

# P-2000

<https://www.gigahertz-optik.com/es-es/producto/p-2000/>

**Etiquetas del producto: Dosímetro , Multicanal ,**



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## Descripción

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.



*Two-channel Optometer*

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### 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 Optional Integrating Sphere Detector*

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### 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-2000 with Relay Board (Option)*

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### 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  $\mu\text{s}$  pulse lengths.

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### 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.



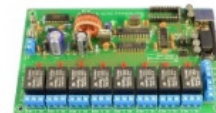
*P-2000Z-01 RS232 cable required for remote control operation*

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### 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:



*Relay board for P-2000 to control external accessories*

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



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

\*) 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.**

## **Especificaciones**

### **Producto**

Interfaz del detector	2x 9pin DSUB
Salida analógica	Output voltage corresponding to detector input current (Ri = 10k), connector: BNC
Entradas	Amperes optical units corresponding to calibration data factor, percent, log (depending on mode)
Rango de medición	8 ranges (2.000 mA to 0.1 pA) manual or auto range
Tiempo de integración CW	100 µs – 5.9999 s
Tiempo de medición	Puls: 10 ms – 199.99 s
Corrección del offset	Correction range transcending
Ajuste de parámetros	Remote control or front panel keys (menu), adjusted values permanently stored (EEPROM)
Información de calibración	Stored in the detector connector (EEPROM) Manual calibration factor (keys) Max. 250 calibration table entries + interpolation between the entries

Memoria del registrador	Max. 5734 entries for each channel, permanently stored in flash memory						
Interfaz	RS232: 9600 Baud, 8 Data Bit, 1 Stop Bit, No Parity, Connector DSUB 9pins, female IEEE488: AH1, SH1, L4, T4						
Tiempo de subida	Input Amplifier Slew Rate: 20 ms						
Rango de medición	<b>range nr.</b>	<b>range (A/V)</b>	<b>range max.</b>	<b>slew rate (10 – 90%) P-2000-1</b>	<b>slew rate (10 – 90%) P-2000-2</b>	<b>gain error *) ± offset error (at 20 °C)</b>	<b>gain (A/V) analogue output</b>
	0	1x10 <sup>-3</sup>	± 2.000 mA	2 ms		20 ms	0.2% ± 0.001 mA
	1	1x10 <sup>-4</sup>	± 200.0 µA	2 ms		20 ms	0.2% ± 0.1 µA
	2	1x10 <sup>-5</sup>	± 20.00 µA	3 ms		20 ms	0.2% ± 0.01 µA
	3	1x10 <sup>-6</sup>	± 2.000 µA	3 ms		20 ms	0.2% ± 0.001 µA
	4	1x10 <sup>-7</sup>	± 200.0 nA	4 ms		20 ms	0.2% ± 0.1 nA
	5	1x10 <sup>-8</sup>	± 20.00 nA	4 ms		20 ms	0.2% ± 0.01 nA
	6	1x10 <sup>-9</sup>	± 2.000 nA	10 ms		20 ms	0.5% ± 2 pA
	7	1x10 <sup>-10</sup>	± 200.0 pA	10 ms		20 ms	0.5% ± 2 pA

\*) Current calibration of each range by use of a precise current source with DAkks calibration

Interfaz	<b>DSUB 9pin female</b>		<b>Function</b>
	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)	








Interfaces de salida	<b>Pin (TRIAD01 female)</b>		<b>Function</b>
	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
2. Range	Logger	stores the single readings, which are taken in predefined intervals up to a number of 5734 for each channel
	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
3. Detector	<p>selects the range 1 to 8 or switches into the autorange mode (9)</p> <p><b>Detector information</b> if a detector with calibration data connector is attached to the instrument, optionally programmed calibration factors can be selected</p> <p><b>Ampere</b> shows the reading in ampere units</p> <p><b>Manual</b> allows entering a calibration factor manually</p>	
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 µs to 6 s)
	Zero Adjust Mode	sets the mode for the internal zero adjustment











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

Control del panel frontal	10 keys, menu system
Dimensiones	230 mm x 215 mm x 115 mm
Fuente de alimentación	230 AC / 7.5 VDC / 500 mA
Garantía	12 months
Peso	800 g
rango de temperatura	Operation: (5 to 40) °C Storage: (-10 to 50) °C
Humedad	<80%, non-condensing
Información	Regular recalibration of the current calibration is recommended. Especially when very small measurement currents have to be measured. In the case of very high humidity, fault currents of the radiometer are possible at low measuring currents and should be taken into account.











