



# CI-710 Miniature Leaf Spectrometer

## DESCRIPTION

The CI-710 Miniature Leaf Spectrometer is designed to measure the transmission, absorption, and reflection of light by biological substances within a wide range of wavelengths that cover visible and Near Infra-Red (NIR) light. Transmission and absorption spectrum measurements are the most common applications of spectrometers. The spectrum can be used for the quantification of chemical concentrations, color analysis, the study of photochemical reactions such as photosynthesis, and the quantification of physical or optical properties such as film thickness, index of refraction, and extinction coefficient.

## SPECIFICATIONS

Dimension: 89.1 mm x 63.3 mm x 34.4 mm

Weight: 975g

Operating Environment: -30° to 70° C storage, -10° to 50° C Operation, 0% - 90% noncondensing humidity

Minimum Leaf Size: 20mmx20mm



### CI-710 Miniature Leaf Spectrometer:

Weighing less than 300 grams, the CI-710 Miniature Leaf Spectrometer can travel with you anywhere to measure light transmittance, absorbance, and reflectance of leaves. Light is detected by this full visible-range spectrometer as it interacts with the leaf.

The included SpectraSnap! Software allows researchers to analyze multiple, discrete peaks across a spectrum of 400-950 nm and rapidly estimates vegetation properties with indices including: Normalized Difference Vegetation Index (NDVI), Anthocyanin

Reflectance Index (ARI), Plant Senescence Reflectance Index (PRSI), Water Band Index (WBI), and many more.

### SPECTRASNAP!

Many researchers wish to analyze multiple, discrete peaks or integrate across wavelength bands. These functions are readily accomplished with the SpectraSnap! software that ships with the CI-710.

Other users of the CI-710 have expressed a need to rapidly estimate vegetation properties using published and accepted indices. These indices include: estimates of greenness like the widely-used Normalized Difference Vegetation Index (NDVI); plant stress, such as the Plant Senescence Reflectance Index (PRSI); pigment concentrations, including carotenoids and anthocyanins; and leaf water status estimated by the Water Band Index (WBI).

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## SPECIFICATIONS

### Detector Specifications

Detector: Toshiba TCD1304AP Linear CCD array

Wavelength Range: 400-950nm

Pixels: 3,648 pixels

Pixel Size: 8  $\mu\text{m}$  x 200  $\mu\text{m}$

Pixel Well Depth: 100,000 electrons

Signal-To-Noise Ratio: 300:1 (at full signal)

A/D Resolution: 16bit

Dark Noise: 50 RMS counts

Corrected Linearity: >99.8%

Sensitivity: 130 photons/count at 400nm; 60 photons/count at 600nm

### Spectroscopic

Optical Resolution: ~0.3-10.0 nm

FWHM (grating dependent)

Integration Time: 3.8ms - 10 seconds

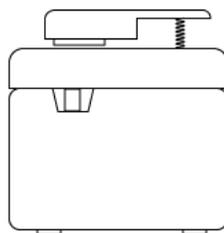
Dynamic Range: 2 x 10<sup>6</sup> (system), 1300:1 for a single acquisition

Stray Light: <0.05% at 600 nm; 0.10% at 435 nm

## Product Features:

- Wide range spectrum (400-950nm)
- High resolution and real time high speed scanning
- Very high sensitivity; ideal for fluorescence and other low light level applications
- USB interface
- Flexible fiber optic cables with connections to a variety of probes for different applications
- Integrating time = 3.8 ms - 10 seconds
- Lightweight and fully portable

<10  
seconds



One-touch  
spectrometry in the field

## Contact info



### Monitoring MENA

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## APPLICATIONS

- Ecologists use the CI-710 to compare changes in pigments across elevations.
- Plant Physiologists use the CI-710 to measure changes in reflectance indices throughout the season.
- Educators use the CI-710 to non-destructively demonstrate spectral measurements of leaves



This Instrument is manufactured by our principle company

**CID Bio-Science - USA**