



**CONFERENCE:** Nov. 15-18, 2021  
**TRADE SHOW:** Nov. 16-19, 2021

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# Importance of CO2 Safety

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**VP of Sales**

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# ABOUT US

CO2METER.COM



## CO<sub>2</sub> Measurement Specialists

15

Years in Business

10,000

Uses for CO<sub>2</sub>

500,000

Happy Customers

our history

Yes, we started in a garage, too.

We're Your one-stop-shop for gas detection, alarm and analysis.



### Restaurants & Food

The restaurant industry uses carbon dioxide (CO<sub>2</sub>) for soft drinks and beer. When storing or using CO<sub>2</sub>, employee safety is critical. CO2Meter has helped thousands of restaurants and franchisees ensure CO<sub>2</sub> Safety monitoring is in place.



### Breweries & Wineries

Breweries and wineries use or create CO<sub>2</sub> in their beverage-making processes. CO2Meter works closely with brewers and winemakers to ensure they meet safety codes and install proper carbon dioxide safety monitors.



### Agriculture

Indoor cultivators know that adding carbon dioxide increases their crop yield. In doing so, however, CO<sub>2</sub> safety measures are required. CO2Meter has helped numerous cultivators keep their grow facilities safe, and smaller growers control the level of CO<sub>2</sub> their plants receive.



### Scientific & Medical

The use of CO<sub>2</sub> is prevalent in incubation, laboratory research, hospitals, dry ice storage, and much more. By partnering with some of the largest pharmaceutical chains, CO2Meter ensures employee safety when working with or around this inert gas.



### Indoor Air Quality (IAQ)

The quality of the air we breathe is more important than we realize. Rooms with poor ventilation can often see a buildup of CO<sub>2</sub> which can lead to severe health effects. CO2Meter provides indoor air quality solutions to thousands of homes, classrooms, and office buildings, worldwide.



### Safety

High levels of CO<sub>2</sub> in any industry can be dangerous. An enclosed room is no different than a submarine; the lack of oxygen does not suffocate the crew. The buildup of CO<sub>2</sub> in the area does. CO2Meter ensures gas detection, code compliance, and trusted safety solutions for our customers.



### Fire Suppression

The NFPA has implemented a standard (NFPA 12) for testing CO<sub>2</sub> fire suppression systems. CO2Meter designed one of the only devices that meet and actually exceed these code requirements.



### Sensors & OEM

CO2Meter works closely with universities and researchers, nationwide. These scholars use our gas sensor technologies to gather data for scientific research, discovery, and further technological advancements.



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IS YOUR AREA  
CO2 SAFE?







Two Oxygen atoms  
+  
One Carbon atom

## What is Carbon Dioxide?

### Fun Fact !

*CO and CO2 often are confused across the industry. Here's the difference.*

*CO (Carbon Monoxide) is a product of **incomplete combustion** – ex. your car exhaust  
CO2 (Carbon Dioxide) is a product of **complete combustion** – ex. your exhaled breath*



## CO<sub>2</sub> Explained

Why is Carbon Dioxide (CO<sub>2</sub>) Important?

### Known as the Invisible Gas

CO<sub>2</sub> is completely invisible – as it is an odorless, colorless, and tasteless invasive gas. It is naturally occurring, and comes from processes like fermentation, burning fossil fuels, and human respiration.

### Dangerous

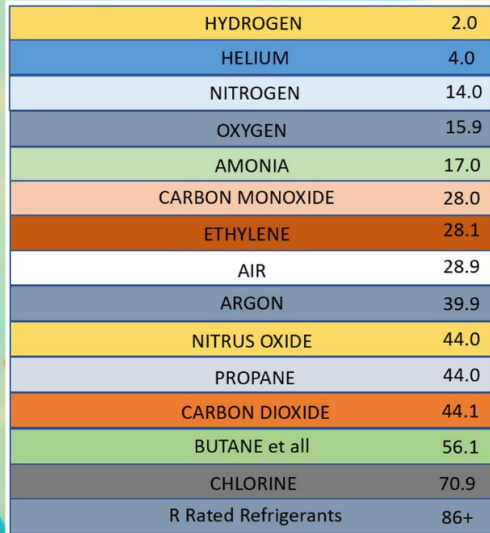
Carbon Dioxide (CO<sub>2</sub>) leaks and overexposure can occur anywhere, making it incredibly important to have proper monitors in your establishment.

### CO<sub>2</sub> Compliance

Because of injuries that have been all too common throughout the world, codes like the NFPA, IFC, and NBIC have placed regulations for those who use or store carbon dioxide (CO<sub>2</sub>) gas.

