INSTRUCTION MANUAL

RLD10

Refrigerant Leak Detector

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Introduction

The RLD10 makes pinpointing leaks as easy as one, two! Detect leaking refrigerant using the high sensitivity mode then switch to the low sensitivity mode to pinpoint its source. If background noise makes the audible tic hard to hear, you can count on the color scaled LED indicators.

Features include

- Auto zeros when turned on
- LED panel indicates refrigerant leak concentration
- Two position sensitivity selector
- Audible tick rate
- Long Gooseneck probe
- One-hand operation
- Automatically detects all existing refrigerant and blends

Safety Notes

Before using this instrument, read all safety information carefully. In this manual the word **"WARNING"** is used to indicate conditions or actions that may pose physical hazards to the user. The word **"CAUTION"** is used to indicate conditions or actions that may damage this instrument.

NOTE: *This instrument intended for use by professionals who know the hazards associated with their trade. Accordingly, this manual is oriented toward gas leak detection, not refrigerant system maintenance.*

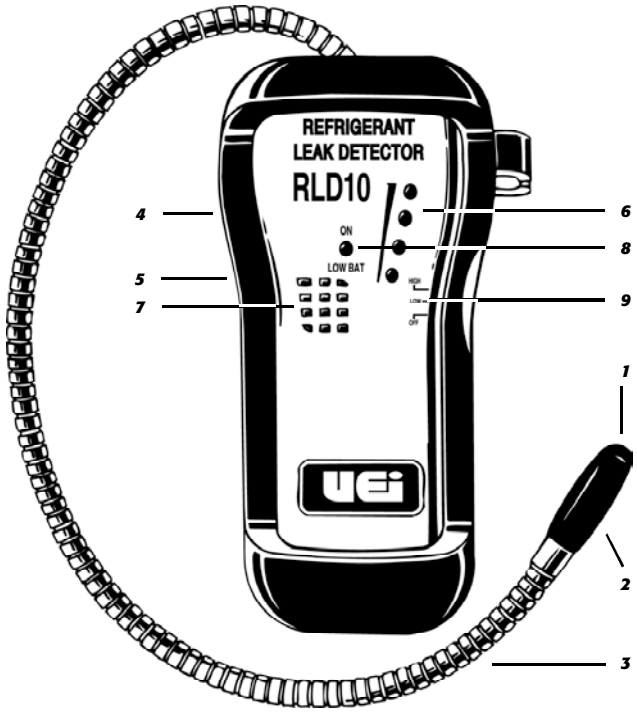
Some of the latest refrigerant systems use combustible gasses in place of halogen based gasses. We recommend that you also obtain a quality combustible gas leak detector, such as UEi's CD100A to determine and detect gas leaks when working with unknown substances.

WARNING!
Turn this instrument off before cleaning or replacing the sensor. Failure to do so may result in a mild electrical shock.

International Symbols

	Dangerous Voltage		Ground
~	AC Alternating Current		Warning or Caution
⎓	DC Direct Current		Double Insulation (Protection Class II)
≂	Either AC or DC		Fuse
	Not Applicable to Identified Model		Battery

Controls and Indicators



1. Sensor tip guard
2. Sensor
3. Gooseneck probe
4. Earphone jack
5. Rubber boot
6. L ED gas concentration indicators
7. Amplified audio gas concentration indicator
8. Power-on-indicator and low battery indicator
9. Power/mode slide switch

Operating Instructions

Functional Description

The RLD10 runs through a brief warm-up and self-calibration when it is initially turned on. Typically, you can observe the following sequence of events when the unit is turned on in fresh air:

1. The power-on indicator light glows steadily green*.
2. A single audible tic is heard.
3. The panel of light emmiting diodes (LED's) turn on and off in sequence; green, yellow, light red, dark red (from bottom to top).
4. The bottom LED (green) flashes for about two seconds.
5. All LED's except the power-on indicator turn off for approximately three seconds.
6. At approximately three second intervals an audible tic sounds and the lowest LED flashes.

