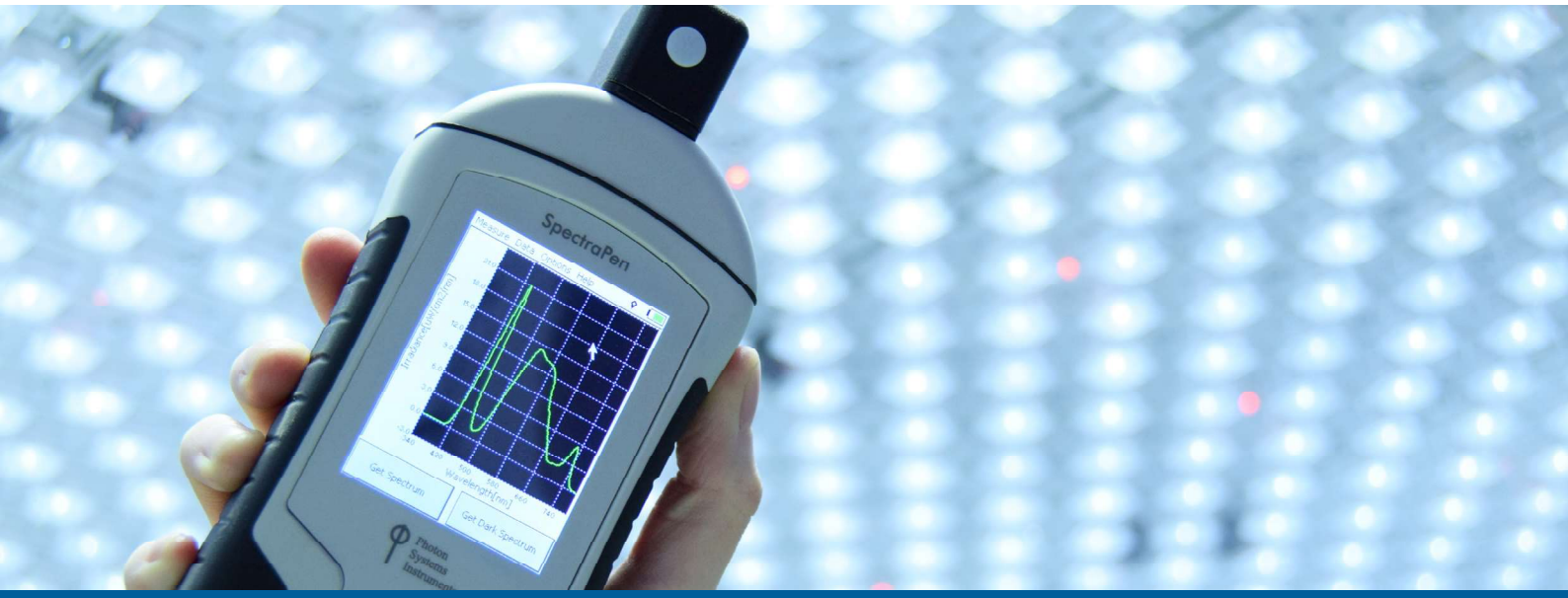

SpectraPen LM 510

SpectraPen LM 510 is a handheld portable spectroradiometer that is ideal as a general-purpose instrument for research and for agricultural applications. SpectraPen LM 510 measures in radiometric or photometric units the intensity of the light received and is calibrated for visible light in range of 380–780 nm and the light in range of 640–1,050 nm. SpectraPen is especially useful for rapid measurements of spectral light quality, for monitoring of artificial lighting and for quantification of light radiation.

The SpectraPen works with Li-ion rechargeable battery and does not require for operation any PC or any other bulky accessory. On the SpectraPen touch screen the wavelength and intensity readings and their spectral lines including correlated color temperature index are instantly displayed. All recorded data are automatically stored into the device internal memory. The SpectraPen includes a comprehensive software package comprising full system control, data acquisition and data processing.

The SpectraPen is suited for wide scope of environmental, agricultural and ecological applications such as monitoring of artificial lighting used in horticulture industry or light source testing.

APPLICATIONS

- Light radiation monitoring
- Environmental monitoring
- Artificial lighting measurements
- Ecology
- Agriculture and horticulture
- Light source testing and quality control
- Color measurement

KEY FEATURES

- Compact, durable and lightweight device with affordable price
- Radiometric calibration
- Spectral response in range 340–780 nm or 640–1,050 nm
- Integrated cosine corrector
- Data processing
- Light parameter calculation
- Fast spectra recording
- Both lab and field applications
- Programmable via intuitive touch-screen use
- USB connectivity to a PC for data collection and analysis
- Integrated GPS

01 / Pocket-Sized Devices

VERSIONS

LM 510-H

- Cosine corrector facing up
- Limited space measurement

LM 510-V

- Cosine corrector facing front
- Field measurement
- Tripod mount

LM 510-UVIS

- Wavelength range 340 to 780 nm

LM 510-NIS

- Wavelength range 640 to 1,050 nm

SOFTWARE

- Different operation modes: scope, absorbance, transmittance
- Different tools: zoom, marker, auto scale, curve smoothing
- Automatic sensitivity adjustment
- Data browsing and data averaging
- Visualization and data transfer routines to Microsoft Excel
- GPS mapping plug-in

TECHNICAL SPECIFICATION

- **Optical Entrance:** Cosine corrector
- **FWHM Bandwidth**: 7 mm
- **Spectral Response Range:** 340 - 780 nm, 640–1,050 nm
- **Spectral Response Half Width:** 9*
- **Spectral Straylight:** -30 dB*
- **Wavelength Reproducibility:** ±0.5 nm
- **Integration Time:** Automatic, 5 ms to 10 s
- **Number of Pixel:** 256
- **Dimension of Pixel:** 0.5 × 15.8 mm
- **Touch Screen:** 240 × 320 pixel; 65,535 colors
- **Memory Capacity:** 16 Mbit (up to 4,000 measurements)
- **System Data:** 16 bit A/D conversion
- **Noise:** 15 LSB RMS
- **Communication:** USB
- **Dimensions:** 180 × 76 × 44 mm
- **Weight:** 350 g
- **Case:** Splash-proof
- **Battery:** Li-ion; rechargeable via USB port of a PC
- **Battery Life:** 48 hours (continuous operation)
- **Operating Conditions:**
- **Temperature:** 0 to +55 °C
- **Relative humidity:** 0 to 95 %
- **Storage Conditions**
- **Temperature:** -10 to +60 °C
- **Relative humidity:** 0 to 95 %

** When monochromatic light of λ = 550 nm or λ = 850 nm is input, spectral stray light is defined as the ratio of the count measured at the input wavelength, to the count measured at a wavelength 40 nm longer or shorter than the input wavelength.*

SPECTRAPEN MEASURES

- Irradiance spectrum [µW.cm^{-2}.nm^{-1}]
- Photon flux density spectrum [µmol.m^{-2}.s^{-1}.nm^{-1}]
- Irradiance [Wm^{-2}] in user defined range
- Photon flux density [µmol.m^{-2}.s^{-1}] in user defined range
- Illuminance [lux]
- PAR [µmol.m^{-2}.s^{-1}]
- Chromacity diagram CIE1931
- CIE color coordinates
- Correlated color temperature
- Color rendering index
- User defined formulas in PC software