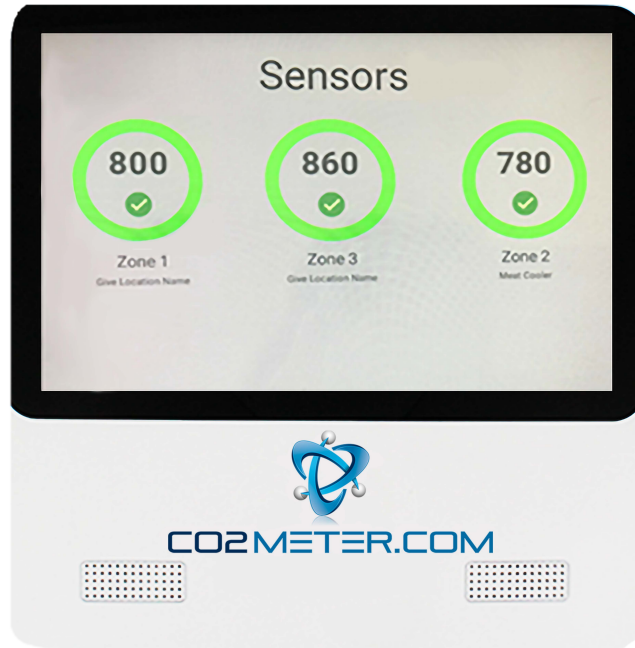


USER MANUAL



Multi CO2 Sensor System CM-7000

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Product Overview

Thank you for selecting the CM-7000 CO2 Multi Sensor System.

This CM-7000 series features multiple gas sensors connected back to a main control panel. The device is designed to detect Carbon Dioxide (CO₂) levels in the ambient air to protect employees, workers, and establishments. CO₂ Monitors are required in most jurisdictions by code and regulation. High concentrations of carbon dioxide in confined spaces are dangerous, and may lead to negative health problems ranging from headaches and fatigue to asphyxiation or fatality.

The CM-7000 has 12 unique sensor configurations, with relays that are triggered at 5,000ppm TWA, 5,000ppm, 15,000 ppm, and 30,000 ppm to meet OSHA/NIOSH standards, and all local fire codes in regards to CO₂ safety monitoring.

With the CM-7000, ensure that you and your employees are safe, and protected.

The device includes the following key features:

- Measures 0-5% CO₂
- Full color, 8" Touchscreen Display
- Audible/Visual Alarms
- User configurable setting
- Individually addressable sensors
- Selectable alarms ranging from 5000ppm, 1%, 1.5%, 2%, 2.5%, 3%, 3.5%, 4%
- Lock/unlock code for complete system security
- Unique reset unit features to insure code compliance
- Expandable Sensor Array with up to 12 sensors + horn strobes

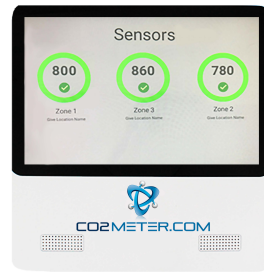
Package Content & Unit Layout:

The CM-7000 package comprises the following parts:

- 1x - 8" Touch Screen Tablet
- 1x - Tablet Mounting Bracket
- 2x - Sensor Units
- 2x - Sensor Unit Mounting Brackets
- 2x - Alarm Horn Strobes
- 2x - Alarm Horn Strobe Mounting Brackets
- 2x - 25ft Ethernet Cables
- 2x - 6ft Ethernet Cables
- 1x - 54V Wall Mounted Power Supply

- 1x USB Type A Connector
- 1x CAT5 Non-Powered Uplink Connector
- 4x CAT5 Powered Remote Unit Connectors
- 1x DC Power Input
- 3x Relay Connectors

Not Included - 1x Standard Phillips Head Screwdriver



Tablet



Sensor Unit

Horn Strobes



Horn Strobe Mounting Bracket



Tablet & Sensing Unit Mounting Bracket

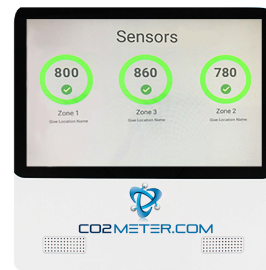
Installation Procedure - Tablet

DO NOT CONNECT POWER SUPPLY , UNTIL AFTER YOU HAVE READ THIS SECTION.

Step 1. Attach main bracket to the wall using included screws and drywall anchors, provided in the bottom of CM-7000 packaging.

