

Combustible Gas Leak Detector User Manual



Please read this manual before switching the unit on.
Important safety information inside.

Contents	Page
1-Safety Symbols.....	4
2-General Safety Rules.....	4
2-1.Work Area Safety.....	5
2-2.Electrical Safety.....	5
2-3.Personal Safety.....	5
2-4.Equipment Use and Care.....	5
2-5.Service.....	6
3-Specific Safety Information.....	6
3-1.Combustible Gas Detector Safety.....	6
4-Description, Specifications And Standard Equipment.....	7
4-1.Description.....	7
4-2.Specifications.....	7
4-3.Measurable Gases.....	8
4-4.Features.....	8
4-5.Controls & Display.....	9
4-6.Standard Equipment.....	10
5-Changing/Installing Batteries.....	10
6-Pre-Operation Inspection.....	10
7-Set-Up and Operation.....	11
7-1.Operation.....	11
7-2.Hold Measurement.....	13
7-3.Auto Zero.....	13
7-4.Auto Power Off	13
8-Maintenance.....	13
8-1.Cleaning.....	13
8-2.Sensor Calibration/Replacement.....	13
8-3.Storage.....	13
8-4.Disposal.....	14
8-5.Troubleshooting.....	14

1-Safety Symbols

In this operator's manual and on the product, safety symbols and signal words are used to communicate important safety information. This section is provided to improve understanding of these signal words and symbols.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

 **DANGER**

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

 **NOTICE**

Indicates information that relates to the protection of property.

This symbol means read the operator's manual carefully before using the equipment. The operator's manual contains important information on the safe and proper operation of the equipment.

2-General Safety Rules

 **Warning**

Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

2-1. Work Area Safety

- Keep your work area clean and well lit. Cluttered or dark areas invite accidents.
- Do not operate equipment in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Equipment can create sparks which may ignite the dust or fumes.
- Keep children and by-standers away while operating equipment. Distractions can cause you to lose control.

2-2. Electrical Safety

- Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electrical shock if your body is earthed or grounded.
- Do not expose equipment to rain or wet conditions. Water entering equipment will increase the risk of electrical shock.

2-3. Personal Safety

- Stay alert, watch what you are doing and use common sense when operating equipment. Do not use equipment while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating equipment may result in serious personal injury.
- Use personal protective equipment. Always wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.

2-4. Equipment Use and Care

- Do not force equipment. Use the correct equipment for you application. The correct equipment will do the job better and safer at the rate for which it is designed.
- Do not use equipment if the switch does not turn it ON and OFF. Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the batteries from the equipment before making any adjustments, changing accessories or storing. Such preventive safety measures reduce the risk of injury.
- Store idle equipment out of the reach of children and do not allow persons unfamiliar with the equipment or these instructions to operate the equipment. Equipment can be dangerous in the hands of untrained users.

- Maintain equipment. Check for misalignment or binding of moving parts, missing parts, breakage of parts and any other condition that may affect the equipment's operation. If damaged, have the equipment repaired before use. Many accidents are caused by poorly maintained equipment
- Use the equipment and accessories in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
- Use only accessories that are recommended by the manufacturer for your equipment. Accessories that may be suitable for one piece of equipment may become hazardous when used with other equipment.
- Keep handles dry and clean; free from oil and grease. Allows for better control of the equipment.

2-5. Service

Have your equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the tool is maintained.

3-Specific Safety Information



Warning

This section contains important safety information that is specific to this tool. Read these precautions carefully before using the micro MICRO Combustible Gas Leak Detector Combustible Gas Detector to reduce the risk of fire, explosion or other serious personal injury.



SAVE THESE INSTRUCTIONS!

Keep this manual with the tool for use by the operator.

3-1. Combustible Gas Detector Safety

- High concentrations of combustible gases can cause explosions, fires, asphyxia and other hazards that could cause serious personal injury or death. Know the characteristics of the gas you are working with and use proper precautions to avoid hazardous conditions.
- Always turn on and calibrate the gas detector in an area known to be free of combustible gases. Calibration in an area containing combustible gas will result in incorrect calibration and lower than actual readings. This could result in combustible gases not being detected.

