




## Overview UV measurement for UV lamps

### 1. UV Integrators

Picture Art. No.	Range	Value		Short description
		Peak mW/cm <sup>2</sup>	Dose mJ/cm <sup>2</sup>	
 UV Disc A002400 ( Full UV)  A003371 (UV-C) A004346 (UV-B) A003909 (UV-A) A002915 (UV-Vis) A004192 (UV-LED)	Full UV UV-A UV-B UV-C UV-Vis UV-LED		✓	<b>Type:</b> Spectral measuring ranges:  <b>UV Disc</b> Full UV: 250 – 410 nm (standard) or UV-A: 315 – 410 nm UV-B: 280 – 315 nm UV-C: 230 – 280 nm UV-VIS: 395 – 445 nm UV-LED: 265 – 495 nm (for UV-LEDs 320...405 nm)  <b>Measuring ranges:</b> 1 – 5,000 mW/cm <sup>2</sup> 1 – 10.000 mW/cm <sup>2</sup> (A004192)  <b>Display range:</b> Display: Dimensions: Weight:  1 – 999 999 mJ/cm <sup>2</sup> LCD 6 digits Ø 90mm, height 12 mm approx. 140 g
 UV Micro Puck Multi Integrator A002197 (Handheld)  UV-Sensoren: A002201 (UV full) A002198 (UV-C) A002199 (UV-B) A002200 (UV-A) A005156 (UV-Vis) A004094 (UV-LED)	Full UV UV-A UV-B UV-C UV-Vis UV-LED		✓	<b>Type:</b> Spectral measuring range:  <b>UV Micro Puck Multi Integrator</b> Full UV: 230 – 410 nm UV-A: 315 – 410 nm UV-B: 280 – 315 nm UV-C: 230 – 280 nm UV-VIS: 395 – 445 nm UV-LED: 265 – 495 nm (for UV-LEDs 320...405 nm)  <b>Measuring ranges:</b> Display range:  <b>Display:</b> Dimensions: Weight:  1 – 5.000 mW/cm <sup>2</sup> 0 – 2.000 mJ/cm <sup>2</sup> 0 – 20.000 mJ/cm <sup>2</sup> (Faktor 10) LCD, 2x16 digits 40 mm x 14 mm x 12 mm ca. 30 g cable-less UV sensors, switchable sensitivity (10x)

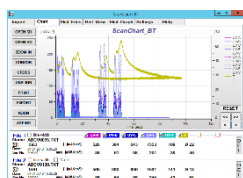
For detailed information kindly notice the respective data sheets.

## continuation UV Integrators

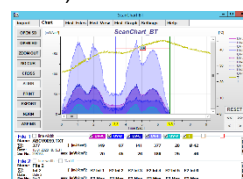
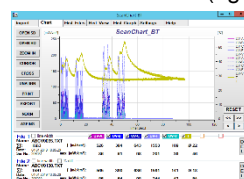
Picture Art. No.	Range	Value		Short description	
		Peak mW/cm <sup>2</sup>	Dose mJ/cm <sup>2</sup>		
 <p>UV Control 4C TFT A008418</p> <p>UV Control 4CT TFT A008420</p> <p>UV Control 4C LED TFT A008419</p>	<p>UV-A UV-B UV-C UV-Vis* UV-LED* Temp.*</p>	✓	✓	<p><b>Type:</b></p> <p><b>UV Control 4C TFT</b> (UV-A, -B, -C, -Vis)</p> <p><b>UV Control 4CT TFT</b> (UV-A, -B, -C, -Vis, -Temp.)</p> <p><b>UV Control 4C LED TFT</b> (UV-A, -B, -C, -Vis, LED)</p> <p><b>Spectral measuring ranges:</b></p> <p>UV-A: 315 – 410 nm UV-B: 280 – 315 nm UV-C: 230 – 280 nm UV-Vis: 395 – 445 nm UV-LED*: 265 - 495 nm (4C LED)</p> <p><b>Temperature:</b> 0 – 110 °C (4CT)</p> <p><b>Measuring range:</b> 1 – 2,000 mW/cm<sup>2</sup></p> <p><b>Recording cycle:</b> 30...400 s (selectable)</p> <p><b>Display:</b> TFT color display 40 x 31,5 mm</p> <p><b>Dimensions:</b> 140 x 65 x 12 mm</p> <p><b>Weight:</b> approx. 230 g</p> <p><b>Special features:</b></p>	<p>The integrator has a SD card slot to save the data. On the built in display or with the included software the data can be displayed as graphs and the data can be stored on a computer. Scope of delivery: software, USB cable, SD card and plastic case.</p>

