AMPROBE®

CM100
Carbon Monoxide Meter

Users Manual
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CM100

Carbon Monoxide Meter

Users Manual

Limited Warranty and Limitation of Liability

Your Amprobe product will be free from defects in material and workmanship for 1 year from the date of purchase. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Amprobe's behalf. To obtain service during the warranty period, return the product with proof of purchase to an authorized Amprobe Test Tools Service Center or to an Amprobe dealer or distributor. See Repair Section for details. THIS WARRANTY IS YOUR ONLY REMEDY. ALL OTHER WARRANTIES - WHETHER EXPRESS, IMPLIED OR STATUTORY - INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, ARE HEREBY DISCLAIMED. MANUFACTURER SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

Repair

All test tools returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company's name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the test leads with the meter. Non-warranty repair or replacement charges should be remitted in the form of a check, a money order, credit card with expiration date, or a purchase order made payable to Amprobe® Test Tools.

In-Warranty Repairs and Replacement – All Countries

Please read the warranty statement and check your battery before requesting repair. During the warranty period any defective test tool can be returned to your Amprobe® Test Tools distributor for an exchange for the same or like product. Please check the "Where to Buy" section on www. amprobe.com for a list of distributors near you. Additionally, in the United States and Canada In-Warranty repair and replacement units can also be sent to a Amprobe® Test Tools Service Center (see address below).

Non-Warranty Repairs and Replacement – US and Canada

Non-warranty repairs in the United States and Canada should be sent to a Amprobe® Test Tools Service Center. Call Amprobe® Test Tools or inquire at your point of purchase for current repair and replacement rates.

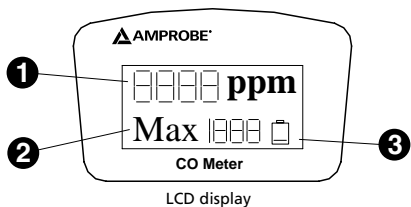| In USA	In Canada
Amprobe Test Tools	Amprobe Test Tools
Everett, WA 98203	Mississauga, ON L4Z 1X9
Tel: 877-AMPROBE (267-7623)	Tel: 905-890-7600

Non-Warranty Repairs and Replacement – Europe

European non-warranty units can be replaced by your Amprobe® Test Tools distributor for a nominal charge. Please check the "Where to Buy" section on www.amprobe.com for a list of distributors near you.
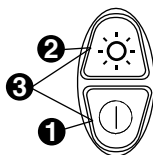
European Correspondence Address*
Amprobe® Test Tools Europe
In den Engematten 14
79286 Glottertal, Germany
Tel.: +49 (0) 7684 8009 - 0

*(Correspondence only – no repair or replacement available from this address. European customers please contact your distributor.)

LCD display

❶ Display current CO value.

❷ Display maximum CO value.

❸ Low battery indicator.

Function Keys

❶ Turn the meter on and off. Select the alarm value.

❷ Turn on and off the backlight. Reset the maximum CO value. Select the calibration value.

❸ Enter calibration mode by pressing both pushbuttons

CONTENTS

UNPACKING AND INSPECTION

Your shipping container should include:

      1 CM100 Carbon Monixide Detector

      3 AAA battery

      1 Carrying Case

      1 Users Manual

INTRODUCTION

Congratulations on your purchase of this digital pen type CO meter. Please read the manual completely before using the meter.

Features

- Adjustable CO warning level
- Dual and digital display
- Backlight for operation in dark area
- Low battery indicator
- Auto power off function
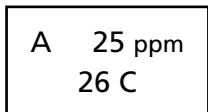
CO LEVELS AND STANDARDS

ppm	Symptoms and applicable standard
0-1	Normal background levels
9	Maximum indoor air quality level: Maximum allowable concentration per ASHRAE Residential standards 62-1989 for living area.
25	Maximum limit 8 hrs of continuous exposure per California OSHA Workplace standards.
35	Maximum 8 hrs average exposure level per US OSHA workplace standards.
50	Maximum concentration for continuous exposure in any 8 hrs average level per OSHA standards.
100	Remove employees from enclosed space if the CO concentration exceeds 100ppm per OSHA exposure limit.
200	Mild headache, fatigue, nausea and dizziness w/i 2-3 hrs.

ppm	Symptoms and applicable standard
400	Frontal headache, life threatening after 3hrs. Maximum concentration in flue gas per EPA and AGA.
800	Dizziness, nausea, convulsions, death w/i 2-3 hrs.
1600	Nausea w/I 20 min; death w/I 2-3 hrs

OPERATION

1. Power on/off

- Press ① to turn on and off the meter. When meter is power on, the preset alarm value and current air temperature will be blinking on the LCD.
- Meter will perform Self-Test for 15 seconds. A beep after the self test indicates that the meter is ready to use.

