

# P-9710

<http://www.gigahertz-optik.de/en-us/product/P-9710>

**Product tags: Dosimeter**



## Description

### P-9710-1 – Multi-functional light meter for high-quality photometric measurements

The P-9710-1 optometer is a high-quality device designed by Gigahertz-Optik for mobile use. Its signal amplifier provides a wide dynamic range for the detectors' signal currents ranging up to 2 mA. The noise-equivalent current signal is as low as 0.1 pA. The device has eight gain ranges that can be manually or automatically selected for adjustment to match the signal levels.

### Variable integration time

One of the characteristic properties of the P-9710-1 optometer is the short integration time of the input amplifier that only ranges around 100  $\mu$ s. This enables reduction of signal noises through multiple measurements with averaging. The 100  $\mu$ s integration time also makes it possible to perform many other measurement functions:

- Adjustable integration times in CW measurement mode
- CW measurement with noise proportion (peak-to-peak)
- Peak value measurement
- Pulse energy measurements of short light pulses
- Dose measurement
- Fast data logger for up to 12000 measurement values

### Photometer, radiometer, UV-meter, laser-intensity-meter

For use as optometer the P-9710-1 can be combined with all offered detector heads intended for photometric and radiometric measurements. The plugged detector head determines the photometric or radiometric measuring size as well as the spectral range of the measurement. Gigahertz-Optik offers a wide range of detector heads for various measuring tasks. The optometers' signal input amplifiers offer a very wide dynamic range, in order to adjust the devices to detectors with various sensitivities and optical radiation intensities. The calibration data of the detector heads are saved in the calibration data plug of the detector heads.

### Simple and safe detector exchange

Upon attachment of a detector head with a calibration data plug onto the P-9710-1 optometer, its calibration data as well as the device settings are automatically applied. This ensures that improper operation that might result from exchange of measurement heads is basically ruled out.

### Remote operation

The P-9710-1 optometer can be connected to a PC via its RS232 interface.



*The P-9710-4 offers a trigger input for a remotely controlled triggering of measurement*



*The optometers P-9710 provide connections for power supply, detector heads with calibration data plug and a RS232 interface (from left to right).*

# Light measurements and light analysis

The P-9710-1 optometer has eighteen different measurement modes that can easily be selected using a user-friendly menu hence enabling its multifunctional application.

## P-9710-2 – Optometer for dose measurement of short pulses using the pulse stretching method

Unlike the P-9710-1, the P-9710-2 optometer has a 20 ms standard time constant in all eight gain ranges. Thus light pulses shorter than 1 ns are stretched to 20 ms. The pulse energy of the stretched pulse can then be measured precisely with the 100  $\mu$ s sample rate of the optometer.

## P-9710-4 – multi-functional light meter for synchronized measurement of short light pulses

Similar to the optometer P-9710-2, the P-9710-4 also has a 20ms standard time constant in all eight gain levels. Besides the manual start of via keyboard, the dose measurement can also be started remotely via the trigger input.

## Specifications

General	
Measured Quantity	Ampere (absolutely calibrated), light measurement units depending on the used detector head. Ratio as a percentage, logarithmic and as a factor
P-9710-1	High-quality optometer for mobile use. Trans-impedance amplifier with alterable rise times in 8 gain levels. Mainly used in CW measurements.
P-9710-2	Equivalent to the optometer P-9710-1, but with a time constant of 20ms in all eight gain levels. Mainly used for measuring the pulse energy of single pulses.
P-9710-4	Equivalent to the optometer P-9710-2, with an additional trigger input for a synchronized triggering of the pulse energy measurement.
Specification	
Display	Alpha-numerical LCD display, 2 rows each with 16 characters, height of the characters 5 mm, LED backlight can be switched on and off.
Detector interface	9pin DSUB
Analog output	Output voltage corresponding to the input current of the signal amplifier. Connection plug: TRIAD01 5pin (Tyco)
Signal amplifier	Trans-impedance amplifier with voltage amplifier connected in series. A total of eight gain levels with both manual and automatic selection of the measurement range.
CW integration time	100 $\mu$ s – 5.9999 s

