



MULTI ANGLE SPECTROPHOTOMETER

MULTI ANGLE SPECTROPHOTOMETER BJH1F1 TO BJH1F5

MULTIANGLE SPECTROPHOTOMETER

The Multiangle Spectrophotometer is a device for color measurement, adopts Industrial grade MCU with 12 measuring angles, which can provide accurate and consistent color measurement for metallics, pearlescents and other complex special effect finished products. It is mainly used to measure the color difference of surface paint affected by different viewing angles and conditions.



Multiangle measurement:

Adopt 7 illumination sources, 2 receivers to measure 12 measurement angles at the same time

More intuitive display:

The touch screen can display all Angle measurement results, giving a more intuitive view of the comprehensive data.

Effect measurement discrimination function:

Quickly distinguish the sample Sparkle Grade(SG), Diffuse coarseness(DC) and Color Variation(CV), simple and effective quality inspection.

256 Image Element Double Array CMOS Image Sensor:

The higher optical resolution ensures the measuring speed, accuracy, stability and consistency of the instrument. The core technology makes it the same platform

SPECIFICATIONS

Model	BJH1F1	BJH1F2	BJH1F3
Old Model	BMAS-1205	BMAS-1204	BMAS-1203
Measurement Geometry	12 measurement angles (7 illumination sources, 2 receivers)	8 measurement angles (6 illumination sources, 2 receivers)	6 measurement angles (6 illumination sources, 1 receiver)
Measure Angle	45° Receiver: 45as15°, 45as15°, 45as25°, 45as45°, 45as75°, 45as110°; 15° Receiver: 15as45°, 15as15°, 15as15°, 15as30°, 15as45°, 15as80°	45° Receiver: 45as15°, 45as15°, 45as25°, 45as45°, 45as75°, 45as110°; 15° Receiver: 15as45°, 15as15°	45° Receiver: 45as15°, 45as15°, 45as25°, 45as45°, 45as75°, 45as110°;
Standards	ASTM D2244, E308, E1164, E2194, E2539, DIN5033, 5036, 6174, 61751, 61752, ISO 7724, 116644, SAE J1545		
Light Source	Full spectrum LED light source with blue enhancement; Lamp life: 5 years / 3 million times measurements		
Spectrophotometric Mode	Concave Grating		
Sensor	256 Image Element Double Array CMOS Image Sensor		
Spectral Range	400-700 nm		
Wavelength Interval	10 nm		
Measurement Range	0-600%		
Semiband Width	10 nm		
Measuring Aperture	Illumination size Φ23 mm / Measuring spot 9x12 mm (Customized: illumination Φ10 mm / spot 6x8 mm)		
Color Spaces	CIE LAB, XYZ, Yxy, LCh, βxy, DIN Lab99		
Color difference formulas	ΔE^*ab , ΔE^*94 , $\Delta E^*cmc(2:1)$, $\Delta E^*cmc(1:1)$, ΔE^*00 , DIN $\Delta E99$, ΔE DIN6175		
Other Colorimetric Index	Flop Index, IntEm		
Observer Angle	2° / 10°		
Illuminant	D65,A,C,D50,D55,D75,F1,F2(CWF),F3,F4,F5,F6,F7(DLF),F8,F9,F10(TPL5),F11(TL84),F12(TL83/U30)		
Display	Spectrogram/Values, Samples Chromaticity Values, Color Difference Values/Graph, PASS/FAIL Result, Color Offset, Color simulation, Sample effect value, Effect difference value		
Measuring Time	Approx. 1 s for one angle; Approx. 12 s for all angles	Approx. 1 s for one angle; Approx. 8 s for all angles	Approx. 1 s for one angle; Approx. 6 s for all angles

