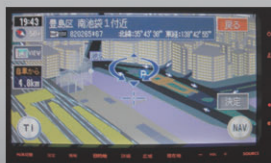
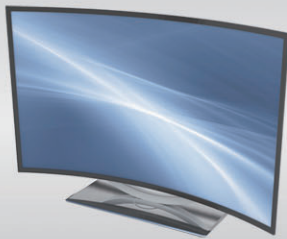


Luminance Colorimeter

# ***BM-5AC***



**BM-5A series for next-generation!**

# BM-5AC is a high sensitivity luminance colorimeter combines high reliability, operability and high speed.

## Feature

### POINT.1 High speed measuring for ultra low luminance.

It can measure the luminance as ultra low as 0.005 cd/m<sup>2</sup> at about 2 second.  
Note: For measurement angle of 3 degree.

### POINT.2 Wide measurement area

Selectable 5 measurement angle 0.1° / 0.2° / 1° / 2° / 3° enable you to measure the luminance from small to wide area without attachment lens.

### POINT.3 Analog output

The BM-5AC can connect to the recorder and the oscilloscope through analog output X<sub>2</sub>, Y, Z (selectable).

### POINT.4 USB Interface

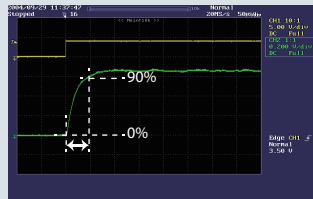
The BM-5AC is equipped with USB and RS-232C interface.

## Response speed of analog output

Connecting to Oscilloscope through analog output, The BM-5AC can measure build up time and fall down time of flicker light.

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

	NORMAL	FAST
Range 1	30ms	5ms
Range 2	30ms	0.5ms
Range 3	30ms	0.05ms
Range 4	30ms	0.5ms
Range 5	30ms	0.05ms



The response speed means the time that it takes analog output from the instrument to reach 90% of the peak value, when measuring an LED driven by a square wave from a function generator.

- Output impedance is approximately 100Ω.
- Recording instrument must have Input impedance of 10kΩ or above.
- Output voltage 0 - 4.0V

\*The response speed in the table above is the time that it takes analog output from the instrument to reach 90% of the peak value, when measuring an LED driven by a square wave from a function generator.

## Usage

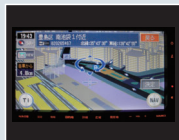
For measurement of luminance, chromaticity and color temperature, for example; optical characteristic test, Interior panel for automobile, Speed meter for automobile, Fluorescent substance.



