Integrating Sound Datalogger

850017
Instruction Manual

Integrating Sound Datalogger - 850017

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INTRODUCTION

This Sper Scientific Integrating Sound Datalogger measures the sound pressure levels (SPL) according to the specified weighting and integrates the weighted SPL over an established length of time, such as an 8-hour workday, in order to measure accumulative sound exposure (Leq). Test parameters are simultaneously displayed on a large, bright, backlit display, featuring 0.1 dB resolution and a bar graph. Up to 64,000 data records can be stored in the meter and saved, graphed, and processed on a computer through the USB interface and included software. The meter complies with IEC 61672:2013 Class 2 and ANSI S1.4:2014 Type 2 meter standards. Meets ANSI S1.43:1997 and IEC 61672-3:2013 for Integrating-Averaging Sound Level Meters.

FEATURES

- IEC 61672:2013 Class 2 and ANSI S1.4:2014 Type 2 meter
- Meets ANSI S1.43:1997 and IEC 61672-3:2013 for Integrating-Averaging Sound Level Meters.

- Digital and analog displays
- 20 Hz to 8 KHz frequency range
- 30 to 130 dB measuring range
- A/C frequency weighting
- Fast and slow time weighting
- 100 dB dynamic range
- 64,000 records
- Minimum and Maximum values
- Over- and under-limit alarms
- AC/DC output
- Automatic shutoff (optional)
- Backlight

MATERIALS SUPPLIED

- Integrating Sound Datalogger
- Windscreen
- USB cable

- Screwdriver
- (4) 1.5V AA Bateries
- Instruction Manual
- Hard carrying case

FRONT PANEL DESCRIPTION

1. Power button
2. Integrating time button
3. Record button
4. Set button
5. Increase/decrease value
6. Fast/slow weighting
7. SPL/Leq selector
8. Minimum/Maximum values
9. Backlight
10. A/C weighting selector
11. Start/pause/stop
12. Microphone
13. USB interface/Power supply
14. AC/DC signal output jack
15. Tripod mounting screw
16. Battery compartment
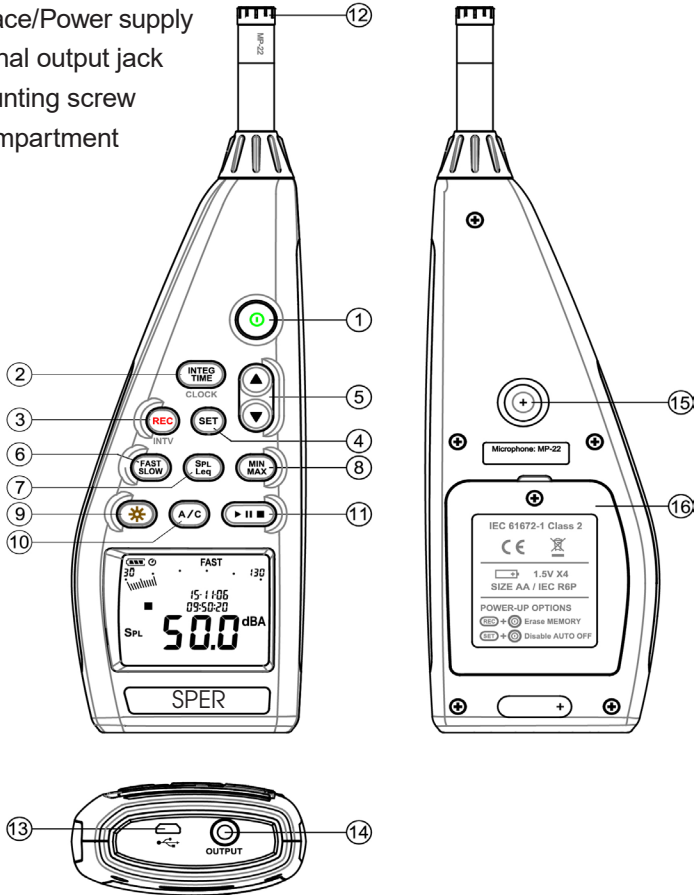
LCD DISPLAY