## Configurable con












Nombre del producto	Imagen del producto	Descripción	Ir al producto
VL-3701		Detector head for the measurement of photopic illuminance in Lux [lx]	<a href="https://www.gigahertz-optik.com/es-es/producto/vl-3701/">https://www.gigahertz-optik.com/es-es/producto/vl-3701/</a>
VL-3702		Detector head for the measurement of photopic illuminance in Lux [lx]	<a href="https://www.gigahertz-optik.com/es-es/producto/vl-3702/">https://www.gigahertz-optik.com/es-es/producto/vl-3702/</a>
VL-3704		Detector head for the measurement of photopic illuminance in Lux [lx]	<a href="https://www.gigahertz-optik.com/es-es/producto/vl-3704/">https://www.gigahertz-optik.com/es-es/producto/vl-3704/</a>
VL-3705		Detector head for the measurement of scotopic illuminance in Lux [lx]	<a href="https://www.gigahertz-optik.com/es-es/producto/vl-3705/">https://www.gigahertz-optik.com/es-es/producto/vl-3705/</a>
PD-9310A		High sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f1 \leq 3 \%$ , 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration certificate	<a href="https://www.gigahertz-optik.com/es-es/producto/pd-9310a/">https://www.gigahertz-optik.com/es-es/producto/pd-9310a/</a>
PD-9310B		High sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f1 \leq 6 \%$ , 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration	<a href="https://www.gigahertz-optik.com/es-es/producto/pd-9310b/">https://www.gigahertz-optik.com/es-es/producto/pd-9310b/</a>
PD-9310B-N		Very high sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f1 \leq 3 \%$ , 28nA/lx, no diffuser, for the usage with optometers and amplifiers, calibration	<a href="https://www.gigahertz-optik.com/es-es/producto/pd-9310b-n/">https://www.gigahertz-optik.com/es-es/producto/pd-9310b-n/</a>












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LP-9901		<p>Detector head to measure LASER radiant power in W and LASER irradiance in W/m<sup>2</sup>. 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="https://www.gigahertz-optik.com/es-es/producto/lp-9901/">https://www.gigahertz-optik.com/es-es/producto/lp-9901/</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>	<a href="https://www.gigahertz-optik.com/es-es/producto/vl-3701-with-srt-m37-l/">https://www.gigahertz-optik.com/es-es/producto/vl-3701-with-srt-m37-l/</a>
PD-9310 with SRT-M37-L		<p>High sensitive detector head to measure the photopic luminance in cd/m<sup>2</sup>. Features: front lens for 1°, 2°, 5° or 10° viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	<a href="https://www.gigahertz-optik.com/es-es/producto/pd-9310-with-srt-m37-l/">https://www.gigahertz-optik.com/es-es/producto/pd-9310-with-srt-m37-l/</a>
LDM-9810		<p>Detector head to measure the photopic spot luminance in cd/m<sup>2</sup>. 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="https://www.gigahertz-optik.com/es-es/producto/ldm-9810/">https://www.gigahertz-optik.com/es-es/producto/ldm-9810/</a>
VL-1101		<p>Photometric detector head with VL-11 mount. Features: modular detector for use with integrating spheres, front lenses etc. For use with optometers and signal amplifiers</p>	<a href="https://www.gigahertz-optik.com/es-es/producto/vl-1101/">https://www.gigahertz-optik.com/es-es/producto/vl-1101/</a>
LDM-9901		<p>Detector head to measure the photopic spot luminance in cd/m<sup>2</sup></p>	<a href="https://www.gigahertz-optik.com/es-es/producto/ldm-9901/">https://www.gigahertz-optik.com/es-es/producto/ldm-9901/</a>
S-SDK-P2000		<p>Software Development Kit for P2000 and variants.</p>	<a href="https://www.gigahertz-optik.com/es-es/producto/s-sdk-p2000/">https://www.gigahertz-optik.com/es-es/producto/s-sdk-p2000/</a>
VL-1101 + UMPA-0.5-11-RD Detector head		<p>Module detector head for the measurement of photopic illuminance in Lux [lx]. Features: UMPA adapter for usage with integrating spheres, for the usage with optometers and amplifiers, calibration certificate</p>	<a href="https://www.gigahertz-optik.com/es-es/producto/vl-1101uumpa-05-11-rd/">https://www.gigahertz-optik.com/es-es/producto/vl-1101uumpa-05-11-rd/</a>












