

# RapidSCAN CS-45 HANDHELD CROP SENSOR



## INTEGRATED AND COMPACT

The RapidSCAN CS-45 represents the latest advancement in active crop canopy sensing solutions. The RapidSCAN CS-45 is a completely self-contained active crop canopy sensor that integrates a data logger, graphical display, GPS, crop sensor and power source into one, small compact instrument. The sensor is unaffected by ambient illumination allowing it to take accurate biomass measurements day or night due to its internal polychromatic light source. The sensor is capable of collecting data from vegetation at sensor-to-canopy distances ranging from 0.3 meters to over 3 meters. Information produced by the sensor includes NDVI/ NDRE vegetation indexes, latitude/longitude and sample statistics as well as basic reflectance information.

## MULTI-CHANNEL SPECTRAL MEASUREMENT

The RapidSCAN CS-45 incorporates three optical measurement channels. The sensor simultaneously measures crop/soil reflectance at 670 nm, 730 nm and 780 nm. A unique feature of the RapidSCAN CS-45 sensor is its ability to make height independent spectral reflectance measurements. Holland Scientific refers to these reflectance measurements as Pseudo Solar Reflectance (PSR) measurements. As such, the spectral reflectance bands are scaled as percentages and will not vary with sensor height above a target. This opens the possibility of using literally dozens of vegetation indexes developed for aerial and satellite remote sensing applications that do not use ratio based calculations.

## EASY DATA COLLECTION

Data is easily collected by simply pressing the RapidSCAN's trigger switch and then scanning a target plant. Scanned data is stored in the instrument's 3 MB flash file for later transfer to a PC using the RapidTALK terminal software. Data collected by the RapidSCAN can be analyzed in third party GIS or spreadsheet software.

## FEATURES:

- » Three measurement channels: 670 nm, 730 nm and 780 nm
- » Computes height independent absolute reflectance
- » Make measurements day or night
- » Built-in GPS with CEP50 accuracy < 1 m
- » Wide measurement range— 0.3 m to 3 m
- » Rugged IP65 packaging— dust and water resistant
- » Low-noise performance
- » Logs more than 25,000 samples
- » Computes sample statistics for NDRE and NDVI vegetation indexes
- » Light weight (0.8 kg)



## SPECIFICATIONS: (Preliminary)

### OPTICAL

**Sensor-to-Canopy Range:** Typically 1.0ft (0.3 m) to >9.8 ft (>3 m)

**Field-of-View:** ~45 degrees by ~10 degrees;

**Active Light Source:** Modulated polychromatic lamp

**Photodetection:** Three channel silicon photodetector

**Optical Measurement Bands:** 670 nm, 730 nm and 780 nm

### ELECTRICAL

**GPS Accuracy:** <1 meter CEP 50, SBAS enabled

**Operating Range:** 0 to 50 °C

**Communication Interface:** USB 2.0 transceiver

**Serial Communication:** 56000, no parity, 8 data bits, 1 stop bit

**Power:** Internal lithium battery

**Memory Storage:** 3 M bytes (>25,000 data points with all logging features enabled)

**Battery Life:** Typically > 20 hrs

### MECHANICAL

**Enclosure:** Plastic and powder-coated aluminum

**Environmental:** IP65 for dust and water resistance

**Weight:** 1.75 lb (0.8 kg)

**Dimensions:** Width 4.0 in (10.2 cm), Length 8.9 in (22.6 cm), Height 6.75 in (17.1 cm)

**Serial/Battery Charger Connector:** Micro USB type B connector

### ACCESSORIES AND SYSTEM PACKAGES

**RapidSCAN CS-45 Starter Package.** Package includes RapidSCAN CS-45 sensor, charger, USB cable, storage case and manual.

**RapidSCAN N-Rec Software.** RapidSCAN operating system upgrade software that allows the user to make N fertilizer recommendations based the Holland-Schepers generalized N rate model.

**RapidTALK Terminal Software.** Performs data transfer from sensor to PC, basic configuration and software upgrade maintenance. Compatible with Microsoft Windows XP, VISTA and Windows 7. Includes software CD and USB cable.

### NOTES:



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