BM-7 series for next-generation! High accurate chromaticity like spectroradiometer was developed!

Measurement speed of just 0.5 seconds. Ideal for inline measurement in mass production settings.
Delivers improved luminance accuracy and faster measurement speed.

Luminance Colorimeter

**BM-7AS**

**Features**

**Point.1** Improvement of chromaticity accuracy.

Chromaticity accuracy is improved by realizing spectral sensitivity characteristic same as CIE 1931 color matching function that is regarded as human eye's sensitivity.

- Chromaticity1: $dX/dY : ±0.002^{*1}$
- Chromaticity2: $dX/dY : ±0.008^{*2}$
- Chromaticity3: $dX/dY : ±0.005^{*3}$

*1: Auto range, For standard illuminant A
*2: For reference illuminant A with color glass filter
*3: For our specification LED panel of RGBW

**Point.2** Luminance accuracy

Delivers luminance accuracy within ±2% for Standard source A, measurement angle 2°, luminance 5cd/m² or above, Auto Range

**Point.3** Delivers high-speed measurement

Measurement speed of just 0.5 seconds. Ideal for in-line measurement in mass production settings.

**Point.4** Auto mode measurement

Auto mode automatically sets the measurement range according to the brightness of the target.

**Main Applications for BM-7AS**

Optical property evaluation for flat panel displays, luminance / chromaticity / color temperature measurement for lamps and other light sources.

For our specification LED panel of RGBW

1. **Output impedance** is approximately 100Ω.
2. Recording instrument must have Input impedance of 10kΩ or above.
3. **Output voltage** : 0 to 3.0V

**Point.5** Analog output (BM-7AS ANA)

Optional three-channel analog output to X, Y and Z channels for recording and waveform observation using a recorder or oscilloscope.

Example) Rise and fall response characteristics, frequency, etc. of a flashing light source.

**Point.6** Internal interfaces

Dual interface options: USB and RS-232C.

**Point.7** High durability

This model has filter of non-rotational structure, so that it has excellent durability.
Standard accessories software supports control of instrument and data collection

BM-7AS colorimetry software CS-900A (standard accessory)

Application software CS-900A for Windows supports BM-7AS. You can control BM-7AS using the CS-900A, and collect, save, plot on a graph and calculate of the measured data and, use them for many purpose.

On the Colorimetry mode, it can shorten the communication time between the instrument and PC due to omitting spectral data transmission.

System required (recommended)

• OS: Windows® 7 Ultimate / Professional(32bit/64bit) Windows® 10 : Professional U.W (32bit/64bit)
• CPU: Intel® Core™ i3 or more
• HDD: 1GB or more
• Memory: 1GB or more
• Ports: USB2.0 (One port) / RS-232C serial port (One port)

*The RS-232C cable (straight cable for DOS/V PC) must be purchased separately.

Hardware Features

- Panel switches
  - AUTO/MANU: Switches between Auto/Manual range.
  - CAL: Used for calibration.
  - FAST/SLOW: Switches the response speed.
- Inner switches/button
  - For calibration using chromaticity reference, and configuration of internal interface parameters.
- Objective lens (focusing ring)
- Measuring field selector switch (2°/1°/0.2°/0.1°)

External Dimension

Connects directly to standard instruments for direct color correction.
Specifications, Performance

Optics
Objective lens: Focal distance = f = 40mm, f/2.5 Eyepiece lens: View field, CD diaphragm adjustment range

Spectrophotometric
Similar to CIE1931 color matching functions

Photo-cell
3-element silicon photodiode (X, Y, Z)

Measurement angle
Selectable aperture of 2", 0.2", and 0.1"

Measurement distance
350 mm to (from front of objective lens)

<table>
<thead>
<tr>
<th>Measurement diameter (mm)</th>
<th>Measurement angle</th>
<th>Weight (main unit only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>1°</td>
<td>Approx. 3 kg</td>
</tr>
<tr>
<td>1&quot;</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>0.2&quot;</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>0.1&quot;</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Measurement functions
X, Y, C, Y: chromaticity coordinates; L*: luminance; a*, b*: chromaticity coordinates; L*: luminance; a, b: CIE 1931 chromaticity coordinates; L: luminance; a, b: CIE 1931 chromaticity coordinates.

