# Handheld Devices

# NEWS

Lightweight battery-powered devices

Quick, reliable, and repeatable experiments

Excellent tools for research and education

## New Design

- Ergonomic
- Splash-Proof
- OLED Graphical Display
- Integrated GPS Module
- Li-ion Rechargeable Battery via USB port
- Communication by Bluetooth and USB



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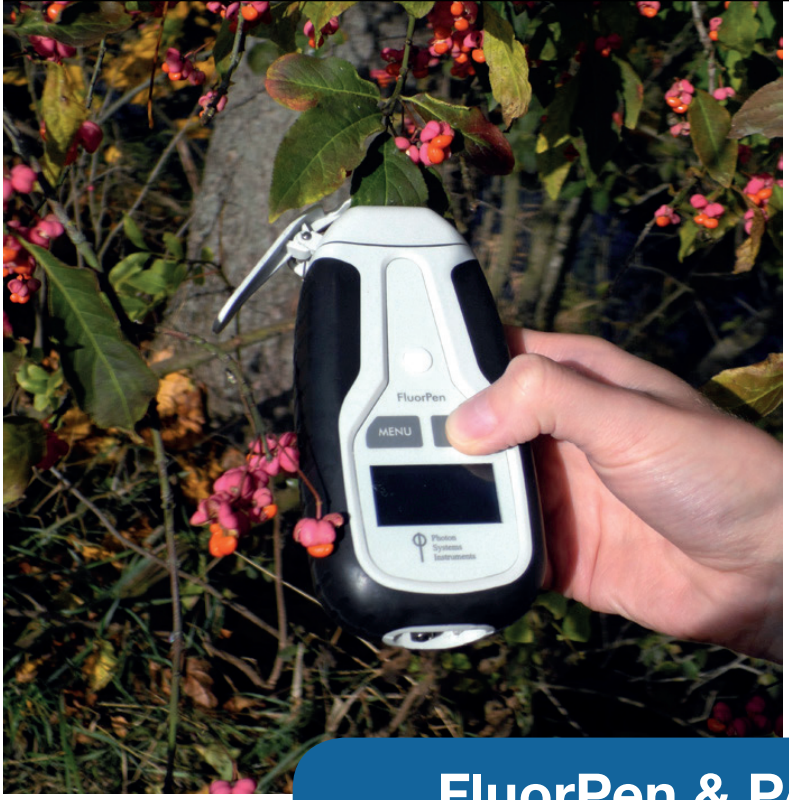
Tél. 01 47 95 99 90 - Fax. 01 47 01 16 22 - e-mail: bio@es-france.com - Site Web: www.es-france.com




- Measurement of photosynthetic activity in the lab, field or greenhouse
- Automated measurements of Ft, QY, OJIP, NPQ and Light Curves
- May be equipped with an integrated light meter for direct digital readouts of PAR
- Different leaf clips for gentle sample holding available

