

TR-9600

<https://www.gigahertz-optik.de/en-us/product/TR-9600>

Product tags: Dosimeter



Description

High Speed Digital Data Sampler for Light Pulse Form Analysis

The TR-9600 optometers are designed for pulse locus analysis of frequency modulated and single pulse flashing light sources.

Complete Analysis of Pulse Form and Pulse Data

- pulse locus shape
- peak power in absolute light measurement units
- pulse width and pulse half width
- single pulse energy
- pulse repetition rate

100 ns or 1 µs rise time amplifier

The TR-9600 analog signal amplifier offers a rise time of 1 µs (TR-9600-1) or 100 ns (TR-9600-2*). The gain of the current to voltage amplifier is in ten steps for best adjustable signal to noise ratio.

10 mega sample / second ADC

A high speed analog to digital converter (ADC) digitizes the analog signal with up to a 10Msample/s sample rate for high time resolution measurements. Its 12 Bit resolution is higher than that 8Bit of typical digital oscilloscopes.

High-speed transient recorder with 100 ns sampling rate and pre-trigger function

The digital data is stored in a high-speed storage medium which is designed as transient recorder allowing a sampling rate of up to 10 Mega samples per second or one sample every 100 ns. The pre-trigger function of the transient recorder enables measurement data to be stored before the triggered event. Two million of samples can be stored in memory.

Remote operation via RS232 or IEEE488 and trigger I/O interface

The unit is capable of remote control operation via RS232 and IEEE488 interface. BNC connectors are available for trigger signal input and output or for use with external devices with TTL signal capability.

Software

Windows based software is supplied with the TR-9600 which provides all necessary functions to do remote control pulse-shape measurements and analysis via RS232 or IEEE488 interface.

Measurement Range Specifications with Light Detectors

The measurement range of the TR-9600 optometer combined with light detector is calculated by the measurement range specification of the optometer and the responsivity of the detector head as follows:

Example: Irradiance detector with typical responsivity of 3 nA/(W/cm²):

- Maximal measurable irradiance (Range 0): $2 \text{ mA} / 3 \text{ nA/(W/cm}^2) = 6,666,666 \text{ W/cm}^2$ **
- Noise equivalent irradiance (Range 9): $10 \text{ mV} = 0.3 \text{ nA} = 10 \text{ W/cm}^2$
- Minimal measurable irradiance (Range 0): $10 \text{ W/cm}^2 * 50$ (by user specified signal to noise ration) = 500 W/cm^2

Limited Dynamic Range and Capacitance Limitation

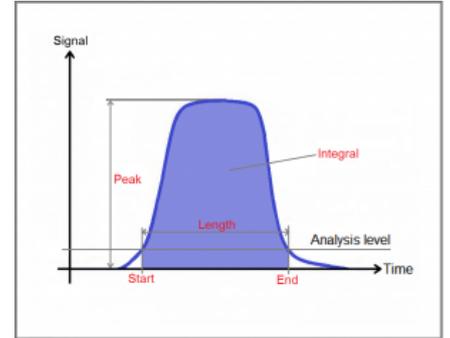
Because of the wide bandwidth of the TR-9600 devices the noise level is higher than that of standard optometers which limits the dynamic range of the instrument. As a result TR-9600 detectors must be carefully selected according to the signal intensity to be measured.

The detector capacitance effected by the photodiode and the cable must be considered to avoid distortion of the pulse locus. To reduce these effects the recommended cable length for large size detectors for use with TR-9600 is 0.2 meters. This is even a greater concern with the TR-9600-2. Please consult the factory for technical support.

*The TR-9600-2 with 100 ns rise amplifier limits the freedom in selecting of the light detector because of capacitance matching as well as in the available dynamic range because of increased



TR-9600



Pulse Analysis

noise level by the wide bandwidth. Please contact therefore the factory to discuss your application.