Measurement range
Auto, Manual (5-step selectable)

<table>
<thead>
<tr>
<th>Measurement range (Not a guaranteed accuracy range)</th>
<th>Measurement angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range 1</td>
<td>0.01 - 12,000,000cd/m²</td>
</tr>
<tr>
<td>Range 2</td>
<td>0.01 - 12,000cd/m²</td>
</tr>
<tr>
<td>Range 3</td>
<td>0.01 - 200cd/m²</td>
</tr>
<tr>
<td>Range 4</td>
<td>0.1 - 1000cd/m²</td>
</tr>
<tr>
<td>Range 5</td>
<td>0.1 - 100cd/m²</td>
</tr>
</tbody>
</table>

Accuracy
(Fixed standard error)
- Luminance: 1 - 1.5 cd/m² within ±4% (measurement angle 2° Auto Range)
- Chromaticity: 2 cd/m² or above ±2% (measurement angle 2° Auto Range)
- Chromaticity: 2 cd/m² or above ±2% (measurement angle 2° Auto Range)

Repeatability
(Fixed standard error)
- Luminance: 1 - 1.5 cd/m² within ±4% (measurement angle 2° Auto Range)
- Chromaticity: 2 cd/m² or above ±2% (measurement angle 2° Auto Range)
- Chromaticity: 2 cd/m² or above ±2% (measurement angle 2° Auto Range)

Measurement time
Approx. 0.5 sec (FAST or SLOW)

Display
Dot matrix LCD: 20 digits x 4 lines with illumination function

MIN/LUMINANCE display
0.01 cd/m²

Interface
Selectable USB or RS-232C

Power supply
Dedicated AC adapter (AC 100V to 240V, 50/60 Hz)

Power consumption
Approx. 2.5VA

Oscillating requirements
Temperature: 0 to 40°C, Humidity: Below 85% RH (must be condensation free)

Storage requirements
Temperature: -20 to 60°C, Humidity: Below 85% RH (must be condensation free)

External dimensions
Approx. 325 x 320 x 162 mm (L x W x H)

Weight
Approx. 3 kg

### Optional Accessories

- **AL-6 / AL-11 / AL-12 Attachment Lens**
  - Attaches to the objective lens on the BM-7AS unit.
  - Shortens the focal distance and shrinks the minimum measurement area for measurement of small objects.

- **WS-3 Reference White Board**
  - Used for measurement of object color or light source with directivity.
  - Luminance factor: 90% or above (Incidence 0°, Observation 45°)
  - Material: Barium sulfate (BaSO₄)
  - Dimensions: 78 mm x 78 mm
  - Effective white surface: 40 mm x 40 mm (at center)

- **FP-3 Fiber Probe**
  - Light guide used for remote detection of light from measurement object.
  - Effective measurement angle: 2°
  - Measurement diameter: 3.1 mm
  - Measurement distance: 3.1 cm
  - Fiber length: Approx. 1m

- **IA-1A ITV Adapter**
  - Adapter for connecting BM-7AS to CCD camera.

- **MF-10 / MF-100 Mesh Filter**
  - Mesh type filter for measuring objects with brightness exceeding measurement range of BM-7AS.

- **Tripod SN**
  - Simplifies collimation of measurement object.
  - Max. height: 1835 mm
  - Min. height: 875 mm
  - Folded length: 410 mm
  - Leg sections: 3
  - Weight: 4.6 kg (with pan head)

- **Fine Adjustment Stand S-4**
  - Simplifies vertical and lateral collimation when attaching BM-7AS.
  - Unit must be removed from pan head of type SN tripod.
  - Elevation angle: 40°
  - Depression angle: 80°
  - Rotation: 360°
  - Weight: Approx. 1.7 kg

- **Carrying Case**
  - Convenient carrying case for transport or storage when not in use.

### BM-7AS Standard Package

- BM-7AS Luminance Colorimeter
- AC adapter
- Objective lens cap
- Eyepiece lens cap
- Quick Manual
- Analog output plug

- For analog output model only

### Chromaticity Diagram: Source A + Color Glass Filter

- \( \frac{X}{Y} \) vs. \( \frac{Y}{X} \)
- \( X, Y, C, Y \): chromaticity coordinates;
- L*: luminance; a*, b*: chromaticity coordinates;
- L*: luminance; a, b: CIE 1931 chromaticity coordinates.

- The catalogue includes products that are sold separately.

- The actual color of products may differ slightly from the catalogue due to lighting and printing conditions.

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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/

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