INTEGRATING SPHERES

peo PHOTONICS

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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 LARGE OPTI SPHERES

GL OPTI SPHERE 1100

GL OPTI SPHERE 500

GL OPTI SPHERE 205

GL OPTI SPHERE 48

GL OPTI LIGHT LED

GL Opti Sphere 1100 – GL Optic

GL Opti Sphere 48 – GL Optic

GL LARGE OPTI SPHERES

Luminous flux of large LED lamps and luminaires

Large integrating sphere sets called GL OPTI SPHERE 1500, 2000, and 3000 are made specifically for measuring the luminous flux, radiant power, and color of large LED luminaires and modules. These systems support testing that complies with LM79 and also meet the recommendations stated in the CIE 127:2007 Technical Report by the CIE Technical Committee.
The sphere's size and the side-opening mechanism make it simple to install a range of light sources with the help of extra adapters or holders, providing complete measuring versatility. This system may be outfitted with any of our high-performance spectrometers along with robust automation and analysis software, just like all of our integrating sphere systems, to provide a fully turnkey system that is simple to use for everyone.

Mount and measure

A mechanical stage that can be modified to accommodate a wide variety of lights and LED module types is included with the GL OPTI SPHERE as standard equipment. It is simple to install various A-type goods thanks to an optional lamp post that is positioned in the center of the sphere. The sphere can be connected to any of our high-performance light spectrometers, and when they are attached to the detector port, the program immediately detects them. Just load the light and leave the rest to the program.

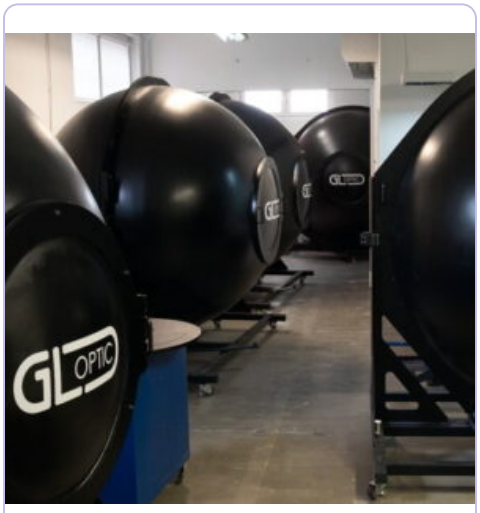
Large LED luminaires

Optimal for combining sphere measurements of big light fixtures, the sphere is offered with various diameters of 1,5 m, 2 m, and 3 m. Utilized across various sectors and adjusted in accordance with national benchmarks, the GL LARGE OPTI SPHERES provides remarkable worth in a market dominated by either inexpensive, subpar equipment or systems that are too expensive for the majority of expanding businesses.

Adaptable to your needs

You can choose the ideal spectral range and features to suit your needs and budget from a variety of light spectrometers and accessories for the GL LARGE OPTI SPHERES. This, along with our robust GL SPECTROSOFT software and GL AUTOMATION add-on, creates a fully functional test station that is simple to operate and allows anyone to get precise, repeatable results.



GL OPTI SPHERE 2000 Usage

Measure, launch, and grow.

An affordable, precise, and user-friendly method for testing and measuring big luminaires during development and as a quality control measure in production is becoming more and more necessary as the number of businesses producing commercial lighting fixtures rises. To fill this demand, the GL OPTI SPHERE 1500, 2000, and 3000 integrating spheres were created, providing a fully turnkey solution for all of your light measurement requirements, no matter how big or little.

Excellent light flux and color accuracy are provided by the GL Optic big integrating sphere without the operational complexity of traditional photometric test equipment. It is not necessary to have a large, dark lab or a dedicated metrologist. In little time at all, set up the system and begin assessing your lighting. The fact that you can simply open the sphere, place the lamp inside, and measure is appreciated by our customers. This sphere has all the parts and accessories you require, and the GL SPECTROSOFT software interface will assist you in doing the task correctly.

A laboratory of your own

For rapid quality control, this equipment works equally well in production labs, accredited laboratory settings, and R&D. For LM79 light measurement applications, the GL LARGE OPTI SPHERE is a great option when using outside labs becomes too costly or time-consuming.

