International Light
TECHNOLOGIES

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DataLight II Software Manual
Trend

ILT recommends all new users initialize their meters using Trend. First time users must plug all ILT1000/ILT5000 into their computer to allow the meter and computer to be configured. Initialization cannot be done wirelessly.

Trend can be run on Windows 7 and Windows 8 with both ILT5000 and ILT1000 units. (Note: Datalight is available for XP for ILT1000 units only)
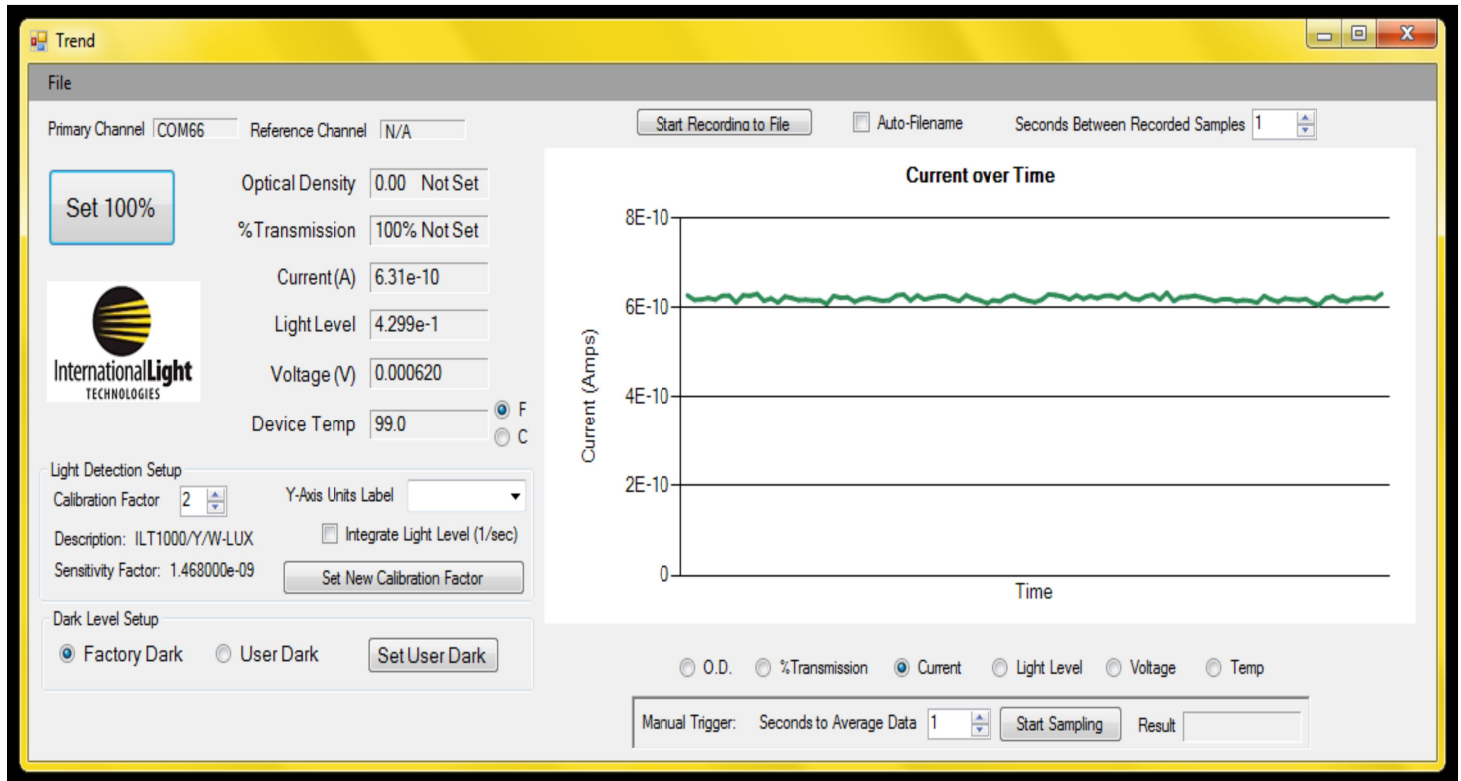
1. Trend is a **single unit**, graphical interface program which allows easy monitoring of changes in data. Users may select to run single or multiple copies of Trend.

