



CPU-C

Halogen Leak Detector



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Miami - Florida

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Introduction

CPU-C is the most reliable negative corona leak detector at present. We blend all our experience and customer's feedback into this product hoping that we could provide our honorable customers the best price, performance and reliability.

The advanced microprocessor is the heart of the product. Its digital processing capacity enables it to manage the circuitry and probe signal better than the previous ones. In addition, components in the circuit decrease by 40%, which improves its reliability and performance. Its microprocessor monitors the probe and the battery voltage at the speed of 800 times per second, which can catch even the slightest signal changes. This makes the product a reliable tool in almost any environment.

CPU - C has increased some features in usability. It provides the sensitivity adjustment range from level one to level seven. LED will light progressively to indicate the degree of leaking, and it could also indicate the level of sensitivity and the actual voltage of the battery. Touch keyboard can control all the function. The innovative shell design makes operation and maintenance more convenient and makes the indicator in the visual range.



Figure 1

Technical features

- Adopt advanced, low power consumed, eight-bit microprocessor controller
- Provide seven levels of sensitivity setting, adjustment in cycle, audible and visual alarm
- Single color alarm with six levels. LED indicates the leakage degree in a way of progressive lighting.
- It can detect all halogen refrigerants.
- Automatic calibration after booting (It will auto detect the refrigerant level in the current environment as zero).
- Battery voltage indication by three-color display.

Specification parameters

- ◆ **Power supply:** Two AA batteries
- ◆ **Sensor:** Negative corona sensor
- ◆ **Maximum sensitivity:** 3gr/yr for halogen refrigerant
- ◆ **Warm-Up Time:** 6 seconds
- ◆ **Operating temperature:** 0°C ~ 52°C
- ◆ **Operating humidity:** 20%-80%RH, no condensing
- ◆ **Probe life:** more than 50hours in normal detecting state
- ◆ **Size:** 23.5cm×5.6cm×5.5cm
- ◆ **Probe rod length:** 36.5cm

Scope

Leak detector can be applied in the following areas:

- Detect leaks in other systems and filling vessels. It will respond to all halogenated (including Chlorine and Fluorine) refrigerants. This includes, but is not limited to:
 - CFCs e.g.R12, R11, R500, R503 etc...
 - HCFCs e.g.R22,R123,R124,R502 etc...
 - HFCs e.g.R134a, R404a, R125 etc...
- Detect Ethylene Oxide gas leaks in hospital sterilizing equipment.
- Detect SF-6 in high voltage circuit breakers.
- Detect most gases that contain chlorine, Fluorine and Bromine (halogen gases).
- Detect cleaning agents used in dry cleaning applications such as perchloroethylene.
- Detect halon gas in fire extinguishing system.

Interface instruction and operation

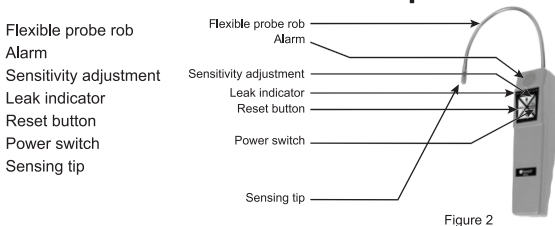


Figure 2

◆ **ON / OFF button:** ON / OFF button is used to turn on or off the detector.

When the power is turned on, the power indicator will light. The detector enters the phase of self testing. All seven LED will be on for one second, then enter the phase of warm-up.

◆ **SENSITIVITY button:** When press the sensitivity button, there will have 1-7 LED lights on (the number of LED represents the level of sensitivity. The default set is 5.

◆ **RESET button:** when you press the reset button RESET, the indicator lights will be on for one second, indicating the success of reset. The product will adjust the probe circuit to ignore the existed refrigerant level, which allows users detect a higher leakage degree in the leakage sources. It can be moved to clean air to reset for the maximum sensitivity adjustment in this case. It will detect all the leakage which is higher than the level of zero.

◆ **Battery voltage indication:** The first LED in the left is battery voltage indicator. Users could check the battery voltage at any time which is indicated by different LED colors

Green - meet requirement for normal work.

Orange - low battery working state.

Red - below the permitted working voltage, replace the batteries as soon as possible.

◆ **Battery replacement and installation:**

WARNING! To reduce the risk of igniting flammable gases in a closed atmosphere, batteries must only be replaced in an open area or closed space without flammable gas. As Figure 3

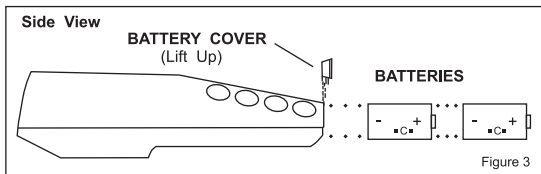


Figure 3

1. Take off the back cover
2. Put in two AA alkaline batteries. Watch out the mark of polarity.
3. Place the battery cover back

◆ **Probe replacement operation:**

Warning: When you replace the probe, you must turn off the power. Or it may cause mild shock!

Probe will lose its efficiency ultimately and need to be replaced. It is difficult to predict the exact replacement times, as the probe life depends on its conditions and frequency of using. When it alarms or it is unstable in the clean and pure air, you should replace the probe.



Replacing probe Note:

1. Confirm that the product is turned off.
2. Unscrew the old probe in the counterclockwise direction.
3. Screw the spare probe in the clockwise direction. Please screw them tightly in order to avoid false alarm due to its looseness.

