



# EXTECH Carbon Dioxide Meter User Manual

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# EXTECH<sup>®</sup>

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## USER MANUAL

### Carbon Dioxide Meter

Model CO240



Additional User Manual Translations available at [www.extech.com](http://www.extech.com)

## Introduction

Thank you for selecting the Extech Instruments Model CO240. The CO240 measures Carbon Dioxide (CO<sub>2</sub>), Air Temperature, and Relative Humidity. It also calculates Dew Point Temperature and Wet Bulb Temperature. The user-programmable high alarm feature alerts the user when CO<sub>2</sub> level rises above the programmed limit and the data streaming feature allows readings to be captured in real time by PC (USB connection). This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit our website ([www.extech.com](http://www.extech.com)) to check for the latest version of this User Guide, Product Updates, and Customer Support.

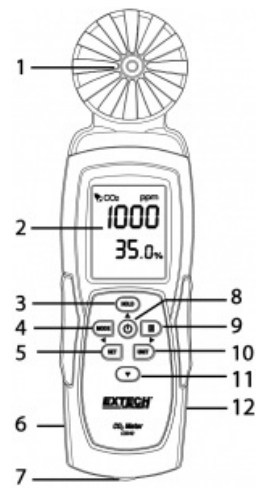
## Features

- Portable meter measures CO<sub>2</sub>, Air Temperature, and Relative humidity accurately
- Measures CO<sub>2</sub> (0~9,999ppm) using NDIR (Non-dispersive Infrared Technology)
- Dual display indicates Relative Humidity/Air Temperature and CO<sub>2</sub>
- Calculates Dew Point and Wet Bulb Temperature
- Adjustable CO<sub>2</sub> high alarm threshold with audible beeper
- Tripod mount
- USB cable for PC data streaming
- Battery or AC Adaptor Powered

## Meter Description

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1. Sensors
2. LCD Screen
3. HOLD / Up Arrow Button
4. MODE / ◀ Left Arrow Button
5. SET Button
6. AC Adaptor jack
7. Tripod Mount
8. POWER (⏻) Button
9. **M** (Max/Min) / ▶ Right Arrow Button
10. UNIT Button
11. ▼ Down Arrow Button
12. USB PC interface port



Battery compartment on rear of meter.

## Operation

### Powering the meter

Momentarily press the **POWER** button to power on the meter. Hold the **POWER** button for 2 seconds to turn off the meter. During measurement, if the alarm is sounding (audible beeper) press the **POWER** button momentarily to turn off the beeper. Press again to activate the beeper function. The alarm beeper is set to ON by default. The meter can be powered by 6 AAA batteries or AC Adaptor.

**Recommendation:** For datalogging, power the unit using an AC/DC adaptor in order to conserve battery power.

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### Auto Power Off

The CO240 will automatically turn off after 20 minutes of inactivity. To disable the auto power off function: With the meter OFF, press and hold the **HOLD** button and then press the **POWER** button. The LCD will show “n”, and will then return to normal measurement mode.

### Measurements

When the meter is turned on, a self-test is implemented. Due to the nature of the NDIR sensor, it typically requires approximately ten minutes to obtain stable, accurate readings. If the USB cable is connected to the CO240, the USB symbol will be shown on the LCD. The temperature and relative humidity readings will alternate on the lower LCD line along with the CO2 reading on the top display line. Use the **MODE** button to switch to **DP** (Dew Point Temperature) and **WB** (Wet Bulb Temperature) modes (lower display line).

### Maximum and Minimum Readings Memory

Momentarily press the **MAX/MIN** button to review the maximum and minimum readings captured since the meter was powered on. Pressing the button once will show the maximum value. Pressing the button again will display the minimum value. Pressing the button a third time will return the meter to its normal mode of operation. While in MAX-MIN mode, press and hold the **HOLD** button for 2 seconds to reset (clear) the stored maximum and minimum values.

### Selecting °C/°F units of measure

Press the **UNIT** button to select the desired temperature unit of measure.

## Calibration

Press and hold the **SET + UNIT** buttons for 2 seconds to enter the self-calibration mode. Ensure that there is as little CO<sub>2</sub> present as possible. It is recommended that this be done in outside air.

The LCD will display "**CAL**" and will perform a 60-second countdown as it performs the calibration. A reading of "**400**" is displayed as a normal CO<sub>2</sub> level reference value during the calibration. After the calibration has completed, the meter will return to its normal mode of operation.

## Automatic CO<sub>2</sub> Baseline Calibration (ABC)

The ABC algorithm continually tracks the sensor's lowest reading over a fixed time interval and slowly corrects for any long-term drift (as compared to the expected fresh air value of 400ppm). The ABC period is 15 days, during which the ABC function default is always on.

