

Datalogging IAQ Meter

800050

SPER
SCIENTIFIC

Environmental Measurement Instruments

Datalogging IAQ Meter 800050

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INTRODUCTION

This Sper Scientific Datalogging IAQ Meter 800050 is ideal for measuring indoor air quality in crowded public spaces with potentially high levels of CO₂ (carbon dioxide) such as offices, factories, classrooms, hospitals and hotels.

Recalls the maximum and minimum CO₂ readings and has a user selectable audible maximum alarm. Automatic Baseline Calibration (ABC) and maintenance free NDIR (non-dispersive infrared) CO₂ sensor ensure long-term accuracy, stability and reliability. Calibrates to air and has a hold function. Records up to 32,000 data points of temperature, RH and CO₂ that can be downloaded using a USB cable and software (included).

FEATURES

- Measures Air Temperature, RH, CO₂, Dew Point and Wet Bulb
- Recalls the min/max CO₂ readings.
- User selectable audible maximum alarm.
- Calibrates to air
- Hold function
- Records up to 32,000 data points of temperature, RH, and CO₂
- Tripod mounting screw

MATERIALS SUPPLIED

- Datalogging IAQ meter
- CD (USB Driver and Logger Software)
- USB Connector Cable
- AC Adapter
- Carrying Case
- Instruction Manual

METER COMPONENTS

1. Sensor
2. LCD Display
3. Hold Button
4. Mode Button
5. Power Button
6. Max/Min Button
7. Set Button
8. Unit Button
9. Adjust Button
10. Battery Compartment
(on back, not pictured)
11. USB Driver/Datalogging
Software CD



11.



ABC CALIBRATION

The meter defaults to automatic baseline calibration (ABC) when the unit is turned on. ABC ensures accuracy by eliminating the zero drift of the infrared sensor. This will automatically calibrate the meter at the minimum CO₂ reading detected during 15 days of continuous metering.

The ABC is designed for test areas that receive fresh air with a CO₂ level of 400 ppm at some point during fifteen days of metering. If the meter is being used in a closed area with consistently high levels of CO₂, the meter should be calibrated manually.

MANUAL CO₂ CALIBRATION

Note...

Manual calibration is not recommended unless the unit can be kept in a 400 ppm CO₂ environment for at least 12 hours.

1. Set the meter in an area with stable ambient conditions and no people, or other sources of CO₂.
2. Press and hold **SET** and **UNIT** for approximately 3 seconds. "CAL" will appear on the LCD.

3. The meter will display a countdown from 60, as it needs 60 seconds to calibrate, as well as “400” in the middle of the screen.
4. Once completed, the meter will reset and the current readings will now display.

MEASUREMENT PROCEDURES

For the most accurate measurement, do not place the meter close to any source of CO₂.

Note...

Measurement response time is 10 seconds for CO₂ and 2 seconds for RH. If the operating environment changes, it takes approximately 30 seconds for the CO₂ sensor to respond and 30 minutes for the RH sensor to stabilize.

1. Turn the meter **ON** by pressing **PWR**.
2. The meter will warm up briefly and the reading will be displayed. Due to the CO₂ NDIR sensor, it takes approximately 10 minutes to get stable readings.
3. To change the temperature scale, press **UNIT** to cycle the display between °C and °F.

Note...

When CO₂ exceeds 1000 ppm, both the alarm (bell) icon and the red LED will flash a warning. When the CO₂ level falls below this threshold, these visual alarms will stop.

Minimum and Maximum Readings

The meter automatically records minimum and maximum **CO₂ levels**. To view the minimum and maximum readings while in Normal Mode:

1. Press **MAX/MIN** to display the maximum reading.
2. Press **MAX/MIN** again to display the minimum reading.
3. Press **MAX/MIN** to return to Normal Mode.

To reset the minimum and maximum readings:

1. With the minimum or maximum reading displayed, press **HOLD** for 2 seconds, “0” will display.
2. Press **MAX/MIN** to return to Normal Mode.

