

# X1

<https://www.gigahertz-optik.com/en-us/product/x1>

**Product tags: Multi-Channel**



## Description

versatile hand-held optometer



### Hand-held Meter

The X11 optometer is one of the most versatile hand-held light measurement instruments available. It combines a powerful electronic design packaged in a light-weight ergonomic housing. Its compact size makes it ideal for field service applications. A unique feature of the X11 is its capability to operate detector heads housing up to four photodiodes with all four signals displayed on the four line display with on/off backlighting. When more than one detector head is used simple and faultless selection of the calibration data is accomplished using the X1's menu mode.

*X11 Hand-held meter*

### Simple to Use

Operating the X11 is simple. The meter set-up is supported by an easy to use menu. The menu allows selection of the operating mode, the detector and measurement parameter. Once set-up all settings are stored and recalled on next power-up unless reinitialized. Measurement values are displayed in absolute quantities for the particular detector connected.

### Battery or USB powered

For on-site applications the X11 is operated with two standard 1.5 V AA batteries. In remote control operation the X11 is powered through the USB interface.

### Four-channel Meter

The unique feature of the X11 is the capability to operate multi-cell detector heads with up to four photodiodes with all four signals displayed or read-out via the USB interface.

### Multipurpose Light Measurement Instrument

The X11 can be combined with most of the Gigahertz-Optik single cell or multi cell light detector heads for use in a wide application range of radiometric, photometric and colorimetric measurements

### Interfaces

The X11 features a USB interfaces.

# Specifications

## General

|                      |                                                                                                                                                                                                                                                                                                                 |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Short description    | Optometer for the individual configuration as photometer, RGB-luminous Color meter, Radiometer, UV-radiometer, LASER-powermeter etc. with the detector heads supplied.                                                                                                                                          |
| Main features        | Compact gauge in ergonomic design for one Hand control. Four measurement chanel in multiplex operation for use with single and multi-channel detectors heads. Back illuminated Display with four lines. Battery powered with two AA cells. USB-Interface. User Software and Software development kit available. |
| Measurement range    | Wide dynamic current measurement range from 0.1 pA (noise equivalent signal) up to 200 µA. Seven gain ranges with manual or automatic selection. Measurement range in absolute units with given by the detector heads responivity and calibration.                                                              |
| typical applications | Measurement device for mobile use: measuremen of the illuminance condition, measurement of lamp aging, etc. Because of ist USB Interface and the Software development kit the device can be integrated in remote applications.                                                                                  |
| Calibration          | Calibration and comparison of the current responsivity in each of the seven gain ranges. Memory for calibration data of several detector heads for measuremen in the absolute unit of the selected detector head.                                                                                               |

## Product

|                      |                                                                                                                                                                                                                                                                                  |                  |                         |                                                         |                                  |                            |                                 |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|---------------------------------------------------------|----------------------------------|----------------------------|---------------------------------|
| Detector interface   | 9pin MDSM9 socket, 4 inputs                                                                                                                                                                                                                                                      |                  |                         |                                                         |                                  |                            |                                 |
| Measurement range    | Seven (200 µA to 0.1 pA) manual or auto range which can be set by the user. The default setting depends on the customer specific configuration.                                                                                                                                  |                  |                         |                                                         |                                  |                            |                                 |
|                      | Range Nr.                                                                                                                                                                                                                                                                        | Range<br>max.    | Slew-Rate<br>(10 - 90)% | Resolution± calibration<br>uncertainty *)<br>(at 24 °C) | Permissible detector<br>capacity | Typical<br>linearity error | Typ. temperature<br>coefficient |
|                      | 0                                                                                                                                                                                                                                                                                | 200.0 µA<br>***) | 3 ms                    | ±0.1 µA ± 0.3%                                          | 2 nF                             | < ±0.5%                    | < ±0.03%/°C                     |
|                      | 1                                                                                                                                                                                                                                                                                | 20.00 µA         | 3 ms                    | ±0.01 µA ± 0.3%                                         | 2 nF                             | < ±0.2%                    | < ±0.03%/°C                     |
|                      | 2                                                                                                                                                                                                                                                                                | 2.000 µA         | 3 ms                    | ±0.001 µA ± 0.3%                                        | 2 nF                             | < ±0.2%                    | < ±0.03%/°C                     |
|                      | 3                                                                                                                                                                                                                                                                                | 200.0 nA         | 3 ms                    | ±0.1 nA ± 0.3%                                          | 10 nF                            | < ±0.2%                    | < ±0.03%/°C                     |
|                      | 4                                                                                                                                                                                                                                                                                | 20.00 nA         | 3 ms                    | ±0.01 nA ± 0.3%                                         | 10 nF                            | < ±0.2%                    | < ±0.03%/°C                     |
|                      | 5                                                                                                                                                                                                                                                                                | 2.000 nA         | 30 ms                   | ±0.001 nA ± 0.4%                                        | 10 nF                            | < ±0.3%                    | < ±0.1%/°C                      |
|                      | 6                                                                                                                                                                                                                                                                                | 200.0 pA         | 30 ms                   | ±0.1 pA ± 0.4%                                          | 10 nF                            | < ±0.6% ****)              | < ±0.3%/°C                      |
|                      | ±Bias current<br>(max.1,0pA) **)                                                                                                                                                                                                                                                 |                  |                         |                                                         |                                  |                            |                                 |
|                      | *) The measurement uncertainty is usually below the calibration uncertainty, but must also be considered. At very low currents, a detailed examination of the measurement uncertainty analysis is recommended, because in this case the measurement uncertainty can predominate. |                  |                         |                                                         |                                  |                            |                                 |
|                      | **) internal zero adjustment can reduce the bias current. Maximum zero adjusted bias current = ±0,2pA.                                                                                                                                                                           |                  |                         |                                                         |                                  |                            |                                 |
|                      | ***) only for instrument versions with 7 measuring ranges                                                                                                                                                                                                                        |                  |                         |                                                         |                                  |                            |                                 |
|                      | ****) valid for currents above 10pA                                                                                                                                                                                                                                              |                  |                         |                                                         |                                  |                            |                                 |
| CW integration time  | 1 ms – 1 s                                                                                                                                                                                                                                                                       |                  |                         |                                                         |                                  |                            |                                 |
| Offset correction    | Correction range transcending                                                                                                                                                                                                                                                    |                  |                         |                                                         |                                  |                            |                                 |
| Parameter adjustment | Remote control or front panel buttons (menu), set values permanently stored (EEPROM)                                                                                                                                                                                             |                  |                         |                                                         |                                  |                            |                                 |
| Calibration          | max. 256 Datasets stored in EEPROM                                                                                                                                                                                                                                               |                  |                         |                                                         |                                  |                            |                                 |

