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## E-Nano MANTI-S Series - Technical Specifications

The E-Nano MANTI-S Series is a handheld NDVI sensing platform designed for fast, reliable plant health measurement in turf and agricultural environments. Built on a multi-channel spectral architecture, it delivers consistent NDVI readings using an ambient-compensated dual-sensor approach, while remaining fully open-source for maximum flexibility and integration. The system is available in Lite and Pro configurations, including thermal sensing capability on the Pro version.



### Overview

Device Type	Handheld NDVI sensor
Use Case	Turf management, crop monitoring, research
Measurement Output	NDVI (Normalized Difference Vegetation Index)
Operation Mode	Trigger-based measurement with display
Design Philosophy	Open, accessible, field-ready

### Optical System

Sensor Type	Dual multi-spectral sensors (AS7265-based architecture)
Sensor Configuration	2 x spectral sensors (UP / DOWN configuration)
Spectral Capability	Multi-channel (visible to near-infrared)
NDVI Red Channel	Channel I (~645 nm)
NDVI NIR Channel	Channel V (~810 nm)
Measurement Principle	Active reflectance sensing
Ambient Compensation	UP sensor measures incident light; DOWN sensor measures reflected light
Field of View	~20° (full angle), area-based measurement; at 80 cm height, footprint ≈ 28 cm diameter

### Measurement Characteristics

Measurement Type	Reflectance-based NDVI
Output	Instant NDVI value (on-device display)
Acquisition Time	~1-2 seconds
Sampling Method	Averaged measurement (multiple internal readings per trigger)
Repeatability	Designed for consistent field measurements

### Electronics & Processing

Core Architecture	Embedded microcontroller system
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Sensor Interface	Digital spectral sensors
Processing	On-device NDVI calculation
Data Access	Raw spectral channels accessible via firmware
Compensation Method	Reflected light normalised against incident light before NDVI computation

## Power System

Battery Type	Rechargeable lithium-ion
Charging	USB-C
Operation Time	Full-day field use (typical)

## Mechanical, Build & Sensors

MANTI-S Lite	Lightweight handheld design with high-quality engineering polymer enclosure
MANTI-S Pro	Predominantly machined metal enclosure with polymer elements
Lite Positioning	Accessible, everyday field use
Pro Positioning	Enhanced durability and premium finish for intensive professional use
Thermal Sensor (Pro)	Surface temperature measurement for additional plant stress context

## Software, Connectivity & Integration

Firmware	Open-source (to be released)
Hardware Design	Open (CAD + BOM planned)
User Capabilities	Modify firmware, access raw spectral data, develop custom vegetation indices
Connectivity	Display + extensible (BLE / Wi-Fi)
Integration	OSCAR app for data logging, geotagging and analytics

## Typical Applications

Sports Turf	Pitches, training grounds, golf courses and racecourses
Agriculture	Crop vigour assessment and fertiliser optimisation
Research & Ground Truthing	Custom workflows and satellite / drone validation