



InternationalLight
TECHNOLOGIES

A803 INSTRUCTION MANUAL

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Printed in the United States of America

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NOTE: The software associated with the A803 product is intended for use with the following operating systems: Windows XP, Windows Vista, Windows 7.

1.0 HARDWARE INITIALIZATION

1.1 ILT1700 Rear Panel Set Up

1.1.1 International Power Settings

Switch AC voltage selector switch to 220 or 115 VAC as applicable. Select 115 VAC for use on power systems between 90 and 130 VAC (JP, US, CA). Select 230 VAC for use on power systems between 180 and 260 VAC (EC, AU).

1.1.2 Power Cord

Connect power cord to power input then into main wall socket. The standard male power plug on the back of the ILT1700 accepts power cords from many different countries and power systems.

1.1.3 Select AC Power Source

Switch AC / BAT selector to AC position for operation using an alternating current power supply. The internal lithium batteries will automatically recharge whenever the ILT1700 is plugged into an external power supply. The rechargeable Batteries (**NICAD ONLY**) must initially be charged before the first use on battery power.

1.1.4 For More Information

Refer to Section 2.2 of the ILT1700 Instruction Manual for more detailed information regarding the rear panel of the ILT1700 Radiometer.

1.2 A803 Rear Panel Set Up

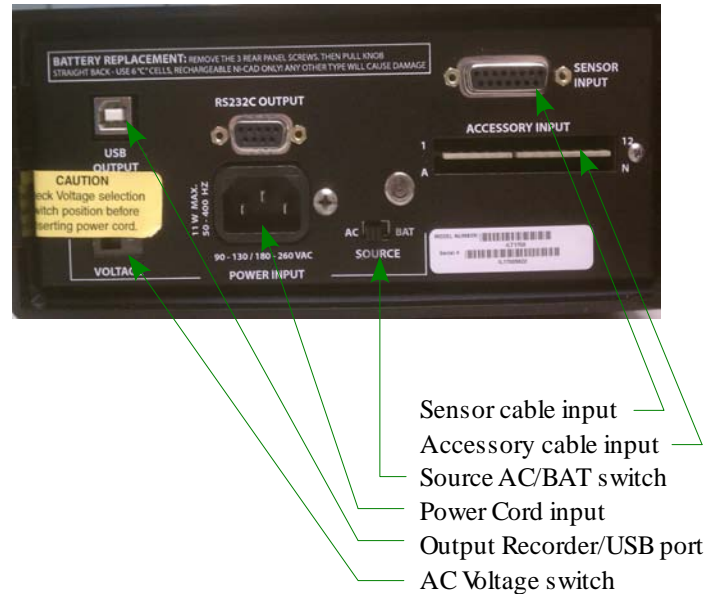
1.2.1 Accessory Cable

Connect the 6-pin mini DIN end of the Accessory cable to the "Accessory Input" connector on the back of the A803. Connect the 24 position CardEdge end of the Accessory cable to the "Accessory Input" connector on the back of the ILT1700 Radiometer.

1.2.2 Sensor Input Cable

Connect 1 end of the Sensor Input cable to the connector labeled "ILT1700 Sensor Input" on the back of the A803. Connect the other end of the Sensor Input cable to the connector labeled "Sensor Input" on the back of the ILT1700 Radiometer.

ILT1700 Back Panel



A803 Back Panel



Sensor cable input
Accessory cable input

1.3 ILT1700 Front Panel Set Up

1.3.1 Turn Power On

Press POWER switch. AC LED indicator should be illuminated on the ILT1700, and Channel 1 LED should be illuminated on the A803. If not check ILT1700 rear panel power switch to ensure it is in the AC position, and check all cabling between the ILT1700 and A803.

1.3.2 Display Data

Press DATA DISPLAY/FACTOR SHIFT button until Data Display LED is illuminated. ILT1700 is now ready to display data.