# FluorPen & PAR-FluorPen

## *APPLICATIONS*

- *Photosynthesis Research*
- *Screening and Characterization of Photosynthetic Mutants*
- *Field Studies*
- *Stress Detection*
- *Agriculture and Forestry*
- *Herbicide Testing*
- *Education*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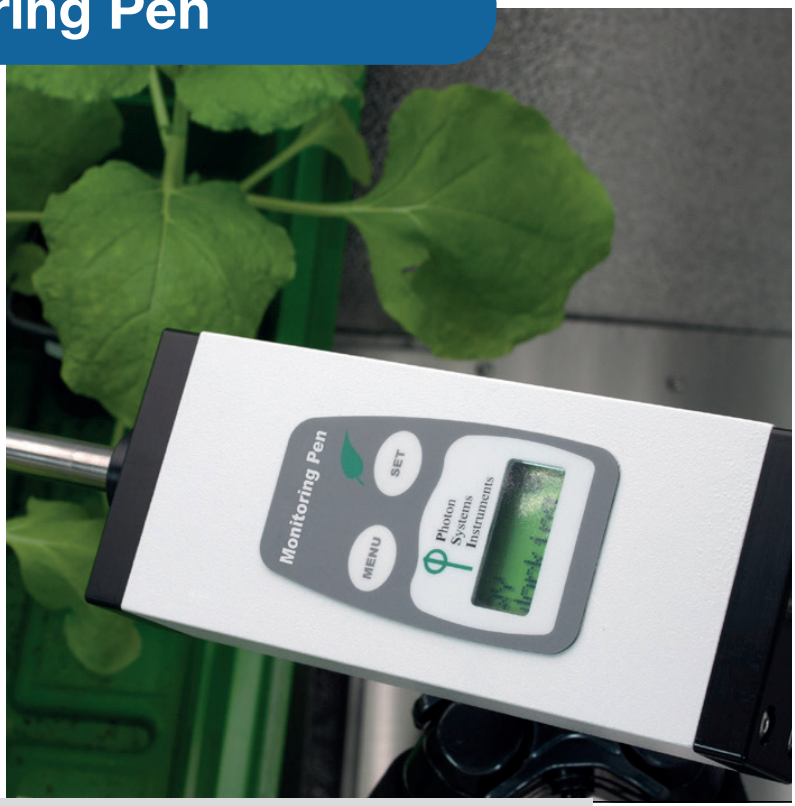
- Designed for extreme conditions
- Pre-programmed chlorophyll fluorescence measurement of Ft, QY, NPQ, OJIP, and Light Curves
- Long-term automated environmental monitoring
- Environmental version for field experiments. Aquatic version for underwater applications

# Monitoring Pen

## *APPLICATIONS*

- *Monitor Photosynthetic Performance*
- *Plant Screening in Lab and Field*
- *Stress Physiology*
- *Agriculture & Forestry*
- *Oceanography: Coral Physiology and Stress*

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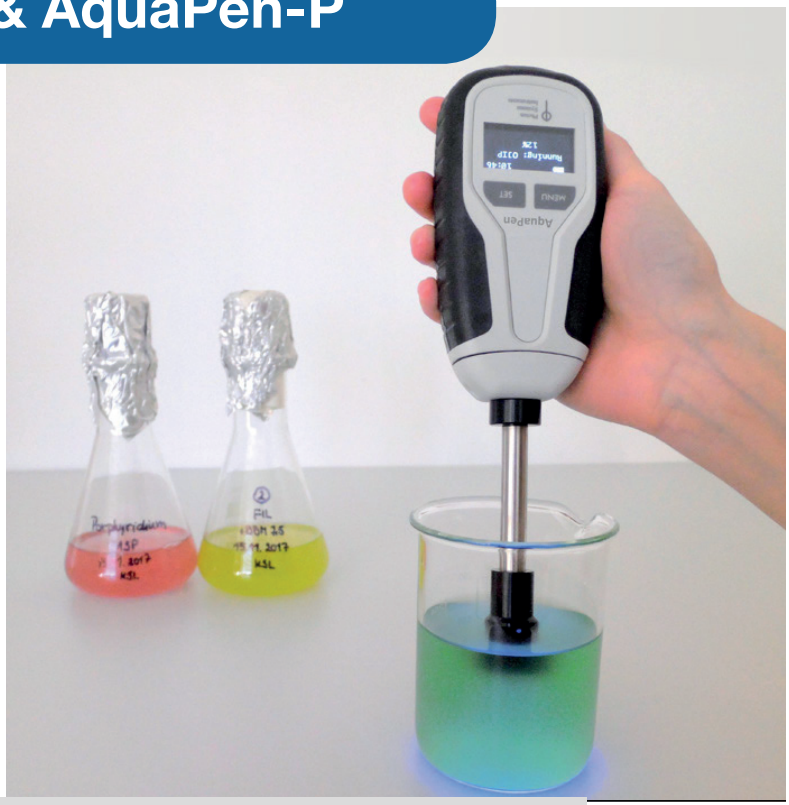
- Sophisticated chlorophyll fluorescence measurements in suspensions
- Automated measurements of Ft, QY, OJIP, NPQ, Light Curves
- Optical density measurements in AP-C version
- Equipped either with a cuvette (AP-C) or submersible probe (AP-P)
- Ultra-high sensitivity of 0.5 µg Chl/L in dilute suspensions

# AquaPen-C & AquaPen-P

## *APPLICATIONS*

- *Photosynthesis Research of Algal and Cyanobacterial Suspensions*
- *Detection of Algal Contamination in Water*
- *Phycology and Limnology*
- *Oceanography*
- *Biotechnology*



