TFCT25

https://www.gigahertz-optik.com/en-us/product/tfct25/

Product tags: VIS

Description

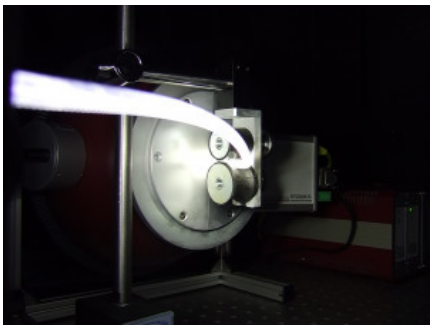
TFCT25 test system for lateral light-emitting light guides

The TFCT25 for measurement of the spectral transmission of lateral light-emitting light guides as well as the luminous flux, spectrum, and color of LEDs

Lateral light-emitting light guides are now widely used in the automotive industry for daytime running lights, tail lights and brake lights. Their aesthetic design and 3D shape are significant recognition factors. They are made of plastic and have a very complex lateral structure which is designed to ensure uniform light emission along the entire length. Among the numerous test criteria in the manufacturing process are dimensional stability, homogeneity, and intensity of the lateral radiation. The measurement of the spectral transmission of the light guide is therefore a key quality test. Uniform light emission over the entire length of the light guide can only be achieved with sufficient transmission. An additional risk is the yellowing of the plastics used to make the light guide. Particularly when used with white LEDs, this yellowing results in a change of the color temperature which is visible to the human eye.

Gigahertz-Optik's TFCT25 is a test system for measuring the optical transmission of lateral light-emitting light guides, including the influence of yellowing. The system meets all the technical requirements of a renowned automotive manufacturer and therefore holds the status of a qualified inspection device for its suppliers. Besides measuring the spectral transmission and analyzing potential color shifts, the system can also be used for the photometric and colorimetric analysis of LEDs to be used in conjunction with the lateral light-emitting light guides. Its key features include its precision power supply unit for current supply to the LEDs as well as to the meter itself for the operation of the LEDs in both constant and pulsed current modes. LED manufacturers also use the former for LED binning in accordance with CIE S025.

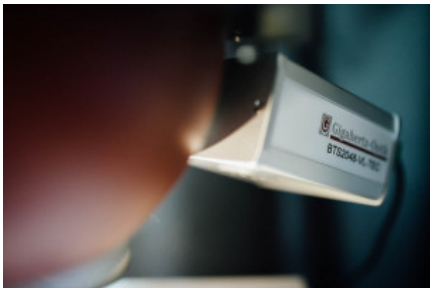
Users of the TFCT25 therefore have a universal, high-precision light meter with which they can measure the various optical parameters for the quality assurance of their light guides as well as the accurate inspection of LEDs in accordance with CIE S025.



Site emitting light guide during the measurement. The port reducer prevents the measurement from stray ligth.

The system consists of proven modules from Gigahertz-Optik GmbH: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 diffusor window, which can be used to mount it directly onto integrating spheres such as the ISD-25 in the TFCT25 for the measurement of luminous flux. More detailed information about the BTS2048-VL can be found in the respective data sheets.



BTS2048-VL-TEC high acurate CCD-sensor spectral Radiometer for CW and pulse measurements.

Enhancement of the BTS2048-VL with an integrating sphere

The ISD-25-V01 can be combined with the BTS2048-VL in order to measure the luminous flux, spectrum, color, and color rendering index of single LEDs, LED arrays and light guides. The integrating sphere is fitted with port reducers to prevent the laterally emitted light from distorting the measurement results. The size of its measurement port can be adjusted depending on the size of the light guide or light source. A large, stable mounting plate around the measurement port facilitates the attachment of the port reducers..

The combination of the ISD-25-V01 with the BTS2048-VL meets all the requirements of the CIE 127 for the measurement of the luminous flux of directional (2pi) LEDs. These include the spectral resolution, dynamic range and stability of the spectroradiometer as well as the ideal sphere coating, 25 cm diameter, auxiliary lamp, coupling of measurement devices using the diffusor window, and baffle.

Electronic system to supply current to the LED

The device is delivered with an LPS-20 precision power supply from Gigahertz-Optik GmbH. This is specifically designed to meet all the requirements of constant and pulsed current operation modes of LEDs.

Software

The system comes with the S-BTS2048 user software for the operation of the TFCT25 test station. The software has an enhanced tool for easy data analysis as well as integrated PASS/FAIL tests.

Sample holders for attachment of different samples/light guides

The test system is supplied with sample holders (3 for left- and right-handed light guides respectively) for positioning of the light guides, which often have a 3D shape. These can be moved and fixed freely on the test bench thanks to the magnetic tabletop. The height-adjustable sample holders have an articulated arm and clamping jaw with high degrees of freedom to accommodate the cross section and size of the light guides.

Calibration

One essential quality feature of photometric devices is their precise and traceable calibration. The ISD-25-V01 with the BTS2048-VL is calibrated by 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 is performed with a BN-LHSF-2P-20 calibration lamp that has 2pi radiation characteristics in the integrating sphere. Every device is delivered with its respective calibration certificate.

Specifications

General	
Short description	CIE 127 conform integrating sphere spectroradiometer for transmission of lateral light-emitting light guides as well as measurement of the luminous flux, spectrum, color, and color shift of LEDs
Main features	CIE127 integrating sphere with a 25 cm diameter. High-quality spectroradiometer. Precision power supply for constant and pulsed current supply of the LEDs. User software. Optional software for system integration in the user software
Measurement range	• Luminous flux: Integral 0.05 mlm to 141 klm., Spectral for typical white LEDs: 5.5 mlm to 43000 klm. • Spectral radiant flux: 8E-7 W/nm to 2E3 W/nm • Spectral range: 350 nm to 1050 nm
Typical applications	Quality assurance in production of laterally emitting light guides. Inspecting of incoming products (single LEDs), in-line design
Calibration	Factory calibration. Traceable to PTB calibration standards
Product	
Sensor	Model BTS2048-VL-TEC Specifications can be found in the separate datasheet
Integrating sphere	ISD-25-V01

Purchasing information

Article-Nr	Modell	Description
Product		
15305427	TFCT25	Measurement system for "color homogeneity test of light guides" and LED measurements.

Article-Nr	Modell	Description
Options		
15305433	TFCT25-Z01	A set consisting of 10 pieces exchangeable apertures for the measurement system TFCT25. The apertures are ready for custom machining.

Contact, Calibration, Service & Support

We are known worldwide for excellent technical consulting and after sales support. Contact us to find together the best solution for you. Our services:

- Technical Consulting & Sales
- After-Sales Support
- Calibrations & Re-Calibrations (ISO/IEC 17025 Calibration Services, factory calibration, Calibration of Third-Party Products)
- Repairs & Updates
- OEM & Feasibility Consulting of Customized Solutions

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