

Low Level CO Meter FD-103-CO-LOW FORENSICS DETECTORS™

** ATTENTION **

- KEEP DETECTOR AWAY FROM ELECTROMAGNETIC & MAGNETIC INTERFERENCE (i.e. PHONES & MAGNETS)
- STORE/OPERATE DETECTOR WITHIN ENVIRONMENTAL SPECIFICATIONS, AWAY FROM DUST, VAPORS & HARSH CHEMICALS
- IF FEELING UNWELL, SEEK FRESH AIR & MEDICAL ASSISTANCE
- DO NOT EXPOSE DIRECTLY TO EXHAUST FUMES

INTRODUCTION

You have purchased the highly sensitive **FD-103-CO-LOW** by **FORENSICS DETECTORS™**. This product can detect extremely low levels of carbon monoxide (CO) in compressed gas or ambient air. It can be used test gas quality in scuba cylinders or to monitor exposure to CO in the ambient air. For critical applications, calibrate every 6 months and bump test daily, or before use, to verify detector operation.

OPERATION

Press the POWER button to turn the unit on. The preset alarm levels will be shown followed by a 60-second countdown. Once complete, the unit will beep and be ready to analyze CO content in air or other gases. The current CO concentration will be displayed. CO concentrations exceeding the preset alarm points will trigger an audio/visual/haptic alarm. To turn the unit OFF, hold the POWER button for 3 seconds.

SCUBA CYLINDER TESTING

To test the contents in a scuba cylinder, securely fasten the calibration cap clip to the unit. Ensure the clip is aligned over the white sensor hole, then place the rubber dome on the barb. Gently open the cylinder valve to allow a small amount of gas to flow (a light hissing sound). Place the dome over the cylinder valve outlet and allow gas to flow for about 15 seconds. Ideally, the CO concentration in your breathing gas should be 0 ppm. Divers Alert Network (DAN) recommends less than 5 ppm for safe diving. The Compressed Gas Association (CGA) limit is 10 ppm.

AMBIENT AIR TESTING

To monitor ambient air, remove the rubber dome and calibration cap clip if fitted. Ensure the white sensor hole is unobstructed. Place the detector in the area to be monitored. The unit may remain on for as long as needed.

DISPLAY MODE

Display	Description
S	STEL: Short Term Exposure reading 15-minute time weighted average.
T	TWA: Time Weight Average 8 hour time weighted average reading.
Time	Digital Clock Display

Press the MENU (M) button on the right-hand side to scroll through the DISPLAY selection options as shown in the table. After 6 seconds the display will resume displaying current CO levels.



BATTERY

The CO meter uses a 9v lithium battery. The battery icon appears on the top left LCD display. Unscrew the four hex screws and replace with a new lithium 9V battery.

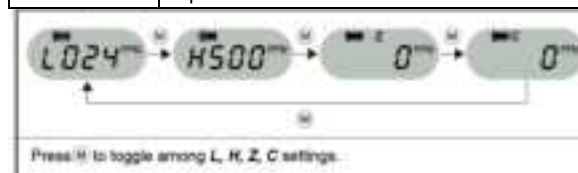
TIME CHANGE

Use the MENU button to cycle through screens to the time display. While viewing the time display, press and hold the MENU button for 2 seconds to change the time. The hour will begin to flash - use the POWER button to change the hour. Press the MENU button to move to the minutes. Use the POWER button to change the minutes. Once done, hold the MENU button for 2 seconds to save the time.

MENU FUNCTIONS

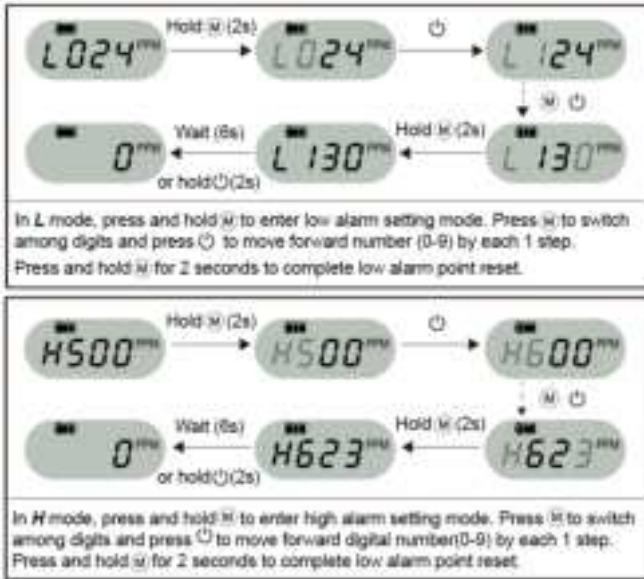
Press the MENU button for 2 seconds to enter into the menu functions. **Enter 1234 as the password.** The POWER button updates the digits, and the MENU button toggles digit selection. When finished, hold the MENU button for 2 seconds to enter the MENU Function as shown in the below table. Use the MENU button to toggle between these selections.