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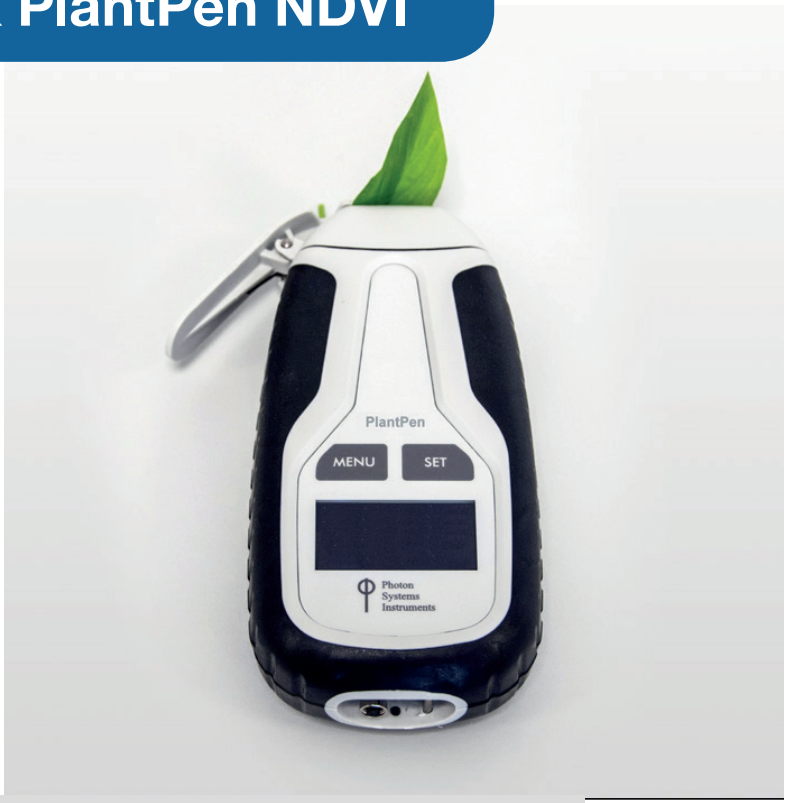
- Instant measurement of NDVI or PRI indices
- NDVI correlates with relative chlorophyll content
- PRI is sensitive to changes in carotenoid pigments (for stress assessment)
- Inexpensive, non-invasive and easy to use chlorophyll and carotenoid content meters

# PlantPen PRI & PlantPen NDVI

## *APPLICATIONS*

- *Rapid Screening of Chlorophyll Content*
- *Field and Lab Studies*
- *Early Stress Detection*
- *Nutrition Effects*
- *Agronomy, Forestry and Plant Physiology*

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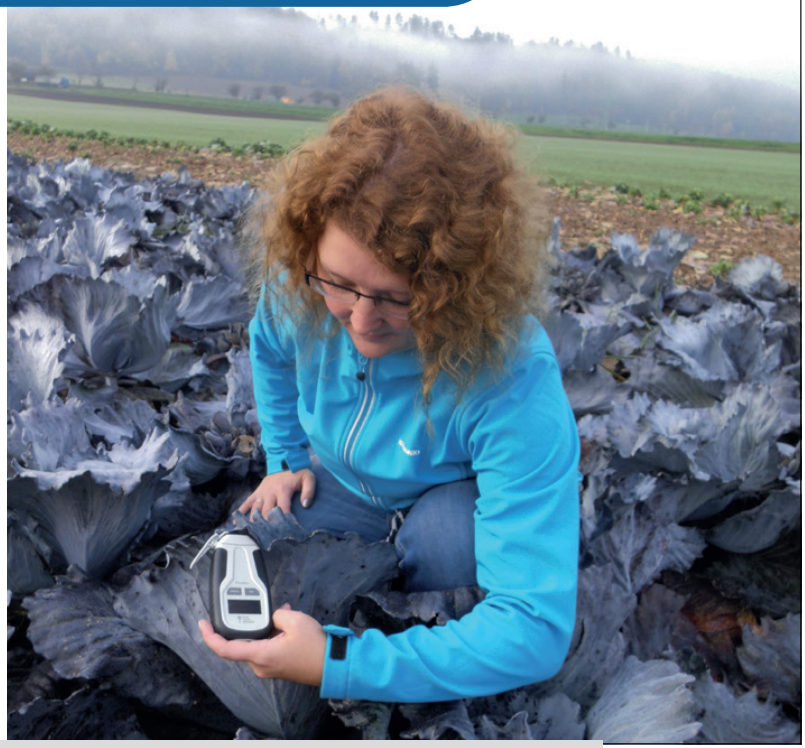
- Rapid non-invasive measurement of leaf nitrogen-content
- Absolute calibrations for wheat, maize and barley
- Relative measurement of nitrogen in all other species (can be calibrated for all)
- Rapid measurements in the lab or field