FPD



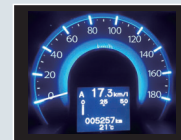
Mobile phone



Car navigation



Automotive Switch

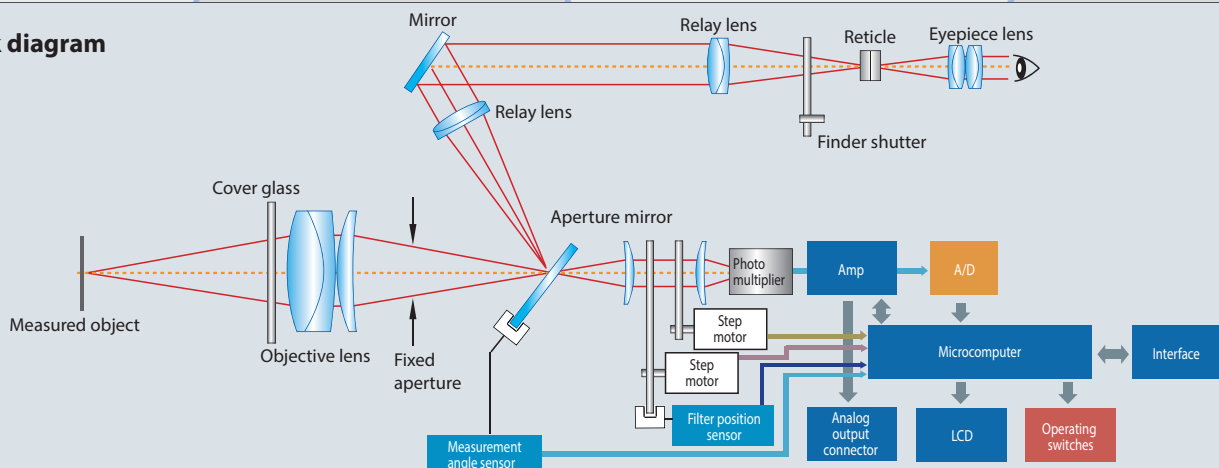


Speed meter



Fluorescent substance

### •Block diagram





•Specifications

Optical system	Objective lens : f=80mm F2.5 / Eyepiece lens : View field 5°, Diopter adjustment range ±5 diopter					
Spectral sensitivity	Similar to CIE1931 color matching function					
Photo detector	Photomultiplier tube					
Measurement angle	3° / 2° / 1° / 0.2° / 0.1° (Selectable)					
Measurement distance	350mm to ∞					
Measurement area Diameter (mm)	Measurement distance (mm)					
	Measurement angle	350	500	1,000	5,000	10,000
	3°	15.0	23.1	49.2	255	510
	2°	10.0	15.4	32.8	169	341
	1°	5.0	7.7	16.4	85	170
	0.2°	1.0	1.5	3.3	17	34
Measurable range	0.00005 to 1,200,000 cd/m <sup>2</sup>					
	Measurement angle	Luminance (cd/m <sup>2</sup> )				
Luminance range for guaranteed accuracy	3°	0.005 to 1,500cd/m <sup>2</sup>				
	2°	0.01 to 3,000cd/m <sup>2</sup>				
	1°	0.04 to 12,000cd/m <sup>2</sup>				
	0.2°	1 to 300,000cd/m <sup>2</sup>				
Accuracy	• Luminance : ±4% (for standard source A)					
	• Chromaticity1 : dx,dy Within ±0.005 (Auto range, for standard source A)					
Repeatability *	• Chromaticity2 : dx,dy Within ±0.008 (O-55,Y-48,A-73B,IRA-05,T-44,R-61,B-46,V-44,G-54)					
	For a combination of the standard source A and the next colored glass, when COLOR ADJUSTMENT is applied.					
Repeatable * For a measuring field of 3 degrees For a measuring field of 2 degrees For a measuring field of 1 degrees For a measuring field of 0.2 degrees For a measuring field of 0.1 degrees	• Luminance :					
	0.005 to 0.025cd/m <sup>2</sup> : 2% or less	0.025cd/m <sup>2</sup> or above : 0.8% or less				
	0.01 to 0.05cd/m <sup>2</sup> : 2% or less	0.05cd/m <sup>2</sup> or above : 0.8% or less				
	0.04 to 0.2cd/m <sup>2</sup> : 2% or less	0.2cd/m <sup>2</sup> or above : 0.8% or less				
	1 to 5cd/m <sup>2</sup> : 2% or less	5cd/m <sup>2</sup> or above : 0.8% or less				
	4 to 20cd/m <sup>2</sup> : 2% or less	20cd/m <sup>2</sup> or above : 0.8% or less				
Measurement range	(2σ, Single mode, Auto range, for standard source A)					
	• Chromaticity : xy 0.003 or less					
	(2σ, Single mode, Auto range, for standard source A)					
	measuring field 3°: 0.025cd/m <sup>2</sup> or more    measuring field 0.2°: 5cd/m <sup>2</sup> or more measuring field 2°: 0.05cd/m <sup>2</sup> or more    measuring field 0.1°: 20cd/m <sup>2</sup> or more measuring field 1°: 0.2cd/m <sup>2</sup> or more					
Function	Luminance, CIE1931 chromaticity coordinates, CIE1976 chromaticity coordinates, Tristimulus value XYZ, Correlated color temperature and Deviation, CIE1976 L*a*b*, Eab*±Δ, CIE1976 L*u*v*, Euv*±Δ					
Output	Analog output (X, Y, Z), DC : 0 to 4V (One channel changeover type) Digital output (Interface : USB / RS-232C)					
Measurement time	About 2 seconds (Single measurement mode)					
Display	Dot matrix 20 characters x 4 lines with back light					
Interface	USB / RS-232C					
Power supply	Dedicated AC adapter					
Power consumption	Approximately 20 VA when using an AC adapter					
Operating condition	Temperature : 0 to 40°C, Humidity : 85% R.H. or less (no condensation)					
Storage condition	Temperature : -20 to 60°C, Humidity : 85% R.H. or less (no condensation)					
External dimensions	Approx 355mm x 154mm x 212mm (LxWxD)					
Weight	Approx 3.6Kg (main unit only)					

