Spectrophotometer D / 8° with software , LED & UV Light Source

BGD 558-3

Product Description

The BGD 558 series spectrophotometer is an advanced instrument independently developed using its own proprietary technology. It combines powerful functionality with stable performance and high accuracy for portable colour measurement. It is widely used in the coatings, plastics, electronics, paints, inks, ceramics, textiles, clothing, printing and dyeing, paper, automotive, medical, cosmetics and food industries, as well as in research institutes, schools and laboratories



Using the d/8° optical geometry recommended by the CIE, the instrument accurately measures sample reflectance in both SCI (specular component included) and SCE (specular component excluded) modes, including measurements of fluorescent samples. It supports a wide range of colour spaces, colour-difference formulas and colour indices, enabling accurate colour measurement and communication. It can also serve as a measurement device within a precision colour-matching system

The instrument comes with advanced colour management software and connects directly to a computer for extended functionality. It is suitable for colour-difference quality control across a wide range of products

Standards

- CIE No. 15 — Colorimetry — General principles and recommendations for colour measurement and calculation
- ISO 7724-1 — Paints and varnishes — Colorimetry — Part 1: Principles — Fundamental principles of colour measurement for paint films. The 1984 edition has been withdrawn
- ASTM E1164 — Standard Practice for Obtaining Spectrometric Data for Object-Color Evaluation — Procedures for obtaining spectral data for the evaluation of object colours
- DIN 5033 — Colorimetry — A series of standards covering colour measurement. DIN 5033-7 specifically addresses measuring conditions for object colours

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Technical Specification

- Attractive, ergonomic design
- d/8° optical geometry, compliant with CIE No. 15, ISO 7724-1, ASTM E1164 and DIN 5033
- Combined LED light source with a long service life and low power consumption
- Ø 8 mm measurement aperture suitable for a wide range of samples, with simultaneous SCI and SCE measurement
- Advanced hardware, including a 3.5-inch TFT true-colour capacitive touchscreen, a concave grating and a 256-pixel dual-array CMOS detector
- USB connectivity for convenient data transfer
- Durable white calibration tile with excellent wear resistance, stain resistance and stability
- Large storage capacity for more than 10,000 measurement records
- Two standard observer angles, multiple illuminant settings, and a wide range of colour systems and standard colour indices to meet diverse measurement requirements
- Camera-based positioning system for quick, easy and precise sample alignment
- PC software with extensive functionality



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Main Technical Parameters

Technical Parameters / Ordering Information	BGD 557 Spectrophotometer	BGD 558/1 Spectrophotometer	BGD 558/3 Spectrophotometer
Illumination / Observation System	45/0 method (45° ring-shaped illumination, vertical viewing). Complies with CIE No. 15	d/8° (diffused illumination, 8° viewing angle). SCI / SCE measurement (including and excluding specular reflection) UV included / UV excluded measurement. Conforms to CIE No. 15, ISO 7724-1, ASTM E1164 and DIN 5033	
Integrating Sphere Size	Ø58 mm	Ø48 mm	
Light Source	Combined LED source; UV light source available only for BGD 558/3.		
Spectroscopic Mode	—	Concave grating	
Sensor	Silicon photodiode array	256-pixel dual-array CMOS image sensor	
Wavelength Range	400–700 nm		
Wavelength Interval	10 nm		
Reflectance Range	0–200%		
Illuminating / Measuring Aperture	Single aperture: MAV (large aperture): Ø8 mm / Ø10 mm	Single aperture: MAV (large aperture): Ø8 mm / Ø10 mm	Dual apertures: MAV (large aperture): Ø8 mm / Ø10 mm SAV (small aperture): Ø4 mm / Ø5 mm
Measurement Mode	SCE	SCI & SCE	
Color Space	CIE LAB, XYZ, Yxy, LCh, CIE LUV, Hunter LAB (Hunter LAB only for BGD 558).		
Color Difference Formula	ΔE*ab, ΔE*uv, ΔE*94, ΔE*cmc(2:1), ΔE*cmc(1:1), ΔE*00, ΔE (Hunter; only for BGD 558)		
Other Chromaticity Data	WI: ASTM E313, CIE/ISO, AATCC, Hunter. YI: ASTM D1925, ASTM 313 TI: ASTM E313, CIE/ISO (only for BGD 558). Metamerism Index MI; Color Stain; Color Fastness		
Observer	2° / 10°		