# N-Pen

## *APPLICATIONS*

- *Yield Predictions*
- *Increasing Nitrogen Use Efficiency*
- *Minimizing Yield-limiting N Deficiencies*
- *Minimizing Fertilizer Applications and Environmental Contamination*



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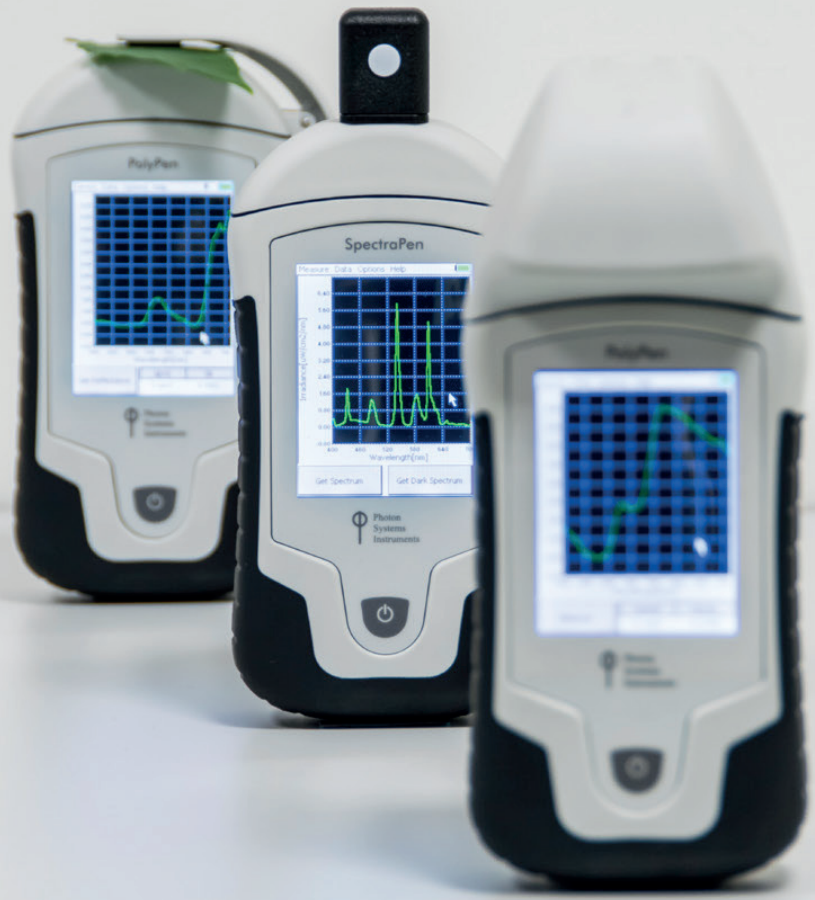
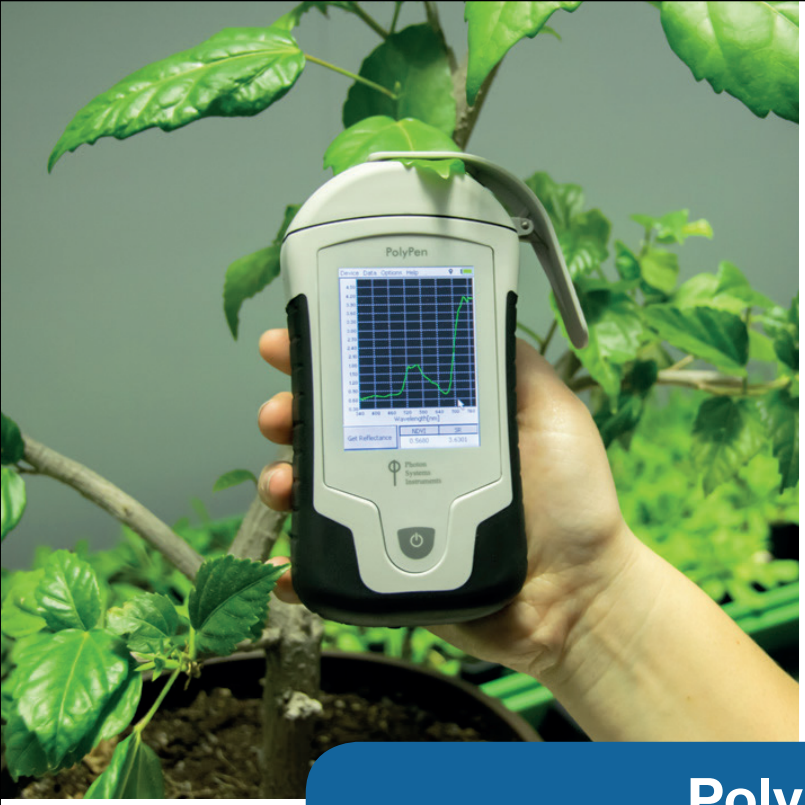
PSI (Photon Systems Instruments), spol. s r. o.
Drasov 470, 664 24 Drasov, Czech Republic
**www.psi.cz**