| Menu item          | Submenu item           | Function                                                                |
|--------------------|------------------------|-------------------------------------------------------------------------|
| <b>1. Mode</b>     | <b>CW</b>              | Measures respective of any offset and calibration factors programmed    |
|                    | <b>Dose</b>            | Accumulates the single readings as exposure for measured quantity       |
|                    | <b>CIE Yxy &amp; T</b> | Measures the CIE Color Values Yxy and T                                 |
|                    | <b>CIE Yuv &amp; T</b> | Measures the CIE Color Values Yuv and T                                 |
| <b>2. Setup</b>    | <b>Zero Adjust</b>     | Performs a zero adjustment of the internal amplifier and ADC            |
|                    | <b>Integration</b>     | Sets the measurement (integration) time                                 |
|                    | <b>Dose Time</b>       | Sets max. dose measurement time                                         |
| <b>3. Detector</b> |                        | Selects calibration data to calculate the measurement result            |
| <b>4. Offset</b>   |                        | Performs an automatic offset adjustment ("Offset = CW" or "Offset = 0") |
| <b>5. Range</b>    |                        | Sets the measurement range (auto, manual)                               |

|                      |                                                                                                                                                                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sampling rate        | internal sampling rate ADC 250 $\mu$ s                                                                                                                                                                                                                                             |
| Dose                 | <ul style="list-style-type: none"> <li>The maximum dose to be displayed on the X1-5/1 device is 99999 TJ/cm<sup>2</sup> (for W/cm<sup>2</sup>) or 99999 TJ/m<sup>2</sup> (for W/m<sup>2</sup>)</li> <li>Maximum time to be set for dose measurement: 255h 59min 59s</li> </ul>     |
| <b>Miscellaneous</b> |                                                                                                                                                                                                                                                                                    |
| Power Supply         | Two AA batteries ~ 250 hrs. operation time - backlit display off<br>Powered by USB-Interface                                                                                                                                                                                       |
| Interface            | USB V1.1 (HID Device)                                                                                                                                                                                                                                                              |
| temperature range    | Operating: (5 to 40) °C<br>Storage: (-10 to 50) °C                                                                                                                                                                                                                                 |
| Display              | LCD graphic display 97 x 32 pixel<br>Display area 14.3 mm x 35.8 mm<br>Switchable LED-backlight<br>Text display 4 rows each 14 characters                                                                                                                                          |
| Front panel control  | 3 buttons, menu system                                                                                                                                                                                                                                                             |
| Dimensions           | 145 mm x 63 mm x 30 mm                                                                                                                                                                                                                                                             |
|                      | compatibel                                                                                                                                                                                                                                                                         |
| Weight               | 150 g                                                                                                                                                                                                                                                                              |
| Humidity             | <80%, non-condensing                                                                                                                                                                                                                                                               |
| Info                 | 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 with