### Software (included in delivery)

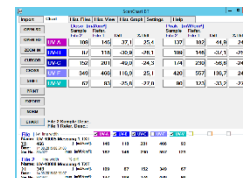
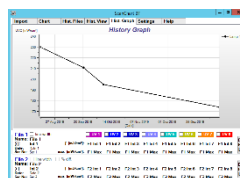
The software supplied with the device contains numerous features such as automatic recognition of the number of lamps in one run. The irradiances are detected in one pass and can be separated automatically. The UV lamp output decrease over the time can be measured with the ageing function. The software also includes a wide range of practical editing functions, such as hairline cursor, manual zooming, storage of your own measurement notes and a convenient export function (e.g. for MS Excel).



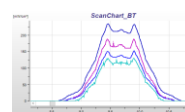
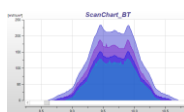
Irradiances vs. time (right: with zoom)




Separation of uv lamps (automatically or manually)



Ageing function (graphic or in a table) to quantify the decrease over time


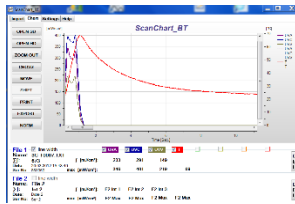


 Export Excel CSV

Various display and selection options and a convenient export function.



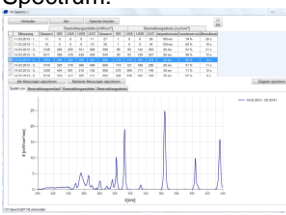
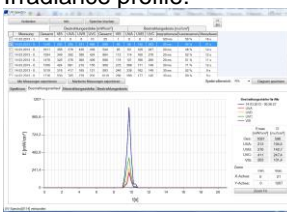
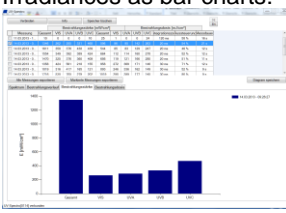
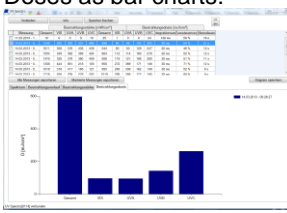
For detailed information kindly notice the respective data sheets.

## continuation UV Integrators

Photo Art. No.	Range	Value		Short description
		Peak mW/cm <sup>2</sup>	Dose mJ/cm <sup>2</sup>	
 <p>UV Tube 3C A005097 UV Tube 3CT A005739 UV Tube 4C A007656</p>	UV-A UV-B UV-C Temp.*	✓	✓	<p><b>Type:</b></p> <p><b>UV Tube 3C</b> <b>UV Tube 3CT</b> <b>UV Tube 4C</b></p> <p>The UV Tube Integrator is UV multi-channel-measuring instrument for curing applications. It is designed to measure, record and display peak UV intensity, UV dosage and temperature (UV Tube 3CT only) in bottle/tube machines.</p> <p>The sensor has to be fixed during passage in a customer-side dummy. The small size and extremely low weight of the UV Tube allows UV measurements under realistic conditions.</p> <p><b>Spectral measuring ranges:</b></p> <p>UV-A: 315 – 410 nm UV-B: 280 – 315 nm UV-C: 230 – 280 nm UV-Vis: 395 – 445 nm (4C only)</p> <p><b>Temperature:</b> 0 – 110 °C* (3CT only)</p> <p><b>Measuring range:</b> 1 – 2,000 mW/cm<sup>2</sup></p> <p><b>Recording cycle:</b> 90 s</p> <p><b>Display:</b> ./.</p> <p><b>Dimensions:</b> Ø 25 mm, L = 60 mm</p> <p><b>Weight:</b> approx. 40 g / 55 g</p> <p><b>Special features:</b> Very small multi-channel integrator with extremely low weight. The aluminium housing must be protected from strong UV light and heat, eg by a suitable support or light shield. Very high sampling rate. The device has a micro SD card slot for storage of all measured values. The reading of the measured values is done via USB cable. The included multi-functional software provides the measured values on the PC graphic. The measured values can be stored on the PC and exported to spreadsheet programs. Software, SD card and plastic box are included.</p> 