Hold Function

1. Press **HOLD** to freeze the current reading.
2. Press **HOLD** again to return to normal mode.

Viewing Wet Bulb & Dew Point

The meter defaults to display CO2 levels, along with the RH & Temp. The RH and Temp interchange below the CO2 reading. You can alternatively view the Dew Point or Wetbulb.

1. While the meter is **ON**, push **MODE**.
2. Dew Point (DP) will show.
3. Press **MODE** again to view Wet Bulb (WB)
4. Press **MODE** again to return to viewing RH & Temp.

Auto Power Off

The meter will automatically turn off after 15 minutes if there has been no use. To disable the auto power off function do the following:

1. Turn the meter **OFF**.
2. Press and hold the **HOLD** button.
3. While holding down **HOLD**, press **PWR** to turn the meter on. The letter “n” will show on the screen, and the meter will turn on.

Note...

Every time you turn the meter off, the meter will reset to it's default. You must disable Auto Power Off every time you turn the meter on.

Meter Setup: CO2 Alarm

The default CO2 alarm setting is 1000 ppm.

To change the alarm value:

1. Press **SET** for 3 seconds to enter alarm threshold setting.
2. Press the **HOLD** button to increase value.
3. Press the **AJD** button to decrease value.
4. Press the **MODE** button to move to the left digit.
5. Press the **MAX/MIN** button to move to the right digit.
6. Press and hold **SET** to save the changes, screen will flash "SAVE" and then return to normal.

Note...

When the CO2 alarm is on, the bell icon will show next to the CO2 reading. When the threshold has been reached, the audible beeping will commence.

To turn the CO2 alarm **OFF**, quick press **PWR**. The bell icon will disappear, indicating the alarm is **OFF**. To turn the alarm **ON**, quick press **PWR**.

SOFTWARE INSTALLATION

Installing the USB Logger Driver for Windows

1. Insert the CD into your computer's CD drive.
2. The Auto Play dialogue box appears. Click on "Open folder to view files" to view the file names on the disc.
3. The list of "Files Currently on the Disc" appears. Double click to select "Step1-USB Driver."
4. Double click to select "PL2303_Prolific_Driverinstaller_v110."
5. Select "yes" to allow the program Setup.exe to make changes to your computer.
6. The PL-2303 Driver Installer program opens. Select "Next" to start the installation.
7. Select "Finish" to complete the driver installation. Now you can install the logger software.

Installing the Logger Software for Windows

8. Press the back arrow ← to return to the list of files on the disc.
9. Double click to select "Step2-DatalogV2_3F (English Version)."
10. Double click again to open the folder.

11. Double click to select “Setup” (Type: Application).
12. Select “yes” to allow the program Setup.exe to make changes to your computer.
13. The Destination Directory appears. This lists the target directories for the datalogger and software. Select “Next.”
14. Read the license agreement and select “I accept the License Agreement.” Click “Next.”
15. Select “Next” again to start the installation.
16. Select “Finish” to complete the software installation.
17. Restart the computer.

RUNNING THE SOFTWARE FROM WINDOWS

1. Connect the mini-USB end of the cable to the corresponding port on the side of the meter.
2. Insert the USB cable into the USB port on your computer.
3. Open the Start Menu and select the “Data Logger” Icon from the programs list.
4. The USB Data Logger Meter screen displays.

Note...

The meter should be plugged into the USB port before the software is opened.

If the meter is not plugged into the correct port, an error message will appear. Make sure that the meter is plugged in correctly.

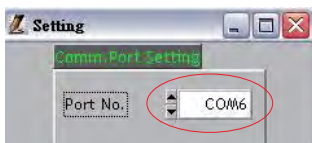
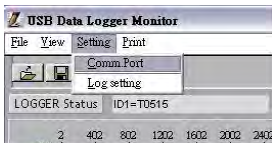
DATALOGGER SETTINGS

To Access Setting Options:

- Select “Setting” from the header options on the upper left-hand side of the USB Data Logger Meter screen. “Comm. Port” and “Log Setting” options appear in a drop-down menu.