PHOTON SYSTEMS INSTRUMENTS

2019/05

# Handheld Devices



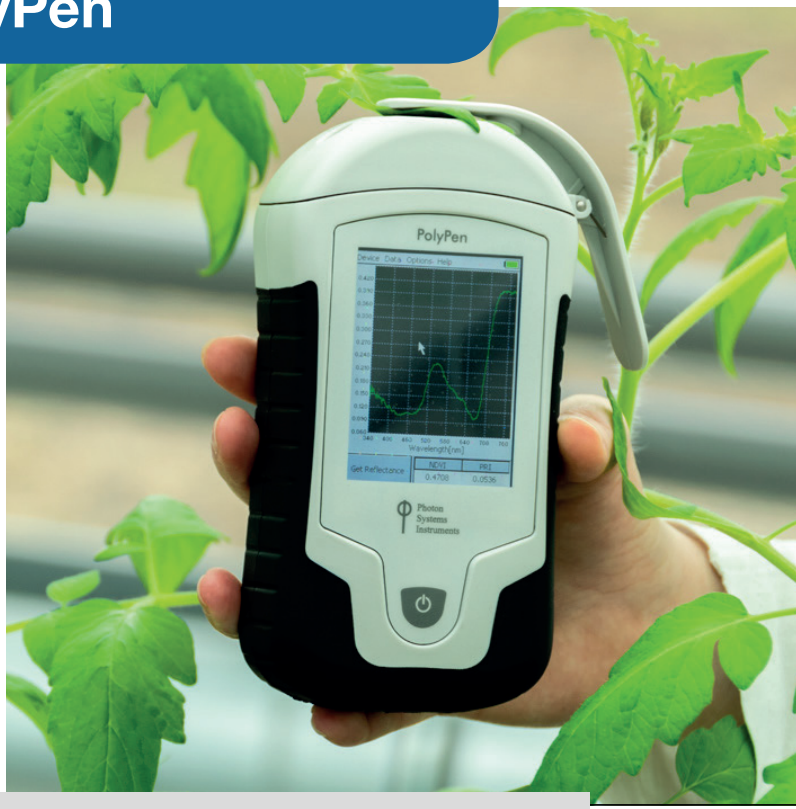



- Complete system for measurement of reflectance spectra from leaves
- Automatic calculation of all commonly used reflectance indices: NDVI, PRI, MCARI, TVI, NPCI etc.
- Allows calculation of customised indices
- Versions:
  - UVIS: 380 to 780 nm
  - NIR: 640–1,050 nm

# PolyPen

## *APPLICATIONS*

- *Plant Screening & Field Studies*
- *Stress Response*
- *Pigment Composition*
- *Water Content of Plants*
- *Nitrogen Status*
- *Grain Yield*

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- Sophisticated handheld replacement for benchtop spectrophotometers
- Measures absorbance and transmitance spectra from 380–780 nm
- Biotechnology, limnology, ecology, molecular biology, chemistry, forensic science etc.