1. Low-battery icon
2. Automatic shutoff indicator
3. Minimum/Maximum
4. Fast/slow time weighting
5. Sound level range
6. Bar graph
7. Sound pressure level reading
8. Equivalent continuous sound level reading
9. Time and elapsed time indicator (HH/MM/SS)
10. Start/pause/stop
11. Integrating time indicator
12. A/C frequency weighting
13. Sound level reading
14. Date and elapsed time indicator (YY/MM/DD)
15. Over-range indicator
16. Memory full indicator
17. Recording in process
18. Timer indicator
19. Under-range indicator

SETUP

Meter On and Off

1. Press **POWER** to turn the meter **on**.
2. Press and hold **POWER** for 3 seconds to turn the meter **off**.

Automatic Shutoff

The meter automatically turns off after 30 minutes of inactivity. To disable this function:

1. Press **POWER** for 3 seconds to turn the meter **off**.
2. Press and hold **SET**.
3. Press **POWER** while continuing to hold **SET** until the meter is functioning and the automatic shutoff indicator has disappeared from the LCD.

Note…
Automatic shutoff is disabled during recording or when the meter is connected to a computer. The automatic shutoff icon ⏻ is located in the upper left.

Recording Interval Setup

Note…
When pressing ▲ or ▼ to adjust a value, you can scroll more quickly by holding down the button.

1. Press **SET**.
2. Press **REC/INTV**. "Int" displays and the seconds will flash.
3. Press ▲or ▼ to increase or decrease the recording interval from a minimum of one second up to a maximum interval of one minute.
4. Press **REC/INTV** to save the selection and return to Normal Mode, or press **POWER** to cancel and return to Normal Mode.

Integrating Measurement Time Setup

1. Press I**NTEG TIME**. The time increment flashes.
2. Press ▲or ▼ to select 10 seconds; 1 Minute, 5, 10, 20, or 30 minutes; or 1, 2, 4, 8, 16, or 24 hours.
3. Press I**NTEG TIME** to save the setting, or press **POWER** to cancel.

Leq

Sper Scientific's Integrating Sound Datalogger measures sound pressure level (SPL) according to A or C weighting and integrates the weighted SPL over an established length of time, such as an 8 hour workday, to calculate cumulative sound exposure (Leq).

Press **SPL/Leq** to toggle between SPL and Leq. For Leq measurement:

1. Press ►II■ (Start/Pause/Stop) to begin measurement. ► displays along with the elapsed measurement time.
2. During measurement ►II■ may be pressed to pause or restart measurement. ► will display if measurement is paused.
3. To cancel the measurement, press ►II■ for 2 seconds.
4. "OVER" or "UNDER" will display if the measurement is out of range.
5. Measurement will stop and ■ displays when the Leq measurement time is up.

Note…
SET, FAST/SLOW, and **A/C** are disabled during Leq measurement.

Date and Time Setup
The clock should be set before first use and after reinstalling the batteries.

1. Press **SET**.
2. Press **CLOCK** to enter Date and Time Setup Mode. The date and time will display in YY-MM-DD and HH-MM-SS format and the year will flash.
3. Press ▲or ▼ to adjust the year.
4. Press **CLOCK** to select the month.
5. Press ▲or ▼ to adjust the month.
6. Press **CLOCK** to select the day.
7. Press ▲or ▼ to adjust the day.
8. Press **CLOCK** to select the hour.
9. Press ▲or ▼ to adjust the hour.
10. Press **CLOCK** to select the minutes.
11. Press ▲or ▼ to adjust the minutes.
12. Press **CLOCK** to select the seconds.
13. Press ▲or ▼ to adjust the seconds.
14. Press **CLOCK** to save the settings and return to Normal Mode, or press **POWER** to cancel and return to Normal Mode.
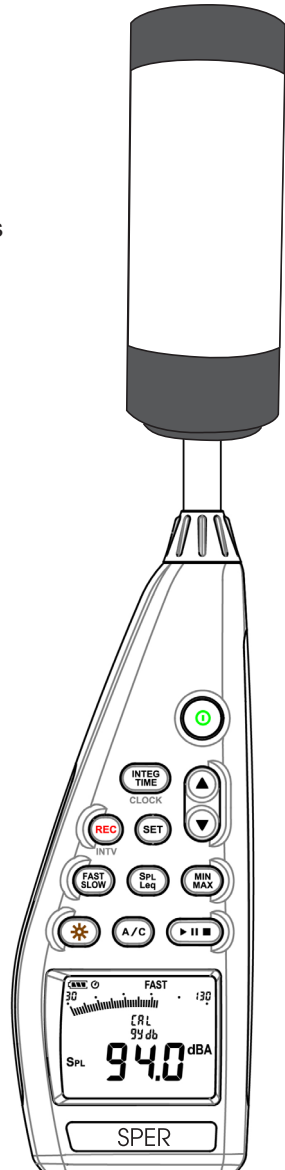
Note…

An internal backup battery will continue to power the clock for 30 hours in the absence of both the AA batteries and a DC adapter. The backup battery will recharge when AA batteries or a DC adapter powers the meter.