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ISD-5-VL		Integrating sphere detector for luminous flux (lm) of 2π spot sources	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-5-vl/">https://www.gigahertz-optik.com/es-es/producto/isd-5-vl/</a>
ISD-10-VL		Integrating sphere detector for luminous flux (lm) of 2π spot sources	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-10-vl/">https://www.gigahertz-optik.com/es-es/producto/isd-10-vl/</a>
ISD-15P-VL		Detector de esfera integradora para el flujo luminoso (lm) de las fuentes 2π	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-15p-vl/">https://www.gigahertz-optik.com/es-es/producto/isd-15p-vl/</a>
TD-11VL01		Photometric, temperature stabilized detector with DP-11 mount	<a href="https://www.gigahertz-optik.com/es-es/producto/td-11vl01/">https://www.gigahertz-optik.com/es-es/producto/td-11vl01/</a>
RW-3701		Detector head for the measurement of irradiance in W/m <sup>2</sup> in the spectral range 400 nm - 500 nm (BLUE).	<a href="https://www.gigahertz-optik.com/es-es/producto/rw-3701/">https://www.gigahertz-optik.com/es-es/producto/rw-3701/</a>
RW-3702		Detector head for the measurement of irradiance in W/m <sup>2</sup> in the spectral range 700 nm - 800 nm (RED).	<a href="https://www.gigahertz-optik.com/es-es/producto/rw-3702/">https://www.gigahertz-optik.com/es-es/producto/rw-3702/</a>
RW-3703		Detector head for the measurement of irradiance in W/m <sup>2</sup> in the spectral range 400 nm - 800 nm (VIS).	<a href="https://www.gigahertz-optik.com/es-es/producto/rw-3703/">https://www.gigahertz-optik.com/es-es/producto/rw-3703/</a>
RW-3704		Detector head for the measurement of irradiance in W/m <sup>2</sup> in the spectral range 800 nm - 1000nm (NIR).	<a href="https://www.gigahertz-optik.com/es-es/producto/rw-3704/">https://www.gigahertz-optik.com/es-es/producto/rw-3704/</a>
RW-3705		Detector head for the measurement of irradiance in W/m <sup>2</sup> in the spectral range 400 nm - 1000 nm (VISNIR).	<a href="https://www.gigahertz-optik.com/es-es/producto/rw-3705/">https://www.gigahertz-optik.com/es-es/producto/rw-3705/</a>
RW-3708		Detector head for the measurement of irradiance in W/m <sup>2</sup> in the spectral range 1000 nm - 1700 nm (NIR).	<a href="https://www.gigahertz-optik.com/es-es/producto/rw-3708/">https://www.gigahertz-optik.com/es-es/producto/rw-3708/</a>


