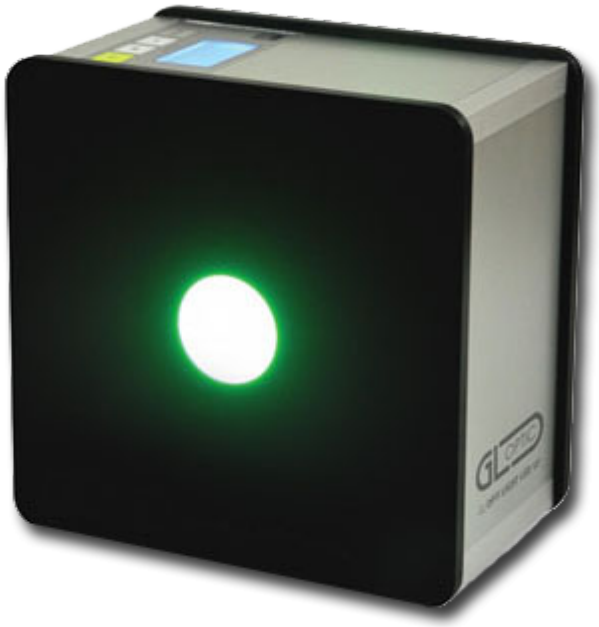
# CALIBRATION SERVICES



peo PHOTONICS

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# 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

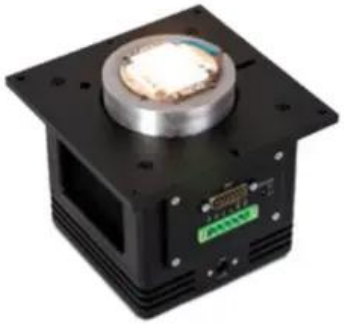
### GL TEC CONTROL SYSTEM

### GL Opti Light LED – GL Optic

# GL TEC CONTROL SYSTEM

## Reliable and stable surface temperature control

Stabilized power supplies and consistent, dependable conditions for LED module surface temperatures are mandated by new industry requirements. Because of this, it becomes necessary to simulate different LED operating temperatures or to control and stabilize the temperature of high-power LEDs during the measurements. Lighting designers and manufacturers are compelled by new test standards like CIE S 025/E:2015 to prioritize heat control. A novel approach that ensures comprehensive temperature management and control for LED module measurements is the GL TEC Control System. It is a well-coordinated combination of components that comprises a spectrometer, an integrated sphere, a programmable power supply, and advanced software.



### Integrated solution

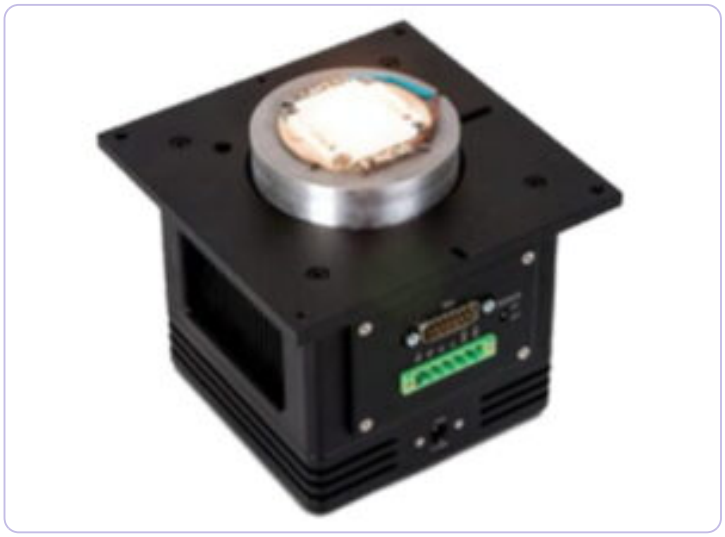
The lab-grade GL SPECTIS 6.0 spectrometer and the state-of-the-art TEC controller-connected TEC Mount with Peltier element for heating or cooling are part of the turnkey system. Both are then linked to a programmable power supply and an integrating sphere called GL OPTI SPHERE 500, which are managed by Spectrosoft.

