

ILT770

UV Light Meter

Operation Manual



InternationalLight
TECHNOLOGIES

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1. INTRODUCTION

The ILT770 is a hand held UV meter designed to measure both irradiance in Watts per square centimeter (W/cm^2) and dose/exposure in Joules per square centimeter (J/cm^2). The system comes configured with one UV sensor and is calibrated as a set (paired meter/sensor). Sensors cannot be swapped from one meter to the other as this will impact the accuracy of the readings.

The ILT770 includes, a light meter, UV sensor, mini USB cable, storage case, and NIST traceable calibration with a certificate.

2. BUTTON FEATURES

The ILT770 meter has a membrane panel with four buttons that allows numerous processes.



1 POWER / UNITS

Press and hold: Turn device on or off.

Press: Toggle units of readouts, W/cm^2 or J/cm^2 .

Note: The ILT770 is auto ranging and will automatically scale to the correct level. A prefix will be applied to values below $1W/cm^2$ (ie mW/cm^2 , $\mu W/cm^2$, mJ/cm^2 and $\mu J/cm^2$)



2 ZERO / HOLD

Press and hold: ZERO: Takes a reading and subtracts that value from all future readings.

2A. Dark ZERO: Cover sensor, wait 2-3 seconds, press zero. This is used to apply a proper zero for the electronics in the working environment.

2B. Ambient ZERO: Place the sensor in the measurement location with the test source off or covered. Wait 2-3 seconds for the system to take a measurement of the ambient light levels. Apply a zero to subtract the ambient from future readings. Turn the lamp on and measure only the light supplied from the test lamp.

Press: Freezes/Holds the readings on the display



3 RECORD

Press to save/store the results on the display in the internal memory of the ILT770 Meter.

Record saves the following data:

Units of readout in W/cm^2 or JW/cm^2 as shown on display.

Date/Time Stamp

Numerical Values

Graphical Analysis Values (when in Graph mode)

Min reading

Max reading

Average

The ILT770 has the ability to apply meta data to the saved results. See Applying meta data in section 10 software.

4 GRAPH MODE

The Graph button has four functions (Start Graph, Stop/Review Graph, Data Analysis and Exit) that cycle **forward** each time button 4 is pressed. It is not possible to return to a previous screen.

Before initiating a graph, use button 1 to select the units. You can graph the irradiance in W/cm^2 or you can graph the dose in J/cm^2 .

GRAPH: Changes the display to graphical mode and start plotting the results and temporarily storing the readings for final data analysis.

STOP: Stops graphing and holds the display showing the last 60 results.

(NOTE: you cannot return to this screen, to save the results, Press 3, Save)

DATA: Shows the data analysis from when Graph was first pressed, including Min, Max, and Average. Units will be displayed based on what was selected before starting the graph.

(NOTE: you cannot return to this screen, to save the results, Press 3, Save)

EXIT: Returns the display to numerical / non graphing mode and clears the previous graph data from the display.

3 & 4 ERASE ALL SAVED DATA

Press and hold both buttons 3 & 4 at the same time to delete all saved readings from the internal memory of the ILT770.

3. TAKING A MEASUREMENT

The ILT770 sensor is calibrated with the sensor aperture over filled with light perpendicular to the light source. The calibration reference plane is the front surface of the housing. When taking an irradiance or dose measurement the same conditions should be applied. The light source to be measured must fully cover the input optics opening with light. The sensor should be placed so that the front surface is at the treatment location and perpendicular to the source.

The ILT770 offers simple operation. If all of your settings are correct, simply press and hold button 1 to turn on the meter, place the sensor in the measurement location turn on the lamp and view the results on the display.

3A FIRST TIME USERS:

First attach the sensor to the top of the meter by aligning the BNC connector and twisting to lock in place.

Press and hold button 1 until the meter turns on. Let the meter warm up for a few minutes.

Change the units between irradiance (w/cm²) and dose (J/cm²) as needed by pressing button 1.

If a dark zero is required, cover the sensor with an opaque object and press and hold button 2.

If an ambient zero is required place the sensor in the measurement location with the test light off or covered and then press and hold button 2.

Warm up the lamp as needed before measuring.

Place the sensor in the measurement location assuring the front surface of the sensor is at the same distance from the lamp that the product / material will be placed and that the sensor is perpendicular to the light source.

The meter will automatically begin to sense any changes to the light level and will provide a readout on the display, updating every ¼ second.

Press button 3 to save the readings as needed.

Press and hold button 1 to shut off your device, or wait 5 minutes and the meter will shut off automatically to conserve battery life. While plugged into a USB power source, the meter will never power off.

