

Crop Circle Model DAS43X



The Holland Scientific Crop Circle DAS43X multi-parameter sensor fuses multiple sensing devices into a single compact package. Data collected by the sensor can be utilized to quantify the radiative transfer properties for both soil and vegetation. The Crop Circle DAS43X's versatility allows it to be deployed for both stationary and mobile applications. Additionally, the Crop Circle DAS43X can be networked with other Holland Scientific crop canopy sensors or with third-party sensors in order to expand on its already data rich capabilities. Measurements provided by the Crop Circle DAS43X include: upwelling and downwelling photosynthetic active radiation (PAR), canopy temperature, air temperature, relative humidity and atmospheric pressure. The Crop Circle DAS43X also includes two 24-bit differential voltage channels with the option of configuring one of the channels as a pulse counter.

CHARACTERIZE RT PROPERTIES

Radiative transfer (RT) modeling is an area of primary use for the Crop Circle DAS43X. Data collected by the sensor can be used to assess underlying physical processes related to the interaction of radiation with the plant foliage at the canopy level. Sensor data can be combined with other sensors, such as the Crop Circle ACS-430P, to provide even more canopy information related to a plant canopy's biophysical characteristics.

COLLECT DATA EASILY

Log Crop Circle DAS43X data using the new GeoSCOUT X GPS data logger. The GeoSCOUT X has 2GB of internal memory and internal GPS. All recorded data are saved using a comma-separated-variable text format for easy import into third-party GIS mapping and analysis software. The GeoSCOUT X can support four Crop Circle DAS43X sensors plus two additional RS232 serial devices. Position offsets for each sensor can be readily configured.

FEATURES:

- » Measurements: Upwelling and downwelling PAR, canopy temperature, air temperature, relative humidity, atmospheric pressure
- » Two 24-bit differential voltage channels

USES:

- » Trend diurnal changes in plant growth
- » High throughput Phenotyping
- » Agrochemical performance assessment
- » Net primary production estimation
- » fAPAR estimation
- » Nutrient studies

SPECIFICATIONS*

SENSOR COMPONENTS

Measurements: Canopy temperature (IRT), air temperature, atmospheric pressure, relative humidity, reflected second, determined by GPS output rate and incident PAR, 2 voltage measurement channels (compatible with type T, K and E thermocouples)

IRT Spectral Bandwidth: 5.5um to 14um

IRT Field-of-View: \approx 30 degrees

IRT Emissivity: 0.95

IRT Temperature: 0 to 55°C, \pm 0.5°C

Ambient Air Temperature: 0 to 55°C, \pm 0.3°C Par Sensor
Spectral Bandwidth: Nominally 400nm to 700nm

Reflected Par Field-of-View: \approx 30 degrees

Atmospheric Pressure: 15 to 115 kPa, \pm 1.5% FS

Relative Humidity: 0 to 100% non condensing; 10 to 90%,
@ \pm 4% FS

Common Mode Voltage Range: 0 to 4.5 Volts

Common Mode Rejection: >100dB

Differential Input Impedance: >1Mohm

Differential Voltage Input Channel Span: \pm 2.5 Volts, 24 bits

Common Mode Rejection: >100dB

DATA ACQUISITION

Data Collection: GeoSCOUT X geospatial data logger

Autosend Output Rate: 5 samples per second

Networked Sample Rate: 5 samples per second

ELECTRICAL/MECHANICAL

Enclosure: Plastic (polycarbonate and PVC) and Aluminum

Environmental: IP64 for dust and moisture resistance

Electrical Power: 11.5 to 16.5 VDC @ < 300mA

Operation range: 0 to 50°C

ACCESSORIES

Crop Circle DAS43X Calibration Kit: Includes DAS43X communication software, USB to RS485 converter, cables and manual.

*Specifications subject change without notification

NOTES:



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