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UV-3701		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> from 315 nm - 400 nm (UV-A).	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3701/">https://www.gigahertz-optik.com/es-es/producto/uv-3701/</a>
UV-3702		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> from 280 nm - 315 nm (UV-B).	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3702/">https://www.gigahertz-optik.com/es-es/producto/uv-3702/</a>
UV-3703		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> from 250 nm - 280 nm (UV-C).	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3703/">https://www.gigahertz-optik.com/es-es/producto/uv-3703/</a>
UV-3710		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> in the range from 320 nm to 400 nm (UV-A).	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3710/">https://www.gigahertz-optik.com/es-es/producto/uv-3710/</a>
UV-3711		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> in the spectral range 280 nm - 320 nm (UV-B).	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3711/">https://www.gigahertz-optik.com/es-es/producto/uv-3711/</a>
UV-3716		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> in the range from 305 nm to 400 nm (UV-A).	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3716/">https://www.gigahertz-optik.com/es-es/producto/uv-3716/</a>
UV-3717		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> in the spectral range from 315 nm to 400 nm with low crosstalk from radiation above 400 nm (UV-A).	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3717/">https://www.gigahertz-optik.com/es-es/producto/uv-3717/</a>
UV-3719		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> in the spectral range 250 nm to 400 nm	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3719/">https://www.gigahertz-optik.com/es-es/producto/uv-3719/</a>
UV-3720		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> . Features: spectral responsivity from 240-320nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3720/">https://www.gigahertz-optik.com/es-es/producto/uv-3720/</a>
UV-3721		Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> . Features: spectral responsivity from 350-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3721/">https://www.gigahertz-optik.com/es-es/producto/uv-3721/</a>
UV-3718		Detector head for the measurement of high irradiance of UV-C 254 nm radiation in W/m <sup>2</sup> .	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3718/">https://www.gigahertz-optik.com/es-es/producto/uv-3718/</a>

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ISD-5-VISNIR		Integrating sphere detector for radiant power in W of $2\pi$ sources	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-5-visnir/">https://www.gigahertz-optik.com/es-es/producto/isd-5-visnir/</a>
ISD-3P-Si		Integrating sphere detector for Laser power in W	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-3p-si/">https://www.gigahertz-optik.com/es-es/producto/isd-3p-si/</a>
UV-3706		Detector head to measure irradiance W/m <sup>2</sup> in Bilirubin phototherapy. Features: Bilirubin actinic responsivity, cosine field-of-view, for use with optometers, calibration certificate.	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3706/">https://www.gigahertz-optik.com/es-es/producto/uv-3706/</a>
UV-3711-308		Detector head for the measurement of irradiance of 308 nm Excimer Lasers in W/m <sup>2</sup> .	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3711-2/">https://www.gigahertz-optik.com/es-es/producto/uv-3711-2/</a>
UV-3709		Detector for Blue-light hazard irradiance measurements.	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3709/">https://www.gigahertz-optik.com/es-es/producto/uv-3709/</a>
UV-3725		Detector for the measurement of UV-C 254 nm irradiance in air disinfection applications	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3725/">https://www.gigahertz-optik.com/es-es/producto/uv-3725/</a>
ISD-3P-IGA		Integrating sphere detector with InGaAs photodiode and 30 mm sphere for Laser power in W.	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-3p-iga-2/">https://www.gigahertz-optik.com/es-es/producto/isd-3p-iga-2/</a>
ISD-5-Si		Integrating sphere detector for Laser power in W	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-5-si/">https://www.gigahertz-optik.com/es-es/producto/isd-5-si/</a>
RCH-116		Detector head for high intensity UV and BLUE LED sources.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-2/">https://www.gigahertz-optik.com/es-es/producto/rch-2/</a>
RCH-102		Detector head for high intensity irradiation in UVA and blue light curing processes with rigid fiber	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-1/">https://www.gigahertz-optik.com/es-es/producto/rch-1/</a>

