

X1

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

Product tags: Multi-Channel



Description

Hand-held Meter

The X1 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 X1 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.



X1 □ Hand-held meter

Simple to Use

Operating the X1 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 X1 is operated with two standard 1.5 V AA batteries. In remote control operation the X1 is powered through the USB interface.

Four-channel Meter

The unique feature of the X1 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 X1 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 X1 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 channels 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 responsivity and calibration.
typical applications	Measurement device for mobile use: measurement of the illuminance condition, measurement of lamp aging, etc. Because of its 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 measurement 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 max.	Slew-Rate (10 - 90)%	Resolution ± calibration uncertainty *) (at 24 °C)
0	200.0 µA ***)	3 ms	±0.1 µA ± 0.3%
1	20.00 µA	3 ms	±0.01 µA ± 0.3%
2	2.000 µA	3 ms	±0.001 µA ± 0.3%
3	200.0 nA	3 ms	±0.1 nA ± 0.3%
4	20.00 nA	3 ms	±0.01 nA ± 0.3%
5	2.000 nA	30 ms	±0.001 nA ± 0.4%

6	200.0 pA	30 ms	$\pm 0.1 \text{ pA} \pm 0.4\%$ $\pm \text{Bias current (max. 1,0pA)}$ **
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*) 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 = $\pm 0,2\text{pA}$.







****) 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	X1-1: max. 256 data sets (one data set can include up to 4 channel entries) total stored in device EEPROM X1-5: max. 64 entries for one channel stored in detector EEPROM		
Menu guide	Menu item	Submenu item	Function
	1. Mode	CW	Measures respective of any offset and calibration factors programmed
		Dose	Accumulates the single readings as exposure for measured quantity
		CIE Yxy & T	Measures the CIE Color Values Yxy and T
		CIE Yuv & T	Measures the CIE Color Values Yuv and T
	2. Setup	Zero Adjust	Performs a zero adjustment of the internal amplifier and ADC
		Integration	Sets the measurement (integration) time
		Dose Time	Sets max. dose measurement time
	3. Detector		Selects calibration data to calculate the measurement result
	4. Offset		Performs an automatic offset adjustment ("Offset = CW" or "Offset = 0")
	5. Range		Sets the measurement range (auto, manual)
sampling rate	internal sampling rate ADC 250 μs		
Dose	<ul style="list-style-type: none"> The maximum dose to be displayed on the X1-5/1 device is 99999 TJ/cm² (for W/cm²) or 99999 TJ/m² (for W/m²) Maximum time to be set for dose measurement: 255h 59min 59s 		
Miscellaneous			
Power Supply	Two AA batteries ~ 250 hrs. operation time - backlit display off Powered by USB-Interface		
Interface	USB V1.1 (HID Device)		
temperature range	Operating: (5 to 40) °C Storage: (-10 to 50) °C		












Display	LCD graphic display 97 x 32 pixel Display area 14.3 mm x 35.8 mm Switchable LED-backlight 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	Go to product
LP-9901		Detector head to measure LASER radiant power in W and LASER irradiance in W/m ² . Features: Low height detector with 7mm dia active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/lp-9901/
VL-3701		Detector head for the measurement of photopic illuminance in Lux [lx]. Features: f1 ≤ 3 %, f2 ≤ 1.5 %, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.com/en-us/product/vl-3701/
VL-3702		Detector head for the measurement of photopic illuminance in Lux [lx]. Features: f1 ≤ 6 %, f2 ≤ 3 %, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.com/en-us/product/vl-3702/
VL-3704		Detector head for the measurement of photopic illuminance in Lux [lx]. Features: f1 ≤ 5 %, f2 ≤ 3 %, 20pA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.com/en-us/product/vl-3704/
VL-3705		Detector head for the measurement of scotopic illuminance in Lux [lx]. Features: f1 ≤ 5 %, f2 ≤ 3 %, 0.2nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.com/en-us/product/vl-3705/
PD-9310A		High sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: f1 ≤ 3 %, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.com/en-us/product/pd-9310a/










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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	https://www.gigahertz-optik.com/en-us/product/pd-9310b/
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	https://www.gigahertz-optik.com/en-us/product/pd-9310b-n/
VL-3701 with SRT-M37-L		Detector head to measure the photopic illuminance in lx and the luminance in cd/m^2 . Features: front lenses with 1° , 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.com/en-us/product/vl-3701-with-srt-m37-l/
PD-9310 with SRT-M37-L		High sensitive detector head to measure the photopic luminance in cd/m^2 . Features: front lens for 1° , 2° , 5° or 10° viewing angle, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.com/en-us/product/pd-9310-with-srt-m37-l/
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,	https://www.gigahertz-optik.com/en-us/product/ct-4501/
LDM-9810		Detector head to measure the photopic spot luminance in cd/m^2 . Features: selectable $20'$, 1° and 6° viewing angles, view finder, focus able achromatic lens, for the usage with Optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/lDM-9810/
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	https://www.gigahertz-optik.com/en-us/product/vl-1101/
LDM-9901		Detector head to measure the photopic spot luminance in cd/m^2 . Features: 1.1° viewing angle, simple to use, very low stray light, for the usage with Optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/lDM-9901/
S-SDK-X20		Software Development Kit for X20 variants (X1 and HCT99).	https://www.gigahertz-optik.com/en-us/product/s-sdk-x20/
S-X1		Application software for X1 variants.	https://www.gigahertz-optik.com/en-us/product/s-x1/