\*The precision value(luminance and chromaticity) written in this catalog is the specification value by our standard light source and measurement condition.  
\*Due to the nature of the product, measurement error that is out of specification value may occur by the difference of the light source, measurement condition and measurement environment.



\* Some screens are simulated.  
\* The specifications and external appearances of product in this catalogue may be changed without prior notice due to improvements.  
\* 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.



<https://www.techno-optis.com/en/>

•Extra-cost option



•Attachment lens AL-6 / AL-11 / AL-12

Placing the attachment lens on the instrument's objective lens, the focal distance shorten and reduce the minimum measurement area.

(Specifications for Measuring Small Objects)

Measurement diameter (mm)	Measurement angle	AL-6	AL-11	AL-12
		Measurement distance : 43 to 57mm	Measurement distance : 19.8 to 24.2mm	Measurement distance : 165 to 197mm
3°		2.91 to 4.14	1.76 to 2.18	4.83 to 5.91
2°		1.94 to 2.76	1.18 to 1.45	3.23 to 3.97
1°		0.97 to 1.38	0.59 to 0.72	1.61 to 1.97
0.2°		0.20 to 0.27	0.12 to 0.14	0.32 to 0.40
0.1°		0.10 to 0.13	0.06 to 0.07	0.16 to 0.20

\*May change slightly according to the machining precision of the aperture mirror.  
\*The measurement distance is the distance from the tip of the metal fixture on the instrument of the objective lens.



•White standard board WS-3

Uses when measuring object color and direction high directivity light.

- Luminance factor : 90% or less (Incidence 0°, Observation 45°)
- Material : Barium sulfate (BaSO<sub>4</sub>)
- Dimension : ø78mm, t=12.5mm
- Effective white surface : ø40mm (Central portion)



•Fiber probe FP-3

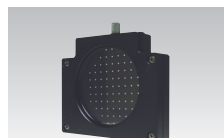
Light guide

- Effective measuring angle 2°
- Measurement diameter : ø3 to 10mm
- Measurement distance : 31.0 to 84.9mm
- Fiber length : about 1m



•ITV adapter IA-2

Adapter for connecting CCD camera (C mount, 1/2 inch) to the instrument.



•Mesh Filter MF-10 / MF-100

Uses when measuring the light which is over measurement range of the instrument.



•Tripod 5N

The tripod 5N make collimation easy.

- Max height : 1835mm
- Min height : 585mm
- Length when stored : 810mm
- Leg stages : 3steps
- Weight : 4.7kg with tripod head

•Standard package of BM-5AC

- BM-5AC main body.....1ea.
- AC adapter .....1ea.
- Analog output plug.....3ea.
- CD-ROM (colorimetry software CS-900A / Instruction manual).....1ea.
- Quick manual.....1ea.
- Carrying case.....1ea.
- USB cable.....1ea.
- Lens cap for objective lens.....1ea.