Nombre del producto	Imagen del producto	Descripción	Ir al producto
MD-37-SU100-VL		Photometric detector head with M30x1 mount	<a href="https://www.gigahertz-optik.com/es-es/producto/md-37-su100-vl/">https://www.gigahertz-optik.com/es-es/producto/md-37-su100-vl/</a>
MD-37-SU100-VLS		Scotopic detector head with M30x1 mount	<a href="https://www.gigahertz-optik.com/es-es/producto/md-37-su100-vls/">https://www.gigahertz-optik.com/es-es/producto/md-37-su100-vls/</a>
PD-9304		Universal detector head for LASER power, illuminance and 400-1100 nm irradiance. Features: Si-photodiode with 1 cm <sup>2</sup> , exchange able filters and cosine diffuor, for the usage with optometers and signal amplifiers	<a href="https://www.gigahertz-optik.com/es-es/producto/pd-9304/">https://www.gigahertz-optik.com/es-es/producto/pd-9304/</a>
ISD-5P-Si		Integrating sphere detector for Laser power in W	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-5p-si/">https://www.gigahertz-optik.com/es-es/producto/isd-5p-si/</a>
ISD-10-Si		Integrating sphere detector for Laser power in W	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-10-si/">https://www.gigahertz-optik.com/es-es/producto/isd-10-si/</a>
ISD-15-Si		Integrating sphere detector for Laser power in W	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-15-si/">https://www.gigahertz-optik.com/es-es/producto/isd-15-si/</a>
RCH-006		Detector head for high intensity irradiation in UV wide range curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-006/">https://www.gigahertz-optik.com/es-es/producto/rch-006/</a>
ISD-30		Integrating sphere detector for Laser power in W	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-30-si/">https://www.gigahertz-optik.com/es-es/producto/isd-30-si/</a>
RCH-008		Detector Head for High-Intensity Irradiation in UV-A Curing Processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-008/">https://www.gigahertz-optik.com/es-es/producto/rch-008/</a>
RCH-009		Detector Head for High-Intensity Irradiation in Blue Light Curing Processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-3/">https://www.gigahertz-optik.com/es-es/producto/rch-3/</a>
RCH-010		Detector head for high intensity irradiation in UV H-type light curing processes.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-4/">https://www.gigahertz-optik.com/es-es/producto/rch-4/</a>

Nombre del producto	Imagen del producto	Descripción	Ir al producto
RCH-011		Detector head for high intensity irradiation in UVA peak light curing processes.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-5/">https://www.gigahertz-optik.com/es-es/producto/rch-5/</a>
RCH-012		Detector head for high intensity irradiation in blue light curing processes.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-6/">https://www.gigahertz-optik.com/es-es/producto/rch-6/</a>
RCH-013		Irradiance Detector for UV or Blue light curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-7/">https://www.gigahertz-optik.com/es-es/producto/rch-7/</a>
RCH-014		Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, 400nm+436nm BLUE responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-8/">https://www.gigahertz-optik.com/es-es/producto/rch-8/</a>
RCH-015		Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, 436nm BLUE-Peak responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-9/">https://www.gigahertz-optik.com/es-es/producto/rch-9/</a>
RCH-106		Detector head for high intensity irradiation in UV wide range curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-10/">https://www.gigahertz-optik.com/es-es/producto/rch-10/</a>
PD-11 Series		Detector head with DP-11 mount	<a href="https://www.gigahertz-optik.com/es-es/producto/pd-11-serie/">https://www.gigahertz-optik.com/es-es/producto/pd-11-serie/</a>
RCH-108		Detector head for high intensity irradiation in UVA Peak light curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-11/">https://www.gigahertz-optik.com/es-es/producto/rch-11/</a>
RCH-109		Detector head for high intensity irradiation in blue-peak light curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-12/">https://www.gigahertz-optik.com/es-es/producto/rch-12/</a>
RCH-110		Detector head for high intensity irradiation in H-Type light curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-13/">https://www.gigahertz-optik.com/es-es/producto/rch-13/</a>
RCH-111		Detector head for high intensity irradiation in UVA light curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-14/">https://www.gigahertz-optik.com/es-es/producto/rch-14/</a>

