

LUMINANCE METER

BM-9A



The Luminance meter BM-9A is a handy-type luminance meter with a wide measurement range and excellent operational convenience. With newly added 1° measuring field detector, totally three types of detectors (2°/1°/0.2°) can handle a wider range of usage.

Measurement mode selection using dip switches has greatly improved operational ease.

Also, in-line arrangement can be easily dealt with, due to the built-in USB and the separation of the detector and the display unit.

There are a wide variety of options, such as extension cable, Attachment lens, etc.

Examples of use

- Luminance measurement of LCDs, OLEDs, LEDs, etc.
- Luminance sensor for robots.
- Luminance measurement of street lighting, tunnel lighting, etc.
- Measurement of airport lighting facilities, sea route signals.
- Transmittance measurement for LCD polarizing plates and various filters.
- Measurement of medical lighting.
- Illuminance irregularities of automobile license plates.
- Luminance measurement of various lighting facilities, etc.
- Luminance measurement of Block for guiding visually handicapped person.



Features

Three type of detectors are interchangeable and Main unit of BM-9A is shared by three detectors.



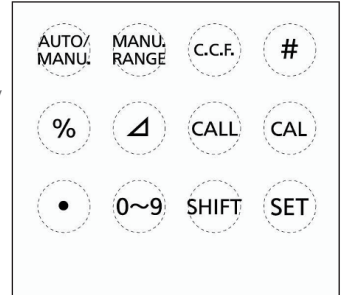
■ A wide range of measurements can be performed at high precision

Measuring field	Detector model	Measurable range
2°	BM-9A20D	0.01 to 280,000 cd/m ²
1°	BM-9A10D	0.1 to 2,800,000 cd/m ²
0.2°	BM-9A02D	1 to 28,000,000 cd/m ²

- Lens cap on objective/eyepiece lens is not required to conduct 0 adjustment. So the BM-9A is easy to operate even when the BM-9A is installed in measurement systems.
- Built-in Keyboard enable to calculate luminous intensity.
- Response speed are selectable. flicker and waveform can be observed by connecting oscilloscope.
- Extension cable (option) enable BM-9A to detach Detector unit and Display unit.
- Display unit automatically recognize each detector unit, so you need not to multiply readout value by 10 and 100, unlike BM-9.

■ You can select measurement mode by using built-in keyboard.

- Correction factor (C.C.F.mode)
Inputting correction factor displays the post-correction data.
- Deviation measurement (Δ mode) / Percentage measurement (% mode)
Deviation and percentage measurement displayed by inputting reference illuminance.



Measurement range	1	2	3	4	5
2°(BM-9A20D)	0.01 to 280.0	15.0 to 280.0	150 to 2,800	1,500 to 28,000	15,000 to 280,000
1°(BM-9A10D)	0.1 to 280.0	150 to 2,800	1,500 to 28,000	15,000 to 280,000	150,000 to 2,800,000
0.2°(BM-9A02D)	1 to 2,800	1,500 to 28,000	15,000 to 280,000	150,000 to 2,800,000	1,500,000 to 28,000,000
Response speed (FAST mode : 90%)	About 22ms	About 2ms	About 1ms	About 1ms	About 1ms

*Analogue output speed is a period of time which analogue output reach 90% of its maximum value from 10% of the maximum value.

Measurement Program MT-100 (Standard accessory)

Standard optional software MT-100 can obtain measured data from BM-9A. The MT-100 operates continuous measurement up to 99,999 times. Measured data can be stored with CSV format, which can be opened by spread sheet software.

OS	Windows® 7 Ultimate (32bit / 64bit) Windows® 7 Professional (32bit / 64bit) Windows® 8.1 Pro (32bit / 64bit) Windows® 10 Pro (32bit / 64bit)
CPU	Intel® Core™ i3 2.4GHz or higher
Memory / HDD	1GB or more
Port	USB2.0 port (One port)
Display	1024x768 or more
Others	CD-ROM Drive

*Windows is trademark and registered trademark by Microsoft Corporation.

■ USB interface

Measured data can be retrieved from BM-9A via USB.

Pin No.	Signal
1	VBUS
2	D-
3	D+
4	GND
5	GND

Baud rate	38400
Data length	7
Parity	ODD
Spread bit	1



*Mini USB series B connect mail (5pin)

○ Meaning of "of rdg." and "digit"

"of rdg" is for reading values. For example, "±2% of rdg" means ±2% of reading values.

±1digit means reading values. "digit" means 1 count in digital and indicates that there may be error of one count in the last significant digit of the digital display.

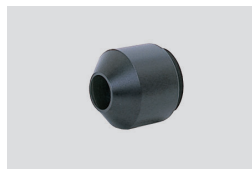
Options

► Attachment lens AL-13

A lens for reducing the measurement area of the BM-9A. Attach to the tip of the objective lens.

- Measurement diameter when using the AL-13 (units : mmφ)

Measurement angle	measurement distance(mm)
2°	1.02 to 1.26
1°	0.51 to 0.63
0.2°	0.10 to 0.12



* Measurement diameter differs according to the finishing precision of the aperture mirror.
* Measurement distance shown here is the distance from the tip of the attachment lens metal piece.

