BTS256-LED-IR

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

Product tags: NIR ,



Description

The optical specifications of NIR 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 NIR LEDs can be higher than those permitted in the applications. The tolerance limits of NIR LEDs regardint intensity and spectral characteristics as the peak wavelength are only applicable if the operating conditions are similar to those in the binning tests. Therefore, manufacturers incorporating NIR LEDs into their products require devices that can accurately measure the precise in-situ photometric performance of NIR LEDs.

Compact spectroradiometer and NIR LED Tester

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

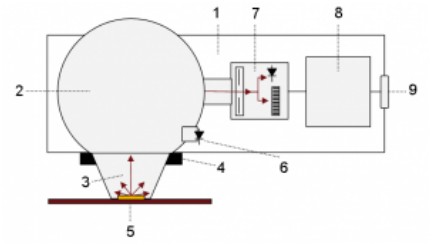
The BTS256-LED-IR comes in a compact aluminum housing and offers all functions that are necessary for precise measurements.



Compact spectroradiometer with internal integrating sphere

Traceable Calibration

One essential quality of measuring devices is their precise and traceable calibration. Calibration of the BTS256-LED-IR 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 LEDs. The second calibration is for sources that have narrower illumination characteristics.



1) BTS256-LED-IR housing 2) 50 mm integrating sphere with synthetic coating 3) Conical measurement port 4) Precision bayonet mount 5) Test LED on a printed 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-IR

- Software development kit to enable users to integrate the device in their own software

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



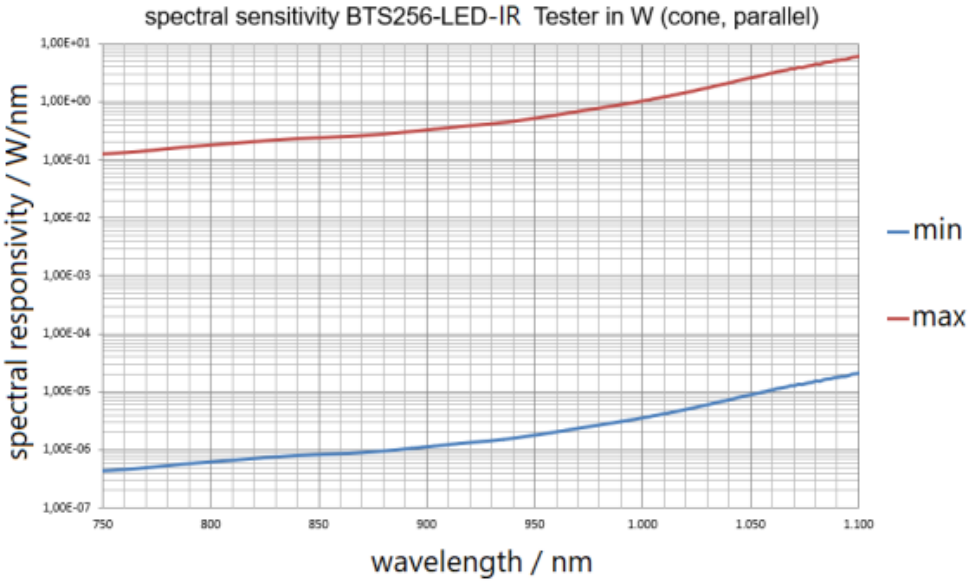
The conical measurement port is placed over the test LED and detects all the radiation in a 2pi space

Specifications

General	
Short description	Spectroradiometer for measurement of the radiant power and spectral distribution of single NIR LEDs
Main features	Compact measurement device with internal integrating sphere, BiTec light sensor, remote-controlled auxiliary lamp and shutter. Fast data logger for the radiant power and parameters like peak wavelength, etc. including an evaluation Software.
Measurement range	Radiant Power: 0.3 µW - 5 W (typ. 900 nm LED), spectral range: 750 nm - 1050 nm, bandwidth: 5 nm with optical bandwidth correction according to CIE 214
Typical applications	Goods-in inspection of individual NIR LEDs, quality assurance of assembled NIR LEDs in production processes, Research and development testing.
Calibration	For diffuse emitting and narrow beam LEDs. Factory calibration. Traceable to international calibration standards.
Product	
Calibration uncertainty	λ u (*k*=2) (750 – 900) nm 5 % (900 – 1050) nm 6 % Standard Calibration 750 nm to 1050 nm
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	(750 - 1100) 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 ≤ 20 ms (typ. 900 nm LED) 10 mW ≤ 2s (typ. 900 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 without filter. Online correction 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, 250mA 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		
15314715	BTS256-LED-IR	Measurement device, BTS256-LED-CA10 cone adapter, USB cable, hard-top casing, operation manual, S-BTS256 software, calibration certificate.
Re-calibration		
15317909	K-BTS256LEDIR-Phi-S	Recalibration of the BTS256-LED-IR 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
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.
Accessories		
15320229	BTS256-LED-XX-Z01	Tube for reducing stray light during self-absorption correction measurements with the stand-alone BTS256-LED Tester.

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

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