Nombre del producto	Imagen del producto	Descripción	Ir al producto
RCH-112		Detector head for high intensity irradiation blue light curing processes.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-15/">https://www.gigahertz-optik.com/es-es/producto/rch-15/</a>
RCH-113		Detector head for high intensity irradiation in UV or blue light curing processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-16/">https://www.gigahertz-optik.com/es-es/producto/rch-16/</a>
RCH-114		Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, 400nm+436nm BLUE responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-17/">https://www.gigahertz-optik.com/es-es/producto/rch-17/</a>
RCH-115		Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, 436nm BLUE-Peak responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-18/">https://www.gigahertz-optik.com/es-es/producto/rch-18/</a>
MD-37 series		Detector head with M30x1 mount. Features: modular detector for use MD-37, SRT and other accessories, Si, SiLP, InGaAs, SiC, GaP photodiodes, for use with optometers and signal amplifiers	<a href="https://www.gigahertz-optik.com/es-es/producto/md-37-serie/">https://www.gigahertz-optik.com/es-es/producto/md-37-serie/</a>
RW-37 with SRT-M37-L		Detector heads to measure the irradiance in W/m <sup>2</sup> and the radiance in W/(m <sup>2</sup> sr)	<a href="https://www.gigahertz-optik.com/es-es/producto/rw-37usrt-m37-l/">https://www.gigahertz-optik.com/es-es/producto/rw-37usrt-m37-l/</a>
RCH-002		Detector Head for High-Intensity Irradiation in UVA or Blue Light Curing Processes	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-002/">https://www.gigahertz-optik.com/es-es/producto/rch-002/</a>
RCH-005		Detector head for high intensity irradiation in UV or blue light curing processes. 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.	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-005/">https://www.gigahertz-optik.com/es-es/producto/rch-005/</a>
K-xx-C		Calibration of the signal current sensitivity of optometers. Features: calibration of all gain stages, traceable calibrated current source, calibration certificate	<a href="https://www.gigahertz-optik.com/es-es/producto/k-xx-c/">https://www.gigahertz-optik.com/es-es/producto/k-xx-c/</a>
ISD-5P-SiUV		Integrating sphere detector with UV-enhanced Si photodiode and 50 mm sphere for Laser power in W	<a href="https://www.gigahertz-optik.com/es-es/producto/isd-5p-siuv-2/">https://www.gigahertz-optik.com/es-es/producto/isd-5p-siuv-2/</a>
UV-37 with SRT-M37-L-UV		Detector heads to measure the UV irradiance in W/m <sup>2</sup> and the UV-radiance in W/(m <sup>2</sup> sr)	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-37usrt-m37-l-uv/">https://www.gigahertz-optik.com/es-es/producto/uv-37usrt-m37-l-uv/</a>
UV-3726		Detector head for the measurement of irradiance in W/m <sup>2</sup> for UV-C LEDs and low pressure mercury lamps in germicidal applications.	<a href="https://www.gigahertz-optik.com/es-es/producto/uv-3726/">https://www.gigahertz-optik.com/es-es/producto/uv-3726/</a>

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RCH-xxx Serie		UV Detectors for measuring the UV Curing Irradiance	<a href="https://www.gigahertz-optik.com/es-es/producto/rch-xxx-series/">https://www.gigahertz-optik.com/es-es/producto/rch-xxx-series/</a>

## Información de compra

Número de artículo	Modelo	Descripción
<b>Producto</b>		
15295970	P-2000-1	Meter, power supply, manual
15297598	P-2000-2	Meter, power supply, manual
<b>El software</b>		
15298227	S-SDK-P2000	Software Development Kit for the implementation of a P2000 or variants into custom made software
<b>Accesorios</b>		
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

## Contacto, calibración, servicio y asistencia

Somos conocidos en todo el mundo por nuestro excelente asesoramiento técnico y asistencia posventa. Póngase en contacto con nosotros para encontrar juntos la mejor solución para usted. Nuestros servicios:

- Asesoramiento técnico y ventas
- Soporte postventa
- Calibraciones y recalibraciones (servicios de calibración ISO/IEC 17025, calibración en fábrica, calibración de productos de terceros)
- Reparaciones y actualizaciones
- Consultoría OEM y de viabilidad de soluciones personalizadas

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