X1

https://www.gigahertz-optik.de/en-us/product/X1

Product tags: Multi-Channel , Broadband-meter

Description

versatile hand-held optometer

X1 Hand-held meter

Hand-held Meter

The $X1_1$ 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 $X1_1$ 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.

Simple to Use

Operating the $X1_1$ 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 $X1_1$ is operated with two standard 1.5 V AA batteries. In remote control operation the $X1_1$ is powered through the USB interface.

Four-channel Meter

The unique feature of the $X1_1$ 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 $X1_1$ 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 $X1_1$ 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 chanels in multiplex operation for use with single and multi-chanel detectors heads. Back illuminated Display with four lines. Battery powered with two AA cells. USB-Interface. User Software and Software development kit available.
Range of measurement	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
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 information	max. 256 Datasets stored in 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 **Meas. Mode** / Selects measurement mode (DC, Chopper, Pulse Synchronisation, Peak-Peak) **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)
Miscellaneous	
Size	145 mm x 63 mm x 30 mm
Weight	150 g

Remote interface	USB V1.1 (HID Device)
Temperature	Operating: 5 to 40°C Storage: -10 to 50° C
Power	Two AA batteries ~ 250 hrs. operation time - backlit display off Powered by USB-Interface
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
CE conformity	compatibel
RoHS	compatible

Configurable with

Produktname	Product Image	Description	Show product
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.de/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.de/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.de/en-us/product/VL-3704
VL-3705		Detector head for the measurement of scotopic illuminance in Lux [lx]. Features: f1 ≤ 3 %, f2 ≤ 1.5 %, 0.2nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.de/en-us/product/VL-3705

Produktname	Product Image	Description	Show product
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.de/en-us/product/PD-9310A
PD-9310B		High sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: f1 ≤ 6 %, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration	https://www.gigahertz-optik.de/en-us/product/PD-9310B
PD-9310B-N		Very high sensitive detector head for the measurement of photopic illuminance in Lux [lx]. Features: f1 ≤ 3 %, 28nA/lx, no diffuser, for the usage with optometers and amplifiers, calibration	https://www.gigahertz-optik.de/en-us/product/PD-9310B-N
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.de/en-us/product/VL-1101uUMPA-05-11-RD
VL-6001		Very high sensitive illuminance detector head for spotlamps. Features: Large diameter lens zur Erhöhung der Empfindlichkeit, for the usage with optometers and amplifiers, calibration	https://www.gigahertz-optik.de/en-us/product/VL-6001
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	https://www.gigahertz-optik.de/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/m². Features: front lense for 1°, 2°, 5° or 10° viewing angle, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.de/en-us/product/PD-9310 with SRT-M37-L
VL-1101		Photometric detector head with DP-11 mount. Features: modular detector for use with integrating spheres, front lenses etc. For use with optometers and signal amplifiers	https://www.gigahertz-optik.de/en-us/product/VL-1101

Produktname	Product Image	Description	Show product
VL-1101 module light detectors with photometric V(λ) responsivity		Photometric detector head with DP-11 mount. Features: modular detector for use with integrating spheres, front lenses etc. For use with optometers and signal amplifiers	https://www.gigahertz-optik.de/en-us/product/VL-1101 -2
PD-9304		Universal detector head for LASER power, illuminance and 400-1100 nm iiradiance. Features: Si-photodiode with 1 cm², exchange able filters and cosine diffuor, for the usage with optometers and signal amplifiers	https://www.gigahertz-optik.de/en-us/product/PD-9304
PD-9310A		PD-9310A measurement head with GB-GD-360 photogoniometer for measurement of the luminous intensity distribution of 2π spot lamps and LEDs. Goniometer bench with adjustable measurement distance of up to 2000 mm. PD-9310A photometric detector corresponding to the DIN 5032 quality class A. Calibration certificate conformng to the ISO 17025 specifications. For use with all optometers and signal amplifiers from Gigahertz-Optik GmbH.	https://www.gigahertz-optik.de/en-us/product/PD-9310A-2
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.	https://www.gigahertz-optik.de/en-us/product/RW-3701
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.	https://www.gigahertz-optik.de/en-us/product/RW-3702
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.	https://www.gigahertz-optik.de/en-us/product/RW-3703
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.	https://www.gigahertz-optik.de/en-us/product/RW-3704
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.	https://www.gigahertz-optik.de/en-us/product/RW-3705

