

# LI-1500 Light Sensor Logger

## Installing Batteries



4 AA batteries



Optional: USB, AC-DC power adapter

**Note:** The USB power adapter will not re-charge batteries.

## Powering On

Press power on/off . You will see one of these messages:

- **New Config File:** Start at "Creating a Configuration", step 2.
- **Select Config File:** Scroll up or down to highlight a configuration, then press **OK** to activate that configuration and go to Monitor Mode.

**Note:** A configuration must be created and made active in order to get light readings with the LI-1500.

**Important:** Leave the power on during a logging session and disable the "Auto Off Timer" to prevent interruption of automatic logging routines. Select **MENU > Console Settings > Auto Off Timer**. Press the down arrow until **OFF** appears on the screen.

## Monitor Mode

Each line can be set to display any one of the available variables including real-time sensor readings and GPS data. The **STATUS** variable indicates the logging status.

```
2014/3/12      13:55:01
Battery: USB
CONFIG: CONF2
STATUS: Inactive
INPUT2: 9.350
gLAT: 40.856792
gLONG: -96.657667
gALT: 362.3
```

- Scroll up or down to highlight a line.
- Scroll left or right to change the variable displayed.

## Menu Navigation

From Monitor Mode, press **MENU** for the Main Menu.

```
Main Menu
Sensors
Configurations
Data
Console Settings
Firmware
```

- Scroll up or down to highlight a menu item. Press **OK** to select that menu item.
- Press **OK** after entering file names or other data.
- Press **EXIT** to go back to the previous screen.

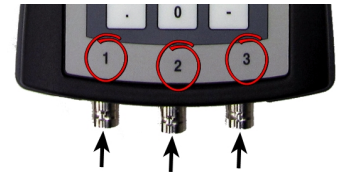
## Adding a Sensor

1. Select **MENU > Sensors > Add New Sensor** and select the model number of your LI-COR light sensor.
2. Enter the sensor's serial number (printed on the sensor).
3. Select **Cal Val** (terrestrial sensors) or **Cal A/W** (underwater sensors) and enter the sensor's calibration multiplier (use for backspace). Underwater sensors require both "Air" and "Water" calibration multipliers.
4. Select **Cal Date**, use arrows to set the date of the sensor's last calibration (YYYY/MM/DD), then **EXIT**.

**Note:** Calibration certificates with multipliers and dates are available at: <http://www.licor.com/env/support/>. Enter the sensor's serial number in the Calibration search box.

## Creating a Configuration

1. Select **MENU > Configurations > Add New Config**.
2. Enter a file name > **OK**.
3. Select **Inputs** and choose **1, 2, or 3**. Attach a LI-COR light sensor to the chosen BNC input port.
4. For terrestrial sensors, highlight your sensor's serial number, then **OK > EXIT**. If your sensor is not listed, select **Add New Sensor** (see "Adding a Sensor" above). For underwater sensors, select **Air, Water, or Prompt on Log**, then press **OK**.
5. Select **Active > Yes**. Readings are now visible in Monitor Mode and can be logged (see reverse side).



```
CONFIG: CONF2
Active: Yes
Inputs: 1
Samp Rate: 1 Hz
Outputs: 5
Routine: Continual
<Delete>
```

Configuration Screen

## Changing the Sampling Rate

Select **MENU > Configurations**. Select a file from the list. Select **Samp Rate** and select a sampling rate from the list.

For faster sampling (up to 500 hz), select **Raw Mode** from the bottom of the list and choose a whole number from 1 through 500 Hz. In Raw Mode, only **INPUT1** is sampled. The other two inputs are ignored. The routine is Continual and each sample is logged. Averaging and Math outputs are not available.

## Adding an Output

Select **MENU > Configurations**. Select a configuration from the list. Select **Outputs > Add New Output**. Select type:

- **Light:** Enter a name for the output. Select sensor input **1, 2, or 3**.
- **Math:** Enter a name for the output. Select **Operation**. See "Configuring a Math Output" (below) to configure the operation type.
- **Prompt:** Enter a name for the output. select **Type > Full Alphanumeric** or **Numeric Only**, then press **EXIT**. During manual logging, allows a different data entry into each record. For continuous or automatic routines, allows adding the same entry into each record.
- **Battery:** Logs battery voltage.
- **GPS:** Logs GPS data such as latitude, longitude, and UTC.

## Configuring a Math Output

Select **MENU > Configurations**. Select a configuration from the list. Select **Outputs** and select a Math output from the list or see "Adding an Output" (above) to add a new Math output. Select **Operation** and select an operation type:

- **Addition** – Select parameters
- **Subtraction** – Select parameters
- **Multiplication** – Select parameters
- **Division** – Select parameters
- **Integration** – Select a parameter and duration
- **Daily Integral** – Select a parameter. Set start/stop times with a Daily logging routine (see "Changing the Logging Routine").
- **Attenuation** – Select parameters and separation distance
- **Logarithm** – Select a parameter

A parameter is a numeric constant or an output to which the operation will be applied. Press **EXIT** when finished.

*Example: Select the **Addition** operation type and the **Output** parameter type. Choose **INPUT1** and **INPUT2** as parameters. Readings from each one will be added together in the new output.*

## Enabling Averaging

Select **MENU > Configurations**. Select a configuration from the list. Select **Outputs** and select an existing "Light" output or add a new one. Select **Averaging** and select an averaging window. Select **Min/Max > Yes** to include minimum and maximum sampled values in the output. Press **EXIT** twice.



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## Changing the Logging Routine

Select **MENU > Configurations**. Select a configuration from the list. Select **Routine**. Select a routine type:

- **Manual:** Logs a reading each time **LOG** is pressed.
- **Continual:** Set a logging rate. Logs automatically while the logging file is open. Close the file to stop.
- **Daily:** Set a logging rate, start time, and stop time. Logs automatically during a set time period every day.
- **One Time:** Set a logging rate, start time/date, and stop time/date. Logs automatically during a single set time period.

Press **EXIT** when finished.

## Global Positioning System (GPS)

For GPS-equipped units, Select **MENU > Console Settings > GPS > Enabled**. GPS data are now visible in Monitor Mode. Add the **GPS** output to the active configuration to log GPS data with sensor data. This also enables GPS tagging – press a numbered key (1–9) to add GPS data to the file during a logging session.

## Logging Data

1. From Monitor Mode, press **START|STOP**.
2. Select **New File** (enter a file name) or **Existing File** (select a file from the list).
3. Enter a session remark or press **OK**. The logging file is now open. *Leave the power on* until any automatic logging routines are complete.
4. In the default **Manual Log** routine, Press **LOG** to record the current data point for all attached sensors.
5. Optional: Press period  to enter a remark in the logging file. The remark is time-stamped when you press **OK**. Logging continues uninterrupted.
6. Press **START|STOP** to close the logging file.

The **STATUS** line in Monitor Mode indicates **Running** when a logging routine is active. A dot (.) flashes at the end of the **STATUS** line while data are being recorded.

## Viewing Logged Data on the Display

Select **MENU > Data > Files**, select a logging file, then select **View**. Select a logging session and then **Records**. Select an individual record to view data.

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