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DCS 2.0 Dose Control Meter 16S & LS1000

Instruction Manual

Solar Light Company, LLC would like to thank you for choosing the DSC 2.0 Pre-Irradiation Dose 16S and LS1000. This manual provides all the information needed to install the hardware and software and provides a brief overview of the system operation to help you get started. Once the system is operational, an on-line help system will provide more detailed information that will assist you in becoming familiar with the software operation, sample preparation, etc.

If you have any questions or require any technical information, please contact us via e-mail: info@solarlight.com, phone: 1.215.517.8700, or fax: 1.215.517.8747. You might also want to bookmark our web site at www.solarlight.com. We are not only committed to providing you with world class products, but first class customer service as well.

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Warranty

SOLAR LIGHT COMPANY, LLC herein referred to as "Solar Light" warrants that the equipment has been carefully tested, inspected and shipped from the factory in proper working condition, free of visible defects. Solar Light warrants the equipment to be free from defects in material and workmanship, under normal use and operation, for a period of one (1) year from date of shipment. Stocking distributors will have eighteen (18) months from the date of shipment from the Factory or one (1) year from installation date whichever occurs first.

The warranty is limited to the replacement of defective parts including labor during the first year, FOB factory, Philadelphia. Shipping cost to Solar Light is the customer's responsibility. Solar Light will pay return shipping costs. Solar Light reserves the right to replace defective parts with new or rebuilt parts at their discretion. Defective parts replaced under this warranty shall become the property of Solar Light.

This warranty is subject to the following conditions:

1. Solar Light equipment must be purchased from an authorized Solar Light representative.
2. Solar Light must supply all repairs and maintenance parts used during the warranty period and the factory must perform all service work or it must be done by an authorized Solar Light field service representative or directly.
3. The equipment must be operated within Solar Light's specifications and in accordance with the operating and preventive maintenance instructions.
4. This warranty is non-transferable.

The warranty shall not apply to damages resulting from errors in installation, nor shall it apply to any equipment, which has been subjected to damages, alterations or misuse by the purchaser or freight carrier. Parts of the equipment that would be generally considered normal wear and tear maintenance items are not covered under this warranty.

If the lamp explodes, it may be replaced at the manufacturer's discretion, but derivative damages will not be covered. Only lamps obtained through Solar Light can be warranted. Explosion debris must be returned to Solar Light.

Before shipping equipment back to Solar Light for warranty service, we require that you contact Solar Light for our Return Material Authorization (RMA) procedures.

Unauthorized returns will not be accepted and shipments will be returned to the sender at their expense.

Solar Light must accept any variations to the above warranty in writing prior to equipment purchase, for it to be valid.

This warranty is subject to change without notice.

General Description

The DCS 2.0 Dose Controller/meter is a bench model Dose controller and Radiometer for use with the Solar Light Company range of Solar Simulators. It continuously monitors the intensity and the dose being delivered to the subject. When the dose or time reach the pre-set value, the shutter automatically closes, terminating the UV irradiation. The irradiation is monitored by the sensor(s) supplied.

The DCS 2.0 has a capacitance touch screen for easy operation and an intuitive color screen set enable set up and test control with fewer keystrokes. Several preset menus are included for running standard tests, and a keypad screen is included to set up custom tests as required. Many features such as last run memory, automatic sequence setting, pause and resume or pause and reset are also included to facilitate faster more efficient testing.

The DCS 2.0 will work with all models of Solar Light Company's simulators to carry out a wide range of different tests. These are SPF testing, Pre irradiation, PV Cell testing, Materials testing and Biological testing. It has the same unique, patented automatic sensor identification capability found in the PMA series products, and is compatible with all the PMA21xx series sensors.

NOTE: This manual is intended to cover all the functions in specific tests, using any of our simulators. If a button is "grayed out" and inactive when pressed, it means that the function is not applicable to the chosen simulator.

Operation

This unit is for use with Solar Light Company's Model 16S and LS1000 series Solar Simulators.

DCS 2.0 Indicators

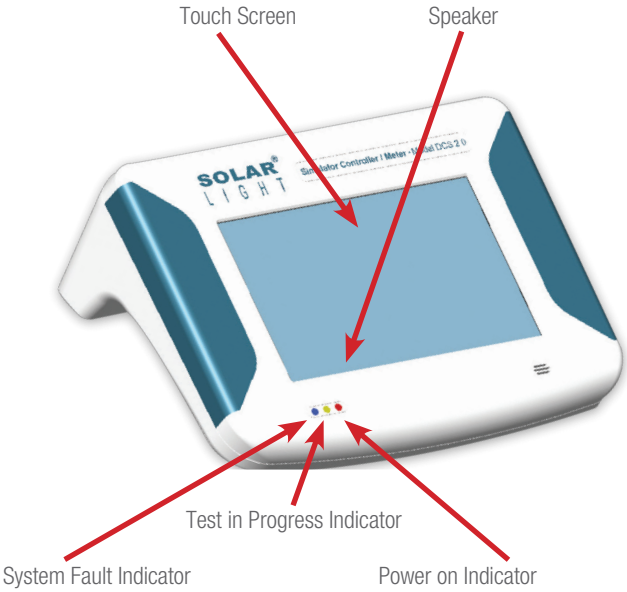
System Fault: Shutter is not being controlled.