1.3.3 Set Display Update Time

The ILT1700 defaults to updating the display every 500 ms (2 measurements per sec). To change the rate at which the ILT1700 measures and displays a reading, press FACTOR SHIFT/DATA DISPLAY button until Factor Shift LED is illuminated, then press SET 100% button. Use the FACTOR SELECT button to choose between 2, 4, or 8 readings per second, which is the ILT1700 display update time. Otherwise, skip to the next step. To return to display mode, click SET 100%, then DATA DISPLAY.

NOTE: Setting a display update time of 8 readings per second is recommended for optimum performance of A803 with the ILT1700.

1.3.4 For More Information

Refer to Section 2.1 of the ILT1700 Instruction Manual for more detailed information regarding the front panel of the ILT1700 Radiometer.

A803 Front Panel



Active channel indicator

ILT1700 Front Panel



Factor Shift/Data Display

Factor Select

Set 100%

NOTE: If using the system in manual mode, proceed to Section 3.0 Taking a Measurement in Manual Mode. If using the system in software mode, proceed to Section 2.0 Software Initialization

NOTE: Prior to powering off the ILT1700, please verify that the display update time has been set back to 2 readings per second (reference step 1.3.3 for applicable procedure)

2.0 SOFTWARE INITIALIZATION

If taking a measurement in Manual Mode (no computer/laptop), skip to Section 3.0 Taking a Measurement in Manual Mode, otherwise, Section 1.0 Hardware Initialization will be completed prior to continuing with this section.

2.1 SOFTDAQ Set Up

2.1.1 Computer Set Up

Power on the computer/laptop to be used with the SOFTDAQ data logging software. Verify that 2 USB port connections are available on the computer/laptop that is being used.

2.1.2 Software Installation

Insert the software disk into the disk drive (D:). Double-click on the SETUP.EXE file to install the SOFTDAQ program onto the computer/laptop. Follow the instructions to install in user-specific location. Once the setup has completed, verify that a SOFTDAQ icon is visible in the desired location.

2.2 Hardware Setup

2.2.1 ILT1700 USB Cable

Connect a USB cable from an unused COM port on the computer to the USB output connector on the back of the ILT1700.

2.2.2 A803 USB Cable

Connect a USB cable from an unused COM port on the computer being used to the USB connector on the back of the A803. Verify that the green USB LED indicator is illuminated on the A803.



USB Output (ILT1700)
USB Connector (A803)

Green USB LED Indicator

2.3 Initializing SOFTDAQ

2.3.1 Run Executable

Double-click the SOFTDAQ icon to open and run the software. Location of the icon is dependant no where the user installed the software.



2.3.2 Select ILT1700 COM Port & Baud Rate

When prompted, select the appropriate ILT1700 COM port with a Baud rate of 4800 and click OK. Verify SOFTDAQ INITIALIZATION SUCCEEDED, and that the DC function LED on the front panel of the A803 is illuminated. No Active Channel LEDs should be illuminated.

DC Function LED
illuminated



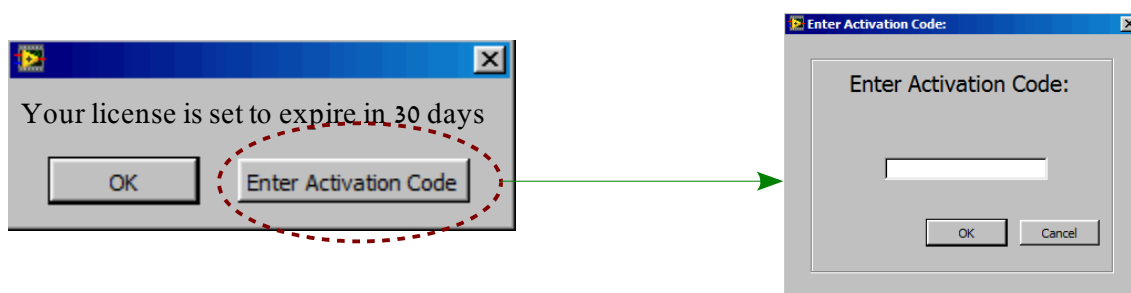
No Channel LEDs
illuminated



NOTE: If user is unsure of COM port, right-click MY COMPUTER, and select PROPERTIES. Then select Device Manager under the HARDWARE tab and scroll down to view PORTS.