CALIBRATION

The meter has been factory calibrated. Annual calibration is recommended for best results.

1. Press **POWER** for 3 seconds to turn **off**.

2. Fully insert the microphone into an acoustic calibrator with a ½ inch insertion socket such as Sper Scientific's 850016.

3. Press and hold **MIN/MAX** and then press **POWER** to turn the meter on. "CAL 94dB" displays.

4. Set the calibrator to emit 94.0 dB and turn the calibrator on.

5. Press ▲or ▼ to increase or decrease the reading to 94.0 dB.

6. Press **MIN/MAX** to save.

7. Press **POWER** to exit calibration.

MEASUREMENT PROCEDURES

Note…
Wind blowing across the microphone may cause additional noise and affect the reading. When taking measurements in a windy environment, the windscreen must be used to prevent interference.

1. Press **POWER** to turn the meter on.
2. Press **FAST/SLOW** to toggle between fast and slow response time.
    a. Select "FAST" response time to measure sound peaks or short bursts of sound across 125 miliseconds.
    b. Select "SLOW" response time to measure average sound levels across 1 second.
3. Press **A/C** to toggle between A- and C-weighting.
    a. Select A-weighting.
    b. Select C-weighting.
4. Hold the instrument in your hand or fix it on a tripod and point the microphone at the source of the sound.
5. The sound pressure level displays.

Backlight

1. Press **BACKLIGHT** to illuminate the LCD screen.
2. The backlight will shut off automatically after 30 seconds, or press **BACKLIGHT** to turn it off sooner.

Minimum/Maximum Mode

1. Press **MIN/MAX** to enter Minimum/Maximum Mode and record minimum and maximum values. "MAX" displays along with the maximum value.
2. Press **MIN/MAX**. "MIN" displays along with the minimum value.
3. Press **MIN/MAX**. "MIN MAX" blinks to indicate that the meter is recording minimum and maximum values. The current value displays on the LCD.
4. Press and hold **MIN/MAX** for 2 seconds to exit Minimum/Maximum Mode and clear the readings.

Recording Data

Note…
Most of the buttons on the meter are disabled during recording. All settings must be selected before recording begins.

1. Press **REC** to begin recording the readings. If 64,000 readings have been stored, "FULL" displays on the LCD.
2. Press **REC** to stop recording.

Note…
the meter will not record if battery power is extremely low.

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Lo bAt
```

Clearing Stored Data

1. Press **POWER** for 3 seconds to turn the meter **off**.
2. Press and hold **REC**.
3. Press **POWER** for at least 5 seconds while continuing to hold **REC**. "CLr" displays to indicate that the data have been erased.