Please note, the Tablet Mounting Bracket should be installed at eye level, outside of the location or source of CO2.

Step 2. Slide the CM-7000 8" tablet onto the mounting bracket, move to sensor unit mounting and installation procedure.



Installation Procedure - Sensor Unit

Step 1. Attach Sensor Unit Bracket to wall using included screws and drywall anchors, located in bottom sleeve of CM-7000 packaging.

*** Please note, the sensor unit should be mounted 12" in. off the floor, and by the location or source of the CO2. (i.e. CO2 tanks, BIB racks, Keg Cooler, Fermentation tanks, or Cultivation Facilities)**

Step 2. Please use the mounting bracket as a template to mark appropriate holes for wall anchors.

Step 3. Place in clear wall anchors, and ensure they are flush to the wall.

Step 4. Install Sensor Unit Bracket with provided screws.

Step 5. Locate the provided 25 ft. cable from packaging, and connect 25 ft. cable from main tablet to sensing unit. (Be sure to insert CAT5 25 ft. cable in sensor unit port 1-4, located on back of CM-7000 8" Tablet.

Step 6. Next, place opposite end of CAT5 cable behind sensor unit in "input" port.

Step 7. Finally, Mount Sensor Unit to Sensor Unit Bracket

Sensor Unit



Sensor Unit Bracket



Installation Procedure - Horn Strobe

Step 1. Remove Circuit Board or Mounting Bracket, from back of horn strobe assembly.

Step 2. Next, Mount the Horn Strobe Mounting Bracket to the wall.

***Please note, the Mounting Bracket should be mounted at least 6ft. from sensor unit(s). This Mounting Bracket also is designed to be mounted on junction boxes if needed.**

Step 3. Please use mounting bracket as a template to mark placement for holes.

Step 4. Once placement is marked, drill holes accordingly.

Step 5. Insert clear wall anchors into holes, and ensure they are flush to the wall.

Step 6. Install the Mounting Bracket to the wall.

Step 7. Next, place the CAT5 cable in only port hole of the mounting bracket.

Step 8. Slide the front horn strobe cover which displays (CO2), to mounting bracket on the wall.

Step 9. Seal both bracket and the horn strobe cover together with a tamper proof screw.

Step 10. Install CAT5 Cable to the Sensor Unit back "Strobe" port.

Step 11. Locate the AC Power Adapter, included in the bottom sleeve of the CM-7000 packaging.

Step 12. Insert power adapter to back of CM-7000 8" tablet, in the green port assembly.

Step 13. Screw and assemble power adapter green assembly to back of tablet.

Step 14. Plug in the AC power adapter to a standard wall outlet, and observe the CO2Meter gear start-up screen.

Horn Strobe



Mounting Bracket



Alarm Horn / Strobe

- Halogen Amber Lens Strobe
- Piezo Electric Horn
- Additional Color Lens Available

Ethernet Cables

- Standard CAT5e
- 24AWG Solid Wire
- 8-wire twisted pairs

54V Power Supply

- 54V 1.11A Power Supply
- Plastic belt to secure power supply to wall

Congratulations! You have successfully installed your CM-7000, Sensor Unit and Horn Strobe. You are now ready to start CO2 safety monitoring.

Basic Operations



Carefully remove all items from the package and follow the step-by-step operation instructions below. The main screen will display all sensors connected to the tablet with a color coordinating ring, and CO2 reading. The sensors are initially ordered by which sensors were connected first. The sensors are updated every two seconds with the most recent CO2 concentration, Relative Humidity, and Barometric Pressure. The CO2 Reading is compensated by the ambient Barometric Pressure. The order of the displayed sensors can be user configurable under the "Sensor Properties Screen".

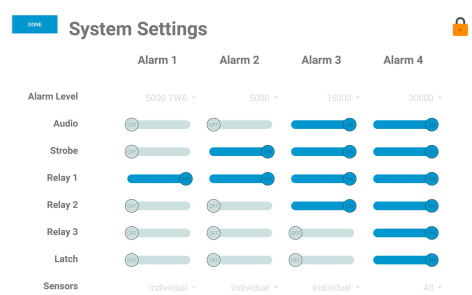


The image above is your **main display screen**. This screen will show all the sensors configured - up to 12 currently with strobes - and their accompanying CO2 levels. We have two displayed here, which is what is included in the purchase of 1 CM-7000 CO2 Multi-Sensor System. You notice a **gear icon** in the upper right hand corner of the screen. This will open your settings screen.