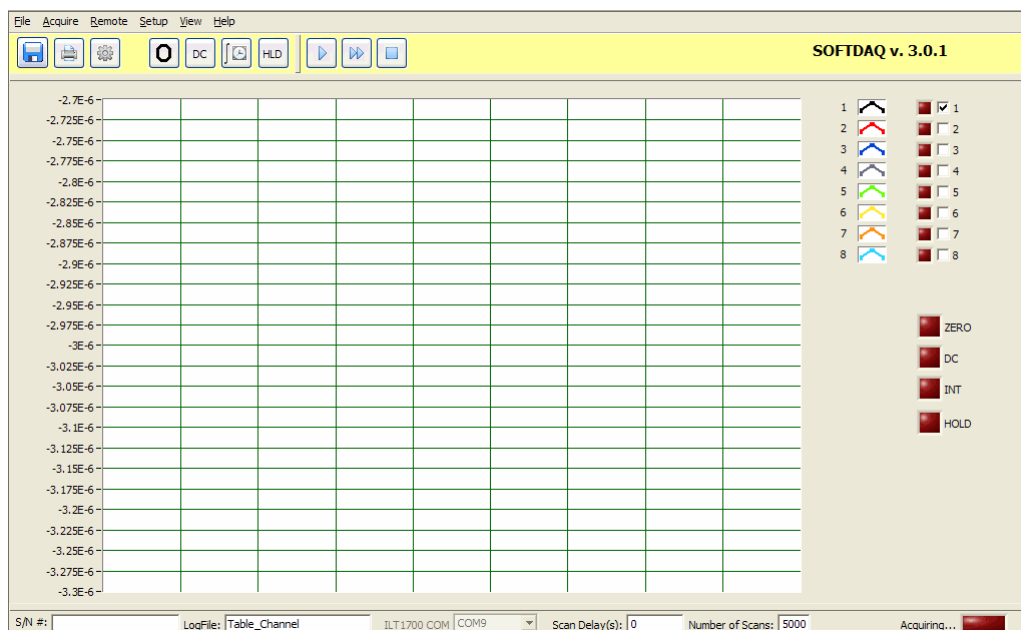
2.3.3 Enter Activation Code

After selecting the ILT1700 COM port and succeeding with initialization , verify that the user is prompted with a warning that states YOUR SOFTWARE LICENSE IS SET TO EXPIRE IN 30 DAYS. Select ENTER ACTIVATION CODE from the pop-up box and enter the activation code, which can be found on the outside of the installation disk.



Verify that SOFTDAQ opens in CHART view, per the following image:

NOTE: If using the A803-4, only 4 channels will be visible on the right side of the chart



NOTE: Proceed to Section 4.0 Taking a Measurement in Software Mode

3.0 TAKING A MEASUREMENT IN MANUAL MODE

Only Section 1.0 Hardware Initialization will be completed prior to continuing with this section.

3.1 Begin to Measure

3.1.1 Select/Connect Detectors

Determine the type and amount of detectors to be used (up to 8 detectors can be connected to the A803 Multiplexer at a time). Connect the applicable detectors to the channel connectors on the back of the A803. Detector arrangement will be determined by the user.



Detector connectors (Ch1-8)

3.1.2 Set/Store Detector Sensitivity Factors

Using ILT1700, enter sensitivity factors from each detectors' calibration certificate using the following procedure:

- Press FACTOR SHIFT button on the front of ILT1700 until the FACTOR SHIFT LED is illuminated.
- Press FACTOR SELECT button until register "1" appears in window above the button.
- Enter sensitivity factor for the detector connected to Channel 1 by using MSD, LSD buttons to change reading display & EXP button to change exponent.



