

## Laboratory radiometer RMD Touch



Radiometer RMD Touch

UV sensors

40 years of UV experience and consistent product development enable the optimal performance and intuitive operation of the RMD Touch laboratory radiometer.

This incorporates the latest technologies such as capacitive touch displays, precision ADCs, data storage, remote update capability and much more. This makes the RMD Touch one of the most powerful multichannel radiometers on the market with superior features such as highest accuracy, reliability and modular extensions.

The RMD Touch allows simultaneous measurement of multiple sensors, recording of irradiance and dose.

Each sensor channel contains a high-precision 24 bit ADC and a multi-stage amplification to achieve a wide dynamic range of up to 7 orders of magnitude. The measurement of all channels is performed simultaneously. Calibration and sensor information are permanently stored in the sensor and are automatically transferred to the RMD Touch. This makes the RMD Touch the perfect measuring instrument for all laboratory applications.

The RMD Touch also has a wide range of sensors. The radiometric sensors are long-term stable, robust and suitable for many applications.

The sensors can be connected to the laboratory radiometer RMD Touch and to the mobile radiometers RMD & RMD Pro.



irradiance vs. time plot (Scope Mode)

Applications include UV radiometry, low-light detection, LED measurements, germicidal UVC radiation and disinfection (UVGI), optical hazard analysis, lifetime measurements, plant photobiology, phototherapy, UV curing, and many more.

## RMD TOUCH

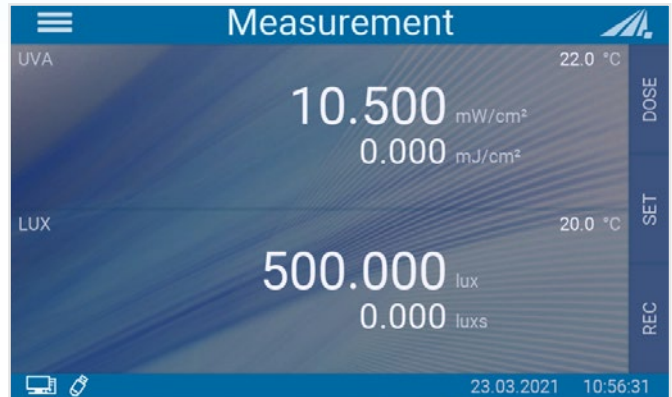
Optical measuring systems usually consist of the radiometer, a sensor with filter and cosine-corrected optics, and a calibration that allows a direct reading in the corresponding units. The sensor memory contains all sensor identifications and the calibration history. The sensor also contains a temperature sensor.

The RMD Touch is operated by a high-resolution capacitive touchscreen. A powerful Cortex ARM processor ensures durability and remote update capability. This means that new functions can be installed directly on site.

The RMD Touch and the PC software are Windows 10 compatible. The fully digital interface communicates with the PC via USB.

The evaluations and units, such as  $W/m^2$ ,  $\mu W/cm^2$ ,  $J/m^2$ , lux and klx, are adjustable. Numerical and graphical single and multi-channel measurements, oscillograms and data logger measurements such as min/max and other measurement modes are clearly displayed. The parameterization is done intuitively directly on the RMD Touch and is password protected.

The RMD Touch can be easily used in laboratory, pharmaceutical and industrial environments. With the associated software, the RMD Touch can be controlled from the PC. The meter records measurement data directly to a USB stick for up to 1000 days at a time.



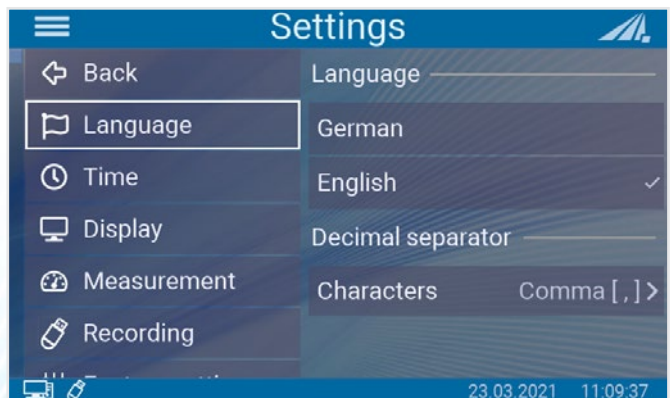
Dual channel measurement



Minimum and maximum irradiance



Access protection



Settings

Latest generation of devices for optimal performed intuitive operation!



