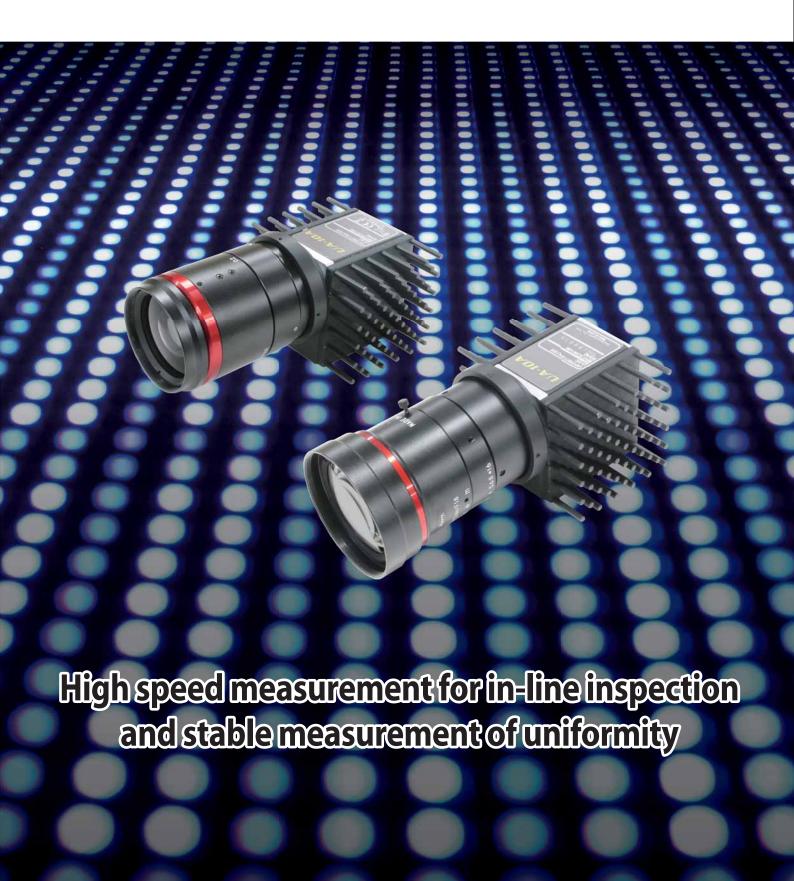


**Uniformity Analyzer** 

## UA-10A



#### **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/m<sup>2</sup>

· High luminance measurement with option ND filter

# ND filter Measurement range No ND filter 0.1 - 80,000 cd/m² ND filter 1% 10 - 8,000,000 cd/m² ND filter 0.01% 1,000 - 800,000,000 cd/m²

### Standard lens UA-10AS





#### 3 type lens variation

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

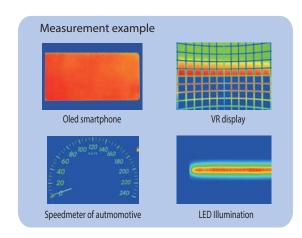
#### Various analysis software lineup

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

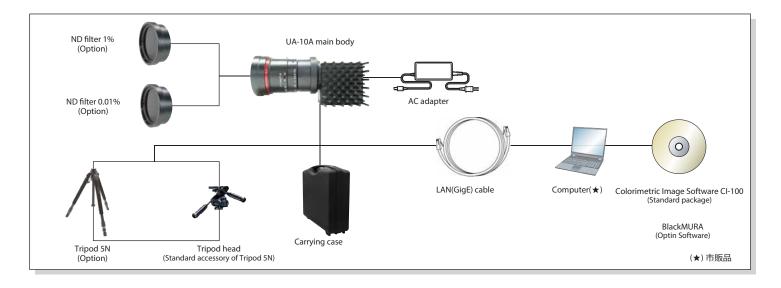
#### Usage

- 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





#### System diagram



#### **Various analysis Programs for UA-10A**

### Colorimetric image software (standard accessory)





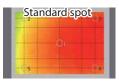
Collecting, storing, and displaying measured values of UA-10A main body control and measurement data from PC. Efficient evaluation can be performed from measurement to data analysis by various information processing.

#### **Ealuation function**

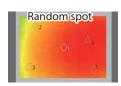
- Pseudo color
- · Standard spot
- Random spot
- Auto spotCross section

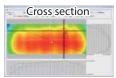
#### Measurement datafunction

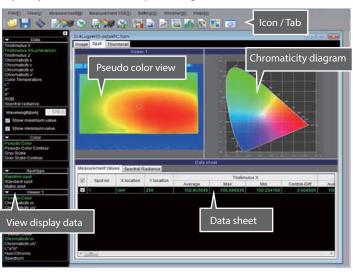
- · Luminance(cd/m²)
- Chromaticity(x,y / u',v')
- R,G,B
- Uniformity











#### Optional software





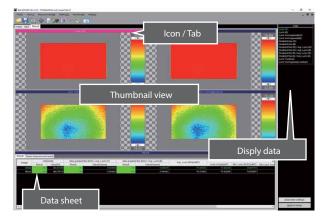
BlackMURA provides display quality analysis to DFF(Deutshes Flat Panel Display FDolum)'s vehicle OEM workgroup BlackMURA standards.

#### **Evaluation function**

- · 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

Center and four corneres

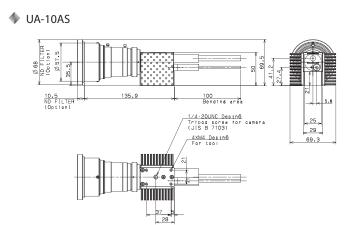


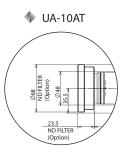


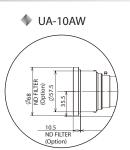
#### Camera profile evaluation

- · Center and four corners comparison
- Calcuration of resolution
- · Calcuration of focus

#### **External dimentions**







#### 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					
Number of measurement point	1920×1200					
Data bit	12bit					
Luminance measurement range	0.1 - 80,000cd/m <sup>2</sup>					
Luminance linearity*1*2	±2%					
Chromaticity accuracy	±0.003					
In-plane unevenness	Luminance:±2%					
uniformity *1*2	Chromaticity:±0.003					
Repeat characteristic	Luminance : 0.4% (2σ)					
*1*3	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					

<sup>\*1:</sup> 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	1ea.
• AC adapter	1ea
GigE cable	
• DVD-ROM	1ea.
(Colorimetric Image Software CI-100/ Instruction Manual / SDK)	
• Carrying caso	1



- \* 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.



#### 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 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

<sup>\*</sup>The measurement distance is from tip of objective lens to the measurement target.

#### 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

<sup>\*</sup>Microsoft and Windows are registered trademark of Microsoft Corp. in the US and other countries.

#### 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 <sup>2</sup>
0.01%	1,000 - 800,000,000 cd/m <sup>2</sup>

<sup>\*:</sup> The high luminance side is designed for standard illuminant A up to  $1000\text{cd/m}^2$ , and beyond that, based on the linearity of the photo detector

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