ROBINAIR

Operating Instructions

OTC

Model: LD5

Dual Mode Refrigerant
Gas Leak Detector

Introduction

The LD5 features a long life solid electrolyte semiconductor sensor technology that is designed to detect all CFC, HCFC, HFC, and HFO refrigerants including R-1234YF (HFO), R-134A (HFC), R-410A (HFC), R-22 (HCFC), R-407C (HFC), R-507 (HFC), R-12 (CFC), R-404C (HFC). The LD5 is designed to detect all SNAP approved refrigerant blends.

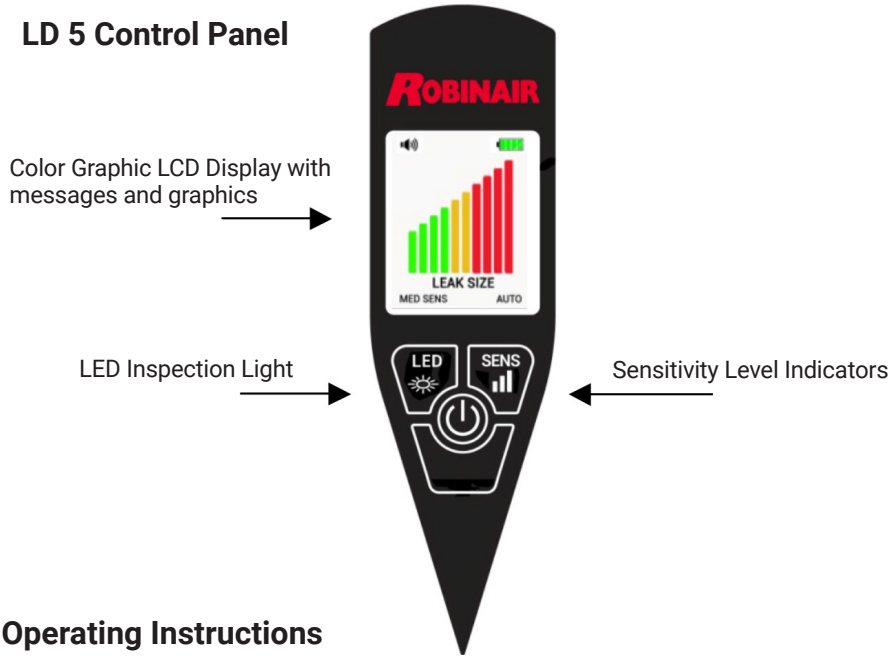
The LD5's unique graphic color LCD display and sweep mode function conveys messages, graphics and prompts giving the A/C technician real-time information to help locate the source of the leak and ensure the leak detector is always at optimal performance. The LED inspection light aids the technician to locate and inspect all A/C suspect fittings and components while searching.

The LD5 does not require rechargeable batteries

Features

Unique color graphic LCD display
Long life, stable sensor
R1234yf sensitivity .015 oz/yr
R134a sensitivity .05 oz/yr
Certified to SAE J2791, J2913, ASHRAE 173-2012, EN14624-2012
Automatic calibration and reset to ambient
User friendly message and error screens
Hi intensity LED inspection light
3 adjustable sensitivity levels
Low battery indicator
True mechanical pump
Uses 4 AA alkaline batteries
CE Certified
Comfortable Santoprene handle grip
2-year warranty includes sensor
Made in USA

LD 5 Control Panel



Operating Instructions

1. **Turn On:** Press the ON/OFF button once to turn on and again to turn off.
   NOTE: For SAE J2913 sensitivity setting hold down ON/OFF button until R1234yf Mode is displayed.

2. **Warm Up:** The detector automatically starts heating the sensor. During the heating cycle, the LCD display will display the message "WARM UP" with a progress bar (see figure). Warm up is usually less than 20 seconds.

3. **Search:** The display will show "SEARCH" and the audio "beep" will begin to sound. Move the probe tip towards a suspected refrigerant leak at the rate of less than 2 inches (~50 mm) per second, no more than 1/4 inch (~5 mm) away from the suspected source.

4. **Detection:** If a leak exists, the sound will increase in rate and frequency, and the display will show the bar graph indication of the leak size.

NOTE: The leak detector responds to changes in refrigerant concentration. When detection occurs, move the probe away from the source and back again to confirm the leak source. The detector alarm will reset if the probe is held fixed at the source (see Automatic Calibration Feature).

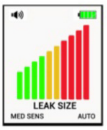
Inspection Light Operation

1. Turn on the white LED light by pressing the LED button once. (See control panel on page 4).
2. Holding the leak detector approximately 10” to 14” away, shine the LED light beam slowly over the components, hoses, and metal lines that make up the A/C system.
3. Inspect all A/C fittings, hoses and components for excessive wear or damage.

Auto Shut-off

The LED Inspection Lights will automatically shut off after 5 minutes. This will ensure proper battery life in case the LED lights are left on inadvertently.

Leak Size Indicator



The LCD bar-graph leak size indicator remains off normally but once a leak is detected, a number of bars will be displayed. The number will continue to increase or decrease depending on the amount of refrigerant sensed. The display will be the same for all HFC and HCFC refrigerants regardless of the sensitivity setting.

