SPECTROMETER

PHOTONICS

Table of contents

← Back to Table of Contents

Partner GL Optic

GL Optic is a Polish-German manufacturer specializing in advanced light measurement systems for photonics and precision optics applications. Their comprehensive portfolio includes spectroradiometers, photometers, integrating spheres, goniometers, and luminance cameras, all designed to deliver accurate and reliable measurements across a broad spectrum of light sources.

Product offering

GL SPECTIS 4.0 M

GL GONIO SPECTROMETER GLG 8-850

GL SPECTIS 1.0 TOUCH + FLICKER

GL SPECTROLUX

GL Gonio Spectrometer GLG_30-1800 – GL Optic

GL Spectis 1.0 – GL Optic

GL Spectis 5.0 Touch – GL Optic

GL Spectis 1.0 Touch – GL Optic

GL SPECTIS 4.0 M

New level of high-precision testing of light sources

The main objective of the spectroradiometer's design was to provide a new modular technology for measuring optical radiation. The goal was to create an instrument that could be adjusted to each customer's unique requirements while still retaining accuracy comparable to that of a laboratory.

High-end spectroradiometer

When thermal stabilization is directly given to the detector, it lowers noise and dark current values, which enhances the detector's ability to measure low-level signals, particularly those in the ultraviolet (such as LED UV-C). In the application range, the solution will also provide independence from the surrounding temperature.
By adjusting the aperture and filters, the variable optical path module guarantees flexibility in the system's optical property adjustment to the nature of the measured signal. This method typically eliminates the need to install a separate measuring probe for each application by enabling the user to readily adjust the instrument to specific measurement needs. all the while keeping all optical path configurations' calibration settings intact.

The latest technology

The state-of-the-art spectroradiometer GL SPECTIS 4.0 M has the newest optical solutions for accurate light quality control in a range of applications. It has a Peltier module, which lowers signal noise and dark current levels to reduce measurement uncertainty for demanding measurement applications in the lab or industrial setting.

Flexibility for every industry

GL SPECTIS 4.0 M's universal modular design makes it an excellent option for quickly creating a specialized measuring device. For particular purposes, it is possible to increase the spectral range by adding an additional filter. Radiant power and total luminous flux can be measured when coupled to an integrating sphere. In conjunction with telescopic probes for brightness and radiance, a specialized assessment of risks associated with optical radiation and light quality can be carried out.

Precise factory calibration

We respect accurate calibration techniques and clever system architecture. Every spectroradiometer is calibrated separately, and a number of pre-calibration steps, including wavelength calibration, non-linearity correction, and stray-light inspection, are carried out prior to the absolute spectral calibration procedure.

GL SPECTIS 4.0 M Usage

This measuring device was created to satisfy certain needs in cutting-edge applications. Its extended spectral range (UV–VIS–NIR) is 200–1050 nm. It comes with a multi-step, traceable factory calibration and high-performance optical components. The easy integration of production testers or stationary laboratory measuring stands is facilitated by the availability of on-demand rack housing. Operational stability and dependability are guaranteed by Ethernet connections. A selection of GL OPTI PROBES with fast connectors offers a level of simplicity never seen before.

Assessment of photobiological safety in the UV range

Precise measurements about the actinic effects of optical radiation and photobiological safety can be performed with this module. UV measurements are carried out by GL SPECTIS 4.0 M UV, which has a high optical resolution of less than 1 nm (FWHM). The apparatus has the capability to measure absolute irradiance values within the 200 nm to 400 nm range through calibration.
In order to evaluate the photobiological risk and validate radiation sources used for medical and disinfection purposes, it is imperative to improve the quality of UV measurements.

Professional LED characterization

This top-of-the-line spectroradiometer is ideal for characterizing LEDs since it can be used with any of our goniometer systems and integrating spheres to perform measurements that meet CIE 127:2007 and CIE 025/E:2015 standards. It is the perfect tool for measurements verifying IES LM-79-08 and other international standards due to its excellent accuracy and resolution.