Test In Progress: Flashes when test is in progress

Power On: Lit when power supply is connected

Speaker: Gives audible signals when functions are completed

Front Panel Details



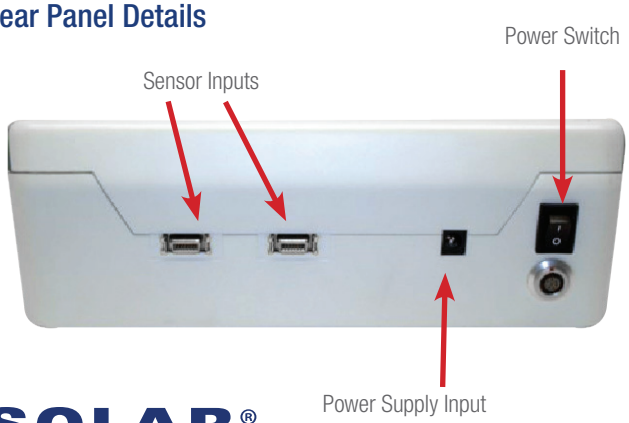
Rear Panel

Power Switch: Controls the application of power to the DCS 2.0. This powers the internal control circuits.

Shutter Control Connection: control cable to simulator: The eight pin circular connector on the rear panel allows remote control of the simulator's shutter. When connected, the shutter can be controlled in dose delivered mode or a timed exposure mode.

Sensor Inputs: Connect one or two sensors simultaneously if desired, depending on application. One sensor must always be connected. Sensors are automatically recognized by the DCS 2.0.

Rear Panel Details



Start-up Instructions

Ensure the simulator is turned on and the lamp is enabled. Check the shutter control on the XPS power supply is closed.

Ensure that the Shutter Control cable is connected to the DCS 2.0 and the XPS power supply.

Connect one or both sensors to the DCS 2.0.

Connect the MAINS power. Before turning on the MAINS power on make sure of the following:

- The Shutter Control cable is connected to the DCS 2.0.
- One or both sensors are connected to the DCS 2.0.

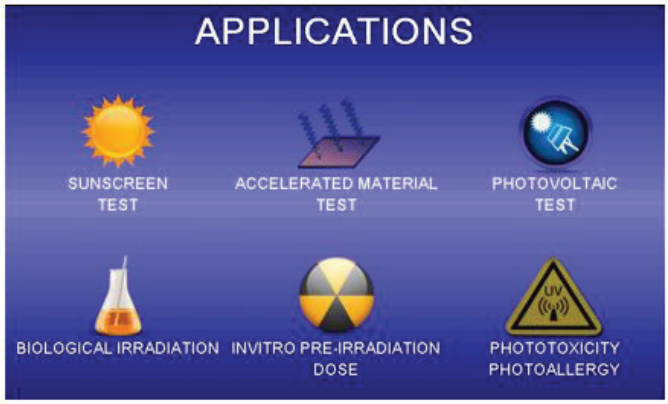
When turning the DCS 2.0 on for the first time, it will ask you to set the sensing %. The Factory default is 0%. Please set the sensing to 100% when new. You will only be asked to do this once for each new sensor.

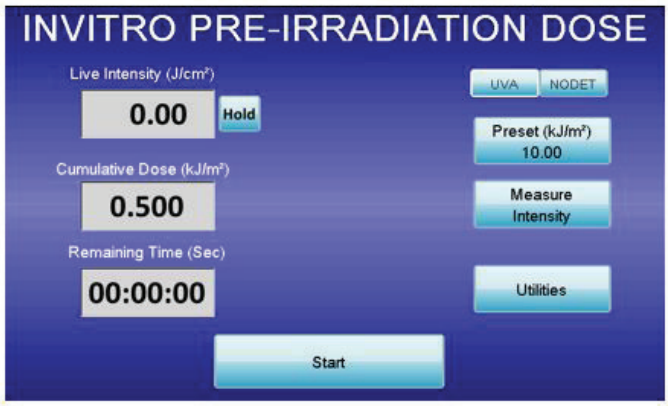
Shut Down Instructions

When all testing has finished, turn off Lamp Enable switch on the power supply to turn off the lamp. Wait for 10 to 20 minutes for the fan to cool the lamp, and then turn off the power supply power switch at the rear. Turn off the DCS 2.0 using the Power Switch on the rear panel.