Instant customized reports

Install, measure, and use our GL SPECTROSOFT package to create customized results right away. The measurement tool, an additional light source, and optional peripheral devices like TEC controllers or

programmable and stable power supplies will all be managed by this analytical software. These can all be found in a single comprehensive measurement report.

GL OPTI SPHERE 2000 Features

Specially designed 660 mm entrance aperture

Front-emitting diodes can be measured in 2π geometry at the wall entrance in accordance with CIE standards, whilst other sources of light with broader emission can be measured in 4π geometry at the center of the sphere. A 660 mm entry aperture that was specifically created for the 2 m sphere's entrance can be utilized for calibration. Specific measurement conditions may require the installation of additional gear.

Auxiliary light source

An additional light source has been added to the GL OPTI SPHERE 2000 to offset the self-absorbance of DUTs and achieve optimal measurement accuracy.

GL OPTI SPHERE 2000 Metrics

Integrated quantities

- Total Luminous Flux [lm]
- Radiant power [W/nm]
- Total Photon Flux
- PBAR and more.

Colorimetric quantities

- Correlated Color Temperature: CCT and Duv
- Color Rendering Indices: Ra, CRI, R1 to R15, TM-30
- Fidelity index (Rf)
- MacAdam Ellipses.
- Binning
- Color coordinates

Optional quantities*

- Luminous Efficacy [lm/w]
- Power Factor
- Temperature Tp Tamb, etc

GL OPTI SPHERE 1100

Luminous flux of LED modules and luminaires

The GL OPTI SPHERE 1100 integrating sphere system fulfills the recommendations of the CIE Technical Committee, which are published in the CIE 127:2007 Technical Report, and is intended for the measurement of radiant power and luminous flux of large LED modules, mid-size LED luminaires, and other light sources. For expanding LED lighting producers without the room or funds for a 2M or 3M sphere, it is the perfect answer.

This comprehensive and user-friendly integrating sphere system complies with American LM79, CIE S025, and other international standards. With full measuring flexibility that complies with CIE guidelines, the GL OPTI SPHERE 1100 boasts a side-opening design that makes it simple to attach a range of light sources. The GL OPTI SPHERE 1100 can be combined with any of our spectrometers and software tools, just like all other integrating sphere alternatives, to provide the measurement system you require.

Mount and measure

This integrated sphere system has a mechanical stage by default that can be modified to mount a variety of fixtures and LED module types. It is simple to install various A-type goods thanks to an optional lamp post that is positioned in the center of the sphere. The software can automatically identify and connect any of our high-performance spectrometers to the sphere. Just load the light and leave the rest to the program.

Adaptable to your needs

You can choose from a variety of spectrometers and accessories for the GL OPTI SPHERE 1100 to acquire the finest features and spectral range for your needs, both technically and financially. This, along with our robust GL SPECTROSOFT software and GL AUTOMATION add-on, creates a fully functional test station that is simple to operate and allows anyone to get precise, repeatable results.

Accelerate product development

Because of its compact size, this integrating sphere system may be mounted on an office or production floor, giving engineers and R&D teams the ability to test lighting components on-site with speed and accuracy. Long lead times result from sending components and bulbs for laboratory testing, which eventually slows down the development cycle. These days, the findings are accessible right away when fresh boards are manufactured or new fixtures are delivered.

GL OPTI SPHERE 1100 Usage

Measure, launch, and grow.

The market for LED retrofit lamps is growing quickly, and testing and measuring small to medium-sized LED lights needs to be done quickly and with accuracy. Everything from LED modules to tiny strip lights and downlights. To address this demand and provide comprehensive optical assessment of LED retrofit and replacement bulbs, the GL OPTI SPHERE 1100 integrating sphere system was created.
The remarkable luminous flux and color accuracy that the GL OPTI SPHERE 1100 integrating sphere system can provide are possible without the operational complications that come with other photometric test equipment. It is not necessary to have a large, dark lab or a dedicated metrologist. In little time at all, set up the system and begin assessing your lighting. The fact that you can simply open the sphere, place the lamp inside, and measure is appreciated by our customers. This sphere has all the parts and accessories you require, and the GL SPECTROSOFT software interface will assist you in doing the task correctly.