4. GRAPHING

The graph mode is designed to visualize the uniformity or stability of a light's irradiance or dose for a short period of time. It is not designed for long term monitoring. The meter will automatically shut off after 5 minutes if no buttons are pressed when powered by battery to conserve battery life. It is possible to graph for longer than 5 minutes when connected to a power source, but it is not possible to save more than 95 datapoints.

The bar graph updates every ¼ second offering an easy to evaluate, visual response to changes in intensity over time. The graph can display up to 60 readings (15 seconds) and will begin to scroll forward showing only the most current 60 readings when used for longer duration's.

In Irradiance mode, when the sensor is moved slowly under a lamp, The ILT770 can map the *uniformity* of the output over the target area. If the sensor is held stationary, graph mode can verify the *stability* of the lamps output.

In dose mode the graph will show the uniformity of the increase in the dose.

To complete a measurement while graphing, press button 4 (hold). This will freeze/hold the last 60 readings on the display for review.

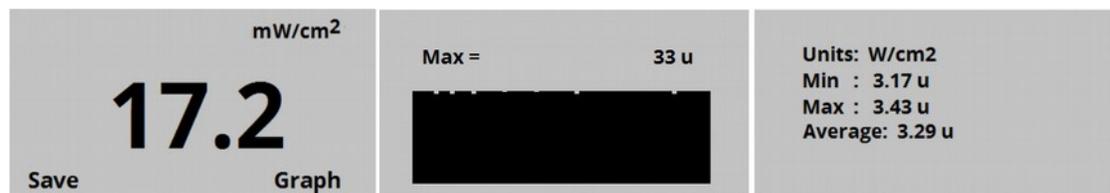
Up to 95 data points, or 24 seconds of data at ¼second intervals, can be saved to the internal memory by pressing button 3 to save the file. You must save the file for the measurement while the display is in Freeze/Hold mode showing the graph. Once Data Analysis is activated, the previous graph data is no longer accessible.

Press button 4 a third time to access the Data Analysis Display. The graph will be replaced by the graph analysis window and provide a readout of the Min, Max and Average readings.

Data Analysis Results can be saved to the internal memory by pressing button 3 to save the Data Analysis file. You must save the file while the display is in Data Analysis mode. Once exited, the previous data is no longer accessible.

To exit the graph mode, press button 4 a third time. This concludes the graph measurement and returns back to the meter back to a numerical measurement display.

Review: Press button 4 once to enter graph mode and take your measurements, Press again to stop measuring and review graph. Press a third time to review the analysis and press a fourth time to return to the main display.



5. BATTERY

The battery on the ILT770 includes a 1200 mAh rechargeable lithium battery that will run the ILT770 for up to six hours of continuous use. The battery is rated to last for 300-500 charge cycles. To conserve battery life, the ILT770 will automatically shut off after 5 minutes unless plugged into a power source.

To recharge the battery, plug the mini USB cable into the slot on the top of the meter. Plug the USB A end of the cable into a PC, USB wall plug, USB power bank or any standard mobile phone USB A charging device. The ILT770 will always turn on when power is supplied via the

mini USB. It will take approximately 4 hours to charge the ILT770 when the battery is drained. The meter can be used while charging the battery.

Battery replacement cannot be done in the field. Please contact your sales representative to schedule a battery replacement.

6. SENSOR

The ILT770 has been paired with the sensor and calibrated to create a NIST traceable calibrated light measurement system. **Swapping sensors between meters can cause inaccurate results. Please verify your meter and sensor serial number on your calibration certificate if there is a chance you have swapped sensors.**

The sensor includes a standard male BNC connector, a 3 foot cable and an integrated sensor/filter/optic in a low profile 42 mm diameter by 15 mm tall housing.

To attach the sensor locate the female BNC connector on the top side of the meter. Align the connectors, press down and twist to lock the sensor in place. The meter is designed so that the sensor can be detached when not in use, or left attached at all times.

The sensor opening must be completely filled with light. The surface of the opening should be placed perpendicular to the light source and should be at the same distance from the source as the product being irradiated.

The Sensor is not water proof and should not be submerged. Liquids should be used very sparingly when cleaning the sensor to prevent possible damage.

Sensor replacements are available. Replacing a sensor requires calibration at the factory.

7. USB PORT

On the top right side of the meter is the Mini USB port. The USB port is used for both charging the device and for downloading stored data to a PC. We recommend using the supplied USB cable or any good quality mini USB cable.

8. CALIBRATION

An annual calibration is typically recommended for all light measurement equipment, however, the end user may, through their own QC process, create their own calibration cycle.

