BTS256-LED-UV

https://www.gigahertz-optik.com/en-us/product/bts256-led-uv/

Product tags: UV ,

Description

The optical specifications of LEDs must commonly meet very high tolerance requirements even for non-specialist applications such as general and automotive lighting. This is often a problem since the manufacturing tolerances of UV LEDs can be higher than those permitted in the applications. The tolerance limits offered by UV LED manufacturers' intensity and spectral peak wavelength are only applicable if the operating conditions are similar to those in the binning tests or sometimes the range of the bins is simply too large for an application. Therefore, manufacturers incorporating UV LEDs into their products require devices that can accurately measure the precise in-situ optical performance of UV LEDs.

Compact UV spectroradiometer and UV LED Tester

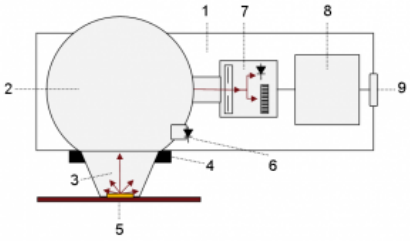
The compact BTS256-LED-UV enables you to conveniently measure the UV radiant power and spectral distribution of single UV LEDs. One special feature is the conical measurement port of the device. The ability to perform measurements of onboard UV LEDs in seconds makes it possible to also include thermal effects in the measurement. The device is therefore ideal for inspection of incoming UV LED products as well as the quality control in production processes. It can also be very useful in the design department.

The BTS256-LED-UV comes in a compact aluminum housing and offers all functions that are necessary for precise measurements.

Compact UV LED spectroradiometer with internal integrating sphere

Traceable Calibration

One essential quality of measuring devices is their precise and traceable calibration. Calibration of the BTS256-LED-UV is performed in Gigahertz-Optik's **ISO/IEC 17025 calibration laboratory** that is accredited by DAkkS (D-K-15047-01-00) for the *spectral responsivity* and *spectral irradiance* according to ISO/IEC 17025. The device has two calibrations: one is done using a specially developed reference lamp offering 2pi illumination which enables precise measurement of the luminous flux of diffusely emitting UV LEDs. The second calibration is for sources that have narrower illumination characteristics.



1) BTS256-LED-UV housing 2) 50 mm integrating sphere with synthetic coating 3) Conical measurement port 4) Precision bayonet mount 5) Test LED on a circuit board (device under test) 6) Remote-controlled auxiliary lamp 7) BiTec sensor with Si photodiode, CMOS diode array spectrometer and shutter 8) Microprocessor 9) USB 2.0 interface

Options for the BTS256-LED-UV

- Software-Development-Kit to enable users to integrate the device in their own software

- Extension to the BTS256-LED Plus Concept (for other optical quantities) using other components

The conical measurement port is placed over the test LED and detects all the radiation in a 2pi space