Pulse integration time	10 ms – 199.99 s																																													
Offset correction	Exceeding correction range																																													
Parameter adjustment	Via RS232 or using control panel on the front side. Settings are permanently saved (EEPROM). Ten different settings can be saved																																													
Calibration	Saved in the detector terminal (EEPROM). Tables for calibration values of the spectral responsivity with up to 250 values are supported. Interpolation between two wavelength points are also possible. Manual input of a calibration value via the key pad is also possible.																																													
Data logger	Max. 12288 entries, permanently saved in flash memory																																													
Key pad	10 buttons, menu-guided																																													
Measurement ranges	<p>8 (2.000 mA to 0.1 pA) manual or autorange</p> <table border="1"> <thead> <tr> <th>range (A/V)</th> <th>range max.</th> <th>slew rate (10 - 90%) variant -1</th> <th>slew rate (10 - 90%) variant -2 / -4</th> <th>gain error *) ± offset e (@ 20 °C)</th> </tr> </thead> <tbody> <tr> <td>1x10-3</td> <td>±2.000mA</td> <td>2 ms</td> <td>20 ms</td> <td>0.2% ± 0.001 mA</td> </tr> <tr> <td>1x10-4</td> <td>±200.0 µA</td> <td>2 ms</td> <td>20 ms</td> <td>0.2% ± 0.1 µA</td> </tr> <tr> <td>1x10-5</td> <td>±20.00 µA</td> <td>3 ms</td> <td>20 ms</td> <td>0.2% ± 0.01 µA</td> </tr> <tr> <td>1x10-6</td> <td>±2.000 µA</td> <td>3 ms</td> <td>20 ms</td> <td>0.2% ± 0.001 µA</td> </tr> <tr> <td>1x10-7</td> <td>±200.0 nA</td> <td>4 ms</td> <td>20 ms</td> <td>0.2% ± 0.1 nA</td> </tr> <tr> <td>1x10-8</td> <td>±20.00 nA</td> <td>4 ms</td> <td>20 ms</td> <td>0.2% ± 0.01 nA</td> </tr> <tr> <td>1x10-9</td> <td>±2.000 nA</td> <td>10 ms</td> <td>20 ms</td> <td>0.5% ± 2 pA</td> </tr> <tr> <td>1x10-10</td> <td>±200.0 pA</td> <td>10 ms</td> <td>20 ms</td> <td>0.5% ± 2 pA</td> </tr> </tbody> </table>	range (A/V)	range max.	slew rate (10 - 90%) variant -1	slew rate (10 - 90%) variant -2 / -4	gain error *) ± offset e (@ 20 °C)	1x10-3	±2.000mA	2 ms	20 ms	0.2% ± 0.001 mA	1x10-4	±200.0 µA	2 ms	20 ms	0.2% ± 0.1 µA	1x10-5	±20.00 µA	3 ms	20 ms	0.2% ± 0.01 µA	1x10-6	±2.000 µA	3 ms	20 ms	0.2% ± 0.001 µA	1x10-7	±200.0 nA	4 ms	20 ms	0.2% ± 0.1 nA	1x10-8	±20.00 nA	4 ms	20 ms	0.2% ± 0.01 nA	1x10-9	±2.000 nA	10 ms	20 ms	0.5% ± 2 pA	1x10-10	±200.0 pA	10 ms	20 ms	0.5% ± 2 pA
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<b>Miscellaneous</b>																																														
Power Supply	<p>Rechargeable battery, battery capacity: 3,7 V, 1400 mAh</p> <p>Rechargeable battery, battery capacity: 6 V, 500 Ah (Version before 2017)</p> <p>Operation time: 5 hours with display backlight switched on, 12 hours with display backlight switched off</p> <p>5.5 mm / 2.5 mm / 9.5 mm socket for plug-in power supply unit</p>																																													
Interface	RS232 (9600 baud, 8 data bits, 1 stop bit, no parity) Plug: TRIAD01 (Tyco)																																													
temperature range	Operating: (5 to 40) °C Storage: (-10 °C to 50) °C																																													
Dimensions	195 mm x 100 mm x 40 mm / 500 g																																													
<b>Accessories</b>																																														
Power Supply	D, USA or GB																																													