| Product Name           | Product Image                                                                       | Description                                                                                                                                                                                                                          | Show product                                                                                                                                            |
|------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| LP-9901                |    | Detector head to measure LASER radiant power in W and LASER irradiance in W/m². Features: Low height detector with 7mm dia active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate. | <a href="https://www.gigahertz-optik.com/en-us/product/lp-9901">https://www.gigahertz-optik.com/en-us/product/lp-9901</a>                               |
| VL-3701                |    | Detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f_1 \leq 3 \%$ , $f_2 \leq 1.5 \%$ , 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate                 | <a href="https://www.gigahertz-optik.com/en-us/product/vl-3701">https://www.gigahertz-optik.com/en-us/product/vl-3701</a>                               |
| VL-3702                |    | Detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f_1 \leq 6 \%$ , $f_2 \leq 3 \%$ , 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate                   | <a href="https://www.gigahertz-optik.com/en-us/product/vl-3702">https://www.gigahertz-optik.com/en-us/product/vl-3702</a>                               |
| VL-3704                |    | Detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f_1 \leq 5 \%$ , $f_2 \leq 3 \%$ , 20pA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate                     | <a href="https://www.gigahertz-optik.com/en-us/product/vl-3704">https://www.gigahertz-optik.com/en-us/product/vl-3704</a>                               |
| VL-3705                |   | Detector head for the measurement of scotopic illuminance in Lux [lx]. Features: $f_1 \leq 5 \%$ , $f_2 \leq 3 \%$ , 0.2nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate                    | <a href="https://www.gigahertz-optik.com/en-us/product/vl-3705">https://www.gigahertz-optik.com/en-us/product/vl-3705</a>                               |
| PD-9310A               |  | High sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f_1 \leq 3 \%$ , 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration certificate                     | <a href="https://www.gigahertz-optik.com/en-us/product/pd-9310a">https://www.gigahertz-optik.com/en-us/product/pd-9310a</a>                             |
| PD-9310B               |  | High sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f_1 \leq 6 \%$ , 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration                                 | <a href="https://www.gigahertz-optik.com/en-us/product/pd-9310b">https://www.gigahertz-optik.com/en-us/product/pd-9310b</a>                             |
| PD-9310B-N             |  | Very high sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: $f_1 \leq 3 \%$ , 28nA/lx, no diffuser, for the usage with optometers and amplifiers, calibration                               | <a href="https://www.gigahertz-optik.com/en-us/product/pd-9310b-n">https://www.gigahertz-optik.com/en-us/product/pd-9310b-n</a>                         |
| VL-3701 with SRT-M37-L |  | Detector head to measure the photopic illuminance in lx and the luminance in cd/m². Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate                    | <a href="https://www.gigahertz-optik.com/en-us/product/vl-3701-with-srt-m37-l">https://www.gigahertz-optik.com/en-us/product/vl-3701-with-srt-m37-l</a> |
| PD-9310 with SRT-M37-L |  | High sensitive detector head to measure the photopic luminance in cd/m². Features: front lense for 1°, 2°, 5° or 10° viewing angle, for the usage with Optometers and amplifiers, calibration certificate                            | <a href="https://www.gigahertz-optik.com/en-us/product/pd-9310-with-srt-m37-l">https://www.gigahertz-optik.com/en-us/product/pd-9310-with-srt-m37-l</a> |

| Product Name                           | Product Image                                                                       | Description                                                                                                                                                                                                                                     | Show product                                                                                                                                          |
|----------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| CT-4501                                |    | RGB detector head for photopic illuminance and luminous color. Features: four sensor design, xy, u'v', CCT, for the usage with X1 and P-9801 Optometer, part of HCT-99D, calibration certificate, for polychromatic light,                      | <a href="https://www.gigahertz-optik.com/en-us/product/ct-4501">https://www.gigahertz-optik.com/en-us/product/ct-4501</a>                             |
| LDM-9810                               |    | 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. | <a href="https://www.gigahertz-optik.com/en-us/product/ldm-9810">https://www.gigahertz-optik.com/en-us/product/ldm-9810</a>                           |
| VL-1101                                |    | 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                                                                        | <a href="https://www.gigahertz-optik.com/en-us/product/vl-1101">https://www.gigahertz-optik.com/en-us/product/vl-1101</a>                             |
| LDM-9901                               |   | Detector head to measure the photopic spot luminance in cd/m <sup>2</sup> . Features: 1.1° viewing angle, simple to use, very low stray light, for the usage with Optometers and amplifiers, calibration certificate.                           | <a href="https://www.gigahertz-optik.com/en-us/product/ldm-9901">https://www.gigahertz-optik.com/en-us/product/ldm-9901</a>                           |
| S-SDK-X20                              |  | Software Development Kit for X20 variants (X1 and HCT99).                                                                                                                                                                                       | <a href="https://www.gigahertz-optik.com/en-us/product/s-sdk-x20">https://www.gigahertz-optik.com/en-us/product/s-sdk-x20</a>                         |
| S-X1                                   |  | Application software for X1 variants.                                                                                                                                                                                                           | <a href="https://www.gigahertz-optik.com/en-us/product/s-x1">https://www.gigahertz-optik.com/en-us/product/s-x1</a>                                   |
| VL-1101 + UMPA-0.5-11-RD Detector head |  | 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                                  | <a href="https://www.gigahertz-optik.com/en-us/product/vl-1101uumpa-05-11-rd">https://www.gigahertz-optik.com/en-us/product/vl-1101uumpa-05-11-rd</a> |
| ISD-5-VL                               |  | Integrating sphere detector for luminous flux (lm) of 2π spot sources. Features: 50mm dia, BaSO <sub>4</sub> coating, 12.5mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate                             | <a href="https://www.gigahertz-optik.com/en-us/product/isd-5-vl">https://www.gigahertz-optik.com/en-us/product/isd-5-vl</a>                           |
| ISD-10-VL                              |  | Integrating sphere detector for luminous flux (lm) of 2π spot sources. Features: 100 mm dia, BaSO <sub>4</sub> coating, 15 mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate                            | <a href="https://www.gigahertz-optik.com/en-us/product/isd-10-vl">https://www.gigahertz-optik.com/en-us/product/isd-10-vl</a>                         |