A laboratory of your own

For efficient quality control, this integrating sphere system works well in production labs, authorized laboratory settings, and R&D. When stepping into the world of professional testing and measurement, the GL OPTI SPHERE 1100 is a great starting point—especially when using external labs becomes too costly or time-consuming.

Instant customized reports

Install, measure, and use our GL SPECTROSOFT package to create customized results right away. The measurement tool, an additional light source, and optional peripheral devices like TEC controllers or programmable and stable power supplies will all be managed by this analytical software. These can all be found in a single comprehensive measurement report.

GL OPTI SPHERE 1100 Features

Side-opening system

Complete measuring versatility is made possible by the integrating sphere’s size and the side-opening mechanism, which make it simple to insert a range of light sources with the help of extra adapters or holders.

High durability and low weight

Front-emitting diodes can be measured in 2π geometry at the wall entrance in accordance with CIE standards, while other sources of light with broader emission can be measured in 4π geometry at the center of the sphere. The composite material used to make the integrating sphere ensures both low weight and great durability.

Specially designed 168mm entrance aperture

A 168-mm entry aperture that was specifically created for the integrating sphere's entrance can be utilized for calibration. Specific measurement conditions may require the installation of additional gear. The GL OPTI SPHERE 1100 contains an additional light source to counteract the test LED's self-absorption effect and provide optimal measurement accuracy.

GL OPTI SPHERE 1100 Metrics

Integrated quantities

- Total Luminous Flux [lm]
- Radiant power [W/nm]
- Total photon flux
- PBAR and more.

Colorimetric quantities

- Correlated Color Temperature: CCT and Duv
- Color Rendering Indices: Ra, CRI, R1 to R15, TM-30
- Fidelity index (Rf)
- MacAdam ellipses.
- Binning
- Color coordinates

Optional quantities*

- Luminous efficacy [lm/w]
- Power factor
- Temperature Tp Tamb, etc

GL OPTI SPHERE 500

Compact integrating sphere system

The GL OPTI SPHERE 500 was created especially for expanding lighting firms operating in the rapidly expanding LED retrofit market, who require a dependable and fast way to test and measure LED modules and medium-sized lights. It is a great option for any manufacturer of LED luminaires who wants to describe the caliber of their product. Instantaneous measurements of luminous flux, color temperature, luminous efficacy, and many other significant light parameters are produced by this 50-cm integrating sphere.

The GL OPTI SPHERE 500 is the ideal countertop instrument because of its compact size, which allows it to provide laboratory precision without requiring a specialized lab or highly qualified personnel. This calibrated system satisfies both American and European requirements for professional LED light measurement instrumentation, as well as CIE global standards. Make an easy-to-use, high-performing sphere spectroradiometer configuration by selecting one of our spectrometer options.

Install and measure

This sphere comes pre-installed with the most widely used lamp holders. The standard lamp post, positioned in the sphere’s center, facilitates expert light measurements and product installation. A mechanical breadboard is an optional feature that makes it simple to install various LED lighting fixtures or tiny luminaires.

Accelerate product development

This device is simple to install in a typical office setting, enabling engineers and R&D departments to measure lighting components on-site with speed and accuracy. Long lead times result from sending components and bulbs for laboratory testing, which eventually slows down the development cycle. They can now observe results right away upon the delivery of fresh LEDs or the fabrication of a new board.

Not just for the laboratory

This adaptable sphere system may be quickly and easily customized to fit the demands of individual clients. It can be used as a rapid production control unit or production tester to help measure lights, luminaires, and modules while they are being built. This is used by larger distribution organizations to test purchased products for quality compliance before releasing them into the market.

GL OPTI SPHERE 500 Usage

Your tabletop laboratory

The market for LED retrofit lamps is growing quickly, and testing and measuring small- to medium-sized LED items needs to be done quickly and accurately. This necessity led to the creation of the GL OPTI SPHERE 500 integrating sphere, which provides comprehensive optical assessment of LED retrofit or replacement lights with common sockets like E27, E14, GU10, and others. As we implemented the solution, it became clear that this small benchtop device is suitable for both R&D departments and lighting laboratories for fast component, prototype, and final product evaluation.