**Configurable with**

Produktname	Product Image	Description	Show product
VL-3701		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: <math>f1 \leq 3\%</math>, <math>f2 \leq 1.5\%</math>, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-3701">http://www.gigahertz-optik.de/en-us/product/VL-3701</a>
VL-3702		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: <math>f1 \leq 6\%</math>, <math>f2 \leq 3\%</math>, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-3702">http://www.gigahertz-optik.de/en-us/product/VL-3702</a>
VL-3704		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: <math>f1 \leq 5\%</math>, <math>f2 \leq 3\%</math>, 20pA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-3704">http://www.gigahertz-optik.de/en-us/product/VL-3704</a>
VL-3705		<p>Detector head for the measurement of scotopic illuminance in Lux [lx].</p> <p>Features: <math>f1 \leq 5\%</math>, <math>f2 \leq 3\%</math>, 0.2nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-3705">http://www.gigahertz-optik.de/en-us/product/VL-3705</a>
PD-9310A		<p>High sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: <math>f1 \leq 3\%</math>, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-9310A">http://www.gigahertz-optik.de/en-us/product/PD-9310A</a>
PD-9310B		<p>High sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: <math>f1 \leq 6\%</math>, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-9310B">http://www.gigahertz-optik.de/en-us/product/PD-9310B</a>
PD-9310B-N		<p>Very high sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: <math>f1 \leq 3\%</math>, 28nA/lx, no diffuser, for the usage with optometers and amplifiers, calibration</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-9310B-N">http://www.gigahertz-optik.de/en-us/product/PD-9310B-N</a>
LDM-9810		<p>Detector head to measure the photopic spot luminance in cd/m<sup>2</sup>.</p> <p>Features: selectable 20', 1° and 6° viewing angles, view finder, focus able achromatic lens, for the usage with Optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/LDM-9810">http://www.gigahertz-optik.de/en-us/product/LDM-9810</a>

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LDM-9901		<p>Detector head to measure the photopic spot luminance in <math>\text{cd}/\text{m}^2</math>.</p> <p>Features: <math>1.1^\circ</math> viewing angle, simple to use, very low stray light, for the usage with Optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/LDM-9901">http://www.gigahertz-optik.de/en-us/product/LDM-9901</a>
PD-9310 with SRT-M37-L		<p>High sensitive detector head to measure the photopic luminance in <math>\text{cd}/\text{m}^2</math>.</p> <p>Features: front lens for <math>1^\circ</math>, <math>2^\circ</math>, <math>5^\circ</math> or <math>10^\circ</math> viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-9310-with-SRT-M37-L">http://www.gigahertz-optik.de/en-us/product/PD-9310 with SRT-M37-L</a>
ISD-5-VL		<p>Integrating sphere detector for luminous flux (<math>\text{lm}</math>) of <math>2\pi</math> spot sources.</p> <p>Features: 50mm dia, <math>\text{BaSO}_4</math> coating, 12.5mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-5-VL">http://www.gigahertz-optik.de/en-us/product/ISD-5-VL</a>
ISD-10-VL		<p>Integrating sphere detector for luminous flux (<math>\text{lm}</math>) of <math>2\pi</math> spot sources.</p> <p>Features: 100 mm dia, <math>\text{BaSO}_4</math> coating, 15 mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-10-VL">http://www.gigahertz-optik.de/en-us/product/ISD-10-VL</a>
ISD-15-VL		<p>Integrating sphere detector for luminous flux (<math>\text{lm}</math>) of <math>2\pi</math> sources.</p> <p>Features: 150mm dia, <math>\text{BaSO}_4</math> coating, 38.1mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-15-VL">http://www.gigahertz-optik.de/en-us/product/ISD-15-VL</a>
ISD-15P-VL		<p>Integrating sphere detector for luminous flux (<math>\text{lm}</math>) of <math>2\pi</math> sources.</p> <p>Features: 150mm dia, synthetic coating, 38.1mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-15P-VL">http://www.gigahertz-optik.de/en-us/product/ISD-15P-VL</a>
ISD-21-VL		<p>Integrating sphere detector for luminous flux (<math>\text{lm}</math>) of <math>2\pi</math> sources.</p> <p>Features: 215mm dia, <math>\text{BaSO}_4</math> coating, 63.5mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-21-VL">http://www.gigahertz-optik.de/en-us/product/ISD-21-VL</a>

