

■ Specification

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 (mmφ)	Measurement angle	Measurement distance (m)				
		0.35	0.5	1	5	10
	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
0.1°	0.5	0.8	1.6	8	17	
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					
Measurement range	Auto/Manual 5 steps selectable					
Measurable range (not a guaranteed accuracy range)	0.0005~1, 200, 000 cd/m ²	Measurement angle				
		3°	2°	1°	0.2°	0.1°
	Range 1	0.0005 to 0.15	0.0001 to 0.3	0.0004 to 1.2	0.01 to 30	0.04 to 120
	Range 2	0.0005 to 1.5	0.001 to 3	0.004 to 12	0.1 to 300	0.4 to 1,200
	Range 3	0.005 to 15	0.01 to 30	0.04 to 120	1 to 3,000	4 to 12,000
	Range 4	0.05 to 150	0.1 to 300	0.4 to 1,200	10 to 30,000	40 to 120,000
Range 5	0.5 to 1,500	1 to 3,000	10 to 300,000	400 to 1,200,000		
Accuracy	○Luminance:±4% (for standard illuminant A)					
	○Chromaticity1: dx,dy ±0.005(Auto range, for standard illuminant A) ○Chromaticity2: { dx,dy±0.01 (O-55,Y-48, T-44, A-73B, IRA-05) { dx,dy±0.03 (R-61, B-46, V-44, G-54) * (with combination of standard illuminant and color glass filter)					
Repeatability	○Luminance: For a measuring field of 3 degrees 0.005 to 0.025cd/m ² : 2% or less 0.025cd/m ² or above : 0.8% or less (2σ, Single mode, Auto range, for standard illuminant A)					
	○Chromaticity : xy 0.003 or less (2σ, Single mode, Auto range, for standard illuminant A)					
Luminance range for guaranteed accuracy	Luminance (cd/m ²)					
	Measurement angle 3°	0.005cd/m ² or more				
	Measurement angle 2°	0.01cd/m ² or more				
	Measurement angle 1°	0.04cd/m ² or more				
	Measurement angle 0.2°	1cd/m ² or more				
Measurement angle 0.1°	4cd/m ² or more					
Output	Analog output (X ₂ , 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°C-40°C, Humidity:85% RH or less (no condensation)					
Storage condition	Temperature -20°C-60°C, Humidity:85% RH or less (no condensation)					
External dimensions	Approx 355mm x154mm x 212mm (LxWxD)					
Weight	Approx 3.6Kg (main unit only)					

*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.



※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.

TOPCON TECHNOHOUSE CORPORATION

75-1 Hasunuma-cho, Itabashi-ku, Tokyo 174-8580
Phone: 03-3558-2666 Fax: 03-3558-4661
E-mail: techno-info@topcon.co.jp

Note Make sure to carefully read the "User's Manual" to ensure that you use the product properly and safely.

<http://www.topcon-techno.co.jp>

■ Extra-cost option



● Attachment lens AL-6/AL-11

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 (mmφ)	Measurement angle	AL-6(measurement distance:43~57mm)	AL-11(measurement distance:19.8~24.2mm)
	3°	2.91~4.14	1.76~2.18
	2°	1.94~2.76	1.18~1.45
	1°	0.97~1.38	0.59~0.72
	0.2°	0.20~0.27	0.12~0.14
	0.1°	0.10~0.13	0.06~0.07

*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 (BaSO₄)
• Dimension :φ78mm t=12.5mm
• Effective white surface : φ40mm(Central portion)



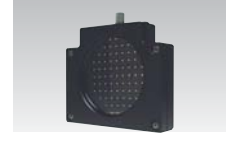
● Fiber probe FP-3

Light guide
• Effective measuring angle 2°
• Measurement diameter φ3 to φ10mm
• 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.