Before activating Trend you must make an ILT5000 or ILT1000 light meter available for connection. (previously initialized). You can plug the meter directly into the USB port on the computer or into a multi-unit hub. (You may also use external wireless connectivity, see Wireless Connectivity Manual for instructions)

With the first unit plugged in, double click on Trend located on the desk top in the "**ILT DataLight**" folder You should see a note that says *locating and initializing devices*. Trend detects and monitors the first device found. If no devices are available an error message will appear advising you to connect your device and the software will close.

To monitor multiple units, simply plug in the additional meter(s) and Double click **Trend** each time you add a unit. The software will seek out the next available meter and open a new Trend software display box.

(Note: It is only possible for one version of software to access a unit. Attempting to open Trend with no meters available will initiate an error notice. It is possible to run more than one version of software simultaneously using multiple units. Follow the same process for adding Trend, allowing the additional meter to initialize and then selecting the version of software desired. Ie. you can run Trend and meter with 2 units connected)

When Trend is activated, it will immediately begin displaying readings.

2. Measurement units:
Trend opens up preselected to display the sensors current output in amps.
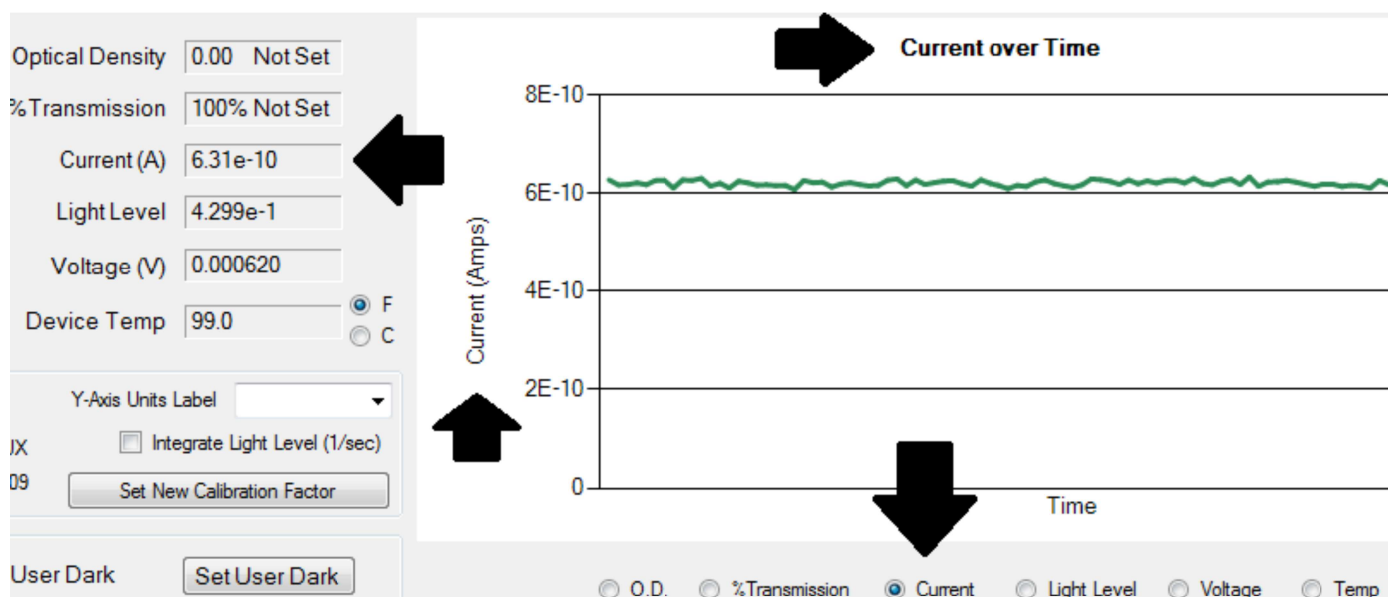
 Trend allows the user to select which measurements (such as light level or voltage) are viewed in the display graph by clicking on the appropriate radio button shown just below the graph.

3. Graph / Display Options Defined:
- O.D.: Measures optical density and provides a numerical value. (requires preset, see SET100%)
- % Transmission: Tracks changes in light output and displays a value in percentage of initial reading. (requires preset, see SET100%)
- Current: Provides a reading in amps.
- Light Level: Provides reading in empirical units when a valid calibration factor is applied. Calibrated readings can be in lux, fc, watts etc. Customers can verify the correct optical calibration units by reviewing their ILT supplied calibration certificate (see section 6. Light Detection Setup for additional instructions)
- Voltage: Provides a reading in volts.
- Temp: provides a reading of the ambient temperature at the surface of the board.

