Heated Diode Refrigerant Leak Detector

Operation and Maintenance Instructions

Model

LDHD250

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INTRODUCTION

The hilmor Heated Diode Leak Detector offers the greatest sensitivity and fastest response of any portable refrigerant detector available. This is achieved through the use of a highly sensitive semi-conductive sensor combined with a sophisticated microprocessor-controlled circuit. In addition to the superior performance and functional advantages, it offers a uniquely designed ergonomic shape to provide greater ease of use and comfort.

WARNING:
It is important to read the entire instruction manual carefully in order to gain a complete understanding of the tool's features, limitations and specifications before use. hilmor products are designed and manufactured to be used by trained and licensed HVAC/R technicians. Incorrect application could result in accidents, injuries or death. Refer to page 5 for safety warnings.

KEY FEATURES

ADDED CONVENIENCE

- Audible and visual notification for leak detection.

EASY TO READ

- LED screen for easy to read display.

ADDED VERSATILITY

- Works on all halogenated refrigerants.

SMALL SPACE CAPABLE

- Flexible probe allows access to the hard-to-reach areas.

SAFETY

SAFETY PRECAUTIONS

To prevent personal injury, please read the operating manual carefully and operate only as instructed by following the guidelines listed below.

1. Wear safety glasses, gloves and all other recommended safety gear when working with refrigerants. Contact with refrigerants may cause injury. Please see any warnings associated with refrigerants.

2. Avoid the inhalation of refrigerant. High concentrations of refrigerants are harmful to humans and can cause serious injury.

3. Do not allow probe to come in contact with electrically charged objects or high voltage.

4. Before each use, make sure the probe tip is clean. Do not allow any liquids to enter the probe tip; doing so will damage the unit.

LEAK DETECTOR COMPONENTS

1	ON/OFF Button
2	SENS Button
3	RESET Button
4	MUTE Button
5	Panel Display
6	Sensor (Inside Probe Tip)
7	Flexible Probe

FIG. 1

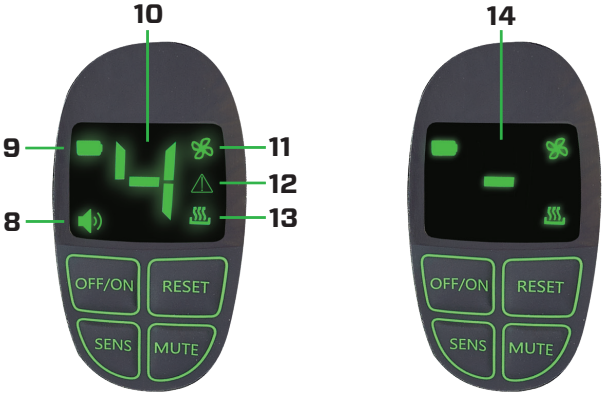

FIG. 2

8	Audio Mute Indicator
9	Battery Voltage Indicator
10	Real Time Detection Indicator
11	Gas Flow Indicator
12	Sensor Error Indicator
13	Sensor Indicator
14	Display During Warm Up

FEATURES

FUNCTIONS AND FEATURES
The product is easy to operate and simplifies the user interface. Please refer to FIG. 1 to familiarize yourself with the indicators and keypad controls as you proceed through this section.

BATTERY VOLTAGE INDICATOR
The Battery Voltage Indicator allows the user to see the battery level. If the indicator is off, the batteries are in full power; If the indicator is on, the batteries have enough voltage for operation; If the indicator is flashing rapidly, replace the batteries.

AUTOMATIC CIRCUIT/RESET FEATURE
Upon initial power-on and completion of the warm-up, the unit automatically sets itself (automatic circuit) to ignore the level of refrigerant present at the tip. Only a reading greater than this level will cause a notification.

NOTE: Since this feature causes the unit to ignore any refrigerant present at the sensor tip after warm-up is complete, the unit should be powered on and allowed to warm up in fresh air, to achieve maximum sensitivity.

Reset feature: Resetting the unit during operation performs a similar function; it programs the circuit to ignore the level of refrigerant present at the tip. Each time the RESET button is pressed, as you move closer to the leak, the unit sets its threshold for detection to a level above the current concentration being detected. By moving closer to a large leak and pressing RESET each time a full detection is indicated, the user can pinpoint the source of the leakage. Similarly, the unit can be moved to fresh air and reset for maximum sensitivity. Resetting the unit with no refrigerant present (fresh air) causes any level above zero to be detected. Each time the RESET button is pressed, the LED displays “8” for about five (5) seconds to provide a visual confirmation of the reset action.

SENSOR STATUS INDICATOR
The device automatically diagnoses and indicate the sensor’s status. When on, the circuit automatically senses the condition of the sensor and can indicate a failed or missing sensor.

If the circuit detects a failed or missing sensor, the display will show ⚠ and the leak detector will stop working. Please see "Cleaning Probe Tip" on page 10.

FEATURES (CONT.)