```
SURE 5
CLr
REC
```

SOFTWARE INSTALLATION

System Requirements	Windows XP / VISTA / 7 / 8 / 10
Minimum Hardware Requirements	PC or notebook with CD-ROM ≥50 MB hard disk space to install SE392

Software Download

You can now download the software that came with your meter directly on your computer.

1. Go to **www.sperdirect.com.**
2. Type in the meter number (**850017**) in search box.
3. Under **Description**, click **Software Download** and download from the product page.

Note...

If you find that the software you need is not available, please contact our Customer Support at 480.948.4448 or email info@sperscientific.com for further assistance.

Installing the Software

Note…
Different computer systems may require slightly different installation steps than those below.

1. Close all other applications before installing the software.
2. Open the **850017.zip** file.
3. Select **Setup.exe** and this will open up **InstallAware Wizard for 850017.**
4. Click **Next**.
5. Select **Destination** of the location of software, then Click **Next**.
6. Select **Program Folder**, then Click **Next**.
7. After completing the **InstallAware Wizard for 850017**, Click **Next**.
8. Check **Box** to **Run 850017** now, then Click **Finish**.

Uninstalling the Software

If you wish to remove 850017 software from your computer, the software may be uninstalled using one of the following methods. Note that your system may require slightly different steps.

1. Click on the Start Menu.
2. Select "Control Panel."
3. Launch the Add/Remove Programs applet.
4. Highlight "850017."
5. Click on "Add/Remove."

OR

1. Click on the Start Menu.
2. Select "Control Panel."
3. Select "Programs and Features."
4. Double-click on "850017."
5. The Installation Dialog Box appears. Select "Uninstall" and click "Next."
6. Click "Next."
7. Click "Finish."

DATALOGGING

Recording Real-Time Data in Waveform

1. Press **POWER** to turn the meter **on**.
2. Connect the meter to the PC using the USB cable provided.
3. Open the 850017 program. An image of the meter displays along with a real-time graph.
4. The readings on the meter should display on the on-screen panel. If "No Connection" displays, re-connect the cable.
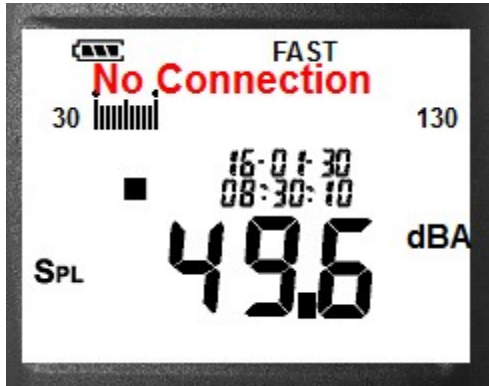
5. Click ► to begin recording real-time data. The Real-Time Setup Menu displays.
6. Enter the number of data points to record.
7. Enter the sampling rate.
8. Enter the recording period.
9. Click "Start" to begin recording and graphing.
10. Click ■ to end recording.
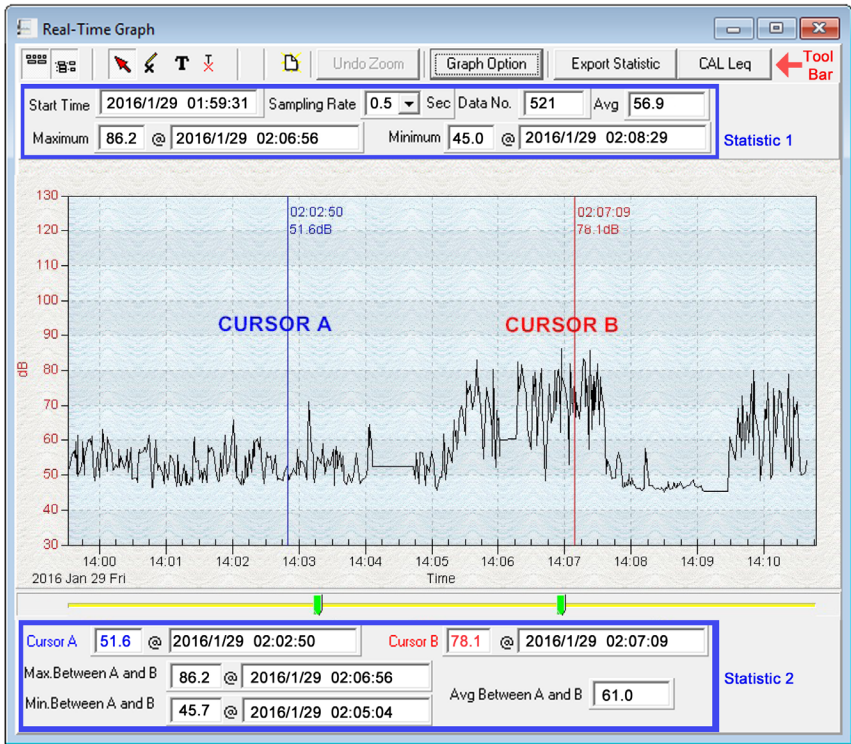
Tool Bar Options

 Hide or display the statistics above the graph (Statistic 1.)