► 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

► Fine adjustment tripod head S-4



The S-4 makes up / down / left / right collimation easy.
• Elevation angle 40°
• Depression angle 80°
• Rotation 360°
• Weight 1.7Kg

► Extension cable (2, 5, 10, 20, 30m)

Effective if you want to separate the detector and the display unit for measurement.

- Five types are available;
- 2m (ZV-21)
 - 5m (ZV-22)
 - 10m (ZV-23)
 - 20m (ZV-24)
 - 30m (ZV-25)



► WS-3 Reference White Board



Used for measurement of light source with directionality.
• Luminance factor : 90% or above (for measurement parameters of 0°incidence and 45°observation)
• Material : Barium sulfate (BaSO₄)
• Dimensions : 78 mmφ, t = 12.5 mm
• Effective white surface : 40 mmφ (at center)

► AC adapter ZV-42

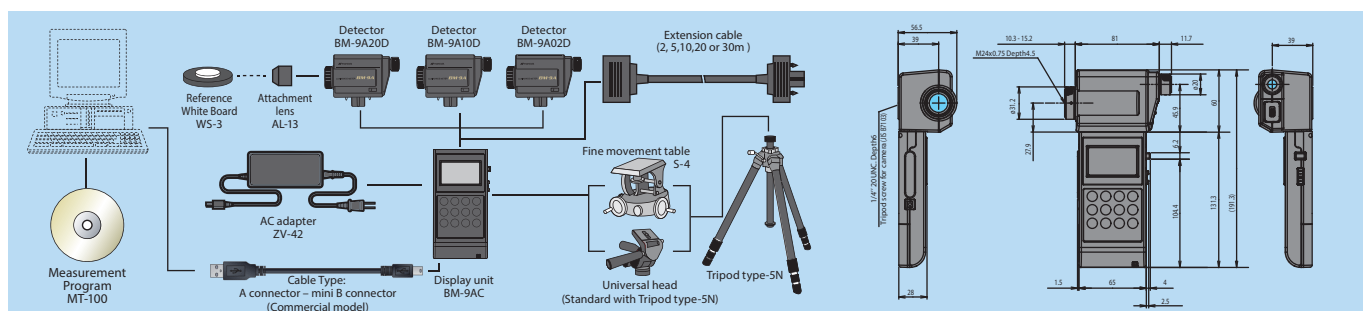
AC adapter is used in long time continuous measurement.

Specifications

Detector model	BM-9A20D			BM-9A10D			BM-9A02D		
Measuring field	2°			1°			0.2°		
Optical system	Object lens f=36mm F2.5								
Viewing field	5°								
Measurement distance	350mm - ∞								
Measurement diameter (Units: mmø)	Measuring field	Measurement distance(mm)							
		350	400	600	800	1000	3000	5000	
	2°	9.5	11.2	18.2	25.3	32.3	102	173	
	1°	4.7	5.59	9.10	12.7	16.2	51.1	86.1	
	0.2°	0.95	1.12	1.82	2.53	3.23	10.2	17.3	
	*Differs somewhat according to the finishing precision of the aperture mirror. *Measurement distance from the tip of the attachment lens metal piece.								
Minimum measurement diameter	9.5mmø <1.02mmø When using AL-13 (Optional)>			4.7mmø <0.51mmø When using AL-13 (Optional)>			0.95mmø <0.10mmø When using AL-13 (Optional)>		
Display	6-digit LCD								
Photo cell	Silicone Photodiode								
Spectral sensitivity characteristics	Within 6% (deviation from the relative luminous efficiency) *JIS C 1609-2006								
Measurement range	0.01 - 280,000 cd/m ²			0.1 - 2,800,000 cd/m ²			1 - 28,000,000 cd/m ²		
	Auto 5-step range								
Precision	±2% of rdg. ±2 digit			±2% of rdg. ±2 digit			±2% of rdg. ±2 digit		
	(Standard light source A, 23°±3°C, auto range, 0.1 cd/m ² or above)			(Standard light source A, 23°±3°C, auto range, 1 cd/m ² or above)			(Standard light source A, 23°±3°C, auto range, 10 cd/m ² or above)		
Temperature properties	Within ±3% (0 - 40°C 23°C as standard)								
Humidity properties	Within 3% (85% R.H. or lower, 60% R.H. as standard)								
Analog signal output	0 - 3Vmax. Response speed at time of analog output 1 - 22ms at FAST								
Interface	USB (Virtual COM port)								
Power supply	AA battery x 2								
Operating conditions	Temperature : 0 - 40°C Humidity : 85% R.H. or lower								
External dimensions	Approx. 191(L)×108(W)×57(H)mm								
	Display unit : Approx. 131(L)×65(W)×28(H)								
	Detector : Approx. 60(L)×108(W)×57(H)mm								
Weight	Display unit : Approx. 130g (including battery) / Detector : Approx. 220g								

*Three type of detectors are interchangeable and Main unit of BM-9A is shared by three detectors.

System/Dimension



*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.

Contact information:

TOPCON TECHNOHOUSE CORPORATION

75-1 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

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.

• Be sure to use the specified batteries.

Using improper batteries may cause a fire or electric shock.

For more information please visit our website.

<https://www.topcon-techno.co.jp/en/>