# PolyPen-Aqua

## *APPLICATIONS*

- *Quatitative and Quanlitative Analyses of Solutions*
- *Growth Monitoring of Autotrophic and Heterotrophic Microorganisms*
- *Spectral Measurements of Cell Suspensions*
- *Pigment Composition*
- *Protein Analysis*

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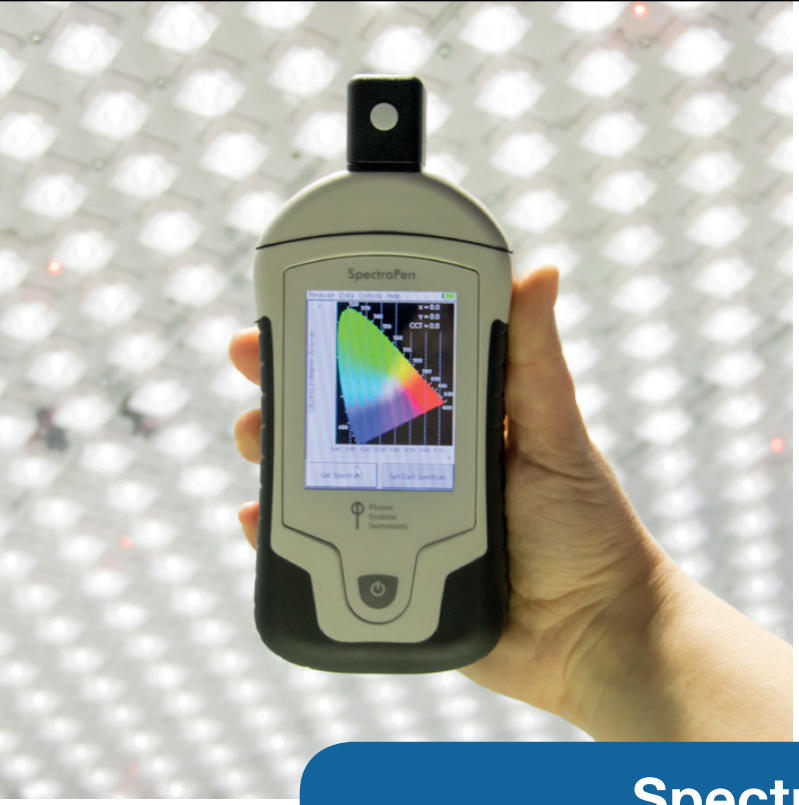


