

# User Manual

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 **DIGI-SENSE™**

## Data Logging Light Meter

with NIST-Traceable Calibration

### Model 20250-00



THE STANDARD IN PRECISION MEASUREMENT

## **Introduction**

The Digi-Sense Data Logging Light Meter (Model 20250-00) is designed for precision light intensity measurements, in lux or footcandles, for indoor/outdoor environments. Meter will help you meet lighting codes and standards, ensuring safety and quality control requirements while increasing comfort levels and productivity. Advanced features include user-selectable Lux/Fc units, Max/Min readings, HOLD setting, and data logging of up to 87,000 measurements. The instrument is fully tested and calibrated to NIST-traceable standards. Careful use of this meter will provide years of reliable service.

## **Unpacking**

Check individual parts against the list of items below. If anything is missing or damaged, please contact your instrument supplier immediately.

1. Light meter
2. USB cable
3. Software CD
4. Canvas carrying case
5. Three AAA batteries
6. User manual
7. NIST-traceable calibration report with data

## **Key Features**

- Wide measurement range of 0 to 400 kLux; 0 to 40 kFc
- Precision accuracy of  $\pm 3\%$
- User-selectable Lux or Fc units of measure
- Max/Min and Hold functions
- Record up to 87,000 measurements
- Data logging software with graphical display
- Download data via USB connectivity
- Large LCD for easy reading
- Low-battery indicator
- Auto power-off after five minutes of non-use to conserve battery power

## Buttons



### **Data record button.**

Use this button to enable record function when in manual start mode. When in manual start mode, press REC button for three seconds to start recording (the REC icon will be displayed on the screen), then press REC button for three seconds to end recording (the REC icon will disappear from display). **Note:** You must install software and adjust settings under "Data Logger Setting" first to enable record function and have meter connected to PC via USB cable. (See pages 7-8.)



### **Maximum/Minimum button.**

Use this button to toggle between displaying the maximum and minimum readings on the screen.



### **Hold button.**

Use this button to freeze a measurement on the screen.



### **Level button.**

Use this button to select the Lux or Fc measuring range. Select the desired Lux or Fc range prior to recording data as this function will become disabled when in record mode. Selections include — Lux mode: 400 Lux, 4, 40, and 400 kLux; Fc mode: 40, 400 Fc, 4, and 40 kFc.



### **Backlight button.**

Use this button to enable or disable the backlight for the display.



### **Lux/Fc button.**

Use this button to select Lux or Fc as the unit of measure.



## Power button.

Press this button for more than one second to power meter on. Press this button for more than three seconds to power meter off.

**Note:** If recording, disable the record function prior to powering off or you may lose any recorded data.

## Display Functions

**FULL:** Full icon. Displayed when in record mode if the memory is full.

**REC:** Record icon. Displayed when in record mode, indicates the meter is recording the measurement data.

**MAX:** Maximum icon. Indicates maximum measurement data.

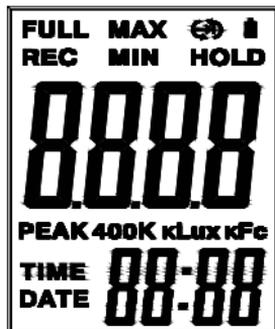
**MIN:** Minimum icon. Indicates minimum measurement data.

**HOLD:** Data hold icon. Indicates current measurement displayed is being held.

**PEAK:** Peak icon. Indicates peak measurement data.

**TIME:** Time icon. Indicates hour and minute. To set (upon successful installation of software), connect meter via USB cable to PC and open "MultiDL" icon on PC desktop. Double click on the image of the light meter displayed in the left-hand white display pane. Then select the data logger setting icon (located on menu bar next to the printer icon), set time, then select "OK" to complete.

**DATE:** Date icon. Indicates month, day, year. See time set instructions above to set date.



## Display Functions (continued)

-  : Cycling record icon. Indicates the meter's memory is storing the latest measurement and deleting the oldest measurement. (First measurement in, first measurement out.)
-  : Unable to record icon. Indicates user must set recording settings prior to the start of recording data.
-  : Stop icon when memory is full. Indicates that memory is full and recording has stopped.
-  : Low-battery icon. Displayed when battery is low and needs replacement.

## Setup and Operation

1. Press **Power** button for more than one second until LCD screen powers on.
2. Press **Lux/Fc** button to select Lux or Fc unit of measure.
3. Remove the cover from the remote light probe and place it horizontal to the light source being measured.
4. Read the measurement data on the display.
5. **Note:** If "OL" (overrange) is displayed on the screen, this indicates that the signal input is too strong, and a higher range must be selected. Use the **Level** button to select another measurement range. Selections include —  
Lux mode: 400 Lux, 4, 40, and 400 kLux;  
Fc mode: 40, 400 Fc, 4, and 40 kFc.
6. Press **HOLD** button to freeze current measurement on the screen. Press and hold **HOLD** button for three seconds to exit Hold mode.