| Product Name | Product Image                                                                       | Description                                                                                                                                                                                                                      | Show product                                                                                                                    |
|--------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| ISD-15P-VL   |    | Integrating sphere detector for luminous flux (lm) of 2π sources. Features: 150mm dia, synthetic coating, 38.1mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate                          | <a href="https://www.gigahertz-optik.com/en-us/product/isd-15p-vl">https://www.gigahertz-optik.com/en-us/product/isd-15p-vl</a> |
| TD-11VL01    |    | Photometric, temperature stabilized detector with DP-11 mount. Features: for use with integrating spheres, Operation temperature 50 °C, for use with optometers and signal amplifiers                                            | <a href="https://www.gigahertz-optik.com/en-us/product/td-11vl01">https://www.gigahertz-optik.com/en-us/product/td-11vl01</a>   |
| RW-3701      |    | Detector head for the measurement of irradiance in W/m². Features: spectral responsivity from 400-500nm (BLUE), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                     | <a href="https://www.gigahertz-optik.com/en-us/product/rw-3701">https://www.gigahertz-optik.com/en-us/product/rw-3701</a>       |
| RW-3702      |    | Detector head for the measurement of irradiance in W/m². Features: spectral responsivity from 700-800nm (RED), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                      | <a href="https://www.gigahertz-optik.com/en-us/product/rw-3702">https://www.gigahertz-optik.com/en-us/product/rw-3702</a>       |
| RW-3703      |    | Detector head for the measurement of irradiance in W/m². Features: spectral responsivity from 400-800nm (VIS), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                      | <a href="https://www.gigahertz-optik.com/en-us/product/rw-3703">https://www.gigahertz-optik.com/en-us/product/rw-3703</a>       |
| RW-3704      |  | Detector head for the measurement of irradiance in W/m². Features: spectral responsivity from 800-1000nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                     | <a href="https://www.gigahertz-optik.com/en-us/product/rw-3704">https://www.gigahertz-optik.com/en-us/product/rw-3704</a>       |
| RW-3705      |  | Detector head for the measurement of irradiance in W/m². Features: spectral responsivity from 400-1000nm (VISNIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                  | <a href="https://www.gigahertz-optik.com/en-us/product/rw-3705">https://www.gigahertz-optik.com/en-us/product/rw-3705</a>       |
| RW-3708      |  | Detector head for the measurement of irradiance in W/m². Features: spectral responsivity from 950-1700nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                     | <a href="https://www.gigahertz-optik.com/en-us/product/rw-3708">https://www.gigahertz-optik.com/en-us/product/rw-3708</a>       |
| UV-3701      |  | Detector head for the measurement of irradiance of UV radiation in W/m². Features: spectral responsivity from 315-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.     | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3701">https://www.gigahertz-optik.com/en-us/product/uv-3701</a>       |
| UV-3702      |  | Detector head for the measurement of irradiance of UV radiation in W/m². Features: spectral responsivity from 280-315nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.     | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3702">https://www.gigahertz-optik.com/en-us/product/uv-3702</a>       |
| UV-3703      |  | Detector head for the measurement of irradiance of UV radiation in W/m². Features: spectral responsivity from 200/250-280nm (UV-C), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate. | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3703">https://www.gigahertz-optik.com/en-us/product/uv-3703</a>       |



