

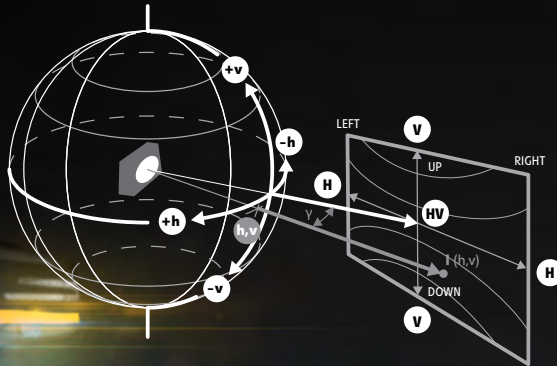


Light quality control

GL GONIOPHOTOMETER

GLG A 50-1800

NEW



GL GONIOPHOTOMETER GLG A 50-1800

is a new model of Type A goniophotometer providing photometric characterization of lamps in H, V axis coordinates.

This system is suitable for:

- Automotive lighting
- Traffic and signal lighting
- Railway Lighting
- Aviation Lighting
- Maritime Lights

And more...

GL OPTIC
GL GONIOPHOTOMETER
GLG A 50-1800



Light quality control



First get to know us better.

At GL we believe that the true quality innovation is about the best technology and not about gadget functionality. This is why we encourage all potential customers to choose quality instruments for their lighting product quality control.

There are many light meters available on the market today but we know what matters most for fast developing lighting manufacturers: engineering, precision, performance and, equally important, independence from external quality testing labs. For many manufacturers the possibility of optimizing product quality and faster prototyping are advantage factors helping them to win the market share.

“The ultimate light quality control systems available only for best lighting quality product manufacturers”

Unparalleled Support

Our roots are in the lighting industry and we understand light measurement from the lighting manufacturers' perspective. GL Optic does not simply manufacture high quality instruments but it offers an extensive know-how support for its end-users to help them manage their complex measurement challenges. We have a world wide experience in simplifying professional light measurements to improve the quality of light products. GL Optic provides consultations, modifies or customizes solutions and supports customers in developing their light related business.



Online and onsite support, training and consultations are available.

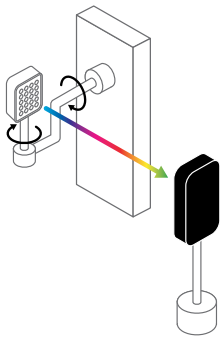
10 YEARS

Origins

2009 – 2019

GL Optic was established in 2009 to develop and bring innovative solutions in light measurement. Since its establishment GL Optic has been growing, developing products, setting industry standards and expanding sales all over the world.

Nowadays, GL Optic is at the stage of developing R&D centre and expanding its services. The company is finalizing the construction of a new photometric laboratory equipped with Poland's first black body (BB) model, the first primary standard radiation source in Central Europe.



LIGHTING STANDARDS COMPLIANCE

The GLG A 50-1800 goniophotometer systems are type A systems compliant with the CIE 121-1996 and IESNA LM-75-01 standards regulating far-field photometric and colorimetric measurement systems.

INDUSTRY STANDARDS COMPLIANCE

to UN/ECE and SAE /FMVSS Regulations and other relevant industry standards.

RELIABLE AND ACCURATE

The system uses tried-and-tested mechatronic components to provide fast, accurate and reliable measurements of automotive, rail and other vehicle headlamps. Additionally, it can be used for photometric characterization of traffic signal lamps and airfield lighting systems.

This goniophotometer system is designed for lamps of up to 50 kg and 180 cm long.
The x,y translation stage surface size is 400 x 400 mm.

