

Uniformity Analyzer

UA-10A



**High speed measurement for in-line inspection
and stable measurement of uniformity**

Features

High speed uniformity measurement as fast as 0.98 sec.*

* Standard illuminant A: 100cd/m², ROI: 100%, SDK communication

2.3-megapixel CMOS camera

• Effective pixel : 1,920 x 1,200

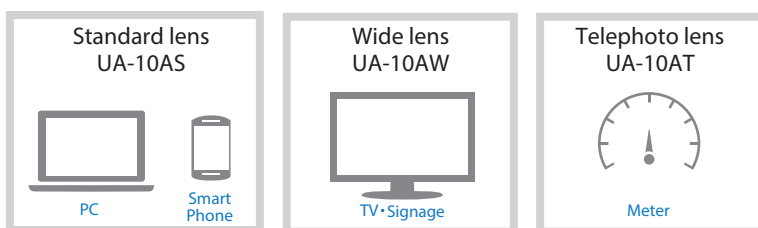
Wide range measurement

- Measurement range : 0.1 - 80K cd/m²
- High luminance measurement with option ND filter

ND filter	Measurement range
No ND filter	0.1 - 80,000 cd/m ²
ND filter 1%	10 - 8,000,000 cd/m ²
ND filter 0.01%	1,000 - 800,000,000 cd/m ²

3 type lens variation

- UA-10AS : Standard lens
- UA-10AW : Wide lens
- UA-10AT : Telephoto lens



Various analysis software lineup

- Standard accessory colorimetric image software CI-100
- Option software BlackMura is suit for the European standard
- SDK is standard accessory for external control

Usage

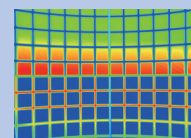
- Mura evaluation of luminance and chromaticity of LCDs and related materials, OLEDs, QDs, micro LEDs, etc.
- Evaluation of emission distribution characteristics of automobile meter panels and interior and exterior lighting
- Evaluation of luminance and chromaticity MURA of the light emitting part of LED lighting and OLED lighting



Measurement example



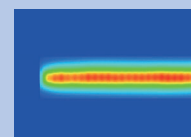
Oled smartphone



VR display

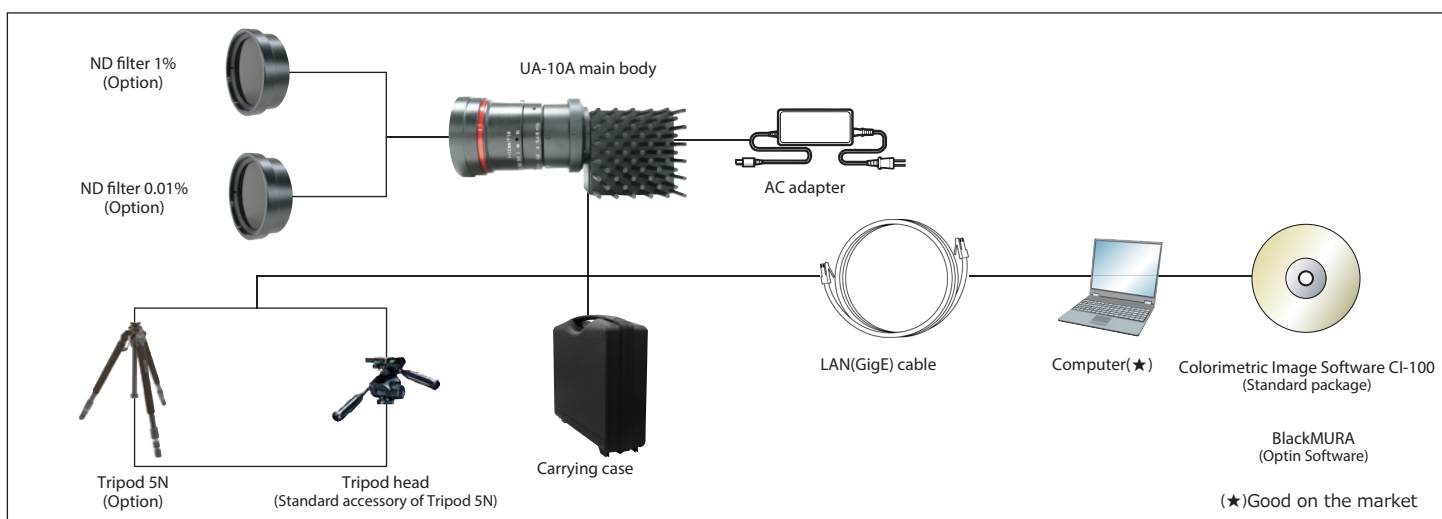


Speedmeter of automotive



LED illumination

System diagram



Application

Various analysis Programs for UA-10A

Colorimetric image software (standard accessory) **CI-100**



Collecting, storing, and displaying measured values of UA-10A main body control and measurement data from PC. Efficient evaluation can be performed from measurement to data analysis by various information processing.