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

Specifications

General																																																								
Short description	The TR-9600 Optometer has been specially developed as a data collector for the analysis of single pulses, pulse cycles or frequency modulated signals.																																																							
typical applications	Pulse locus analysis of frequency modulated and single pulse flashing light sources																																																							
Calibration	Calibration and comparison of the current responsivity in each of amplifier range.																																																							
Measurement range	1 μ s rise time amplifier: 10 (1 mA/V – 30 nA/V) 100 ns rise time amplifier: 4 (300 μ A/V – 10 μ A/V)																																																							
Main features	pulse locus shape, peak power in absolute light measurement units (depending on the detector), pulse width and pulse half width, single pulse energy, pulse repetition rate																																																							
Specification																																																								
Display	LEDs: POWER: Device switched on, DC-power supply existing CONNECTED: Remote-Commands received ERROR: Error, DC-power supply low																																																							
Analog input	BNC-Socket (max. \pm 5 mA, max. \pm 5 V)																																																							
Bias	-12 V to + 12 V, 10 mA, Shielding BNC-Socket																																																							
Trigger	External trigger Input (TTL/CMOS, positive edge or level)																																																							
Trigger	Trigger Output (CMOS, 4 mA)																																																							
Trigger	Trigger Hysteresis: ca. 50 mV																																																							
Measurement range	10 (three-step, 1 mA/V – 30 nA/V)																																																							
ADC	12 Bit, max. 10 M Samples/s																																																							
sampling rate	5 Ranges (10 M Samples/s – 1 k Sample/s)																																																							
Data logger	2 M Samples (4 MByte)																																																							
Range Specifications	TR-9600-1: 10 (2.000 mA to 3.000 nA) manual or autorange <table border="1"> <thead> <tr> <th></th> <th>Gain</th> <th>Max. Range</th> <th>Rise Time (10% – 90%)</th> <th>Bandwidth</th> </tr> </thead> <tbody> <tr> <td>AR0</td> <td>1 mA/V</td> <td>\pm 2 mA</td> <td>1 μs</td> <td>333 kHz</td> </tr> <tr> <td>AR1</td> <td>300 μA/V</td> <td>\pm 600 μA</td> <td>1 μs</td> <td>333 kHz</td> </tr> <tr> <td>AR2</td> <td>100 μA/V</td> <td>\pm 200 μA</td> <td>1 μs</td> <td>333 kHz</td> </tr> <tr> <td>AR3</td> <td>30 μA/V</td> <td>\pm 60 μA</td> <td>1 μs</td> <td>333 kHz</td> </tr> <tr> <td>AR4</td> <td>10 μA/V</td> <td>\pm 20 μA</td> <td>1 μs</td> <td>333 kHz</td> </tr> <tr> <td>AR5</td> <td>3 μA/V</td> <td>\pm 6 μA</td> <td>1 μs</td> <td>333 kHz</td> </tr> <tr> <td>AR6</td> <td>1 μA/V</td> <td>\pm 2 μA</td> <td>3 μs</td> <td>111 kHz</td> </tr> <tr> <td>AR7</td> <td>300 nA/V</td> <td>\pm 600 nA</td> <td>3 μs</td> <td>111 kHz</td> </tr> <tr> <td>AR8</td> <td>100 nA/V</td> <td>\pm 200 nA</td> <td>30 μs</td> <td>11 kHz</td> </tr> <tr> <td>AR9</td> <td>30 nA/V</td> <td>\pm 60 nA</td> <td>30 μs</td> <td>11 kHz</td> </tr> </tbody> </table>		Gain	Max. Range	Rise Time (10% – 90%)	Bandwidth	AR0	1 mA/V	\pm 2 mA	1 μ s	333 kHz	AR1	300 μ A/V	\pm 600 μ A	1 μ s	333 kHz	AR2	100 μ A/V	\pm 200 μ A	1 μ s	333 kHz	AR3	30 μ A/V	\pm 60 μ A	1 μ s	333 kHz	AR4	10 μ A/V	\pm 20 μ A	1 μ s	333 kHz	AR5	3 μ A/V	\pm 6 μ A	1 μ s	333 kHz	AR6	1 μ A/V	\pm 2 μ A	3 μ s	111 kHz	AR7	300 nA/V	\pm 600 nA	3 μ s	111 kHz	AR8	100 nA/V	\pm 200 nA	30 μ s	11 kHz	AR9	30 nA/V	\pm 60 nA	30 μ s	11 kHz
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Version	TR-9600-1 1 μ s version TR-9600-2 100 ns version																																																							
Miscellaneous																																																								