7. Press **MAX/MIN** button to display the maximum reading. Press **MAX/MIN** button again to toggle to the minimum reading. Press and hold **MAX/MIN** button for three seconds to exit Max/Min mode.
8. For a brighter display simply activate the backlight function by pressing the **Backlight** button.
9. When finished using the light meter, power off by pressing **Power** button for more than three seconds and replace protective cover over the light probe.

## **Data Logging / Recording Function**

For recording and downloading measurement data from meter to your PC, connect the supplied USB cable to the port located at the bottom of the meter and the other end to the USB port on your PC.

1. First install software on PC following the setup wizard (see "Software Installation on page 9). Once software is successfully installed, the "MultiDL" software icon shortcut will be automatically placed on your PC desktop.
2. Connect the meter to your PC via supplied USB cable.
3. Power the meter on.
4. Open the installed Multi Data Logger Software by double clicking on the "MultiDL" icon on your PC desktop.
5. When opened, double click on the **meter image** of the light meter located in the left-hand white pane box. This will activate the image of the meter's screen to illuminate.
6. On the menu bar, select the PC image icon (when mouse dragged over icon it is titled "Data Logger Setting").

## **Data Logging / Recording Function (continued)**

7. In the Data Logger Setting menu, confirm time and select date format, sampling rate, memory full directions, auto power-off status, and start method, then select "OK".  
**You must set these parameters before meter will record measurements.**
  - a. **Note:** Manual start method is controlled by user pressing **REC** button on instrument; automatic start method will activate recording via the software once selected.
8. In manual record mode, press and hold the **REC** button on the meter for three seconds until the **REC** icon is displayed on the screen. This will indicate that recording function has been activated. Upon completion of desired data logging of measurements, press and hold the **REC** button for three seconds until the **REC** icon disappears from the screen, indicating data logging has been deactivated.
9. To download the data to the PC, select the downward facing arrow in menu bar in the software window. The software screen will display the data being downloaded from the meter. Upon completion of downloading, the data results will be displayed graphically.
10. To save the measurement data to your PC, select the "Data List" tab to open the list of measurements recorded. Select "File" icon from the menu bar and save data to desired location on your PC. **Note:** Data will be saved in Excel® format that will include all summary information as captured on the "Data Summary" tab.
11. To print recorded data, simply select the "print" icon on the menu bar.

## **Software Installation**

1. Insert the CD into the PC.
2. Double click the set up.exe file to launch the software installation program.
3. Follow the installation wizard to complete the installation.
4. If the USB driver needs to be updated or driver error message is received, please go to the folder with driver on the CD and double click the file CP210xVCPInstaller.exe to update the driver.
5. Upon successful installation of the software the "MultiDL" software icon shortcut will be automatically placed on your PC desktop.

## Specifications

|                          |  |
|--------------------------|--|
| Range                    | 0 to 400,000 Lux; 0 to 40,000 Fc   |
| Resolution               | 0.01 Lux/Fc  |
| Accuracy                 | $\pm 3\%$ rdg $\pm 0.5\%$ full-scale (<10,000 Lux),<br>$\pm 4\%$ rdg $\pm 10$ digits (>10,000 Lux) |
| Sampling rate            | User-selectable (default of once per second)   |
| Data logging             | Meter stores up to 99 measurements;<br>software records/stores up to 87,000 measurements           |
| Display                  | 4000-count backlit LCD   |
| Overload display         | "OL" displayed for overload indication   |
| Spectral response        | CIE appropriate light (CIE eye response curve)   |
| Spectral accuracy        | CIE $V_{\lambda}$ function $f1' \leq 6\%$  |
| Cosine response          | $f2' \leq 2\%$   |
| Light sensor probe       | Silicone light diode with spectral response filter   |
| Light probe cable length | 4.9 ft (150 cm)  |
| Operating temperature    | 32 to 122°F (0 to 50°C)  |
| Operating humidity       | <90% RH, noncondensing   |
| Storage temperature      | 14 to 158°F (-10 to 70°C)  |
| Weight                   | 12.3 oz (349 g)  |
| Dimensions               | 2" x 6 $\frac{3}{8}$ " x 1" (5 x 16 x 2.7 cm)  |
| Power supply             | Three AAA batteries  |

## **Maintenance, Recalibration, and Repair**

### **Cleaning instructions**

- Light meter should be wiped regularly with a cloth.
- Do not use solvents or detergents to clean meter.

### **Replacing the Batteries**

1. Turn off the light meter if necessary.
2. Loosen the screw and remove the battery door.
3. Replace the three AAA batteries.
4. Replace the battery door and tighten the screw.

**It is recommended that Digi-Sense products are calibrated annually** to ensure proper function and accurate measurements; however, your quality system or regulatory body may require more frequent calibrations. To schedule your recalibration, please contact InnoCal, an ISO 17025 calibration laboratory accredited by A2LA.



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