4-Description, Specifications And Standard Equipment

4-1.Description

The micro MICRO Combustible Gas Leak Detector Combustible Gas Detector is a gas leak locating tool that is used to identify the presence of and isolate the source location of combustible gases such as methane, propane, butane, ammonia, carbon monoxide and many others (please see back of manual for a more complete list). Even low levels of combustible gas can be detected in seconds.

The micro MICRO Combustible Gas Leak Detector detects gas concentrations through the use of an internal sensor. This sensor is heated during operation. As the heated sensor interacts with gases, the unit immediately indicates to the user that combustible gases are present.

The micro MICRO Combustible Gas Leak Detector indicates the presence of combustible gases with visual, audio and vibration feedback mechanisms. It can detect different combustible gas concentration 1-1000 PPM or 0-10000PPM by setting high and low concentration detection. When the tool senses the presence of a combustible gas, it will tell the operator by LCD display, triggering the appropriate audible alert or providing the appropriate vibration alert.

The micro MICRO Combustible Gas Leak Detector comes equipped with an attached flexible 16" probe hose.

4-2.Specifications

Visual Alert	5 Red LEDs: Gas Measuring Levels; Sensitivity Visual Alert
Audible Alert(85db)	Loud Audible Ticking Rate(w/Continuous Modulation Proportional to Gas Level)
Vibration Alert	Standard
Sensitivity	<50ppm(methane)
Response Time	<2Seconds
Range	0-10000ppm(methane)
Sensitivity Level (methane)(HIGH)	5 Levels: 100/400/700/1000/> 1000ppm
Sensitivity Level (methane)(LOW)	5 Levels: 1000/4000/7000/1000/> 10000ppm
Warm Up Calibration	Automatic
Warm Up Time	50 Seconds Max
Operating Buttons	Seven: Power ON/OFF, High/Low Sensitivity, Audio Alerts, Vibration Alerts, Auto Zero, Auto Power Off, Hold
Batteries	Polymer Li-Ion Battery
Low Battery Status	Low and High Sensitivity LEDSolid
Sensor Connection	Plug-In
Expected Sensor Life	5 Years
Probe	Flexible 16"/400mm

4-3.Measurable Gases

Gases Detected	Common Mixtures That Would Include or Emit More Than One Of These Gases
Methane	Natural Gas Paint Thinners Industrial Solvents Dry Cleaning Fluids Gasoline
Hydrogen	
Carbon Monoxide	
Propane	
Ethylene	
Ethane	
Hexane	
Benzene	
Iso-Butane	
Ethanol	
Acetaldehyde	
Formaldehyde	
Toluene	
P-Xylene	
Ammonia	
Hydrogen Sulfide	

Natural Gas typically consists of a high percentage of methane and smaller percentages of propane and other gases.

4-4.Features

1-16" Adjustable Probe

2-Replaceable Sensor

3-TRI Mode Detection

4-5.Controls & Display

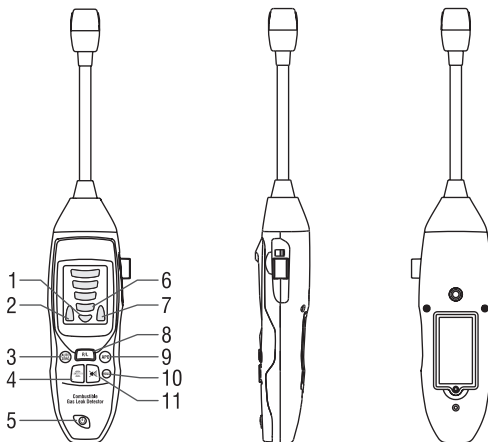


Figure 1-MICRO Combustible Gas Leak Detector
Controls & Display

- 1-Warm Up Indicator
- 2-Low Sensitivity Indicator(White)
- 3-Auto Zero Enable/Disable
- 4-Vibration Alert Enable/Disable
- 5-ON/OFF
- 6-Led Display
- 7-High Sensitivity Indicator(Yellow)
- 8-High/Low Sensitivity Selector
- 9-Auto Power Off Enable/Disable
- 10-Hold Enable/Disable
- 11-Audible Alert Enable/Disable

