Digilux 9500

System Photometer

Product highlights

- Affordable laboratory illuminance meter according to DIN 5032-7, EN-DIN 13032, CIE 69, class A or L
- Large display range from 0.1 mlx to 200 klx, optionally 0.01 mlx resolution
- Easy conversion to other luminous quantities by factor setting
- Large set of different detectors and accessories and options available

The Digilux 9500 is a precision luxmeter that enables convenient measurement of illuminance in a laboratory or on the production floor.

Incorporating the latest amplifier and microprocessor technology, this instrument offers operating and display functions never seen in its class and an excellent price performance ratio.

Depending on the detector version selected, the precision photometer head, with V(λ) filter, is thermo-stabilized. It can be delivered in different versions, with calibration report or optionally with PTB (Federal Institute for Physics and Technology) calibration certificate.

Instrument Systems
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Digilux 9500 characteristics

- 6 (optionally 7) measurement ranges
- Display range 0.1 mlx (last digit) to 200,000 lx
- 4½-digit, 7-segment LED display
- V.24-(RS 232-) interface
- Ranging auto/manual, or remote programmable
- Adjustable factor 0.001 - 99.99 for conversion into other luminous quantities, such as intensity
- Approx. 5 readings/s, integration time 200 ms
- International wide range power supply for 80-270 V
- Power consumption < 20 VA
- Nominal frequency: 40-400 Hz without switching
- Different photometer heads FE 10 available 6, 10, 12, 30 mm diameter light sensitive surface
- Superb V(λ)-approximation according to DIN 5032, CIE 69, class A or L, cos-correction available
- Thermostatic stabilization 35°C (depending upon version selected)
- 2 m connection cable, power cable with Euro plug
- Calibration, traceable to PTB standard, with calibration certificate
- Individual test report for V(λ)-approximation class A and L acc. to DIN 5032 part 7
- DigiluxControl software available

Basics of a good photometer

In order to have also a well defined photometer, an “artificial eye” has been constructed to simulate the light sensitivity of the human eye. The relative response of the normal human eye to monochromatic light at the different spectral frequencies was determined experimentally by the CIE and standardized in 1924. This is known as the photopic luminous efficiency function. The symbol of this function is V(λ) and it is usually expressed as a function of the wavelength of light (in air).

Our proprietary photopic filters consist of several elements designed to match the CIE photopic response curve to achieve an f_1' to better than 1.5% or 3.0% at all wavelengths (f_1' < 1.5 % defines the highest accuracy class L, f_1' < 3.0% defines a high accuracy class A according to DIN 5032 and CIE No. 69). The sensitivity in the IR and UV range is reduced to a minimum < 0.1%. The careful design of the detectors ensures best-of-class equipment and repeatable measurement results, even for monochromatic radiation sources.

The precision operation amplifier of the Digilux 9500 converts the photocurrent in nA resulting from the light sensation into a proportional voltage. The voltage is converted by a precision AD converter into a signal that is proportional to the expected illuminance in lux. By setting a factor the value in lux may be converted into luminous intensity in candela. The option Digilumen extends the unit for luminous flux measurement in conjunction with integrating sphere with direct display in lumens.

Each Optronik Line photometer is carefully tested and calibrated in our own calibration laboratories with intensity calibration sources traceable to National standard (PTB); e.g., a WI41G calibration bulb operated under stable conditions (25°C ambient temperature), electrical values with a color temperature corresponding with CIE standard illuminant A (2856 K).

Options

- Range extension for low level illuminance 0.01 mlx
- Range extension for high level illuminance 2 mlx
- Digilumen: display of both illuminance and flux; fixed lux, freely selectable lumens calibration for application with integrating sphere
- Built-in SLA rechargeable battery, low battery indicator
- Analog output: proportional to measured value analog output in following versions: 0...20 mA,
  resistance max. 400 Ω; 0...10 V,
  resistance max. 500 Ω; 0...5 V,
  resistance max. 500 Ω
- Memory for approx. 1000 measured values
- 4 programmable limit switches
- Automatic light control
- PTB calibration certificate
- Tube for stray light reduction and tripod
- Special extender cable 5 m for photometer head
- Special extender cable 10 m for photometer head
- Special extender cable 20 m for photometer head
- Stable transportation case
- Digilux 9500 for photocurrent measurement

Digilux control

Basic program to control a Digilux 9500 by PC.

- PC aided measurement of illuminance and luminous intensity in lux and candela
- Determination of luminous flux with integrating sphere
- Single measurements
- Interval measurements (intervals from 1 s to 99 hours)
- Data saving function even during measurement
- Display of measured values in lux; conversion into candela if distance is entered
- Saving of date and time of measurement
- Editing field for comments
- Saving of data as *.txt or *.csv (Excel compatible) file

Photometer heads available

The Digilux 9500 is available with following standard photometer heads:

- PMH 100 (10 x 10 mm light sensitive surface, fl1 ≤ 1.5 % without diffuser, with thermo-stabilization)
- PMH 101(10 x 10 mm light sensitive surface, fl1 ≤ 3.0 % without diffuser, with thermo-stabilization)
- PMH 111 (30 mm light sensitive surface, fl1 ≤ 3.0 % with diffuser and thermo-stabilization)
- PMH 120 (12 mm light sensitive surface, fl1 ≤ 1.5 % with cosine correction and thermo-stabilization)
- PMH 121 (12 mm light sensitive surface, fl1 ≤ 3.0 % with cosine correction and thermo-stabilization)
- PMH 131 (6 mm light sensitive surface, fl1 ≤ 3.0 % with cosine correction)

Photometers with detectors for outdoor installation

Digilux 9500-6A-EX: Special version of Digilux 9500 with detector designed for outdoor installation with heating system for automatic light control, e.g. of street illumination, or similar applications.

Digilux 9500-Luminance: Special version of Digilux 9500 with detector designed for outdoor installation for measuring the luminance of the night sky in cd/m^2.

Instrument Systems is continually working on the further development of its products.
Technical changes, errors and misprints do not justify claims for damages.
For all other purposes, our Terms and Conditions of Business shall be applicable.

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