## TECHNICAL DATA RMD TOUCH

<b>Sensor spec</b>	24 bit, full digital	<b>Data recording rate</b>	adjustable: 1 s - 1 h
<b>Sensor connections</b>	2	<b>Recording duration</b>	> 24000 h
	8 (optional)	<b>PC interface</b>	USB 2.0
<b>Display</b>	capacitive touch display	<b>Memory interface</b>	1 x USB stick (up to 32 GB)
	5" WVGA		
<b>Display output</b>	Irradiance + dose		
	Oscilloscope view		
	Min/max irradiance		
	Relative view		
<b>Dimensions</b>	185 x 251 x 100 mm		
<b>Mains connection</b>	100 - 240 V, 50/60 Hz		
<b>Power (el.)</b>	20 W		
<b>Operating temperature</b>	5 to 60 °C		
<b>Storage temperature</b>	-10 to 60 °C		
<b>Humidity</b>	< 80%, non-condensing		

## FUNCTIONS IN DETAIL

Did you know? The RMD handheld meter and the RMD Touch laboratory radiometer use the same sensors. They can therefore be used on both measuring instruments.

The differences of the measuring devices are:



	RMD Touch	RMD Pro
<b>Number of channels</b>	2 (up to 8 sensor channels)	2
<b>Irradiance, dose and temperature measurement</b>	✓	✓
<b>Oscilloscope view</b>	✓	-
<b>Relative view</b>	✓	-
<b>Screenshots can be saved to USB stick</b>	✓	-
<b>Language switching german / english</b>	✓	✓
<b>Memory</b>	up to 32 USB stick	8 GB SD card
<b>Recordings of measurements</b>		✓
<b>Real-time clock</b>	✓	✓
<b>Easy firmware upgrades</b>	✓	✓



## TECHNICAL DATA SENSORS

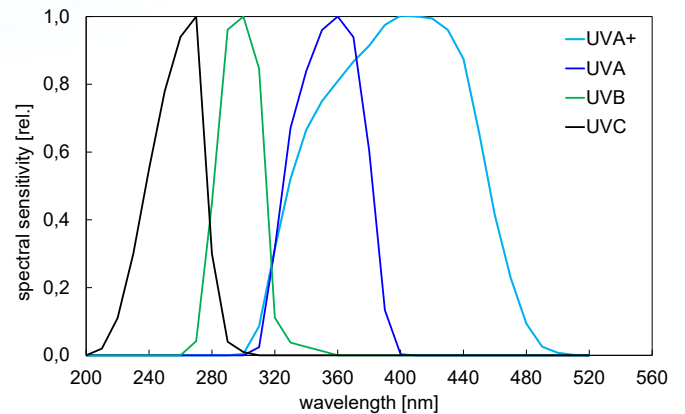
<b>Spectral ranges</b>	UVA, UVA+, UVBB
<b>Measuring range, typ.</b>	0 - 10 W/cm <sup>2</sup>
<b>Resolution</b>	1 µW/cm <sup>2</sup>
<b>Spectral ranges</b>	UVB, UVC, VISB, VISBG
<b>Measuring range, typ.</b>	0 - 1 W/cm <sup>2</sup>
<b>Resolution</b>	0.1 µW/cm <sup>2</sup>
<b>Recommended for proof the safety at work</b>	UVC, Erythema+UVA with high sensitive measuring range: 0 - 10 mW/cm <sup>2</sup> Resolution 0.001 µW/cm <sup>2</sup>
<b>Dose measuring range</b>	0 - 100 MJ/cm <sup>2</sup>
<b>Illuminance measurement</b>	0 - 500.000 lx
<b>Resolution</b>	0.001 lux
<b>Dynamic range</b>	up to 10 <sup>7</sup>
<b>AD conversion</b>	24 bit
<b>Temperature sensor</b>	integrated
<b>Dimensions</b>	Ø 40 mm, h 35 mm
<b>Optical surface</b>	Ø 6 mm
<b>Weight</b>	160 g
<b>Connection cable</b>	1,8 m
<b>Operating temperature</b>	0 to 60 °C
<b>Storage temperature</b>	-20 to 60 °C
<b>Humidity</b>	<80%, non-condensing

## SENSOR SPECTRAL RANGES

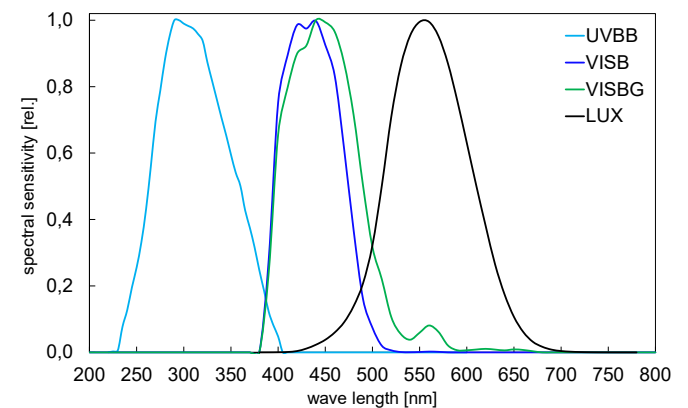
<b>UVC</b>	200 - 280 nm
<b>UVB</b>	280 - 315 nm
<b>UVA</b>	315 - 400 nm
<b>UVA+</b>	330 - 455 nm
<b>UVBB (broad band)</b>	230 - 400 nm
<b>VISB</b>	400 - 480 nm
<b>LUX</b>	380 - 780 nm, V(λ)
<b>NDT (365 nm + LUX)</b>	315 - 400 nm, 380 -780 nm
<b>Erythema + UVA</b>	200 - 400 nm, Ery(λ)