Power Supply	(6 - 8) V / 1.2 A, DC power plug 5.5 mm / 2.5 mm / 10 mm AC/DC power supply (7V/1.5 A)
temperature range	(5 - 40) °C
Interface	RS232 (75 - 57600Baud, 8 Data-Bit's, 1 Stop-Bit, no Parity) DSUB9-Socket: PIN 2: TxD PIN 3: RxD PIN 5: GND PIN 1,4,6 connected PIN 7,8 connected IEEE488 (488-1978, AH1, SH1, L4, T4)
Dimensions	w = 28,0 cm d = 25,2 cm h = 7,8 cm
Weight	2000 g (without battery)
Warranty	12 months
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

Produktname	Product Image	Description	Show product
XD-45-HUV in-active		Detector head to measure the SUV(λ) effective irradiance in UV hazard applications. Features: three sensor detector, calibration certificate, for the usage with X1-3 optmeter	https://www.gigahertz-optik.de/en-us/product/xd-45-huv-2
XD-45-HB in-active		Detector head to measure the B(λ) effective irradiance and illuminance in blue-light hazard applications. Features: four sensor detector, calibration certificate, optional steradian tubus, for the usage with Optometer X1-3	https://www.gigahertz-optik.de/en-us/product/XD-45-HB
XD-45-HB-SRT200 in-active		Adapter for the detector head XD-45-HB to measure the B(λ) radiant intensity. Features: 200mm Long Adapter with exchangeable apertures for 100mrad and 11mrad F.O.V.	https://www.gigahertz-optik.de/en-us/product/XD-45-HB-SRT200

Produktname	Product Image	Description	Show product
VL-3701		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 3 \%$, $f2 \leq 1.5 \%$, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3701
VL-3702		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 6 \%$, $f2 \leq 3 \%$, 0.5 nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3702
VL-3704		<p>Detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 5 \%$, $f2 \leq 3 \%$, 20pA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3704
VL-3705		<p>Detector head for the measurement of scotopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 5 \%$, $f2 \leq 3 \%$, 0.2nA/lx, 20mm height, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3705
PD-9310A		<p>High sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 3 \%$, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310A
PD-9310B		<p>High sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 6 \%$, 2.8nA/lx, 20mm diffuser, for the usage with optometers and amplifiers, calibration</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310B
PD-9310B-N		<p>Very high sensitive detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: $f1 \leq 3 \%$, 28nA/lx, no diffuser, for the usage with optometers and amplifiers, calibration</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310B-N
VL-1101 + UMPA-0.5-11-RD Detector head		<p>Module detector head for the measurement of photopic illuminance in Lux [lx].</p> <p>Features: UMPA adapter for usage with integrating spheres, for the usage with optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-1101uUMPA-05-11-RD

Produktname	Product Image	Description	Show product
VL-6001		<p>Very high sensitive illuminance detector head for spotlamps.</p> <p>Features: Large diameter lens zur Erhöhung der Empfindlichkeit, for the usage with optometers and amplifiers, calibration</p>	https://www.gigahertz-optik.de/en-us/product/VL-6001
VL-3701 with SRT-M37-L		<p>Detector head to measure the photopic illuminance in lx and the luminance in cd/m².</p> <p>Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/VL-3701-with-SRT-M37-L
PD-9310 with SRT-M37-L		<p>High sensitive detector head to measure the photopic luminance in cd/m².</p> <p>Features: front lens for 1°, 2°, 5° or 10° viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310-with-SRT-M37-L
VL-1101		<p>Photometric detector head with VL-11 mount.</p> <p>Features: modular detector for use with integrating spheres, front lenses etc. For use with optometers and signal amplifiers</p>	https://www.gigahertz-optik.de/en-us/product/VL-1101
PD-9304		<p>Universal detector head for LASER power, illuminance and 400-1100 nm irradiance.</p> <p>Features: Si-photodiode with 1 cm², exchange able filters and cosine diffuor, for the usage with optometers and signal amplifiers</p>	https://www.gigahertz-optik.de/en-us/product/PD-9304
PD-9310A		<p>PD-9310A measurement head with GB-GD-360 photogoniometer for measurement of the luminous intensity distribution of 2π spot lamps and LEDs. Goniometer bench with adjustable measurement distance of up to 2000 mm. PD-9310A photometric detector corresponding to the DIN 5032 quality class A. Calibration certificate conformng to the ISO 17025 specifications. For use with all optometers and signal amplifiers from Gigahertz-Optik GmbH.</p>	https://www.gigahertz-optik.de/en-us/product/PD-9310A-2
RW-3701		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 400-500nm (BLUE), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3701
RW-3702		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 700-800nm (RED), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3702