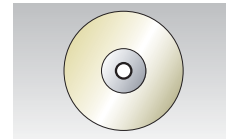
● Tripod 5N

The tripod 5N make collimation easy
• Max height : 1835mm
• Min height : 585mm
• Length when stored : 810mm
• Leg stages : 3stages
• Weight 4.7kg with tripod head



● Fine adjustment tripod head S-4

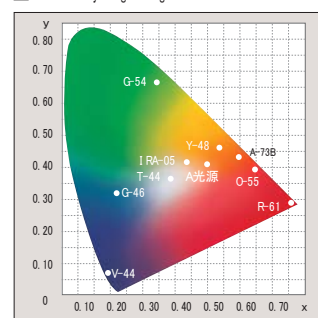
The S-4 makes up/down/left/right collimation easy.
• Elevation angle 40°
• Depression angle 80°
• Rotation 360°
• Weight 1.7Kg



● Application software CM-700

This software can manage measured data easily with graph and file.

■ Chromaticity Diagram:Light Source A+Color Glass Filter



■ Standard package of BM-5AS

- BM-5AS main body.....1ea.
- AC adapter ZV-18.....1ea.
- Analog output plug.....1ea.
- CD-ROM (Instruction manual / Sample program).....1ea.
- Quick manual.....1ea.
- Carrying case.....1ea.
- USB cable.....1ea.
- Lens cap for objective lens.....1ea.



Luminance Colorimeter

BM-5AS



High sensitivity Luminance colorimeter for small area and low level luminance measurement

The BM-5AS is suited for the measuring of very low luminance level light with high accuracy and high speed.

The BM-5AS is improved in guaranteed accuracy range and interface from previous model BM-5A.

The BM-5AS have high reliability and operability.

Feature

POINT 1 Measurement angle 3°

The BM-5AS can measure the luminance as low as 0.005cd/m² at 2 sec interval at measurement angle 3°. It is suitable for measuring of the variation in luminance of fluorescent substance.

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-5A can connect to the recorder and the oscilloscope through analog output X₂, Y, Z (selectable).

POINT 4 USB Interface

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

Response speed of analog output

Connecting to Oscilloscope through analog output, The BM-5AS 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.

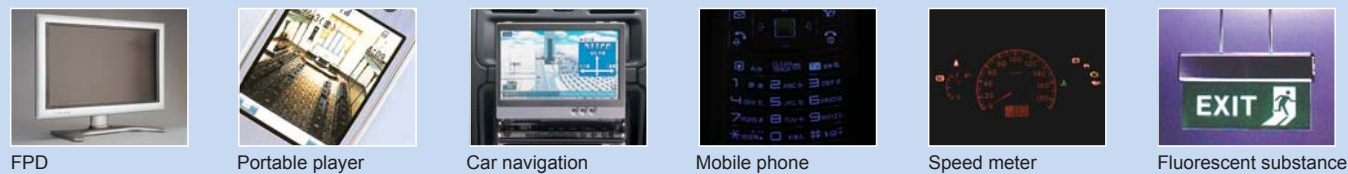
○Output impedance is approximately 100Ω. Recording instrument must have Input impedance of 10kΩ or above.