# GASES BY MOLE WEIGHT

## DISCUSSING GAS DENSITY



HYDROGEN	2.0
HELIUM	4.0
NITROGEN	14.0
OXYGEN	15.9
AMONIA	17.0
CARBON MONOXIDE	28.0
ETHYLENE	28.1
AIR	28.9
ARGON	39.9
NITRUS OXIDE	44.0
PROPANE	44.0
CARBON DIOXIDE	44.1
BUTANE et all	56.1
CHLORINE	70.9
R Rated Refrigerants	86+

- Gases that are *heavier than oxygen*, like Carbon Dioxide, will collect at the floor and *push oxygen upwards*.
- Gases that are *lighter than oxygen*, like Nitrogen, will collect at the ceiling and *push oxygen down*.
- The reason for CO2 Monitors is to capture the gas as soon as it's rising to prevent injury in your establishment.



## Dangers of CO<sub>2</sub>

Understanding the Concentration Levels as Related to the Health Effects

### Concentration Levels

Beverage/Agriculture

5,000 - 40,000ppm

Hospitals/Labs

2,000-5,000ppm

Schools/Universities

1,200 - 2,000ppm

Indoor Air Quality

500 - 1,000ppm

Atmospheric

400-450ppm

Dizziness, Headaches,  
Confusion, Fatigue,  
Nausea, Mild Narcosis,  
Unconsciousness and  
even Fatality.



# WHO UTILIZES CO2 MONITORS?

## ESTABLISHMENTS IN THE FAMILY ENTERTAINMENT BUSINESS



### RESTAURANTS

Our customers include some of the largest restaurant chains who ensure CO2 safety for their establishment.



### FRANCHISES

We provide CO2 monitors for franchises in order to ensure compliance and offer custom SOPs for employees.



### SPECIAL EFFECTS

Companies using special effects for entertainment, venues, performances, etc.

# HAZARD AREAS OF YOUR ESTABLISHMENT

- BIB RACKS
- KEG COOLERS
- CARBONATORS
- CO2 TANKS
- BEVERAGE DISPENSERS



# ENSURING CO2 COMPLIANCE

What to know to stay compliant and up-to-date with inspection codes?



Carbon Dioxide (CO2) codes requirements continue to be updated; and inspections completed ensuring approved safety measures and proper monitors are in place.

We at **CO2Meter** continue to provide education on those requirements to ensure our customers are utilizing devices that meet and exceed state and jurisdictional regulations.

Safety Code Associations: determining regulations:



- Continues monitoring in confined spaces; concerning compressed gases which are stored or produced, such as Carbon Dioxide (CO2).
- Audible/Visual Alarm Indication at 5,000ppm TWA, 1.5%, 3% CO2.
- Relays to trigger a ventilation fan and possibly fire control panel.



# NEED TO MEET NFPA, IFC, NBIC, OR OSHA REGULATIONS?

WE HAVE YOU COVERED.