Produktname	Product Image	Description	Show product
RW-3703		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 400-800nm (VIS), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3703
RW-3704		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 800-1000nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3704
RW-3705		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 400-1000nm (VISNIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3705
RW-3708		<p>Detector head for the measurement of irradiance in W/m².</p> <p>Features: spectral responsivity from 950-1700nm (NIR), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RW-3708
UV-3701		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 315-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3701
UV-3702		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 280-315nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3702
UV-3703		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 200/250-280nm (UV-C), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3703
UV-3710		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 320-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3710
UV-3711		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 280-320nm (UV-B), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3711

Produktname	Product Image	Description	Show product
UV-3716		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 305-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3716
UV-3717		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 325-400nm (UV-A), low cross talk from radiation > 400 nm, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3717
UV-3719		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 250-400nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3719
UV-3720		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 240-320nm (UV), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3720
UV-3721		<p>Detector head for the measurement of irradiance of UV radiation in W/m².</p> <p>Features: spectral responsivity from 350-400nm (UV-A), cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3721
UV-3711-308		<p>Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m².</p> <p>Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/UV-3711-308
UV-3718		<p>Detector head for the measurement of high irradiance of UV-C 254nm radiation in W/m².</p> <p>Features: pre-aging for long time stability, cosine field-of-view, metal shielded cable, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3718
UV-3725 not active		<p>Detector for the measurement of UV-C 254 nm irradiance in air disinfection applications.</p> <p>Features: wide dynamic range for UV hazard and effective irradiance, wide angle cosine F.O.V. for straylight measurements, for the usage with optometers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3725-1

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PD-9304		<p>Detector head to measure low intensity LASER radiant power in W.</p> <p>Features: 11.28mm dia (1cm²) active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/PD-2
PD-11 series		<p>Detector head with DP-11 mount.</p> <p>Features: modular detector for use with integrating spheres, front lenses etc, Si, SiLP, InGaAs, SiC, GaP photodiodes, for use with optometers and signal amplifiers</p>	https://www.gigahertz-optik.de/en-us/product/PD-11-Serie
UV-3706		<p>Detector head to measure irradiance W/m² in Bilirubin phototherapy.</p> <p>Features: Bilirubin actinic responsivity, cosine field-of-view, for use with optometers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3706
UV-3711-308		<p>Detector head for the measurement of irradiance of 308nm Eximer Lasers in W/m².</p> <p>Features: flat spectral responsivity beside 308nm. cosine field-of-view, dose measurement in conjunction with P-9710-2 optometer, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/UV-3711-2
UV-3724		<p>Detector head for the measurement of UV-B irradiance of TL1 sources in W/m².</p> <p>Features: calibrated with TL1 source, cosine field-of-view, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3724
UV-3709		<p>Detector for Blue-light hazard measurements.</p> <p>Features: Single-cell detector, BLH actinic irradiance, for the use with optometer, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/UV-3709
UV-3725		<p>Detector for the measurement of UV-C 254 nm irradiance in air disinfection applications.</p> <p>Features: wide dynamic range for UV hazard and effective irradiance, wide angle cosine F.O.V. for straylight measurements, for the usage with optometers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/UV-3725
RW-37 with SRT-M37-L		<p>Detector heads to measure the irradiance in W/m² and the radiance in W/(m²*sr).</p> <p>Features: front lenses with 1°, 2° or 5° viewing angle, for the usage with Optometers and amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/RW-37uSRT-M37-L
S-SDK-TR9600		<p>Software Development Kit for TR9600 variants.</p>	https://www.gigahertz-optik.de/en-us/product/S-SDK-TR9600

