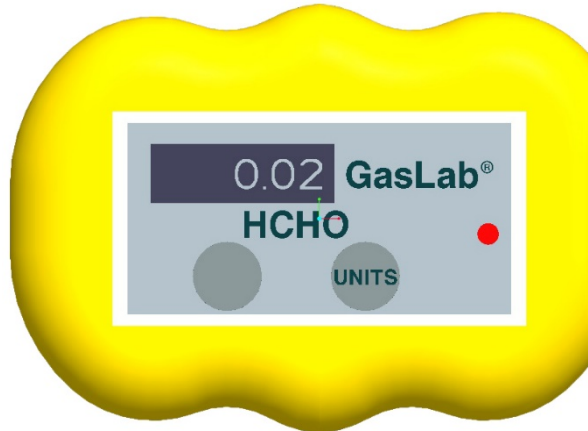# GasLab SAN-103 Micro Formaldehyde Monitor

User Manual

The GasLab SAN-103 is a wearable, personal safety meter designed to monitor formaldehyde concentrations (CH_2O or H-CHO) in real time. Formaldehyde is a colorless, poisonous, highly water-soluble gas with an obnoxious odor. At high levels over time, it is a known carcinogen.

Features

- Real-time monitoring of formaldehyde concentration in ppm or mg/m3
- Audible and visual high formaldehyde level alarm
- Includes ambient temperature and % relative humidity sensors
- Silicone boot and metal clip are light and comfortable to wear
- Electrochemical sensor, no consumable parts
- Lithium-ion rechargeable battery. USB Charging port
- Runs 4+ days per charge

Applications

- **New Home Construction, Mobile Homes, RVs.** Formaldehyde is used in the making of some plywood, drywall, paneling, fiber board and carpeting. Long-term exposure to these materials when new has been linked to an increased risk of cancer and respiratory illness.
- **Industry.** In addition to adhesives, formaldehyde is used to make facial tissue, paper napkins, roll towels, or any paper products that require strength when wet. It is used as a component in the creation of paints, foams and permanent press clothing. It may also be used to preserve biological specimens or for embalming.
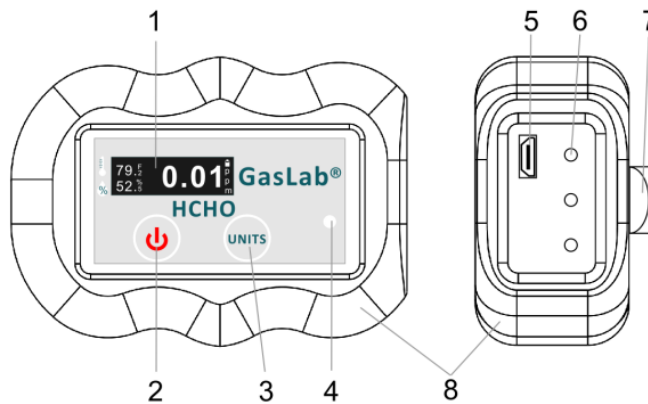
Please take a moment to read these instructions before use. They will provide you with all the necessary information for the correct use of your formaldehyde monitor.

Theory of Operation

The SAN-103 Formaldehyde Monitor uses an electrochemical sensor to determine the concentration of formaldehyde in air samples. Air reaches the sensor by diffusing through the openings on the side of the unit. Normal air movement is enough to carry the sample to the sensor.

Device

1. OLED display
2. Power button
3. Units switching button
4. Alarm LED
5. Micro USB charge port
6. Vent
7. Clip
8. Silicone boot

OLED Display

1. Formaldehyde concentration
2. Air Temperature (°F or °C)
3. % Relative Humidity
4. Concentration unit in ppm or mg/m3
5. Battery Charge Indicator

OPERATION

Plug the USB cable into the meter and a 120VAC wall adapter. It will take approximately 2 hours to receive a full charge. Once the meter is charged, it can run 10+ days before recharging.

Press the power button to turn on the meter.

When the meter is first turned on, it performs a 10 second countdown for device warm up, then enters normal display with the current formaldehyde level displayed. The device starts taking measurements when powered on and updates readings every 3 seconds.

The OLED display will turn off automatically after 120 seconds of inactivity to conserve battery power. However, the sensor will continue to monitor the CO level. Briefly press the Power button to view the display.

Hold down the Power button for 3 seconds to turn the meter off. This will conserve the battery's charge until you need to use the meter again.

High Formaldehyde Level Alarm

The SAN-103 is equipped with audio and visual alarms to alert you when the ambient formaldehyde concentration exceeds 0.9mg/m3 or 0.72ppm (parts per million). The LED will flash and an audible alarm will sound.

These OSHA PEL (personal exposure limits) levels are set at the factory and cannot be changed.

Fahrenheit and Celsius Switching

- Press the UNITS button to select °F or °C.
- Press the Power button briefly to save the temperature setting and return to normal display.

Formaldehyde Units Switching

- Press the UNITS button until either mg/m3 or ppm is shown on the display.
- Press the Power button briefly to save the units setting and return to normal display.

