
CGD8800X – CGD8800X220

Combustible Gas Detector



Background and Purpose

The CGD8800X Combustible Gas Detector offers significantly improved hydrocarbon detection while featuring visual concentration indicators and battery operation in a reliable safe enclosure. The Combustible Gas Detector indicates the strength of the vapor source on a six LED bar graph display along with an audible “ticking” signal (similar to a Geiger counter), whose frequency increases as the concentration of the combustible gas increases. The CGD8800X’s sensitivity is adjustable and thus is an excellent instrument for pinpointing minute concentrations of combustible hydrocarbons and the presence of hazardous vapors to levels as low as one PPM (parts per million).

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Unpacking / Set-up

Before using the CGD8800X, it is necessary to install the NiMH battery pack.

1. Remove the rubber boot from around the instrument, carefully pulling it loose with your fingers. Do not pry with any metallic object, as this could damage the case and boot.
2. On the top side of the instrument, loosen the slotted retaining screw holding the battery cover in place. *Figure 1*
3. Pivot the cover up and pull out toward the retaining screw to remove from the case.
4. Connect the battery pack harness plug into the instrument's battery connector. Push the plug fully into the connector, latching it into place. *Figure 2*
5. Position the battery pack in the case, with the temperature sensor "bump" facing downward into the recessed area of the case. *Figures 3 & 4*
6. Reinstall the battery cover and fasten the retaining screw.
7. Reinstall the rubber boot around the instrument.



Figure 1: Loosen screw & remove battery cover



Figure 2: Plug-in the battery connector



Figure 3: Insert battery pack into case



Figure 4: Battery pack correctly installed

Charge the battery pack in order for the unit to function correctly.

1. Place the power switch in the OFF / CHARGE position.
2. Plug the AC adapter (included with the CGD8800X) into an appropriate wall outlet, and connect the charger jack to the charge input on the instrument.

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3. During the charge cycle, the yellow LED (charge) is illuminated. Once charging is complete, the green LED (READY) will also illuminate.
- Leaving the AC adapter connected after charging will not damage the instrument. However, be aware that the instrument will not operate until the AC adapter has been disconnected.
 - The battery pack is shipped pre-charged but its condition upon arrival to the user is unknown due to parasitic drainage that occurs during storage and shipment. An initial charge cycle is recommended to achieve full performance of the instrument. This initial charge will take 2-6 hours depending on the actual condition of the battery pack. Subsequent charges (applied after the red low-battery LED illuminates) will take approximately 15 hours.
 - New battery packs need to be conditioned before they're capable of optimum performance. To condition a new battery pack, charge it fully then operate the instrument as normal until the low battery LED illuminates. Repeat this procedure a minimum of 3 to 5 times.

Safety Precautions

CAUTION: To prevent personal injury:

- Always insure that the rubber boot is installed on the instrument. Failure to do so may impair the intrinsic safety of the instrument — without the rubber boot in place, there is a possibility of static charge leading to explosion.

CAUTION: To prevent equipment damage:

- Charge the NiMH battery pack only in temperatures between 32°F and 104°F (0°C and 40°C). Charging outside this temperature range may cause permanent damage to the battery pack.
- Use only the AC adapter included with the CGD8800X to charge the NiMH battery pack.

Controls / Operation

Once the battery pack is fully charged, the CGD8800X is ready to use.

1. Move the instrument to a known, non-contaminated atmosphere.
2. Turn the sensitivity control fully counter-clockwise.
3. Turn the power switch ON. The power LED should be illuminated and no sound should be heard. Once the instrument has warmed up for about 30 seconds, a ticking sound will be heard.
4. Rotate the sensitivity control to the highest setting that does not cause the instrument to alarm.
5. Search the general area of the suspected leak. When a detectable compound enters the sensor, the tick rate increases and the leak intensity LEDs illuminate from left to right. The larger the concentration, the more LEDs will light up.

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6. In most cases, it is not necessary to adjust the sensitivity of the instrument. However, if the alarm sounds before a leak source can be found, it is likely the air is contaminated with heavy concentrations of gas. You may desensitize the instrument by turning the sensitivity knob counter-clockwise to a lower setting in order to pinpoint the leak location.

NOTE: Joint compounds used on newly installed piping may contain combustible solvents and could cause a false alarm.

Status and Leak Intensity Indicators

Five (5) small LED status indicators are located on the right front of the instrument, in a vertical column arrangement. Six (6) Leak Intensity indicators are arranged in a horizontal row, below the status indicators and Sensitivity control knob.