GL SPECTIS 4.0 M Features

Benefits of modular technology

The capacity to modify the system’s and the spectroradiometer’s configuration to meet the unique requirements of each customer is the main advantage of the device’s modular design. Additional modules can be added to the machine to increase its capability if needed, even months after purchase.

Variable optical path

By adjusting the aperture and filters that affect the readings, the variable optical path module enables the optical route to be adjusted to the characteristics of the measured signal. This technique eliminates the need to switch to a specialized measuring probe in order to swiftly adjust the instrument to certain measurement requirements. all the while keeping all optical path configurations’ calibration settings intact.

Thermal stabilization module

The method of thermal stabilization of detectors in GL SPECTIS 4.0 M devices relies on directly stabilizing the sensor using a Peltier cell, which eliminates the need to cool the complete apparatus. The module’s purpose

is to preserve the detector’s linearity, noise level, and dark current value while facilitating low-level signal readings. Reduced temperature variations lead to a decreased level of uncertainty in the measurement that was obtained.

GL SPECTIS 4.0 M Metrics

Our spectroradiometers are individually calibrated and set to provide accurate findings for almost any realistic optical radiation measurement application. Using the accompanying software, measuring and reviewing the findings takes only a few seconds.

Using the GL SPECTIS 4.0 M with a suitable probe, you can measure any of the following optical quantities:

- [lx]/[W/m2] Illuminance and irradiance
- [lm]/[W]: luminous flux, radiant power
- CRI: color rendering index according to the CIE
- CCT-correlated color temperature according to the CIE
- Color-chromaticity coordinates of the CIE 1931, CIE 1964 and CIE 1976
- Fidelity and Gamut: method for evaluating light source color rendition according to IES TM-30
- PAR/PPFD: photosynthetically active radiation measurements for horticulture
- EML: biological effects of light on humans in equivalent melanopic light

+ plenty more!

The GL SPECTIS 4.0 M spectrometer is very accurate and suitable for any application.

GL GONIO SPECTROMETER GLG 8-850

GL GONIO SPECTROMETER GLG 8-850

Benchtop light goniometer for small LED lamps, modules, and components.

A compact system for measuring light intensity distribution, luminous flux, and color.

The easy-to-use GL Optic system combines the functionality of a goniophotometer with the features of a spectroradiometer to measure the luminous flux, determine the light intensity distribution values of colorimetric parameters required by international standards.
The new GLG 8-850 goniometer is a top-of-the-range benchtop goniometer designed to measure LED modules and smaller luminaires and to test components.
The automated system allows to measurement of devices weighing up to 8 kg and with a diameter of 850 mm. The system with computer and GL Spectrosoft add-on software, enables measurements with an angular resolution of 0.1° and in the angular range of the C axis and λ +/- 180°.

Features:

- Small in size, big in capability
- Compliance with international standards
- Accelerate product development
- C-type optical goniometer in C-γ coordinates
- Optical axis in horizontal direction
- Angular measurement of luminous intensity
- Luminous flux measurements
- LDT and IES file generation

Optional functions:

- Class L (according to DIN 5032) laboratory photometer
- Current or power source and power meter
- TEC control or temperature measurement
- Type A conversion kit available

GL SPECTIS 1.0 TOUCH + FLICKER

The ultimate portable light spectrometer

an improved model of the highly popular spectral light meter GL SPECTIS 1.0 Touch. This version raises the bar for portable light measuring. In addition to the wide range of standard photometric and colorimetric values available on the GL SPECTIS 1.0 Touch for color and intensity, this cutting-edge light spectrometer instrument can now measure flickers of light in a matter of seconds.

The best choice for flicker measurement

To monitor flicker frequency, flicker index, and flicker ratio, the GL SPECTIS 1.0 Touch light flicker meter now has extra circuitry and a fast photodiode. This gadget, which was created in collaboration with standards committees and industry leaders, has all the measurement amounts needed to precisely measure and comprehend flicker.

Tomorrow’s metrics are today

Flicker measurements are a great way to stay ahead of the competition with your optical testing tools. Despite being a relatively new requirement in many sectors, defining flicker will soon become standard. We’re covered with new measures like SVM and California Title 24! Visit the GL blog to learn more about flicker measurements and the new requirements.