4. Set 100% is located in the upper left hand corner. Prior to taking O.D.or Transmission/Reflectance measurements, you must use the Set 100% button to create your baseline.

Examples:
- **Transmission measurements:** Set up your light source and sensor in a fixed position. click the set 100% button. This records the light output of the lamp. Insert your test sample between the lamp and sensor. Trend will now display the percentage of transmission.
- **Reflectance measurements:** Set up your light source and reflectance standard in a fixed position. Click the set 100% button. Replace the reflectance standard with the test sample and measure the percentage reflectance.
- Lamp comparisons: Set up the ILT1000 to measure your primary standard lamp. Click the set 100% button. Replace the standard lamp with the test lamp being careful not to change the measurement geometry (including distance and angle).

5. Dark level Setup is located in the lower left of the display.
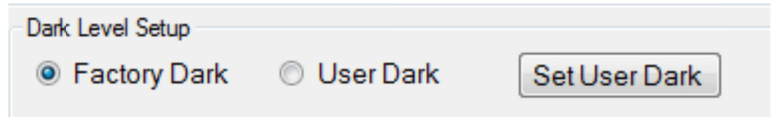
The ILT1000 has a build in factory dark. When the unit arrives the setting has already been programmed at the factory. Factory dark is also sometimes referred to as Zero setting.

Sometimes customers environment may require the dark or zero setting to be adjusted. An example would be when you are measuring lux in an area where you have a low lux level back ground light that you want subtracted from your measurements. Setting the ambient light level as your user dark is also referred to as an ambient zero.

With the back ground light on, press the "Set User Dark" button. Then click on the User dark radio button. As long as you use this user dark value, the amount of light that was present when you click Set user Dark will be subtracted from the total.

To change back to factory dark, click on factory dark again.

The ILT1000 will remember your User Dark until you press Set User Dark again. The ILT1000 can only store 1 Factory dark and one User dark.

6. Light Detection Setup is used to allow calibrated light measurements and can access up to 20 calibration factors stored in the meter memory.
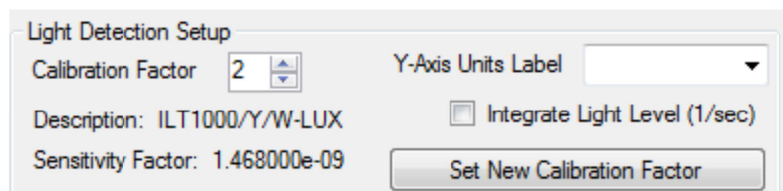
Calibration factor: is a toggle button that allow the end users to scroll up or down through their programmed calibration factors.

Description is the nick name of the specific calibration file that has been selected. ILT recommends using a naming configuration that will eliminate confusion and make calibration factor selection easy. In the Example we have listed the meter, filter and optic (ILT1000/Y/W) – and the units of calibration (LUX) were programmed as the description.

Sensitivity Factor: In most cases the sensitivity factor will be a number obtained from the ILT calibration certificate. The ILT software uses the sensitivity factor to convert the incoming current into empirical units such as lux, watts, lumens etc.

Y-axis Unit Label is a very simple tool that allows the user to change the units on the software display window Y axis to match the unit of their sensitivity factor. Changing the units displayed has no affect on the actual output. (ie selecting the units of lux while apply a sensitivity factor of fc will not convert the display to lux.) ***Please note that the Y-Axis label should be set to match the units of the sensitivity factor to prevent confusions.***
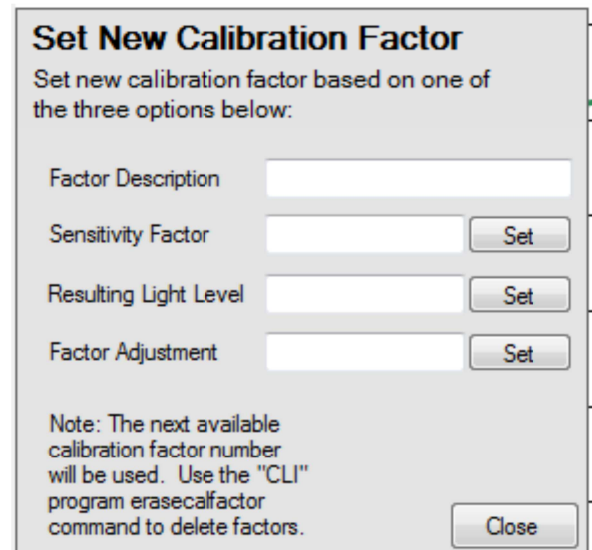
Integrate Light Level: When integrate is checked, the Trend software will display and record the dosage (exposure or sum) of the light level readings, by integrating the reading once per second. Before selecting integrate ILT recommends changing the display to monitor Light Level. The integrate feature is on when a check appears inside the box and is off when the box is unchecked. While integrating the units of measurement are changed to include the time in seconds. For example lux becomes lux*seconds, W/cm^2 becomes J/cm^2. While in integrate mode the software will change the titles of the graph and the light level readout box to indicate that measurements are integrated.