EXP
Factor Select
Factor Shift/Data Display
LSD
MSD

Use the FACTOR SELECT button to increment to the desired register (1-8) and use the above procedure to store sensitivity factors for detectors in their respective channels.

NOTE: The ILT1700 has the capability to store sensitivity factors in 10 registers (0-9), but recommended use is to correlate the register with the channel and the detector connected to that channel. Registers "0" and "9" can be used for extra sensitivity factors to be used at the discretion of the user

After storing all applicable sensitivity factors, click the FACTOR SHIFT/DATA DISPLAY button until the DATA DISPLAY LED is illuminated.

3.1.3 Select Active Channel

Use the Active Channel buttons on the front of the A803 to scroll through channels 1-8 and select which channel to measure from. Verify a detector is connected to the active channel once selected.



Active Channel selector



3.1.4 Sensitivity Factor Selection

Once the Active Channel has been selected, choose the appropriate sensitivity factor for that specific channel/detector by pressing the FACTOR SHIFT/DATA DISPLAY button until the FACTOR SHIFT LED is illuminated. Select the applicable register (1-8) by using the FACTOR SELECT button. Select register 1 if active channel is 1, select register 2 if active channel is 2, up to channel 8.

After selecting appropriate sensitivity factor, press the FACTOR SHIFT/DATA DISPLAY button until the DATA DISPLAY LED is illuminated. The ILT1700 is now ready to display data from the detector connected to the active channel.

3.1.5 Bias Selection

Press 5V Bias button if you are reading a channel that is using a vacuum photodiode type detector (SED240 or SED220), or for flash measurements.

3.1.6 Take a Measurement

Follow the steps below to take a measurement in manual mode.

3.1.6.1 Set Measurement Mode

Select measurement function by pressing either D.C. (signal) button or INT button for continuous or integrated readings. Remember INT will sum up the signal over that integration time and D.C. mode will read the average steady state light levels.

3.1.6.2 Zero the Detector

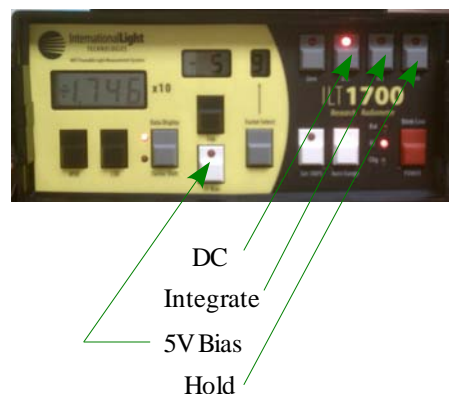
For a dark zero, cover the active channel detector with opaque object, wait ten seconds and press ZERO button. For ambient zero, simply press zero button for uncovered active channel detector for over one second and release. (will subtract current zero from all future readings) To return to internal zero, unplug the detector attached to the active channel and press zero. Uncover the detector after zero-ing.

3.1.6.3 Display Measurement

At this point, the detector that is connected to the Active Channel will be measuring, and outputting the measurement to the ILT1700 display. For taking measurements on separate channels, simply use the Active Channel buttons to select the desired channel/detector, making sure that the correct sensitivity factor has also been selected (see Section 3.1.4 for sensitivity factor selection).

3.1.6.4 Hold Function (Optional)

User has the option of pressing the HOLD button on the ILT1700 to freeze the reading display with its current value at any point of a measurement.