Communication (Comm.) Port Setting

1. Select “Comm. Port” from the Setting options. The Comm. Port Setting Menu displays.
2. The menu displays the port number, baud rate, data bits, parity, and stop bits. Select the correct port number.
3. Click “OK” to finish.



Troubleshooting the Communication Port Setting

If the software does not recognize that the logger is plugged into the USB port you should verify that the communications port number is correct.

Note...

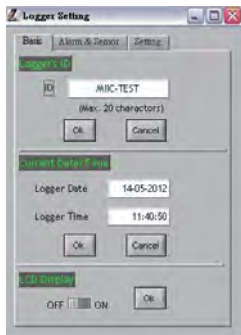
The port information is found on the computer under “Device Manager.” However, depending upon your version of Windows, the first steps below to access “Device Manager” may differ slightly.

1. Open the “Start Menu” on the computer.
2. Select “Control Panel.”
3. Select “Hardware and Sound.”
4. Find the “Devices and Printers” option.
Select “Device Manager.”
5. Double click on the “Ports” option.
6. The correct port will list “Prolific USB-to-Serial Comm Port” followed by the communication port number in parentheses. This is the port number that should be selected in the Settings Options.

Basic Logger Setting

The basic menu allows you to designate a name for your logger and specify the current date and time.

1. Select “Log Setting” from the Setting options.
The Logger Setting menu displays.
2. Select the “Basic” tab.
3. Enter a name for your logger, consisting of up to 20 characters.
4. Select “OK” to save your entry.
5. The system will automatically show the current computer date and time. Select “OK” to save your entry and sync the meter’s current date and time.



Logger Alarm Threshold Setting

Note...

In order to use the alarm feature during datalogging, the alarm must be turned on manually before the meter is connected to the computer using the USB cable.

The software will override any manually set alarm threshold and default to 1000 ppm. To change the alarm threshold before datalogging:

1. Select “Log Setting” from the Setting options.
The Logger Setting menu displays.
2. Select the “Alarm & Sensor” tab.
3. The default alarm value of 1000 ppm displays. Adjust the ▲ or ▼ indicators to change the value. Alternatively, click on the field and type in the new value. Continue by setting the logger sampling parameters, below.

Logger Sampling Setting

4. Select the “Setting” tab.
5. The meter sampling range is 1 second ~ 6:59:59. Adjust the ▲ or ▼ indicators to specify the sampling rate in hours, minutes, and seconds.
6. Adjust the ▲ or ▼ indicators to select Immediate, Roll Over, or Schedule start mode.



Setting Immediate Start Mode

This option will cause the meter to begin taking readings as soon as the option is confirmed. Reading will continue when the meter is detached from the USB port.

1. Adjust the ▲ or ▼ indicators to specify the number of sample points, in thousands, from 1000 ~ 32,000.
2. Adjust the ▲ or ▼ indicators to toggle between units: °C or °F.
3. Select “Ok” to save the settings and exit the menu, or “Cancel” to exit without saving the new settings.

Setting Roll Over Mode

This option allows for continued recording even when the meter is full. After the data limit has been reached new readings will be recorded over the earliest previous record.

1. Adjust the ▲ or ▼ indicators to specify the number of sample points, in thousands, from 1000 ~ 32,000.
2. Adjust the ▲ or ▼ indicators to toggle between units: °C or °F.
3. Select “Ok” to save the settings and exit the menu, or “Cancel” to exit without saving the new settings.

Setting Schedule Mode

This option allows you to pre-set the date and time that the meter will automatically begin recording.

Note...

The date and time formats must be Month/Day/Year and H:M:S.

1. Adjust the ▲ or ▼ indicators to specify the number of sample points, in thousands, from 1000 ~ 32,000.
2. Adjust the ▲ or ▼ indicators to toggle between units: °C or °F.
3. The fields for the start date and time and the stop date and time will be automatically populated with default values. Click on any of these fields and use the computer keyboard to make changes as desired.
4. Select “Ok” to save the settings and exit the menu, or “Cancel” to exit without saving the new settings.

DATA SAMPLING AND RECORDING

Note...