Produktname	Product Image	Description	Show product
ISD-30-VL		<p>Integrating sphere detector for luminous flux (lm) of <math>2\pi</math> sources.</p> <p>Features: 300mm dia, BaSO<sub>4</sub> coating, 101,6mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-30-VL">http://www.gigahertz-optik.de/en-us/product/ISD-30-VL</a>
ISD-50-VL		<p>Integrating sphere detector for luminous flux (lm) of <math>2\pi</math> sources.</p> <p>Features: 500mm dia, BaSO<sub>4</sub> coating, 127mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-50-VL">http://www.gigahertz-optik.de/en-us/product/ISD-50-VL</a>
ISD-50HF-VL		<p>Integrating sphere detector for luminous flux (lm) of <math>2\pi</math> and <math>4\pi</math> sources.</p> <p>Features: 500mm dia, BaSO<sub>4</sub> coating, sphere to open, auxiliary lamp, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-50HF-VL">http://www.gigahertz-optik.de/en-us/product/ISD-50HF-VL</a>
VL-1101 module light detectors with photometric $V(\lambda)$ responsivity		<p>Photometric detector head with DP-11 mount.</p> <p>Features: modular detector for use with integrating spheres, front lenses etc. For use with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-1101-2">http://www.gigahertz-optik.de/en-us/product/VL-1101-2</a>
MD-37-SU100-VL		<p>Photometric detector head with M30x1 mount.</p> <p>Features: modular detector for use MD-37, SRT and other accessories. For use with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/MD-37-SU100-VL">http://www.gigahertz-optik.de/en-us/product/MD-37-SU100-VL</a>
MD-37-SU100-VLS		<p>Scotopic detector head with M30x1 mount.</p> <p>Features: modular detector for use MD-37, SRT and other accessories. For use with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/MD-37-SU100-VLS">http://www.gigahertz-optik.de/en-us/product/MD-37-SU100-VLS</a>
PD-9304		<p>Universal detector head for LASER power, illuminance and 400-1100 nm irradiance.</p> <p>Features: Si-photodiode with 1 cm<sup>2</sup>, exchange able filters and cosine diffuor, for the usage with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-9304">http://www.gigahertz-optik.de/en-us/product/PD-9304</a>
PD-9310A		<p>PD-9310A measurement head with GB-GD-360 photogoniometer for measurement of the luminous intensity distribution of <math>2\pi</math> spot lamps and LEDs. Goniometer bench with adjustable measurement distance of up to 2000 mm. PD-9310A photometric detector corresponding to the DIN 5032 quality class A. Calibration certificate conformng to the ISO 17025 specifications. For use with all optometers and signal amplifiers from Gigahertz-Optik GmbH.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-9310A-2">http://www.gigahertz-optik.de/en-us/product/PD-9310A-2</a>

Produktname	Product Image	Description	Show product
RW-3701		<p>Detector head for the measurement of irradiance in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 400-500nm (BLUE), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RW-3701">http://www.gigahertz-optik.de/en-us/product/RW-3701</a>
RW-3702		<p>Detector head for the measurement of irradiance in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 700-800nm (RED), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RW-3702">http://www.gigahertz-optik.de/en-us/product/RW-3702</a>
RW-3703		<p>Detector head for the measurement of irradiance in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 400-800nm (VIS), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RW-3703">http://www.gigahertz-optik.de/en-us/product/RW-3703</a>
RW-3704		<p>Detector head for the measurement of irradiance in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 800-1000nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RW-3704">http://www.gigahertz-optik.de/en-us/product/RW-3704</a>
RW-3705		<p>Detector head for the measurement of irradiance in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 400-1000nm (VISNIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RW-3705">http://www.gigahertz-optik.de/en-us/product/RW-3705</a>
RW-3708		<p>Detector head for the measurement of irradiance in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 950-1700nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RW-3708">http://www.gigahertz-optik.de/en-us/product/RW-3708</a>
RCH-0		<p>Detector head for high intensity irradiation as in UV or blue light curing processes.</p> <p>Features: Separate light integrator and detector with flexible fiber coupling, light, 320-460nm UVABLU response, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RCH-0">http://www.gigahertz-optik.de/en-us/product/RCH-0</a>
RCH-102		<p>Detector head for high intensity irradiation in UV or blue light curing processes.</p> <p>Features: Separate light integrator and detector with rigid fiber coupling, (320-460)nm UVABLU response, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RCH-1">http://www.gigahertz-optik.de/en-us/product/RCH-1</a>

