

# Indoor Air Quality Monitor

## 800052

### Instruction Manual

SPER  
SCIENTIFIC

---

Environmental Measurement Instruments

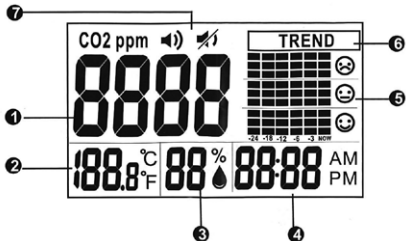
# TABLE OF CONTENTS

INTRODUCTION.....	3
DISPLAY DESCRIPTION.....	4
FEATURES.....	5
CALIBRATION.....	6
MEASUREMENT PROCEDURES.....	7
TROUBLESHOOTING.....	14
SPECIFICATIONS.....	15
WARRANTY.....	16

## **INTRODUCTION**

Thank you for purchasing the 800052 Sper Scientific Indoor Air Quality Monitor. It is an accurate, smart and easy-to-use indoor air quality meter. In addition to measuring the CO<sub>2</sub> concentration, it also measures the ambient temperature and relative humidity. It is also a clock and provides CO<sub>2</sub> trend of past 24 hours.

## DISPLAY



1. CO2 concentration, parts per million (ppm). NDIR CO2 sensor, display up to 5000 ppm.
2. Ambient temperature, °C/°F switchable. Range 0.0~50.0°C (32.0~122.0°F).
3. Relative humidity. Range 5~95% RH.
4. Real-time clock display. 24-hour clock.
5. Emoji status for current CO2 levels.
6. 24-hour history chart. Bar graph display indicates the status of CO2 records up to 24 hours.
7. CO2 concentration alarm buzzer. Buzzer is default as OFF and can be activated through keypad.

## FEATURES

1. Large LCD displays CO<sub>2</sub> value, humidity, temperature, current CO<sub>2</sub> levels.
2. Good, normal and poor CO<sub>2</sub> indicators trend past 24 hours and hour-minute clock.
3. Touch panel to program the settings.
4. NDIR (non-dispersive infrared) waveguide CO<sub>2</sub> technology.
5. 3-color backlight (green, yellow, red) gradually changes color with CO<sub>2</sub> concentration. (AUTO mode)
6. 7-color backlight to fit into home/office decoration and to be used as nightlight. (ON mode)
7. Programmable audible alarm threshold.
8. Eco mode to turn backlight dim during night time.

## CALIBRATION

The meter is calibrated at standard 400 ppm CO<sub>2</sub> concentration from the factory. It's recommended to do manual calibrations regularly to maintain good accuracy.

To do this, follow these steps to calibrate the monitor:

1. Place the meter in a well known area near a 400 ppm CO<sub>2</sub> condition for some minutes. (Can be outside, first thing in the morning with fresh air).
2. Press both buttons on the monitor and hold them down until "CAL" appears.
3. Press settings button to start the calibration. After a period of about 250 seconds, the display will show "Pass". Then press the settings button again to return to the main screen.

## **MEASUREMENT PROCEDURES**

1. Turn the meter on/off by connecting the USB-C cable to a PC or 5VDC wall adapter plug to power on the device.

## **BACKLIGHT & BUZZER**

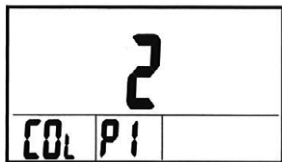
2. Backlight and buzzer modes are selectable. Auto, AL, on & off. Defaults are auto.

3. Short press the settings button to display the existing backlight mode. Press it again to switch between different modes. After your selection just pause for a few seconds, it will go to the main screen automatically.

4. Buzzer mode is default to off for use in quiet places. It is required to activate the buzzer function in setting mode while audible alarm is needed. If over the alarm threshold, buzzer will sound once a second till pressing the alarm cancel button is pressed.

## SETTING MODE

1. Hold down the settings button on the monitor to enter the settings mode. Then press the setting button to navigate thru the selections: COL - backlight color, AL - alarm settings, Buzzer, ECO - energy saving mode, Real-Time Clock and Unit (temperature).
2. COL: The default LCD backlight color is white. A total of 7 colors are selectable. The color order is white, turquoise, blue, purple, red, yellow and green.





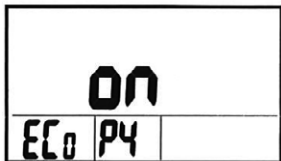
3. The default alarm setting is 1,000 ppm. Its adjustable from 800 to 3,000 ppm, and in intervals of 100. This threshold is also related to the buzzer, alarm and backlight trigger in Auto mode and AL mode.



