

UA-10

Luminance & Chromaticity Uniformity Analyzer

Achieving high speed and high precision measurement
of display and back light unit uniformity



UA-10

High speed measurement as fast as 0.3 sec.

Optimized measurement algorithm enable the UA-10 to measure the uniformity at short time as fast as 0.3 sec., this help you with reduction of tact time in production line.

Small size and small weight

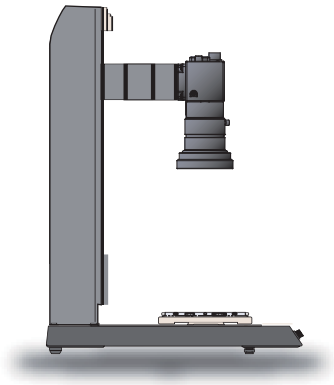
Small size and weight body is easy to incorporate into your production line.

Accurate measuring for Pulse light

The UA-10 provide stable measurement data of pulse light by adjusting frequency setting.

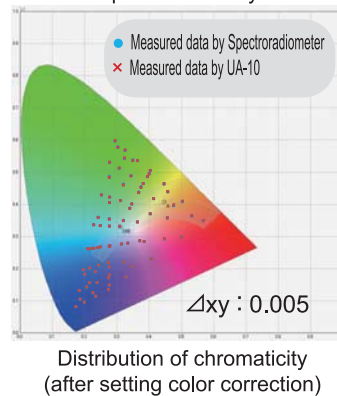
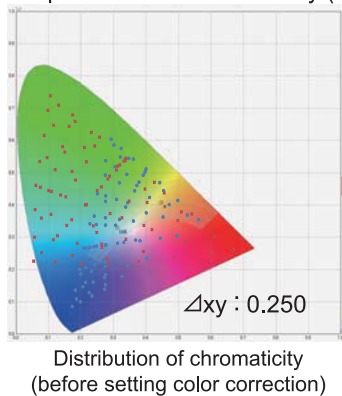
High color accuracy

Existing uniformity analyzer required correction factor settings for each color measurement. But Topcon original calibration/correction technology enable the UA-10 to achieve high accuracy of color measurement without complicated correction factor settings for each color.



● Comparison of Color accuracy (an example)

*Under Topcon laboratory condition



Two correction factor data for white LED back light and CCFL back light are preset in the UA-10. And the color correction wizard function in the UA-10 helps determine and obtain original color correction factors by connecting your reference Topcon measuring instrument. The UA-10 which are applied correction factor to provide much close measured data to that of the reference measuring instrument.

4 models

You can choose one among 4 models depending on object size and luminance level.

	0,1~30,000cd/m ²	10~1,000,000cd/m ²
Standard lens	UA-10SL	UA-10SH
Wide angle lens	UA-10WL	UA-10WH

Usage

- Uniformity measurement for FPD module.
- Uniformity measurement for backlight and front light.
- Uniformity measurement for Illumination (Ceiling light).
- Uniformity measurement for FPD materials such as Diffusion panel and Light guide plate.
- Measuring time series variation light.



Size of the original

Standard software provides efficient operation

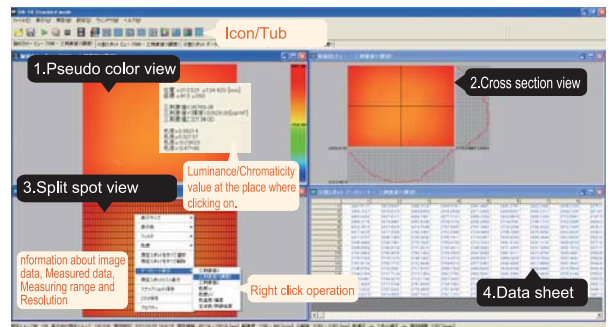
The standard software can control the UA-10 and can convert measured data by using UA-10 into image data. The software has various data processing functions and makes the data analysis easier in a very short time.

Two type of software are included as standard software.

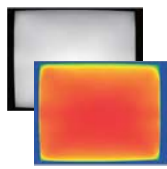
- Standard mode
Full function software for UA-10.
- View mode
This is viewer and analysis software for image data recorded by the Standard edition software.



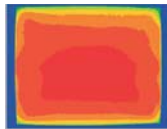
Live view
The UA-10 can show the Live-view. You can check the measuring area and position on the Live-view. You can select cross target or diagonal marker.



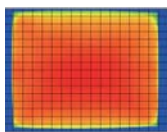
Various Operations



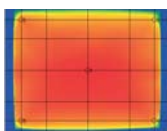
1. Pseudo color view/Gray scale
Software-colored image and 65,536 steps gray scale present the difference in luminance / chromaticity on measuring area. This view is suitable for uniformity measuring.