For detailed information kindly notice the respective data sheets.




## 2. UV spectrometer

Photo Art. No.	Ranges	Unit		Short description
		Peak mW/cm <sup>2</sup>	Dose mJ/cm <sup>2</sup>	
 A003650 A003667	Spectro- meter 200 – 440 nm	✓	✓	<p><b>Type:</b> <b>UV Spectro</b></p> <p>The UV Spectro is a flat diode array spectrometer designed as a pass-through unit. It can therefore be used as a spectrometer for the quantitative and qualitative measurement of the irradiances of the individual wavelengths. As the measuring values are stored internally, the doses can also be calculated.</p> <p>The wavelength ranges can be freely selected, and weighting functions can optionally be stored.</p> <p>Spectral range: 200 – 440 nm            Spectral bandwidth: 2 nm            Measurement range: 2 – 5,000 mW/cm<sup>2</sup> (A003650)            Measurement range: 25– 35,000 mW/cm<sup>2</sup> (A003667)            Display range: 1 mJ/cm<sup>2</sup> – 600 J/cm<sup>2</sup> (A003650)            Display range: 25 mJ/cm<sup>2</sup> – 4,200 J/cm<sup>2</sup> (A003667)            Display: LCD 6 digits            Dimensions: 160 x 100, height 14.4 mm            Weight: approx. 375 g            Calibration: Traceable to PTB            Special feature: Both UV medium-pressure lamps and UV LEDs can be measured within the spectral range. One or more effect-related weighting functions or sensitivity curves can be stored.</p>
 A004452 A004453	Spectro- meter 200 – 440 nm with USB interface	✓	✓	<p><b>Type:</b> <b>UV Spectro USB</b></p> <p>ditto but with USB interface</p> <p>Measurement range: 2 – 5.000 mW/cm<sup>2</sup> (A004452)            Measurement range: 25 – 35.000 mW/cm<sup>2</sup> (A004453)            Special feature: 50 measurements can be recorded, edited and exported via USB (the software is inclusive).</p> <p><b>Spectrum:</b> </p> <p><b>Irradiance profile:</b> </p> <p><b>Irradiances as bar charts:</b> </p> <p><b>Doses as bar charts:</b> </p>

For detailed information kindly notice the respective data sheets.



## 3. UV intensity measurement for short time measuring


Picture Art. No.	Range	Value		Short description
		Peak mW/cm <sup>2</sup>	Dose mJ/cm	
 HI 1 handheld A002067				<b>Type:</b> <b>HI 1 handheld</b> <ul style="list-style-type: none"> <li>Small and portable display unit for uv sensor SI 1</li> <li>large-scaled 7/16 segment display with units</li> <li>Measuring functions: Measured value, saving of maximum / minimum values, hold function</li> <li>Test functions: Range monitoring, sensor breakage indication, battery voltage check and display</li> </ul> <p>Dimensions / weight: approx. 125x80x40 mm / 270 g</p> <p>Special features HI 1: One handheld for different sensors, saving of max. and min. values, hold function</p>
A002069 A002071 A002073 A002673 A002906	UV-A or UV-B or UV-C or UV-VIS or UV LED	✓ ✓ ✓ ✓ ✓		<b>Type:</b> <b>SI 1 sensor</b> Spectral measuring ranges: 315 – 395 nm, max. 340 nm 265 – 325 nm, max. 315 nm 215 – 280 nm, max. 265 nm 395 – 445 nm, max. 435 nm 320 – 395 nm, max. 350 nm Max. intensity: 2,000 mW/cm <sup>2</sup> for max. 30 s for UV-LED: 20 W/cm <sup>2</sup> (max. 5 s) Dimensions / weight: Ø 36 mm, height 17 mm / 70 g Special features SI 1: Calibration saved in the sensor plug, available for different spectral ranges and intensities.
 UV sensor SI 1				
A004574 A004573 A004572 A004575 A004576 A005030	UV-A or UV-B or UV-C or UV-VIS or UV-full UV-LED	✓ ✓ ✓ ✓ ✓		<b>Type:</b> <b>TS 1</b> Spectral measuring ranges: 315 – 395 nm, max. 340 nm 265 – 325 nm, max. 315 nm 215 – 280 nm, max. 265 nm 395 – 445 nm, max. 435 nm 230 – 410 nm, max. 330 nm 265 – 495 nm, max. 350 nm Max. intensity: 10.000 mW/cm <sup>2</sup> for max. 5 s Dimensions / weight: Total length: 440 mm, plunge depth with mounting and guidance plate: 230 mm Stainless steel tube: ø 6 mm Special features TS 1: Calibration saved in the sensor plug, available for different spectral ranges.
 UV sensor TS 1				



