analytik

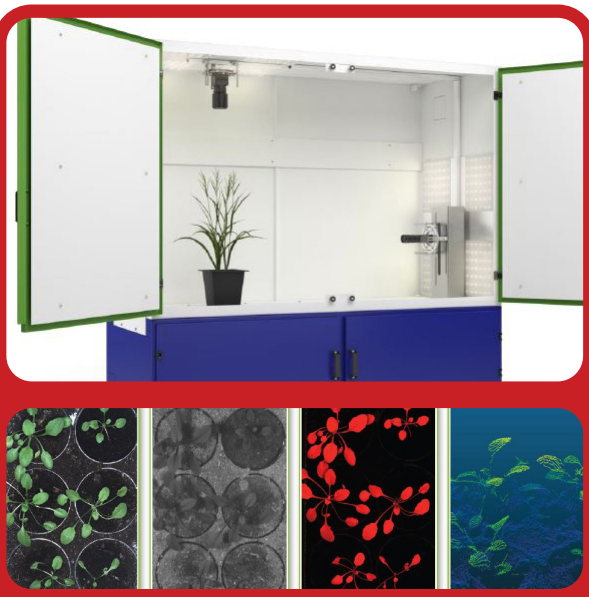
Precision Agriculture Research Solutions

- Digital Plant Phenotyping & Imaging
- Hyperspectral Imaging
- Portable Spectroradiometry
- Portable & Handheld Spectroscopy

Plant Phenotyping & Imaging

A pioneer of **plant phenotyping technology** since 1998, LemnaTec's range of solutions for digital plant phenotyping, seed testing and imaging are ideal for plant breeding and research applications.

Customisable to your exact requirements, the Aixpert digital phenotyping and imaging range provides **user friendly image acquisition, storage & analysis** with advanced, **reliable imaging processing** technology and optional machine learning to further save valuable time and labour in plant phenotyping.



The PhenoAixpert Pro phenotyping system & example applications.

Key Applications

- **Plant multi-sensor phenotyping**
- **Seed and germination testing**
- **Chlorophyll fluorescence imaging**
- **Hyperspectral and 3D laser scanning**
- **Disease and stress assessments**
- **Fertiliser and plant protection development**
- **MTP screening**

Performance

- ✓ **User friendly image acquisition, storage & analysis –** with intuitive graphical user interface and easy-to-use software
- ✓ **High sample throughput –** automatic sample loading available for some models
- ✓ **Easy to use, structured image file administration –** with metadata, annotation and analysis directly linked to images
- ✓ **Comprehensive machine-learning based analytical software -** customisable phenotyping with artificial intelligence option
- ✓ **Hyperspectral sensor options -** for high-resolution phenotyping & 3D scanning
- ✓ **Market-leading technical support** – from both Analytik and LemnaTec

Hyperspectral Imaging

Headwall Photonics' **Hyperspectral Imaging Sensors** are ideal for a wide range of agricultural research applications. From soil analysis and environmental change detection to monitoring crop health and disease, the small, light sensors are expertly designed for interchangeable use in **lab, field and airborne applications**.

With outstanding spatial and spectral resolution, a wide field of view and a **high signal to noise ratio**, Hyperspec® Hyperspectral Imaging Sensors offer optimal performance for even the most demanding applications and harsh environments.

Performance

- ✓ **Full hyperspectral data coverage;** from 400-2500nm
- ✓ **Complete airborne solution** mounted on a high-performance UAV
  - GPS/IMU (sensor position and orientation)
  - Custom stabilising gimbal
  - Radiometric calibration
  - LiDAR capabilities (optional)
- ✓ **Georectification software**
- ✓ **AgView™ application software**
  - Same day data acquisition and exploitation
  - Six standard vegetative indices (others available)

Key Applications

- **Precision agriculture**
- **Crop health / stress**
- **Crop disease detection**
- **Plant phenotyping**
- **Speciation**
- **Environmental change detection**
- **Weed mapping**
- **Hyperspectral vegetation indices**
- **Growth rate and density**
- **Leaf nitrogen and area index**

Portable Spectroradiometry

A pioneer in the science of spectroscopy for over 25 years, Malvern Panalytical's ASD brand continues to lead the field with the world's most trusted portable **UV/Vis/ NIR/SWIR spectroradiometers** covering the full solar reflected spectrum.

The **ASD FieldSpec® 4** line of full-range spectroradiometers (350-2500nm) delivers the fastest and most accurate spectral field measurements by a commercial portable spectroradiometer. Designed to perform solar spectral reflectance, radiance and irradiance measurements, the FieldSpec 4 is available in Hi-Res, Standard and Wide-Res format, offering state-of-the-art **remote sensing** technology for enhanced capability.

Performance

- ✓ **Solar spectral reflectance, radiance and irradiance measurements**
- ✓ **Fast, real time measurement -** complete spectra collected in 100 ms (0.1 sec)
- ✓ **Unique low stray light post-dispersive optics** - for increased data accuracy
- ✓ **Wireless connectivity to instrument controller** for free movement
- ✓ **Battery monitor, runtime meter and detector stability indicators**
- ✓ **2151 data points per spectra** - 1 nm data interval
- ✓ **Spectroscopy probes & accessories**

Key Applications

- **Ground truthing**
- **Sensor calibration**
- **Forestry**
- **Ecology**
- **Plant physiology**
- **Crops & soil research**

Portable & Handheld Spectroscopy

Also from Malvern Panalytical, the **ASD LabSpec® 4** is a full-range (350-2500 nm) **NIR spectrometer** designed to perform rapid, non-destructive materials analysis for qualitative and quantitative applications. Capable of evaluating multiple properties simultaneously, the LabSpec 4 can analyse materials in real-time with no sample prep required, allowing hundreds of samples to be processed per day.

The **ASD QualitySpec® Trek** handheld spectrometer delivers full-range (350-2500nm) spectral measurements through a handheld system designed around a streamlined cable-free workflow for accurate spectral results in seconds.

Performance

LabSpec 4

- ✓ **Portable, durable and robust** - with no compromise in performance
- ✓ **Fast, real time measurement -** data collected in 1-5 seconds
- ✓ **Unique low stray light post-dispersive optics** - for increased data accuracy
- ✓ **Spectroscopy probes & accessories**

QualitySpec Trek

- ✓ **Fast and accurate -** enhanced spectrometer configuration builds on the trusted legacy of ASD for unparalleled accuracy and performance
- ✓ **Audio recorder** - automate field notes with the convenience of voice memos
- ✓ **On-board GPS** - automatically populate accurate coordinate and elevation data for every measurement

Key Applications

- **Grain & seed**
- **Food & feed**
- **Crops & soil research**
- **Plant physiology**

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