○Output voltage 0-4.0V

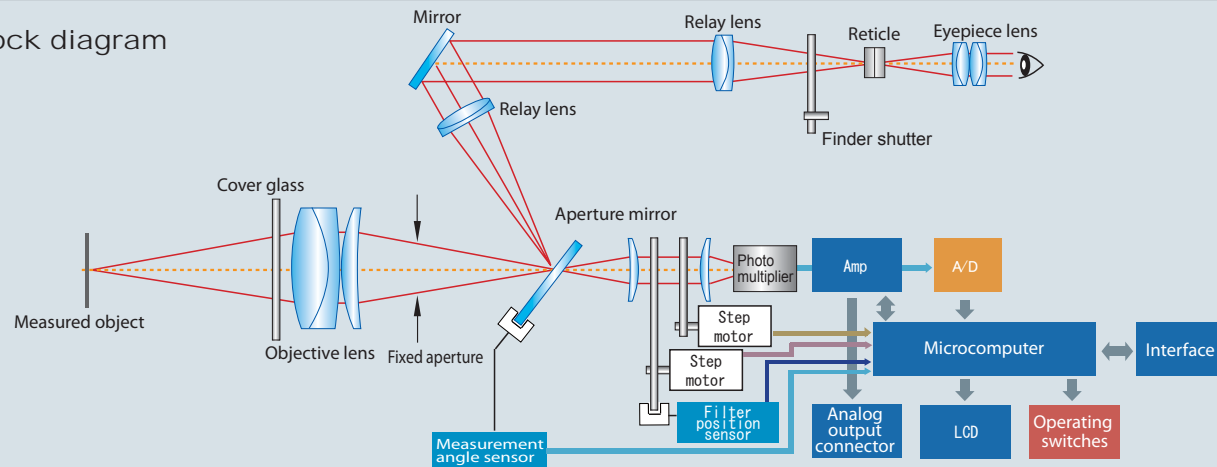
Usage

For measurement of luminance, chromaticity and color temperature, for example; optical characteristic test,

Interior panel for automobile, Speed meter for automobile, Fluorescent substance.



Block diagram



Communication

Communication information from BM-5AS during remote control

Measured data

- Luminance •Tristimulus value X, Y, Z
- Chromaticity xy, •Chromaticity u'v'
- Correlated color temperature •Deviation
- BM-5A instrument information
- Model name (BM-5AS) •Serial Number
- Instrument version number
- Correction factor

Software (Standard package)

- Excel® sample program (macro)
- OS : Windows®2000 Professional Service Pack 4, Windows®XP Professional Service Pack 2, Windows®XP Home Edition Service Pack 2
- Port : USB1.1/2.0 or RS-232C serial port
- Application software : Excel

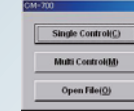
Requirements for CM-700 Application Software (Not Included)

OS	Windows®2000 Professional Service Pack4, Windows®XP Professional Service Pack2, Windows®XP Home Service Pack2
CPU	Pentium • 600MHz or better
Memory	256MB of RAM or more
HDD	60MB or more
Interface	RS-232C serial port (1), USB 1.1 port (2)
Screen resolution	1024 x 768, 256 colors
Languages	Japanese, English

※Windows is a registered trademark of Microsoft Corp. in the US and or other countries.

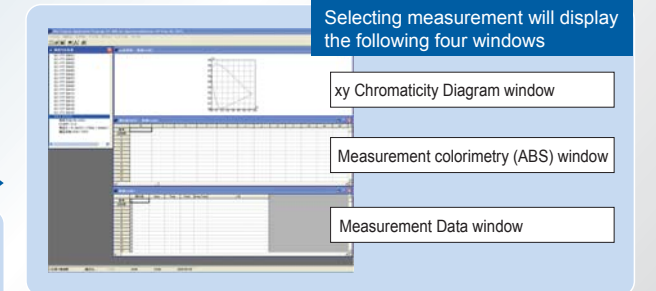
Function of CM-700

- 1 Controls one unit
Controls multiple units
Open already measured file



- 2 Click the button for one of the following operations.

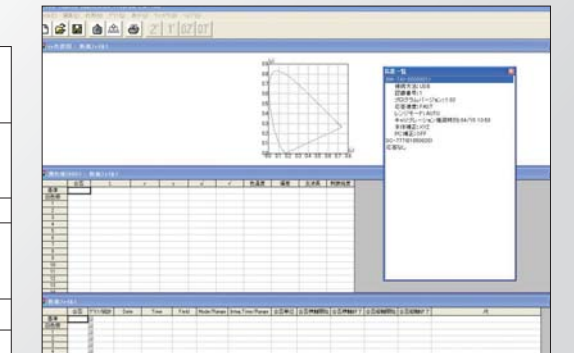
- Single control ▶ 1for control single instrument via PC.
- Multi control ▶ for control multiple instruments via PC.
- Open file ▶ for use existing file.