When the meter is disconnected from the computer, a “No port found” error message will display. This will not affect the data sampling and recording. Click “OK” to continue.

Sampling and Recording in Immediate Mode

1. The green LED will flash to indicate that the meter is recording data.
2. Disconnect the USB cable from the computer and meter. Recording will continue.
3. Place the meter in the desired location for sampling.
4. The datalogger will record up to 32,000 data points. Once the memory is full, recording will stop.

Sampling and Recording in Roll Over Mode

1. The green LED will flash to indicate that the meter is recording data.
2. Disconnect the USB cable from the computer and meter. Recording will continue.
3. Place the meter in the desired location for sampling.
4. The meter will record up to 32,000 data points. When the memory is full, the meter will continue recording over the oldest records.

Sampling and Recording in Schedule Mode

1. Disconnect the USB cable from the computer and meter. Place the meter in the desired location for sampling.
2. At the scheduled start date and time, the green LED will flash to indicate that the logger is recording data.
3. The datalogger will record up to 32,000 data points. Once the scheduled stop date and time are reached, recording will stop.

DOWNLOADING DATA

1. Connect the mini-USB end of the cable to the corresponding port on the side of the meter.
2. Insert the USB cable into the USB port on your computer.
3. Open the Start Menu and select the “Data Logger” icon from the programs list.
4. The USB Data Logger Meter screen displays.
5. Click the “LOGGER Status” button to finish recording. The datalogger ID, number of records sampled, and the sampling parameters and rate will display.
6. Click the “Download” button to download the data. A graph of the data will display.

Viewing the Graph

Note...

To display the values for a specific data point, click the left mouse button to move the red cursor (located on the red vertical line) to the desired point on the graph. You may also hold down the left mouse button and drag the cursor to the desired point.

- To zoom in: Hold CTRL and click the left mouse button.
- To zoom out: Hold CTRL and click the right mouse button.
- To move the graph: Hold CTRL and Shift and then click and hold the left mouse button. Use the cursor to move the graph.
- To read each measurement: Use the left and right arrow keys.
- To reset the size of the graph to the default:
 - a) Click on the colored bar to the left of one of the data parameters under the graph (Temp., Humidity, Dew Point, or Wet Bulb).
 - b) Move the mouse to select a new color and click on it.
 - c) The selection will be saved and the graph size will return to the default.

Printing the Graph

1. Click the Printer Icon button to print the graph.
2. Click “OK” to confirm the selection.

Viewing and Printing Data Tables

1. Click the “View” button and select “Data Table” to view the data in table format.
2. To print data from the table, click the Printer Icon button. The Printing Table Data dialogue box will open.
3. Enter the record range you wish to print (for example, 1-2,350) or leave the field blank to print all the records.
4. Click “OK” to confirm your selection.
5. Click “OK” to start printing.

Saving the Data

1. Click the Save button (floppy disc icon) to save the data.
2. Enter a unique name for the file.
3. Click “OK” to confirm.

Retrieving Stored Files

1. Click the “File” button (open folder icon).
2. Select the file you want to open.
3. Click “OK” to confirm.

TROUBLESHOOTING

Note... Take care not to drop the meter; this could cause malfunctions which require service

Error Code Description

E-1: Temperature or Humidity sensor is damaged
or there is a sensor

E-2: Readings exceed Temp/RH specifications

9999: Readings exceed CO2 max range or
the batteries are weak.

SPECIFICATIONS

	Range	Res.	Accuracy
Temperature	-10 ~ 50 °C	0.1 °C	± 1 °C
	-14 ~ 122 °F	0.1 °F	± 2 °F
RH	10% ~ 90%	0.1%	± 5% (@ 25 °C)
CO2	0 ~ 9999 ppm	1 ppm	± 75 ppm +5% of rdg (0 ~ 5000 ppm)
Dimensions	8¼" × 2¼" × 2" (210 × 57 × 51 mm)		
Weight	7 oz (198 g)		

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 void the warranty.

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

SPER SCIENTIFIC LTD.
8281 E. Evans Rd., 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.sperscientific.com, or return your warranty card within 10 days of purchase.