Produktname	Product Image	Description	Show product
ISD-5-VISNIR		<p>Integrating sphere detector for radiant power in W of <math>2\pi</math> sources.</p> <p>Features: 400 nm - 1100 nm radiometric responsivity, 50 mm dia, 12.5 mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-5-VISNIR">http://www.gigahertz-optik.de/en-us/product/ISD-5-VISNIR</a>
PD-9304		<p>Detector head to measure low intensity LASER radiant power in W.</p> <p>Features: 11.28mm dia (1cm<sup>2</sup>) active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-2">http://www.gigahertz-optik.de/en-us/product/PD-2</a>
ISD-0.8-SiLP		<p>Integrating sphere detector with short rise time for Laser power in W.</p> <p>Features: 8 mm dia, ODM98 coating, 400 nm - 1100 nm responsivity, optional SMA Adapter, for the usage with fast optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-0.8-SiLP">http://www.gigahertz-optik.de/en-us/product/ISD-0.8-SiLP</a>
ISD-1.6 Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 16mm dia, 3mm dia port, BaSO<sub>4</sub> coating, 400-1100nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-1.6-Si">http://www.gigahertz-optik.de/en-us/product/ISD-1.6-Si</a>
ISD-3P-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 30 mm dia, 5 mm dia port, synthetic ODM98 coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-3P-Si">http://www.gigahertz-optik.de/en-us/product/ISD-3P-Si</a>
ISD-5-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 50 mm dia, 12.5 mm dia port, BaSO<sub>4</sub> coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-5-Si">http://www.gigahertz-optik.de/en-us/product/ISD-5-Si</a>

Produktname	Product Image	Description	Show product
ISD-5P-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 50 mm dia, 10 mm dia port, synthetic ODM98 coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-5P-Si">http://www.gigahertz-optik.de/en-us/product/ISD-5P-Si</a>
ISD-10-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 100mm dia, 15mm dia port, BaSO4 coating, 400-1100nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-10-Si">http://www.gigahertz-optik.de/en-us/product/ISD-10-Si</a>
ISD-15-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 150mm dia, 38.1mm dia port, BaSO4 coating, 400-1100nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-15-Si">http://www.gigahertz-optik.de/en-us/product/ISD-15-Si</a>
ISD-30		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 300mm dia, 101.6mm dia port, BaSO4 coating, 400-1100nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-30-Si">http://www.gigahertz-optik.de/en-us/product/ISD-30-Si</a>
PD-11 series		<p>Detector head with DP-11 mount.</p> <p>Features: modular detector for use with integrating spheres, front lenses etc, Si, SiLP, InGaAs, SiC, GaP photodiodes, for use with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PD-11-Series">http://www.gigahertz-optik.de/en-us/product/PD-11-Series</a>
MD-37 series		<p>Detector head with M30x1 mount.</p> <p>Features: modular detector for use MD-37, SRT and other accessories, Si, SiLP, InGaAs, SiC, GaP photodiodes, for use with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/MD-37-Serie">http://www.gigahertz-optik.de/en-us/product/MD-37-Serie</a>
PS-3701		<p>Detector head for plant growth.</p> <p>Features: 400-700nm PAR actinic irradiance, cosine field-of-view, for use with optometers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PS-3701">http://www.gigahertz-optik.de/en-us/product/PS-3701</a>
PS-3702		<p>Detector head for plant growth.</p> <p>Features: 320-500nm phototropism actinic irradiance, for use with optometers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PS-3702">http://www.gigahertz-optik.de/en-us/product/PS-3702</a>