4-6. Standard Equipment

- MICRO Combustible Gas Leak Detector
- 5V/0.5A Adapter
- Replaceable Gas Sensor
- Operator's Manual

5- Changing/Installing Batteries



Warning

In case of unnecessary danger, it is not allowed to charge or replace batteries in the concentration of combustible gas. Set up and Operate the gas detector according to these procedures to reduce the risk of fire, explosions and serious injury and incorrect measurements.

MICRO Combustible Gas Leak Detector has built-in battery, without needs to replace the battery. If battery is low, use 5V/1A adapter to charge. Please remove the battery in case battery leakage before long-term storage or transportation. In the concentration of combustible gas, it is not allowed to replace the batteries or use the adapter, in order to reduce the risk of explosion, fire or other serious injury. It is not allowed to operate when charging.

6-Pre-Operation Inspection



Warning

Before each use, inspect your micro MICRO Combustible Gas Leak Detector and correct any problems to reduce the risk of injury or incorrect measurements.

- Clean any oil, grease or dirt from equipment. This aids inspection.
- Inspect the micro MICRO Combustible Gas Leak Detector for any broken, worn, missing, misaligned or binding parts, or any other condition which may prevent safe and normal operation.
- Check that the warning labels are present, firmly attached and readable.
- If any issues are found during the inspection, do not use the micro MICRO Combustible Gas Leak Detector until it has been properly serviced.

- Following the Set-Up and Operation instructions, turn ON and calibrate the gas detector. Once calibration is complete use a combustible gas source(such as an unlit lighter), to confirm that the gas detector senses the gas. If the gas detector does not sense the gas, do not use the unit until it has been properly serviced. Remove the gas source and allow several minutes for the sensor to stabilize prior to use.

7-Set-Up and Operation

Warning

High concentrations of combustible gases can cause explosions, fires, asphyxia and other hazards that could cause serious personal injury or death. Know the characteristics of the gas you are working with and use proper precautions to avoid hazardous conditions.

Always turn on and calibrate the gas detector in an area known to be free of combustible gases. Calibration in an area containing combustible gas will result in incorrect calibration and lower than actual readings. This could result in combustible gases not being detected.

Set up and Operate the gas detector according to these procedures to reduce the risk of fire, explosions and serious injury and incorrect measurements.

7-1.Operation

- Check for an appropriate work area as indicated in the General Safety Section.
- Determine the application and confirm that you have the correct equipment. See the Specifications section for information on sensitivity, gases detected and other information.
- Make sure that all equipment has been properly inspected.
- In an area where combustible gases are known to not be present, turn on the gas detector by pressing and releasing the ON/OFF button. For one second the gas detector will vibrate, beep, and the first level red light will come on to indicate that the unit is ON. The gas detector then starts an approximately 50 second sensor heat up and calibration, during which the first level red light is blinking. Once the calibration is complete, for one second, all level lights will flash, and if the audible and vibration alerts are ON, the unit will beep and vibrate. Then either the high(yellow)or low(white)light will be ON. If the high(yellow)and low(white) sensitivity lights are ON at the same time, this indicates that the batteries need to be charged. If all display lights are ON, this indicates that the sensor has failed and that the unit needs to be serviced.

If the gas detector is left ON for more than ten minutes with no activity and Auto Power Off is enable, it will automatically shut OFF to conserve the batteries.