Service: Before returning any equipment for service, please obtain an RMA number from the ILT website: <https://www.intl-lighttech.com/service-support/rma-form>

Ship goods to:

Attn: RMA #

International Light Technology, 10 Technology Drive, Peabody, MA 01950

Email: ilservice@intl-lighttech.com

9. WARRANTY

The equipment you have purchased has been expertly designed and was carefully tested and inspected before being shipped. If properly operated in accordance with the instructions furnished, it will provide you with excellent service. The equipment is warranted for a period of twelve (12) months from date of purchase to be free of defects in material or workmanship. This warranty does not apply to damage resulting from improper set up, accident, abuse, loss of parts, or unauthorized alteration / repair. The equipment will be repaired or replaced, at our discretion, without charge to the owner for parts or labor incurred in such repair. This warranty shall not apply unless the equipment is returned for our examination with all transportation charges prepaid. International Light Technologies has no other obligation or liability in connection with said equipment.

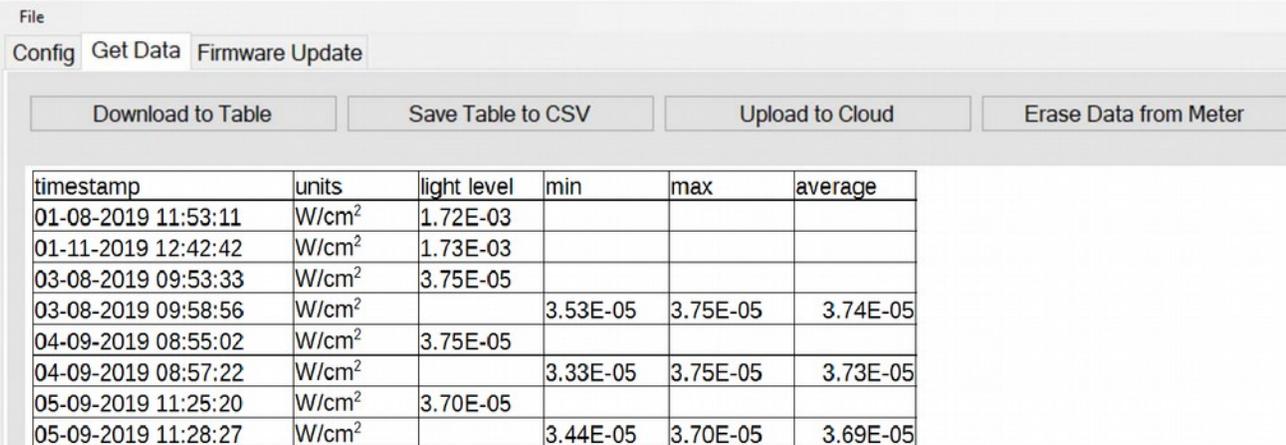
10. SOFTWARE

The ILT770 software package allows the user to apply firmware updates, configure meta data to help differentiate readings for owners of multiple systems and to download the data saved in the ILT770 device.

Data Download: The ILT770 can save up to 1000 readings in its internal memory. Using the PC software users can download the saved data to a PC for analysis, reporting and system verification.

Click on the Get Data tab. Click on Download to Table to view the data stored on the device in the PC software window as shown. Here you can save the data to your PC for analysis, reporting and system verification.

The data is formatted as a .csv file type and can be open by most spreadsheet programs such as Excel.



The screenshot shows a software window titled "File" with three tabs: "Config", "Get Data", and "Firmware Update". Below the tabs are four buttons: "Download to Table", "Save Table to CSV", "Upload to Cloud", and "Erase Data from Meter". A table is displayed below the buttons, containing the following data:

timestamp	units	light level	min	max	average
01-08-2019 11:53:11	W/cm ²	1.72E-03			
01-11-2019 12:42:42	W/cm ²	1.73E-03			
03-08-2019 09:53:33	W/cm ²	3.75E-05			
03-08-2019 09:58:56	W/cm ²		3.53E-05	3.75E-05	3.74E-05
04-09-2019 08:55:02	W/cm ²	3.75E-05			
04-09-2019 08:57:22	W/cm ²		3.33E-05	3.75E-05	3.73E-05
05-09-2019 11:25:20	W/cm ²	3.70E-05			
05-09-2019 11:28:27	W/cm ²		3.44E-05	3.70E-05	3.69E-05

“Save table to CSV” will open up a dialog box that will allow you to save the file. Type in your file name and preferred location and press save. “Erase data from meter” will erase all stored results in the meter. (The same as pressing and holding buttons 3 & 4 at the same time)

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