



CO2 Monitoring Frequently Asked Questions for the RAD-0102-6 Remote CO2 Storage Safety Three Alarm

Please find below a conglomeration of frequently asked questions about CO2 safety monitors, their installation, application, and use. If you cannot find an answer to your questions here please contact the technical sales team at CO2Meter directly at sales@co2meter.com or by calling 877-678-4259.

How big is this device?

The SEU (bigger unit) is 6.5 x 5.0 x 2.5 in.

The RDU (small unit) is 5.5 x 3.5 x 1.75 in.

The remaining components (cables, mounting brackets, screws, etc.) all vary in size.

Where do I mount the sensor/device?

The International Fire Code calls for the device/sensor to be mounted at 12 inches off the floor. Some jurisdictions may allow for different heights depending on obstructions or use cases. Consult your local fire inspector.

Can you give me a power cable longer than 6 feet because it won't reach the closest power outlet?

No. International Electrical Code limits the power code of the device to 6 feet.

Can I use an extension cord to reach the outlet?

No. International Electrical Code prohibits the use of extension cords to connect the device to an outlet.

How do I know which code/regulation I have to meet?

Ask your local fire inspector to provide details about the specific code you are being asked to meet. Typically, it will be a local code, the International Fire Code, the National Fire Protection Association code, or the National Board Inspection Code. The codes are similar but do have some specific requirements you may need to be aware of. You can always contact CO2Meter.com (the manufacturer) for assistance in deciphering your code requirements.

Why can the fire inspector ask me to do something not in the code?

The Inspector is the Authority Having Jurisdiction. The AHJ is given the right to make a code/requirement more restrictive than detailed in the published document.

Where does the device need to be mounted in the room?

Different applications allow for different coverage areas.

Enclosed Beverage Systems

In these applications monitors cover approx. 1,250 sq. feet (length x width of the space). Typically, placement within 10 feet of the bulk CO2 storage tank, cylinders, and the BIB rack is sufficient.

Larger spaces may require additional monitors.

Enclosed rooms/ spaces (closets, offices, bathrooms, and keg coolers) may require additional monitoring as gas can be trapped in these spaces because of the enclosure.

Purposefully Enriched Areas

Applications where CO₂ is intentionally injected into a space (called enrichment) will allow for larger coverage areas. Indoor agriculture usage will allow for larger coverage areas because of the continuous circulation of the environment. In these applications a monitor can effectively cover less than 2,000 sq. feet (length x width of the space).

My bulk tank or cylinders are stored outside. Do I still need a monitor?

Outside storage of tanks and cylinders is allowed by the code and the manufacturers of these storage vessels. However, the gas is being used INSIDE the facility and a monitor will be required at the “first point of use” inside. This is typically at the BIB rack or carbonator.

The CO₂ provider ran the CO₂ lines above the drop ceiling. The inspector wants a monitor above the drop ceiling. What do I do?

First, ask your CO₂ provider if they will move the CO₂ lines down below the ceiling. If they won't move the lines, then you will need to comply with the inspector's request and install a monitor above the drop ceiling.

The CO₂ lines run over the top (or through) an office/bathroom. Do I need a monitor in those rooms?

An inspector may ask you to monitor these rooms as they are technically considered confined spaces.

What are the alarm settings for the device?

Alarm 1 – pre-set to 5,000 ppm Time Weighted Average (a rolling 8 hr. average designed to measure someone's exposure over an 8-hour work cycle). This is an OSHA requirement. Alarm 1 cannot be altered.

Alarm 2 – pre-set to 5,000ppm. Can be set as low as 5,000 ppm and as high as 3.0% in ½ % increments.

Alarm 3 – pre-set to 30,000 ppm (or 3.0%). Can be set as low as 2.0% and as high as 4.0% in ½% increments.

Note

Some jurisdictions have asked for different alarm set points (the IFC calls for 5,000 ppm for the first alarm) or even lower. While CO₂Meter does not recommend these alterations to the OSHA set points they can be requested.

What happens when the device “goes off”?

Alarm 1 – The display on both the main and remote units will give an accurate reading of the ppm or percentage level depending on the concentration of the gas. A flashing red LED indicates that the device has exceeded 5,000 ppm TWA. The LED will continue to flash until the average falls below 5,000 ppm. No audible indication is triggered.

Alarm 2 – The display on both the main and remote units will give an accurate reading of the ppm or percentage level depending on the concentration of the gas. Red LED's for AL1 and AL2 will begin to flash and the 80-dB audible indication will sound.

Alarm 3 - The display on both the main and remote units will give an accurate reading of the ppm or percentage level depending on the concentration of the gas. Red LED's for AL1, AL2, and AL3 will begin to flash and the 80-dB audible indication will sound twice as fast as the previous alarm level.

Note The alarms levels on the device are designed to “latch”. The latching function insures that the device must work its way back out of the alarm levels in a descending manner.

Can the monitor trigger a secondary device if it goes in to alarm status?