 Hide or display the statistics below the graph (Statistic 2.)

 Restore normal cursor.

 Change cursor to an "X." Click anywhere on the graph to mark it with an "X."

 Change cursor to an "I." Click anywhere on the graph to add an annotation.

 Erase annotation. A list of all annotations to the graph displays. Select the annotation you wish to erase and click "Delete."

Viewing the Graph

- **To zoom in:** Press the left mouse button and drag the cursor to select the new area.
- **To zoom out:** Click "Undo Zoom"

Detailed information on the two cursor points is located at the bottom of the page. To move the cursors and view statistics for other points on the graph:

1. Click on either of the green cursor indicators on the yellow bar under the graph.
2. Drag the cursor left or right. Information for the new data point displays.

Customizing the Graph

Double click on the graph to open the Customization Menu. This allows you to modify the graph style, add a title and subtitle, maximize the graph, and export the graph to the clipboard, a file, or a printer.

Saving Real-Time Data

1. Click the graph window you want to save. The selected graph window will become active.
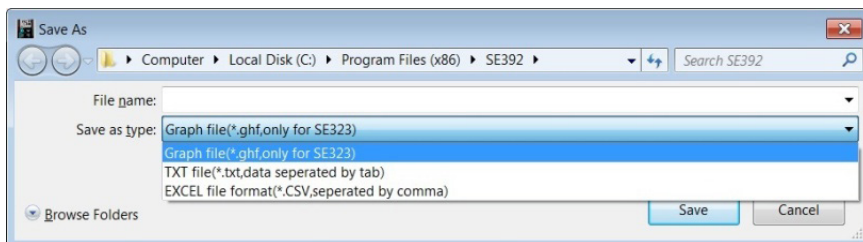

active window   not active window
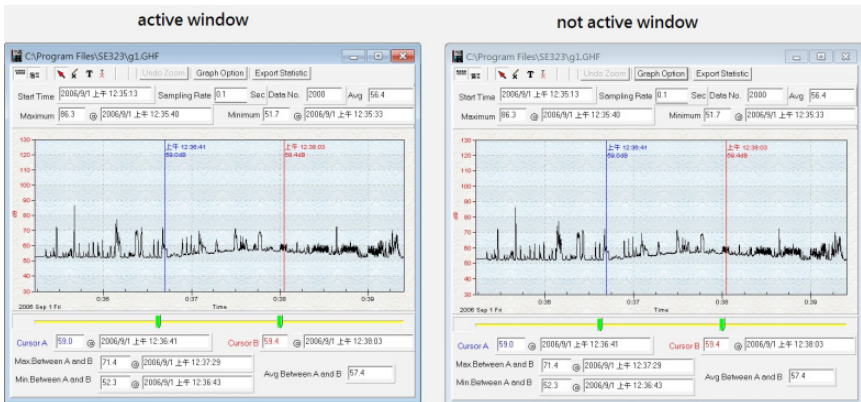
2. Click "File" and select "Save," or click the disc icon .

3. Enter the file name and file type extension:

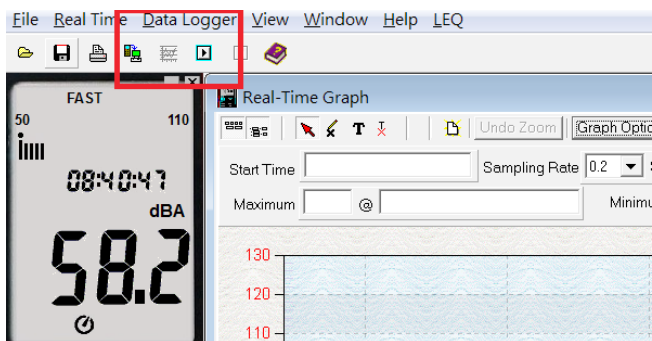| File Type	Extension
Graph file. This file type can only be used in SE392.	*.ghf
Text file	*.txt
EXCEL format file	*.csv

4. Click "Save."

Printing the Graph

1. Click "File" and select "Print," or click the printer icon.
2. Select the destination printer and click "OK."

Downloading Recorded Data

Select "Data Logger" from the main menu bar or click (the datalogger icon) under the main menu. An indicator shows the loading progress.

• The left side of the screen will display the number of data sets with detail information for each set.

• The first data set will appear in the graph on the right side.

• Click any data set to graph that set.
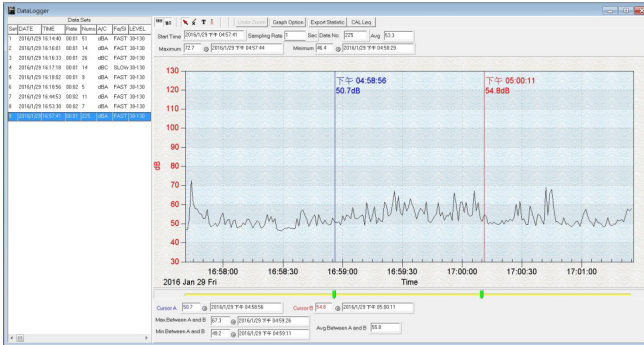
| Set	DATE	TIME	Rate	Nums	A/C	Fa/Sl	LEVEL
1	2016/1/29	16:14:40	00:01	51	dBA	FAST	30-130
2	2016/1/29	16:16:01	00:01	14	dBA	FAST	30-130
3	2016/1/29	16:16:33	00:01	26	dBC	FAST	30-130
4	2016/1/29	16:17:18	00:01	14	dBC	SLOW	30-130
5	2016/1/29	16:18:02	00:01	9	dBA	FAST	30-130
6	2016/1/29	16:18:56	00:02	5	dBA	FAST	30-130
7	2016/1/29	16:44:53	00:02	11	dBA	FAST	30-130
8	2016/1/29	16:53:38	00:02	7	dBA	FAST	30-130
9	2016/1/29	16:57:41	00:01	225	dBA	FAST	30-130

POWER SUPPLY

Battery Power

