

BTS256-LED Plus Concept

<https://www.gigahertz-optik.com/en-us/product/bts256-led-plus-concept/>

Product tags:



Description

Manufacturers of LED based products ranging from general lighting to niche products such as bicycle lamps and headlamps require various measurement capabilities to ensure product performance and quality.

For example, the tolerance classifications in LED binning often exceed those permitted by the application or do not match the end use operating conditions thereby requiring device testing and selection. Therefore, manufacturers benefit from versatile, cost effective and accurate light meters that meet the differing measurement requirements of product development, goods-in inspection and testing of single LEDs, measurement of assembled LED arrays and single LEDs, as well as quality control of the final products.

The Plus concept for flexible use of the BTS256-LED

The BTS256-LED Plus concept is based on the [BTS256-LED](#), a compact spectral light meter that can be used to measure the luminous flux, spectrum, color, and color rendering index of LEDs. One key feature of the BTS256-LED is its conical measurement port that makes it possible to perform measurements of assembled single LEDs even within array formats.

With the optional accessories, the range of functions of the BTS256-LED device can be easily enhanced to suit different applications. One distinguishing feature of this spectroradiometer is its precision bayonet socket for attaching accessory equipment. This eliminates the need for connecting light guides which avoids the common reproducibility problems experienced when connecting and disconnecting light guides and thereby maintains traceable calibration.

Optional components of the BTS256-LED Plus concept

The **BTS256-LED-DA** diffuser window can be used to extend the measurement functions of the BTS256-LED, making it possible to measure the illuminance. It provides the required cosine correction over a $\pm 30^\circ$ field of view and is therefore only recommended for measurement of directional lamps specifications. For the illuminance measurement of extended light sources Gigahertz-Optik GmbH offers the [MSC15](#) and [BTS256-EF](#) light meters. [BTS256-LED-DA specifications](#).

The **BTS256-LED-IB** illuminance adapter is designed for measurement of the averaged LED intensity according to CIE 127 Condition B. When combined with the internal integrating sphere of the BTS256-LED, this adapter provides extremely high uniformity across the 1 cm² measurement area specified within the CIE 127. [BTS256-LED-IB specifications](#).

The BTS256-LED may also be used with **external integrating spheres** from the ISD series enabling 4-Pi luminous flux measurements in spheres up to 100cm diameter and 2-Pi measurements with ports up to 254 mm. The 2-Pi measurement port of the [ISD-21](#) has a maximum diameter of 63.5 mm, whereas the maximum diameter of the [ISD-50](#) is 127 mm. The fully opening [ISD-50HF](#) and [ISD-100HF](#) integrating spheres are well-suited for measurement of 4-Pi lamps thanks to their height-adjustable sample holders at the center of the sphere. These spheres can also be fitted with a 2-Pi measurement port (127 mm or 254 mm diameter) that remains closed when not in use. All spheres are equipped with an auxiliary lamp. The [ISD-100HFT](#) sphere rotates in its stand conveniently allowing measurements to be made taking into account the thermal effects in different operating orientations of the devices under test. External ISD-Series spheres also increase the maximum level of luminous flux that can be measured by the BTS256-LED.

The [GB-GD-360-R40-2](#) goniometer can be used to enhance the BTS256-LED in order to perform illuminance distribution measurements of 2 π lamps.



BTS256-LED for measurement of the luminous flux, spectrum, color, and color rendering index of single LEDs



BTS256-LED with the optional diffuser window for illuminance measurement



BTS256-LED with the optional diffuser window for illuminance measurement

Calibration of the BTS256-LED

One essential quality feature of photometric devices is their precise and traceable calibration. Calibration of the BTS256-LED with the optional accessories is done in Gigahertz-Optik's 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 calibration description can be found in the datasheets of the BTS256-LED with the corresponding accessories.



BTS256-LED with optional luminous intensity adapter for measurement of the averaged LED intensity according to CIE 127

BTS256-LED with an optional 21 cm diameter integrating sphere that has a maximum measurement port diameter of 63.5 mm



BTS256-LED with an optional 50 cm diameter integrating sphere that has a maximum measurement port diameter of 127 mm.



