

P-2000

<https://www.gigahertz-optik.de/en-us/product/P-2000>

Product tags: Dosimeter , Multi-Channel



Description

High efficient two channel optometer

Available in two versions the P-2000 optometers are highly efficient dual-channel instruments designed for multipurpose use in most photometric and radiometric applications including pulsed light measurement. Its compact size, four line blue back-lit display and unlimited detector interchange, functions and features characterize the P-2000 as all purpose laboratory grade instrument.



P-2000 with Optional Integrating Sphere Detector

Safe Detector Head exchange

A unique feature of the P-2000 is its detector head calibration data connector which stores all data pertaining to a light detector head including model and serial number and calibration data. When connected to the meter, this data is automatically transmitted and the light meter is ready to go. Combined with one or more of the wide range of available light detectors the P-2000 can be configured as a high level photometer, UV-A, B and C radiometer, laser power meter, PAR meter plus many other configurations.



P-2000 with Relay Board (Option)

Seventeen different measurement modes

Along with the ability to use the P-2000 optometers with an unlimited range of light detectors, seventeen measurement modes enable the user to specify light sources in different ways.



P-2000Z-01 RS232 cable required for remote control operation

CW and pulse energy measurement

The P-2000-1 features a fast sample rate ADC with a variable integration time from 0.1 to 6 seconds in CW mode. The P-2000-2 model is designed for pulse energy measurement of single pulses or pulse chains down to μs pulse lengths.



Relay board for P-2000 to control external accessories

Manual and remote control operation

The RS232 and IEEE488 interfaces allows remote control operation. The meter is DC low voltage operated with external AC power supply.

Measurement range specifications with Light Detectors

The measurement range of optometer combined with light detector is calculated by the measurement range specification of the optometer and the responsivity of the detector head as follows:



Adapter cable to connect detectors with BNC connectors (-1 type) to the 9PIN SUBD socket

- **Offset signal**
= Maximum Resolution = meter current offset signal / detector sensitivity
Sample: $0.1 \text{ pA } (0.1E-12 \text{ A}) / 3 \text{ nA/(mW/cm}^2) \text{ (irradiance detector)} = 0.33 \text{ nW/cm}^2$
- **Minimum measureable irradiation**
= offset signal * signal to noise ratio factor
Sample: $0.33 \text{ nW/cm}^2 * 50 = 17 \text{ nW/cm}^2$
- **Maximum measureable irradiation ***
= max. signal current detector / detector sensitivity
Sample: $1 \text{ mA } (10E-3 \text{ A}) / 3 \text{ nA/(mW/cm}^2) = 333333 \text{ W/cm}^2$
- **Display range**
= Offset signal to maximum measureable signal
Sample: $0.33 \text{ nW/cm}^2 \text{ to } 333333 \text{ W/cm}^2$
- **Measurement range**
= min measureable irradiation to maximum measureable irradiation
Sample: $17 \text{ nW/cm}^2 \text{ to } 333333 \text{ W/cm}^2$

*) The maximum measureable irradiation value may also be limited by thermal radiation, intense UV radiation or other application dependent parameters which must be considered by the end-user.

P-2000Z-02

Relay board for P-2000 to control external accessories (e. g. yellow, green and red indication lamps for low-ok-high indications in binning processes). Solid state relays controlled via P-2000 RS232 interface. Low-ok-value setting in the CW level set mode of the P-2000.