Professional light measurement now has an easier access point thanks to the GL OPTI SPHERE 500. It is not necessary to have a large, dark lab or a dedicated metrologist. In no time, set up the system and begin to comprehend your lamps. Even with limited test knowledge, the setup and operation guarantee that the engineering staff produces the correct findings. The fact that you can simply open the sphere, place the lamp inside, and measure is appreciated by our customers. This sphere has all the parts and accessories you require, and the GL SPECTROSOFT software interface will assist you in doing the task correctly.

LED modules, strips, lamps and more

Do you need to measure a lot of different things but lack the funds or room for a big sphere? A great way to get started in the laboratory testing and measuring LED modules, lamps, and other components used in lamp manufacture is using the GL OPTI SPHERE 500. Any of our spectrometers can be used in conjunction with this integrating sphere to provide precise color and flux testing. You may now regulate the impact of new electronic drivers, inspect diffusers and components, and generate reports often and instantly. Obtain photometric data for your prototypes, confirm the LEDs and other parts supplied by your suppliers, and take control of your light quality!

GL OPTI SPHERE 500 Features

Reliable measurement of light

When ordered with the measuring device, all GL Optic spheres are provided with a spectrally calibrated product. Our spheres are compatible with all GL optical spectrometers, making them universally useful. Barium sulfate ($BaSO_4$) on the interior walls of the sphere ensures high reflectance qualities of up to 97%.

CIE compliant

LED measurement in accordance with CIE 127:2007 and the recently released CIE S 025/E:2015. This sphere also meets all American IES LM and European EN specifications for professional LED light measurement equipment, in addition to other international standards.

Configurable

and 4π measurements of small lamps and modules, use the standard GL OPTI SPHERE 500 system with universal lamp posts and an optional mechanical breadboard. Additionally, every sphere has a side port for precise measurement of 2π sources.
On demand, extra adapters, temperature control mounts, or specialty holders are also offered. Kindly get in touch with us to discuss your needs.

Automated self-absorbance correction

The GL SPECTROSOFT software fully controls the integrated LED auxiliary light source to provide prompt corrections and the best outcomes.

GL OPTI SPHERE 500 Metrics

Integrated Quantities

- Total Luminous Flux [lm]
- Radiant power [W/nm]
- Total Photon Flux
- PBAR and more.

Colorimetric Quantities

- Correlated Color Temperature: CCT and Duv
- Color Rendering Indices: Ra, CRI, R1 to R14, TM-30
- Fidelity index (Rf)
- MacAdam Elypses.
- Binning
- Color coordinates

Optional Quantities*

- Luminous Efficacy [lm/w]
- Power Factor
- Temperature Tp T amb etc

GL OPTI SPHERE 205

Luminous flux & radiant power measurements of LEDs

An automated, user-friendly substitute for determining the luminous flux and radiant power of LEDs and other small light sources is the GL OPTI SPHERE 205 small integrating sphere. Every measurement complies with the CIE Technical Committee's suggestions, as stated in the CIE 127:2007 Technical Report.
The GL OPTI SPHERE's clever design makes it possible to attach various adapters and measure a variety of light sources. Measurements of front-emitting diodes in 2π geometry at the wall entrance are compliant with CIE standards. It is recommended to test other kinds of LEDs using 4π geometry at the sphere's center. Set up the system according to your application's specifications.

Flexible and expandable

Select from a variety of spectrometers, measure in 2π or 4π, and employ SMA fiber optics or direct connections. These are but a handful of the possible hardware choices. Make even more use of your expertise by utilizing any of our strong software analysis and automation solutions.