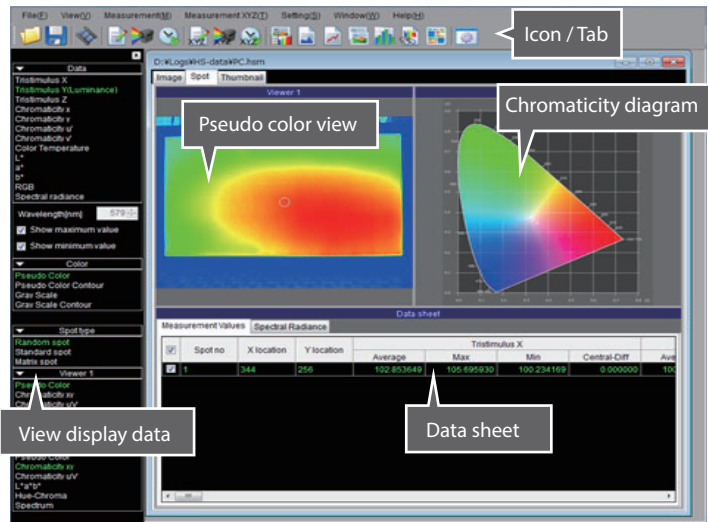
Evaluation function	Measurement data function
<ul style="list-style-type: none"> Pseudo color Standard spot Random spot Auto spot Cross section 	<ul style="list-style-type: none"> Luminance(cd/m^2) Chromaticity(x,y / u',v') R,G,B Uniformity

Standard spot

Random spot

Split spot

Cross section



Optional software

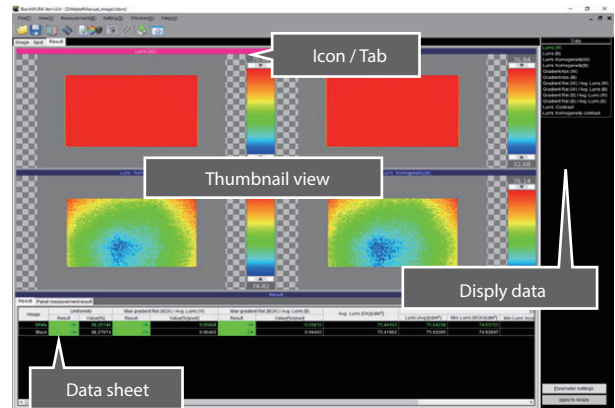
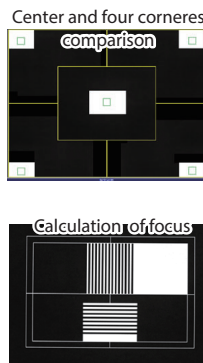
Black MURA



BlackMURA provides display quality analysis to DFF(Deutshes Flat Panel Display FDolum)'s vehicle OEM workgroup BlackMURA standards.

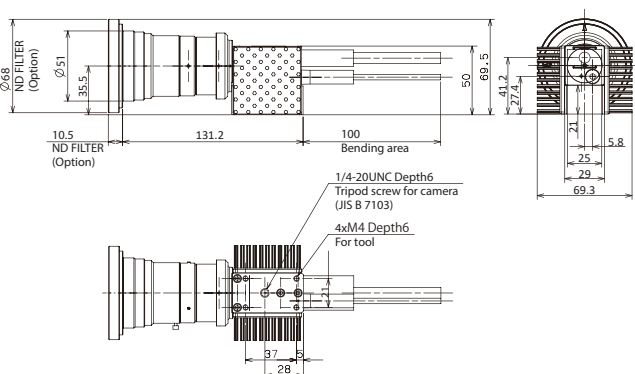
Evaluation function
<ul style="list-style-type: none"> Uniformity/gradient characteristics evaluation Luminance homogeneity Absolute and relative gradient value Luminance contrast and luminance homogeneity contrast Report function CSV/Image, measurement data automatic output

Camera profile evaluation
<ul style="list-style-type: none"> Center and four corners comparison Calculation of resolution Calculation of focus