Note: Also the IR sensor PMI 41 for measuring the quartz glass temperature of UV curing lamps can be connected to the handheld HI 1. For more information, kindly notice our IR sensor data sheet.




## 4. Online UV intensity measurement for permanent measuring

Picture Art. No.	Range	Value		Short description
		Peak mW/cm <sup>2</sup>	Dose mJ/cm	
 QSO 3  UV-A: A002179 UV-B: A002178 UV-C: A002177	UV-A or UV-B or UV-C	✓ by DC 0 – 10V		<p><b>Type: QSO 3</b></p> <p>The QSO 3 is suitable for continuous intense UV irradiation at UV curing applications. It emits a sensor signal that is proportional to the measured UV radiation in the form of a DC 0...10 V signal. The photodiode is located outside the actual radiation zone. The UV radiation incident on the quartz glass window is damped by total reflection in the quartz glass rod and thus reaches the photodiode. As a result, the temperature load of the photodiode is also minimised.</p> <p>Most customers use this sensor in order to detect the lamp ageing, or they use the sensor signal to control the ballast via a machine controller. The purpose is to realise constant UV radiation by adjusting the electrical power of the lamp.</p> <p>Spectral measuring ranges: 315 – 395 nm, max. 340 nm 265 – 325 nm, max. 315 nm 215 – 280 nm, max. 265 nm</p> <p>Sensitivity range: 20 – 2.000 mW/cm<sup>2</sup></p> <p>Amplification factor: 1, 10, 100, 1000; x 0,3</p> <p>Max. permissible intensity: 10.000 mW/cm<sup>2</sup> for max. 10 min</p> <p>Max. permissible temp.: ~ 300° C quartz rod window</p> <p>Supply: External by DC 24V, 5mA</p> <p>Output: DC 0-10V, proportional to UV</p> <p>Dim./weight sensor box: Approx. 45 x 45 x 34 mm / 200 g</p> <p>Stainless steel tube: ø 8 mm</p> <p>Special feature: Air purging connection 1/8"</p>





For detailed information kindly notice the respective data sheets.

## continuation Online UV intensity measurement for permanent measuring

Picture Art. No.	Range	Value		Short description
		Peak mW/cm <sup>2</sup>	Dose mJ/cm	
 QWO   UV-A: A001976 UV-B: A002394 UV-C: A001975 UV-Vis: A008133	UV-A oder UV-B oder UV-C oder UV-Vis	✓ mittels DC 0 – 10V		<b>Type: QWO</b>  The QWO is suitable for continuous intense UV irradiation at UV curing applications. It emits a sensor signal that is proportional to the measured UV radiation in the form of a DC 0...10 V signal.  Typically, the QWO is mounted temperature decoupled directly on a UV reflector unit and looks through an opening directly at the UV lamp.  Most customers use this sensor in order to detect the lamp ageing, or they use the sensor signal to control the ballast via a machine controller. The purpose is to realise constant UV radiation by adjusting the electrical power of the lamp.  Spectral measuring ranges: 315 – 395 nm, max. 340 nm 265 – 325 nm, max. 315 nm 215 – 280 nm, max. 265 nm 380 – 445 nm, max. 405 nm Sensitivity range: 50 – 5,000 mW/cm <sup>2</sup> Amplification factor: 1, 10, 100, 1000; x 0,3 Max. permissible intensity: 5.000 mW/cm <sup>2</sup> for max. 10 min Max. permissible temp.: ~ 60° C (cont. operation) Supply: External by DC 24V, 5mA Output: DC 0-10V, proportional to UV Dim./weight sensor: Approx. 45 x 45 x 34 mm / 135 g Special feature: Air purging connection 1/8"

