

ISD-100HF-BTS2048-VL

<https://www.gigahertz-optik.de/en-us/product/BTS2048-VL-ISD-100HF-V06>

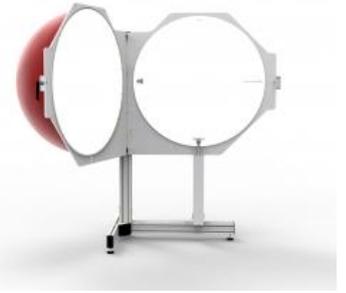
Product tags: VIS , NIR



Description

The BTS2048-VL light meter

The high-quality [BTS2048-VL](#) CCD based spectroradiometer is internationally recognized as a high-end product. It is one of the most compact spectroradiometers on the market which enables direct system integration in many applications without the need for expensive, and potentially measurement degrading, light guides. Among its characteristic features is its diffuser window with cosine corrected field of view for the measurement of spectral irradiance and spectral illuminance. This also permits direct mounting onto integrating spheres (e.g. the ISD-100HF) for measurement of luminous flux. More detailed information about the [BTS2048-VL](#) can be found in the respective data sheets. The unit is also available in the [BTS2048-VL-TEC](#) thermoelectric cooled version.



Open-able ISD-100HF-V06 integrating sphere with height-adjustable sample holder and optional sample holder for use of the test lamp from a down position

Enhancement of the BTS2048-VL with the ISD-100HF-V05 and ISD-100HF-V06 integrating spheres

The 100cm diameter integrating sphere ISD-100HF-V05 can be combined with the BTS2048-VL to measure the luminous flux, spectrum, color, and color rendering index of single LEDs, LED arrays, and LED lamps. Light sources with 2pi and 4pi radiation characteristics can be measured in accordance with CIE 127 requirements. One hemisphere can be opened to facilitate placement of test lamps in the sphere centre using the height-adjustable sample holder. Four-terminal electrical connection is incorporated. The ISD-100HF-V06 variant has an extra measurement port for 2pi lamps with diameters of up to 254 mm (10 inches). This remains closed when not in use. .. A baffle is integrated in front of the measurement device to shadow an area within 300 mm from the center of the sphere. The auxiliary lamp helps compensate for self-absorption effects during measurements. The combination of the BTS2048-VL and ISD-100HF meets the requirements of the CIE 127, CIE S025, and LM-79-08 for the measurement of luminous flux of directional (2pi) and non-directional (4pi) LED lamps. These include the spectral resolution, dynamic range, and stability of the spectroradiometer as well as the ideal sphere coating, auxiliary lamp, coupling of measurement devices using the diffuser window, a baffle and the optionally available temperature sensor.

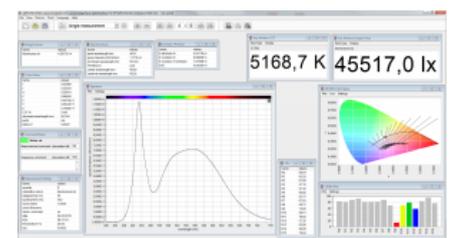


CCD-sensor spectroradiometer BTS2048-VL with diffuser input optic for direct mount to the integrating sphere

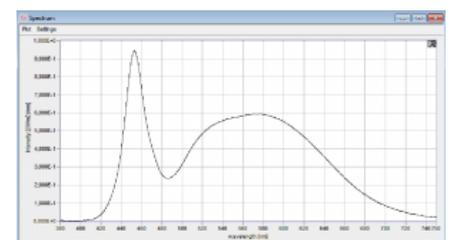
BTS2048-VL – Flicker meter

By making use of the device's fast sampling electronics, the device's internal photodiode is sampled with a sample rate up to 40 kHz. This allows the calculation of all relevant [flicker measurands](#):

- Percent Flicker (IEEE Std 1789-2015, IES: RP-16-10, CIE: TN-006)
- Flicker Index (IEEE Std 1789-2015, IES: RP-16-10, CIE: TN-006)
- FFT Frequency component analysis
- P_{st} Short term flicker severity (CIE: TN-006, IEC TR 61547)
- Stroboscopic Visibility Measure, SVM (CIE: TN-006, IEC TR 63158)
- M_p ASSIST Flicker perception metric