From top to bottom, the Status LED display functions are:



Power (red): Illuminates when the instrument is ON.

Low Battery (red): Illuminates when a battery charge is needed. The battery pack must be fully recharged before the instrument is used again.

Charge (yellow): Illuminates during the recharge process.

Ready (green): Illuminates when the charge cycle is complete. A fully charged battery pack provides up to three (3) hours of continuous operation.

Fault (red): Illuminates only if there is a problem with charging the battery pack.

Leak Intensity Indicators (red): Illuminate from left to right, indicating stronger leak intensity as more LEDs are lit.

Figure 5: Status and Leak Intensity Indicators

Cleaning and Maintenance

- Do not allow dirt or grease to obstruct the charger input jack on the side of the instrument.
- Use only a soft cloth dampened with mild soap to clean the body of the instrument.
- Do not subject the instrument to extreme mechanical shock, exposure to strong magnetic fields or extreme temperatures.
- Do not drop the battery pack or subject it to mechanical shock or extreme temperatures.
- Never immerse the instrument or the probe into a liquid.

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Instrument Service

If the instrument does not sound an alarm in the presence of a known leak, it will require service. Discontinue using the instrument, remove the battery pack and return the battery pack with the instrument to SIRCHIE for Calibration Service.

Technical Specifications

Power Supply:	4.8V NiMH rechargeable battery pack (four AA-size cell pack)
Continuous Operation:	Up to 3 hours (fully charged battery pack)
Battery Pack Lifetime:	Approximately 200 charge cycles
Warm-up Period:	Approximately 30 seconds
Duty Cycle:	Continuous; no limitation
Response Time:	Instantaneous
Sensitivity:	Variable; as low as 1 ppm (gasoline vapor)
Operating Environment:	32°F to 125°F (0°C to 52°C)
Dimensions:	8 in. x 3 in. x 1.8 in. (20.3 cm x 7.6 cm x 4.6 cm)
Weight:	Approximately 16 ounces (454 grams)
Probe Length:	15 in. (38 cm)

Calibration

In order to guarantee proper operation and to maintain NIST traceability, the sensor must be replaced every two years. Frequently check the “calibration due date” sticker located on the back panel and return to SIRCHIE for Calibration Service before the date has expired. Contact Customer Service at customerservice@sirchie.com or call 919-554-2244 or 800-356-7311.

Parts and Accessories

CGD8809	Replacement Rechargeable NiMH Battery Pack
CGDCALX	Calibration Service (includes sensor replacement)
CGDREF	Reference Standard Pads, 10pk

Trouble Shooting Guidelines

Before returning the instrument for repair, carefully review these Trouble Shooting steps to determine if the problem can be solved. If the instrument still fails to work correctly, contact SIRCHIE at (800) 356-7311 to arrange its return for service.

Symptom	Possible Causes	Actions
Power indicator LED does not light; instrument is non-responsive.	1) Battery pack not charged. 2) AC adapter connected to instrument.	1) Connect AC adapter to instrument and charge battery pack. Refer to <i>Unpacking/Setup</i> for instructions. 2) Remove AC adapter.
Fault LED lights during charging.	1) Problem with battery pack. 2) Internal failure.	1) Disconnect AC adapter from instrument and wait one hour for battery pack to cool. Do not use instrument or attempt to charge battery pack during this time. After one hour, reconnect AC adapter to instrument. If red LED (fault) illuminates again, replace battery pack. 2) If battery pack is not the problem, discontinue using instrument and return it to Sirchie for service.
Instrument does not seem operable; does not alarm in the presence of leaks.	1) Sensor failure. 2) Instrument failure.	Attempt to verify unit operation on known combustible gas leak source. If no response, return the instrument to Sirchie for service.
Battery life is less than 3 hours of operation.	1) Battery pack needs to be conditioned.	1) To condition battery pack: charge it fully, then operate instrument as normal until the low battery LED illuminates. Repeat this procedure a minimum of 3 to 5 times.
Instrument does not operate and battery pack charge cycle will not complete (24+ hour charge applied and green light does not illuminate).	1) Battery pack not connected. 2) Bad battery pack.	1) Follow instructions in the <i>Unpacking/Setup</i> section to check that the battery pack connection is secure. 2) Replace battery pack.

CAUTION: This instrument should be serviced only by SIRCHIE. Failure to do so may impair the intrinsic safety of the device. Do not open the case of the instrument. There are no user-serviceable parts inside.

Only the battery compartment section of the case may be opened to insert or remove the battery pack.