

FRU Color Spectrophotometer -WS2300/WS2600



WS2300/WS2600 are cost-effective and portable spectrophotometer designed by Shenzhen Wave Optoelectronics Technology Co., Ltd. These spectrophotometers adopt advanced electronic circuit system and perfect optical system, which has the advantages of high precision, good stability and strong anti-interference. It provides great reliability and convenience for color control in all walks of life.

Caliber Application

Facula 4mm (Caliber Φ6mm): Small and cambered surface.



Facula 8mm (Caliber Φ11mm): Flat surface. Such as paint (WS2600 is suitable for car paint), plastic, coating, print, anodizing, ceramics, film, glass, pigment etc.



+982165565901

+982144584619

+989034119385

پتروفرهان گستر جنوب

FGJ-NDT.IR

DIGINDT.IR



Caliber $\Phi 16\text{mm}$: Textured, Soft and Uneven surface. Such as Textile, fabric, Leather, Wooden sponge and hairpiece etc.



Caliber $\Phi 16\text{mm}+$ Multi-function accessory: Liquid, Powder, Pulp, Granule etc.



+982165565901

+982144584619

+989034119385

پتروفرهان گستر جنوب

FGJ-NDT.IR

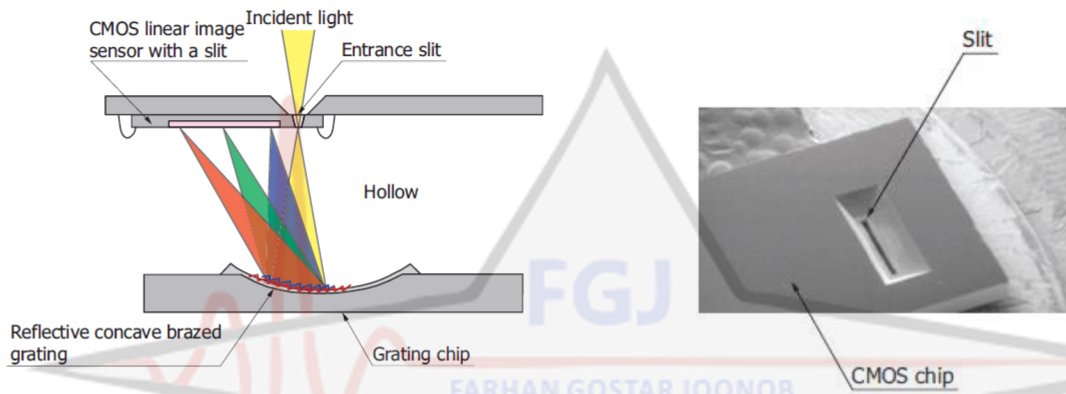
DIGINDT.IR



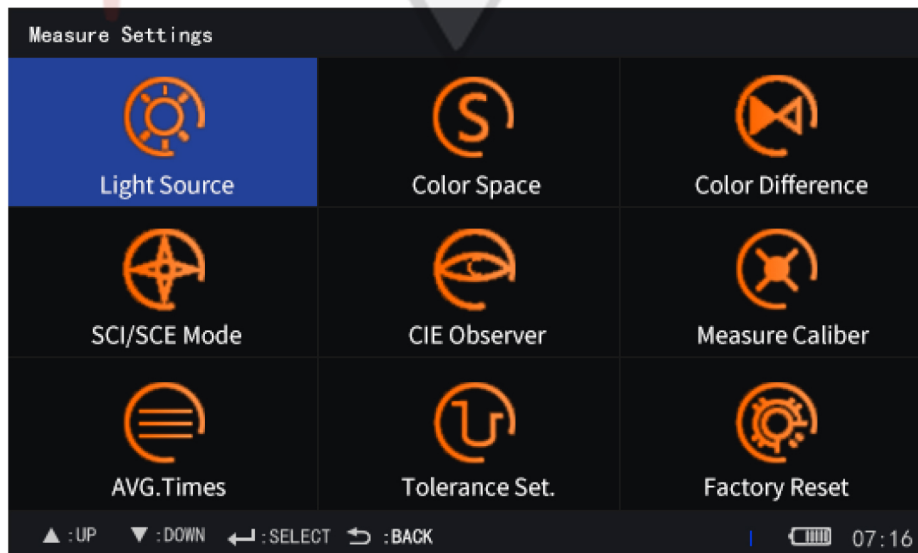
Core Advantage

1. Accurate spectral data and Lab values

Adopt high - precision spectroscopic system, accurately separate different wavelengths of light.