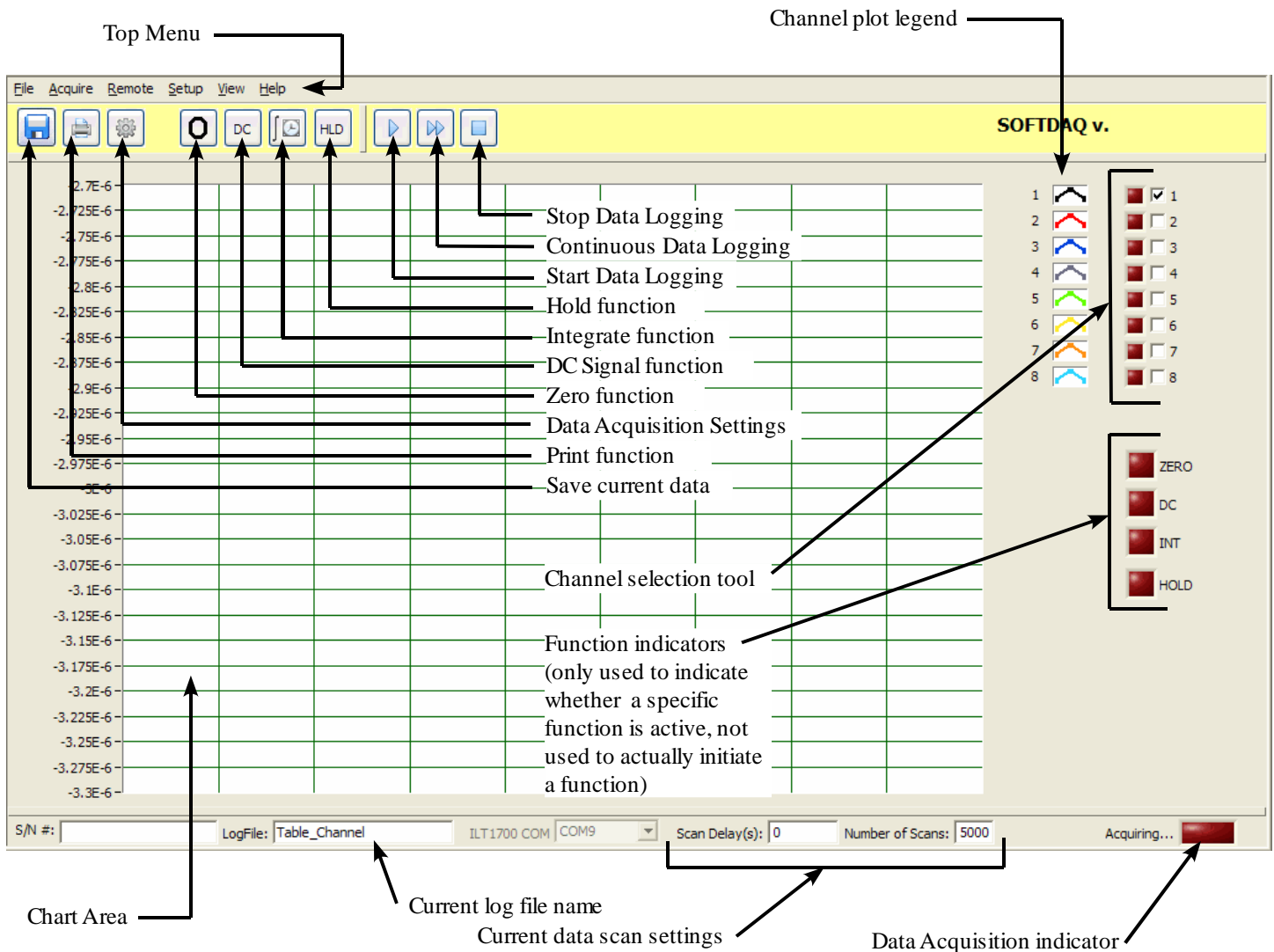


4.0 TAKING A MEASUREMENT IN SOFTWARE MODE

Section 1.0 Hardware Initialization and Section 2.0 Software Initialization will be completed prior to continuing with this section.

4.1 Begin to Measure

4.1.1 User Interface Description



NOTE: All items and their functions are described below in the following sections

4.1.2 Select/Connect Detectors

Determine the type and amount of detectors to be used (up to 8 detectors can be connected to the A803-8 and up to 4 can be connected to the A803-4 Multiplexer at a time). Connect the applicable detectors to the channel connectors on the back of the A803. Detector arrangement will be determined by the user.