Product Name	Product Image	Description	Go to product
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	https://www.gigahertz-optik.com/en-us/product/vl-1101uumpa-05-11-rd/
ISD-5-VL		Integrating sphere detector for luminous flux (lm) of 2π spot sources. Features: 50mm dia, BaSO ₄ coating, 12.5mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate	https://www.gigahertz-optik.com/en-us/product/isd-5-vl/
ISD-10-VL		Integrating sphere detector for luminous flux (lm) of 2π spot sources. Features: 100 mm dia, BaSO ₄ coating, 15 mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate	https://www.gigahertz-optik.com/en-us/product/isd-10-vl/
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	https://www.gigahertz-optik.com/en-us/product/isd-15p-vl/
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	https://www.gigahertz-optik.com/en-us/product/td-11vl01/
RW-3701		Detector head for the measurement of irradiance in W/m ² . Features: spectral responsivity from 400-500nm (BLUE), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rw-3701/
RW-3702		Detector head for the measurement of irradiance in W/m ² . Features: spectral responsivity from 700-800nm (RED), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rw-3702/
RW-3703		Detector head for the measurement of irradiance in W/m ² . Features: spectral responsivity from 400-800nm (VIS), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rw-3703/
RW-3704		Detector head for the measurement of irradiance in W/m ² . Features: spectral responsivity from 800-1000nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rw-3704/
RW-3705		Detector head for the measurement of irradiance in W/m ² . Features: spectral responsivity from 400-1000nm (VISNIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rw-3705/

Product Name	Product Image	Description	Go to product
RW-3708		Detector head for the measurement of irradiance in W/m ² . Features: spectral responsivity from 950-1700nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rw-3708/
UV-3701		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 315-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3701/
UV-3702		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 280-315nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3702/
UV-3703		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 200/250-280nm (UV-C), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3703/
UV-3710		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 320-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3710/
UV-3711		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 280-320nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3711/
UV-3716		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 305-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3716/
UV-3717		Detector head for the measurement of irradiance of UV radiation in W/m ² . 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.	https://www.gigahertz-optik.com/en-us/product/uv-3717/
UV-3719		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 250-400nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3719/
UV-3720		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 240-320nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3720/
UV-3721		Detector head for the measurement of irradiance of UV radiation in W/m ² . Features: spectral responsivity from 350-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3721/


Product Name	Product Image	Description	Go to product
UV-3711-308		Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m ² . Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate	https://www.gigahertz-optik.com/en-us/product/uv-3711-308/
UV-3718		Detector head for the measurement of high irradiance of UV-C 254nm radiation in W/m ² . Features: pre-aging for long time stability, cosine field-of-view, metal shielded cable, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3718/
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.	https://www.gigahertz-optik.com/en-us/product/uv-3725-1/
ISD-5-VISNIR		Integrating sphere detector for radiant power in W of 2π 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	https://www.gigahertz-optik.com/en-us/product/isd-5-visnir/
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	https://www.gigahertz-optik.com/en-us/product/isd-3p-si/
UV-3706		Detector head to measure irradiance W/m ² in Bilirubin phototherapy. Features: Bilirubin actinic responsivity, cosine field-of-view, for use with optometers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/uv-3706/
UV-3711-308		Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m ² . Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate	https://www.gigahertz-optik.com/en-us/product/uv-3711-2/
UV-3709		Detector for Blue-light hazard measurements. Features: Single-cell detector, BLH actinic irradiance, for the use with optometer, calibration certificate	https://www.gigahertz-optik.com/en-us/product/uv-3709/
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.	https://www.gigahertz-optik.com/en-us/product/uv-3725/

Product Name	Product Image	Description	Go to product
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	https://www.gigahertz-optik.com/en-us/product/isd-3p-iga-2/
ISD-5-Si		Integrating sphere detector for Laser power in W. Features: 50 mm dia, 12.5 mm dia port, BaSO4 coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate	https://www.gigahertz-optik.com/en-us/product/isd-5-si/
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.	https://www.gigahertz-optik.com/en-us/product/rch-1/
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.	https://www.gigahertz-optik.com/en-us/product/rch-2/
ISD-5P-Si		Integrating sphere detector for Laser power in W	https://www.gigahertz-optik.com/en-us/product/isd-5p-si/
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	https://www.gigahertz-optik.com/en-us/product/isd-10-si/
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	https://www.gigahertz-optik.com/en-us/product/isd-15-si/
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, (250 - 400) nm UV-Broadband responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rch-006/
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.	https://www.gigahertz-optik.com/en-us/product/rch-008/
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.	https://www.gigahertz-optik.com/en-us/product/rch-3/