This meter uses four AA batteries. To install the batteries before first use:

1. Unscrew and remove the screw at the top of the battery cover on the back of the meter.
2. Lift off the battery cover.
3. Insert four new AA batteries, ensuring correct polarity.
4. Replace the battery cover and reinstall the screw.

Replace the batteries when the low-battery icon appears on the LCD.
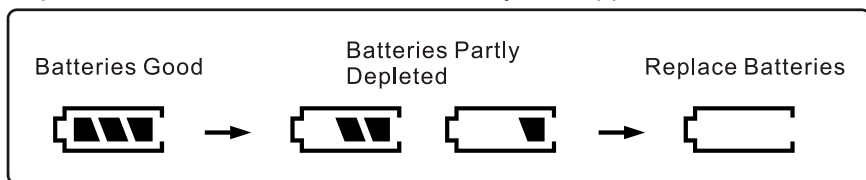
Note…
To prevent damage, remove the batteries if the meter will not be used for an extended period of time.

DC Adapter

Note…
When the adapter is connected, the meter will supply power from the adapter rather than the batteries.

To connect a DC adapter, insert the adapter plug into the USB connector on the bottom of the meter.

CARE AND MAINTENANCE

• Keep the microphone dry.

• Avoid exposing the unit to excessive vibration.

• Do not store the instrument in high-temperature or high-humidity environments.

• Wipe the meter with a dry cloth. Do not use abrasives or solvents on the meter.

• Remove the batteries and store the meter in a low-humidity environment when it will not be used for an extended period of time.

• Repairs or services not covered in this manual should be performed by qualified personnel only. Pleases contact Sper Scientific to speak with a technician.

SPECIFICATIONS

Accuracy	± 1.0 dB (Under reference conditions @ 94 dB, 1 KHz)
Measurement Range	30 to 130 dB
Frequency Range	20 Hz to 8 KHz
Dynamic Range	100 dB
Frequency Weighting	A/C
Time Weighting	FAST (125 miliseconds) SLOW (1 seconds)
Microphone	½ inch electret condenser
Digital Display	4 digits
	Resolution: 0.1 dB
	Update rate: 0.5 sec.
Analog Display	50-segment bar graph
	Resolution: 2 dB
	Update rate: 50 mS
Datalogging Capacity	64,000 records
AC Output	1 Vrms at full scale
DC Output	10 mV/dB
Power Supply	Four 1.5V AA alkaline batteries
Power Life	Approximately 60 hrs.
Power Consumption	Approximately 0.2 W
External Power Supply	5 VDC (micro USB plug)
Operating Temperature	32°F to 104°F (0°C to 40°C)
Operating Humidity	10% to 90% RH
Storage Temperature	14°F to 140°F (-10°C to 60°C)
Storage Humidity	10% to 75% RH
Operating Altitude	≤ 2000 meters
Dimensions	10¾" x 3¼" x 1⅝" (272 mm x 83 mm x 42 mm)
Weight	390g (including batteries)

WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of **five (5) years** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will break the waterproof seal and void the warranty.

To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.
8281 East Evans Road, Suite #103
Scottsdale, AZ 85260

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperwarranty.com within 10 days of purchase.

5/1/2019