For detailed information kindly notice the respective data sheets.

## 5. UV measuring strips

Test UV <sup>strip</sup>	
Art. No.	A009227 (1 PU = 10 pcs. uv measuring strips)
 <p>Test UV strip A009227</p>  <p>Test UV strip with filter film</p>  <p>Test UV strip, filter film flipped</p>	<ul style="list-style-type: none"> <li>Can be used for the UV dose measurement of various industrial UV light sources <ul style="list-style-type: none"> <li>+ UV medium pressure lamps (including doped lamps)</li> <li>+ UV LED</li> <li>+ UV low pressure lamps (e.g. uv-fresh®, CCure)</li> </ul> </li> <li>Exceptionally broad sensitivity range thanks to the additional filter film</li> <li>Easy to use</li> <li>Can be evaluated visually or with a standard colour density measuring device (optional)</li> </ul> <p>Wherever space is extremely limited or in situations where electronic UV radiometers will not fit, the new Test UV strip has a distinct advantage (e.g. litho, web printing etc.). The new UV measuring strips have a maximum thickness of 200 micrometers.</p> <p>The UV dose (mJ/cm<sup>2</sup>) can be measured with (high dose) or without (lower dose) the enclosed filter film: An extremely broad sensitivity range is consequently achieved. The evaluation is carried out visually via comparative colour change. An additional evaluation device is not necessary, so there are no initial equipment costs.</p> <p>Alternatively, the UV dose can be measured with an ink density meter (supplied by the customer) which is commonly available in most printing companies.</p> <p>Delivery:</p> <ul style="list-style-type: none"> <li>Zip lock bag with 10 pcs. TestUV<sup>strip</sup> UV measuring strips</li> <li>REFERENCE CARD</li> <li>Manual with four Dose graphs for UV medium pressure lamps (Hg, Fe, Ga), UV LED (395 nm) and UVC Low pressure lamps (CCure, uv-fresh®)</li> </ul> 
Spectral range	Full UV; max. sensitivity at 330 nm
Measurable irradianations (doses)	Detailed data see table below.
Size uv measuring strip	approx. 19 x 105 mm
Thicknesses UV measuring film Filter film	100 µm 80 µm
Recommended storage temperature	2°C to 15 °C
Recommended storage time	max. 9 months from date of purchase

UV light sources	Filter	Irradiation (Dose)	UV range
1. UV medium pressure lamp <ul style="list-style-type: none"> <li>Hg (with filter film)</li> <li>Fe (with filter film)</li> <li>Ga (with filter film)</li> </ul>	✓ ✓ ✓	120 ... 900 mJ/cm <sup>2</sup> 50 ... 350 mJ/cm <sup>2</sup> 180 ... 520 mJ/cm <sup>2</sup>	UV full UV-A UV-Vis
2. UV medium pressure lamp at lower doses <ul style="list-style-type: none"> <li>Hg (without filter film)</li> <li>Fe (without filter film)</li> </ul>	✗ ✗	10 ... 85 mJ/cm <sup>2</sup> 13 ... 75 mJ/cm <sup>2</sup>	UV full UV-A
3. UV LED 395 nm (with filter film)	✓	500 ... 5900 mJ/cm <sup>2</sup>	UV LED
4. UVC low pressure lamp UVC LP (without filter film)	✗	30 ... 380 mJ/cm <sup>2</sup>	UVC LP (low pressure)

For detailed information kindly notice the respective data sheets.