

2D Luminance Colorimeter

UA-200

Chromaticity accuracy is on the order of milli-magnitude.



Enhanced and expanded software functions are best suitable to measure interior panel of automobile, flat panel display, and illumination.



Measuring the uniformity of luminance and chromaticity.

UA-200 is suitable for use in the display, automotive, and illumination industries.

High color accuracy

✓ Newly developed XYZ optical filter, whose sensitivity is highly similar to color-matching function, make it possible to achieve high color accuracy of within $\pm 0.008^{*1}$.

^{*1} Standard illuminance A + Color filter.

" ± 0.003 (1 cd/m² or more), ± 0.005 (0.05 - 1 cd/m²)*2"

^{*2} Chromaticity accuracy in Standard illuminance A.

Shortest measuring time is 1 second^{*3}

✓ Optimal algorithm allows reducing measuring time.

^{*3}Luminance measuring only.

1.3 mega pixel CCD

✓ 1280x960 resolution.

Variety of view function

✓ Focus assist.

✓ Live view + 13 type view.

✓ Multi point extraction (max 999 points), Time-series view.

Multi-area Correction

✓ Splitting into 64x64(Max) area and applying correction factors to each area.

Arbitrary shape of measuring spot

✓ Measuring spot are selectable from polygon, square, and circle.

✓ Various types of Instrument panels and design displays can be measured flexibly.

Frequency setting

✓ Even when measuring flashing light, you can obtain stable measured data by setting frequency^{*4}

^{*4}50 - 240Hz

SDK^{*5} is standard option ^{*5}Software Development Kit

✓ UA-200 can be controlled via user host PC.

Link to LabVIEWTM

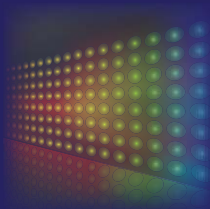
✓ Supporting NATIONAL INSTRUMENTSTM' s development tool LabVIEW. ^{*Development support program.}

Usage

✓ Evaluation of uniformity in luminance and chromaticity of LCD and LCD related materials, and OLED.

✓ Evaluation of light distribution of interior panel of automotive and car audio.

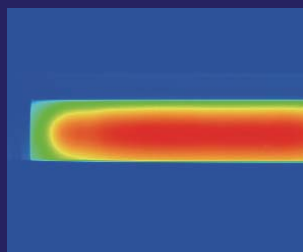
✓ Evaluation of uniformity in luminance and chromaticity of LED and OLED illumination.



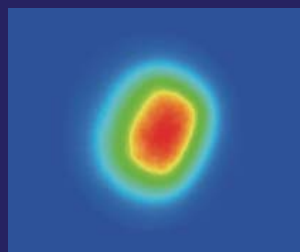
Sample



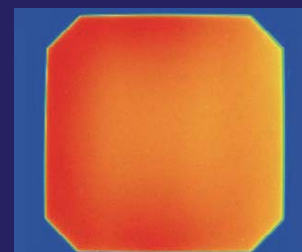
Automotive meter panel



Straight-tube type LED lamp



Bulb type LED lamp



OLED

Standard application software supports measuring and evaluation operation.

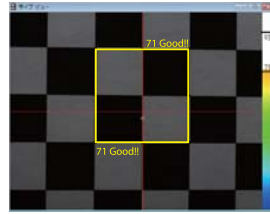
You can control the UA-200 and retrieve measured data, save data, convert measured data into image via PC. The application software conducts various types of data processing and data analyzing easily.

Two types software are available for your usage.

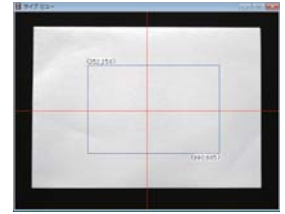
- **Standard mode**
Full functions are available including UA-200 control.
- **View mode**
Viewer software for viewing image data and analyzing measured data. Can analyze measured data without UA-200.



■ **Live view**
Real time image show on PC. You can check and focus on a target via Live-view image. You can select a marker from cross target, diagonal marker, rectangle frame.



■ **Focusing assist**
The ratio of focusing is displayed. You can refer to the ratio of focusing when focusing on a target.



■ **Optimizing area**
Measuring condition is optimized at specified area.

Icon / Tab

Pseudo color view

Contour view

Luminance and Chromaticity data at the cursor position are displayed.