2. Multiple color space, Color difference formula, Light source



+982165565901

+982144584619

+989034119385

پتروفرهان گستر جنوب

FGJ-NDT.IR

DIGINDT.IR



Shenzhen Wave Optoelectronics Technology Co., Ltd

R&D Manufacturer for Surface testing Instrument



www.colorinstrument.cn Make Measurement Easier

Light Source Settings

- A
- c
- D50
- D55
- D65
- D75
- F1
- F2(CWF)
- F3
- F4
- F5
- F6
- F7
- F8
- F9
- F10
- F11(TL84)
- F12(U30)

Color Difference Formula Settings

- ΔE^*ab
- ΔE^*CB
- ΔE^*uv
- $\Delta E^*Hunterlab$
- $\Delta E^*cmc(2:1)$
- $\Delta E^*cmc(1:1)$
- ΔE^*94
- ΔE^*00
- ΔE^*sRGB
- ΔE^*BFD
- ΔE^*FMCTT

Color Space Settings

- CLE $L^*a^*b^*$
- CIE L^*C^*h
- CIE L^*u^*v
- Hunter LAB
- CIE XYZ
- Yxy
- Reflectivity
- CMYK
- YI Yellowness
- Ganz Whiteness
- ISO Brightness
- Taube Whiteness
- z Whiteness
- sRGB

Observer Perspective Setting

- 10°
- 2°

3.Full- featured and concise interface

An interface displays all the details, including color data, color simulation, measurement conditions, spectral curves, etc.

Measure - Type Measure

T0000096

$L^* = 78.61$ $a^* = 10.03$ $b^* = 27.46$

2.0 d/8 SCI 10° D65
01/01 8mm ΔE^*ab

TEST: MWASURE 12:36

Measure - Sample Measure

T0000096 T0000001

$\Delta E = 0.13$ Pass

$L^* = 78.61$ $L^* = 78.66$ $\Delta L^* = 0.05$ White+

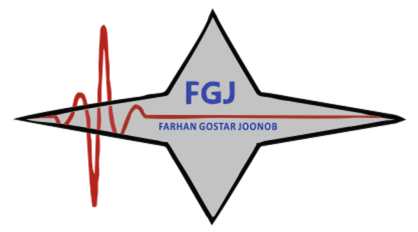
$a^* = 10.03$ $a^* = 10.09$ $\Delta a^* = 0.06$ Red+

$b^* = 27.46$ $b^* = 27.57$ $\Delta b^* = 0.06$ Yellow+

2.0 d/8 SCI 10° D65
01/01 8mm ΔE^*ab

Type: Sample:

TEST: MEASURE 12:36



Shenzhen Wave Optoelectronics Technology Co., Ltd
R&D Manufacturer for Surface testing Instrument



www.colorinstrument.cn Make Measurement Easier

4. PC software extension

To analysis, upload, download, print and other functions of color data.

The screenshot shows the FRU Spectrophotometer software interface. It includes a menu bar (File, Setting, Operate, Measure, Tools, Interface, Windows, About), a toolbar, and several data panels. The 'Instrument Parameter' panel shows settings for Model (WN700D), Wavelength Range (400nm-700nm), UV Light (no), Wavelength In. (10nm), Standard Obs. (CIE10), Geometric Co. (d/8), Standard Light (D65), SCI/SCE (SCI), Caliber (8mm), Color Space (CIE10), and Color Diff. For. (E*ab). The 'Measurement Item' panel lists various color difference metrics (T-MC1 to T-MC8, S-MC1 to S-MC3). The main display area contains a 'Color Coordinates' panel with a color wheel and L*a*b* values (L*: 57.59, a*: 13.05, b*: 26.20), a 'Color Bias' panel with a grid, a 'Reflectance Spectrum' graph showing reflectivity (%) vs wavelength (nm), and a '色差变化曲线' (Color Difference Change Curve) graph showing ΔE*ab vs sample number.

Color Difference Test Report 1

File Name	Instrument	Tolerance								
.nc	W5700D	<2.00								
Type	Color Space	Light	Observer	Method	Caliber	Mode	TestTimes	L*	a*	b*
T-NC1	CIE1931	D65	2°	New	SCI	1	32.08	12.98	26.18	
Sample	Formula	ΔL*	Δa*	Δb*	ΔE*	Tolerance	Judge	L*	a*	b*
T-NC1	ΔE*ab	1.18	-0.43	-1.03	1.62	2.00	Pass	57.59	13.05	26.20
T-NC2	ΔE*ab	5.92	-1.58	6.98	6.83	2.00	Fail	62.94	11.29	28.12

Color Difference Test Report 2

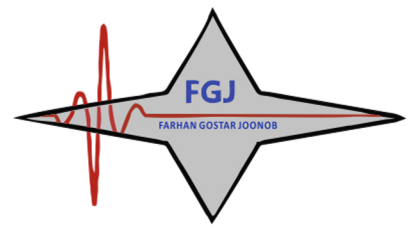
File Name	Instrument	Tolerance								
.nc	W5700D	<2.00								
Type	Color Space	Light	Observer	Method	Caliber	Mode	TestTimes	L*	a*	b*
T-NC1	CIE1931	D65	2°	New	SCI	1	57.59	-5.89	-5.83	
Sample	Formula	ΔL*	Δa*	Δb*	ΔE*	Tolerance	Judge	L*	a*	b*
T-NC1	ΔE*ab	6.46	5.95	26.92	27.24	2.00	Fail	57.29	1.14	22.61