Set New Cal Factor: Please read carefully!

Trend allows the user to enter and even create new calibration factors. SELF CALIBRATION or adding a calibration factor from an uncertified source can drastically impact the accuracy of the light level and integrated light level readings.

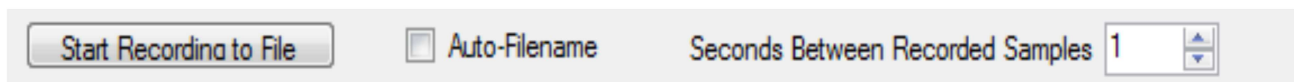**Factor Description:** Enter the nick name to be displayed when this factor is selected.

Sensitivity Factor: Enter the sensitivity factor from the ILT calibration certificate. click "Set" and "Close" when done.

Set New Calibration Factor
Set new calibration factor based on one of the three options below:

Factor Description
Sensitivity Factor   Set
Resulting Light Level   Set
Factor Adjustment   Set

Note: The next available calibration factor number will be used. Use the "CLI" program erasecalfactor command to delete factors.   Close

Resulting Light Level: *SELF CALIBRATION. This process allows the end user to create a calibration factor which will force the meter to read a known value. Example: You have a calibrated light source with a known output in lux. Enter the lux value ie 100. The software will calculate what sensitivity factor would be needed to acquire a reading of 100 and will store a new calibration factor in the next available channel. click "Set" and "Close" when done.*

Factor Adjustment: *SELF CALIBRATION. This process allows the end user to adjust their calibration factor by a known value. An example would be changing the sensitivity factor by a factor of 10 when adding a x10 neutral density filter. click "Set" and "Close" when done.*

7. Start Recording to File selection box is located above the graph. Start Recording to File is used to save the data logging session. All data values are included in the spreadsheet.

Start Recording to File   ☐ Auto-Filename   Seconds Between Recorded Samples 1

The file output is in CSV (comma separated values) and can be opened in most spreadsheet programs as well as in note pad and other text ediing programs. In our example below we used a complimentary software called libreoffice.

Date/Time	Optical Density	%Transmission	Current(A)	Light level	Voltage(V)	Internal Chip Temp
25-Feb-2015 11:37:19	-500	-500	5.022E-010	0.3425	0.0005	99
25-Feb-2015 11:37:20	-500	-500	5.017E-010	0.3445	0.0005	99
25-Feb-2015 11:37:21	-500	-500	4.981E-010	0.3434	0.0005	99
25-Feb-2015 11:37:22	-500	-500	4.854E-010	0.2993	0.00049	99
25-Feb-2015 11:37:23	-500	-500	5.721E-010	0.3897	0.00052	99
25-Feb-2015 11:37:24	-500	-500	4.429E-010	0.3017	0.00028	99
25-Feb-2015 11:37:25	-500	-500	1.125E-009	0.7666	0.00075	99

Auto-Filename:
When auto filename is checked, the files are automatically named in the format "Report XX-MON-YEAR time.
 In the example see Report 02-Jan-2014 142602.csv is saved in the users local document folder, for ILT Reports.
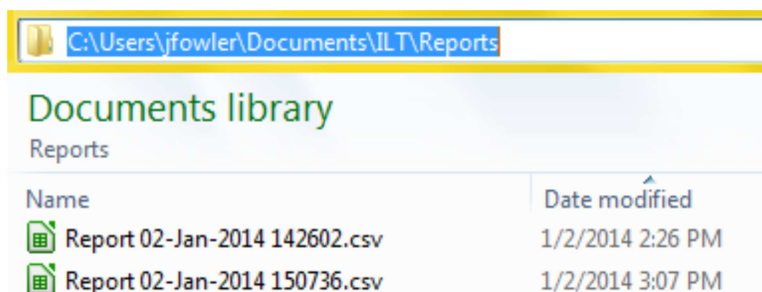

When the Auto-Filename is not checked, a dialogue box will pop up allowing the end user to create the file name and select the location where the file will be saved.