◆ **Operation of leak detector:**

Long press the power button to turn on leak detector and all the LED will light up for one second, the detector will enter the phase of auto reset. The battery voltage LED lights up after reset (Green, batteries sufficient; orange, batteries weak, replace as soon as possible; red, need to replace the battery before normal detection). Other LED will not light up. At this time the beeping sounds regularly and the detector sets the atmosphere halogen level to "zero", ready for detection. Through this program(about 3 seconds), leak detector starts detecting with the following procedures .

Operation process:

1. Check the battery level by observing the power indicator light.
2. Once turn on the detector, the default sensitivity level is level 5. You will hear rapid, but steady beep sound. The sensitivity can be adjusted by pressing  or .
3. Begin searching for leaks. When refrigerant is detected, a siren will be sounded, with a rate quite different from previous beep sound. And the indicator lights will progressively light up.
4. If alarm occurs before the sensing tip touches with the leakage source, press **RESET** key to reset the current to 0 until there is no alarm, then you could detect again.

◆ **Operation Note:**

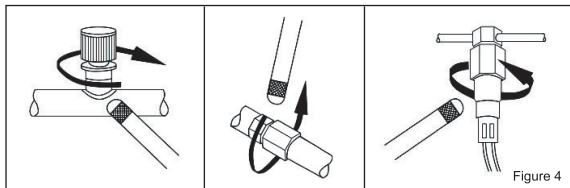
The following section includes several common attention and the recommended methods of leak detecting.

1. Only if the leak can not be detected, you need to increase sensitivity. Only when the reset operation can not make the product reset, you need decrease the sensitivity.

2. In the heavily polluted region, You should reset the product to eliminate the affect of environment. Do not move the probe when you reset detector. This product can be reset for any times as needed.
3. In the windy region, even the great leakage will not be easy to detect. In this case, you'd better cover the potential leakage area.
4. Note that when the probe is exposed to moisture or solvents, it may alarm. Therefore, you should avoid the detector to contact with them.

Detecting methods

Leak detecting methods as shown in figure 4:



- 1, Inspect the refrigeration system with vision. Check the oil or dust spots, node of valves branch, coil, connector, or a line of pipe area where is likely to be the source leaking place.
- 2, Detect leaking source at the junction at a speed of 1 cm / s. The distance from between the probe and the line should be 1 ~ 3mm.
- 3, When it alarms, it means that the detector is close to the drain-source. Repeat the checking in the vicinity of the area to confirm whether it will alarm. If the drain-source is confirmed, you can move the detector from non-alarm area to the drain-source slowly in different directions to find the accurate place of leaking source. Move the detector from the leaking region and reset. Repeat the above action to lock the accurate leaking area. Once confirm the leak source, mark the place and continue to check the whole refrigeration system.
- 4, In order to eliminate possible uncertainties made by other contaminants, please clean the region with a dry cloth and blow the leaking area with a clean dry air. And then repeat the operation of step-three to determine the leak source.

5, It is difficult to detect the leaking source in the steam coil than other place, because the degree of accessibility is very limited. Most of the evaporator is made up by the modules and installed in a place near the fan exchanging the hot air. When the fan of the system turns on, the system should keep open for more than 10 seconds. When the fan turns off, you wait 10-15 minutes at the evaporator and then detect the export of condensate, (do not directly contact with anything) or check the air in the evaporation chamber. Most of the halogen gas is lighter than air. It is likely to gather a high point in a confined environment. You may detect the leaking source in the evaporator coil, but it is difficult to find the exact location of leak source. In most cases, you will repeat the evaporator rather than mend it.

Note before checking the drain-source:

- 1, In order to test the drain-source in cooling system, the system itself needs to have a normal operating pressure, at least 50PSI in part. When the ambient temperature is below 15°C, the system pressure will be less than the minimum required pressure. You may not detect the leak source. In This case, you can not find the drain-source does not mean that there is no leaking. So please check the pressure first.
- 2, Drain-source regions are usually with compressor oils and dust. Do not touch pollutant.
- 3, Leak detector detects the relative changing of halogen levels of probe. If you want to lock the leaking source, you need professional technique, manual sensitivity adjustment or reset. And then follow the following recommendations to test.
- 4, You can use the reset button to ignore environmental leakage source in the polluted environment, reset settings. When you detect you can not leave the contaminated environment.
- 5, The disclosure of halogen refrigerant gas may be rapidly diluted or blown away from the leak source when there is wind. Technician should use shield devices to cover the leaking region, or turn off the fan.
- 6, Protect the probe from contacting with moisture or other solvents to avoid false alarm.

Maintenance

Proper maintenance is important and may extend the service life and improve the performance of your detector.

Warning: Turn the power off before replacing the sensor tip. Voltage across the tip may pose an electrical hazard.

Keep the sensor tip clean: Use cotton cloth or dry air to clean the shield on the sensor tip if it gets contaminated. If the sensor tip itself is contaminated, soak the tip in absolute alcohol for a few minutes, and then use compressed air to blow it dry, or dry it with cloth.

Note: Never use strong solvents such as Gasoline, mineral oil, turpentine, these solvents may coat the sensor with a thin film and reduce the sensitivity of the detector and make the detector slow to respond to a leak.

Put the detector and the tip in a dry and clean place; remove the batteries if the detector is not used for a long time.

Trouble shooting

◆ The detector could not turn on

Possible reasons:

A. The energy of batteries is too low to turn on.

Solution: Please replace new batteries.

B. The pole piece of battery connector has been oxidized.

Solution: please scrape the oxidization layer.

◆ The detector could not respond to a confirmed leak

Possible reason: Sensor tip is aged.

Solution: please change a new sensor as soon as possible.

◆ The detector gives false alarm when there is no halogen present

Possible reason: Atmospheric composition has changed.

Solution: please press RESET key to set the background to "zero" level, try to avoid the change of temperature or humidity.



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