Produktname	Product Image	Description	Show product
S-TR9600		Application software for the TR9600 variants.	https://www.gigahertz-optik.de/en-us/product/S-TR9600
RCH-0		<p>Detector head for high intensity irradiation as in UV or blue light curing processes.</p> <p>Features: Separate light integrator and detector with flexible fiber coupling, light, 320-460nm UVABLUe responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RCH-0
RCH-102		<p>Detector head for high intensity irradiation in UV or blue light curing processes.</p> <p>Features: Separate light integrator and detector with rigid fiber coupling, (320-460)nm UVABLUe responsivity, wide viewing angle, for the usage with optometers and amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/RCH-1
ISD-5-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π spot sources.</p> <p>Features: 50mm dia, BaSO4 coating, 12.5mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5-VL
ISD-10-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π spot sources.</p> <p>Features: 100 mm dia, BaSO4 coating, 15 mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-10-VL
ISD-15-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π sources.</p> <p>Features: 150mm dia, BaSO4 coating, 38.1mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-15-VL
ISD-30-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π sources.</p> <p>Features: 300mm dia, BaSO4 coating, 101,6mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-30-VL
ISD-50-VL		<p>Integrating sphere detector for luminous flux (lm) of 2π sources.</p> <p>Features: 500mm dia, BaSO4 coating, 127mm dia port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-50-VL

Produktname	Product Image	Description	Show product
TD-11VL01		<p>Photometric, temperature stabilized detector with DP-11 mount.</p> <p>Features: for use with integrating spheres, Operation temperature 50 °C, for use with optometers and signal amplifiers</p>	https://www.gigahertz-optik.de/en-us/product/TD-11VL01
LP-9901		<p>Detector head to measure LASER radiant power in W and LASER irradiance in W/m².</p> <p>Features: Low height detector with 7mm dia active area, 400 to 1100nm, for the usage with optometers and signal amplifiers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/LP-9901
ISD-3P-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 30 mm dia, 5 mm dia port, synthetic ODM98 coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-3P-Si
ISD-5P-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 50 mm dia, 10 mm dia port, synthetic ODM98 coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5P-Si
ISD-10-Si		<p>Integrating sphere detector for Laser power in W.</p> <p>Features: 100mmØ, 15mm dia port, BaSO₄ coating, 400 nm - 1100 nm responsivity, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-10-Si
LDM-9811		<p>Detector for Blue-light and retinal thermal hazard of expanded light sources.</p> <p>Features: 1.7mrad, 11mrad and 100mrad field-of-view. view finder, focusable, for the usage with Optometers, calibration certificate.</p>	https://www.gigahertz-optik.de/en-us/product/LDM-9811
PRW-0505		<p>Integrating sphere detector for radiant power in W of 2π spot sources.</p> <p>Features: 400 - 1100 nm radiometric responsivity, 50 mm dia integrating sphere, 12.5 mm dia measurement port, for the usage with optometers and signal amplifiers, Calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/prw-0505

Produktname	Product Image	Description	Show product
ISD-3P-IGA		<p>Integrating sphere detector with InGaAs photodiode and 30 mm sphere for Laser power in W.</p> <p>Features: 800 nm - 1800 nm spectral responsivity, 5 mm dia measurement port, synthetic ODM98 coating, optional SMA Adapter, for the usage with Optometer and signal amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-3P-IGA-2
ISD-5P-SiUV		<p>Integrating sphere detector with UV-enhanced Si photodiode and 50 mm sphere for Laser power in W</p> <p>Features: 250 nm - 1100 nm spectral responsivity, 10 mm dia measurement port, synthetic ODM98 coating, optional SMA Adapter, for the usage with Optometer and signal amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5P-SiUV-2
ISD-5P-IGA		<p>Integrating sphere detector with InGaAs photodiode and 50 mm sphere for Laser power in W.</p> <p>Features: 800 nm - 1800 nm spectral responsivity, 10 mm dia measurement port, synthetic ODM98 coating, optional SMA Adapter, for the usage with Optometer and signal amplifiers, calibration certificate</p>	https://www.gigahertz-optik.de/en-us/product/ISD-5P-IGA-2

Purchasing information

Article-Nr	Modell	Description
Product		
15295243	TR-9600-1	Meter, with power supply, software and manual
15295277	TR-9600-2	Meter, with power supply software and manual
Options		
-	Light Detectors	Please check the light detector datasheets or the tab configurable with for specification and purchasing information
Software		
15298648	S-SDK-TR9600	Software Development Kit for the implementation of the TR9600 or variants into custom made software
15298646	S-TR9600	User software for TR9600 and variants.
Accessories		
15295220	BHO-02	Hard case for meter and accessories