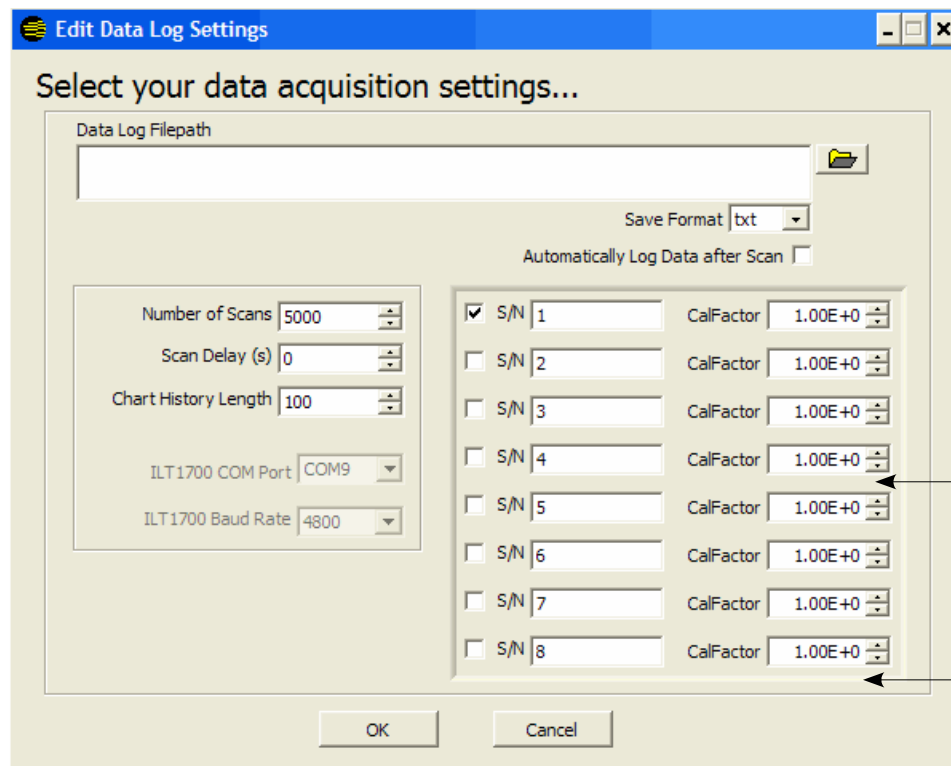
Detector connectors (Ch1-8)

4.1.3 Select Channels to Measure

Using the channel selection tool (see Section 4.1.1), select the channels to measure. The user can select up to 8 channels simultaneously to scan (4 if using A803-4).

4.1.4 Data Acquisition Settings

Press the Data Acquisition Settings button on the user interface (see Section 4.1.1) to open the Data Acquisition Settings box.



Channels 5-8 are not visible if using A803-4

4.1.4.1 Set/Store Sensitivity Factors (CalFactors)

In the right side section of the Data Acquisition Settings box, enter detector serial numbers & sensitivity factors from each detectors' calibration certificate in the appropriate box starting with channel 1 at the top for all detectors being used.



4.1.4.2 Enter Number of Scans

Select the number of scans for each channel/detector being measured. The software will capture 1 measurement per channel per scan for data logging.

4.1.4.3 Enter Value for Scan Delay

Select the desired value (in seconds) for delay between scans. For the most accurate results, a scan delay of at least 2 seconds is recommended.

4.1.4.4 Chart History Length Selection

Select the desired Chart History Length which forces the software to only plot out the selected number of samples on the user interface chart. If the Number of Scans exceeds the Chart History Length, data will still be logged for all scans, but only the number of samples selected for chart history length will be visible on the user interface chart.