The maximum value will be displayed once the leak source has been located. The table below can be used to approximate the size of leak:

Maximum No. Bars Displayed	Leak Size (oz/yr)
1-4 (green color)	< 0.1
5-6 (yellow color)	0.1 to 0.5
7-10 (red color)	> 0.5

Automatic and Manual Calibration

To allow the user to find the leak source easily, the detector will calibrate itself either automatically (default) or manually to the ambient and reset the alarm as soon as there is detection

In Automatic mode the detector will automatically reset the alarm. In Manual mode, the detector will continue to alarm if gas is detected until the user presses the SENS button to reset the alarm. Both modes allow the user to get closer to the leak source without the detector continually alarming. In Automatic mode, once the source of the leak is found, the detector will not alarm again until the probe is moved away from the source and back again. In Manual mode, once the source of the leak is found, the detector will continue to alarm at the source until the SENS button is pressed.

To use the detector in Manual Calibration mode: Press and hold the SENS Selector and release when the AUTO icon is replaced by MAN on the display. To return to Automatic Calibration, press and hold the SENS button and do not release until the AUTO icon is displayed.

Note: the sensitivity levels can only be changed in Automatic Calibration mode. To change sensitivity levels while in Manual mode, return to Automatic mode, select the desired level and return back to Manual mode.

Adjusting Sensitivity Levels

In addition to the automatic calibration, the audio alarm trigger level can be set by the user to 3 different sensitivity levels **(LO, MED, HI)**. If the detector is continuously alerting while pulled away from the suspected area of the leak, the sensitivity level can be adjusted so the detector will only alert when the sensor is close to the source of the leak.

The Leak Detector will default to the **MED** sensitivity level automatically once the unit comes out of the warm up cycle. To change sensitivity levels, press the **SENS** once for **HI** sensitivity and again for **LO** sensitivity.

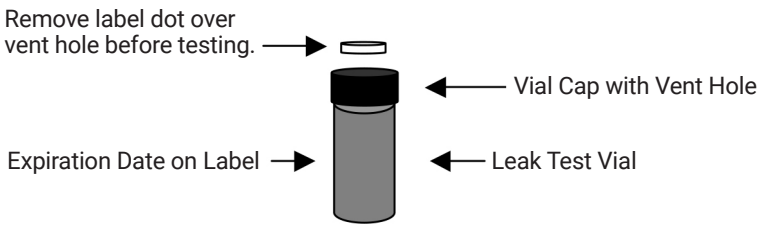
Leak Test Vial

The leak detector comes with a Leak Test Vial that allows the user to verify the detector is performing properly. Check the expiration date on the vial before testing the leak detector.

To test:

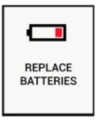
1. Remove the colored label dot on the center of the screw cap to expose the vent hole. (see fig. below)
2. Turn on the detector and allow the unit to complete the warm up cycle. Set sensitivity level to HIGH.
3. Place the sensor close to the hole in the the Leak Test Vial. The beep rate should increase and the Leak Size Indicator should display 3-6 bars indicating that the sensor and electronics are working properly.

NOTE: The leak detector responds to changes in refrigerant concentration. When detection occurs, move the probe away from the source and back again to confirm the leak source. The detector alarm will reset if the probe is held fixed at the source (see Automatic Calibration Feature).



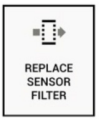
MAINTENANCE

Batteries



Install Batteries: Unscrew the battery cover located at the base of the unit as shown. Insert all four batteries into the battery compartment in the direction noting the polarity mark on the inside of the battery compartment for proper battery orientation as shown. Replace batteries when the display shows the message **REPLACE BATTERIES**.

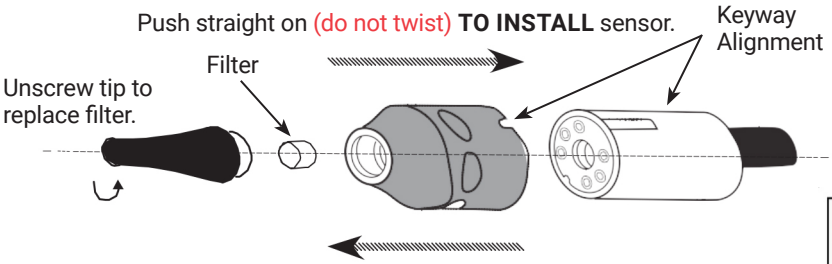
Sensor & Sensor Filter

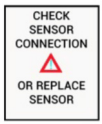


Replace Filter: Unscrew sensor tip as shown to replace filter. Replace filter when it becomes visible dirty or when the display shows "REPLACE SENSOR FILTER." The LD5 will keep track of the number of hours of usage and alert the user when it is time to replace it.

Replace Sensor: Remove sensor by pulling it out of the socket. Install the new sensor by aligning the keyway notch in the sensor cover with the raised keyway on the sensor socket holder (see figure below).