Produktname	Product Image	Description	Show product
PS-3703		<p>Detector head for plant growth.</p> <p>Features: 590-900nm photomorphogenesis actinic irradiance, for use with optometers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/PS-3703">http://www.gigahertz-optik.de/en-us/product/PS-3703</a>
S-P9710		<p>Application software for P9710 variants.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/S-P9710">http://www.gigahertz-optik.de/en-us/product/S-P9710</a>
VL-1101 + UMPA-0.5-11-RD Detector head		<p>Module detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: UMPA adapter for usage with integrating spheres, for the usage with optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-1101uUMPA-05-11-RD">http://www.gigahertz-optik.de/en-us/product/VL-1101uUMPA-05-11-RD</a>
VL-3701 with SRT-M37-L		<p>Detector head to measure the photopic illuminance in lx and the luminance in cd/m<sup>2</sup>.</p> <p>Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-3701withSRT-M37-L">http://www.gigahertz-optik.de/en-us/product/VL-3701withSRT-M37-L</a>
VL-1101		<p>Photometric detector head with VL-11 mount.</p> <p>Features: modular detector for use with integrating spheres, front lenses etc. For use with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/VL-1101">http://www.gigahertz-optik.de/en-us/product/VL-1101</a>
ISD-100HF-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π and 4π sources.</p> <p>Features: 1000mm dia, BaSO<sub>4</sub> coating, sphere to open, auxiliary lamp, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-100HF-VL">http://www.gigahertz-optik.de/en-us/product/ISD-100HF-VL</a>
ISD-100HFT-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π and 4π sources.</p> <p>Features: 1000mm dia, BaSO<sub>4</sub> coating, rotatable sphere to open, auxiliary lamp, for the usage with optometers and signal amplifiers, Calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISD-100HFT-VL">http://www.gigahertz-optik.de/en-us/product/ISD-100HFT-VL</a>
TD-11VL01		<p>Photometric, temperature stabilized detector with DP-11 mount.</p> <p>Features: for use with integrating spheres, Operation temperature 50 °C, for use with optometers and signal amplifiers</p>	<a href="http://www.gigahertz-optik.de/en-us/product/TD-11VL01">http://www.gigahertz-optik.de/en-us/product/TD-11VL01</a>
UV-3701		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 315-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3701">http://www.gigahertz-optik.de/en-us/product/UV-3701</a>

Produktname	Product Image	Description	Show product
UV-3702		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 280-315nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3702">http://www.gigahertz-optik.de/en-us/product/UV-3702</a>
UV-3703		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 200/250-280nm (UV-C), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3703">http://www.gigahertz-optik.de/en-us/product/UV-3703</a>
UV-3710		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 320-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3710">http://www.gigahertz-optik.de/en-us/product/UV-3710</a>
UV-3711		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 280-320nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3711">http://www.gigahertz-optik.de/en-us/product/UV-3711</a>
UV-3716		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 305-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3716">http://www.gigahertz-optik.de/en-us/product/UV-3716</a>
UV-3717		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 315-400nm (UV-A), low cross talk from radiation &gt; 400 nm, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3717">http://www.gigahertz-optik.de/en-us/product/UV-3717</a>
UV-3719		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 250-400nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3719">http://www.gigahertz-optik.de/en-us/product/UV-3719</a>
UV-3720		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 240-320nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3720">http://www.gigahertz-optik.de/en-us/product/UV-3720</a>

Produktname	Product Image	Description	Show product
UV-3721		<p>Detector head for the measurement of irradiance of UV radiation in W/m<sup>2</sup>.</p> <p>Features: spectral responsivity from 350-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3721">http://www.gigahertz-optik.de/en-us/product/UV-3721</a>
UV-3711-308		<p>Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m<sup>2</sup>.</p> <p>Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3711-308">http://www.gigahertz-optik.de/en-us/product/UV-3711-308</a>
UV-3718		<p>Detector head for the measurement of high irradiance of UV-C 254nm radiation in W/m<sup>2</sup>.</p> <p>Features: pre-aging for long time stability, cosine field-of-view, metal shielded cable, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3718">http://www.gigahertz-optik.de/en-us/product/UV-3718</a>
UV-3725 not active		<p>Detector for the measurement of UV-C 254 nm irradiance in air disinfection applications.</p> <p>Features: wide dynamic range for UV hazard and effective irradiance, wide angle cosine F.O.V. for straylight measurements, for the usage with optometers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3725-1">http://www.gigahertz-optik.de/en-us/product/UV-3725-1</a>
LP-9901		<p>Detector head to measure LASER radiant power in W and LASER irradiance in W/m<sup>2</sup>.</p> <p>Features: Low height detector with 7mm dia active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/LP-9901">http://www.gigahertz-optik.de/en-us/product/LP-9901</a>
UV-3706		<p>Detector head to measure irradiance W/m<sup>2</sup> in Bilirubin phototherapy.</p> <p>Features: Bilirubin actinic responsivity, cosine field-of-view, for use with optometers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3706">http://www.gigahertz-optik.de/en-us/product/UV-3706</a>
UV-3711-308		<p>Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m<sup>2</sup>.</p> <p>Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3711-2">http://www.gigahertz-optik.de/en-us/product/UV-3711-2</a>
UV-3724		<p>Detector head for the measurement of UV-B irradiance of TL1 sources in W/m<sup>2</sup>.</p> <p>Features: calibrated with TL1 source, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3724">http://www.gigahertz-optik.de/en-us/product/UV-3724</a>