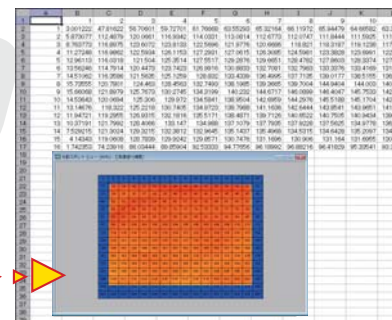
Split Spot view

Image information / Measuring date / Measuring area / Resolution

Right-click operation

Data sheet

Measured data can be pasted to spreadsheet software



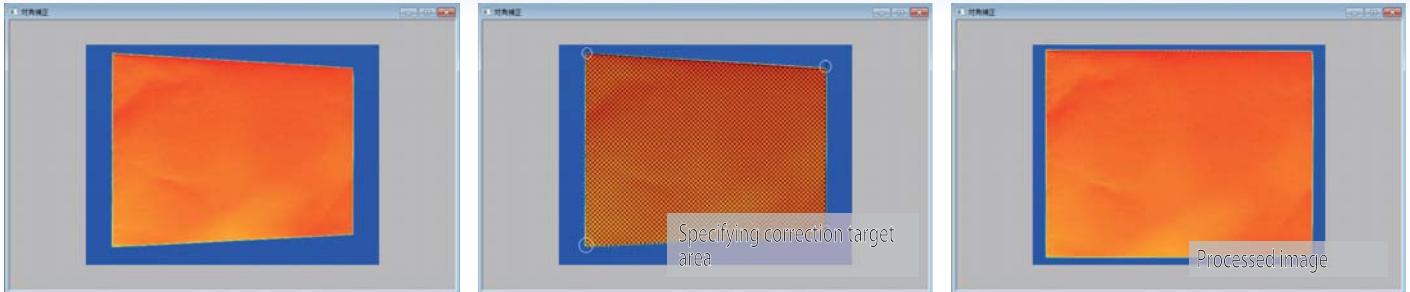
* Live view/Pseudo color view / Split spot view / Standard spot view / Cross section view
Measured data in the each view * can be saved as CSV, txt, or image file(BMP/JPG/PNG). And can be pasted to spreadsheet software.

View mode

1. Pseudo color /Gray scale
Even a slight difference of luminance and color can be represented by 16,384 steps gray scale or software-colored image.
2. Contour view
Contour lines emphasize luminance and color difference clearly.
3. Split spot view
The image is dividend with grid pattern and show measured data of luminance and chromaticity in each grid.
4. Standard spot view
Four type of measuring standard such as EIAJ ED-2522/ED-2710 spot are available. You can customize measuring spot shape and quantity.
5. Random spot view
Max 999 measuring spots can be placed on an image. Shape of measuring spots can be selected from Circle, Rectangle, Polygon (max 127 vertex).
6. Cross section view
Measured data of Tristimulus values in the cross-section line are expressed as graph. The cross-section line is selectable from cross line or diagonal line.
7. x,y /u' v' Chromaticity diagram view
Measured data of color can be plotted on the xy and u' v' chromaticity diagram. The diagram can be scaled up.
8. 3D view
Measured data of Tristimulus values show as 3D image.
9. Histogram view
Statistical graph. Vertical axis means the frequency, horizontal axis means measured data in Tristimulus values.
10. Thumbnail view
Displaying thumbnail of measured image with number and measurement date.
11. Time-series graph
Variation of measured data with laps of time show.

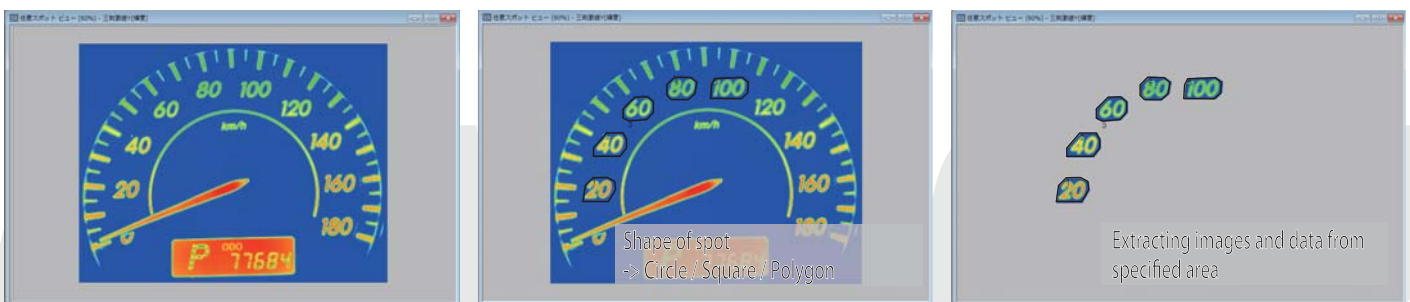
Diagonal correction

- ✓ Correcting tilting image.
- ✓ Once you specify a tilting correction setting in a recipe, measured images in subsequent measuring are corrected automatically.