Product Name	Product Image	Description	Go to product
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.	https://www.gigahertz-optik.com/en-us/product/rch-4/
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, (350-400) nm D-Type responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/rch-5/
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.	https://www.gigahertz-optik.com/en-us/product/rch-6/
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.	https://www.gigahertz-optik.com/en-us/product/rch-7/
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.	https://www.gigahertz-optik.com/en-us/product/rch-8/
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.	https://www.gigahertz-optik.com/en-us/product/rch-9/
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.	https://www.gigahertz-optik.com/en-us/product/rch-10/
PD-11 Series		Detector head with DP-11 mount	https://www.gigahertz-optik.com/en-us/product/pd-11-serie/
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.	https://www.gigahertz-optik.com/en-us/product/rch-11/
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.	https://www.gigahertz-optik.com/en-us/product/rch-12/

Product Name	Product Image	Description	Go to product
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.	https://www.gigahertz-optik.com/en-us/product/rch-13/
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.	https://www.gigahertz-optik.com/en-us/product/rch-14/
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.	https://www.gigahertz-optik.com/en-us/product/rch-15/
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.	https://www.gigahertz-optik.com/en-us/product/rch-16/
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.	https://www.gigahertz-optik.com/en-us/product/rch-17/
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.	https://www.gigahertz-optik.com/en-us/product/rch-18/
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.	https://www.gigahertz-optik.com/en-us/product/xd-9501/
XD-9503		UV-A and UV-B Detector Head for use in Phototherapy	https://www.gigahertz-optik.com/en-us/product/xd-9503/
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.	https://www.gigahertz-optik.com/en-us/product/xd-9506/
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.	https://www.gigahertz-optik.com/en-us/product/xd-9509/

Product Name	Product Image	Description	Go to product
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.	https://www.gigahertz-optik.com/en-us/product/xd-9510/
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.	https://www.gigahertz-optik.com/en-us/product/xd-9502/
PS-3701		Detector head for plant growth. Features: 400-700nm PAR actinic irradiance, cosine field-of-view, for use with optometers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/ps-3701/
PS-3702		Detector head for plant growth. Features: 320-500nm phototropism actinic irradiance, for use with optometers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/ps-3702/
PS-3703		Detector head for plant growth. Features: 590-900nm photomorphogenesis actinic irradiance, for use with optometers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/ps-3703/
TP-4501		Detector head for plant growth. Features: PAR, phototropism and photomorphogenesis actinic irradiance, illuminance, for use with X1 optometers, calibration certificate.	https://www.gigahertz-optik.com/en-us/product/tp-4501/
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	https://www.gigahertz-optik.com/en-us/product/rw-37usrt-m37-l/
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.	https://www.gigahertz-optik.com/en-us/product/rch-002/
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.	https://www.gigahertz-optik.com/en-us/product/rch-005/
K-xx-C		Calibration of the signal current sensitivity of optometers. Features: calibration of all gain stages, traceable calibrated current source, calibration certificate	https://www.gigahertz-optik.com/en-us/product/k-xx-c/
ISD-5P-SiUV		Integrating sphere detector with UV-enhanced Si photodiode and 50 mm sphere for Laser power in W	https://www.gigahertz-optik.com/en-us/product/isd-5p-siuv-2/

Product Name	Product Image	Description	Go to product
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	https://www.gigahertz-optik.com/en-us/product/uv-37usrt-m37-l-uv/
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.	https://www.gigahertz-optik.com/en-us/product/rch-0/
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.	https://www.gigahertz-optik.com/en-us/product/uv-3726/
RCH-xxx Series		UV detectors for measuring the irradiance in UV curing	https://www.gigahertz-optik.com/en-us/product/rch-xxx-series/
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.	https://www.gigahertz-optik.com/en-us/product/uv-3727/
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	https://www.gigahertz-optik.com/en-us/product/isd-5p-iga-2/
LCR-20		Light-reflection hand-held meter for flat samples	https://www.gigahertz-optik.com/en-us/product/lcr-20/
MDC4-UV-Blue		Smart integral detector for UV to Blue LEDs with wavelength detection	https://www.gigahertz-optik.com/en-us/product/mdc4-uv-blue/
ISS-28P-Xe-V01		Integrating sphere light source with very high light output (sun-like spectra)	https://www.gigahertz-optik.com/en-us/product/iss-28p-xe-v01/
PRW-0505		Integrating sphere detector for radiant power in W of 2π spot sources. Features: 400 - 1100 nm radiometric responsivity, 50 mm dia integrating sphere, 12.5 mm dia measurement port, for the usage with optometers and signal amplifiers, Calibration certificate	https://www.gigahertz-optik.com/en-us/product/prw-0505/

Purchasing information

Article-Nr	Modell	Description
Product		
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.
Re-calibration		
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.
Options		
	Light Detectors	Please check the light detector datasheets for specification and purchasing information or see tab configurable with.
Software		
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
Accessories		
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