Test Selection and Configuration

From the Applications Screen, touch the icon that indicates in vitro Pre irradiation Dose. This will take you to the home screen of that particular application.





Utilities

Touch this button on any chosen application screen. This allows you to perform various configurations for the applications you select. Touch the Back button to exit Utilities and return to your chosen Applications screen.

Device Setup

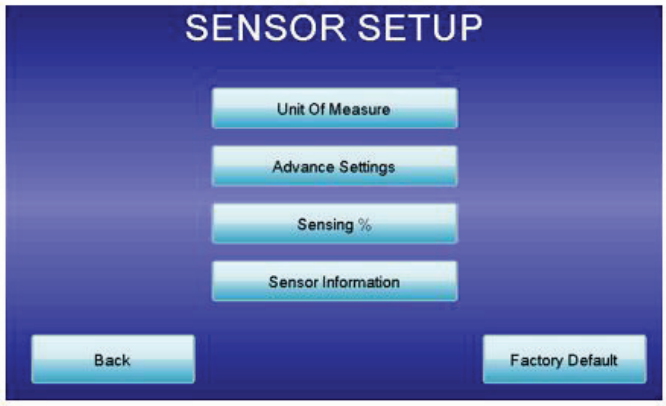
This screen allows you to set the physical parameters in terms of brightness, volume and sleep time. It also allows you to set the date and time, calibrate the touchscreen, change applications and reinstate Factory defaults. These settings will apply to all of the screens. When finished, touch the Save and then Back buttons to return to the utilities menu.

Simulator Selected

Touch this button to toggle between 16S, 601 and LS1000 to select the simulator you are using.

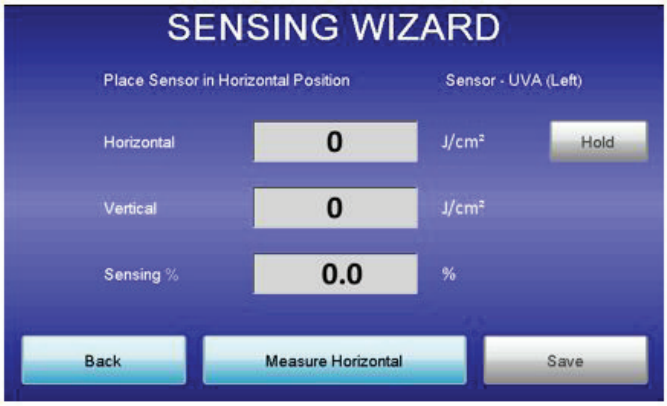
Sensor Setup

This allows you to set the sensor units of measure, scale and offset settings, sensing (always 100%) and sensor data. Touch the back button to return to Utilities screen.



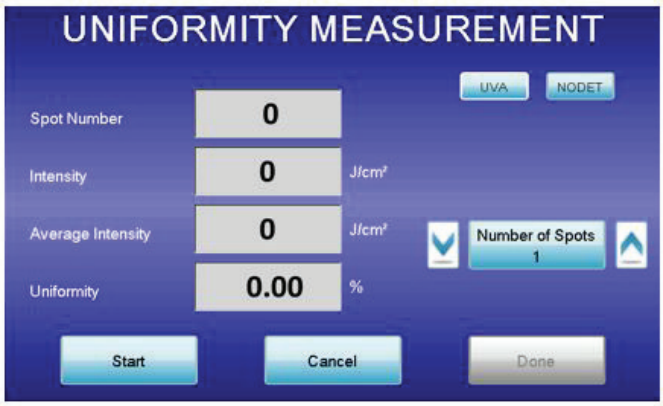
Sensing Wizard

This screen is not applicable for Pre irradiation Testing. Touch the save and then back buttons to return to the Utilities screen.



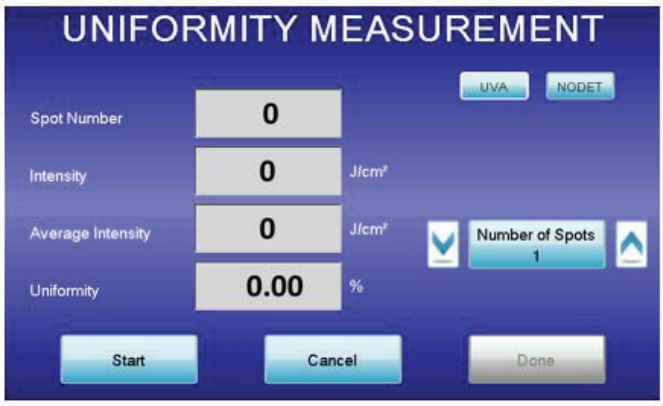
Measure Uniformity

Touch this button to measure the beam uniformity of the simulator, with the PMA Sensor, when using it for Pre irradiation. Select the number of spots you wish to measure. It is a requirement of FDA and ISO to ensure the intensity in each beam does not vary by more than 20%. Follow the on-screen instructions to carry out the test. Touch the Done button to return to the Utilities screen.