Fast and accurate

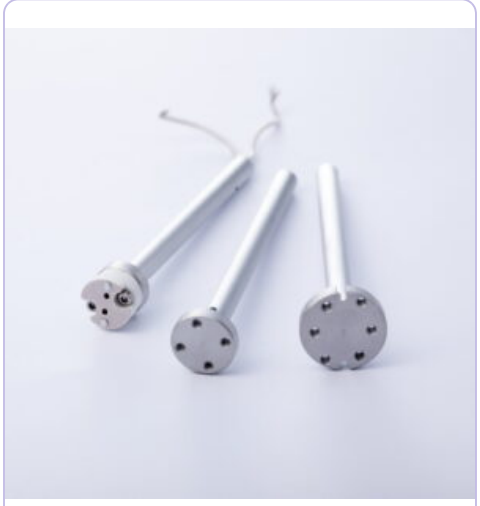
The GL OPTI SPHERE 205, which is meant to be an everyday tool, is a fantastic substitute for external labs or outdated equipment. On your desk, in your lab, or on the assembly line, get instantaneous laboratory-level color and radiometric accuracy.

Simplicity in design

With just a button push, users of the GL OPTI SPHERE can access all light attributes thanks to its integrated system design. Give up on complicated software and hardware and take charge of your optical development instead.







GL OPTI SPHERE 205 Usage

Simplified luminous flux

In order to make light measuring for individual LEDs and small LED modules easier, GL OPTI SPHERE 205 was created. Conventional systems are difficult to operate, frequently sensitive to slight physical changes, and include confusing software that makes it hard to get reliable results without the user’s intervention. Peripheral integration makes automated sequences possible, which eliminates this problem.

Reliable measurement of light

Barium sulfate (BaSO4) on the interior walls of the sphere ensures high reflectance qualities of up to 97%. With the appropriate adapter placed either directly on the sphere or via a SMA fiber-optic cable, any GL SPECTIS series spectrometer can be used with any GL Optic sphere.

GL OPTI SPHERE 205 Features

Precisely designed aperture

The port of the sphere is equipped with a precisely designed 50mm aperture which can be used in partial flux measurements of LEDs. For this application, the test LED is installed outside the sphere at a defined distance and the flux is measured inside the sphere.

CIE compliant

Measurement of LEDs compliant with CIE 127:2007 and new CIE S 025/E:2015. This sphere also complies with other global standards and all American IES LM and European EN requirements for professional LED light measurement instrumentation.

Useful accessories

There are attachments available that are appropriate for certain measuring needs. An additional light source is included in the GL OPTI SPHERE 205 to offset the test LED’s self-absorption effect.

Automated self-absorbance correction

The GL SPECTROSOFT software fully controls the integrated LED auxiliary light source to provide prompt corrections and the best outcomes.

GL OPTI SPHERE 205 Metrics

Integrated quantities

- Total luminous flux [lm]
- Radiant power [W/nm]
- Total photon flux
- PBAR and more.

Colorimetric quantities

- Correlated color temperature – CCT and Duv
- Color rendering indices – Ra, CRI, R1 to R14, TM-30
- Fidelity index Rf
- MacAdam elypses.
- Binning
- Color coordinates

Optional quantities*

- Luminous Efficacy [lm/w]
- Power Factor

GL OPTI SPHERE 48

Truly accurate flux for single LEDs

The GL OPTI SPHERE 48 is an attachment that integrates spheres with our GL SPECTIS spectrum light meters to measure the luminous flux of small light sources, such as LED chips. An optimal distribution of light and accurate lighting power measurement are made possible by this integrating sphere. Utilize this for LED luminous flux, radiant power, color coordinates, color temperature CCT, and color rendering qualities (CIE CRI; IES TM-30).
This accessory is very easy to use and is a great tool for electronics experts and producers of LED modules in their daily job. When choosing the right parts or needing a fast and precise LED measurement, this is also highly useful for buying managers and agents.