Specifications

Product	
Detector interface	2x 9pin DSUB
Analog output	Output voltage corresponding to detector input current ($R_i = 10k$), connector: BNC
Inputs	Amperes optical units corresponding to calibration data factor, percent, log (depending on mode)
Measurement range	8 ranges (2.000 mA to 0.1 pA) manual or auto range
CW integration time	100 μ s – 5.9999 s
Measurement time	Puls: 10 ms – 199.99 s
Offset correction	Correction range transcending
Parameter adjustment	Remote control or front panel keys (menu), adjusted values permanently stored (EEPROM)

Calibration information	Stored in the detector connector (EEPROM) Manual calibration factor (keys) Max. 250 calibration table entries + interpolation between the entries						
Logger memory	Max. 5734 entries for each channel, permanently stored in flash memory						
Interface	RS232: 9600 Baud, 8 Data Bit, 1 Stop Bit, No Parity, Connector DSUB 9pins, female IEEE488: AH1, SH1, L4, T4						
Rise time	Input Amplifier Slew Rate: 20 ms						
Measurement range	range (A/V)	range max.	slew rate (10 – 90%) P-2000-1	slew rate (10 – 90%) P-2000-2	gain error *) ± offset error (at 20 °C)	gain (A/V) analogue output	
	1x10-3	± 2.000 mA	2 ms	20 ms		0.2% ± 0.001 mA	1x10-3
	1x10-4	± 200.0 µA	2 ms	20 ms		0.2% ± 0.1 µA	1x10-3
	1x10-5	± 20.00 µA	3 ms	20 ms		0.2% ± 0.01 µA	1x10-5
	1x10-6	± 2.000 µA	3 ms	20 ms		0.2% ± 0.001 µA	1x10-5
	1x10-7	± 200.0 nA	4 ms	20 ms		0.2% ± 0.1 nA	1x10-7
	1x10-8	± 20.00 nA	4 ms	20 ms		0.2% ± 0.01 nA	1x10-7
	1x10-9	± 2.000 nA	10 ms	20 ms		0.5% ± 2 pA	1x10-9
	1x10-10	± 200.0 pA	10 ms	20 ms		0.5% ± 2 pA	1x10-9
		*) Current calibration of each range by use of a precise current source with DAkks calibration					
Interface	DSUB 9pin female	Function					
	1	input current (detector current)					
	2	GND					
	3	connection detection (has to be connected to GND by the external detector, this is the case by Gigahertz-Optik detectors)					
	4	GND					
	5	SCL (I2C, eeprom)					
	6	GND					
	7	GND					
	8	+5V Output (Ri = 100 Ohm)					
	9	SDA (I2C, eeprom)					
Output Interfaces	Pin (TRIAD01 female)	Function					
	1	Analog Out (Rin = 10k)					
	2	TxD (has to be connected to RxD of ext. PC)					
	3	RxD (has to be connected to TxD of ext. PC)					
	4	GND					
	5	GND					

Menu Item	Submenu Item	Function
1. Mode	CW	displays the measurement respective of any offset and calibration factors programmed
	CW Maximum	displays the highest detected reading
	CW Minimum	displays the lowest detected reading
	Peak Maximum	shows the maximum detected peak level
	Peak Minimum	displays the minimum detected peak level
	Peak to Peak	displays the difference between the detected peak maximum and peak minimum level
	I-Effective	enables the measurement of pulsed light signals with evaluation of the effective intensity according to the form-factor method defined by Schmidt-Clausen
	Pulse Energy	enables the measurement of short and single light pulses with direct display of exposure for the pulse duration, considering the respectively measured (radiometric) quantity
	Relative (%)	displays the measurement as percentage of a reference value
	Relative (Log)	displays the measurement in dB or dBm in relation to a reference value
	Relative (Fact.)	displays the measurement referred to a reference value
	Relative (CCT)	displays the CCT value calculated out of the current ratio of channel 1 and channel 2
	CW Level Check	compares actual CW readings with previously defined limit values and indicates status
	Dose (C)	accumulates the single readings and displays the result as exposure for measured quantity
	Logger	
Remote RS232		enables the instrument to be controlled by a computer via the built in RS232 interface
	Remote IEEE488	enables the instrument to be controlled by a computer via the built in IEEE488 interface
2. Range		selects the range 1 to 8 or switches into the autorange mode (9)
3. Detector	Detector information	if a detector with calibration data connector is attached to the instrument, optionally programmed calibration factors can be selected
	Ampere	shows the reading in ampere units
	Manual	allows entering a calibration factor manually
4. Offset		performs an automatic offset adjustment
5. Reference		sets a reference value, used in different display modes
6. Setup	Integration time	sets the integration time (100 μ s to 6 s)
	Zero Adjust Mode	sets the mode for the internal zero adjustment