4.1.4.5 Automatic Data Logging (Optional)

The user has the option of checking the box labeled “Automatically log data after scan”. If the user does not want to automatically log the data following the scan, skip to Section 4.1.5. Otherwise, skip to next step, 4.1.4.6 for instructions on selecting filepath and file type.

4.1.4.6 Selecting Automatic Data Log FilePath and File Type (Optional)

If user selects to automatically log the data after the scan, use the “Browse” icon to select the file path the user wants the data to be saved in. Then use the “Save Format” drop-down menu to select an output .TXT file or .XLS file.

Click the OK button when the user has completed inputting all Data Acquisition Settings. To return to the user interface without inputting data logging settings, click CANCEL.

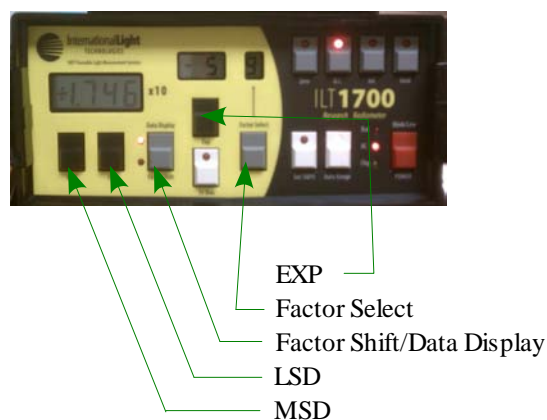
NOTE: User can also access the Data Acquisition Settings by choosing SETUP → DATA LOG SETTINGS from the Top menu of the user interface in Section 4.1.1, or by clicking on the dialog boxes for Number of Scans or Scan Delay at the bottom of the user interface seen in Section 4.1.1.

4.1.5 Set ILT1700 Sensitivity Factor

Set the ILT1700 sensitivity factor to read 1.000×10^0 using the following procedure:

- Press FACTOR SHIFT button on the front of ILT1700 until the FACTOR SHIFT LED is illuminated.
- Press FACTOR SELECT button until register “0” appears in window above the button.
- Use MSD & LSD buttons to change the display to read 1.000.
Use the EXP button to change the display to read 0.

Once completed, press the FACTOR SHIFT/DATA DISPLAY button to return the ILT1700 to DATA DISPLAY mode, verifying the DATA DISPLAY LED is illuminated.



4.1.6 Bias Selection

On the ILT1700, Press 5V Bias button if you are reading a channel that is using a vacuum photodiode type detector (SED240 or SED220), or for flash measurements. It is recommended not to scan a combination of vacuum photodiode type detectors with other detector types that do not require the 5V Bias.

4.1.7 Taking a Measurement

Follow the steps below to take a measurement using SOFTDAQ software.

4.1.7.1 Zero the Detectors

For a dark zero, cover all selected channel detector(s) with opaque object, wait ten seconds and click the ZERO function button (see Section 4.1.1).

For ambient zero, simply press ZERO function button for all uncovered selected channel detector(s) for over one second and release. (will subtract current zero from all future readings) To return to internal zero, unplug the detector attached to the active channel and press ZERO function button.

ZERO Function



NOTE: After initial software startup, the user will not be able to start scanning data without first performing the ZERO function. User will be prompted with a dialog box stating that the system must be zero'd prior to starting a scan

4.1.7.2 Set Measurement Mode

Select measurement function by pressing either D.C. (signal) function button or Integrate function button for continuous or integrated readings from user interface in Section 4.1.1. Remember Integrate mode will sum up the signal over that integration time and D.C. mode will read the average steady state light levels.