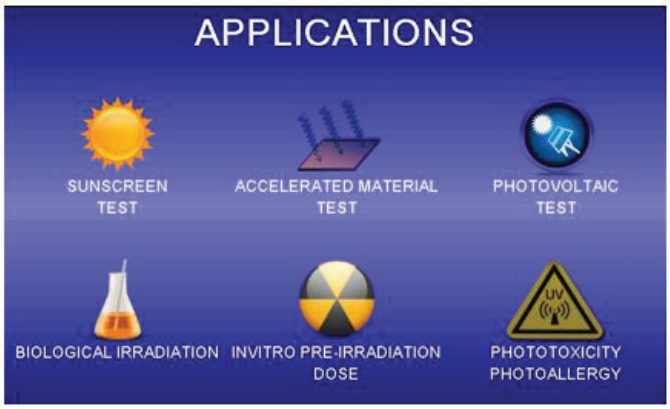
Min/Max/Average

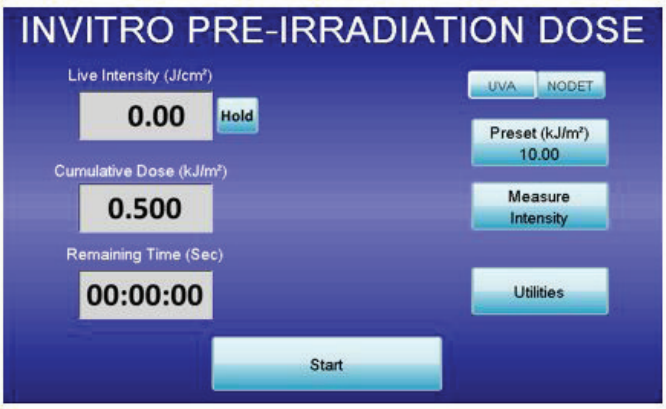
Touch this button to use the min/max/average feature when measuring beam intensities prior to testing. Touch the Done button to return to the Utilities screen.



Pre-Irradiation Dose. Model 16S and LS1000 Set-Up and Run

With Model 16S or LS1000 selected, from the Applications screen, touch the in vitro Pre- irradiation Dose icon to enter the Test screen. To exit the in vitro Pre-irradiation Test screen, touch the Utilities, Device Setup and Change Application buttons to return to the Applications Screen.



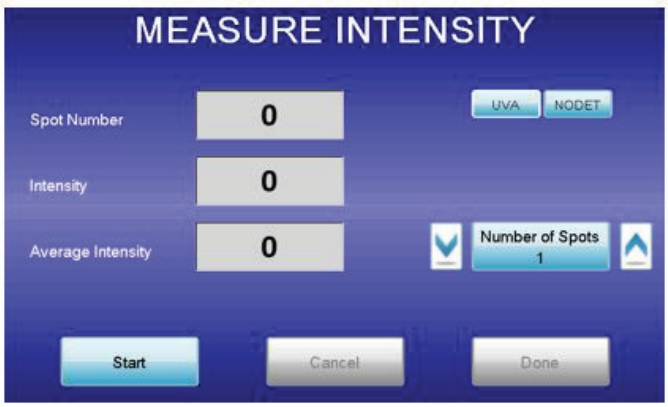


Preset

Use this button to set a preset dose or time for the Pre-irradiation Dose. Touch the Enter and Back buttons to return to the Pre-irradiation Dose screen.

Measure Intensity

Press the Measure Intensity button.



Select the number of spots to measure. Press start. When enough data has been collected, the start button changes to Stop. Press Stop. When all the spots have been measured, press Done. A box will appear asking if you want to use the average intensity in the test. Press Yes or No to continue. The average intensity will now appear in the Live Intensity box on the In Vitro Pre-Irradiation Dose screen.

Start

Press this button to start the test. This will open the simulator shutter and begin the pre- irradiation. Once the preset dose has been achieved, the shutter will close. Press the Reset button to reset the screen ready to start the next test.

Specifications	
Main Voltage	100VAC to 240VAC
Current	0.8A
Line Frequency	50/60 Hz
Output	24VDC
Current	1.25A
Operating Temp Range	0 to 50 deg. C. No Precipitation
Display	7" Touch Screen
Sensor Inputs	2
Weight	2.1 lbs (930 g)
Dimensions	9.5" (241mm) x 3.5" (89mm) x 8.5" (216mm)