A true all-in-one instrument

When a single portable light spectrometer can capture all of your light’s characteristics, why employ numerous measuring tools? Fewer reports need to be combined, and there are fewer devices to carry. With just a single push, you can get everything. Utilize it in the field or lab to gather flicker and spectrum data. Do you require more reporting or analytical tools? Make use of the GL SPECTROSOFT M, which is an optional item.

Flexibility for leading industry

In addition to providing a fantastic stand-alone option, the GL SPECTIS 1.0 Touch light flicker meter may be combined with a variety of accessories. This system covers integrating spheres and goniometers in the lab and field. With the optional optical probe, you may set up the system to monitor luminous flux, illuminance, flicker metrics, and even the luminance of LEDs.


GL SPECTIS 1.0 Touch + Flicker Usage

Every important metric, one device

In the UK, when Chelsea Arena erected the first “flicker-free” football stadium lighting, GL Optic was asked to supply a device that could be used as an auditing tool to check the recently installed lights. In addition to determining if the installation was flicker-free, the contractor had to assess the photometric and colorimetric parameters, such as illumination [lx], color temperature (CCT), color rendering qualities of LED (CRI), and television index (TI).

In order to improve on our current GL SPECTIS 1.0 Touch, this initiative led to the development of the GL SPECTIS 1.0 Touch + Flicker, which combines an additional electrical circuit board with a fast photodiode to record the optical flicker characteristics. The end product may be the greatest portable flicker spectroradiometer available. covering a rather large frequency range with precision comparable to certain lab instruments.

GL Optic is actively involved in a working group led by Philips (now Signify) that is responsible for creating new flicker metric standards for the industry. Because of our direct collaboration, we are able to use Philips’ reference standard to compare and assess our accuracy on a daily basis. In order to evaluate how the lighting installation can affect human visibility performance, we can also incorporate the most recent flicker measures, such as flicker index, flicker percent, and flicker frequency, along with the most recent SVM (Stroboscopic Visibility Measure), a new standard.

A portable light spectrometer with an intuitive touchscreen interface that works well in both the lab and the field is the GL SPECTIS 1.0 Touch + Flicker meter. This gadget is unique in its own right, offering a broad suite of accessories along with a range of software analytical capabilities.

GL SPECTIS 1.0 Touch + Flicker Features

Reliable, precise and intuitively operated spectral instrument

The GL Spectis 1.0 Touch + Flicker meter is a spectral instrument for light measurement that is easy to use and offers dependable and accurate optical performance. Reliable light assessment is no longer limited to professionals or outside labs. Our individually calibrated, preconfigured measurement instruments produce findings quickly and accurately, and the software that comes with the package offers powerful automation and analysis features that produce meaningful results.

Spectral and photodiode measurements

Light measuring applications are the focus of the design and setup of GL Optic light spectrometers. A common add-on that makes accurate light measuring possible is the B-class cosine-corrected measurement head. The optical flicker signal response is now simultaneously recorded by adding a photodiode with quick readout electronics adjacent to the conventional diffusor. You may examine the data and the graph displaying the wave shape, height, and frequency right on the touch screen. You can even enlarge the image to see more details. The extra GL SPECTROSOFT PRO license offers additional analytical and reporting features.

Plus all of the core features of the GL SPECTIS 1.0 Touch + Flicker

- Self Contained Handheld Spectrometer
- Automatic Accessory Detection
- Dark current compensation
- Trigger Socket
- Photometric and Radiometric calibration

GL SPECTIS 1.0 Touch + Flicker Metrics

Measure light output and color together

- Spectral power distribution SPD
- Illumination [lx] or fc
- Irradiance [mWatt]
- Color: CRI, CCT, x,y

And optical flicker metrics like:

- Flicker frequency,
- Flicker index
- Flicker ratio
- SVM (Stroboscopic Visibility Measure)
- Pst LM (Short Term Perceptibility for light modulation) – available with GL SPECTROSOFT PRO/LAB only
- SAM (Stroboscopic Acceptability Metric)
- Mp (also called LRC Flicker Perception)
- VESA (Video Electronics Standards Association)
- JEITA (Japan Electronics and Information Technology Industries Association)
- Flicker Graph and FFT Graph are available

And a bunch of others! Request a complete set of light-meter metrics by contacting us.