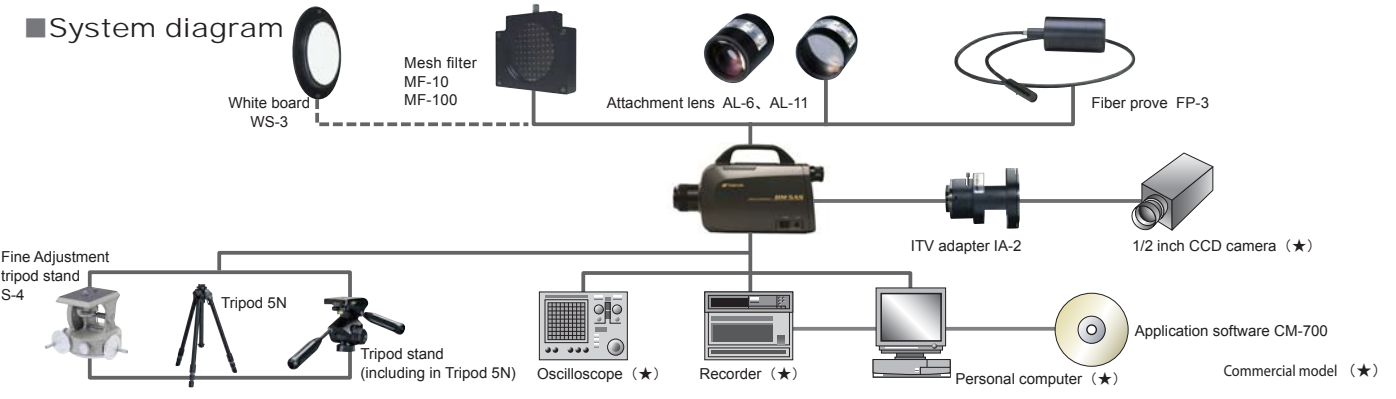
Setting

Response time	○FAST Select when measuring response time of Display and LED ○NORMAL Select when measuring stable light and flicker light in luminance and chromaticity such as Fluorescent lamp, CRT.
Range	Select range mode ○NORMAL Using the same range for X ₂ ,Y,Z ○FINE Optimum range is automatically selected for X ₂ , Y, Z
Average count	Enter the number of measurement when taking average values as measured value.
Number of measurement	Selects the number of measurement ○Single One measurement only. ○Interval Enter the number of measurement and interval time ○Continue Continuous measurement
Time series graph	Time series graph window open and measured value is displayed in the time series.
Measure button	Measurement start after selecting this button.

Example: Data Verification on BM-5AS



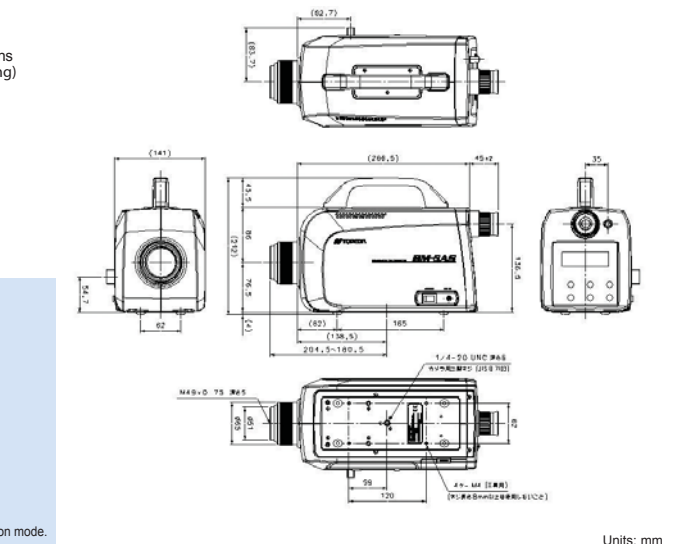
System diagram



Name of the parts



External dimension



Units: mm