## TYPICAL TECHNICAL DATA

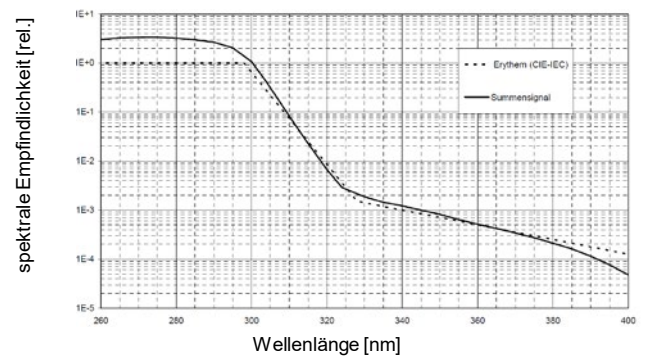
<b>Calibration uncertainty</b>	4,5 - 7,0% (k=2)
<b>Linearity error</b>	< 1%
<b>Aging / year</b>	< 3%



Spectral sensitivity UVA+, UVA, UVB and UVC sensors



Spectral sensitivity UVBB, VISB, VISBG and LUX sensor



Spectral sensitivity erythema sensor

The specified measuring ranges are our recommended measuring ranges. These can be adapted on customer request. Please ask us or specify this when ordering.

Our calibrations are available as factory and ISO 17025 calibrations and traceable to PTB standards. IP65 sensors, further measuring and spectral ranges available. Ask us!



## ORDER NUMBERS & SCOPE OF DELIVERY

Radiometer RMD Touch	814405
RMD Sensor UVC	814410
RMD Sensor UVB	814420
RMD Sensor UVA	814430
RMD Sensor UVA+	814446
RMD Sensor UVBB	814412
RMD Sensor VISB	814441
RMD Sensor LUX	814461
NDT Sensor (365 nm + LUX)	814491
Erythem + UVA-Sensor	814470
ISO 17025 calibration	17025

RMD Touch, USB cable, 4 GB USB stick, manual + sensor by application; PC software

We calibrate traceable to PTB standards and deliver with factory calibration certificates, optionally with DAkkS calibration certificates.

## ONE MEASURING DEVICE - MANY POSSIBILITIES

For some applications we recommend our other sensor series, e.g. if the maximum height is only small or for high temperatures.

These sensors can be connected to the RMD Touch, the RMD & RMD Pro:



radiometric sensors - the universal



XT sensors - for high irradiances and temperatures



FLT - perfect for PLC connection and monitoring

## APPLICATION INSTRUCTIONS

For risk assessments and occupational safety considerations, DIN EN 14255-1:2005 regulates the measurement and assessment of personal exposures to artificial optical radiation. DIN 14255-1 itself does not contain any limit values. These are to be taken from the directive „2006/25/EC Artificial Optical Radiation“, which has been adopted into national law.

The sensors must be sufficiently sensitive for the measurements. For this purpose, select a sensor (e.g. UVA, UVB) with measuring range 0 - 2 mW/cm<sup>2</sup>. According to Directive 2006/25/EC, the limit for UVA radiation is 104 J/m<sup>2</sup>.

For process monitoring, the spectral range of the sensor is basically determined by the UV application or usually by the photoinitiator. UV point light sources, such as the HP-120i, achieve irradiances in the range of several W/cm<sup>2</sup>.

UV low-pressure lamps and UVC amalgam lamps usually achieve irradiances of less than 200 mW/cm<sup>2</sup>.

The emission of UV LEDs is e.g. 365, 385, 395 or 405 nm. The UVA+ sensor was developed for the measurement of UV LEDs.

For medical applications, the focus is on process reliability and calibration. Our sensors are long-term stable and can be recalibrated. Repair and spare parts service are available for many years. Benefit from our many years of experience as a calibration laboratory.

Applications with different UV emitters can be measured reproducibly with our radiometer sensors. A measurement of all spectral ranges simultaneously would also be possible with the UVpad, for example.