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## CO<sub>2</sub> Alarm Setting

Press and hold the **SET** button for 2 seconds to enter the high CO<sub>2</sub> alarm threshold. Press the **HOLD** button to increase the value, and the **Down arrow** button to decrease the value. Press the **MODE** button to select the digit to the left and press the **MAX/MIN** button to select the digit to the right. Once the desired value is set, press the **SET** button for 2 seconds to save the alarm setting. The LCD will return to its normal mode of operation. The meter alarm limit default is 1000ppm (OSHA). Momentarily press the **POWER** button to toggle the alarm on and off.

## Data Streaming to PC

The CO240 features real-time data streaming to a PC using the CO240 software. When the meter is connected to a PC, the USB icon will be visible on the LCD display. Please install the USB driver and supplied software before attempting to stream data. Refer to the Help Utility within the software program for further details.

The CO240 software is available from <http://www.extech.com/software/downloads>.

## Maintenance and Troubleshooting

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### Battery Replacement

When the battery icon appears on the LCD, the batteries must be replaced.

In a downward motion, slide the rear battery compartment cover off of the meter housing. Remove the old batteries and replace with new batteries (all of the same type) observing correct polarity. This meter uses six (6) 1.5V AAA batteries. Please replace the battery compartment cover before attempting to use the meter.

### Battery Safety Reminders

- ° Please dispose of batteries responsibly; observe all relevant regulations.
- ° Never dispose of batteries in a fire; batteries may explode or leak.
- ° Never mix battery types; install new batteries of the same type.

## Troubleshooting / Error Message Displays

**Erratic Readings** Replace the batteries or use the AC/DC adaptor and check again.

**ER1 Display** CO<sub>2</sub>, Temperature or Humidity sensor failure or a sensor communication error. Send for service if display persists.

**ER2 Display** Out-of-range condition for CO<sub>2</sub>, Temperature or Relative Humidity. Detected reading exceeds CO<sub>2</sub>, Temperature or Humidity range specification. This error is normal when clearing the maximum and minimum

readings in the MAX/MIN mode.

**“9999” Display** Reading exceeds the CO<sub>2</sub> maximum measurement range or the battery power is weak.

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## Specifications

Display : Dual multifunction LCD  
CO<sub>2</sub> measure range : 0 to 9,999ppm  
CO<sub>2</sub> accuracy :  $\pm$  (75ppm + 5% of reading) 0 to 2,000ppm  
Operating Temperature : 32 to 122°F (0 to 50°C); 0.1° resolution  
Temperature Accuracy :  $\pm$  1.8°F (1.0 °C)  
Operating Relative Humidity : 0 to 95%RH (avoid condensation)  
Relative Humidity Accuracy :  $\pm$  5% of rdg at 77°F (25°C) otherwise  $\pm$ 7% RH  
Dew Point Temperature range : -99.22 to 118°F (-72.9 to 47°C); 0.1° resolution  
Wet Bulb Temperature range : 12.2 to 118.8°F (-11 to 48.2°C); 0.1° resolution  
Storage Temperature : -4 to 122°F (-20 to 50°C)  
Storage Humidity : 0 to 95%RH (avoid condensation)  
Power : AAA batteries x 6 pcs or AC adaptor  
Dimensions : 8.3 x 2.4 x 1.6" (211 x 60 x 40 mm)  
Weight : 6.4 oz. (181.4g)

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## Two-year Warranty

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**FLIR Systems, Inc. warrants this Extech brand instrument** to be free of defects in parts and workmanship for **two years** from date of shipment (a six-month limited warranty applies to sensors and cables). To view the full warranty text please visit: <http://www.extech.com/support/warranties>.

## Calibration and Repair Services

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**FLIR Systems, Inc. offers calibration and repair services** for the Extech brand products we sell. We offer NIST traceable calibration for most of our products. Contact us for information on calibration and repair availability, refer to the contact information below. Annual calibrations should be performed to verify meter performance and accuracy. Product specifications are subject to change without notice. Please visit our website for the most up-to-date product information: [www.extech.com](http://www.extech.com).

## Contact Customer Support

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Customer Support Telephone List: <https://support.flir.com/contact>  
Calibration, Repair, and Returns: [repair@extech.com](mailto:repair@extech.com)  
Technical Support: <https://support.flir.com>

## Documents / Resources

 <p>EXTECH Carbon Dioxide Meter Model CO240</p> <p>USER MANUAL</p>	<p><a href="#">EXTECH Carbon Dioxide Meter</a> [pdf] User Manual Carbon Dioxide Meter, CO240</p>
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## References

- [repair@extech.com](mailto:repair@extech.com)
- [Extech is now on FLIR.com | Teledyne FLIR](#)
- [Extech is now on FLIR.com | Teledyne FLIR](#)
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