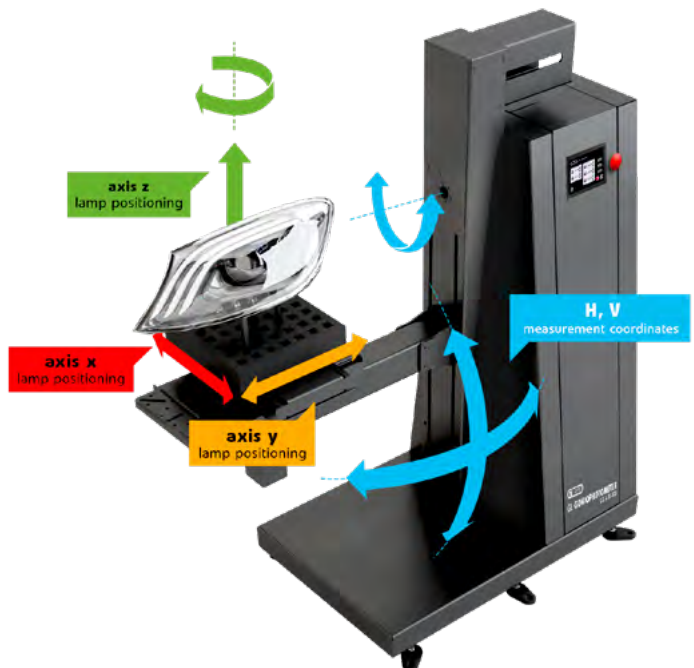
CONTROLLABLE AND PROGRAMMABLE

Depending on the application the system can be paired with the following measuring instruments:

- GL PHOTOMETER 3.0 LS + Flicker
- GL SPECTIS 1.3 LS
- GL SPECTIS 4.0



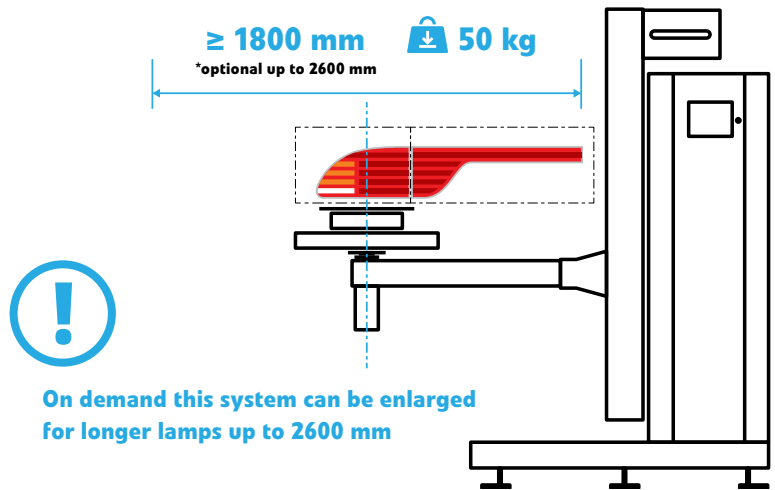
Advanced power meters and fast current sources from leading suppliers available on demand.





The largest system

This goniophotometer can be used in factory laboratories as well as in accredited laboratories and deliver fast and reliable results. With easy to use software, precise alignment protocols and extensive automation capabilities, the system offers a new level of performance and usability.



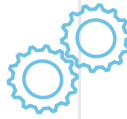
Speedier lamp testing

GL PHOTOMETER 3.0 LS + Flicker has been designed for On-Fly measurements of lamps on goniophotometer.

High sampling rate combined with high sensitivity HAMAMATSU sensor allows for continuous measurement of LED during smooth movement of the lamp. Thanks to absolute encoder readings the required data can be obtained in much shorter time. Additional light modulation characterization is available using the flicker measurement functionality.



PERIPHERALS



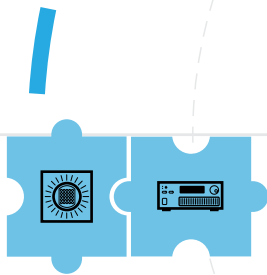
AUTOMATION



POWER SUPPLIES & METERS

Choose from available power supplies and current sources for a full electrical characterization of DUT.

Advanced power meters and fast current sources from leading suppliers available on demand.



TEC CONTROL

TEC controllers and mounts for LED modules thermal stabilization and measurements during goniometric tests are available.



SUPPORT & INSTALLATION

Online and On-site extensive know-how support for end-users to help them manage their complex measurements.

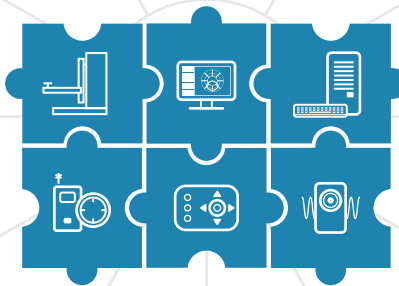
SYSTEM CORE

GONIOPHOTOMETER

Programmable, robust and accurate Type A goniometer with 5 mechanized axes.

SOFTWARE + PC

GL offers a preconfigured, turn-key system including all instruments with software and a dedicated PC which is tested prior to shipment to customer.

