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LI-1500 Light Sensor Logger

Intuitive, menu-driven interface

The menu-driven interface is easy to use. Attach your LI-COR light sensor(s) to the three BNC connectors. Log manually or use menus to set up one-time, daily, or continual measurement routines. Sampling rates and logging intervals are user-selectable.

Fast measurements (up to 500 Hz)

Use the LI-1500 with one sensor to sample and log measurements up to 500 Hz – fast enough to measure the flicker rate of fluorescent, iridescent, incandescent, and LED light bulbs. Graph these large data sets on your computer using LI-COR's FV7x00 software. Also view real-time light measurements, GPS data, and other variables on the eight-line display screen. Sample and log up to 20 Hz with two or three sensors at once.

Global Positioning System (optional)

The LI-1500 features an optional global positioning system (GPS) for recording the location of measurements. The GPS facilitates repeated visits to the same location for tracking light levels over time. Log GPS data independently or with light data.

Large memory capacity (1 GB)

With one gigabyte of flash memory, the LI-1500 stores a large amount of data on an internal SD card. Also store configurations and up to 100 sensor-specific calibration coefficients for later use. Enter the calibration coefficient (multiplier) and date of last calibration just once.

When attached to a computer, the LI-1500 acts as a mass-storage device with a simple drag-and-drop file system. Transfer logged data to a computer with the included USB cable. Data are formatted for easy import into widely used spreadsheet and database software. Also transfer configurations and sensor calibration data to a computer, and then share with other LI-1500 units.

Weather-resistant, handheld operation

The LI-1500 features a rugged housing and compact design suitable for handheld outdoor use. The LI-1500 is powered by four AA batteries, providing over 80 hours of operation with typical usage, or 40 hours with the GPS option turned on. Power can also be supplied from an AC wall outlet with the provided USB adapter. AC adapter plugs for worldwide use are included.

Connects to LI-COR terrestrial and underwater light sensors

Use the LI-1500 with LI-COR sensors to log photosynthetically active radiation (PAR), global solar radiation, and light (the visible spectrum). Connect up to three sensors at the same time. For instance, use two PAR sensors to measure incident radiation above and below a plant canopy. You can also measure PAR along transects under a plant canopy.

The LI-1500 features a built-in math function for measuring vertical attenuation using two underwater PAR sensors. The three input ports also allow for the measurement of incident PAR above water while measuring simultaneous upwelling and downwelling PAR below water.

LI-1500 Specifications

Current Inputs: 3 BNC connectors for LI-COR sensors
Output Channels:
Light
Math Channels: 8 math channels (addition, subtraction, multiplication, division, natural logarithm, integration, daily integration, attenuation)
GPS (optional)
Prompt
Battery Voltage
Input Channel Specifications:
Frequency Rejection: >70dB at 50 or 60 Hz (1 input channel @ sampling rates of 1, 2, 5, 10, 20 Hz)
Current Accuracy: ±0.3% of full scale reading @25°C
Signal Ranges:

Table 1-1. Signal Ranges.

Range #	Current Range	Resolution (Typical)
1	0 – 0.250 µA (micro-amps)	0.0305 nA (nano-amps)
2	0 – 2.50 µA (micro-amps)	0.1525 nA (nano-amps)
3	0 – 25 µA (micro-amps)	1.525 nA (nano-amps)
4	0 – 250 µA (micro-amps)	15.25 nA (nano-amps)

Raw Mode (1 – 500 Hz): Selectable Range
Standard Modes (Continual, Manual, Daily, One Time):
Auto range for total sampling rate ≤ 3 Hz (e.g. 1 Hz sampling on 3 input channels)
Fixed range (selectable) for total sampling rates > 3 Hz (e.g. 2 Hz sampling on 2 input channels)
Sampling Rates:
Standard Modes: 0.01 Hz, 0.1 Hz, 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz
Raw Mode: 1–500 Hz (1 Hz through 500 Hz in whole number increments)
Logging Rates:
Standard Modes Sampling: Every Sample, 100 msec, 200 msec, 500 msec, 1 sec, 5 sec, 10 sec, 15 sec, 30 sec, 60 sec, 100 sec, 5 min, 15 min, 30 min, 1 hr, 2 hr, 3 hr, 6 hr, 12 hr, 24 hr
Raw Mode Sampling: Every sample (1–500 Hz)
Averaging:
Raw Mode Sampling: No averaging
Standard Modes Sampling: averaging windows depend on sampling rate (see table 1-2)

Table 1-2. Averaging windows by sampling rate.

Sampling Rate	Averaging Windows Available
0.01 Hz	5 min, 15 min, 30 min, 1 hr, 2 hr, 3 hr, 6 hr, 12 hr, 24 hr
0.1 Hz	15 sec, 30 sec, 60 sec, 100 sec, 5 min, 15 min, 30 min, 1 hr, 2 hr, 3 hr
1 Hz	5 sec, 10 sec, 15 sec, 30 sec, 60 sec, 100 sec, 5 min, 15 min
2 Hz	1 sec, 5 sec, 10 sec, 15 sec, 30 sec, 60 sec, 100 sec, 5 min
5 Hz	500 msec, 1 sec, 5 sec, 10 sec, 15 sec, 30 sec, 60 sec, 100 sec
10 Hz	200 msec, 500 msec, 1 sec, 5 sec, 10 sec, 15 sec, 30 sec, 60 sec, 100 sec
20 Hz	100 msec, 200 msec, 500 msec, 1 sec, 5 sec, 10 sec, 15 sec, 30 sec, 60 sec

Display: 128 x 64 graphics display
Real-Time Clock:
Year, Month, Day, Hour, Minute, Seconds
Accuracy of ±3 minutes per month
Data Storage Capacity: 1 GB (FAT16 file system)
Communications: USB (as mass storage device)
Global Positioning System (Option) – GPS RADIONOVA® RF Antenna Module**:**
Horizontal position accuracy: 2.5 m CEP (50% Circular Error Probability, Open-Sky, 24hr Static, good view of the sky).
Maximum position update rate: 1 Hz.
Power Supply Options:
4 “AA” size batteries
USB, AC–DC power adapter
USB, external battery power pack (customer supplied)
Battery Life:
80 hours life (typical usage of 1 Hz sampling rate and logging rate)
40 hours life (typical usage with GPS option on)
Environmental Conditions:
Operating Temperature Range: -20 to 50°C
Humidity Range: 0 to 95% RH (non-condensing conditions)
Storage Temperature Range: -40 to 65°C
Size: 20.9 x 9.8 x 3.5 cm (8.2" x 3.9" x 1.4")
Weight: 0.454 kg (1.0 lb) with batteries

LI-1500 Ordering Options

The LI-1500 is available with or without GPS. The underwater package includes an underwater lowering frame, and also comes with a larger case that will hold the LI-1500, the lowering frame, and LI-COR underwater sensors and cables.

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