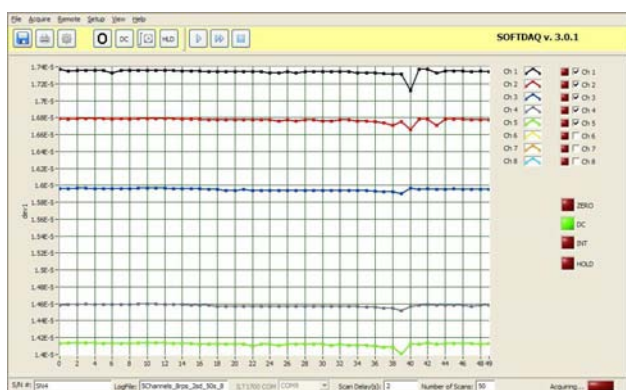
DC Function

Integrate Function

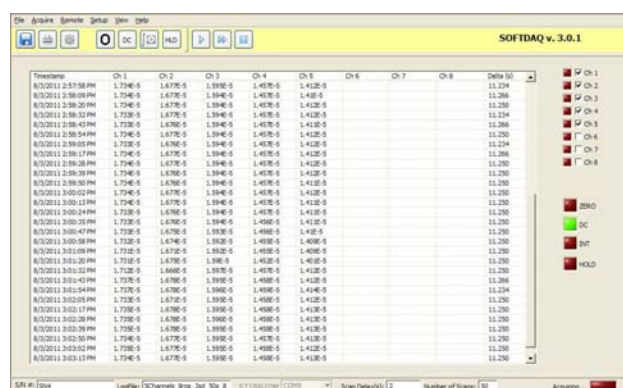


4.1.7.3 Data Display Options

In the Top Menu (see Section 4.1.1), select VIEW and choose the desired view for measurement readings. User has the option of viewing the CHART, which plots the values in an auto-populated graph, or viewing a TABLE which auto-populates the table with the measurements for each channel during a scan.



Example CHART view



Example TABLE view

4.1.7.4 Initiate a Scan/Display a Measurement

The user has 2 options for starting a data scan, which are both described below. Read both descriptions before deciding which option is best suited for the users' application.

4.1.7.4.1 Start Data Logging

Click the Start Data Logging button on the user interface (see Section 4.1.1) to start reading the selected channels (from channel selection tool on user interface) based on the user defined data acquisition settings from Section 4.1.4, specifically Number of Scans, Scan Delay, and Chart History Length.

Once the software has measured and logged detector data on each user-selected channel for the number of user-selected scans, and if the user selected the

“Automatic Data Log” function (see Sections 4.1.4.5-4.1.4.6), scan data will be stored in the designated file path as the designated file type.

NOTE: Any scan data generated from new scans will be added to the already existing file and will NOT overwrite it. If scanning for the first time upon opening/initializing the SOFTDAQ software, user will be prompted to set the ILT1700 calibration factor to 1.

Start Data Logging Function



4.1.7.4.2 Continuous Data Logging

Click the Continuous Data Logging button on the user interface (see Section 4.1.1) to start reading the selected channels (from channel selection tool on user interface). Continuous Data Logging will continuously measure each selected channel and ignore the Number of Scans chosen by the user. Only by pressing the Stop Data Logging button will the system stop the Continuous Data logging function.

Once the software has measured and logged detector data on each user-selected channel for the number of user-selected scans, and if the user selected the “Automatic Data Log” function (see Sections 4.1.4.5-4.1.4.6), scan data will be stored in the designated file path as the designated file type.

NOTE: Any scan data generated from new scans will be added to the already existing file and will NOT overwrite it.

Continuous Data Logging Function



Stop Data Logging Function



4.1.7.4.3 Stop Data Logging (Optional)

At any point during a scan, the user has the option to stop the scan by pressing the Stop Data Logging button.

4.1.7.4.4 Hold Function (Optional)

At any point during a scan, the user has the option to Hold, or freeze, the scan by pressing the HOLD function button from the user interface, which will cause the software to display the same value at each channel until the user sets a new measurement mode (see Section 4.1.7.2).



Hold function



4.1.7.5 Manual Data Save (Optional)

After a scan, the user has the option of saving the specific scan data by pressing the Save Current Data button from the user interface (see Section 4.1.1). After clicking the button, the user will be prompted to name the file and select a file path.

Save current data