### High-precision monitoring and control

The module can replicate almost any operational temperature and establish steady measurement conditions. GL AUTOMATION is a potent utility included in the GL SPECTROSOFT software suite that controls heat.

### A wide range of luminaires

With a maximum load of more than 30 kg and a maximum diameter dimension of 1800 mm, the GLG 30-1800 will meet the majority of testing requirements. Possess a variety of big and tiny fixtures? Not an issue. With no mechanical adjustments, the device is able to precisely define both large and tiny fixtures.



## GL TEC Control System Usage

**Control your temperature**

New LED drivers, LED chips, and lights are tested and developed in development labs using the GL TEC Control System. The module can replicate almost any operating temperature and establish stable measuring circumstances thanks to its high-precision temperature monitoring and control system. GL AUTOMATION is a potent utility included in the GL SPECTROSOFT software suite that controls heat. It is used to organize, execute, and keep track of automated test scenarios. as well as to operate all of the linked instrumentation.

## GL-TEC Control System Features

**Thermal stabilization of LED modules**

- Measurement of luminous flux and color at 25°C
- 85°C junction temperature measurement according to IES LM standards

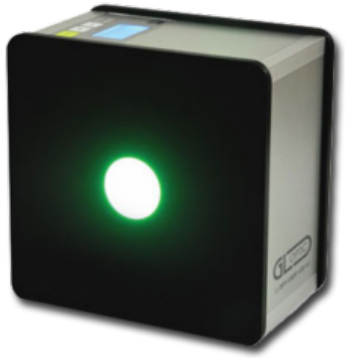
**Simulation of different temperatures**

- Any working temperature simulation between 5 and 85°C
- Automatic changes of setting and measurements
- Additional probes for Tp point measurements

*Different sizes and thermal capacity mounts are available.

# GL Opti Light LED – GL Optic

GL Optic is presenting its latest development: The uniform light source using the JUST LED Technology providing high stability and flexible solution for the luminance purposes. This GL OPTIC LIGHT LED can be used as a reference luminance standard in the display and monitor calibration systems as well as a calibration reference for cameras and other optical instruments. It is made with the use of the set of LEDs and the integrating sphere providing ideal homogeneity of the source. Additionally it features the electronic control system and thermal stabilization in order to achieve extraordinary colorimetric stabilization.
JUST Normlicht's LED technology has achieved the ability, for the first time, to control the properties of LEDs. To control the LED properties to our requirements we have developed a complex multilevel calibration procedure that calibrates each single LED light source and stores the spectral properties in the unit's electronic controls. This process is unique and therefore has a patent filed for by JUST Normlicht.



## GL Opti Light LED features

- very high uniformity
- near-perfect replication of light sources like D50, D65, D75, A, TL 84
- free selection of light spectra out of color space bigger than sRGB
- stable conditions thanks to a unique calibration method
- much longer lifetime of LEDs thanks to the active thermal stability

## Create any light with GL Opti Light LED from GL Optic

The GL OPTI LIGHT LED can be controlled from a PC via USB cable. Alternatively the settings can be made using the LED control panel. The ad JUST software allows you to set the light coordinates according to your needs. It also features several light source standards such as D50, D65, D75, A, TL84. The active multilevel calibration system is divided into the basic factory calibration and permanent online-calibration during operation without using an external metrological device. The GL OPTI LIGHT LED is effectively self-controlling its operating conditions and is adjusting the light result with a very high frequency (>100Hz) permanently and invisibly to the human eye. The JUST LED technology is not only exceeding the conventional LED sources in light quality, but is now for the first time able to replicate a tremendous color space with the highest quality.

## Technical data

- spectral range: 385-750nm
- LED color peaks : 390; 450; 470; 520; 590; 633 (+/-10 nm)
- uniformity: +/- 1%

- luminance range: 100-3000 cd/m^2
- colorimetric stability: +/- 0.0020
- dimensions: 215mm x 215mm x 130mm