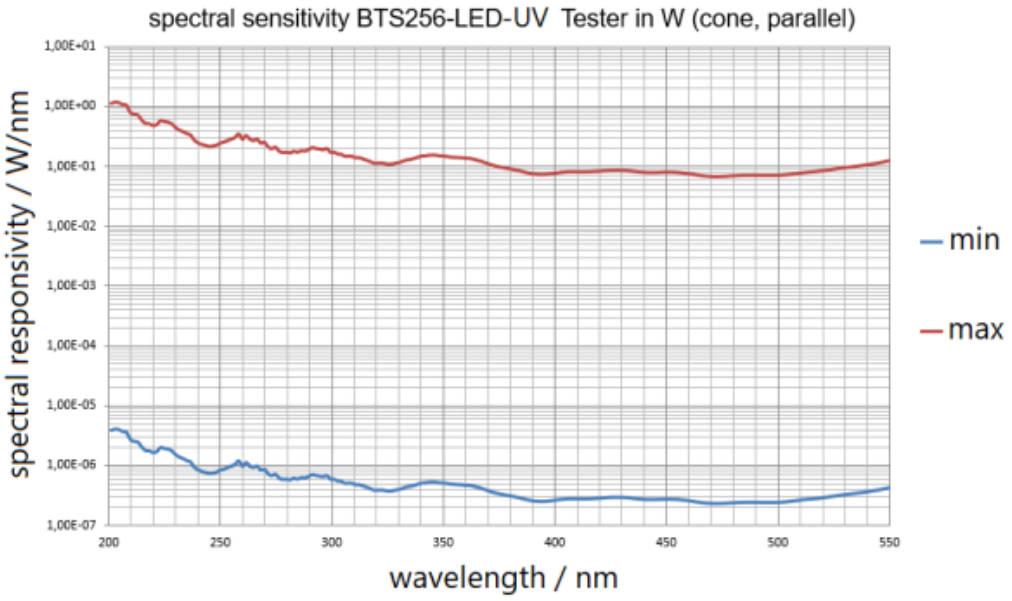
Specifications

General	
Short description	Spectroradiometer for measurement of the radiant power and spectral distribution of single LEDs
Main features	Compact measuring device with internal integrating sphere, BiTec light sensor, remote-controlled auxiliary lamp and shutter. Fast data logger for radiant power. Software for data analysis.
Measurement range	Radiant power: 10 µW - 2 W (typ. 350 nm LED), spectral range: 200 nm - 550 nm, bandwidth: 5 nm with optical bandwidth correction according to CIE 214
Typical applications	Goods-in inspection of individual UV LEDs, quality assurance of assembled UV LEDs in production processes, Research and development testing.
Calibration	For diffuse emitting and narrow beam UV-LEDs. Factory calibration. Traceable to international calibration standards.
Product	
Calibration uncertainty	λ u(*k*=2) (200 – 250) nm 15 % (250 - 350) nm 9 % (350 - 400) nm 6 % (400 – 550) nm 5 %
Sensor	Bi-Technology sensor with a broadband detector and a array spectrometer. Integrated aperture for automatic dark signal adjustment.
Input optics	Integrating sphere with synthetic ODM98 coating and protective window at the sphere port. Cone adapter coated with ODP97 for radiation absorption. 10 mm diameter measurement port. LED auxiliary lamp. Adapter change effect ± 0.5 % Max. xy responsivity deviation of the 10mm measurement port ± 2 % Max. z responsivity deviation of the 10mm measurement port ± 2 % (1 mm to 11mm)
Spectral Detector	
Chip	CMOS diode array
Spectral range	(200 - 550) nm
Optical Bandwidth	5 nm
Data Resolution	1 nm
Integration Time	(5.2 - 30000) ms
Shutter	Automatic aperture for dark signal measurements with the same integration time as that of light measurements. Aperture delay = 100ms .
Typical measurement time	1 W ≤ 10 ms (typ. 350 nm LED) 10 mW ≤ 1s (typ. 350 nm LED)
Peak wavelength	± 0.5 nm
Integral Detector	
Calibration	uncalibrated, can be scaled to spectral absolute data. Resulting it can be used as a fast time resolved sensor, etc.
Filter	Si photodiode, unfiltered. Online correction of the spectral matching through spectral measurement data.
ADC	12Bit

Measurement time	(0.1 - 6000) ms

Graphs

Spectral responsivity



Miscellaneous

Microprocessor	16Bit, 25ns instruction cycle time
Power Supply	5VDC to 7VDC, 500mA peak during capacitor charging of the auxiliary lamp
Interface	USB 2.0 (Type B USB port)
Temperature range	Operation: (10 to 30) °C Storage: (-10 to 50) °C
Dimensions	160 mm x 85 mm x 60 mm (Length x Width x Height)
Weight	500 g
Transport case	Plastic hard-top casing, 333 mm x 280 mm x 70 mm, 650g
Info	The typical uncertainty considerations in the data sheet refer to the calibration conditions (temperature, humidity, warm-up, modulation, etc.) and, as this is not possible, do not include user effects such as aging, contamination, etc.

Downloads

Type	Description	File-Type	Download
Dimensions	BTS256-LED dimensions	pdf	https://www.gigahertz-optik.com/assets/Uploads/BTS256-LED-Drawing3.pdf
Brochure	Light measurement solutions for general and specialized lighting	pdf	https://www.gigahertz-optik.com/assets/Uploads/generallighting-broschuere-DINA4-hoch-v2.pdf

Purchasing information

Article-Nr	Modell	Description
Product		
15314711	BTS256-LED-UV	Measurement device, BTS256-LED-CA10 cone adapter, USB cable, hard-top casing, operation manual, S-BTS256 software, calibration certificate.
Re-calibration		
15317908	K-BTS256LEDUV-Phi-S	Recalibration of the BTS256-LED-UV Tester. Only possible with the 10mm cone adapter.
Software		
15298218	S-SDK-BTS256	Software Development Kit for the implementation of the BTS256 or variants into custom made software
Accessories		
15307915	S-T-RECAL-BTS256	Software module for functional enhancement of S-BTS256 software. Support of BTS256 series light meter re-calibration via the user.

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- Repairs & Updates
- OEM & Feasibility Consulting of Customized Solutions

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