Produktname	Product Image	Description	Show product
LDM-9811		<p>Detector for Blue-light and retinal thermal hazard of expanded light sources.</p> <p>Features: 1.7mrad, 11mrad and 100mrad field-of-view. view finder, focusable, for the usage with Optometers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/LDM-9811">http://www.gigahertz-optik.de/en-us/product/LDM-9811</a>
UV-3709		<p>Detector for Blue-light hazard measurements.</p> <p>Features: Single-cell detector, BLH actinic irradiance, for the use with optometer, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3709">http://www.gigahertz-optik.de/en-us/product/UV-3709</a>
UV-3725		<p>Detector for the measurement of UV-C 254 nm irradiance in air disinfection applications.</p> <p>Features: wide dynamic range for UV hazard and effective irradiance, wide angle cosine F.O.V. for straylight measurements, for the usage with optometers, calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/UV-3725">http://www.gigahertz-optik.de/en-us/product/UV-3725</a>
RW-37 with SRT-M37-L		<p>Detector heads to measure the irradiance in W/m<sup>2</sup> and the radiance in W/(m<sup>2</sup>*sr).</p> <p>Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="http://www.gigahertz-optik.de/en-us/product/RW-37uSRT-M37-L">http://www.gigahertz-optik.de/en-us/product/RW-37uSRT-M37-L</a>
ISS-5P		<p>Integrating sphere source for spectral radiance.</p> <p>Features: Compact size with 20mm dia light port. In-line baffle. Synthetic ODM98 coating. Halogen lamp. Calibration of the spectral radiance 380-1100nm. Calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISS-5P">http://www.gigahertz-optik.de/en-us/product/ISS-5P</a>
ISS-5P-SR-FS		<p>Integrating sphere source for use as transfer standard for spectral radiance in fluorescence spectroscopy.</p> <p>Features: Low spectral radiance. Compact size with 20mm dia light port. Synthetic ODM98 coating. lamp. Calibration of the spectral radiance 380-1700nm. Calibration certificate.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/ISS-5P-SR-FS">http://www.gigahertz-optik.de/en-us/product/ISS-5P-SR-FS</a>
S-SDK-P9710		<p>Software Development Kit for the P9710 variants.</p>	<a href="http://www.gigahertz-optik.de/en-us/product/S-SDK-P9710">http://www.gigahertz-optik.de/en-us/product/S-SDK-P9710</a>

## Purchasing information

Article-Nr	Modell	Description
<b>Product</b>		
15295217	P-9710-1	Measurement device, power adapter (D, USA or GB), handbook

Article-Nr	Modell	Description
15295575	P-9710-2	Meter, power supply (D, USA or GB), manual
15295576	P-9710-4	Meter, power supply (D, USA or GB), manual
<b>Options</b>		
	Light detectors	See " <a href="#">Configurable with</a> " for all detector heads suitable with the P-9710. More information about each detector head are given at it's product page.
<b>Software</b>		
15298278	S-P9710	User software for P9710 and variants.
15298231	S-SDK-P9710	Software Development Kit for the implementation of the P9710 or variants into custom made software
<b>Accessories</b>		
100001	P-9710Z-01	RS232 adapter cable
100371	P-9710Z-02	Relay card with RS232 interface
100867	P-9710Z-04	Connection plugs kit for combined RS232 and analog output socket
100385	P-9710Z-1S/2B	Adapter cable for detectors with BNC (type 1) plugs
100010	BHO-01	Hard-top casing for the measurement device and accessories
100002	BHO-02	Hard-top casing for the measurement device and accessories