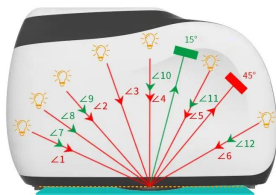
Repeatability	Spectral reflectance: $SD \leq 0.08\%$; Chromaticity value: $\Delta E^*ab \leq 0.02$ (white plate measured 30x at 5 s intervals after calibration)	Spectral reflectance: $SD \leq 0.08\%$; Chromaticity value: $\Delta E^*ab \leq 0.03$ (white plate measured 30x at 5 s intervals after calibration)
Reproducibility	$\Delta E^* < 0.10_{avg}$ on gray tile of BCRA tile set; $\Delta E^* < 0.25_{avg}$ on color BCRA tile set	
Interinstrument Error	0.18 ΔE^*00 (avg on reference Series II BCRA tile set)	0.2 ΔE^*00 (avg on reference Series II BCRA tile set)
Effect Parameters	Sparkle Grade (SG), Diffuse coarseness (DC), Color Variation (CV)	
Effect Measurement	6 angles SG/CV: 15as45°, 15as30°, 15as15°, 15as15°, 15as45°, 15d; Diffuse coarseness (DC)	
Effect Repeatability	SG shortterm repeatability: 0.12% (10x SD). (When a color plate is measured 10 times at 10 second intervals after white calibration) DC shortterm repeatability: 0.09% (10x SD). (When a color plate is measured 10 times at 10 second intervals after white calibration)	
Effect Reproducibility	SG reproducibility: 1.9% (10x SD). DC reproducibility: 1.4% (10x SD).	
Trigger mode	Pressure sensing trigger, button trigger, software trigger	
Measuring Mode	Single measurement, average measurement (1-99), continuous measurement (1-99)	
Locating Mode	Color camera preview	
Dimension (LxWxH)	195 x 83 x 128 mm	
Weight	About 1 kg	
Power	Liion battery, 3.7 V, 5000 mAh; continuous test 6000 times within 8 hours	
Interface	USB, Bluetooth	
Data Storage	1000 pcs Standards; 4000 pcs Samples	
Language	Simplified Chinese, Traditional Chinese, English	
Calibration	Builtin white board parameters; external white board; black light trap; color board	
Calibration Interval	4 h, 8 h, 24 h; Startup calibration	
Standard accessories	Power Adapter, USB Cable, User Guide, PC Software (download from the official website), Calibration Board, black light trap, Protective cap, wristband	
Alt Name	MultiAngle Spectrophotometer	

Model	BJH1F4	BJH1F5
Old Model	BMAS-1202	BMAS-1201
Measurement Geometry	5 measurement angles (5 illumination sources, 1 receivers)	3 measurement angles (3 illumination sources, 1 receivers)
Measure Angle	45° Receiver: 45as15°, 45as25°, 45as45°, 45as75°, 45as110°	45° Receiver: 45as25°, 45as45°, 45as110°
Standards	ASTM D2244, E308, E1164, E2194, E2539, DIN5033, 5036, 6174, 61751, 61752, ISO 7724, 116644, SAE J1545	
Light Source	Full spectrum LED light source with blue enhancement	
Lamp Life	5 years, 3 million times measurements	
Spectrophotometric Mode	Concave Grating	
Sensor	256 Image Element Double Array CMOS Image Sensor	
Spectral Range	400-700 nm	
Wavelength Interval	10 nm	
Measurement Range	0-600%	
Semiband Width	10 nm	
Measuring Aperture	Φ12 mm	
Color Spaces	CIE LAB, XYZ, Yxy, LCh, βxy, DIN Lab99	
Color difference formulas	ΔE^*ab , ΔE^*94 , $\Delta E^*cmc(2:1)$, $\Delta E^*cmc(1:1)$, ΔE^*00 , DIN $\Delta E99$, ΔE DIN6175	
Other Colorimetric Index	Flop Index	

