seitron
Innovation Technology

USE AND MAINTENANCE

BE COOL R1

Refrigerant gas leak detector

INDICE

1.0 IMPORTANT INFORMATION

1.1 About this manual

◊ This manual describes the operation, features, and maintenance of the leak detector.

◊ Read this manual before using the instrument. The operator must be familiar with the manual and follow its directions carefully.

◊ This operation and maintenance manual is subject to change as a result of technical improvements-the manufacturer assumes no responsibility for any content or printing errors.

Respect your environment, think before you print the full manual.

1.2 Safety Warnings.

WARNING!
Read the information carefully and set up appropriate measures to ensure safety so as to avoid any danger to people and property.
Failure to follow these directions may cause danger to people, systems, or the environment and may result in loss of liability.

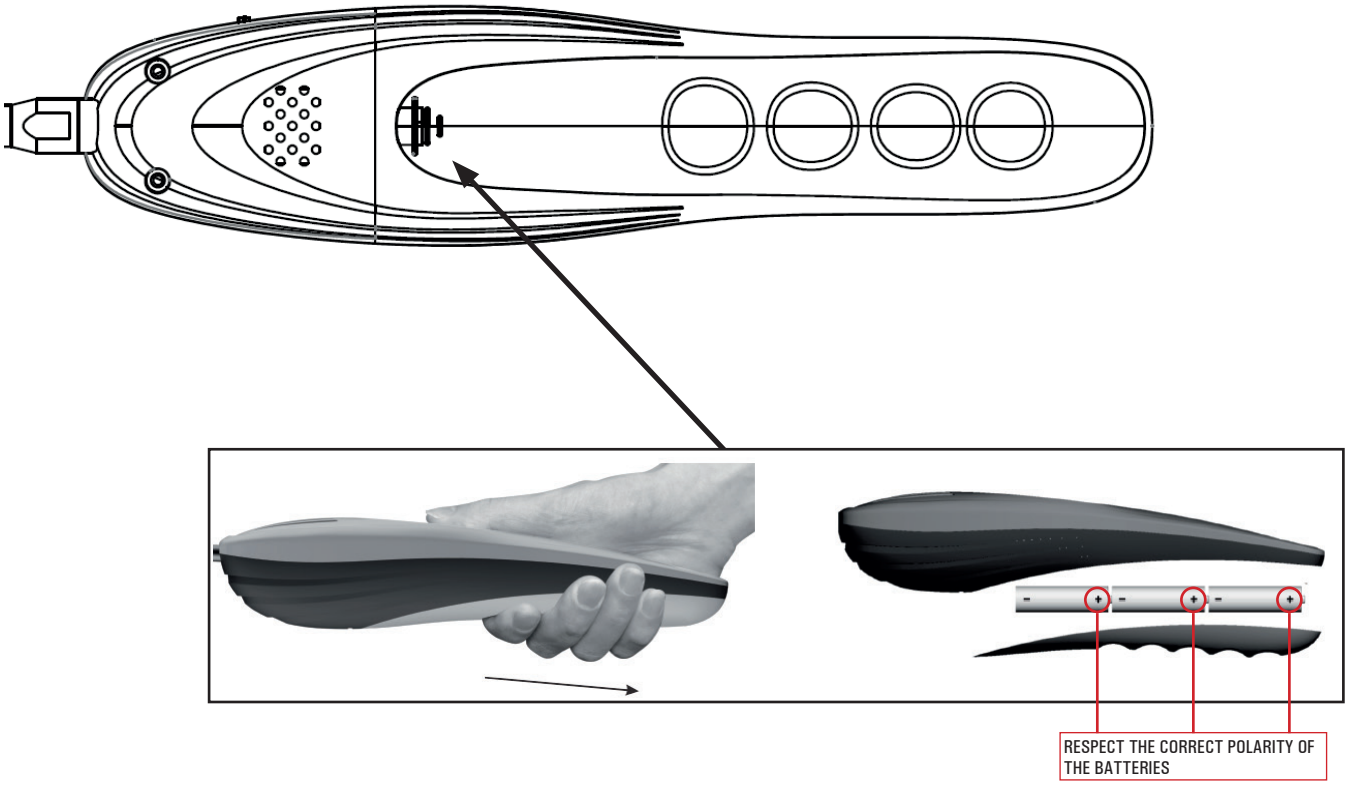
WARNING! Correct disposal
Provide proper disposal of batteries at the end of their life only through the appropriate containers.
This device should not be disposed of as municipal waste. Follow the requirements of current national legislation.