Yes. The devices three alarm levels each have their own normally open/normally closed, dry contact relays tied to the alarms. When the alarm level is triggered the appropriate relay will trigger the device it is wired to. The monitor will NOT power the device but will trigger it to turn on/off.

Should I install a monitor in a walk-in keg cooler?

Absolutely yes. The keg cooler is the most dangerous place in any restaurant, bar, nightclub, stadium, and brewery. The cooler traps the CO2 inside and does not allow it to dissipate.

Do not think that the fan in the cooler is exchanging air or bringing in fresh air. It is not designed to change air only keep the air in the cooler cool and moving.

The clear majority of CO2 related injuries occur in walk-in keg coolers.

The inspector asked me to get strobe lights for my monitor. Why?

Some inspectors and jurisdictions have required the additional visual notification of 100 cd strobe lights to monitors. In loud areas and commercial applications like breweries and grow facilities the added visual notification of strobe lights IS recommended.

I see a 4-20 ma output wire coming out of the back of the device. What is this for?

The 4-20 ma output is designed to allow you to “see” the devices readings outside the space (security system, building control system, etc.). This option is intended for industrial settings not for standard commercial settings. Consult your electrician or security company if you want to use the 4-20 ma output.

Can the two units be connected wirelessly? Why is it still hardwired?

The two units cannot communicate wirelessly. The average facilities construction materials can prevent an uninterrupted wireless signal which would render this safety device ineffective.

As of the date of publication of these FAQ's hard wiring the device is still the preferred and recommended method for installation to insure safety.

Can I hard wire the monitor in to my electrical system, so the plug can be inadvertently or purposefully unplugged?

Yes. The safety monitor does allow an electrician to hard wire the device in to any buildings electrical system. By wiring standard 110V electricity to a 24V volt DC power converter and then running the converted power directly in to the monitor the device can be hard wired to the electrical system. Detailed instructions and a 24V DC power converter example are available [here](#).

Can I connect my CO2 monitor to a battery back-up system?

Yes. The device will accept the 12-volt back-up power supply from your facility (exit signs and lights run on this circuit). Additionally, the device can be plugged in to a Universal Power Supply (UPS) for temporary back-up power.

If my inspector doesn't require the use of the relay cables on the device what do I do with them?

Utilizing a small screwdriver, you may remove the relay cables from the unit. Retighten the screws once done. Save the cables in the event the inspector changes their mind at a later point.

What is the maximum distance I can mount the Remote Display from the main sensor unit?

CO2Meter provides 25 feet of CAT5 cable to connect the two units. This length of cable will insure that the remote is outside the hazard area. The maximum distance between the two units is 300 feet. You may source longer CAT5 cable from any retailer.

Can multiple remotes be run in sequence?

Yes. Multiple remotes can be "daisy chained" together. The maximum number of remotes tethered to a main unit is three.

What if I only need the main unit and not the remote unit?

In some circumstances a remote display unit is not needed. In this instance you may operate the main unit without connecting the remote unit. The device will operate normally. Please keep the other pieces in the event you or your inspector changes your mind.

CO2Meter does not offer a device without the remote unit.

My inspector told me I need to add strobe lights to my device. What do I do?

First, we need to determine which model of CO2 monitor you have.

RAD-100	Yellow outer enclosure
RAD-0102	Horizontal enclosure
RAD-0102-6	Vertical enclosure
Serial Number	Provide us the SN from the device and we can determine the model

Once we know the model we can determine if strobes can be added to the device while still installed in your facility or if you will need to purchase a new device.

The CM-1026 Strobe Kit can be added to any RAD-0102-6 or similar model while in operation.

How can I test the device to see if it's working correctly?

Often setting off the monitor helps you, employees, and inspectors know the device is operating correctly. The solution is so easy it will take your breath away – literally.

Lean down close the main sensing unit and blow your exhaled breath on to the sensor. 10-15 deep breaths should suffice. The CO₂ from our lungs when we exhale should be enough to put the device at least in to its initial alarm stage.

If you or an inspector wants a more precise manner of setting the device off, you can purchase a small cylinder of CO₂ from your local gas provider (we recommend Airgas). Please ask them for the following precise mixture of gas: 5% CO₂ Balance Nitrogen.

Using a 0.5 liter per minute regulator direct the blended gas mixture at the device until it alarms.

How do I reset the device?

The device can be “hard reset” to try and remove error codes or turn off the FLT light. Locate a small pin hole in the bottom right hand corner of the main unit. The hole has a small white arrow that circles the hole. Behind the hole is a small, rubber button that will reset the device. Utilizing the tip of a pen, insert the pen in to the hole, depress then release the rubber button, and the device will start to reset.

Be patient as the device will shut off, turn back on, and begin its warm up sequence and countdown.

Can I get a calibration certificate with my device?

If you request the calibration certificate at the time of purchase CO₂Meter can provide it free of charge for single piece orders. We cannot provide calibration certificates once the device has left the facility.