Color Test Report 3

File Name	Instrument	Tolerance								
.nc	W5700D	<2.00								
Type	Color Space	Light	Observer	Method	Caliber	Mode	TestTimes	L*	a*	b*
T-NC1	CIE1931	D65	2°	New	SCI	1	36.29	12.42	23.95	
Sample	Formula	ΔL*	Δa*	Δb*	ΔE*	Tolerance	Judge	L*	a*	b*
T-NC1	ΔE*ab	1.18	-0.31	-0.99	1.40	2.00	Fail	56.76	15.96	24.21
T-NC2	ΔE*ab	1.39	-0.87	-1.17	1.67	2.00	Fail	68.87	11.90	25.22
T-NC3	ΔE*ab	6.52	6.10	1.19	1.36	2.00	Pass	57.10	12.93	25.61

+982165565901
+982144584619
+989034119385

پتروفرهان گستر جنوب
FGJ-NDT.IR
DIGINDT.IR



Shenzhen Wave Optoelectronics Technology Co., Ltd

R&D Manufacturer for Surface testing Instrument



www.colorinstrument.cn Make Measurement Easier

Specification Comparison

Model	Single Caliber-WS2300	Switchable Caliber-WS2600
Geometric Conditions	d/8	
Color Space	CIEL*a*b*, CIEL*C*h, Hunter LAB	CIEL*a*b*, CIEL*C*h, CIEL*u*v*, Hunter Lab, CIEXYZ, Yxy, Reflectivity, CMYK, YI Yellowness, Ganz, ISO Brightness(R457 Whiteness), Taube Whiteness, z Whiteness, sRGB
Standard Light Source	A, D50, D65, F1, F4, F11 (TL84)	A, C, D50, D65, D75, F1, F2 (CWF), F3, F4, F5, F6, F7, F8, F9, F10, F11(TL84), F12(U30)
Light Source	Combinatorial LED	
Color Diff. Formula	ΔE^{*ab} , $\Delta E^{*HunterLab}$, $\Delta E^{*CMC}(2:1)$	ΔE^{*ab} , ΔE^{*Ch} , ΔE^{*uv} , $\Delta E^{*Hunter}$, $\Delta E^{*cmc}(2:1)$, $\Delta E^{*cmc}(1:1)$, ΔE^{*94} , ΔE^{*00} , ΔE^{*sRGB} , ΔE^{*BFD} , ΔE^{*FMCII}
Measuring Caliber	Facula 4mm (Caliber Φ 6mm), Facula 8mm (Caliber Φ 11mm), Facula16mm(Caliber Φ 16mm)	Switchable : Facula 4mm (Caliber Φ 6mm) & Facula 8mm (Caliber Φ 11mm), Single : Facula 16mm (Caliber Φ 16mm)
SCI/SCE	SCI	SCI/SCE
Sensor Array	Line array CMOS@256 pixels	
Spectral Way	Concave diffraction grating	
Observer	CIE10 ⁰ (1964), CIE2 ⁰ (1931)	
Wavelength coverage	400nm~700nm	
Wavelength interval	10nm	
Measuring interval	2.5 Second	
Reflectance range	0%-200%	
Repeated accuracy	$\Delta E < 0.07$ (take the deviation average after 30 times measuring the whiteboard, 10 Second interval)	$\Delta E < 0.05$ (take the deviation average after 30 times measuring the whiteboard, 10 Second interval)
Table Difference	$\Delta E < 0.4$ (Measure the RAL 12-color blocks)	$\Delta E < 0.3$ (Measure the RAL 12-color blocks)
Light source life	More than 50,000 hours	
Battery power	Measuring more than 10000 times	
Display screen	TFT true color 2.8inch@ (16:9)	
Data storage capacity	Storage Standard 100 groups Sample 16,000 groups	
Operating temperature	0°C-40°C (32°F-104°F)	
Storage temperature	-20°C-50°C (-4°F-122°F)	
Working humidity	Relative humidity less than 85%, without condensation	
Weight	340g	
Size	180*76*60mm	
Size of exterior package	400*240*340mm	
Standard accessories	Power adapter, standard white board, standard black cavity, lithium battery, User Manual, USB cable, PC software (Basic Version)	
Optional accessories	Software (Advanced Version), Micro printer, Locating block	

+982165565901

+982144584619

+989034119385

پتروفرهان گستر جنوب

FGJ-NDT.IR

DIGINDT.IR

More Details



About us

Shenzhen Wave Optoelectronics Technology Co., Ltd is a National high-tech enterprise.

We are a R&D manufacturer that mainly offers Spectrophotometer, Colorimeter, Gloss meter, Thickness meter etc. in Shenzhen, China for 10 years. All series pass CE/ROHS/CNAS international approvals. If any enquiry on these products, we are ready to do support, thank you!



+982165565901

+982144584619

+989034119385

پتروفرهان گستر جنوب

FGJ-NDT.IR

DIGINDT.IR