



# Portable Spectrophotometer CWD 3020 with customized aperture



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The portable spectrophotometer model CWD 3020 belongs to the new generation of instruments for measuring color with LED technology, equipped with pre-installed Color Quality Control software.

Instrument with diffused sphere geometry  $d/8^\circ$  for reflectance measurements is suitable for measuring the color of color samples to perform quality control and color formulation tests.

The instrument is compact and ergonomic, equipped with a 3.5-inch TFT color touch screen display, an integrated camera for color vision and USB interface for communication with PC.



## MAIN FEATURES

**The color measurements are very accurate and allow the use of the instrument also in the field of Color Matching**

**The instrument is equipped with a sophisticated 3.5-inch TFT color LCD display with capacitive Touch Screen**

**The measurement area is customized, 10mm / 8mm, 5mm / 4mm, 1×3mm and supports both SCE and SCI simultaneously**

**Data communication with the PC occurs via the USB port and Bluetooth**

**The internal memory allows you to store over 20,000 measurements**

**There is a focus function of the measured area of the specimen with an integrated camera**

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### TECHNICAL CHARACTERISTICS OF THE INSTRUMENT

<b>Optical Geometry</b>	Reflect: d / 8 ° (diffused illumination, 8 ° viewing angle)
<b>Light Source</b>	Combined LED Light 360 nm to 780 nm
<b>Specular Component</b>	Reflect: SCI&SCE
<b>Color space</b>	CIE Lab, XYZ, Yxy, LCh, CIE LUV, HunterLab
<b>Color Difference Formula</b>	$\Delta E^*ab, \Delta E^*uv, \Delta E^*94, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*00, \text{DIN}\Delta E99, \Delta E(\text{Hunter})$
<b>Observer Angle</b>	2°/10°
<b>Colorimetric Index</b>	WI (ASTM E313, CIE/ISO, AATCC, Hunter), YI (ASTM D1925, ASTM 313), TI (ASTM E313, CIE/ISO), MI (Metamerism Index), Staining Fastness, Color Fastness, Color Strength, Opacity, 8° Glossiness, Gardner Index, Pt-Co Index, 555 Index
<b>Illuminant</b>	D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12
<b>Displayed Data</b>	Spectrogram/Values, Samples Chromaticity Values, Color Difference Values/Graph, PASS/FAIL Result, Color Offset
<b>Spectrophotometric Mode</b>	Concave Grating
<b>Wavelength Range</b>	400 nm - 700 nm
<b>Wavelength Interval</b>	10 nm
<b>Semiband Width</b>	10 nm
<b>Measured Reflectance Range</b>	0 a 200%
<b>Integrating Sphere Size</b>	Ø48 mm
<b>Sensor</b>	256 Image Element Double Array CMOS Image Sensor
<b>Measuring Time</b>	2,6 s
<b>Measuring Aperture</b>	Customized Aperture: 10mm / 8mm, 5mm / 4mm, 1 × 3mm
<b>Repeatability</b>	MAV/SCI: $\Delta E^* \leq 0.05$ (400 nm - 700 nm)
<b>Inter-instrument Error</b>	MAV/SCI: $\Delta E^* \leq 0.2$
<b>Data Port</b>	USB, Bluetooth
<b>Data Storage</b>	Standard: 2.000 misure - Sample: 20.000 misure.
<b>Language</b>	Chinese, English
<b>Power</b>	Li-ion battery. 5000 measurements within 8 hours
<b>Illuminant Life Span</b>	5 years, more than 3 million times measurements
<b>Display</b>	3.5-inch TFT color LCD, Capacitive Touch Screen
<b>Operating Environment</b>	0~40°C, 0~85%RH (no condensing)
<b>Storage Environment</b>	-20~50°C, 0~85%RH (no condensing)
<b>Dimension</b>	L*W*H=184*77*105mm
<b>Weight</b>	600 gr.
<b>Standard Accessory</b>	Power Adapter, Built-In Li-ion Battery, White and Black Calibration Cavity,
<b>Optional Accessory</b>	Micro Printer, Powder Test Box