

# CENTER<sup>®</sup> 510

## CARBON MONOXIDE METER

CE



*Instruction Manual*

# Instruction Manual



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**CARBON MONOXIDE METER**

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## 1. General Information:

Thank you for purchasing Carbon Monoxide (CO) meter. Read though the instruction manual before operation for correct and safe usage. Please store and retain this instruction manual for future reference.

### 1.1 Safety Information - Read First:

- **Do not use the meter as a personal safety monitor.**
- **Learn and recognize the effects of CO poisoning.**

0-1 ppm	Normal background levels.
9 ppm	ASHRAE Standard 62-1989 for living areas.
35 ppm	The average exposure level per U.S. OSHA workplace standards.
50 ppm	OSHA enclosed space <b>8-hour</b> average level.*
100 ppm	OSHA exposure limit.*
200 ppm	Mild headache, fatigue, nausea and dizziness.
400 ppm	Headache occur in <b>2.5 hours to 3.5 hours</b> .
800 ppm	Dizziness, nausea and convulsions. <b>Death within 2 to 3 hours.</b>

\* U.S. Department of Labor, Occupational Safety & Health Administration (OSHA) Regulation 1917.24:

The CO content in any enclosed space shall be maintained at not more than 50 ppm (0.005%). Remove employees from enclosed space if the CO concentration exceeds 100 ppm (0.01 %).

## Explanation of Symbols:



### **Attention!**

Refer to operation Instructions.

## 1.2 Introduction:

This instrument is a digital meter that measures CO concentration and Temperature. Through the easy to use control, the meter detects the presence of Carbon Monoxide (CO) and measures concentrations between 0-1000 parts per million (ppm).


The digital meter indicates the presence of carbon monoxide in two ways:

- A reading on the LCD in ppm.
- A beeper tone.

### **Alarm System:**

- The higher the concentration of CO, the faster the beeper sounds.
- Above 200 ppm, the beeper sounds continuously, while the frequency of the tone increases with the concentration of CO.
- Above 1000ppm, the beeper sounds continuously with the highest frequency of tone. The LCD reads “**OL**” to indicate an out of range condition.

### **Self-Test:**

Install the batteries. To turn the meter on, press the  button. During the self-test, the display counts down from “**60**” to “**0**”, while the meter emits a beeper sound. If the meter passes the self-test, the meter

begins monitoring, and shows a reading on the display.

If the meter does not pass the self-test, the LCD shows "Err", and does not take CO measurement.

## 2. Specifications:

**Display:** Dual display.

**Measurement Range:**

- Carbon Monoxide: 0~1000 ppm.
- Temperature: -20°C~70°C (-4°F~158°F)

**Sensor Life (Typical):**

3 years (Correction of the year).

**Sensor Type:**

Electrochemical Carbon Monoxide Gas Sensor.

**Temperature Sensor:** Thermistor

**Accuracy: (at 23°C)**

Range	Accuracy
0~1000 ppm	±5% reading or ±5 ppm (whichever is greater)
-20°C ~ 70°C	±0.8°C
-4°F ~ 158°F	±1.5°F

**Resolution:** 1 ppm, 0.1°C / 0.1°F

**Response Time:**

(@ t90; in slowly moving air)

- Carbon Monoxide: 60 secs
- Temperature: 10 secs
- Temperature Coefficient:  
0.1 X (specified accuracy)/  
°C(<23°C or >23°C)

**Operating Temperature & Humidity:**

0°C~50°C(32°F~122°F);10~90%RH

**Storage Temperature & Humidity:**

-20°C~70°C(-4°F~158°F);0~80%RH

**High CO Alarm:**

Audible alert when CO level rises above programmed limit. (default is 35 ppm.)

**Sample Rate:** 2 times per second

**Battery:** 4 each AA/R6 batteries

**Battery Life:**

200-hours continuous (with alkaline battery)

**Dimension:**

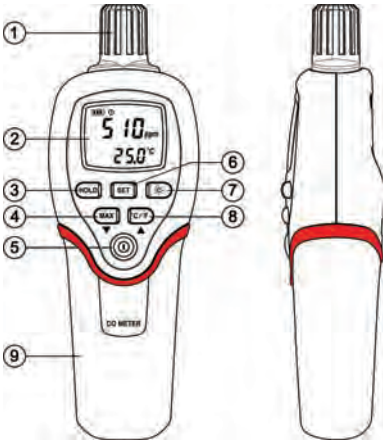
190x65x45 mm; 7.5x2.6x1.7 inches

**Weight:** Approx. 235 g

**Accessories:**

Batteries, instruction manual, carrying case

### 3. Symbols and Buttons:






- 
- ① Sensor
  - ② LCD Display
  - ③ HOLD Button
  - ④ MAX Button
  - ⑤ ON/OFF Button
  - ⑥ SET Alarm Button
  - ⑦ Backlight Button
  - ⑧ °C/°F Temperature Button
  - ⑨ Battery Cover
-