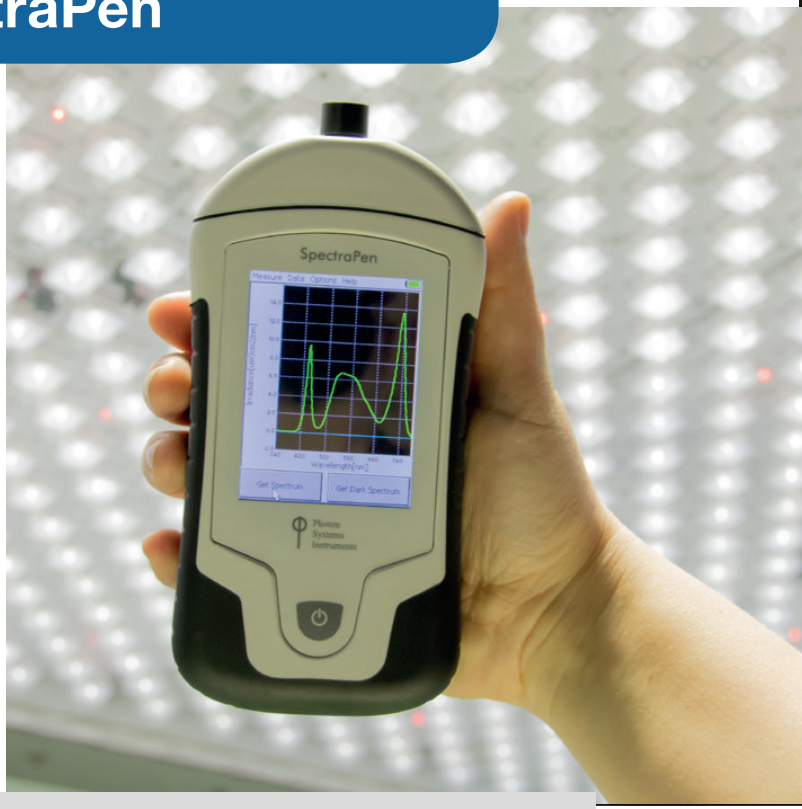

## SpectraPen SP 110

- Low-cost, versatile spectrometer module for lab, agricultural or industrial applications
- Testing of light sources, optical filters, protective screens etc.
- Easy to use manipulation with fiber optics or probe accessories
- Suitable for transmittance, absorption, reflectance or fluorescence measurement
- VIS or NIR range

# SpectraPen

## SpectraPen LM 510

- Rapid measurements of light intensity and spectral quality in the lab, greenhouse or field
- Handheld spectroradiometer measures irradiance in radiometric or photometric units
- Calibrated for visible light between 380–780 nm or into the NIR between 640–1,050 nm

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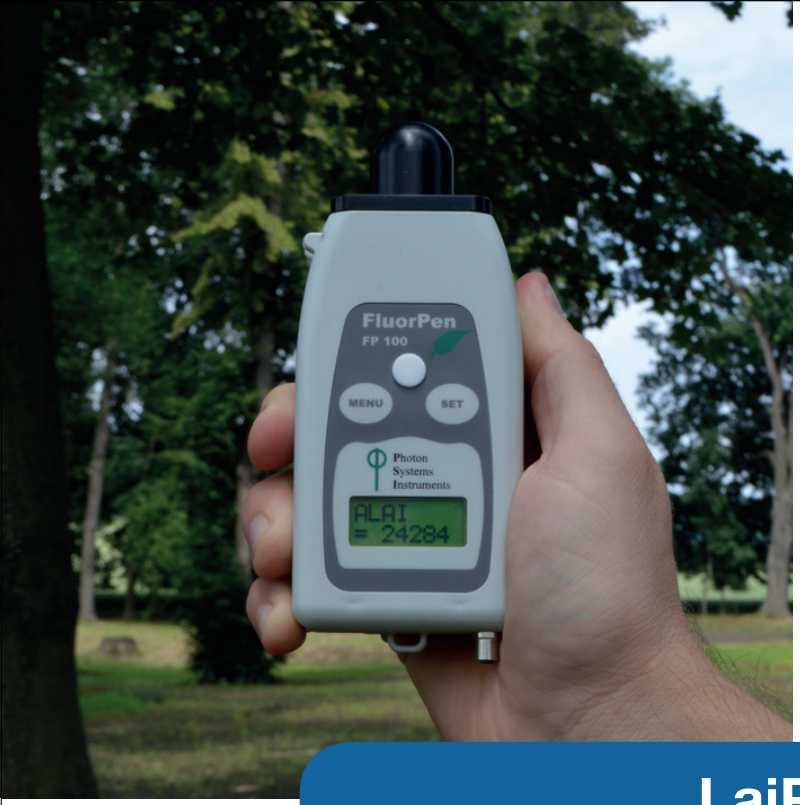
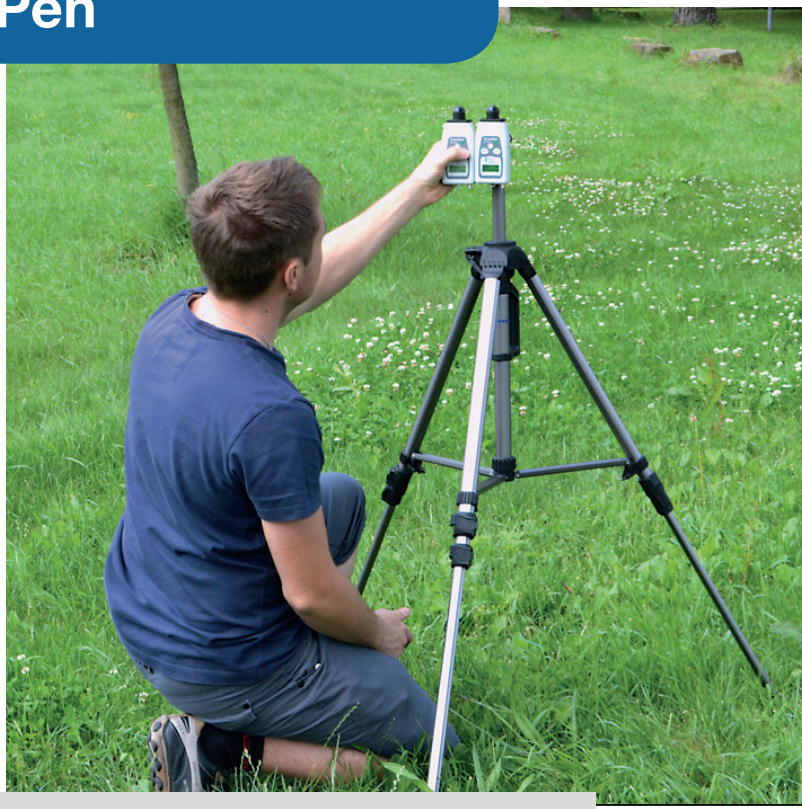