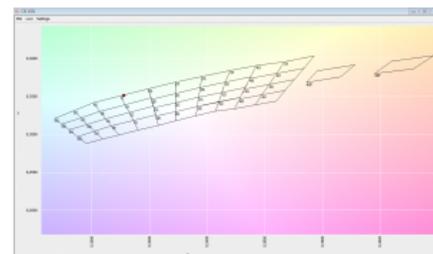
S-BTS2048 user software interface



Calibration

One essential quality feature of photometric devices is their precise and traceable calibration. The ISD-100HF with the BTS2048-VL has been calibrated at Gigahertz-Optik's DAkkS-accredited (D-K-15047-01-00) calibration laboratory for the *spectral responsivity* and *spectral irradiance* according to ISO/IEC 17025. Calibration of the luminous flux is performed by placing a BN-LHSF-104 lamp at the center of the sphere. The extra measurement port requires calibration using a [BN-LHSF-2P-20](#) calibration lamp that has 2pi radiation characteristics. Every device comes with its respective calibration certificate

Graphical display of the lamp spectrum

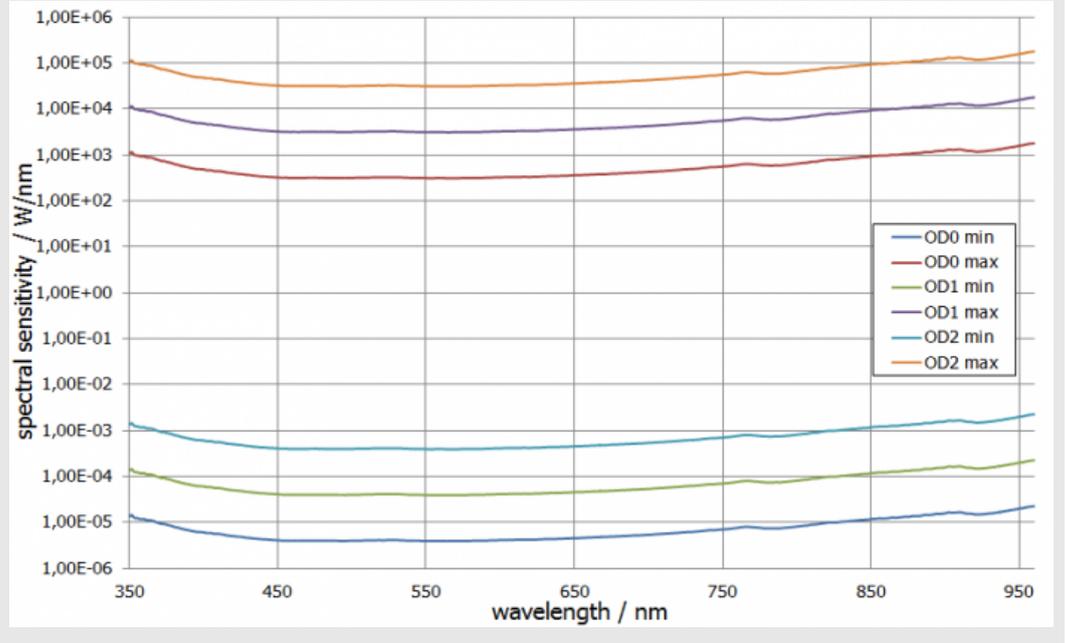


CIE 1931 with binning fields

Specifications

General	
Short description	Spectroradiometer for measurement of the luminous flux, spectrum, color, and color rendering index.
Main features	Integrating sphere with a 100 cm diameter. One half of the sphere can be opened. Height-adjustable sample holder. ISD-100HF-V05 for operation of the test lamps inside the sphere. ISD-100HF-V06 for Operation of the test lamps inside and outside the sphere.
Measurement range	Luminous flux: Integral 1 mlm to 4 klm, Spectral for typical white LEDs: 0.1 lm to 700000 klm Spectral radiant flux: 1E-5 W/nm to 3.3E4 W/nm Spectral range: 350 nm to 1050 nm
typical applications	Inspection of incoming products (LED lamps), in-line quality assurance, design
Calibration	Factory calibration. Traceable to international calibration standards
Product	
Measured Quantity	Spectral radiant power (W/nm), total flux (lm), dominant wavelength, peak wavelength, center wavelength, centroid wavelength, x, y, u', v', X,Y,Z, delta uv, color temperature, color rendering index (CRI) Ra, R1-R15. Option without integrating sphere: in addition spectral irradiance (W/(m² nm)) and illuminance(lx). Option goniometer: in addition radiant intensity and luminous intensity distribution
Integrating sphere - ISD-100HF-V06	<p>Set-up description:</p> <p>Integrating sphere with one meter diameter opening. Grip is lockable. Additional application diameter. Height adjustable sample holder with connector for lamp power supply and voltage. Auxiliary port at sphere bottom for use HV-cathode. Heavy load UMPF-1.5-HL port at the sphere with sample holder UMPA-1.5-STAX. UMPF-C heat detector. All ports with ODP97 coated ports. Auxiliary port for BTS2048-VL with two-directional Barco center and the application port. ODP97, Reflection 97% at 555nm</p> <p>Coating: Max. recommended lamp or luminaire size: Max. recommended length of tube lamps: 30 cm diameter 60cm</p>
Design	This device is based on the BTS2048-VL , please find detailed specification there.
Spectral Detector	
typical measurement time	10 lm 450 ms 100 lm 45 ms 1000 lm 4,5 ms