- The Audible Alert and Vibration Alert retain the previous state the detector was last in and can be turned ON or OFF if desired. Press and release the Audible Alert button to turn it ON and OFF. The gas detector will beep once when the Audible Alert is turned ON and OFF. Press and release the Vibration Alert button to turn it ON and OFF. The gas detector will vibrate twice when turning the Vibration Alert ON and vibrate once when turning the Vibration Alert OFF.
- Enter the area to be monitored. Pay close attention to the gas level indicators (see Table 1). As gas levels increase, more red level lights will come on and the frequency of the Audible Alert beeping and the Vibration Alert vibration will increase. See Table 1 for information on methane concentration levels and gas detector feedback.
- When the gas detector is turned ON it is in whatever sensitivity state it was last in. In the low sensitivity setting, the lowest concentration of methane detected is 100ppm. Switch the sensitivity to the high setting by pressing the high sensitivity button(H). This will be indicated by the yellow light in the bottom right of the display. In the high sensitivity setting, the gas detector is ten times more sensitive, with the lowest concentration of methane detected at 40 ppm. Sensitivity can be changed at any time by pressing the High Sensitivity(H) or Low Sensitivity (L) buttons.

If locating a leak, use the gas detector to find areas of lower gas concentration and follow back to the source. In a piping system, trace the system, stopping at the joints to monitor the gas levels.

- When gas detection is complete, turn the gas detector OFF by pressing the ON/OFF button.

Table 1-Gas Detector Feedback For Methane Concentration Levels

Low Sensitivity White Light ON	High Sensitivity Yellow Light ON	Level Lights					Audible Alert Beeping
		L1	L2	L3	L4	L5	
=0ppm	=0ppm	OFF	OFF	OFF	OFF	OFF	OFF
1...100ppm	1...1000ppm	ON	OFF	OFF	OFF	OFF	1cyc/sec
100...400ppm	1000...4000ppm	ON	ON	OFF	OFF	OFF	1.2cyc/sec
400...700ppm	4000...7000ppm	ON	ON	ON	OFF	OFF	1.65cyc/sec
700...1000ppm	7000...10000ppm	ON	ON	ON	ON	OFF	3.25cyc/sec
≥ 1000ppm	≥ 10000ppm	ON	ON	ON	ON	ON	6.25cyc/sec

Gas Concentration levels may differ depending on the specific gas detected.

7-2.Hold Measurement

Press and release the Hold button to enable or disable. When Hold is enable, measurement is stopped and white light and yellow light stop blinking and ON. When Hold is disable, measurement is running and white light and yellow light is blinking.

7-3.Auto Zero

Press and release the Auto Zero button to enable or disable. When Auto Zero is enable, blue light under the Auto Zero button is ON. Enable Auto Zero can quickly adjust the zero point of sensor, improve the sensitivity and reduce the interference of unknown gases.

7-4.Auto Power Off

Press and release the Auto Power Off button to enable or disable. When Auto Zero is enable, blue light under the Auto Zero button is ON. If the gas detector is left ON for more than ten minutes with no activity and Auto Power Off is enable, it will automatically shut OFF to conserve the batteries.

8-Maintenance

8-1.Cleaning

Do not immerse the gas detecto in water. Wipe off dirt with a damp soft cloth. Do not use aggressive cleaning agents or solutions. Treat the instrument as you would a telescope or camera.

8-2.Sensor Calibration/Replacement

The gas detecto requires no calibration other than that done at regular start up. If the sensor should fail, the sensor can be replaced.

8-3.Storage

The gas detecto Combustible Gas Detector must be stored in a dry secure area between -10°C(14°F) and 60°C(158°F). Store the tool in a locked area out of the reach of children and people unfamiliar with the gas detecto. Remove the batteries before any long period of storage or shipping to avoid battery leakage.

8-4. Disposal

Parts of the gas detecto Combustible Gas Detector contain valuable materials and can be recycled. There are companies that specialize in recycling that may be found locally. Dispose of the components in compliance with all applicable regulations. Contact your local waste management authority for more information.

8-5. Troubleshooting

PROBLEM	POSSIBLE REASON	SOLUTION
High(Yellow)and Low(White) sensitivity lights are ON at the same time.	The battery is discharged (unable to heat the sensor).	The batteries are low and need to be changed.
All display lights are ON at the same time.	The sensor(or the sensor heater) is defective.	Shut OFF unit. Sensor or entire unit should be replaced.



Rev.170104