Multipoint extraction & measurement

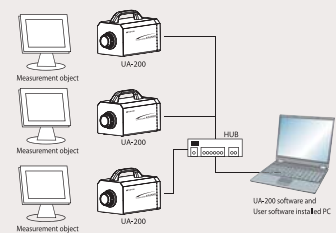
- ✓ Specifying multipoint of bright region
- > Extracting bright points from specified area based on threshold value, and measuring them automatically.



SDK | you can create original software to meet your demand

•UA-CORE SDK (Standard accessory software)

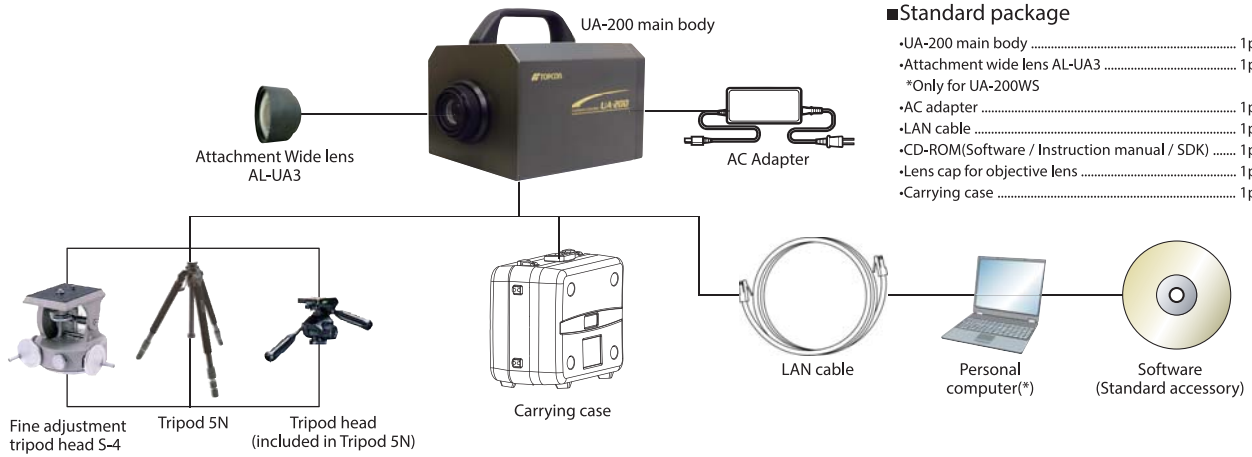
Development kit is composed of header file and library to control UA-200 through a network PC
 Providing required module to develop user software, you are able to create a network program (socket communication program) by calling library functions.
 You can develop software without caring about communication program.
 Two or more UA-200 on a network can be controlled simultaneously.



Measuring function | Recipe

Measuring condition (1/3)	oObjective lens	Selects a lens type from pull down menu.
	oMeasurement distance	Distance between tip of objective lens and measuring target.
	oContinuous measurement	You can set 1- 999 times continuous measurements.
	oInterval measurement	Measuring interval time and the number of measuring time can be specified. Five set of measuring pattern can be preset. Valid interval time:1-259200sec. Number of measuring time:1-999
	oAveraging	[AUTO] : the number of averaging are determined by integral time. [MANUAL] : the number of averaging can be specified manually. Valid the number of averaging 1 – 50 times.
Measuring Condition (2/3)	oFilter	Tristimulus values filter are selectable.
	oIntegral time-ND Filter-Gain	[AUTO] : Optimal integral time, ND filter, and Gain are determined automatically. [MANUAL] : Integral time, ND filter, and Gain are specified manually. Valid range Integral time :0.1-60000[ms], ND Filter :1 or 1/10, Gain:1 or 5.
	oFrequency	Frequency 50-240[Hz] can be specified for measuring flashing light.
	oOptimization	Optimal area is specified to be determined optimal measuring setting.
Measuring Condition (3/3)	oSaturation Detection	Sets an operation for saturation happening.
	oOrigin of time-series	Sets start point in [Time-series] view.
	oSave measurement image	Setting in auto data save.
	oDiagonal correction	Setting On or Off of diagonal correction. Correcting a tilting image into rectangle.
Color correction	oActivate or not color correction in the [Color correction wizard]	
Standard white point	oSpecify a standard white point, which is used to calculate dominant wave length, excitation purity.	
CSV setting	oSelect items to be saved as CSV format in Pseudo color view, Split spot view, Standard spot view, Random view, Time-series graph view.	