The main display screen will also display the sensor color coordinating ring dependent upon the given CO2 Reading, as well as the other sensor readings including Relative Humidity and Barometric Pressure.

The sensor readings will continue to be updated as the sensor properties screen is open. It also contains editable properties of the sensor including the Location Name, Zone, and Position on the main display. The user is also able to mute the sensor if it is in alarm, and can reset the sensor if it is in an alarm state that is latched.

Settings Menu



The settings menu allows the user to adjust the alarm settings. There are four alarms that can be set with the following properties:

- Alarm Level

The ppm CO2 Level required to trigger the alarm There are **Alarms 1-4**, this means that you have four levels of alarm that can all trigger different functionalities. The first setting under Alarms one through 4 is Alarm Level. Alarm 1 defaults to 5,000 ppm TWA. This is the OSHA standard for first level alarms. As you read across left-to-right, you can change each alarm to different levels of CO2.

- Audio

The audio switch will determine if the Horn connected to the sensor should be triggered

- Strobe

The strobe switch will determine if the Strobe connected to the sensor should be triggered. You can turn the strobes on or off for reach alarm setting depending on your application or environment needs/requirements.

- Relay 1

The relay 1 switch will determine if the Relay on the Tablet or on the Remote Relay Unit will be switched to the ON position. This means for whichever alarm setting it is turned on for, whether it's Alarm 1,2,3 or 4, Relay 1 will activate. The same thing goes for **Relays 2 and 3**.

- Relay 2

The relay 2 switch will determine if the Relay on the Tablet or on the Remote Relay Unit will be switched to the ON position

- Relay 3

The relay 3 switch will determine if the Relay on the Tablet or on the Remote Relay Unit will be switched to the ON position

- Latch

The latch switch will force the alarm to stay on, even if the sensor reads below the alarm trigger level. This functionality was designed specifically for Denver, CO, and is a key-driven shut off box to mute the alarm until the fire marshal can evaluate the situation.

- Sensors

The sensors drop-down allows the user to choose if only the sensor that is triggered will alarm, or if all sensors connected to the tablet will alarm.

- Mute

The mute dropdown allows the user to choose what is muted. Choices are Horn Only, Strobe Only, Both Horn and Strobe, Relays Only, or all. This function will silence the alarm for the user-configured amount of time. **Default mute time is set to 30 seconds.**

- Mute Time

The mute time dropdown allows the user to choose how long the mute will last. Choices are 15 seconds, 30 seconds, or 60 seconds.

Password Protected

Please note that the device does come **password protected**. This is a great feature if you are a manager or industry professional. This allows only those with the password to make adjustments to the device.

To make edits to the name of the sensor, first tap the **lock icon** in the upper right-hand corner, type the password "**co2meter**", and hit unlock. The lock icon in the right-hand corner will then indicate an **open lock**.

Now that the device is unlocked, you can name the sensor from this screen. Tap "Give Location Name" and rename the sensor to something that allows you to understand where the sensor is located. Once you have finished renaming the sensor, tap the small "down" arrow below the keyboard.

Once you are done on the **sensor dashboard** hit "done" in the upper left-hand corner.

Calibration

It is good practice to regularly calibrate the CO2 Sensor. We do so by Zero Calibrating using pure 100% Dry Nitrogen. The procedure is as follows:

1. On the tablet, tap on the sensor you are calibrating. Tap on the Unlock Button on the top right and enter the password. Scroll to the bottom of the sensor properties screen and tap the "Calibrate" button.
2. Place a flex tube connected to a tank of 100% Dry Nitrogen to the sensor orifice on the Remote Sensor Unit
3. When the sensor reads below 300ppm, the calibration will begin and takes 1 minute
4. Leave the flex tube of Nitrogen on the sensor orifice for the entire minute
5. When calibration is complete, the Red Alarm LED on the Remote Sensor Unit will flash 5 times, the Strobe may flash as well.
6. Check the tablet for a message validating that the calibration was successful.
7. If the unit fails calibration, it will state fail and you will need to keep the sensor main screen open and troubleshoot, via contacting our support team at either support@CO2Meter.com or speak to an expert, 877-678-4259.

Please note: The end user has a choice of either calibrating themselves with a tank of nitrogen, or sending it back to CO2Meter to calibrate for a small calibration fee.