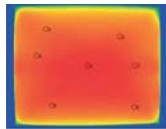
2. Contour view
This view use contour lines to indicate the profile of each tristimulus value.



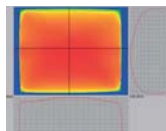
3. Split spot view
The Image dividend with grid pattern shows in this view. Average value in the each divided area is calculated.



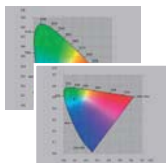
4. Standard spot view
Four type of Measuring standard available such as JEITA standard (EIAJ ED-2522/ ED-2710). You can customize the measuring spot size and the number of measuring spot.



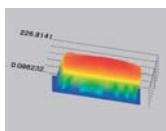
5. Random spot view
At the maximum of 441 spot can be selectable as measuring point.



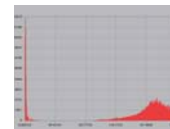
6. Cross section view
Tristimulus value on the cross-section line is expressed as graph. The cross-section line are selectable from cross line or diagonal line.



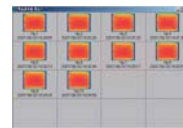
7. x,y / u',v' Chromaticity diagram view
Chromaticity value on the spot can be plotted on the x,y or u',v' diagram. The plotted diagram can be scaled up.



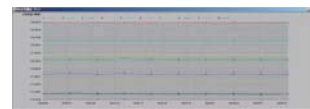
8. 3D view
Tristimulus value on the measuring area is expressed as 3D.



9. Histogram View
The statistical graphics indicates the frequency of occurrence in the vertical axis and the tristimulus value in the horizontal axis.

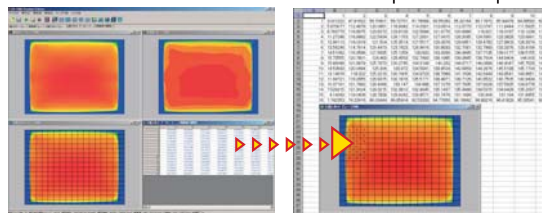


10. Thumbnail view
Image data with the number, measured date show as thumbnails.



11. Time-series graph view
The variation of measured data with lapse of time shows.

Measured data on the each view can be pasted to spreadsheet software.



Measured data on the each view* can be saved as CSV, txt or Image (BMP/JPG/PNG) format. The data and image can be pasted to spreadsheet software.

*Live-view/Pseudo color view/Split spot view/Standard spot view/Cross section view.

Measurement function

Masking function

Applying masking to the upper limit and lower limit values enables you to plot and display the arbitrary range.

Trimming function

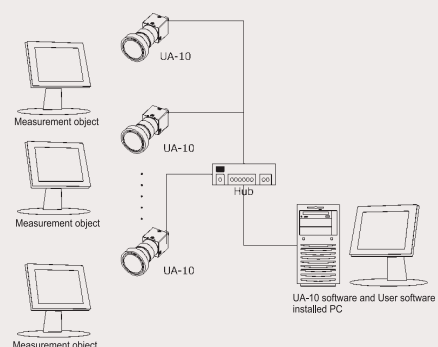
This functions is used to specify an arbitrary area.

SDK allows for creating software to meet your needs

UA-10 SDK (Standard accessories software)

This software is the development kit to control UA-10 through a PC on the network.

This software provides required module for software development and you are able to create network program (socket communication program) using library function in the module. You can develop software for UA-10 without caring about communication protocol.