| Product Name       | Product Image                                                                       | Description                                                                                                                                                                                                                                                                       | Show product                                                                                                                        |
|--------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| UV-3710            |    | Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> . Features: spectral responsivity from 320-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                                         | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3710">https://www.gigahertz-optik.com/en-us/product/uv-3710</a>           |
| UV-3711            |    | Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> . Features: spectral responsivity from 280-320nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                                         | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3711">https://www.gigahertz-optik.com/en-us/product/uv-3711</a>           |
| UV-3716            |    | Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> . Features: spectral responsivity from 305-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                                         | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3716">https://www.gigahertz-optik.com/en-us/product/uv-3716</a>           |
| UV-3717            |    | Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> . 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. | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3717">https://www.gigahertz-optik.com/en-us/product/uv-3717</a>           |
| UV-3719            |   | Detector head for the measurement of irradiance of UV radiation in W/m <sup>2</sup> . Features: spectral responsivity from 250-400nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                                           | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3719">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/uv-3720">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/uv-3721">https://www.gigahertz-optik.com/en-us/product/uv-3721</a>           |
| UV-3711-308        |  | Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m <sup>2</sup> . Features: flat spectral responsivity beside 308nm, cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate                            | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3711-308">https://www.gigahertz-optik.com/en-us/product/uv-3711-308</a>   |
| UV-3718            |  | Detector head for the measurement of high irradiance of UV-C 254nm radiation in W/m <sup>2</sup> . Features: pre-aging for long time stability, cosine field-of-view, metal shielded cable, for the usage with optometers and amplifiers, calibration certificate.                | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3718">https://www.gigahertz-optik.com/en-us/product/uv-3718</a>           |
| UV-3725 not active |  | Detector for the measurement of UV-C 254 nm irradiance in air disinfection applications. 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.       | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3725-1">https://www.gigahertz-optik.com/en-us/product/uv-3725-1</a>       |
| ISD-5-VISNIR       |  | Integrating sphere detector for radiant power in W of 2 $\pi$ sources. 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                                             | <a href="https://www.gigahertz-optik.com/en-us/product/isd-5-visnir">https://www.gigahertz-optik.com/en-us/product/isd-5-visnir</a> |



| Product Name | Product Image                                                                       | Description                                                                                                                                                                                                                                                                                       | Show product                                                                                                                        |
|--------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| ISD-3P-Si    |    | Integrating sphere detector for Laser power in W. 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                                                                        | <a href="https://www.gigahertz-optik.com/en-us/product/isd-3p-si">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/uv-3706">https://www.gigahertz-optik.com/en-us/product/uv-3706</a>           |
| UV-3711-308  |    | Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m <sup>2</sup> . Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate                                            | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3711-2">https://www.gigahertz-optik.com/en-us/product/uv-3711-2</a>       |
| UV-3724      |                                                                                     | Detector head for the measurement of UV-B irradiance of TL1 sources in W/m <sup>2</sup> . Features: calibrated with TL1 source, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.                                                                      | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3724">https://www.gigahertz-optik.com/en-us/product/uv-3724</a>           |
| UV-3709      |  | Detector for Blue-light hazard measurements. Features: Single-cell detector, BLH actinic irradiance, for the use with optometer, calibration certificate                                                                                                                                          | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3709">https://www.gigahertz-optik.com/en-us/product/uv-3709</a>           |
| UV-3725      |  | Detector for the measurement of UV-C 254 nm irradiance in air disinfection applications. 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.                       | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3725">https://www.gigahertz-optik.com/en-us/product/uv-3725</a>           |
| ISD-3P-IGA   |  | Integrating sphere detector with InGaAs photodiode and 30 mm sphere for Laser power in W. 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 | <a href="https://www.gigahertz-optik.com/en-us/product/isd-3p-iga-2">https://www.gigahertz-optik.com/en-us/product/isd-3p-iga-2</a> |
| ISD-5-Si     |  | Integrating sphere detector for Laser power in W. 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                                                                   | <a href="https://www.gigahertz-optik.com/en-us/product/isd-5-si">https://www.gigahertz-optik.com/en-us/product/isd-5-si</a>         |

| Product Name | Product Image                                                                       | Description                                                                                                                                                                                                                                                                                              | Show product                                                                                                                  |
|--------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| RCH-102      |    | 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/en-us/product/rch-1">https://www.gigahertz-optik.com/en-us/product/rch-1</a>         |
| RCH-116      |    | Detector head for high intensity UV and BLUE LED sources. Features: Separate light integrator and detector with rigid fiber coupling, (365-440)nm responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.                                               | <a href="https://www.gigahertz-optik.com/en-us/product/rch-2">https://www.gigahertz-optik.com/en-us/product/rch-2</a>         |
| ISD-5P-Si    |    | Integrating sphere detector for Laser power in W. 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                                                                              | <a href="https://www.gigahertz-optik.com/en-us/product/isd-5p-si">https://www.gigahertz-optik.com/en-us/product/isd-5p-si</a> |
| ISD-10-Si    |    | Integrating sphere detector for Laser power in W. Features: 100mm dia, 15mm dia port, BaSO4 coating, 400-1100nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate                                                                                               | <a href="https://www.gigahertz-optik.com/en-us/product/isd-10-si">https://www.gigahertz-optik.com/en-us/product/isd-10-si</a> |
| ISD-15-Si    |    | Integrating sphere detector for Laser power in W. Features: 150mm dia, 38.1mm dia port, BaSO4 coating, 400-1100nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate                                                                                             | <a href="https://www.gigahertz-optik.com/en-us/product/isd-15-si">https://www.gigahertz-optik.com/en-us/product/isd-15-si</a> |
| RCH-006      |   | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, 200-400nm UV-Broadband responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate. | <a href="https://www.gigahertz-optik.com/en-us/product/rch-006">https://www.gigahertz-optik.com/en-us/product/rch-006</a>     |
| RCH-008      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, UVA-Peak responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.               | <a href="https://www.gigahertz-optik.com/en-us/product/rch-008">https://www.gigahertz-optik.com/en-us/product/rch-008</a>     |
| RCH-009      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, BLUE-Peak responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.              | <a href="https://www.gigahertz-optik.com/en-us/product/rch-3">https://www.gigahertz-optik.com/en-us/product/rch-3</a>         |
| RCH-010      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, 240-320nm H-Type responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.       | <a href="https://www.gigahertz-optik.com/en-us/product/rch-4">https://www.gigahertz-optik.com/en-us/product/rch-4</a>         |
| RCH-011      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, 350-400nm D-Type responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.       | <a href="https://www.gigahertz-optik.com/en-us/product/rch-5">https://www.gigahertz-optik.com/en-us/product/rch-5</a>         |
| RCH-012      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, 400-450nm V-Type responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.       | <a href="https://www.gigahertz-optik.com/en-us/product/rch-6">https://www.gigahertz-optik.com/en-us/product/rch-6</a>         |