Plug & measure

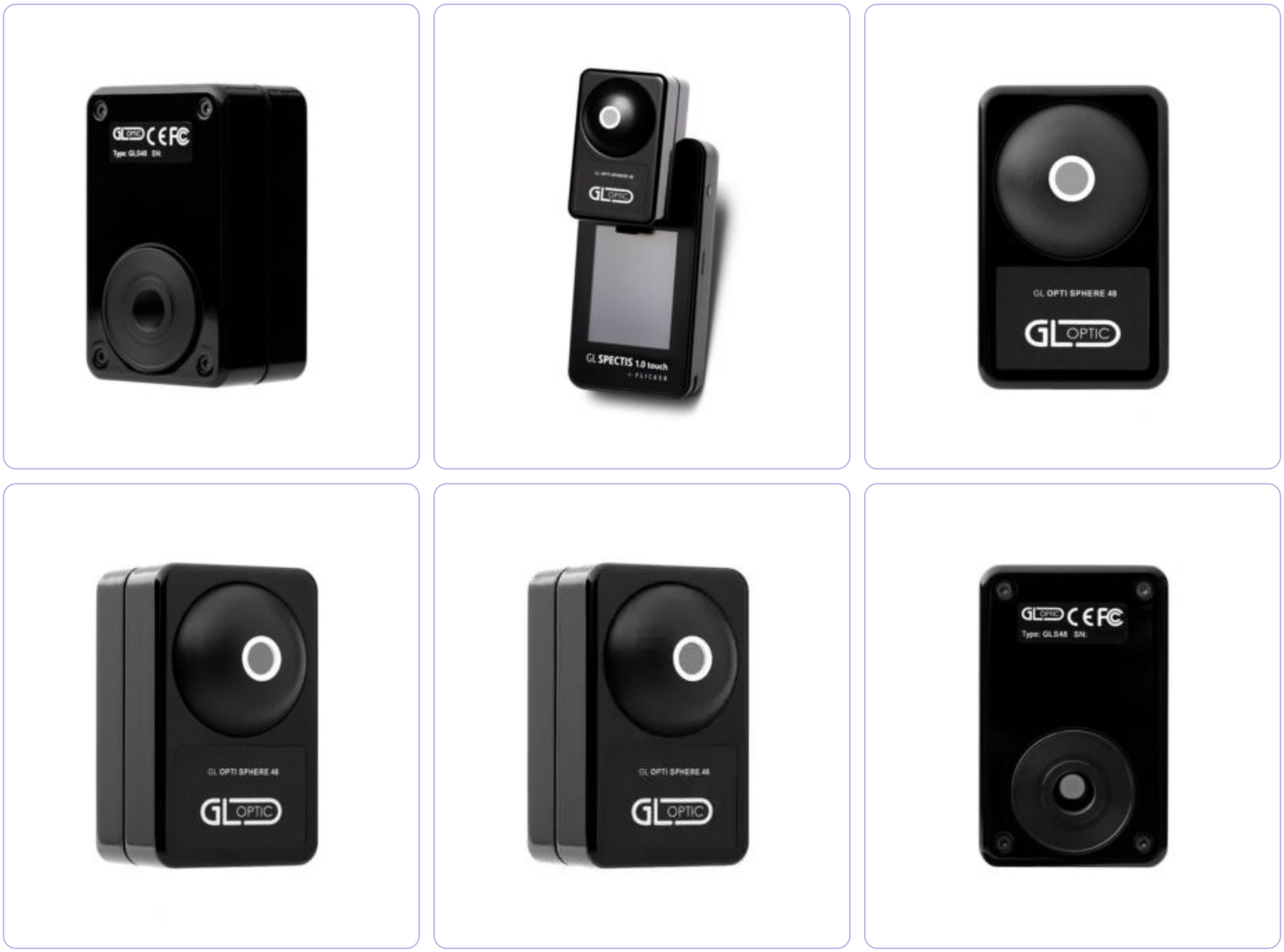
With the direct mounting of this tiny integrating sphere on the spectrum instrument, the user can obtain precise and instantaneous photometric and radiometric data. Your GL SPECTIS device’s measuring capabilities are extended to single LED readings by the spectrum meter’s automatic detection of the RFID code.

Lab performance in your hand

By using this device, you may obtain findings that can be traced back to laboratory standards. This allows you to manage the binning (color and flux groups) during the initial selection stage or make more informed decisions about the quality of the LEDs and the items you require for your development. Asking the laboratory to measure these for you is no longer necessary.

Confidence and flexibility

Purchasing various kinds of LEDs or collaborating with multiple vendors? These days, you can quickly and simply examine the color and light output of these parts. Take it a step further and conduct in-depth analysis at every level of development by combining it with the potent GL SPECTROSOFT analysis package.