Low Battery Alarm

The meter continuously measures the rechargeable battery's voltage. If it drops to a critical level, the low battery alarm will sound until the battery is recharged or the battery power is depleted.

Note that the meter can continue to monitor formaldehyde levels while charging.

SENSOR CROSS-SENSITIVITY

Electrochemical sensors are cross-sensitive to specific gases other than the target gas of interest. While cross-sensitivities are limited as much as possible by sensor design, some interactions still exist. The table below shows the most common cross-sensitivities.

Gas	Cross Sensitivity (%)
CO	1
H2	0.1
SO2	12
NH3	0
CO2	0
Ethanol, methanol	50
Phenol	7

Extremes of humidity may cause a background reading on measurement.

If the meter is exposed to one of the above gases, it will clear itself if you expose it to normal outdoor air for 30 minutes. Do not expose the device to the fumes of inorganic solvents (e.g., paint fumes) or organic solvents.

SPECIFICATIONS

HCHO Sensor Specifications

Measurement Range	0 to 5.0ppm
Resolution	0.01ppm
Temperature Range	-10 to 40°C (14~104°F)
Humidity Range	15 to 90%RH
Temperature Drift	0.35%/°C
Baseline Drift (20-40°C)	0.00ppm
Response Time	<30 Seconds

Temperature Sensor Specifications

Temperature Range	-10.0 to 60.0°C (14~140°F) display
Display Resolution	0.1°C (0.1°F)
Display Options	°C/°F (switchable)
Accuracy	±0.5°C(±0.9°F)
Response Time	5~30 seconds(device must equilibrate with environment)

% RH Sensor Specifications

Measurement Range	0.0 to 99.9%RH
Display Resolution	1%RH
Accuracy	±4.5%RH
Response Time	<8 seconds for 63% of step change

General

Operating	-10°C to 40°C (14°F to 104°F),15~90% RH non-condensing
Storage	-10°C to 60°C(14°F to 140°F),<99% RH non-condensing
Power Supply	Li-ion battery(4.2V, 400mAh)
Dimensions	60x35x25mm (2.36x1.38x0.98")
Weight	40 grams (1.41oz.)

CLEANING AND STORAGE

The front panel and case can be cleaned with a mild solution of detergent and water. Apply sparingly with a soft cloth and allow drying completely before using. Do not use aromatic hydrocarbons or chlorinated solvents for cleaning.

TROUBLESHOOTING GUIDE

Symptom / Issue	Possible Cause / Resolution
Device does not power ON	Make sure the power supply is connected properly and that there is power at the outlet. Use the supplied adapter. Verify that your meter has had enough time to charge before turning it on.
Reading does not change	In fresh air, you will rarely see levels above 0.3ppm. This is normal.

EXPOSURE LIMITS FOR FORMALDEHYDE

- OSHA PEL (permissible exposure limit): 0.9 mg/m3
- OSHA TWA (time-weighted average): 0.75 ppm long-term (8 hours)
- OSHA STEL (short-term exposure limit): 2 ppm (15 minutes)
- Formaldehyde levels in fresh air: < 0.3ppm

SUPPORT

The quickest way to obtain technical support is via email. Please send all support inquires to **support@co2meter.com**.

Please include a clear, concise definition of the problem and any relevant troubleshooting information or steps taken so far, so we can duplicate the problem and quickly respond to your inquiry.

WARRANTY

This meter comes with a 1 YEAR (warranty period) limited manufacturer's warranty, starting from the date the meter was shipped to the buyer.

During this period of time, CO2Meter.com warrants our products to be free from defects in materials and workmanship when used for their intended purpose and agrees to fix or replace (at our discretion) any part or product that fails under normal use. To take advantage of this warranty, the product must be returned to CO2Meter.com at your expense. If, after examination, we determine the product is defective, we will repair or replace it at no additional cost to you.

This warranty does not cover any products that have been subjected to misuse, neglect, accident, modifications or repairs by you or by a third party. No employee or reseller of CO2Meter.com's products may alter this warranty verbally or in writing.

LIABILITY

All liabilities under this agreement shall be limited to the actual cost of the product paid to CO2Meter.com. In no event shall CO2Meter.com be liable for any incidental or consequential damages, lost profits, loss of time, lost sales or loss or damage to data, injury to person or personal property or any other indirect damages as the result of use of our products.

RETURNS

If the product fails under normal use during the warranty period, a RMA (Return Material Authorization) number must be obtained from CO2Meter.com. After the item is received CO2Meter.com will repair or replace the item at our discretion.

To obtain a RMA number, call us at (386) 256-4910 or email us at support@co2meter.com. When requesting a RMA please provide reason for return and original order number.

If we determine that the product failed because of improper use (water damage, dropping, tampering, electrical damage etc.), or if it is beyond the warranty date, we will inform you of the cost to fix or replace the product.

For additional warranty information visit our website: www.CO2Meter.com/pages/faq

CONTACT US

We are here to help!

For information or technical support, please contact us.

✉ support@co2meter.com

📞 (386) 256-4910 (Technical Support)
📞 (386) 872-7665 (Sales)

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