

# Chlorophyll Content Meter CCM-200 plus

## Take non-destructive measurements of relative chlorophyll concentration through optical analysis

The CCM-200 plus (manufactured by Opti-Sciences, Inc., Hudson, New Hampshire, USA) indicates the relative chlorophyll content of leaves by measuring the chlorophyll content index (CCI).

The CCM-200 plus integrates a large leaf area in order to provide a representative spatial average of leaf CCI. It also includes a datalogging capability and GPS synchronization.

Chlorophyll has several distinct optical absorbance characteristics that the CCM-200 plus exploits in order to determine relative chlorophyll concentration. Strong absorbance bands are present in the blue and red but not in the green or infrared bands.

The CCM-200 plus uses absorbance to estimate the chlorophyll content in leaf tissue. Two wavelengths are used for absorbance determinations. One wavelength falls within the chlorophyll absorbance range while the other serves to compensate for mechanical differences such as tissue thickness. The meter measures the absorbance of both wavelengths and calculates a CCI (chlorophyll concentration index) value that is proportional to the amount of chlorophyll in the sample.

Chlorophyll transmission is characteristically high in the near infrared range and very low in the red range because green plants absorb visible radiation for photosynthesis and transmit near infrared, which they do not use.



The CCM-200 plus uses LEDs that emit specific wavelengths in the red and infrared ranges. The detector analyzes the ratio of the two wavelengths to determine chlorophyll concentration index (CCI).

### Related Product



The spectroradiometer measures reflectance.

# Specifications

## Measured Parameters

- Ratio of optical transmission at 931 nm (50 nm half-bandwidth) divided by transmission at 653 nm (25 nm half-bandwidth)

## Measurement Area

- 71 mm<sup>2</sup>
- 0.95 cm diameter

## Resolution

- $\pm 0.1$  Chlorophyll Concentration Index (CCI) unit

## Range

- 0 to 200

## Sample Acquisition Time

- 2 - 3 seconds

## Detectors

- Two silicon photodiodes with integral amplifiers

## Storage Capacity

- Internal datalogging of over 100,000 measurements

## Input & Output

- Mini USB port provided for main data transfer
- RS-232 port can be used as backup data transfer with software
- RS-232 port can also be used with GPS for integrated measurement

## Radiation Source

- Two LEDs

## User Interface

- 50 mm by 15 mm graphic display screen
- 8 keys for control and data manipulation
- Beep-signal for status and warnings

## Operating Temperature

- 0 - 50 C

## Temperature Drift

- Temperature compensated source and detector circuitry for minimum drift over full range

## Input Power

- Standard 9 V alkaline battery (included)

## Dimensions

- 15 by 8.2 by 2.5 cm

## GPS Option

- RS-232 port is used for GPS
- GPS location data is saved with measuring data for each measurement in the file

## Mass

- 220 g (with battery)

## Warranty

- 1 year against defects in materials and workmanship



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