	<p>Pulse Meas.-Time needs to be set for the measuring modes I-Effective and Pulse Energy. It defines the time for collecting readings and shall be a little longer than the expected pulse width.</p> <p>IF Time Constant sets the time constant C in the Schmidt-Clausen formula</p> <p>Pulse Offset determines the method of offset compensation (stray light) for the measuring modes I-Effective and Pulse Energy</p> <p>CW Level Check sets the lower / higher limit value required in the CW Level Check measuring mode</p> <p>Dose Run Time sets the maximum time duration for exposure measurement</p> <p>Dose Maximum sets the max. dose level for the exposure measurement mode</p> <p>Dose Relay Control enables / disables external relay board control via RS232 for mode dose</p> <p>Logger Time sets the sample time interval for the data logger mode</p> <p>Display Digits adjusts the number of displayed digits (4, 5, or automatic)</p> <p>Default Init resets all instrument settings to the factory default settings</p> <p>Channel selects how the displayed channel</p> <p>IEEE488 Address adjusts the device address for IEEE488</p> <p>Synchronisation selects how the measurement time period is adapted to the input signal</p>
7. Info	<p>Logger data displays the recorded logger data</p> <p>CW Level Min. sets the lower limit value required in the CW Level Check measuring mode</p> <p>CW Level Max. sets the upper limit value required in the CW Level Check measuring mode</p> <p>Default Init resets all instrument settings to the factory default settings</p> <p>Synchronisation selects how the measurement time period is adapted to the input signal</p> <p>Substitution enables / disables self absorptin error compensation (substitution correction)</p> <p>Code Number sets a four digit lock-out access code</p> <p>Configuration Default Init – sets factory default settings. Save Config – stores all current settings. Load Config. – loads setting selection (0-9) for Save Config.</p>
8. Info	<p>Battery Status displays the battery charge status as percentage value</p> <p>Logger data displays the recorded logger data</p>
Version	<p>P-2000-1: Input Amplifier Slew Rate: 2ms – 10 ms</p> <p>P-2000-2: Input Amplifier Slew Rate: 20 ms</p>
Miscellaneous	
Power Supply	(6.5 – 7.5) VDC / 300 mA, Plug 5.5 / 2.5 mm / 10 mm
Display	Alphanumeric LCD display, 4 rows x 20 chars, character height 5 mm, LED-illumination

Front panel control	10 keys, menu system
temperature range	Operation: (5 to 40) °C Storage: (-10 to 50) °C
Dimensions	230 mm x 215 mm x 115 mm
Power Supply	230 AC / 7.5 VDC / 500 mA
Warranty	12 months
Weight	800 g

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: $f1 \leq 3 \%$, $f2 \leq 1.5 \%$, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3701
VL-3702		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 6 \%$, $f2 \leq 3 \%$, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3702
VL-3704		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 5 \%$, $f2 \leq 3 \%$, 20pA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3704
VL-3705		<p>Detector head for the measurement of scotopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 5 \%$, $f2 \leq 3 \%$, 0.2nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3705
PD-9310A		<p>High sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 3 \%$, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310A
PD-9310B		<p>High sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 6 \%$, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310B