System diagram



Standard package

- UA-200 main body 1pce
- Attachment wide lens AL-UA3 1pce
- *Only for UA-200WS
- AC adapter 1pce
- LAN cable 1pce
- CD-ROM(Software / Instruction manual / SDK) 1pce
- Lens cap for objective lens 1pce
- Carrying case 1pce

(*)goods on the market

Optional accessories



•Tripod 5N

Simplifies collimation of measurement object.

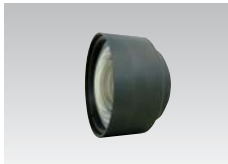
- Max height:1835mm
- Min height:585mm
- Folder length:810mm
- Leg section:3steps
- Weight:About 4.8kg including Tripod stand



•Fine adjustment stand S-4

Simplifies vertical and lateral collimation.

- Elevation angle:40°
- Depression angle:80°
- Rotation :360°
- Weight:About 1.7kg

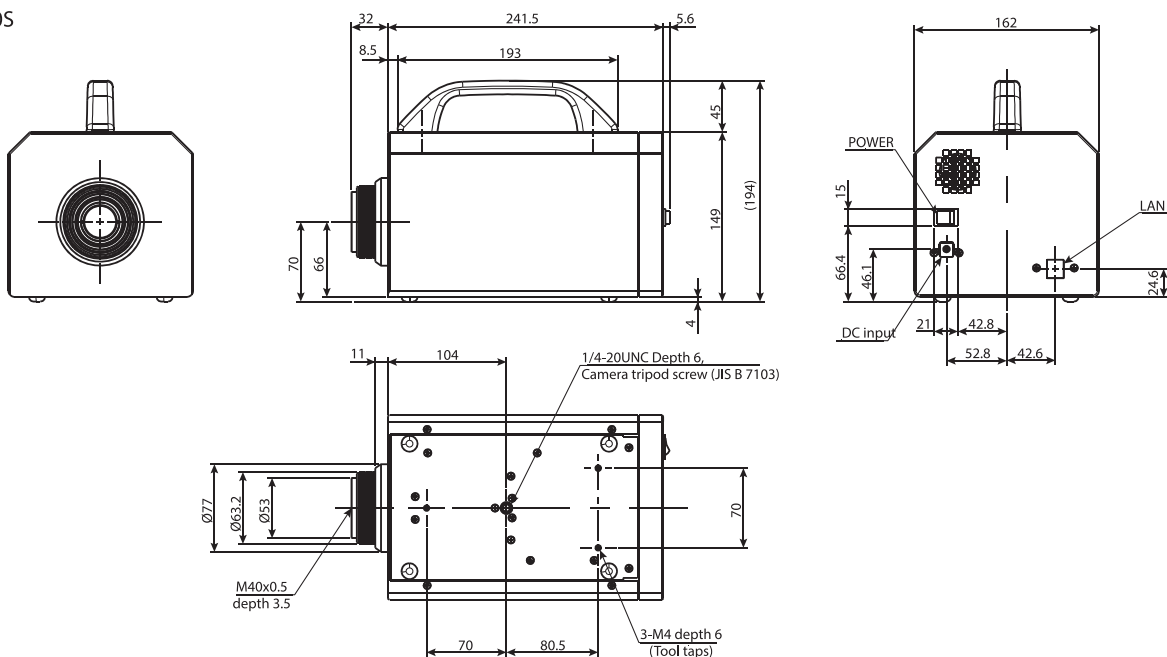


•Attachment wide Lens

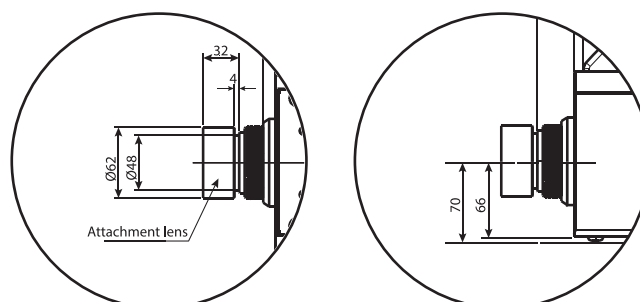
Attached to the objective lens of the UA-200 and widening a view field.