| Product Name | Product Image                                                                       | Description                                                                                                                                                                                                                                                                                           | Show product                                                                                                                      |
|--------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| RCH-013      |    | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with flexible fiber coupling, light, 305-485nm UVA-VIS responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.   | <a href="https://www.gigahertz-optik.com/en-us/product/rch-7">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/rch-8">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/rch-9">https://www.gigahertz-optik.com/en-us/product/rch-9</a>             |
| RCH-106      |    | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, 200-400nm UV-Broadband responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate. | <a href="https://www.gigahertz-optik.com/en-us/product/rch-10">https://www.gigahertz-optik.com/en-us/product/rch-10</a>           |
| PD-11 series |   | Detector head with DP-11 mount. Features: modular detector for use with integrating spheres, front lenses etc, Si, SiLP, InGaAs, SiC, GaP photodiodes, for use with optometers and signal amplifiers                                                                                                  | <a href="https://www.gigahertz-optik.com/en-us/product/pd-11-serie">https://www.gigahertz-optik.com/en-us/product/pd-11-serie</a> |
| RCH-108      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, UVA-Peak responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.               | <a href="https://www.gigahertz-optik.com/en-us/product/rch-11">https://www.gigahertz-optik.com/en-us/product/rch-11</a>           |
| RCH-109      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, BLUE-Peak responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.              | <a href="https://www.gigahertz-optik.com/en-us/product/rch-12">https://www.gigahertz-optik.com/en-us/product/rch-12</a>           |
| RCH-110      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, 240-320nm H-Type responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.       | <a href="https://www.gigahertz-optik.com/en-us/product/rch-13">https://www.gigahertz-optik.com/en-us/product/rch-13</a>           |
| RCH-111      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, 350-400nm D-Type responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.       | <a href="https://www.gigahertz-optik.com/en-us/product/rch-14">https://www.gigahertz-optik.com/en-us/product/rch-14</a>           |
| RCH-112      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, 400-450nm V-Type responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.       | <a href="https://www.gigahertz-optik.com/en-us/product/rch-15">https://www.gigahertz-optik.com/en-us/product/rch-15</a>           |
| RCH-113      |  | Detector head for high intensity irradiation in UV or blue light curing processes. Features: Separate light integrator and detector with rigid fiber coupling, light, 305-485nm UVA-VIS responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.      | <a href="https://www.gigahertz-optik.com/en-us/product/rch-16">https://www.gigahertz-optik.com/en-us/product/rch-16</a>           |