Observer Angle	2° / 10°	
Illuminant	D65,A,C,D50,D55,D75,F1,F2(CWF),F3,F4,F5,F6,F7(DLF),F8,F9,F10(TPL5),F11(TL84),F12(TL83/U30)	
Display (results)	Spectrogram/Values, Samples Chromaticity Values, Color Difference Values/Graph, PASS/FAIL Result, Color Offset	
Measuring Time	Approx. 1 s for one angle; Approx. 5 s for all angles	Approx. 1 s for one angle; Approx. 3 s for all angles
Repeatability	Spectral reflectance: SD ≤ 0.08%; Chromaticity value: $\Delta E^*_{ab} \leq 0.03$ (white plate measured 30x at 5 s intervals after calibration)	Spectral reflectance: SD ≤ 0.08%; Chromaticity value: $\Delta E^*_{ab} \leq 0.04$ (white plate measured 30x at 5 s intervals after calibration)
Reproducibility	$\Delta E^* < 0.10_{avg}$ on gray tile of BCRA set; $\Delta E^* < 0.25_{avg}$ on color BCRA tile set	
Interinstrument Error	0.2 ΔE^*_{00} (avg on reference Series II BCRA tile set)	
Trigger mode	Pressure sensing trigger, button trigger, software trigger	
Measuring Mode	Single measurement, average measurement (1-99), continuous measurement (1-99)	
Locating Mode	Color camera preview	
Dimension (LxWxH)	195 x 83 x 128 mm	
Weight	About 1 kg	
Power	Liion battery, 3.7 V, 5000mAh; continuous test 6000 times within 8 hours	
Display (screen)	3.5inch TFT color LCD; Capacitive Touch Screen	
Interface	USB, Bluetooth	USB
Data Storage	1000 pcs Standards; 4000 pcs Samples	
Language	Simplified Chinese, Traditional Chinese, English	
Operating Environment	10 °C to 50 °C; RH ≤ 85%; no condensation	
Storage Environment	-20 °C to 50 °C; RH ≤ 85%; no condensation	
Calibration	Builtin white board parameters; external white board; black light trap; color board	
Calibration Interval	4 h, 8 h, 24 h; Startup calibration	
Standard accessories	Power Adapter, USB Cable, User Guide, PC Software (download from the official website), Calibration Board, black light trap, Protective cap, wristband	
Optional Accessory	Microprinter	
Alt Name	MultiAngle Spectrophotometer	



FEATURES



Multiangle measurement:

Adopt 7 illumination sources, 2 receivers to measure 12 measurement angles at the same time



More intuitive display:

The touch screen can display all Angle measurement results, giving a more intuitive view of the comprehensive data.



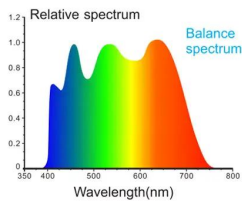
Effect measurement discrimination function:

Quickly distinguish the sample Sparkle Grade(SG),Diffuse coarseness(DC) and Color Variation(CV), simple and effective quality inspection.



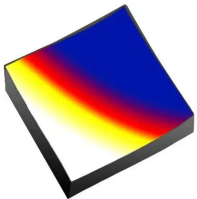
256 Image Element Double Array CMOS Image Sensor:

The higher optical resolution ensures the measuring speed, accuracy, stability and consistency of the instrument. The core technology makes it the same platform with international standards and complete compatibility.



Adopt Full spectrum LED light source with blue enhancement:

The Full spectrum LED light source with blue enhancement ensures sufficient spectral distribution in the visible light range, avoids the spectral loss of LED in a specific band, and ensures the accuracy of instrument measurement results and low cost maintenance.



Concave grating spectrophotometric technology:

Using concave grating spectrophotometric technology, with higher resolution, makes color measurement more accurate.



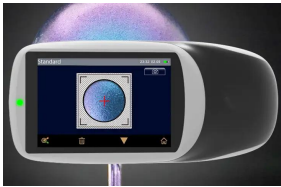
Professionalgrade white board:

Professionalgrade white board, high hardness in the surface, stable optical performance



Higher quality:

Industrial grade realtime processing MCU, Bluetooth 5.0 transferring more stable and reliable.



Color camera preview, can clearly observe the measured area:

Builtin color camera positioning, can accurately judge the object measured position, and improve the measurement efficiency and accuracy.



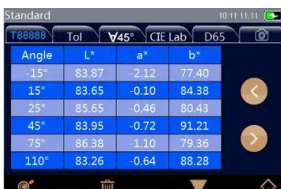
Multiple color measurement space, multiple observation light sources:

Offer CIE LAB,XYZ,Yxy,LCh, β XY,DIN Lab99 color space, And D65, A, C, D50, D55, D75, F1, F2 (CWF), F3, F4 and F5, F6 and F7 (DLF), F8, F9, F10 (TLP5), and F11 (TL84), F12 (TL83/U30) A variety of light source, which can meet the special measurement demand under different measurement conditions.



Ergonomics Novel and fashionable appearance design:

The instrument appearance design is easy to operate, and the hand holding position and the measurement button are well designed, which can meet different holding habits, smooth and fine surface, from the high precision appearance treatment process.



Easily analyze data:

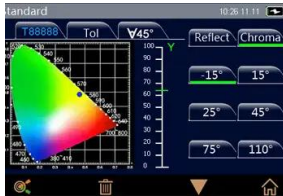
Color data



Easily analyze data:
Sample effect value



Easily analyze data:
Color difference graph



Easily analyze data:
samples chromaticity value



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