Display	Description
L	Low Alarm Point
H	High Alarm Point
Z	Zero Calibration
C	Span Calibration



ALARM SETPOINT

To change the alarm setpoints enter into the **L** or **H** menu setting. **L** is for low alarm point. **H** is for High alarm point.



SPECIFICATIONS

Gas Detected: Carbon Monoxide (CO)

Gas Sensor Type: Electrochemical Sensor

Calibration Location: Los Angeles, California, USA

Calibration Standard: USA NIST Traceable CO Gas Source

Recommended Calibration Period: 6 months

Range & Resolution: 0 - 100 ppm with a resolution of 0.1 ppm

Error: Better than $\pm 2\%$ of full scale when reading is between 0 - 20 ppm, and at the limit of the specified environmental operating conditions

Error: Better than $\pm 5\%$ of full scale when reading is between 21 - 100 ppm, and at the limit of the specified environmental operating conditions

Response Time (natural diffusion): < 60 seconds

Response Time (forced air): < 30 seconds

Store/Operate Operating Limits: 32°F - 122°F (0°C - 50°C), < 95%RH

Battery: 9V disposable lithium battery

Dimensions: 4.3" x 1.4" x 1.6" (110 x 35 x 41 mm)

Weight: 5.3 oz (150 g)

Alarm Indicators: RED LED, 90dB buzzer, and vibration

Alarm Setpoints: User adjustable

Expected Sensor Life: 3 years

Protection Grade: IP67

Certification: CE

Bump Testing?

Bump testing exposes the gas detector to a small amount "blast" of target gas to ensure the detector operates and alarms as programmed. The function of this test is to verify detection operation and build user confidence, particularly in hazardous and critical life-threatening applications.

Product Calibrated, Tested and Packaged in California, USA

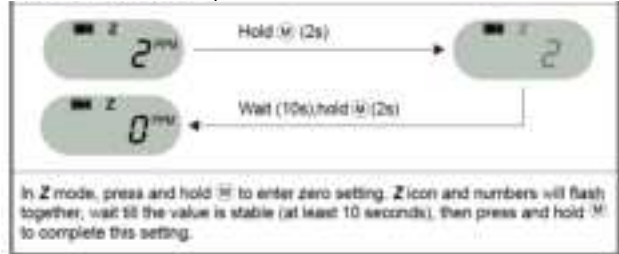
Product Made in China

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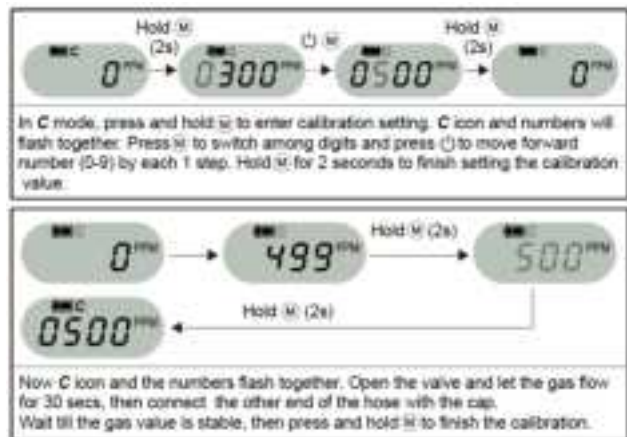
CALIBRATION

Your detector comes pre-calibrated and ready to use. Recalibration is needed EVERY 6 MONTHS to ensure your CO meter remains accurate. Inaccuracy and calibration drift can occur over time due to sensor degradation. There are two parts to the calibration, ZERO Calibration and SPAN Calibration. Always perform ZERO calibration first! If the meter shows a small reading in fresh air (less than 2 ppm) the detector must be ZERO calibrated.

ZERO CALIBRATION: This ensures an accurate baseline of ZERO CO, and is performed in fresh air as follows:



SPAN CALIBRATION: This ensures accurate gas detector concentration readings so that the displayed reading is accurate. A calibration gas, with a known concentration of CO is used to perform span calibration. The FD-103-CO-LOW has a range of 0 - 100 ppm. When used for testing scuba cylinders, a calibration gas with a concentration of 10 ppm should be used. Install the calibration cap clip and connect the tubing from the cylinder regulator at a flow rate no less than 0.5 LPM. Use the calibration cap clip to direct the gas to the sensor hole.



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