Accessories Defined:

- Reset Unit

Reset Unit with Push Button and Key Switch to mute and reset latch for all sensors connected to the tablet. The unit also comes with 3 Relays allowing the user to place their alarm relays anywhere

- Tablet Power Supply

88 - 260V AC Input to 48V 100W Output Chassis Mounted Power Supply for hard wired applications'

- Ethernet Cable

CAT5 Cable Included

Specifications

Sensor Specifications

- CO2 Measurement Range: 0-5% (400-50,000ppm)
- CO2 Measurement: Non Dispersive Infrared (NDIR)
- Sensor Reading Frequency: 0.5Hz
- Response time: 90% at 2 minutes
- Measurement Interval: 2 seconds
- Communication: UART Modbus
- Sensor Life Expectancy: > 15 years
- Maintenance Interval: no maintenance required
- Self-Diagnostics: complete function check on startup
- Electrical / Mechanical
- Dimensions: 32.7 × 19.7 × 8 mm (LxWxH) < 8 grams.
- Power Input: 4.5-5.25 VDC
- Power Consumption: 300mA peak, 30mA average
- Connections: Input / Output / Strobe - CAT5 8 pin Connector

Tablet Specifications

- 8in Capacitive Touchscreen
- 2x 1 Watt Speakers
- 48-54V DC Power Input
- 4x CAT5 Powered Ethernet Connectors
- 1x CAT5 Un-Powered Uplink Ethernet Connector (Used for Troubleshooting Only)
- 3x 10A Relays
- 1x USB Type A Connector (Used for Troubleshooting and Updates Only)

Horn Strobe

- 110 Candela Amber Strobe
- 90-120dB 3KHz Temporal
- Horn CAT5 Connector

Remote Relay Specifications

- 1x Mute Push Button
- 1x System Reset Lock Switch
- 3x 2A Relays

Troubleshooting

1. Sensor does not appear on Tablet
 - Make sure that the sensor is connected and receiving power
 - Green LED will be ON when Remote Sensor Unit has power
 - Make sure that the CAT5 Cable is connected to one of the Powered CAT5 Connectors on the Tablet or the OUTPUT Connector on the previous Remote Sensor Unit. Make sure that the CAT5 Cable is connected to the INPUT Connector of the Remote Sensor Unit that is not powered.
2. Sensor appears on Tablet as OFFLINE
 - Make sure that the sensor is connected and receiving power by following (1)
3. Calibration Failed
 - Make sure that the Nitrogen is turned on and always present during the calibration procedure
 - Make sure that the measured PPM of the Sensor does not go above 300ppm after calibration is started

Safety Notice

Warning: Your safety is very important to us. To ensure the proper and safe use of the device, please read all warnings and the entire User Manual before using the device. Otherwise, the protection provided by the equipment may be impaired. These warnings provide important safety information and should be observed at all times.

1. Please handle the device carefully. Do not subject the product to impact or shock, as it could lead to sensor accuracy drift.
2. Do not place the unit near a heat source. Heat may distort the unit.
3. Do not touch the exposed electronic circuitry of the device under any circumstances, as there is danger of electric shocks. All relays are dry contact and are able to remain exposed without risk of electric shock.
4. Please take care of cable connection between SEU and RDU. Make sure the cable from SEU Output (RDU) port is connected to the RDU INPUT (SEU/RDU) port.
5. The dry contact relays do not provide power to external devices, like a ventilation fan. If there is no power supply to the fan, the relay will not work. This may result in potential danger with high CO2 concentration in confined space.
6. 6 bilingual Warning Signs are included with each device

Product Care

To ensure maximum benefit from this product, please observe the follow guidelines.

1. Repair - Do Not attempt to repair or modify the device in any way. Please contact CO2Meter directly if the product needs servicing, including replacement or calibration service. See Section 15 for technical support contact information.
2. Cleaning - Disconnect the power before cleaning. Use a damp cloth. Do not use liquid cleaning agents such as benzene, thinner or aerosols, as these will damage the device. Do Not splash the unit with water.
3. Maintenance – We recommend users to test the communication between the SEU and RDU using the ‘DIAG’ function to verify the working conditions of the SEU and RDU. If the five LEDs blink and the buzzer of SEU and RDU sound simultaneously, the SEU and RDU are working normally.

Support

Contact us: We're here to help!

If the troubleshooting guide above doesn't help you solving your problem or for more information, please contact us using the information below.



Support@CO2Meter.com



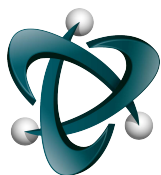
(386) 256-4910 (M-F 9:00am–5:00pm EST)



www.CO2Meter.com

See CO2Meter, Inc. Terms & Conditions at:

www.CO2Meter.com/pages/terms-conditions



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