spectral responsivity



Calibration

Calibration

Spectral radiant power

(350 - 399) nm:	OD0: ± 8 %	OD1: ± 10 %	OD2: ± 10 %
(400 - 800) nm:	OD0: ± 4,5 %	OD1: ± 4,5 %	OD2: ± 4,5 %
(801 - 1000) nm:	OD0: ± 6,5 %	OD1: ± 6,5 %	OD2: ± 6,5 %
(1001 - 1050) nm:	OD0: ± 8 %	OD1: ± 10 %	OD2: ± 10 %
Calibration uncertainty luminous flux ± 4 %			

Configurable with

Produktname	Product Image	Description	Show product
UMLA-SHAP-E27		Bulbs measuring socket for the use with integrating spheres. Features: E27 socket. Quadrupole connecting the lamp to a galvanically isolated power supply and voltage measurement	https://www.gigahertz-optik.de/en-us/product/UMLA-SHAP-E27
UMLA-SHAP-E14		Bulbs measuring socket for the use with integrating spheres. Features: E14 socket. Quadrupole connecting the lamp to a galvanically isolated power supply and voltage measurement	https://www.gigahertz-optik.de/en-us/product/UMLA-SHAP-E14
UMLA-SHAP-G9		Bulbs measuring socket for the use with integrating spheres. Features: G9 socket. Four-line connection of the lamp socket for a separate power supply and voltage measurement.	https://www.gigahertz-optik.de/en-us/product/UMLA-SHAP-G9

Produktname	Product Image	Description	Show product
UMLA-SHAP-GU10		Bulbs measuring socket for the use with integrating spheres. Features: GU10 socket. Four-line connection of the lamp socket for a separate power supply and voltage measurement.	https://www.gigahertz-optik.de/en-us/product/UMLA-SHAP-GU10
UMLA-SHAP-GU5.3		Bulbs measuring socket for the use with integrating spheres. Features: GU5.3 socket. Four-line connection of the lamp socket for a separate power supply and voltage measurement.	https://www.gigahertz-optik.de/en-us/product/UMLA-SHAP-GU5.3
UMLA-SHAP-GX53		Bulbs measuring socket for the use with integrating spheres. Features: GX53 socket. Four-line connection of the lamp socket for a separate power supply and voltage measurement.	https://www.gigahertz-optik.de/en-us/product/UMLA-SHAP-GX53

Purchasing information

Article-Nr	Modell	Description
Product		
15298056	ISD-100HF-V05	Integrating sphere with 100W auxiliary lamp, height adjustable sample holder.
15308926	ISD-100HF-V06	Integrating sphere with 100W auxiliary lamp, height adjustable sample holder and 254 mm application port.
15298281	BTS2048-VL	Measuring device, hard cover box, users guide, S-BTS2048 software, calibration certificate.
15298687	BTS2048-VL-TEC	Measuring device, hard cover box, users guide, S-BTS2048 software, calibration certificate.
Calibration		
15300771	K-BTS2048VL-Phi-2-V1	Calibration of the total flux respectively radiant power responsivity of the BTS2048-VL with optional integrating sphere. 4Pi light distribution. Spectral range (350 - 1050) nm. With calibration certificate.
15300510	K-BTS2048VL-Phi-4-V1	Calibration of the total flux respectively radiant power responsivity of the BTS2048-VL with optional integrating sphere. 4Pi light distribution. Spectral range (350 - 1050) nm. With calibration certificate.