Dimension

UA-200S



UA-200WS



Unit :mm

Specification•Function

Model	UA-200S	UA-200WS
Detector	1.3 mega pixel CCD image sensor	
Objective lens	Standard lens	Standard lens+ Attachment wide lens
	Focal length: f=8mm	Focal length: f=5mm *1
Effective pixel	1280×960	
Data bit	14bit	
Measurement range	0.05 - 1,000,000 cd/m ²	
Linearity in luminance	±2% (1 cd/m ² or more), ±3% (0.05 - 1 cd/m ²) *2,*3	
Chromaticity accuracy	±0.003 (1 cd/m ² or more), ±0.005 (0.05 - 1 cd/m ²) *2,*3	
	±0.008 *3,*7	
In-plane uniformity	Luminance : ±2%	
	Chromaticity : ±0.003 *2,*4	
Repeatability	Luminance : 0.3% (1 cd/m ² or more), 0.5% (0.05 - 1 cd/m ²) *5	
	Chromaticity : 0.001 (1 cd/m ² or more), 0.002 (0.05 - 1 cd/m ²) *6	
Measurement time	About 1sec (Luminance), About 3 sec. (Color) (100 cd/m ² including data transfer time)	
Stability	Luminance : 1% *2,*3	
Reproducibility	Luminance : 2% *2,*3	
Temperature characteristic	Luminance : ±3% (0 - 40°C based on 25°C)	
Humid characteristic	Luminance : ±3% (85%R.H. or below, No condensation)	
Interface	LAN (Gigabit Ethernet)	
Power supply	AC 100 - 240V (50 / 60Hz) / Dedicated AC adapter (standard accessory)	
Power consumption	12V 24VA (excluding PC)	
Operation condition	Temp: 0 - 40°C, Humid: 85%R.H. or below (No condensation)	
Storage condition	Temp: -5 - 50°C, Humid: 85%R.H. or below (No condensation)	
Outer Dimension	279.1(L)×162(W)×194(H)mm	311.1(L)×162(W)×194(H)mm *1
Weight	About. 3.9kg	About. 4.12kg *1

*1: Standard lens+ Attachment wide lens, *2: for standard illuminant A, *3: at the center of CCD, *4: at the center of CCD, *5: in 2σ, *6: Max value - Min value
*7: for reference luminance surface with Color glass (O-55,Y-48,A-73B,IRA-05,T-44,R-61,B-46,V-44,G-54)

UA-200S measurement area : Standard lens

Measurement distance(mm)	300	400	500	1,000	1,500	2,000	2,500
inch	8.9	11.6	14.2	27.6	40.9	54.1	67.5
Horizontal(mm)	181.5	235.3	289.4	561.0	830.8	1099.2	1371.4
Vertical(mm)	136.1	176.5	217.0	420.8	623.1	824.4	1028.6

UA-200WS measurement area : Standard lens + Attachment wide lens

Measurement distance(mm)	300	400	500	1,000	1,500	2,000	2,500
inch	14.5	18.7	23.0	44.2	65.3	86.6	107.9
Horizontal(mm)	293.9	380.6	466.4	898.7	1326.8	1759.0	2192.9
Vertical(mm)	220.4	285.5	349.8	674.0	995.1	1319.2	1644.7

Operating conditions

OS	Windows® XP Professional Service Pack 2 or higher (32bit)
	Windows® 7 Ultimate (32bit / 64bit)
	Windows® 7 Professional (32bit / 64bit)
	*UA-200 does not run in XP mode of 64bit OS
CPU	Intel® Core™ i5(Quad Core or higher) 2.8GHz or higher
Memory	4GB or more
HDD	1GB or more
LAN port	Giga Ethernet : 1port RS-232C serial or USB1.1 : another 1 port is required when using reference instrument for color correction.
Display	1024×768 or more, 16,770,000 color (32bit) or more
Other	CD-ROM Drive

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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/>