Note: Do not force sensor into socket. Misalignment can damage the sensor pins.

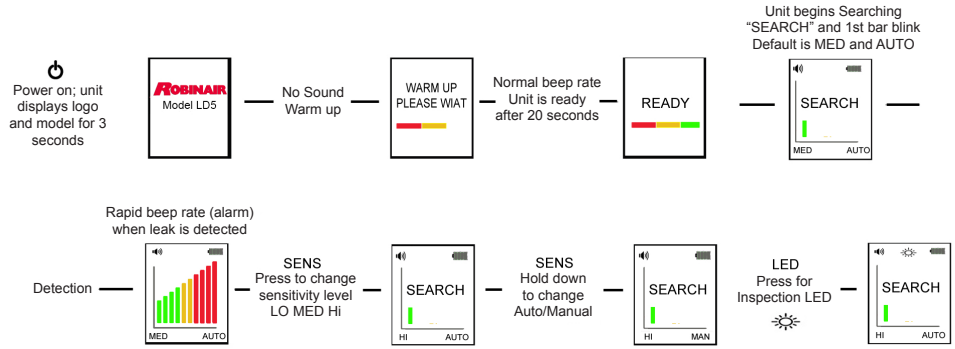




Important: The instrument's software is designed to alert the user if the sensor is dislodged or defective. If the sensor is not fully inserted into the six-pin socket, or if it is defective, the instrument will not come out of the "Warm Up" mode for proper operation when the power button is turned on. In this case, the message screen as shown on the right will be displayed. Additionally, if the instrument becomes unstable during its operation, it is an indication that the sensor may be defective.

Note: If the leak detector has been out of use for an extended period, weeks or months, the following action is recommended. Power on the instrument and allow it to come out of warm up, and then run it with the sensitivity level in the (Hi) high position for several minutes before testing it with the Leak Test Vial. This action will guarantee that the sensor is fully conditioned for maximum response to refrigerant gas.

User Interface Displays

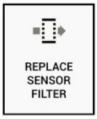


MESSAGE SCREENS

Sensor Clearing Message

Note: Sensor Clearing Message is displayed when sensor becomes saturated with a very large concentration of gas during which time the sensor will not function optimally. Recovery is normally less than 10 seconds.

Replace Sensor Filter Message



Note: Replace Sensor Filter Message is displayed when the detector's timer registers approximately 30 hours of accumulated use. Press the appropriate button when prompted "DONE" or "LATER" on the display. If "DONE" is selected, the detector will reset to zero hours. If "LATER" is selected the detector will continue to prompt the user to replace the filter after each subsequent use until "DONE" is selected.

Product Specifications

Model No.	LD5
Name	Leak Detector, Refrigerant Gas
Sensitivity	.05 oz/yr R134a, .0123 oz/yr R1234yf
Sensor Life	> 10 years
Response Time	Instantaneous
Power Supply	4 AA Alkaline batteries
Battery Life	4 hours continuous
Warm up time	< 20 seconds
LCD Display	128 X 160 full color graphic display
Probe Length	17 inches
Weight, lbs	1.5 lbs
Warranty	2 years (includes sensor)

EN14624/2005 Test Specifications

Minimum/Maximum Senitivity Threshold (fixed)	1 gm/yr minimum, >50 gm/yr maximum
Minimum/Maximum Senitivity Threshold (moving)	3 gm/yr minimum, >50 gm/yr maximum
Minimum Detection Time (1gm/yr)	Approx. 1 second
Clearing Time	Approx. 9 seconds after exposure to >50 gm/yr
Minimum Threshold after Maximum Exposure	1 gm/yr
Sensitivity Threshold in Polluted Atmosphere	1 gm/yr
Calibration Frequency	1/yr check with calibrated leak standard

Cross Sensitivity to Automotive Chemicals

Some automotive solvents and chemicals have similar hydrocarbon properties as R134a and may elicit a positive response. Before leak checking, clean up any chemicals in the list below that elicit a positive response.

Chemical Name/Brand	Response
Rain-X Windshield Wash Fluid	Y
Ford Spot Remover (wet)	Y
Ford Rust Inhibitor	Y
Ford Gasket Adhesive (wet)	Y
Loctite Natural Blue Degreaser (diluted)	Y
Ford Brake Parts Cleaner	Y
Ford Silicone Rubber (uncured)	N
Motorcraft Antifreeze heated to 160 degrees F	N (partial)
Gunk Liquid Wrench	Y
Ford Silicone Lubricant	N
Ford Pumice Lotion (with solvent)	Y
Ford Motorcraft Brake Fluid	Y
Ford Carburetor Cleaner	Y
Dextron Transmission Fluid heated to 160 degrees F	N
Quaker State Motor Oil heated to 160 degrees F	N

Replacement Parts

Item	Part Number
Sensor with Filter	F00E901451
Sensor Filters (5 pack)	F00E901446
Leak Test Vial	F00E901447
Sensor Tip	F00E901452
Parts Kit (includes sensor, test vial & filter kit)	F00E901453
Carrying Case	F00E901450