- Plant Canopy Analyzer
- Non-destructive measurement of Leaf Area Index (LAI)
- Combines LAI and PAR measurement
- Accurate in most day light conditions
- Single and dual sensor operation mode possible
- Ideal for rapid and repeated screening programs

# LaiPen

## *APPLICATIONS*

- *Canopy Growth and Productivity*
- *Forest Dynamics*
- *Impact of Air Pollution and Insect Damage on Foliar Health*
- *Remote Sensing*
- *Global Carbon Cycle*



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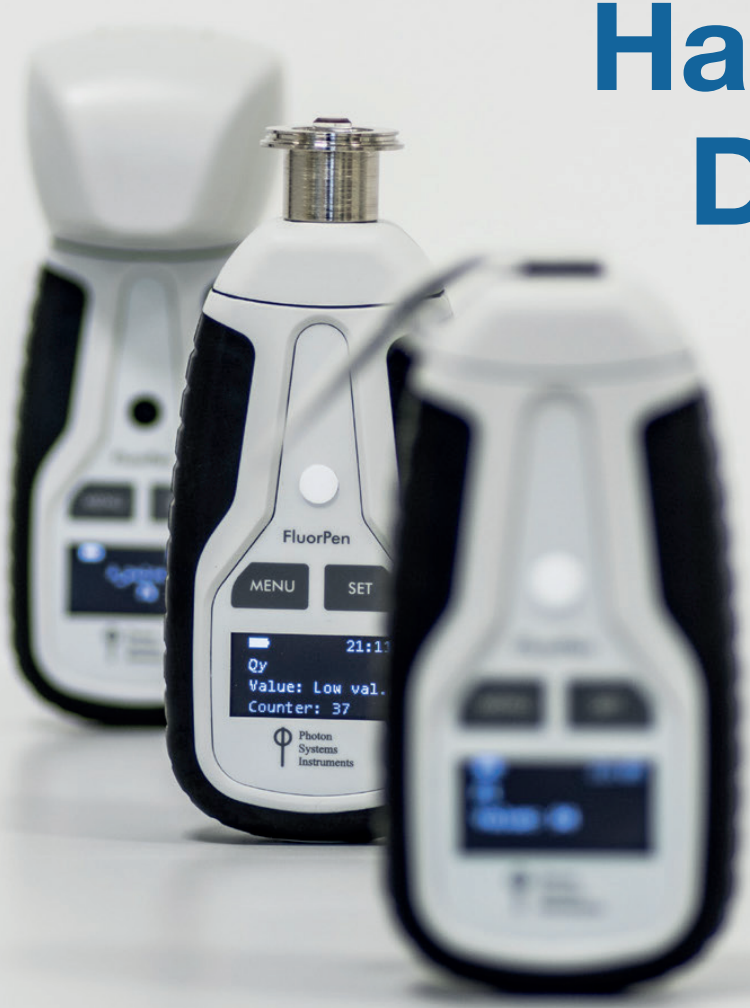


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