

O P E R A T I N G M A N U A L



GAS-Mate[®]
Combustible Gas Leak Detector



Declaration of Conformity

This is to certify that this equipment, designed and manufactured by INFICON Inc., 2 Technology Place, East Syracuse, NY 13057 USA meets the essential safety requirements of the European Union and is placed on the market accordingly. It has been constructed in accordance with good engineering practice in safety matters in force in the Community and does not endanger the safety of persons, domestic animals or property when properly installed and maintained and used in applications for which it was made.

Equipment Description	GAS-Mate® Combustible Gas Leak Detector
Applicable Directives	89/336/EEC as amended by 93/68 EEC 94/9/EC
Applicable Standards	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN60079-0
CE Implementation Date	January 2000
Authorized Representative	Brian W. King Business Line Manager, Service Tools INFICON Inc. Two Technology Place East Syracuse, NY 13057

Any questions relative to this declaration or to the safety of INFICON products should be directed, in writing, to the quality assurance department at the above address.

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Introduction

Thank you for buying the INFICON® GAS-Mate Combustible Gas Leak Detector. The GAS-Mate is an intrinsically safe instrument designed to detect leaks of a variety of combustible gases. It can be used for many leak testing applications including, but not limited to:

- ♦ Combustion appliances
- ♦ Gas-fired furnaces
- ♦ Gas stoves
- ♦ Hydrocarbon-based refrigerants
- ♦ Gas pipelines, valves and meters
- ♦ Heat exchanger testing with combustible gases

The GAS-Mate is sensitive to a variety of hydrocarbons and other gases including, but not limited to:

- ♦ Natural Gas
- ♦ Cyclopentane
- ♦ Isobutane
- ♦ Methane
- ♦ Propane
- ♦ Ethane
- ♦ Butane
- ♦ Ammonia
- ♦ Ethanol

NOTE: The GAS-Mate does NOT detect carbon monoxide (CO).

To get the best performance from your GAS-Mate combustible gas leak detector, please read this manual carefully before you start using the instrument. If you have any questions or need additional assistance, please call 1-800-344-3304. We'll be happy to help you!

GAS-Mate's High Performance Features

- ♦ Highly advanced thick film, long-life sensor.
- ♦ Small sensor and probe tip allow leak checking in tight spaces.
- ♦ Automatic adjustment (zeroing) to combustible gases in leak test area for greater stability.
- ♦ Innovative sensitivity touch pad for faster pinpointing of leaks.
- ♦ Rugged flexible probe.
- ♦ Variable audible signal as well as multiple LEDs to indicate leaks.

Specifications

Sensitivity	5 PPM Methane (main component of natural gas)
Power Supply	Two "D" cell alkaline batteries
Battery Life	Approximately 40 hours
Weight (with power cells)	1.5 lb (0.7 kg)

Product Warnings



WARNING

To prevent ignition of a hazardous atmosphere, batteries must only be changed in an area known to be nonhazardous (i.e., completely free of combustible gas).



WARNING

Use only Duracell® MN1300 batteries to maintain intrinsically safe approval.



WARNING

Always check instrument operation with a known combustible leak source before use.



WARNING

The GAS-Mate will detect leaks as described below but may not indicate when a hazardous atmosphere is present due to its Auto Zeroing function. Lack of a reading by the GAS-Mate should not be taken as an indication that the atmosphere is totally safe.



WARNING

There are no user serviceable parts inside. Do not disassemble the GAS-Mate.

Getting Started

1. The combustible gas sensor is already installed in the GAS-Mate's probe. No installation of the sensor is necessary.
2. You will need to install the alkaline batteries which are included with your GAS-Mate. Remove the battery cover by releasing the latch and sliding the cover down and off the handle. You may need to use a small flat-blade screwdriver to assist with releasing the latch. Install the two "D" sized Duracell® MN1300 alkaline batteries as shown in Figure 1, with the positive terminals pointing toward the end of the handle. Reinstall the battery cover by aligning it in the grooves on the handle and sliding it up the handle until it latches.

Figure 1. Properly installed alkaline batteries



DURACELL® is a registered trademark of Duracell, Inc., Bethel, Connecticut.

Using the GAS-Mate

1. Be sure to power the GAS-Mate on in an area known to be free of any combustible gases, such as outdoors, for ideal leak checking. Depress the Power button to turn the unit on. Wait for the GAS-Mate to warm up. The high pitched audible tone will change to a steady beeping and the LEDs will illuminate briefly. The warm up time is approximately 30 seconds, but will vary depending on the length of time since the unit was last used. In clean air, the audio alarm will beep at a slow, steady rate.

The unit will automatically power up in maximum sensitivity. This is the setting in which most leak-checking should be performed, including searching for very small leaks. The GAS-Mate has adjustable sensitivity. You can reduce sensitivity by dragging your finger downwards on the sensitivity touch pad. This can be helpful for pinpointing the location of larger leaks. The automatic background zeroing function keeps the instrument stable, eliminating the need to frequently adjust sensitivity.

2. Carry the GAS-Mate into the area of the suspected leak. An alarm at this time indicates a build-up of combustible gas in the general area. When the GAS-Mate detects combustible gas, the rate of beeping of the audio alarm increases in proportion to the size of the leak detected. The rate of flashing of the LEDs also increases with an increase in the gas concentration detected.

The automatic background zero function (which is constantly working) will zero out the background gas and the alarm will slowly return to a slow beeping. When the unit has stabilized again, proceed towards the suspected leak site. The GAS-Mate will continue to indicate changes in gas concentration by alarming as the concentration increases.