## LCD Definition:




	Battery Capacity Indication
	Auto Power Off Indication
<b>MAX</b>	Maximum Indication
<b>HOLD</b>	Data Hold Indication
<b>1888</b>	CO Reading Indication
	Beeper Off Indication
<b>Hi</b>	Alarm Level
<b>ppm</b>	Unit Indication
<b>°C°F</b>	Unit Indication
<b>-188.8</b>	Temperature Reading Indication
<b>SET</b>	SET Alarm
<b>ALARM</b>	Alarm Indication

## 4. Operation Instructions:





### 4.1 Power-Up:

Press the  button to turn ON or OFF. After Self-Test, if the meter detects between 0-3 ppm of CO, the LCD readings start decreasing from the initial value to zero. The LCD shows readings when the meter detects more than 3 ppm of CO.


### 4.2 Selecting Temperature Units:





When the meter is first powered on, the default scale setting is set to the Celsius (°C) scale. To change to Fahrenheit (°F) press the  button. Press again to revert to Celsius. The next time the meter is turned on, the scale setting will be the same as it was when you powered off last time.


### 4.3 Data-Hold Operation:

The present reading may be held on the display by pressing the  button. When the hold data is no longer needed, release the data-hold operation by pressing the  button again. When the meter is in the Data Hold mode, the , and  buttons are disabled.


### 4.4 SET ALARM Operation:



Press and hold the  button for two seconds to enter the CO high alarm threshold mode. The setting range is from 0 to 1000 ppm (default is 35 ppm).


Press the  () button to increase the value and press the  () button

to decrease the value. Release the  button, the CO high alarm point setting completion.



#### 4.5 MAX Operation:

Pressing the  button places the meter in the MAX mode. Under this mode the maximum value is kept in the memory simultaneously and updated with every new data reading.


Pressing the  button will display the MAX indicator and the maximum value on the display. This means that these data have been updated in the memory and the reading is the present temperature and carbon monoxide. Press the  button again to detect immediate value, the symbol "MAX" flashes on the LCD.


To exit the MAX mode, press  button for two seconds.

#### 4.6 Auto Power Off:


By default, when the meter is powered on, it is in the auto power off mode. The meter will power itself off after 30 minutes if no key operation is performed. To disable the auto power off feature, press and hold the  button and then power on the meter, The auto power off symbol "" will disappear to indicate that auto power off is disabled.

#### 4.7 Backlight On/Off



The display backlight is switched on by pressing the  button. The backlight is switched off by pressing the button again.

The meter will turn back light off if there is no push  button for 30 seconds.

#### 4.8 Low Battery Condition:

When the battery voltage is under proper operation requirement, the “” symbol will show and flash on the LCD and the battery needs to be replaced.

#### 4.9 Beeper Off:

Press and hold the  button and then power on the meter. The mute beeper icon “” is shown on the display. To re-enable the beeper, turn the meter off and then turn it back on.

#### 4.10 Battery Replacement:

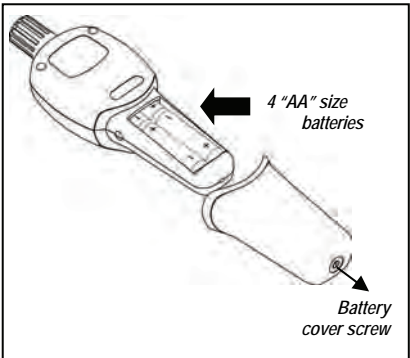


Fig.1 Battery Compartment

- (1) Back out the screw at the bottom of the battery door and lift the door away from the meter.
- (2) Remove the four AA batteries from the

compartment.

- (3) Replace with four new AA batteries, observing proper polarity as depicted on the bottom of the battery compartment.
  
- (4) Close the battery door and tighten the screw to lock it in place.

#### **4.11 Calibration or Service**

The meter should be calibrated once a year by an authorized service center. During normal use, the meter does not require adjustment. Any required adjustments are made at calibration. To replace the sensor, contact an authorized service center.

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