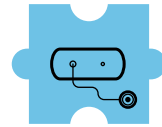


ACCESORIES

Unique laser alignment system with mirrors and system control options helps to calibrate system vertical and horizontal alignment and also faster photometric positioning of DUT*.

FAST PHOTOMETER + FLICKER PWM Capable

On-fly measurements available with this new optional instrument combined with optical flicker characterization of DUT*.



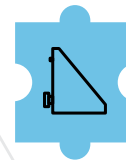
GL SPECTIS 4.0

for colorimetric and spectral analysis outside the visible range from UV to NIR sources angular distribution in a variety of applications.



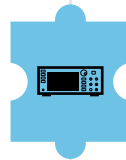
GL SPECTIS 1.3 LS

High sensitivity version of our popular spectroradiometer optimized for fast photometric & colorimetric measurements.



GL RETROREFLECTOMETER

System for retroreflection measurements in compliance with CIE 54.2-2001.



GL PWM SOURCE METER

Digital multimeter featuring programmable pulse generator.

*DUT – Device Under Test

Photometric laboratory

This instrumentation support photometric tests in accordance with the following industry standards:

- UN/ECE Regulations regarding the approval of motor vehicle lamps and signals.
- It also allows for tests and measurements in accordance with requirements by Federal Motor Vehicle Safety Standard (FMVSS), which rely on standards established by Society of Automotive Engineers (SAE).

The complete system includes a goniophotometer, a set of fast photometers for measurements from distances ≥ 3 , 5 and 25m, a spectroradiometer for colorimetric and spectral measurements, a computer with software and a set of necessary auxiliary measuring instruments and accessories.

CHOOSING THE RIGHT PARTNER

When choosing a goniometric system supplier, it is worth paying attention to the technical support that can be provided by the manufacturer. Many important decisions should be made well before the purchase of measuring equipment. Moreover, at the installation and training stage, many questions arise, especially from people who will be trained in the system operation.

It often happens that they do not have any experience in photometric measurements. During the equipment use, there may also be many new questions or issues to be solved, and it is worth having the opportunity to receive appropriate support and possibly training from the manufacturer. ON-LINE and ON-SITE SUPPORT

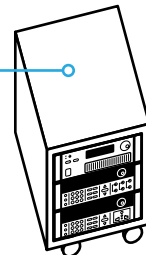
Selecting the right equipment is very important, but this is only the beginning. It is worthwhile to start planning the organization of the in-house laboratory in early enough and take into account additional organizational and logistical aspects. GL Optic is here to help as we are not only selling the measuring equipment, but will also be able to provide appropriate support at all stages of the process.

* specific testing distance depends on product characteristics, size and industry regulations

PERIPHERAL DEVICES

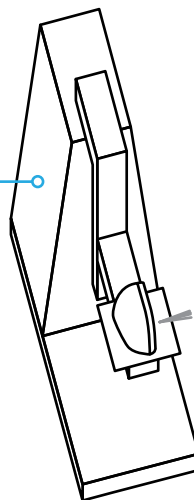
POWER SUPPLY
POWER ANALYSER
PWM GENERATOR

Selection of electrical power supplies and controllers for tested samples



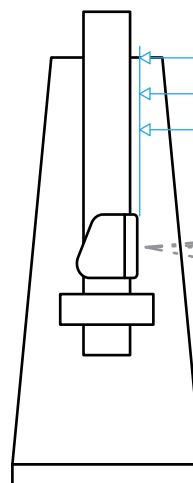
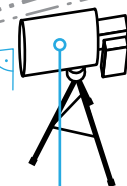
EASY SAMPLE POSITIONING

GL GONIOPHOTOMETER GLG A 50-1800
features translation table and automatic positioning of samples during test



**FOR INDICATORS,
REVERSE LIGHTS
REAR FOG LIGHTS**

GL PHOTOMETER 3.0 LS + Flicker
for test distance $\geq 3m^*$



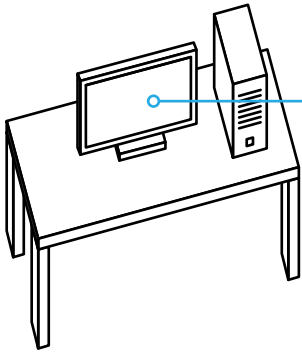
5m (ECE), 100ft (FMVSS)*

$\geq 3m$

OPERATORS' DESK

DESKTOP PC + GL SOFTWARE

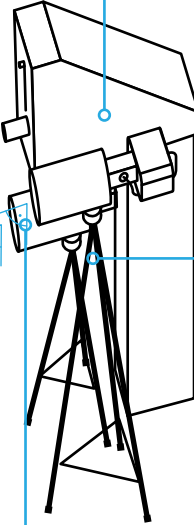
Desktop PC including dedicated software for optical measurements, mechanical operation and system control