BTS256-LED with an optional 50 cm diameter integrating sphere that has

a sample holder for 4π lamps.



BTS256-LED with an optional 100 cm diameter integrating sphere that has a sample holder for 4π lamps.



BTS256-LED with an optional goniometer for 2π lamps.

Specifications

General

| | |
|----------------------|---|
| Short description | Universal spectroradiometer for measurement of the luminous flux, spectrum, color, and color rendering index of single LEDs with optional accessories for the illuminance, luminous intensity, luminous flux of LED arrays, lamps, and luminous intensity distribution. |
| Main features | Compact measurement device with a bayonet connector for easy and precise connection of accessory equipment. |
| Measurement range | Measurement parameter depending on accessory equipment, Spectral range: 360 nm - 830 nm, bandwidth: 5 nm with optical bandwidth correction according to CIE 214 |
| Typical applications | Design, inspection of single LEDs on incoming products, quality control of assembled single LEDs, LED matrices, and LED lamps in production processes |
| Calibration | Depending on the measurement parameters of the respective accessory. Factory calibration traceable to international calibration standards. |

Downloads

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

Purchasing information

| Article-Nr | Modell | Description |
|----------------|----------------|---|
| Product | | |
| 15308420 | BTS256-LED | Measurement device, BTS256-LED-CA10 cone adapter, USB cable, hard-top casing, operation manual, S-BTS256 software, calibration certificate. |
| Options | | |
| 15297959 | BTS256-LED-DA | Diffuser window adapter with bayonet connector. Calibration of the illuminance (lx) |
| 15298508 | BTS256-LED-IB | Adapter for BTS256-LED Tester to measure the "Averaged LED Intensity" in accordance to the CIE 127 measurement set-up B with 100mm measurement distance (0.01sr). Including calibration K-BTS256-LED-IB-I with merged BTS256-LED tester. Calibration certificate. |
| 15298130 | ISD-21-V01 | Integrating sphere with 63.5 mm port, Detector port for the BTS256-LED. Baffle for shadowing of the measurement port. Auxiliary lamp, table stand |
| 15298128 | ISD-50-V01 | Integrating sphere, 80mm port reducer, Detector port for the BTS256-LED. Aperture for shadowing of the measurement port. Auxiliary lamp |
| 15298101 | ISD-50HF-V01 | Integrating sphere with 500mm diameter. One hemisphere can be opened. Height-adjustable sample holder. Detector port for the BTS256-LED. Two-direction baffle for shadowing the sphere center and measurement port. Auxiliary lamp, table stand. |
| 15298102 | ISD-50HF-V02 | Integrating sphere with 500mm diameter. One hemisphere can be opened. Height-adjustable sample holder. Measurement port with 127mm diameter. Removable port plug. Detector port for the BTS256-LED. Two-direction baffle for shadowing the sphere center and measurement port. Auxiliary lamp, table stand. |
| 15298049 | ISD-100HF-V01 | Integrating sphere with 1000mm diameter. One hemisphere can be opened. Height-adjustable sample holder. Detector port for the BTS256-LED. Aperture for shadowing of lamps in the sphere center. Auxiliary lamp, table stand. |
| 15298050 | ISD-100HF-V02 | Integrating sphere with 1000mm diameter. One hemisphere can be opened. Height-adjustable sample holder. Measurement port with 254mm diameter. Removable port plug. Detector port for the BTS256-LED. Two-direction baffle for shadowing the sphere center and measurement port. Auxiliary lamp. |
| 15298760 | ISD-100HFT-V01 | Turnable Integrating sphere with 1000mm diameter. One hemisphere can be opened. Height-adjustable sample holder. |

| Article-Nr | Modell | Description |
|-----------------|----------------|--|
| 15298761 | ISD-100HFT-V02 | Turnable Integrating sphere with 1000mm diameter. One hemisphere can be opened. 254 mm Diameter port with portplug. Height-adjustable sample holder. |
| Software | | |
| 15298218 | S-SDK256 | Software Development Kit for the implementation of the BTS256 or variants into custom made software |

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