GL SPECTROLUX

Handheld spectral light meter

Many light meters are simply not capable of providing the fast, accurate measurements needed for LED and other lighting systems. As a pioneer in professional light measurement test instruments, we created the GL SPECTROLUX as a cost-effective, easy-to-use spectrometer accessible to all lighting specialists.
This simplified model is perfect for instant assessment of light level and homogeneity, color temperature and coordinates, spectrum power distribution, LED color rendering, PAR/PPFD and more. It is based on our popular GL SPECTIS 1.0 Touch. Featuring a laboratory-quality measurement head for exceptional precision and repeatability, each device is independently calibrated, traceable to global reference standards and sets new industry standards for both performance and cost.

Simple lighting audits

Use this spectral instrument to measure lighting installations, both new and old, on site and demonstrate that the installation meets the design specifications.

Quality lighting products

Take charge of the caliber of your lighting components and products. Use this tool when purchasing new parts to inspect LEDs, drivers or lenses. Why not demonstrate the benefits of your products to customers or end users by using this device as a sales tool?

Easy evaluation and adjustment

This gadget makes it easy to assess and adjust lighting settings when adjusting stage lighting for accurate CCT/CRI of studio and museum lighting to the correct lux levels. Conveniently, the portable meter has a handy uniformity check function.

GL SPECTROLUX Use

This portable, reasonably priced spectrometer can be used for a variety of tasks, such as assessing lighting installations, providing quick control over LED lighting and fixtures, or even helping application and sales engineers teach consumers the quantifiable benefits of today’s lighting systems. to show. Finally, by analyzing the installations and goods of competing companies, it can also be used to gain competitive insights.

Results at the touch of a button

Timeless design and advanced technologies ensure consistently accurate results in seconds. You can make quick and more accurate judgments thanks to the immediate display of all important measurement data on the LED display.

Affordable spectrometer: low price, high performance

Despite being the least expensive instrument offered by GL, it comes with the best cosine-corrected DIN Class B measuring head available as a standard accessory. This enables the best possible measurement of light from the 180° measurement situation using Lambert's law of cosines.

Sustainable Built

The GL SPECTROLUX illuminance meter maintains the high caliber of its components despite its affordable price. These sturdy gadgets are made in Europe and meet field audit requirements. They are unique in their class.

GL SPECTROLUX features

Reliable, accurate and intuitively operated spectral instrument

The affordable GL SPECTROLUX spectral light meter offers accurate and reliable optical performance. Reliable light measurement is no longer limited to professionals or external laboratories. Our individually calibrated, preset light measuring equipment produces accurate, timely findings.

Industry Leading Features:

- Self-contained portable spectrometer
- Dark current compensation
- Measuring head DIN class B
- Photometric and radiometric calibration

Powerful reporting and analysis capabilities

The included GL SPECTROSOFT Connect program enables basic analysis and reporting functions that produce meaningful findings. Upgrade to our industry-leading GL SPECTROSOFT program to accelerate your analysis. This customizable, easy-to-use solution comes with unique features such as lighting audit automation and a spectrum mixer, as well as fully customized reporting choices and extensive analytical capabilities.

GL SPECTROLUX metrics

With the GL SPECTROLUX you can measure:

- LUX: lighting level lux [lx]
- foot candles [fc]
- SPD: Spectral power distribution from 380 to 780 nm
- CRI: color rendering index according to CIE and IES TM30
- CCT: correlated color temperature [K]
- Colour: color coordinates according to CIE 1931
- PAR/PPFD: Calculations of photon flux density and photosynthetically active radiation [µmol]

GL Gonio Spectrometer GLG_30-1800 – GL Optic

Accelerate Your Time to Market

Traditional photometry labs are a thing of the past. The performance of LED based luminaires is highly angular dependent and requires a new level of sophistication for complete characterization. The GLG 30-1800 combines the functionality of a goniophotometer with the features of a spectroradiometer to measure brightness and to check angle dependence luminous intensity distribution.