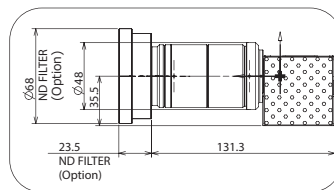


External dimentions

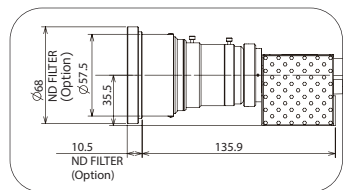
UA-10AS



UA-10AT



UA-10AW



Specification

Model	UA-10AS / UA-10AW / UA-10AT
Photo detector	2.3 million-pixel CMOS Image sensor
Objective lens	Fixed focal lens UA-10AS : f=12mm UA-10AW : f=6.5mm UA-10AT : f=50mm
Number of measurement point	1920×1200
Data bit	12bit
Luminance measurement range	0.1 - 80,000cd/m ²
Luminance linearity ^{*1,2}	±2%
Chromaticity accuracy	±0.003
In-plane unevenness uniformity ^{**1,2}	Luminance : ±2% Chromaticity : ± 0.003
Repeat characteristic ^{**1,3}	Luminance : 0.4% (2σ) Chromaticity : ± 0.002 ^{†4}
Stability ^{*1}	Luminance : ±1%
Repeatability	Luminance : ±2%
Temperature characteristic	Luminance : ±3% (reference : 20°C, 0 - 40°C)
Humidity characteristic	Luminance : ±3% (Humidity : 80% RH or lower, No condensation)
Interface	LAN (GigE)
Power supply	AC 100 - 240V (50/60Hz)
Power consumption	Photo detector DC24V 4.8VA (without PC)
Operating conditions	Temperature : 0 - 40°C, Humidity : 80%RH or lower (No condensation)
Storage condition	Temperature : -5 - 50°C, Humidity : 85%RH or lower (No condensation)
Outer Dimensions	UA-10AS : 131.2(L)×69.3(W)×61.0(H)mm UA-10AW : 140.9(L)×69.3(W)×64.0(H)mm UA-10AT : 131.3(L)×69.3(W)×59.5(H)mm
Weight	UA-10AS : about 510g UA-10AW : about 580g UA-10AT : about 490g

*1: Standard Illuminant A, *2: Evaluated on the center of the CMOS, *3: Reference: Center of the CMOS, *4: Max - Min value

Standard package

- UA-10A main body 1 ea.
- AC adapter 1 ea.
- GigE cable 1 ea.
- DVD-ROM 1 ea.
(Colorimetric Image Software CI-100/ Instruction Manual / SDK)
- Carrying case 1 ea.



JCSS
JCSS 0073
Accredited Calibration

* 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.
- 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.techno-optis.com/en/>



Measurement area : Standard type (UA-10AS)

Measurement distance (mm)	250	500	1,000	1,500	2,000	2,500
Display size (inch)	6.0	11.5	23.1	34.6	46.1	57.7
Horizontal (mm)	129.6	248.4	496.8	745.2	993.6	1242.0
Vertical (mm)	81.0	155.3	310.5	465.8	621.0	776.3

Measurement area : Wide type (UA-10AW)

Measurement distance (mm)	250	500	1,000	1,500	2,000	2,500
Display size (inch)	11.1	21.3	42.6	63.9	85.2	106.5
Horizontal (mm)	238.5	458.6	917.2	1375.885	1834.3	2292.914
Vertical (mm)	149.0	286.6	573.2	9.8	1146.5	33.1

Measurement area : Telephoto type (UA-10AT)

Measurement distance (mm)	250	500	1,000	1,500	2,000	2,500
Display size (inch)	1.5	2.9	5.6	8.5	11.3	14.1
Horizontal (mm)	31.4	62.1	121.7	182.5	243.3	304.2
Vertical (mm)	19.6	38.8	76.0	114.1	152.1	190.1

* The measurement distance is from tip of objective lens to the measurement target.

* Above values are 90 % area of FOV.

Operating conditions

OS	Windows [®] 10 Pro (64bit) Windows [®] 11 Pro (64bit)
CPU	Intel [®] Core™ i7-11700 or higher
Memory	16GB or higher
HDD	500GB or higher More than 3GB free space is necessary in the system drive (that is a drive where OS is installed). If full size measurement is executed, data size of its result is about 100MB.
LAN Port	GigE 1 port
Display	1920*1080 or higher, 16.77 million colors (32bit) or higher
Other	DVD-ROM drive

*Microsoft and Windows are registered trademark of Microsoft Corp. in the US and other countries.

*Intel Core is a registered trademark or trademark of Intel Corporation in the US and other countries.

*All other company and product names listed in this sheet are trademarks or registered trademarks of their respective companies.

Optional accessories

- ND filter 1% / 0.01%



Neutral density filter for measuring higher luminance than the measuring range of instrument.

magnification	measurement range
1%	10 - 8,000,000 cd/m ²
0.01%	1,000 - 800,000,000 cd/m ²

*: The high luminance side is designed for standard illuminant A up to 1000cd/m², and beyond that, based on the linearity of the photo detector