GL OPTI SPHERE 48 Usage

More than ten years ago, our chief engineer informed our development team, “We need to make a tool that will be easy to use and immediately show accurate results of a single LED,” while they were working on next-generation LED-based lamps for color evaluation. Before we place these LEDs in the prototype module, we need to know the light output and quality. Since then, it has developed into a crucial tool for electronic developers working on LED lighting, who frequently battle with issues like driver selection, LED output optimization, and module and LED output optimization. Rather than choosing the right LEDs for development projects only on the basis of samples and the datasheet, you may use this sphere to rapidly confirm binning, validate performance, and see if samples are meeting specifications. Once your new module has been tested, all you need to do is place the sphere on top of each LED to see how much light it produces. For LED strips, the same applies. For GL optics, utilize our spectral integrating sphere in conjunction with various spectral instruments. See how our PASS/FAIL and GL SPECTROSOFT binning functions can assist you in your business.

GL OPTI SPHERE 48 Features

Apertures for different size LEDs

Don’t be fooled by the modest size. Anywhere you need it and for any purpose, this scientific-grade handheld equipment is simple to set up with various apertures to measure light flux correctly. For some situations, a fiber-optic adaptor is also an alternative.

Extended dynamic range

An optional high-signal adaptor, suitable for various luminous flux levels, can be used to measure high-

output LEDs.

Special accessories for QC

Use a remote trigger device that has an indicator bulb to show when a measurement is finished for production or quality control applications. ideal for a trade floor that is noisy. For additional automation, use GL SPECTROSOFT or customer software via the API.

GL OPTI SPHERE 48 Metrics

- Lumen: luminous flux
- CRI: color rendering index according to the CIE
- CCT: the color temperature according to standard CIE
- Color: the chromatic coordinates of the CIE 1931 and CIE 1964
- Fidelity and Gamut: method for evaluating light source color rendition according to TM-30 IES standard
- PAR/PPF: photosynthetic active radiation measurements for horticulture
- mWatt: radiation energy
  + many more!

GL OPTI LIGHT LED

Luminance calibration & reference source

Utilizing JUST LED Technology, the uniform luminance reference light source offers excellent stability and a versatile luminance calibration or verification option. Not only is it feasible to outperform traditional LED sources in terms of light quality, but for the first time, it is also feasible to duplicate an amazing color space with the best quality.
This GL OPTI LIGHT LED can be used as a calibration reference for cameras and other optical instruments, as well as a reference brightness standard in display and monitor calibration systems.

Unparalleled performance

This luminance reference standard is a modular solution that can be readily integrated into production testers or laboratory settings for luminance calibration. It uses the proven, patented JUST LED Technology to ensure great stability over an extended length of time. For excellent uniformity and almost flawless Lambertian diffusion, the system integrates a series of LEDs with an integrating sphere and an exit optic aperture that has been specially constructed. To achieve exceptional color and light output stability and minimal flicker, it has an analog control electronics system and thermal stabilization.
The GL OPTI LIGHT LED 127 CLC is a more sophisticated programmable LED light that comes with closed-loop calibration in addition to the functions mentioned above. This feature ensures longer-lasting light emission stability.

Near-perfect replication of light sources

Ideal uniformity of the source and nearly flawless replication of light sources such as D50, D65, D75, A, and TL 84 are provided by the GL OPTI LIGHT luminance reference. It achieves exceptional colorimetric stabilization through the use of thermal stabilization and an electrical control system.

Choose your interface

Through a USB connection, a PC may operate the device and generate nearly any color source. As an alternative, the device’s embedded LED control panel can be used to change the settings. To facilitate seamless interaction with automated or production applications, a DLL library is provided.

Control the properties of LEDs

You can store the spectrum qualities in the electronic controls of the unit and adjust each individual LED light source using only Normlicht’s LED technology.

GL OPTI LIGHT LED Usage

A new class of reference light

Using JUST LED technology, this small, homogeneous light source offers a very versatile and stable luminance reference standard. The GL OPTI LIGHT 127 is a brightness standard that can be used as a calibration reference for cameras and other optical instruments, as well as for display and monitor calibration systems. It is constructed with precisely chosen LEDs and a tiny integrating sphere to provide perfect source homogeneity. To provide exceptional colorimetric stabilization, it also has an electrical control system and thermal stabilization.