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┌─────────────────────────┐
│                         │
│    A    25 ppm          │
│         26 C            │
│                         │
└─────────────────────────┘
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IMPORTANT:

It is recommended to turn on the meter in an area free of CO since high CO level may cause failure in passing Self-Test.

2. Alarm setting

- The meter alarm is preset to 25ppm to warn about possible danger.
- User can adjust the alarm level by choosing one. The available CO gas levels: 25, 30, 35, 45, 50, 70, 100 and 200ppm.
- Release the pushbutton to select the preferred value. The meter will return to Self-Test mode in a few seconds.

3. Measurement

- The meter detects the existence of CO in the environment and displays the reading in ppm. It also indicates the maximum value (at lower side of the LCD) of all readings.
- Reset the maximum value by pressing ☼ pushbutton for two seconds in measuring mode.

4. Backlight

Press ☼ pushbutton to turn on and off the backlight.

5. Low battery indicator

Appears on the LCD when battery voltage is low.

6. Auto power off

The meter turns itself off automatically after 15 minutes of non-operation.

CALIBRATION

To enter the calibration mode, turn off meter and press ① + ☼ pushbuttons simultaneously for 2 seconds. It will show a blinking ppm on the upper display and calibration value "0" at lower side. Now the meter is running 0ppm calibration as default.

0ppm calibration

The preset calibration value is 0ppm. Put the meter in an area free of CO and enter the calibration mode. It calibrates automatically. The LCD is now displaying a blinking ppm value at the upper side which slowly runs down to 0 or minus value, then stops blinking when the calibration is completed. This takes about 10 minutes.

Note:

Don't be alarmed if high ppm or minus value shows up when entering calibration mode. It will go down and approach to 0 in seconds. The erratic readings are caused by electromagnetic interference (EMI) in the environment, such as computers or cell phone. It is required to have the meter away from these types of interference, otherwise the calibration may take much longer time or never complete.

100ppm/500ppm calibration

1. For other standard calibration, press ☼ pushbutton and hold to select the calibration value. (0, 100, 500ppm).

2. Place the meter into the sealed box filled with standard gas (e.g. 100ppm/500ppm) for 15 minutes. Then the Calibration will be done automatically.

3. Check if the reading meets calibration value. If it does, the calibration is well completed. If not, repeat the procedure.

TROUBLESHOOTING

Device cannot power ON

1. Check if the time since power on is over 300 mS.

2. Make sure the batteries are in good contact and correct polarity.

3. Replace the batteries and try again

Display disappears

Check whether the low battery indicator shows before display disappears. If so, replace the batteries.

Calibration failure

1. Check if the low battery indicator shows before calibration. If so, replace a new battery and try again.

2. Make sure the standard gas is correct.

   E 2.: The value is underflow.

   E 3.: The value is overflow.

   E 4.:The value is "error"because of some original data.

   E 31.: A/D failure, return the meter to the dealer for repair.

   E 33.: Some measurement circuits failure, return the meter to the dealer for replacement or repair.

   E 35.: **Self-Test failure.** Turn on the meter again in other area free of CO.

   Sensor failure. Return the meter to the dealer for repair.

PRECAUTIONS

1. Keep the meter away from electromagnetic interference (EMI) which may cause erratic readings.
2. Recovering time is required when meter exposed to high level CO. The longer the exposure, the longer recovering time is needed.
3. Self-Test after power on is to test the sensor and circuit condition.

TECHNICAL SPECIFICATIONS

CO range: 0~999ppm

Resolution: 1 ppm

Accuracy: ± 20% at 0~100ppm; ±15% at 100~500ppm (at 20°C±5% and 50%±20%RH)

Battery: 3 AAA alkaline. Battery life is 250 hours when backlight is off and 35 hours when backlight is on.