| Product Name | Product Image                                                                       | Description                                                                                                                                                                                                                                                                                    | Show product                                                                                                              |
|--------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 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/en-us/product/rch-17">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/rch-18">https://www.gigahertz-optik.com/en-us/product/rch-18</a>   |
| XD-9501      |    | UV-A and UV-B detector head for use in phototherapy. Features: two detectors, calibration with UV-broadband and 311nm monochromatic source, for use with X1 type optometers, calibration certificate.                                                                                          | <a href="https://www.gigahertz-optik.com/en-us/product/xd-9501">https://www.gigahertz-optik.com/en-us/product/xd-9501</a> |
| XD-9503      |    | UV-A and UV-B detector head for use in phototherapy. Features: two detectors, calibration with UV-broadband, TL1 and TL12 sources, for use with X1 type optometers, calibration certificate.                                                                                                   | <a href="https://www.gigahertz-optik.com/en-us/product/xd-9503">https://www.gigahertz-optik.com/en-us/product/xd-9503</a> |
| XD-9506      |   | Detector head for use in UV photobiological hazard measurements. Features: UV-A and UV-BC actinic ICNIRP irradiance, for use with X1 type optometers, DIN EN 14255 and BGV B9.                                                                                                                 | <a href="https://www.gigahertz-optik.com/en-us/product/xd-9506">https://www.gigahertz-optik.com/en-us/product/xd-9506</a> |
| XD-9509      |  | Detector head for use in UV radiation protection measurements. Features: UV-A and UV-BC actinic ERYTHEMA irradiance, for use with X1 type optometers, calibration certificate.                                                                                                                 | <a href="https://www.gigahertz-optik.com/en-us/product/xd-9509">https://www.gigahertz-optik.com/en-us/product/xd-9509</a> |
| XD-9510      |  | Detector head for use in UV radiation protection measurements. Features: UV-A and UV-BC actinic ICNIRP irradiance, for use with X1 type optometers, DIN EN 12198.                                                                                                                              | <a href="https://www.gigahertz-optik.com/en-us/product/xd-9510">https://www.gigahertz-optik.com/en-us/product/xd-9510</a> |
| XD-9502      |  | UV-A and illuminance detector head for drug stability and NDT white light contrast measurements. Features: UV-A irradiance, Illuminance, for use with X1 type optometers, calibration certificate.                                                                                             | <a href="https://www.gigahertz-optik.com/en-us/product/xd-9502">https://www.gigahertz-optik.com/en-us/product/xd-9502</a> |
| PS-3701      |  | Detector head for plant growth. Features: 400-700nm PAR actinic irradiance, cosine field-of-view, for use with optometers, calibration certificate.                                                                                                                                            | <a href="https://www.gigahertz-optik.com/en-us/product/ps-3701">https://www.gigahertz-optik.com/en-us/product/ps-3701</a> |
| PS-3702      |  | Detector head for plant growth. Features: 320-500nm phototropism actinic irradiance, for use with optometers, calibration certificate.                                                                                                                                                         | <a href="https://www.gigahertz-optik.com/en-us/product/ps-3702">https://www.gigahertz-optik.com/en-us/product/ps-3702</a> |

| Product Name            | Product Image                                                                       | Description                                                                                                                                                                                                                                                                                               | Show product                                                                                                                                    |
|-------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| PS-3703                 |    | Detector head for plant growth. Features: 590-900nm photomorphogenesis actinic irradiance, for use with optometers, calibration certificate.                                                                                                                                                              | <a href="https://www.gigahertz-optik.com/en-us/product/ps-3703">https://www.gigahertz-optik.com/en-us/product/ps-3703</a>                       |
| TP-4501                 |    | Detector head for plant growth. Features: PAR, phototropism and photomorphogenesis actinic irradiance, illuminance, for use with X1 optometers, calibration certificate.                                                                                                                                  | <a href="https://www.gigahertz-optik.com/en-us/product/tp-4501">https://www.gigahertz-optik.com/en-us/product/tp-4501</a>                       |
| RW-37 with SRT-M37-L    |    | Detector heads to measure the irradiance in $W/m^2$ and the radiance in $W/(m^2 \cdot sr)$ . Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate                                                                                | <a href="https://www.gigahertz-optik.com/en-us/product/rw-37usrt-m37-l">https://www.gigahertz-optik.com/en-us/product/rw-37usrt-m37-l</a>       |
| RCH-002                 |    | 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/en-us/product/rch-002">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/rch-005">https://www.gigahertz-optik.com/en-us/product/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/en-us/product/k-xx-c">https://www.gigahertz-optik.com/en-us/product/k-xx-c</a>                         |
| ISD-5P-SiUV             |  | Integrating sphere detector with UV-enhanced Si photodiode and 50 mm sphere for Laser power in W 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 | <a href="https://www.gigahertz-optik.com/en-us/product/isd-5p-siuv-2">https://www.gigahertz-optik.com/en-us/product/isd-5p-siuv-2</a>           |
| UV-37 with SRT-M37-L-UV |  | Detector heads to measure the UV irradiance in $W/m^2$ and the UV-radiance in $W/(m^2 \cdot sr)$ . Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate                                                                          | <a href="https://www.gigahertz-optik.com/en-us/product/uv-37usrt-m37-l-uv">https://www.gigahertz-optik.com/en-us/product/uv-37usrt-m37-l-uv</a> |
| RCH-0                   |  | Detector head for high intensity irradiation as in UV or blue light curing processes. 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.    | <a href="https://www.gigahertz-optik.com/en-us/product/rch-0">https://www.gigahertz-optik.com/en-us/product/rch-0</a>                           |
| UV-3726                 |  | UV detector for UV-C LEDs and low-pressure Hg germicidal lamps Features: UV LED (260-290nm) and Hg lamp (254nm) calibration factors , cosine field-of-view, for the use with optometers and amplifiers, calibration certificate.                                                                          | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3726">https://www.gigahertz-optik.com/en-us/product/uv-3726</a>                       |
| RCH-xxx Series          |  | UV detectors for measuring the irradiance in UV curing                                                                                                                                                                                                                                                    | <a href="https://www.gigahertz-optik.com/en-us/product/rch-xxx-series">https://www.gigahertz-optik.com/en-us/product/rch-xxx-series</a>         |