Produktname	Product Image	Description	Show product
PD-9310B-N		<p>Very high sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 3 \%$, 28nA/lx, no diffuser, for the usage with optometers and amplifiers, calibration</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310B-N
VL-6001		<p>Very high sensitive illuminance detector head for spotlamps.</p> <p>Features: Large diameter lens zur Erhöhung der Empfindlichkeit, for the usage with optometers and amplifiers, calibration</p>	https://www.gigahertz-optik.de/en-us/product/VL-6001
LDM-9810		<p>Detector head to measure the photopic spot luminance in cd/m^2.</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>	https://www.gigahertz-optik.de/en-us/product/LDM-9810
LDM-9901		<p>Detector head to measure the photopic spot luminance in cd/m^2.</p> <p>Features: 1.1° viewing angle, simple to use, very low stray light, for the usage with Optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/LDM-9901
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>	https://www.gigahertz-optik.de/en-us/product/VL-1101
ISD-5-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π spot sources.</p> <p>Features: 50mm dia, BaSO4 coating, 12.5mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5-VL
ISD-10-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π spot sources.</p> <p>Features: 100 mm dia, BaSO4 coating, 15 mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-10-VL

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ISD-15-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π sources.</p> <p>Features: 150mm dia, BaSO4 coating, 38.1mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-15-VL
ISD-15P-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π sources.</p> <p>Features: 150mm dia, synthetic coating, 38.1mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-15P-VL
ISD-30-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π sources.</p> <p>Features: 300mm dia, BaSO4 coating, 101,6mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-30-VL
ISD-50-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π sources.</p> <p>Features: 500mm dia, BaSO4 coating, 127mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-50-VL
ISD-50HF-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π and 4π sources.</p> <p>Features: 500mm dia, BaSO4 coating, sphere to open, auxiliary lamp, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-50HF-VL
ISD-100HF-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π and 4π sources.</p> <p>Features: 1000mm dia, BaSO4 coating, sphere to open, auxiliary lamp, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-100HF-VL
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>	https://www.gigahertz-optik.de/en-us/product/TD-11VL01

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PD-9304		<p>Universal detector head for LASER power, illuminance and 400-1100 nm irradiance.</p> <p>Features: Si-photodiode with 1 cm², exchange able filters and cosine diffuser, for the usage with optometers and signal amplifiers</p>	https://www.gigahertz-optik.de/en-us/product/PD-9304
PD-9310A		<p>PD-9310A measurement head with GB-GD-360 photogoniometer for measurement of the luminous intensity distribution of 2π 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 conforming to the ISO 17025 specifications. For use with all optometers and signal amplifiers from Gigahertz-Optik GmbH.</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310A-2
RW-3701		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 400-500nm (BLUE), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3701
RW-3702		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 700-800nm (RED), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3702
RW-3703		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 400-800nm (VIS), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3703
RW-3704		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 800-1000nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3704
RW-3705		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 400-1000nm (VISNIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3705
RW-3708		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 950-1700nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3708

Produktname	Product Image	Description	Show product
UV-3701		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 315-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3701
UV-3702		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 280-315nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3702
UV-3703		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</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>	https://www.gigahertz-optik.de/en-us/product/UV-3703
UV-3710		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 320-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3710
UV-3711		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 280-320nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3711
UV-3716		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 305-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3716
UV-3717		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 315-400nm (UV-A), low cross talk from radiation > 400 nm, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3717
UV-3719		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 250-400nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3719

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UV-3720		<p>Detector head for the measurement of irradiance of UV radiation in W/m^2.</p> <p>Features: spectral responsivity from 240-320nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3720
UV-3721		<p>Detector head for the measurement of irradiance of UV radiation in W/m^2.</p> <p>Features: spectral responsivity from 350-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3721
UV-3711-308		<p>Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m^2.</p> <p>Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/UV-3711-308
UV-3718		<p>Detector head for the measurement of high irradiance of UV-C 254nm radiation in W/m^2.</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>	https://www.gigahertz-optik.de/en-us/product/UV-3718
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>	https://www.gigahertz-optik.de/en-us/product/UV-3725-1
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 UVABLUe responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RCH-0
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 UVABLUe responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RCH-1
LP-9901		<p>Detector head to measure LASER radiant power in W and LASER irradiance in W/m^2.</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>	https://www.gigahertz-optik.de/en-us/product/LP-9901