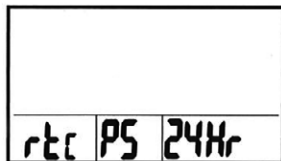
4. Buzzer activation: Buzzer is default to off for use in quiet places. Press "+" to turn on.



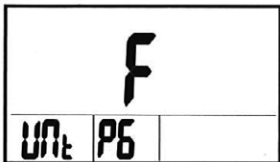
5. ECO: The default ECO setting is "ON". Press "+" key to select "OFF". After ECO is on, the backlight is dimmer during the period from 22:00 pm to 6:00 am for saving power and easy reading.



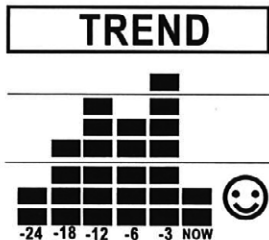
6. Real-time: Set "12-hour (AM/PM) or 24 hour by pressing the "+" key. The default setting is 00:00 (24 hour clock). The sequence is hour then minute. Press set key to do minutes and press "+" key to adjust values. Hold the "+" to adjust values faster.



7. Temperature unit: Press “+” to switch between °C and °F.



8. Trend: Bar graph display indicates the status of CO<sub>2</sub> records up to 24 hours. The “now” bar graph displays the current CO<sub>2</sub> and it’s updated with new records every 10 seconds.



“-3 ~ -24” bar graph displays the average CO2 and its updated with new records every 10 minutes.

“-3” is the average CO2 concentration of the latest 3 hours.

“-6” in past 6 hours, the average CO2 concentration of the first 3-hours.

“-12” in the past 12 hours, the average CO2 concentration of the first 6 hours.

“-18” in the past 18 hours, the average CO2 concentration of the first 6 hours.

“-24” in the past 24 hours, the average CO2 concentration of the first 6 hours.

## **NOTE:**

Do not calibrate the unit in an unknown CO<sub>2</sub> level. It may be read as 400 ppm which can lead to inaccurate measurements.

The manual calibration is suggested to be done outdoor with good ventilation, fresh air and sunny where CO<sub>2</sub> levels mostly are around 400 ppm.

Do not calibrate on a rainy day because high humidity will affect the CO<sub>2</sub> in the air. Do not calibrate in places crowded or close to people where the CO<sub>2</sub> can be high or near ventilating outlets or fireplaces.

## TROUBLESHOOTING

### CODES:

**E1** - CO2 sensor is damaged - Send back to repair.

**E2** - Measured reading is under the lower limit - For CO2 E2: Re-calibrate. For other E2: leave the meter in room condition for 30 minutes. If it still doesn't work, return for repairs.

**E3** - Measured reading is over the lower limit - For CO2 E3: put the meter in fresh air for about 5 minutes. For other E3: leave the meter in room condition for 30 minutes. If that doesn't work, return for repairs.

**Fail** - To indicate the calibration is failed - Put the meter in fresh and stable CO2 condition for calibration.

# SPECIFICATIONS

Measurement Range	
CO2	200 ~ 5000 ppm
Temp.	0.0 ~ 50.0°C (32.0 ~ 122.0°F)
Humidity	5 ~ 95% RH
Resolution	1 ppm, 0.1°C/°F, 1% RH
Accuracy	
CO2	+/-50 ppm +/-5% of rdg (0 ~ 3000 ppm) Other range is 10% of rdg
Temp.	+/-0.6°C/+/-0.9°F
Humidity	+/-5%RH (at 25°C, 10 ~ 90% RH); +/-7%RH (at 25°C, other range)
Response Time	
CO2	<2 mins (63% step change)
Tair	<2 mins (90% step change)
Humidity	<20 mins (90% step change)
Operating	0 ~ 50°C, 0 ~ 95% RH (avoid condensation)
Storage	-20 ~ 60°C, 0 ~ 95% RH (avoid condensation)
Power Supply	5VDC USB Type C Port
Power Consumption	<500 mA
Buzzer	~ 70 dB @ 10 cm distance
Meter Size	108 x 67 x 30 mm
Weight	90 g
Standard Pkg.	Meter, manual & USB Type C cable

## **WARRANTY**

Sper Scientific warrants this product against defects in materials and workmanship for **one (1) year** 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 damage resulting from accident, misuse, or abuse of the product. To obtain warranty service, ship the unit postage prepaid to:

### **SPER SCIENTIFIC**

8281 E. Evans Rd., Suite 103  
Scottsdale, AZ 85260  
(480) 948-4448

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

10/6/2021