

# CI-700 Spectrometer & Leaf Probe Attachment

- ✓ Wide range spectrum (400-1000nm)
- ✓ 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
- ✓ Data transfer speed = Full spectrum to memory every 4 ms
- ✓ Lightweight and fully portable

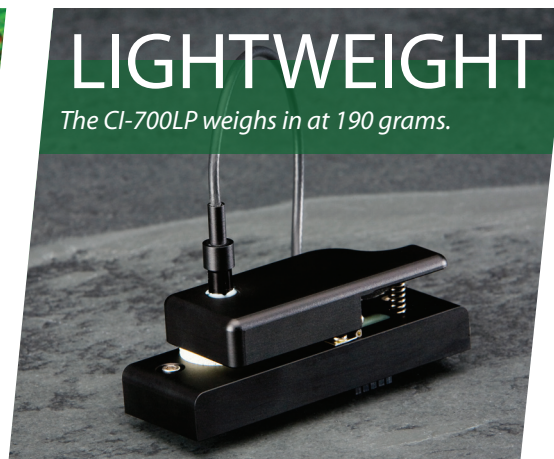


## HOW IT WORKS

The CI-700 is a miniature fiber optic UV-VIS-Shortwave NIR spectrometer. The CI-700 has very high resolution, is highly sensitive and affordable.

The CI-700 has a compact optical bench coupled to a 3648-element Toshiba TCD1304AP Linear CCD array detector. It accepts light energy transmitted through single strands of optical fiber and disperses the light via a fixed grating across the CCD array, which is responsive from 400-1000nm. An SMA 905 connector allows for easy coupling to our line of fiber optic light sources, probes, and other spectrometric accessories.

The CI-700 is a computer operated system. It performs real-time spectrum scan and data processing. An optional Leaf Probe with built-in light source can be connected to the system and an object such as a leaf can be scanned to obtain graphic outputs or digital data readings of the transmission, reflection and absorption spectra.



 **CID** *Bio-Science*  
Portable Instruments for Precision Plant Measurement

Inc.

4901 NW Camas Meadows Dr  
Camas, WA USA

[www.cid-inc.com](http://www.cid-inc.com)

(360) 833-8835

[sales@cid-inc.com](mailto:sales@cid-inc.com)

# SPECIFICATIONS

## Physical Specifications

Dimensions	89.1 mm x 63.3 mm x 34.4 mm
Weight	190 grams

## Detector Specifications

Detector	Toshiba TCD134AP Linear CCD array
Detector Range	400-1000nm
Pixels	3648 pixels
Pixel Size	8 $\mu$ m x 200 $\mu$ m
Pixel well depth:	100,000 electrons
Signal-to-noise ratio:	300:1 (at full signal)
A/D resolution:	16 bit
Dark noise:	50 RMS counts
Corrected linearity:	>99.8%
Sensitivity:	130 photons/count at 400 nm; 60 photons/count at 600 nm

## Optical Bench

Design:	f/4, Asymmetrical crossed Czerny-Turner
Focal length:	42 mm input; 68 mm output
Entrance aperture:	5, 10, 25, 50, 100 or 200 $\mu$ m wide slits or fiber (no slit)
Grating options:	14 different grating options, UV through Shortwave NIR
HC-1 grating option:	No
Detector collection lens option:	Yes, L4
DET4 filter options:	DET4-200-850; DET4-350-1000
Other bench filter options:	Longpass OF-1 filters
Collimating and focusing mirrors:	Standard or SAG+UPG
UV enhanced window:	Yes, UV4
Fiber optic connector:	SMA 905 to 0.22 numerical aperture single-strand optical fiber

## Spectroscopic

Wavelength range:	Grating dependent
Optical resolution:	~0.3-10.0 nm FWHM (grating dependent)
Signal-to-noise ratio:	300:1 (at full signal)
A/D resolution:	16 bit
Dark noise:	50 RMS counts
Integration time:	3.8 ms - 10 seconds
Dynamic range:	2 x 10 <sup>8</sup> (system), 1300:1 for a single acquisition
Stray light:	<0.05% at 600 nm; 0.10% at 435 nm

## Electronics

Power consumption:	250 mA @ 5 VDC
Data transfer speed:	Full spectrum to memory every 4 ms with USB 2.0 port
Inputs/Outputs:	Yes, 8 onboard digital user-programmable GPIOs
Analog channels:	No
Auto nulling:	Yes
Breakout box compatible:	No
Trigger modes:	4 modes
Strobe functions:	Yes
Connector:	22-pin connector

## Computer

Operating systems:	Windows 98/Me/2000/XP, Mac OS X and Linux with USB port; Any 32-bit Windows OS with serial port
Computer interfaces:	USB 2.0 @ 480 Mbps (USB1.1 compatible); RS-232 (2-wire) @ 115.2 K baud
Peripheral interfaces:	SPI (3-wire); I2C inter-integrated circuit

## ICT International Pty Ltd

Solutions for Soil, Plant and Environmental monitoring

PO Box 503, Armidale, NSW, 2350, Australia

sales@ictinternational.com.au

www.ictinternational.com.au

Ph: +61 2 6772 6770

Fax: +61 2 6772 7616

