-ROM(Application software/Instruction manual/SDK): 1 pcs
- Lens cap for objective lens: 1 pcs
- Carrying case: 1 pcs
- Computer(*): 1 pcs

*Goods on the market
- Application software: 1 pcs

System diagram

SR-5000T / SR-5000HT

SR-5000M / SR-5000HM

Use only specified screws when using the tripod screw and screw holes for jig attachment. Do not tighten the screws any more than necessary. Doing so might cause internal breakage.

Unit: mm
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement mode</td>
<td>Spectral Mode</td>
<td>XYZ(Filter) Mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detector</td>
<td>1.4 mega pixel CCD image sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective lens</td>
<td>Standard lens, Wide lens, Telephoto lens, Macro lens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focal length</td>
<td>F=32mm, F=24mm, F=140mm, F=0.025mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective pixel</td>
<td>1376 x 1024</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement range</td>
<td>0.5 to 5,000,000 cd/m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave length range</td>
<td>380 to 780 nm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectral accuracy</td>
<td>±0.5 nm (In Hg emission line)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave length resolution</td>
<td>1 nm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>Luminance: ±0.2%, Chromaticity: ±0.002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-plane uniformity</td>
<td>Luminance: ±0.2% / Chromaticity: ±0.002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>Luminance: 0.5%, Chromaticity: 0.0002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>USB3.0 / External trigger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>AC100 - 240V (50/60Hz) Dedicated AC adapter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>Approx. 20W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Measurement area: Standard lens

<table>
<thead>
<tr>
<th>Measurement distance (mm)</th>
<th>400</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display size (inch)</td>
<td>9.2</td>
<td>11.4</td>
<td>22.5</td>
<td>33.5</td>
<td>44.7</td>
<td>55.3</td>
</tr>
<tr>
<td>Horizontal (mm)</td>
<td>187.1</td>
<td>232.8</td>
<td>458.1</td>
<td>628.7</td>
<td>910.3</td>
<td>1127.0</td>
</tr>
<tr>
<td>Vertical (mm)</td>
<td>139.2</td>
<td>173.2</td>
<td>340.9</td>
<td>508.1</td>
<td>677.4</td>
<td>838.7</td>
</tr>
</tbody>
</table>

Measurement area: Telephoto lens

<table>
<thead>
<tr>
<th>Measurement distance (mm)</th>
<th>600</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display size (inch)</td>
<td>3.1</td>
<td>5.6</td>
<td>8.7</td>
<td>14.9</td>
</tr>
<tr>
<td>Horizontal (mm)</td>
<td>63.6</td>
<td>114.2</td>
<td>177.5</td>
<td>303.4</td>
</tr>
<tr>
<td>Vertical (mm)</td>
<td>47.3</td>
<td>84.9</td>
<td>132.1</td>
<td>225.8</td>
</tr>
</tbody>
</table>

Measurement area: Wide lens

<table>
<thead>
<tr>
<th>Measurement distance (mm)</th>
<th>400</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display size (inch)</td>
<td>12.7</td>
<td>15.6</td>
<td>30.3</td>
<td>44.9</td>
<td>50.8</td>
<td>74.1</td>
</tr>
<tr>
<td>Horizontal (mm)</td>
<td>259.1</td>
<td>318.4</td>
<td>617.4</td>
<td>914.1</td>
<td>1213.7</td>
<td>1510.7</td>
</tr>
<tr>
<td>Vertical (mm)</td>
<td>192.8</td>
<td>236.9</td>
<td>459.5</td>
<td>680.3</td>
<td>903.2</td>
<td>1124.2</td>
</tr>
</tbody>
</table>

Measurement area: Macro lens

<table>
<thead>
<tr>
<th>Measurement distance (mm)</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display size (inch)</td>
<td>0.3</td>
</tr>
<tr>
<td>Horizontal (mm)</td>
<td>7.1</td>
</tr>
<tr>
<td>Vertical (mm)</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Hardware requirement

<table>
<thead>
<tr>
<th>OS</th>
<th>Windows® 7 Ultimate (64bit) SP1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Windows® 7 Professional (64bit) SP1</td>
</tr>
<tr>
<td></td>
<td>*XP mode is not available. Windows® 10 Pro (64bit)</td>
</tr>
<tr>
<td>CPU</td>
<td>Intel® Core™ (TM) i7-4770</td>
</tr>
<tr>
<td>Memory</td>
<td>8GB or higher</td>
</tr>
<tr>
<td>HDD</td>
<td>500GB or higher</td>
</tr>
</tbody>
</table>

USB port

<table>
<thead>
<tr>
<th>USB port</th>
<th>USB3.0: 1 port</th>
</tr>
</thead>
</table>

USB driver

<table>
<thead>
<tr>
<th>USB driver</th>
<th>Intel® USB 3.0 extensible Host Controller Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intel® USB 3.0 eXtensible Host Controller Driver</td>
</tr>
</tbody>
</table>

Display

<table>
<thead>
<tr>
<th>Display</th>
<th>1024x768 or higher, 16.77 million colors (32bit) or higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive</td>
<td>DVD-ROM drive</td>
</tr>
</tbody>
</table>

Contact information

TOPCON TECHNOHOUSE CORPORATION
7-1 Hasunuma-cho, Itabashi-ku, Tokyo 174-8580 JAPAN
Phone: +81-3-3558-2666 Fax: +81-3-3558-4661
E-mail: techno-info@topcon.co.jp
http://www.topcon-techno.co.jp/en/