For the first time, only Normlicht's LED technology has been able to regulate an LED's characteristics. We have created a sophisticated multilevel calibration process that calibrates every single LED light source and stores the spectrum properties in the electronic controls of the device in order to manage the LED properties to our specifications. This method is distinct and offers quality at a cost that wasn't before possible.

Create any light

The GL OPTI LED 127 can be modified using the built-in LED control panel or by utilizing a USB cable to operate it from a PC. You can adjust the light coordinates using the PC software to suit your preferences. A number of light source standards, including D50, D65, D75, A, and TL84, are also included. Two types of calibration are available for the active multilevel calibration system: permanent online calibration that doesn't require an external metrological instrument for operation, and basic factory calibration.
With a frequency of over 100 Hz, the GL OPTI LIGHT LED can effectively regulate its working parameters and alter the light output in a way that is permanently undetectable to human sight.

GL Opti Light LED Features

Setting the lighting coordinates

Using a USB cable, a PC may operate the GL OPTI LIGHT LED. As an alternative, the LED control panel can be used to adjust the settings. You can adjust the light coordinates with the JUST software to suit your preferences. A number of light source standards, including D50, D65, D75, A, and TL84, are also included.

Active multilevel calibration system

Two types of calibration are available for the active multilevel calibration system: permanent online calibration that doesn't require an external metrological instrument for operation, and basic factory calibration.

Self-controlling

The GL OPTI LIGHT LED can efficiently control its operating parameters and change the light output in a way that is permanently imperceptible to human sight at a frequency of more than 100 Hz. Not only is JUST LED

technology producing better light than conventional LED sources, but it can now replicate a huge color space with accuracy for the first time.

GL Opti Sphere 1100 – GL Optic

The GL OPTI SPHERE 1100 has been designed for the measurement of luminous flux and radiant power of LED luminaires and large LED modules, as well as other light sources compliant with the recommendations of the CIE Technical Committee published in the CIE 127:2007 Technical Report. The size of the sphere and the side-opening system facilitate the easy installation of a variety of light sources using additional adapters or holders, allowing full measurement flexibility. Conforming to CIE recommendations, front emitting diodes can be measured at the wall entrance in 2π geometry while other types of LEDs or other sources with wider emission are measured at the center of the sphere in 4π geometry. The sphere is made of a composite material which guarantees high durability and low weight. The entrance of the sphere is equipped with a specially designed 168mm entrance aperture which can be used for calibration purposes. Additional accessories can be installed as required by specific measurement scenarios. In order to obtain top measurement accuracy, the GL OPTI SPHERE 1100 has been equipped with an auxiliary light source to compensate for the self-absorption effect of the test LED.

GL Opti Sphere 1100 features

- measurement of LEDs compliant with CIE 127:2007 and new CIE S025/E:2015
- universal lamp post
- geometry for front emitting diodes and other sources
- universal ports for SMA fiber optics or direction connection
- auxiliary light source for self-absorption compensation

Technical data

- sphere inside diameter: 1100mm
- entrance aperture diameter: 168mm
- outside dimensions: 1200mm x 1125mm x 1800mm
- spectral range: 300-1700nm
- material (sphere/coating): composite/BaSO4
- auxiliary light source: white LED
- weight: 60 kg

GL Opti Sphere 48 – GL Optic

The GL OPTI SPHERE 48 is an accessory for our GL Spectis 1.0 for the luminous flux measurement of LEDs and other small light sources. Thanks to its acknowledged characteristics, the integrating sphere helps to achieve ideal light distribution and proper measurement of light power. It is an ideal tool for LEDquality control /binning/ where features like color temperature and color coordinates are important. The set includes the sphere in a housing with a coder for automatic detection of the accessory. It is delivered with a certificate of factory absolute spectral calibration.

GL Opti Sphere 48 features

- small-size portable measuring tool
- ideal for binning and quick quality control of LEDs
- ready for work immediately after connection to the GL SPECTIS 1.0
- automatic calibration file download
- high precision of test results
- measurement of LEDs compliant with new CIE S 025/E:2015