| Product Name   | Product Image                                                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Show product                                                                                                                            |
|----------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| UV-3727        |  | UV detector for germicidal lamps. Calibration factors for excimer lamps at 222nm, UV LEDs from 250 nm to 300 nm and low pressure Hg lamps at 254nm.                                                                                                                                                                                                                                                                                                                                                                                                                                    | <a href="https://www.gigahertz-optik.com/en-us/product/uv-3727">https://www.gigahertz-optik.com/en-us/product/uv-3727</a>               |
| ISD-5P-IGA     |  | Integrating sphere detector with InGaAs photodiode and 50 mm sphere for Laser power in W. 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                                                                                                                                                                                                                                                                                     | <a href="https://www.gigahertz-optik.com/en-us/product/isd-5p-iga-2">https://www.gigahertz-optik.com/en-us/product/isd-5p-iga-2</a>     |
| LCR-20         |  | Light-reflection hand-held meter for flat samples. Features: Fast and precise because of monitor detector and UV LED based light source.                                                                                                                                                                                                                                                                                                                                                                                                                                               | <a href="https://www.gigahertz-optik.com/en-us/product/lcr-20">https://www.gigahertz-optik.com/en-us/product/lcr-20</a>                 |
| MDC4-UV-Blue   |  | Smart integral detector for UV to Blue LEDs with wavelength detection. Features: Easiest to use integral detector due to automatic wavelength detection (centroid wavelength), UV, Blue and part of VIS wavelength range, cos response, etc.                                                                                                                                                                                                                                                                                                                                           | <a href="https://www.gigahertz-optik.com/en-us/product/mdc4-uv-blue">https://www.gigahertz-optik.com/en-us/product/mdc4-uv-blue</a>     |
| ISS-28P-Xe-V01 |  | Integrating sphere light source with very high light output. Sun-like spectrum (AM1.5) in the range from 300 nm to approx. 700 nm. 8 times the integral radiance compared to the solar spectrum AM1.5. Features: Light exit port with 3 inch heavy load port frame with 4xM4 threaded bolts with associated port plug. Lamp LS-OS-Xe-V01 with stepless manual, spectrally neutral intensity control. Integral monitor detector for relative intensity monitoring. Calibration of the output in spectral radiance. Determination of the calibration factor in luminance for monitoring. | <a href="https://www.gigahertz-optik.com/en-us/product/iss-28p-xe-v01">https://www.gigahertz-optik.com/en-us/product/iss-28p-xe-v01</a> |

## Purchasing information

| Article-Nr            | Modell          | Description                                                                                                                                                            |
|-----------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product</b>        |                 |                                                                                                                                                                        |
| 15298890              | X1-1            | Meter, 2 x 1.5 V AA batteries, cable, manual                                                                                                                           |
| 15311738              | X1-1-V03        | Optometer, 2 x 1.5 V AA batteries, cable, manual. For detector head UV-3718-4                                                                                          |
| 15309641              | X1-1-V02        | Optometer, 2 x 1.5 V AA batteries, cable, manual. For detector head UV-3726-4                                                                                          |
| 15312065              | X1-5            | Optometer, 2 x 1.5 V AA batteries, cable, manual. For use with -5 detectors.                                                                                           |
| <b>Re-calibration</b> |                 |                                                                                                                                                                        |
| 15300671              | K-X11-C         | Current calibration at all amplification levels. DIN EN ISO/IEC 17025 DAkkS Test Certificate in combination with different detector heads can be requested optionally. |
| <b>Options</b>        |                 |                                                                                                                                                                        |
|                       | Light Detectors | Please check the light detector datasheets for specification and purchasing information or see tab configurable with.                                                  |

| Article-Nr         | Modell    | Description                                                                                                                                                 |
|--------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Software</b>    |           |                                                                                                                                                             |
| 15298071           | S-SDK-X20 | For software implementation of the X20 optometer board or X1 device into custome made software. Supply of .dll's and LabView VI's for device communication. |
| 15298167           | S-X1      | User software for the X1                                                                                                                                    |
| <b>Accessories</b> |           |                                                                                                                                                             |
| 15296381           | X1-Z02    | Adapter cable (2m) to connect light detectors with BNC (-1) connector to the -4                                                                             |
| 15296387           | X1-Z03    | Adapter to connect up to four detectors with BNC connector to X1                                                                                            |
| 15297973           | X1-Z04    | Adapter cable 12 inch with ITT (-4) connector for X1. Al box with -4 socket                                                                                 |
| 15298036           | X1-Z05    | Adapter cable to connect light detectors with -2 calibration data connector to the ITT (-4) socket of the optometer X1 1. Cable length 0.2 m.               |
| 15295292           | BHO-04    | Hard case for meter and accessories                                                                                                                         |
| 15295239           | BHO-05    | Hard case for meter and accessories                                                                                                                         |
| 100441             | BHO-06    | Hard case for meter and accessories                                                                                                                         |
| 15297539           | BHO-11    | Hard case for meter and accessories                                                                                                                         |
| 15298236           | BHO-15    | Hard case for meter and accessories                                                                                                                         |