Seconds Between Recorded Samples has a default value of 1 second. This means every second the software saves the reading. The end user can use the toggle buttons to increase or decrease the time that elapses between recorded samples.
Note: A setting of Zero "0" will store all values based on the users light level/sampling rate.

8. Manual Trigger
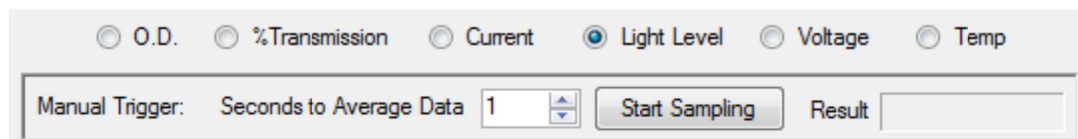
The Manual Trigger is used to determine an average reading over a user-defined period of time in seconds. This can be beneficial when the incident light is fluctuating, or when taking low-light measurements. The average is started with the "Start Trigger" button. The unit of measurement is based on the units currently being displayed on the graph. To measure OD or transmission, you will need to press "Set 100%" prior to initiating the trigger.

Procedure: First select your units by clicking on the radio button above the Manual Trigger box. (For example click on Light Level) Next select the amount of seconds to be used for gathering data. Finally click Start Sampling, wait the amount of seconds inputted, and then read the results in the Result box.

9. Trend advanced features
Under the File drop down menu are numerous advanced features:

About: provides software and firmware information

Swap Primary and Reference:
When using 2 devices for transmission comparisons you must set 1 as the Primary and 1 as the reference. If the Trend program guesses wrong, selecting this option will reverse the two: The Primary will become the Reference, and the Reference will become the Primary.
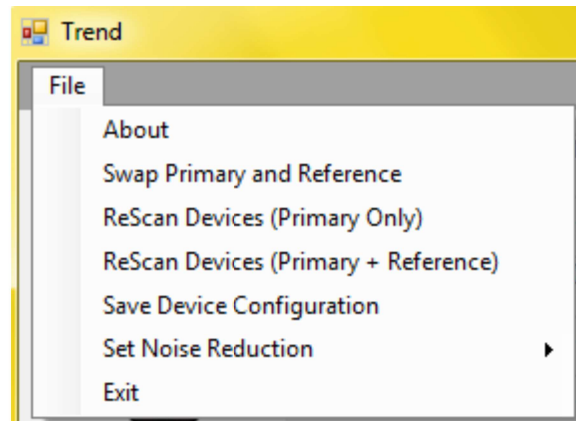
Re-Scan Devices:
When the Trend program runs, it either uses a saved configuration or it assigns the ILT1000 devices in the order it finds them.
ReScan Devices (Primary Only) Seeks out 1 device and pairs with that device
ReScan Devices (Primary + Reference) Seeks out 2 devices and set 1 as primary and 1 as a reference.

Save Device configuration
This option saves the current ILT1000 configuration (Primary device and, if available, Reference device). The next time Trend is run, this configuration will be restored.

Set noise reduction to auto,low, medium or high
This option allows the user to trade-off signal stability and response time, as follows:
Auto: Sample time varies with light level (more sampling for lower levels)
Low: Approximately 6 samples/sec
Med: Approximately 3 samples/sec
High: Approximately 1 sample/sec

9. Directories
Trend also creates 3 Directories
\Logs, Contains warning and error logs for each COM port/device. These files are helpful in the case of USB cabling and noise issues.
\Reports Contains saved reports initiated by the "Start Recording File" button.
 \Inventory Contains port ordering information in the file for the Primary channel followed by Reference channel

For technical support please email ilsales@intl-lighttech.com and we will gladly offer support with in 24 hours of receipt of email. Or by phone 978 818 6180 x216.