FOR RETRO REFLECTORS

GL RETROREFLECTOMETER

featuring combined adjustable light source and sensor
25m (ECE), 100ft (FMVSS)



For HEADLIGHTS

GL PHOTOMETER 3.0 LS + Flicker

for test distance
25m (ECE), 100ft (FMVSS)

For COLORIMETRY

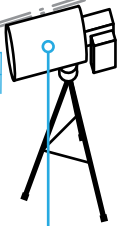
GL SPECTIS 4.0

laboratory spectroradiometer for colorimetric and spectral measurements

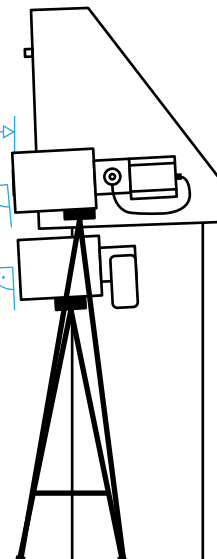
For TAIL LIGHTS

GL PHOTOMETER 3.0 LS + Flicker

for test distance above
5m (ECE), 100ft (FMVSS)*



25 m (ECE), 100 ft (FMVSS)

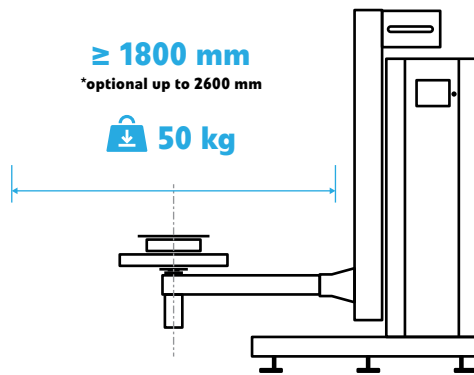


6 unique features of this new GLG A 50-1800 advanced goniophotometer model

1 Probably the largest

A Type automotive goniophotometer to measure modern lighting fixtures up to 1800mm* long!

*on demand this moving mechanism can be further extended in length. Please contact us for more details



2 The latest mechatronics

components from Panasonic Works and Apex Dynamics improving speed and repeatability of movements.

Panasonic[®]
FPOH



3 Top quality

measurement system features HAMAMATSU Photonics components to ensure accuracy and traceability of photometry.

HAMAMATSU



- 4 Touch screen operator's panel** and cloud based Corvina diagnostics systems provide the best usability and support.

Panasonic[®] HM500



- 5 Intuitive, clear and easy** One software interface to program, monitor and manage a complete measurement system. Starting from power supply through the stabilization process up to the final results and reporting.



- 6 Lightweight yet robust** design concept does not require a dedicated foundation under the floor!

A state-of-the-art goniophotometer

Intense changes in the design of modern vehicle lamps due to the requirements for electromobility and autonomous vehicles particularly affect the form and size of objects that must be tested. Increasingly longer lamps with irregular shapes require changes in the geometry and dimensions of the measuring systems.

The latest model of the GLG A 50-1800 goniometer has been designed to meet the new requirements in a way that allows rapid modification of the mechanical system for measuring lamps as standard from 1.8m to over 2.5m in length and is fully compliant with the UN / ECE and SAE / FMVSS standards.

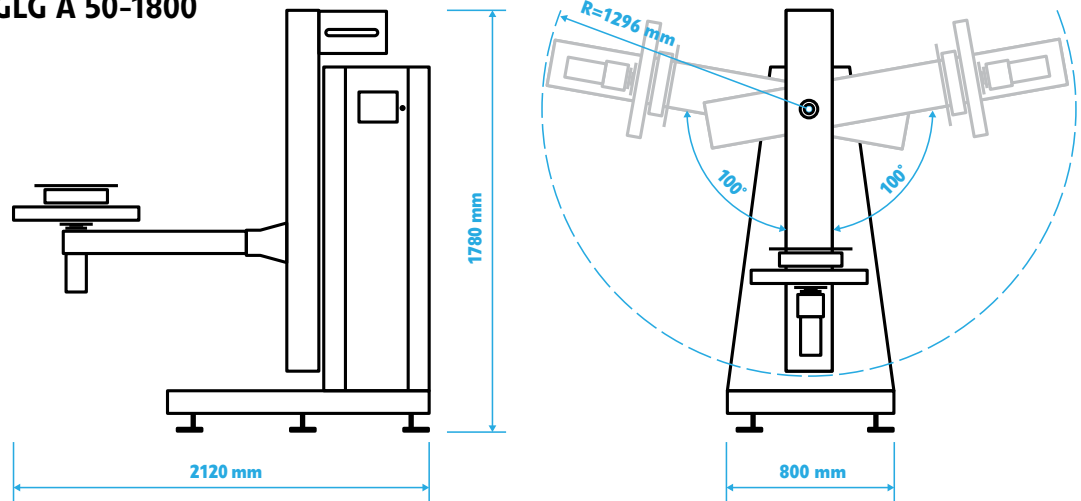
“This model is using the latest solutions in the fields of mechatronics and photonics. The measuring system enables the operator service at a level not previously seen in photometric devices”