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PD-9304		<p>Detector head to measure low intensity LASER radiant power in W.</p> <p>Features: 11.28mm dia (1cm²) active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/PD-2
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>	https://www.gigahertz-optik.de/en-us/product/ISD-3P-Si
ISD-5-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 50 mm dia, 12.5 mm dia port, BaSO₄ coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5-Si
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>	https://www.gigahertz-optik.de/en-us/product/ISD-5P-Si
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>	https://www.gigahertz-optik.de/en-us/product/ISD-10-Si
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>	https://www.gigahertz-optik.de/en-us/product/ISD-30-Si
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>	https://www.gigahertz-optik.de/en-us/product/PD-11-Serie

Produktname	Product Image	Description	Show product
UV-3706		<p>Detector head to measure irradiance W/m² in Bilirubin phototherapy.</p> <p>Features: Bilirubin actinic responsivity, cosine field-of-view, for use with optometers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3706
UV-3711-308		<p>Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m².</p> <p>Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/UV-3711-2
UV-3724		<p>Detector head for the measurement of UV-B irradiance of TL1 sources in W/m².</p> <p>Features: calibrated with TL1 source, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3724
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>	https://www.gigahertz-optik.de/en-us/product/UV-3709
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>	https://www.gigahertz-optik.de/en-us/product/UV-3725
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>	https://www.gigahertz-optik.de/en-us/product/PS-3701
PS-3702		<p>Detector head for plant growth.</p> <p>Features: 320-500nm phototropism actinic irradiance, for use with optometers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/PS-3702
PS-3703		<p>Detector head for plant growth.</p> <p>Features: 590-900nm photomorphogenesis actinic irradiance, for use with optometers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/PS-3703
RW-37 with SRT-M37-L		<p>Detector heads to measure the irradiance in W/m² and the radiance in W/(m²*sr).</p> <p>Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/RW-37uSRT-M37-L

Produktname	Product Image	Description	Show product
PRW-0505		<p>Integrating sphere detector for radiant power in W of 2π spot sources.</p> <p>Features: 400 - 1100 nm radiometric responsivity, 50 mm dia integrating sphere, 12.5 mm dia measurement port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/prw-0505
ISD-3P-IGA		<p>Integrating sphere detector with InGaAs photodiode and 30 mm sphere for Laser power in W.</p> <p>Features: 800 nm - 1800 nm spectral responsivity, 5 mm dia measurement port, synthetic ODM98 coating, optional SMA Adapter, for the usage with Optometer and signal amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-3P-IGA-2
ISD-5P-SiUV		<p>Integrating sphere detector with UV-enhanced Si photodiode and 50 mm sphere for Laser power in W</p> <p>Features: 250 nm - 1100 nm spectral responsivity, 10 mm dia measurement port, synthetic ODM98 coating, optional SMA Adapter, for the usage with Optometer and signal amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5P-SiUV-2
ISD-5P-IGA		<p>Integrating sphere detector with InGaAs photodiode and 50 mm sphere for Laser power in W.</p> <p>Features: 800 nm - 1800 nm spectral responsivity, 10 mm dia measurement port, synthetic ODM98 coating, optional SMA Adapter, for the usage with Optometer and signal amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5P-IGA-2
S-SDK-P2000		<p>Software Development Kit for P2000 and variants.</p>	https://www.gigahertz-optik.de/en-us/product/S-SDK-P2000

Purchasing information

Article-Nr	Modell	Description
Product		
15295970	P-2000-1	Meter, power supply, manual
15297598	P-2000-2	Meter, power supply, manual
Software		
15298227	S-SDK-P2000	Software Development Kit for the implementation of a P2000 or variants into custom made software
Accessories		
15296020	P-2000Z-01	RS232 adapter cable
15296034	P-2000Z-02	Relay board with RS232 interface
15296235	P-9710Z-1S/2S	Adapter cable to connect detector heads with BNC (-1) type connector