■Specification

	UA-10SL / UA-10WL	UA-10SH / UA-10WH
Photo detector	1.3million-pixel Color CCD	
Objective lens	Single focus UA-10SL/SH: F=3.5mm UA-10WL/WH: F=8.0mm	
Number of measurement points	1280×960	
Data bit	12bit	
Luminance measurement range	0.1 to 30,000cd/m ²	10 to 1,000,000cd/m ²
Luminance linearity	±2% 1cd/m ² or more ±3% Less than 1cd/m ²	±2% 50cd/m ² or more ±3% Less than 50cd/m ²
Chromaticity accuracy	±0.003 1cd/m ² or more ±0.010 Less than 1cd/m ²	±0.003 50cd/m ² or more ±0.010 Less than 50cd/m ²
In-plane unevenness uniformity	Luminance: ±2% Chromaticity: ±0.003	
Repeat characteristic	Luminance: 0.5% (2σ) Chromaticity: 0.002 0.5cd/m ² or more *4 Chromaticity: 0.005 Less than 0.5cd/m ² *4	Chromaticity: 0.002 50cd/m ² or more *4 Chromaticity: 0.005 Less than 50cd/m ² *4
Measurement Time	UA-10SL/WL: Fastest about 0.3sec (100cd/m ²) UA-10SH/WH: Fastest about 0.3sec (10,000cd/m ²)	
Stability	Luminance: 1%	
Repeatability	Luminance: 2%	
Temperature characteristic	Luminance: ±3% At 0 to 40°C (reference: 25°C)	
Humidity characteristic	Luminance: ±3% (Humidity: 85%RH and below, No condensation)	
Interface	LAN(Gigabit Ethernet)	
Power supply	100 to 240 V AC (50/60Hz)	
Power Consumption	Photo detector 100V 38VA	
Operating conditions	Temperature: 0°C to 40°C, Humidity: 85%RH and below (No condensation)	
Storage condition	Temperature: -5°C to 50°C, Humidity: 85%RH and below (No condensation)	
Outer dimensions	UA-10SL/SH: 93.0(L)×36.0(W)×36.0(H)mm UA-10WL/WH: 86.5(L)×42.0(W)×42.0(H)mm	
Weight	UA-10SL/SH: about 185g UA-10WL/WH: about 170g	

*1: standard sources A

*2: evaluated on the center of the CCD

*3: Reference: Center of the CCD

*4: (Max - Min)

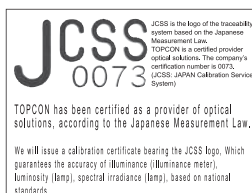
UA-10SL / UA-10SH Area

Measurement distance (mm)	200	500	1,000	1,500	2,000	2,500
Wide angle (inch)	5.5	13.3	26.6	39.9	53.1	66.4
Horizontal (mm)	110.8	270.0	540.0	810.0	1,080.0	1,350.0
Vertical (mm)	83.1	202.5	405.0	607.5	810.0	1,012.5

UA-10WL / UA-10WH Area

Measurement distance (mm)	100	200	500	1,000	1,500	2,000	2,500
Wide angle (inch)	6.7	13.4	33.4	66.8	100.2	133.5	166.9
Horizontal (mm)	135.7	271.4	678.4	1,356.8	2,035.2	2,713.6	3,392.0
Vertical (mm)	101.8	203.5	508.8	1,017.6	1,526.4	2,035.2	2,544.0

※: Measurement distance is from metal tip of attachment 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.

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

■Optional accessories



●Tripod 5N

Simplifies collimation of measurement object.

- Max height : 1835mm ●Min height : 585mm
- Folder length : 810mm ●Leg sections : 3
- Weight : 4.81Kg including Tripod stand



●Fine Adjustment Stand S-4

Simplifies vertical and lateral collimation.

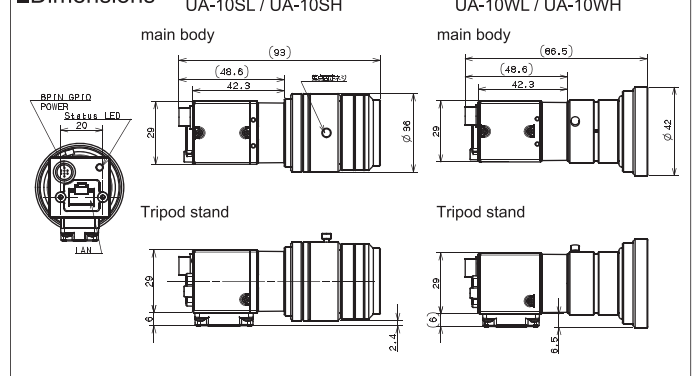
- Elevation angle : 40° ●Depression angle : 80°
- Rotation : 360° ●Weight : Approx. 1.7Kg

■Operating Conditions

OS	Windows® XP Professional Service Pack 3 or higher (32bit) Windows® 7 Ultimate (32bit/64bit) Windows® 7 Professional (32bit/64bit) *The UA-10 does not run in the XP mode of 64bit OS.
CPU	Intel® Core™ i5(Quad Core or higher) 2.8GHz or higher
Memory	4GB or higher
LAN Port	Giga Ethernet 1Port
Other	CD-ROM drive

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

■Dimensions



■Standard Package

- Photo detector(UA-10) 1ea.
- AC adapter 1ea.
- LANcable 1ea.
- CD-ROM (Installation program/Instruction Manual) 1ea.
- Carrying case 1ea.
- Tripod stand 1ea.

KIS INSTRUMENT
Light & Color Measurement Technology