- Controlled by a Panasonic industrial PLC with high processing speed (10ns per instruction). Communication with the goniometer actuators is implemented via the RTEX real-time Ethernet bus.
- Communication between goniometric software installed on the PC and PLC controller uses Ethernet network.
- Axis movement is driven by Panasonic servo motors combined with high precision gears from Apex Dynamics. The power of the largest servo motor achieves 1.5 kW. The internal 23-bit absolute encoder built into each servo is capable to ensure the resolution of 8,388,608 pulses per single turn.
- Operator's touch panel allows for monitoring and presentation of the device status to the operator. In addition, the system provides unique diagnostic capabilities thanks to communication with the Corvina Cloud service, which allows for remote diagnostic and service access to the device using secure communication protocols such as OpenVPN and SSL.

This measuring system is equipped with high-class HAMAMATSU Photonics sensors, what ensures exceptional measurement speed and repeatability whilst factory calibration ensures traceability to standards from an accredited laboratory.

technical data

GL GONIOPHOTOMETER GLG A 50-1800



APPLICATION

Large LED modules and large luminaires.
Compliance with the following: CIE121-1996, IESNA LM-75-01

TECHNICAL DATA SHEET

CIE Goniometer type	<ul style="list-style-type: none"> Far Field Type A with H, V axis and x,y,z direction movement DUT moving x,y mechanical table 5 axis servo motors with absolute position encoders
H axis movement	Angular range $\pm 180^\circ$. Nominal torque 98 Nm. Speed up to $50^\circ/\text{s}$
H axis resolution	0.002°
H axis reproducibility	0.05° * (*at nominal load)
V axis movement	Angular range $\pm 100^\circ$. Nominal torque 98 Nm. Speed up to $10^\circ/\text{s}$
V axis resolution	0.002°
V axis reproducibility	0.05° * (*at nominal load)
Z axis movement	Linear range 0-800 mm. Lifting capability up to 1500 N
Z axis reproducibility	70 μm
X,Y axis movement	Linear range ± 150 mm. Speed up to 40 mm/s
X,Y axis reproducibility	70 μm
DUT mounting plate	Square 500x500 mm. Multiple M6 mounting holes
Maximum DUT dimensions	≤ 1800 mm (symmetrically positioned)
Goniometer dimensions	2120(L) x 800(W) x 1780(H) mm
Optical axis height	1500 mm
Minimum room height	2600 mm
Minimum room width	4000 mm
Maximum load	50 kg
Goniometer weight	600 kg
Power supply	AC 110-230V, 3000 W
Controllers	<ul style="list-style-type: none"> Internal controller for all motors PC connectivity through LAN network Remote manufacturer support capability 7 inch LCD touch display on the body of goniometer Manual all axis controller for operations during DUT fixing
Safety	<ul style="list-style-type: none"> Emergency stop button on both sides of goniometer Optional safety devices with laser scanner or light fence
Sensor type	<ul style="list-style-type: none"> GL PHOTOMETER 3.0 LS + Flicker GL SPECTIS 1.0 LS GL SPECTIS 4.0
Product no.	106260

Note: Instrument, firmware and software specification are subject to change without prior notice. All information included in GL OPTIC datasheets and product information available in any form is carefully prepared and believed to be true. Please note that discrepancies may occur due to text and/or other errors or changes in the available technology. We advise to contact GL Optic before the use of the product to obtain the latest product specification.