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BGD 558-3

Technical Parameters / Ordering Information	BGD 557 Spectrophotometer	BGD 558/1 Spectrophotometer	BGD 558/3 Spectrophotometer
Illumination	D65, A, C, D50, D55, D75, F1, F2 (CWF), F3, F4, F5, F6, F7 (DLF), F8, F9, F10 (TPL 5), F11 (TL 84), F12 (TL 83/U30)		
Display Contents	Spectral value / graph, colorimetric value, color difference value / graph, PASS/FAIL result, color offset, color simulation (color simulation only for BGD 557)		
Measurement Time	1.5 s	Approx. 1.2 s; approx. 3 s when measuring SCI and SCE simultaneously	
Repeatability	Spectral reflectance: MAV/SCI, standard deviation within 0.1% (400–700 nm: within 0.2%) Colorimetric value: standard deviation within ΔE*ab 0.04 White calibration plate measured 30 times at 5-second intervals after white calibration	Spectral reflectance: MAV/SCI, standard deviation within 0.1% (400–700 nm: within 0.2%) Colorimetric value: MAV/SCI, within ΔE*ab 0.04 Average value of the white calibration plate measured 30 times at 5-second intervals after calibration	Spectral reflectance: MAV/SCI, standard deviation within 0.08% (400–700 nm: within 0.18%) Colorimetric value: MAV/SCI, within ΔE*ab 0.03 Average value of the white calibration plate measured 30 times at 5-second intervals after calibration
Inter-Instrument Agreement	MAV/SCI, within ΔE*ab 0.2 Average value of 12 BCRA II series color tiles	MAV/SCI, within ΔE*ab 0.2 Average value of 12 BCRA II series color tiles	MAV/SCI, within ΔE*ab 0.15 Average value of 12 BCRA II series color tiles
Measurement Options	Single measurement; average measurement (2–99 measurements).		
Locating Mode	—	Camera view locating system	
Dimensions (L × W × H)	90 × 77 × 230 mm	184 × 77 × 105 mm	
Weight	Approx. 600 g		
Battery / Power Supply	Li-ion battery; 5,000 measurements within 8 hours	4 AA alkaline batteries or power via USB interface	
Lamp Life	5 years; more than 3 million measurements		
Display Screen	3.5-inch TFT true-color capacitive touchscreen		

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Technical Parameters / Ordering Information	BGD 557 Spectrophotometer	BGD 558/1 Spectrophotometer	BGD 558/3 Spectrophotometer
Interface	USB / RS-232; Bluetooth 4.0 Dual Mode (only for BGD 558/3; compatible with Bluetooth 2.1)		
Data Memory	1,000 standards; 15,000 samples	1,000 standards; 20,000 samples. Each record can include both SCI and SCE data	1,000 standards; 28,000 samples. Each record can include both SCI and SCE data
Operating Conditions	0–40 °C; 0–85% RH, non-condensing Elevation: below 2,000 m		
Storage Conditions	−20 to +50 °C; 0–85% RH, non-condensing		
Standard Accessories	Power adapter and Li-ion battery (BGD 557) or 4 AA alkaline batteries (BGD 558); data cable; operating instructions; CD-ROM containing management software; white and black calibration cavity; protective cover		
Optional Accessories	BGD 1390 — Special test box for powder BGD 1393 — Mini printer BGD 1395 — Universal test components		



Disclaimer

The information given in this sheet is not intended to be exhaustive and any person using the product for any purpose other than that specifically recommended in this sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at his own risk. Whilst we endeavour to ensure that all advice we give about the product (whether in this sheet or otherwise) is correct we have no control over either the quality or condition of the product or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability whatsoever or howsoever arising for the performance of

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BGD 558-3

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