3. Move the probe tip slowly (approximately 2-5 centimeters per second) around suspected leak sites. Try to position the probe tip as close as possible to the suspected leak site for optimum performance. An increase in the rate of beeping and flashing LEDs indicates a leak.
4. To confirm a leak, pull the probe away from the suspected leak site and allow the instrument to return to a steady state. Repeat step 3.
5. After exposure to very high concentrations of some gases, the sensor may require several minutes to stabilize and return to normal operation.
6. The Battery LED will flash when the batteries need to be replaced. The GAS-Mate will continue to operate for approximately one hour after the Battery LED begins to flash.
7. Store your GAS-Mate in a clean place, protected from shock, impact, or other possible damage. We suggest storing it in the hard plastic carrying case that comes with the unit.

How to Change the Alkaline Batteries



WARNING

To prevent ignition of a hazardous atmosphere, batteries must only be changed in an area known to be non-hazardous (i.e., free of combustible gas).



CAUTION

Use only Duracell® MN1300 "D" size batteries to maintain intrinsically safe approval.

1. Remove the battery cover by releasing the latch and sliding the cover down and off the handle. You may need to use a small flat-blade screwdriver to assist with releasing the latch.
2. Remove the used batteries. Insert the two new "D" sized batteries in the battery compartment with the positive ends facing toward the end of the handle.
3. Reinstall the battery cover by aligning it in the grooves on the handle and sliding it up the handle until it latches.

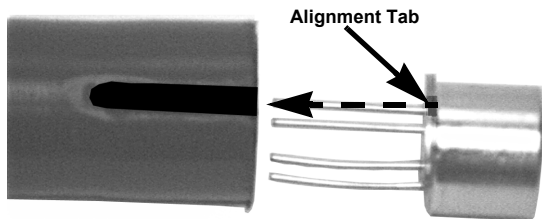
Disposing of the Alkaline Batteries

At the end of the life of your alkaline batteries, please dispose of them according to applicable state and local regulations. In the absence of such regulations, INFICON encourages its customers to recycle and/or dispose of the cells through voluntary waste recycling programs.

How to Change the Sensor

1. The sensor comes installed in the tip of the GAS-Mate probe. You only need to insert/remove the sensor when it is time to replace it.
2. Insert a paper clip or a small screwdriver under the sensor through the slot in the probe tip and carefully slide the sensor out of the end of the probe tip as seen in Figure 2.
3. Remove the new sensor from its packaging and install it by aligning the tab on the metal sensor can with the slot in the probe tip and gently sliding the sensor into the tip. Be certain that the four wire leads on the sensor fit into the four holes at the base of the probe sensor socket, and that they are not bent during the installation process.
4. When properly installed, the top of the sensor should be approximately flush with the tip of the probe.

Figure 2. Replacing the sensor



Troubleshooting



WARNING

Substitution of components may impair intrinsic safety.

Except for the batteries and the sensor, the internal parts of the GAS-Mate Combustible Gas Leak Detector are not user serviceable. If you experience a problem with your GAS-Mate, follow the steps in the trouble shooting guide below to determine how to remedy your problem. If you cannot remedy the problem, take your GAS-Mate to your wholesaler for warranty evaluation or call our technical assistance line at 1-800-344-3304.

Problem	Possible Cause	Remedy
GAS-Mate will not power up.	Batteries are worn out.	Replace batteries.
	Batteries are improperly installed.	Refer to Figure 1 for proper installation.
Poor sensitivity. Unit powers up, but has a difficult time detecting combustible gas.	Unit set to low sensitivity.	Increase sensitivity by dragging finger upwards on touch pad.
	Sensor is worn out and needs to be replaced.	Replace sensor.
Alarm sounds continuously, even after a couple minutes of warm-up.	The sensor is not installed properly or is missing.	The sensor leads must be straight and inserted in the holes at the base of the sensor socket. Or, the orientation tab is not properly aligned in the probe tip. Refer to Figure 2.
	Sensor is worn out and needs to be replaced.	Replace sensor.

Replacement Parts and Accessories

Replacement parts and accessories for your INFICON GAS-Mate combustible gas leak detector are available through the same dealer from whom you bought the instrument.

Plastic storage case 718-701-G1

Replacement sensor 706-700-G1

Warranty and Liability

INFICON warrants your GAS-Mate Combustible Gas Leak Detector to be free from defects of materials or workmanship for three (3) years from the date of purchase. INFICON does not warrant items that deteriorate under normal use, including power cells (batteries) and sensors. In addition, INFICON does not warrant any instrument that has been subjected to misuse, negligence, or accident, or has been repaired or altered by anyone other than INFICON.

INFICON's liability is limited to instruments returned to INFICON, transportation prepaid, not later than thirty (30) days after the warranty period expires, and which INFICON judges to have malfunctioned because of defective materials or workmanship. INFICON's liability is limited to, at its option, repairing or replacing the defective instrument or part.

This warranty is in lieu of all other warranties, expressed or implied, whether of Merchantability or of Fitness for a particular purpose or otherwise. All such other warranties are expressly disclaimed.

INFICON shall have no liability in excess of the price paid to INFICON for the instrument plus return transportation charges prepaid. INFICON shall have no liability for any incidental or consequential damages. All such liabilities are excluded.

Return Authorization Procedure

Defective GAS-Mates, or defective replacement parts and accessories, should be returned to your wholesaler for warranty evaluation. If you have any questions, please contact INFICON at 800-344-3304.

Please do not return your unit directly to the factory without first contacting your wholesaler.



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