GL SPECTROMETERS



GL SPECTIS 1.3 LS



GL SPECTIS 1.0 TOUCH



GL SPECTIS 4.0 UV VIS NIR

GL PHOTOMETER



GL PHOTOMETER 3.0
+ FLICKER



GL PHOTOMETER LS 3.0
+ FLICKER

APPLICATION

This entry level USB spectroradiometer is ideal for quick and precise light measurements.

High performance, compact self-contained spectroradiometer for immediate spectral light measurements.

High precision laboratory and industrial measurements.

APPLICATION

High quality flicker measurements including long term sampling, integrating sphere photometer, high precision illuminance measurements or to be used as standalone device.

High quality flicker measurements including long term sampling, goniometric high precision illuminance measurements or to be used as standalone device.

TECHNICAL DATA SHEET

Spectral range	340 – 740 nm	340 – 780 nm or 640 – 1050 nm	200 – 1050 nm
Detector	CMOS image sensor	CMOS image sensor	Back-thinned type CCD
Number of pixels	256	256	2048
Physical resolution	~ 1.7 nm / ~ 1.8 nm	~ 1.7 nm / ~ 1.8 nm	~ 0.5 nm
Optical FWHM	~ 10 nm	~ 10 nm	2.5 nm
Measurement range	1 – 200.000 lx [Illuminant A]	1 – 200.000 lx [Illuminant A]	1 – 200.000 lx [Illuminant A]
Wavelength reproducibility	0.5 nm	0.5 nm	± 0.5 nm
Integration time	10 ms – 10 s in automatic mode (100 s in manual mode)	10 ms – 10 s in automatic mode (100 s in manual mode)	10 ms – 10 s in automatic mode
A/D conversion	16 bits	16 bits	16 bits
Signal to noise ratio	1000:1	1000:1	1000:1
Cosine correction	Class B – DIN 5032-7 Class AA – JIS C 1609-1:2006	Class B – DIN 5032-7 Class AA – JIS C 1609-1:2006	Class B – DIN 5032-7; Class A on demand Class AA – JIS C 1609-1:2006
Stray light	2*10 E-3	2*10 E-3	2*10 E-4
Spectroradiometric accuracy**	5 % within range 340 – 500 nm 4 % within range 500 – 780 nm	5 % within range 340 – 500 nm 4 % within range 500 – 780 nm	6 % within range 200 – 220 nm 5 % within range 220 – 500 nm 4 % within range 500 – 1050 nm
Measurement uncertainty of colour coordinates (x,y) **	0.0015	0.0015	± 0.0015
PC interface	USB 2.0 standard	USB 2.0 standard	USB 2.0 standard
Display full colour	–	240 x 320 px	–
WiFi	–	802.11b/g	–
Micro SD card	–	4GB	–
Power	Power USB	lithium-ion battery 1400 mAh	Power USB
Ambient temperature	5–35°C	5–35°C	5–35°C
Dimensions	72 mm x 115 mm x 19 mm	74 mm x 146 mm x 24 mm	70 mm x 170 mm x 204 mm
Weight	120 g	315 g (< 1 pound)	1500 g
Product no.	67827	106260	

Spectral range of the sensor. Actual spectral range of system may be reduced due to limitations of used optical accessory.
** Absolute measurement uncertainty immediately after calibration. The expanded uncertainty corresponds to a coverage probability of 95 % and the coverage factor $k = 2$.

Parameters valid in laboratory conditions 25deg C , relative humidity 45%.

Black Body radiator model was used as a reference source. Standard spectroradiometric irradiance measuring probe was used in a fixed position against the radiator during the entire test.

TECHNICAL DATA SHEET

Measurement range	0,001 lx ... 10 000 000 lx*	0,0001 lx ... 1 000 000 lx*
Resolution	4 significant digits	4 significant digits
Uncertainty of spectral response (f1')	Class A < 3 %	Class A < 3 %
Uncertainty of cosine correction (f2')	A < 1,5 %	–
Sampling frequency	125 kHz	125 kHz
A/D conversion	18 bit	18 bit
Software	GL Spectrosoft or API for external software developers	GL Spectrosoft or API for external software developers
Dimensions [H x W x D]	110 x 66 x 53 mm	110 x 66 x 53 mm
Weight	350g	350g
Connectivity	USB A-B	USB A-B
Power	USB, 5V <200mA	USB, 5V <200mA
Tripod adapter	¼"	¼"
Case	✓	✓
USB cable	✓	✓
Product no.	202295	202294

* standard measuring range can be extended by customization



Light quality control



- - Office
- - Resellers
- - Clients

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