2.0 GENERAL FEATURES

- **The instrument detects gas concentration using a sensor sensitive to refrigerant gases in concentration ≥3gr/yr:**
- **Sensor type: Heated diode referigerant gas sensor.**
- **Reaction time: ≤3 sec.**
- **Warm up time: 30 sec.**
- **Autozero time: ≤10 sec.**
- **Working temperature range: 0 .. 50°C.**
- **Working humidity range: <80% RH (non-condensing).**
- **Detected refrigerants: CFCs, HCFCs, HFCs, HCs and HFOs.**
  Note: Applicable to all halogen refrigerants, including but not limited to: CFCs for example R12, R11, R500. R503; HCFCs for example R22, R123, R124, R502;
  HCFCs for example R134a, R404a, R410a, R407C, R32; HCs for example R600a, R290; HFOs for example R1234YF.
- **Sensor life: ≥1 year.**
- **Autozero: automatic/manual.**
- **Probe length: 420mm (16.5 in).**
- **Battery life: 7 hours.**
- **The instrument is accompanied by the calibration certificate.**
- **Maintenance: Seitron advices to perform an yearly calibration to be performed at a Seitron assistance center.**

2.0 BATTERY INSERTION/REPLACEMENT

Powered by 3 x 1.5V⎓ size AA batteries.
Open the battery compartment on the back of the instrument and insert the supplied batteries correctly (observing correct polarity).



WARNING!
Remove the protective tab inserted between the battery pole and the instrument contact before use.

3.0 MECHANICAL DESCRIPTION

1	Display	
2	Flexible hose	
3	Sensor	
4	Keypad	
	ON/OFF	Power On / Off button.
	RESET	Turn On / Off automatic autozero.
	MUTE	Turns on/off the instrument acoustic signaling.
	SENS	'SENS' button if pressed repeatedly cycles between the three instrument sensitivities (High, Medium, Low).

4.0 OPERATION

- Press the "ON/OFF" button; this will turn the instrument on and begin the warm-up phase, showing the following screen:

- During the warm-up phase, the center LED of the screen flashes for 30 sec.

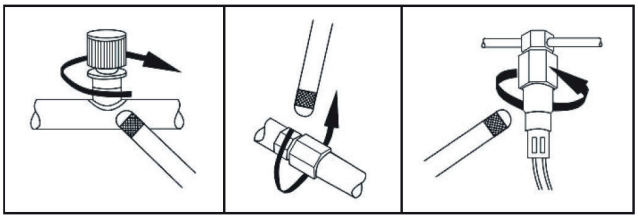
- After the warm-up phase is over, the "0" symbol flashes on the screen, indicating that the instrument is ready for use; the buzzer icon is lit, and the instrument makes a sound every second. You can press the "**MUTE**" button to mute the buzzer. If the buzzer is already muted, press the "**MUTE**" button again to reactivate the buzzer.
- By default, the instrument as soon as it is turned on will perform a sensor autozero, and the autozero icon (**A**) will be lit red. However, the autozero function can be disabled by holding down the autozero button "RESET" for at least three seconds; then the instrument will be in the manual autozero mode. The autozero in manual mode can be done by briefly pressing the "RESET" button; pressing this button for three seconds will re-enable the autozero mode. When the instrument is restarted, the autozero mode (**A**) will be restored.
- After the warm-up phase, the sensitivity icon (**S**) will be red, indicating that the device is at its maximum sensitivity.
- Place the nose of the probe where a leak is most likely to have occurred. If the instrument detects a leak, it will report a leak level on the display that is proportional to the amount of gas detected and will emit a sound; the greater the leak, the sharper the sound emitted by the instrument. It is recommended to move the instrument out of the area of the leak for at least 10 seconds before making a new detection pass.
- When the work is finished, press the "OFF/ON" button 3 seconds to turn off the instrument.

Note: Remove the insulation sheet from the battery compartment before first use.

CAUTION: Pressing the "SENS" button cycles between three levels of instrument sensitivity (green=minimum, yellow=medium, red=maximum).

4.1 Gas detection method

The figure below exemplifies the method of leak detection:



- Bend the flexible end of the instrument into the shape that best suits the case at hand; slowly move the probe closer to the leakage point.
- If the instrument detects a leak it will signal this by showing a number from 1 to 7 on the display, where 1 is the minimum concentration level and 7 is the maximum. At the same time, the instrument will emit a sound to signal the presence of gas, the higher the frequency the higher the gas concentration.
- Stand back and approach the area of suspected gas leak to confirm that there is indeed a leak at that location.
- When the source of the leak has been found, it is necessary to report it and check the entire system until all leaks have been found and properly reported.

4.2 Automatic and manual autozero setting

So as to avoid the interference on detection caused by refrigerant in the environment, the detector allows the sensor to automatically self-zero.

Automatic autozero (Default): When the **A** Icon is turned on, the instrument will automatically autozero the room gas concentration and, only when it detects a higher concentration, it will activate the buzzer. This option is on by default; to diasttivate it and bring the instrument into manual autozero mode, press the "RESET" button for 3 seconds.

Reset (Autozero) manual: In case the manual mode is on, sensor zeroing can be done by briefly pressing the autozero "RESET" button. When the screen shows '8', it means that the zeroing has taken place correctly. At this point, a gas concentration higher than the ambient concentration can be detected. To return the instrument to autozero mode, press the "RESET" key for 3 seconds.

Note: If the gas concentration in the environment is very low, the Autozrero function will make the instrument more sensitive, and vice versa, if there is a high gas concentration in the environment, the instrument will be less sensitive.