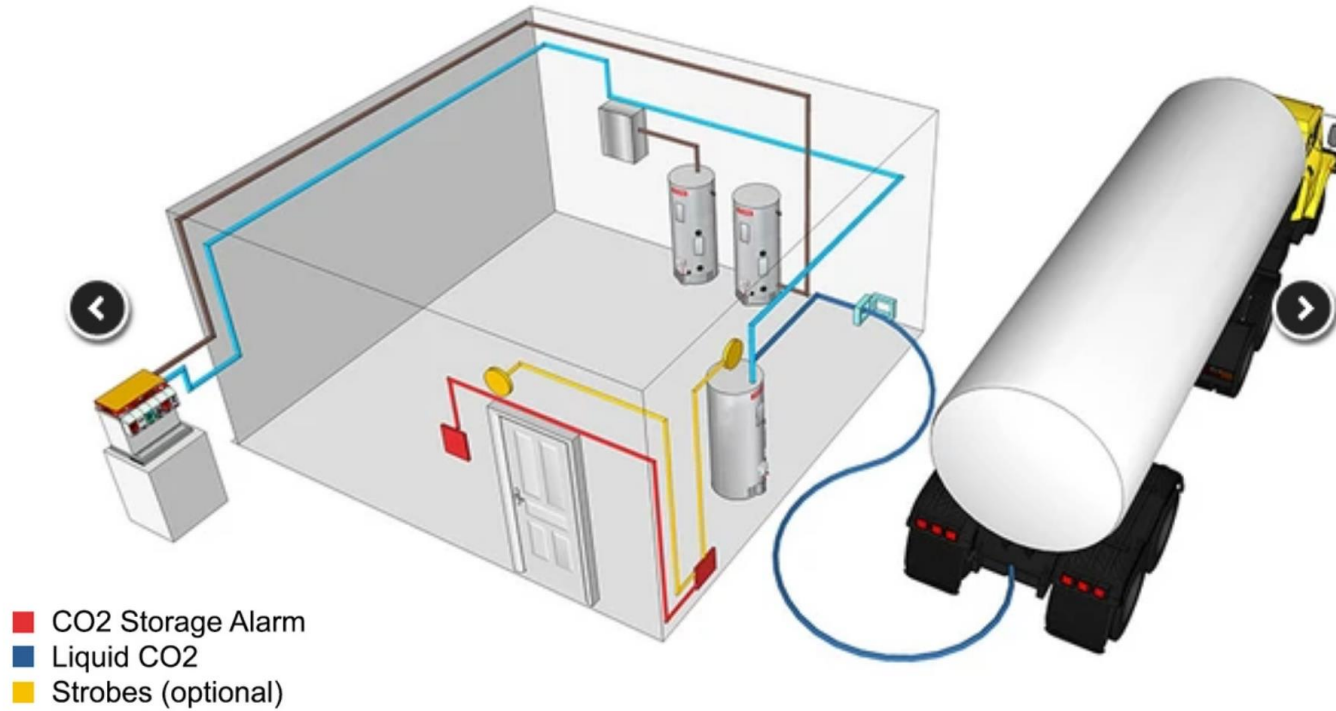
- You will NEED a CO2 Storage Safety Monitor with AUDIBLE and VISUAL ALARMS and a RELAY to control a fan.
- Regulations are different in every state, be sure to ask us today about which CO2 device will meet YOUR code requirements!







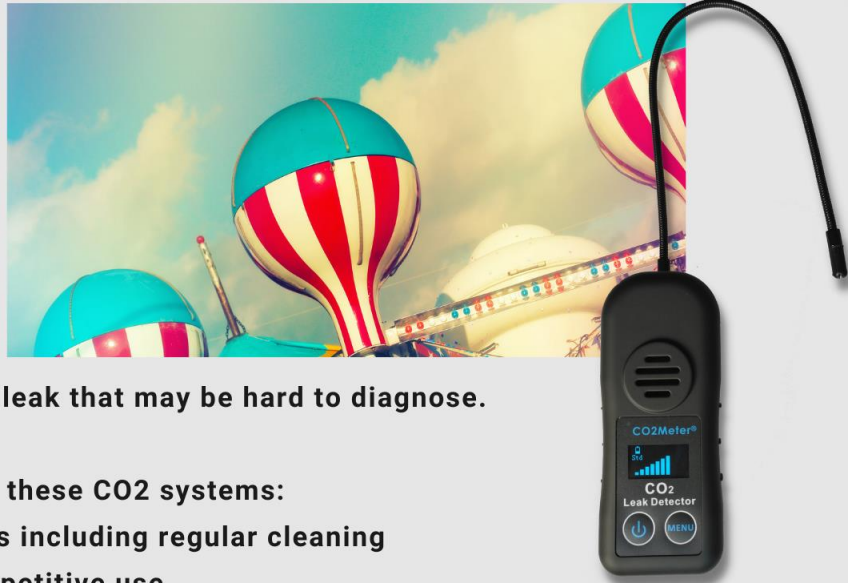
## Typical Restaurant Installation



# IMPORTANCE OF A CO2 LEAK DETECTORS

## CO2 SOLUTIONS

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The SAN-13 helps detect the location of a leak that may be hard to diagnose.

Three main issues typically cause leaks in these CO2 systems:

- Failure to service and maintain systems including regular cleaning
- Damage caused through improper or repetitive use
- The systems are under extreme pressure from the CO2 cylinder or bulk tank

# FIXED VS. PORTABLE

## WHEN TO KNOW WHAT YOU NEED

Generally speaking, these are the key differences between fixed and portable, handheld devices.

### FIXED



- Typically meet necessary guidelines and regulations (may be required)
- Permanently installed on establishment wall
- May have additional accessories such as an alarm attachment for added visibility

### PORTABLE



- Does not meet regulations provided by regulating agencies (optional)
- Can travel on-persons to various locations
- Limited by battery life and requires charging or battery change when expended





***A few of our  
Beverage  
Partners***