AUDIBLE / VISUAL ALARMS – MUTE FEATURE

The unit features two notification indications – an internal speaker audible alarm and LED screen data visual alarm. When a leak is detected the LED screen displays the leakage level. When the device is powered ON, the audible indication is deactivated by default. The audible alarm may be enabled by pressing the MUTE button, allowing the audible as well as visual indication. Press the MUTE button again to disable the audible alarm.

BUTTON OPERATION	
ON/OFF	Press and hold for 2 seconds to turn the device “on” and “off”.
RESET	Reset sensitivity benchmark to improve stability and sensitivity.
MUTE	Press to toggle the audible alarm “on” and “off”.
SENS	Press button to cycle through six (6) levels of sensitivity.

SENSITIVITY ADJUSTMENT

The LHHD250 has six (6) levels of sensitivity adjustment. When the SENS button is pressed, the sensitivity is displayed in the Real Time Detector Indicator area on the panel display as a number (1-6) for 3 seconds and then goes back to a flashing real time indication. 1 is the lowest sensitivity and 6 is the highest.

OPERATING INSTRUCTIONS

Keep the device away from moisture and high voltages.

To detect leakage in a system, the system must operate at a minimum of 50 PSI. Environmental temperatures lower than 59°F (15°C) may further reduce a system's operating pressure, causing a leak to become more difficult to detect. In such cases, "No Leak" may be falsely indicated, requiring an alternate diagnostic means.

1. Turn on the unit by pressing and holding for 2 seconds then release ON/OFF button.

2. The unit warms up and calibrates for approximately 30 seconds, during which the middle LED will flash "-", and "gas flow indicator", "and warm-up", indicators will be on. Keep the LDHD250 away from any areas of potential refrigerant leakage until the warm-up and calibration period is over to achieve maximum sensitivity.

3. After warm-up, it displays a blinking "0" and the device is ready for use. Press MUTE button to enable audible indication if desired, and the device will emit a stable beeping.

4. Set the sensitivity level by pressing the SENS button according to user's demand, as described in the Sensitivity Adjustment Section, on page 8.

5. Begin searching for refrigerant. Move the probe tip toward the suspected leak. The flexible probe may be shaped to provide access to hard-to-reach areas. The tip of the probe may need to be within 1/4" (0.64cm) of a small leak to detect it.
   NOTE: If the device has previously been used, make sure that the probe tip is not obstructed with dirt, grease, etc. See "Cleaning Probe Tip" on page 10.

6. If refrigerant is detected, the device will begin to notify – the audible tone will quicken and it displays number of leakage level. As the concentration of the leak increases, the audible tone will increase in cadence and the number on the display will begin to increase. Leaking areas are usually covered with contaminants such as compressor oil or dirt. Be careful not to contact such contaminants with the probe tip.

OPERATING INSTRUCTIONS (CONT.)

7. If notification occurs before the leak source is pinpointed, the RESET button may be used to pinpoint the leak, as described in the Automatic Circuit/Reset Feature section, page 7. The unit may be reset as many times as necessary to pinpoint the leak source. It is suggested to wait for about five (5) seconds to detect the leakage after pressing RESET.

   Likewise, in areas where the atmosphere is contaminated with refrigerant, press reset key to “ignore” the leakage in the background. Make sure not move the sensor tip away from the contaminated background while resetting the detector.

BATTERY INSTALLATION

Hold the device tightly with two hands. Press the battery cover, drag outward and remove it. Install the batteries into to the compartment and close the cover. Note the proper battery orientation (polarity) of the batteries during installation.

CLEANING PROBE TIP

Warning: Turn off device before cleaning the sensor.
Warning: The sensor may be hot after use. Please wait until sensor is the same as the environmental temperature.

Keep the sensor tip clean: Remove probe tip by unscrewing it. Use cotton cloth or dry air to clean the shield on the sensor tip if it gets contaminated. If the probe 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 a clean cloth.

NOTE: Never use strong solvents such as gasoline, mineral oil, or turpentine, as these solvents may coat the sensor with a thin film and reduce the sensitivity of the detector. DO NOT clean sensor!

STORAGE

Store the detector and the sensor in a dry (less than 80% RH) and clean location. Remove the batteries if the detector is not used for more than a month.

TECHNICAL SPECIFICATIONS

Sensor Type:	Semi-Conductive Sensor (Heated Diode)
Sensor Life:	5 years (typical)
Maximum Sensitivity:	4 grams/year
Response Time:	~3 seconds
Warm-Up Time:	~30 seconds
Operating Environment:	32°F (0°C) to 104°F (40°C) at <75%RH (non-condensing)
Display Method:	LED Display
Notification Mode:	LED Display and Audio
Battery:	3 1.5V AA
Battery Saver:	Automatic shutdown after 10 minutes of inactivity
Working Time:	~6 hours
Certifications:	SAE J1627, SAE J2791, SAE J2913, EN14624: 2012
Refrigerants Detected:	It will detect to all halogenated (including Chlorine and Fluorine) refrigerants. This includes, but is not limited to: CFC: R12, R11, R500, R503 HCFC: R22, R123, R124, R502 HFC: R134A, R404A, R410A, R407C
Weight:	14 oz. (397g)
Size:	10.25" X 2.25" X 2.25" (260.35mm X 57.15mm X 57.15mm)

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