4.3 Display of instrument sensitivity level

The display constantly shows the sensitivity level of the sensor; this can be set by pressing the 'SENS' button and cycling through the three available levels: High, Medium, Low:

SENSITIVITY LEVEL INDICATOR	SENSITIVITY LEVEL
Red	High
Orange	Medium
Green	Low

4.4 Leak alarm / acoustic alarm silencing

The detector is equipped with visual and audible signals. If a leak is detected, the instrument displays a number on a scale of 1 to 7 indicating the extent of the leak. The higher the amount of gas escaping from the leak, the closer the number on the screen will be to 7 and the sharper the audible signal will be. The user can decide whether to keep both signals (visual and audible) active or mute the audible alarm, keeping only the display indication. After the warm-up phase, the instrument operates normally and automatically activates the audible alarm; at this point it will be possible to press the "**MUTE**" button to activate/deactivate the audible alarm.

4.5 Error code summary table

1 - In case an error occurs in the warm-up phase of the probe, only a service center can repair this fault.
2 - After solving the problem of the missing or failed probe, the instrument needs to redo the warm-up phase.
3 - When multiple faults occur simultaneously, the order of priority is: 1^E -> 2^E -> 3^E.

ERROR CODE	MEANING
1^E	Missing power supply.
2^E	Sensor not present or faulty.
3^E	Fan off.

4.6 Automatic shutdown function

The instrument turns off automatically if no button is pressed for at least 30 consecutive minutes. The auto power-off timer is reset every time the user presses a button on the instrument.

4.7 Battery charge level display

The display constantly shows the state of charge of the batteries via the battery icon, which can take on three colored states described below.

States of battery charge:

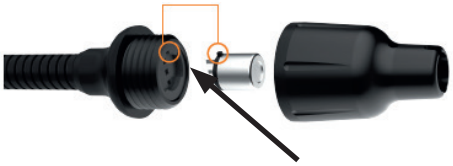
SYMBOL COLOR	BATTERY STATUS
Green	Charged
Orange	Residual charge below 50%
Red flashing	Low battery

5.0 MAINTENANCE

Regular and systematic maintenance can extend the life of the instrument and improve its performance.

Sensor life: can be used normally for up to 1 year. If the sensor is constantly used in environments with high refrigerant gas concentration, the life of the sensor will be shortened quickly. When the life of the sensor is over, the sensor must be replaced.

Sensor replacement: as shown in the figure below, unscrew the probe cap and replace the sensor.



Warning!
the sensor and its housing must have good contact.

Note: Make sure the polarity of the sensor is respected.

6.0 PRECAUTIONS

1. While you are using the instrument, the pressure of the refrigeration system should be no more than 50psi, and the search area should be almost draft-free. If there is wind, refrigerant gas escaping from the leak will be quickly dispersed away from the source, thus compromising gas measurement and detection.
2. The Autozero function is on by default, so when the detector turns on and detects refrigerant gas, it will autozero the with the value of refrigerant gas in the room at that time. In case Autozero is disabled, you have to press 'RESET' button briefly to zero the gas concentration manually.
3. The most likely sources of gas leaks are in places polluted with oil or dust and pipe joints. These places should be checked as a priority.
4. The sensor should ideally be kept 3 ... 5 mm (1/8 ... 1/4 inch) from the suspected leak while searching, so as to preserve the sensor from environmental pollution that could interfere with the accuracy of the sensor. We recommend moving the probe at a speed to cover 25 ... 50 mm per second (1 or 2 inches/second).
5. It is forbidden to bring the sensor into direct contact with an environment with a concentration higher than 30,000 ppm refrigerant gas.

7.0 TECHNICAL FEATURES

Power supply:	3 x 1,5V⎓ AA (alkaline batteries - supplied) or 3 x 1,5V⎓ AA (rechargeable batteries Ni-Mh) Rechargeable batteries (not provided) recharge with external charger (not provided)
Gases detected:	R12,R11,R500,R503 (CFC) R22,R123,R124,R502 (HCFC) R134a,R404a,R410a,R407a,R32 (HFC) R600a,R290 (HC) R1234YF (HFO)
Sensor type:	Semiconductor
Sensor life:	>1 year
Sensor warm-up time:	30 seconds
Minimum detectable gas measurement:	≥3 gr/year.
Replaceable sensor:	Interchangeable by the user
Response time:	≤3 seconds
Measurement indication:	Horizontal bars levels 0-7
Automatic shutdown function:	User-settable
Autozero:	Automatic / Manual
Display:	In colored segments
Acoustic indicator:	Buzzer
Operating temp:	0°C .. +50°C
Storage temperature:	-20°C .. +70°C
Moisture limits:	20% .. 80% RH non-condensing
Case size:	430x245x70 mm (LxAxP)
Flexible stem length:	420mm

8.0 WARRANTY

In the interest of continuous development of its products, the manufacturer reserves the right to make changes in technical data and performance without prior notice. The consumer is guaranteed against product conformity defects according to the European Directive 2019/771 as well as the Seitron warranty policy document. The full text of the warranty is available from the seller upon request.

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