Video

Specifically engineered for lighting manufacturers who want to stay ahead of the competition and take control of their product development earlier, the GLG 30-1800 light goniometer offers exceptional value. For many companies, the payback period is less than 5 years when they compare the purchase of a system vs. sending lamps to an external lab. It also leads to more frequent characterization resulting in better products that reach the market faster.

Simplicity in Design

The GLG 30-1800 gonio spectrometer removes the dependency on highly skilled technicians to deliver reliable results. With easy to use software, precise alignment protocols and extensive automation capabilities, the system offers a new level of performance and usability.

One Click Photometric File Output

While this goniospectrophotometer generates spectral and color data at any angle, it remains true to its primary use – generating IES/LDT output files, simply and with the click of a button.

A Wide Range of Luminaires

With an extended max load up to 30kg and 1800mm diameter max dimension, the GLG 30-1800 will cover most of the demand for testing. Have a range of small and large fixtures? No problem.
The system can accurately characterize big and small fixtures without any mechanical changes.

Download the datasheet and / or technical datasheet.

Contact PEO.

GL Spectis 1.0 – GL Optic

We present the GL Spectis 1.0 for a variety of uses. This high-quality and easy to operate device gives you all you need for reliable light measurement. Check out its unique capabilities. GL Spectis 1.0 is a practical and reliable measuring device. It is ready for use immediately after connecting to your PC. No extra power supply is required. Thanks to its high sensitivity and accuracy, it is the perfect solution for light measurement. Different light sources like LED, fluorescent lamps or LCD displays require different optical probes. GL Spectis 1.0 can be combined with additional equipment to measure any type of light sources, displays as well as LED lights. Find out more about the best mini-spectrometer available on the market now! GL Spectis 1.0 optical systems and software can be easily adapted to meet any customer needs. To meet the challenges of the modern lighting industry and demanding LED market, GL Optic developed a practical hand-held spectrometer which can be used for everyday incoming quality control of light sources, field work of quality engineers and other professionals who deal with the quality of light. The GL Spectis 1.0 is a measuring device suitable for the final assessment of lamps as well as for testing of complete lighting installations. It is the perfect instrument for the measurement of LEDs.

GL Spectis 1.0 features

- high sensitivity and precise calibration
- low noise and stable measurements
- ready to work when connected to PC (after about 10 min)
- small size and low energy consumption
- powered via USB connection

GL Spectis 5.0 Touch – GL Optic

With the new GL SPECTIS 5.0 Touch GL Optic expands its product line of measurement instruments using the latest smart technology solutions designed for high reliability and ease-of-use. Using this state-of-the-art instrument you can get light measurement data with laboratory accuracy. Our spectrometers are individually calibrated to deliver precise results quickly, and the included software is intuitive and easy to navigate.

GL Spectis 5.0 Touch features

- extended spectral range from 200 to 1050nm
- very high resolution: 2.5nm optical and 0.5nm data point
- OSR system for Stray Light Reduction
- touch screen display
- photometric and radiometric calibration
- Dark Current Compensation
- Micro SD
- variety of integrating spheres and probes available
- automatic accessory detection
- laboratory accuracy

GL Spectis 1.0 Touch – GL Optic

GL Optic’s GL Spectis 1.0 Touch is the first mobile spectrometer using an Android-based operating system which offers the latest communication technologies. This unique device offers improved functionality and many new features. The GL Spectis 1.0 Touch integrates the performance of a high-end spectroradiometer into a handheld, intuitive, touch screen device.

Presentation GL Spectis 1.0 Touch

GL Spectis 1.0 Touch features

- measurement head – The standard diffusor
- touch screen display
- micro SD
- automatic accessory detection
- dark current compensation
- trigger socket
- universal mount
- photometric and radiometric calibration
- android system

Download the datasheet or contact our product specialist.