

# CS-286



Spectral colorimeter is the colorimeter which adopts the theory of spectrophotometer. It is widely used for plastic, printing, paint, ink, textile, dyeing and other industries for color management. It could measure the target  $L^*a^*b$ ,  $L^*c^*h$  and the sample  $\Delta E$  and  $\Delta Lab$  value.

## Product Overview

### Part One. Instrument Introduction

1. Spectral colorimeter : The highest precision colorimeter
2. Adopt spectral measurement working theory which greatly improve the accuracy of colorimeter
3. Patented technology guarantees the measurement stability
4. Obtain national metrology certification
5. Ergonomic Design  
Instrument girth radian designs according to human palm so we could test data for a long time.  
Superior leather design increases the friction in case of fingers sliding.
6. Mass storage memory: It could save 100 pcs targets and 200 pcs samples.

## Product Characteristics

Type	CS-286
Illumination	di/8(Diffused Illumination, 8 degree viewing) (conform to CIE No.15、ISO 7724/1、ASTM E1164、DIN 5033 Teil7、JIS Z8722 Condition )
Size of integrating sphere	Φ40mm, Avian diffused reflection surface coating
Illumination Light source	CLED
Sensor	array sensor
Wavelength	400-700nm
Spectrum Resolution	10nm
Measurement Time	2s

Measurement Aperture	11mm, optional 4mm, 6mm,
Repeatability	Standard Deviation $\Delta E^*ab$ 0.08 (when a white calibration plate is measured 30 x at 10-second interval calibration)
Observe Angles	2° and 10°
Light Source	A, C, D50, D55, D65, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, DLF, TL83, TL84, NBF, U30, C
Display	Chromaticity value ( $L^*a^*b$ , $L^*C^*h$ ), $\Delta E$ value, pass/fail, color tendency, average, general report, spectrum reflectance figure /data With camera to see the measurement area, spectrum reflectance figure /data, manual input target
Color Difference Formula	$\Delta E^*ab$ , $\Delta E^*CH$ , $\Delta E^*uv$ , $\Delta E^*cmc(2:1)$ , $\Delta E^*cmc(1:1)$ , $\Delta E^*94$ , $\Delta E^*00$
Color Space	CIE- $L^*a^*b$ , $L^*C^*h$ , $L^*u^*v$ , XYZ, Yxy, reflectance
Other	WI (ASTM E313-10, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger, Ganz, Stensby) D1925, ASTM E313-00, ASTM E313-73) metameric index, staining fastness, Color fastness
Data Storage	20000 samples
Light Source Lifetime	5 years, 1.5 million times
Other Function	camera view, input color swatches
Screen	Panchromatic True Color Screen
Language	Chinese and English
Interface	USB2.0
Operating Temperature	5~45°C, relative humidity 80% or below (at 35°C), no condensation
Storage temperature range	-25°C to 55°C, relative humidity 80% or below (at 35°C), no condensation
Power	Rechargeable Lithium Battery 8.4V/2000mAh, adaptor DC12V
Size	77×86×210mm
Weight	About 550g
Standard Accessories	adapter, operating manual, color management software, drive software, electronic manual, color management guide, USB cable, black/white calibration tube, protective cover, portable bag, electronic charts
Optional	Micro Printer
Color Matching System	Not matched

UV Light Source	without
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## Parameters

### Part Two. Technology Advantages

1).Uses CLEDs light source – spectrally balanced LED light source (Patent NO. : ZL2013107548347)

LED light source that has balanced intensity across visible spectrum avoids the spectral deficiency in certain parts of the spectrum in common white LEDs, which guarantees the speed and accuracy of the measurement results. This research has been published in national leading optical journal Chinese Optics Letter.

2).ETC-Every Test calibration technology (Patent NO. : ZL20130373360.1)

Currently, most instruments use standard white boards for calibration. When white board is damaged, the instrument's accuracy or precision will no longer be guaranteed. In CHNSpec's spectrophotometers, it uses innovative ETC(Every Test Calibration); standard white board is included in the optical system, and therefore has reliable accuracy and repeatability in every measurement.

3).Automatic gloss compensation technology (Patent NO. :ZL201310511357.1)

Different gloss or different instrument's light source or observation conditions will largely affect the color measurement. The automatic gloss compensation technology guarantees the accuracy of color measurement data for surfaces of different gloss. This research is published in international leading journal Optik.

4).Innovative light splitting SCS optical engine (Patent NO. : ZL201210337619.2)

Adopt innovative single-grating-dual-light-paths light splitting system: SCS optical engine , creates the best measurement repeatability for portable spectrophotometers in the industry, and guaranteed accurate measurement of surface color of materials.

## Support

### Part Six. Guarantee

1).Longest Guarantee Time

a. Three Years Guarantee Time.

b. If testing data is not correct, we can do refund.

c. We will provide testing report for every device to assure the authority of the data and it will save the calibration cost for 1 year.