Produktname	Product Image	Description	Show product
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.	https://www.gigahertz-optik.de/en-us/product/RW-3708
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.	https://www.gigahertz-optik.de/en-us/product/UV-3701
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.	https://www.gigahertz-optik.de/en-us/product/UV-3702
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.	https://www.gigahertz-optik.de/en-us/product/UV-3703
UV-3710		Detector head for the measurement of irradiance of UV radiation in W/m². 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.de/en-us/product/UV-3710
UV-3711		Detector head for the measurement of irradiance of UV radiation in W/m². 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.de/en-us/product/UV-3711
UV-3716		Detector head for the measurement of irradiance of UV radiation in W/m². 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.de/en-us/product/UV-3716
UV-3717		Detector head for the measurement of irradiance of UV radiation in W/m². 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.de/en-us/product/UV-3717

Produktname	Product Image	Description	Show product
UV-3719		Detector head for the measurement of irradiance of UV radiation in W/m². Features: spectral responsivity from 250-400nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.de/en-us/product/UV-3719
UV-3720		Detector head for the measurement of irradiance of UV radiation in W/m². Features: spectral responsivity from 240-320nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.de/en-us/product/UV-3720
UV-3721		Detector head for the measurement of irradiance of UV radiation in W/m². 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.de/en-us/product/UV-3721
UV-3711-308		Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m². Features: flat spectral responsivity besite 308nm. cosine field-of-view, dose measurement in conjuntion with P-9710-2 optometer, calibration certificate	https://www.gigahertz-optik.de/en-us/product/UV-3711-308
UV-3718		Detector head for the measurement of high irradiance of UV-C 254nm radiation in W/m². 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.de/en-us/product/UV-3718
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.de/en-us/product/UV-3725-1
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.de/en-us/product/RCH-0
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.de/en-us/product/RCH-1

Produktname	Product Image	Description	Show product
PD-9304		Detector head to measure low intensity LASER radiant power in W. Features: 11.28mm dia (1cm²) active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate.	https://www.gigahertz-optik.de/en-us/product/PD-2
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	https://www.gigahertz-optik.de/en-us/product/PD-11-Serie
UV-3706		Detector head to measure irradiance W/m2 in Bilirubin phototherapy. Features: Bilirubin actinic responsivity, cosine field-of-view, for usewith optometers, calibration certificate.	https://www.gigahertz-optik.de/en-us/product/UV-3706
UV-3711-308		Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m². Features: flat spectral responsivity besite 308nm. cosine field-of-view, dose measurement in conjuntion with P-9710-2 optometer, calibration certificate	https://www.gigahertz-optik.de/en-us/product/UV-3711-2
UV-3724		Detector head for the measurement of UV-B irradiance of TL1 sources in W/m². Features: calibrated with TL1 source, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.	https://www.gigahertz-optik.de/en-us/product/UV-3724
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.de/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.de/en-us/product/UV-3725
RW-37 with SRT-M37-L		Detector heads to measure the irradiance in W/m² and the radiance in W/(m²*sr). Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate	https://www.gigahertz-optik.de/en-us/product/RW-37uSRT-M37-L
S-SDK-X20		Software Development Kit for X20 variants (X1 and HCT99).	https://www.gigahertz-optik.de/en-us/product/S-SDK-X20

Produktname	Product Image	Description	Show product
S-X1		Application software for X1 variants.	https://www.gigahertz-optik.de/en-us/product/S-X1

Purchasing information

Article-Nr	Modell	Description
	Product	
15298890	X1-1	Meter, 2 x 1.5 V AA batteries, cable, manual
	X1-2	Device is discontinued.
	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