*If the power-on indicator is a pinkish-red, the battery is becoming weak and should be replaced immediately. A low battery will adversely affect the instrument's reliability.

Each time the instrument is put into service, you can conduct a quick functional test. Simply allow the instrument to run through its self-calibration sequence in fresh air, then expose the sensor to an uncapped permanent marker (highlighters will not work). The audio and visual indicators respond as they would if they found a small leak. Be careful not to touch the marker to the tip, or you will get a false indication until the ink dries.

Modes of Operation

Your RLD10 can operate in either high sensitivity or low sensitivity mode.

Begin using your RLD10 with the power/mode slide switch in its uppermost position. This is the instrument's most sensitive position. Move the tip along suspect tubing, seals and fittings at a rate of approximately 1/2" to 1" per second. When the sensor in the probe tip detects a refrigerant gas, the tic rate will increase and a corresponding LED indicator will begin to increase and a higher positioned LED flashes.

To pinpoint the leak, change the power/mode slide switch position from the uppermost position to the center position. This will decrease sensitivity, allowing you to get closer to the source of the leak before a maximum concentration is indicated.

If the situation calls for quiet operation, or if background noise makes it difficult to hear the built-in speaker, you can use an earphone. The jack is on the side of the instrument. Note that listening to the earphone is very loud. Your LED indicators will continue to function as normal.

The LED Indicators

There are four LED indicators along the right side of the instrument. These indicate the relative concentration of gas detected, and directly correspond to the tic rate.

When no gas is detected, the LED panel will flash a single green LED corresponding to the occasional tic. As the sensor moves closer to the source of a gas leak, the LED that corresponds to the relative gas concentration will flash each time there is an audible tic. From bottom to top, the LED's are green, yellow, light red, and dark red.

Maintenance

Periodic Service

WARNING!

Repair and service of this instrument is to be performed by qualified personnel only. Improper repair or service could result in physical degradation of the instrument. This could alter the protection from electrical shock and personal injury this instrument provides to the operator. Perform only those maintenance tasks that you are qualified to do.

These guidelines will help you attain long and reliable service from your instrument:

- Calibrate your instrument annually to ensure it meets original performance specifications
- Keep your instrument dry. If it gets wet, wipe dry immediately. Liquids can degrade electronic circuits
- Whenever practical, keep the instrument away from dust and dirt that can cause premature wear
- Although your instrument is built to withstand the rigors of daily use, it can be damaged by severe impacts. Use reasonable caution when using and storing the instrument

Cleaning

Periodically clean your instruments case using a damp cloth. **DO NOT** use abrasive, flammable liquids, cleaning solvents, or strong detergents as they may damage the finish, impair safety, or affect the reliability of the structural components.

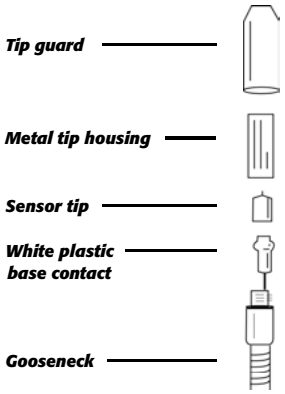
NOTE: *Certain soaps may be detected by the RLD10. Check for sensitivity before using any soap, and remove as much of the residual as possible with a damp cloth.*

Do not allow moisture to directly contact the speaker just inside the face of the instrument, or enter the instrument's housing. Remove the sensor tip gu a rd prior to cleaning it. Rinse and dry this component thoroughly before replacing.

Cleaning and Replacing the Sensor

Although the sensor is designed to offer many years of reliable service, it may become inoperable if it becomes corroded or is otherwise physically damaged.

You can clean the sensor, once it is disassembled, using denatured alcohol on the tip assembly and a bottlebrush on the metal tip housing.



Disassembly of Sensor

1. Turn the instrument's power off. Mild electrical shock may result if you make contact with the sensor while power is on.
2. Remove the tip guard from the metal tip housing by twisting it clockwise while away from the Gooseneck.
3. Remove the metal tip housing from the Gooseneck by holding the Gooseneck steady while turning the tip housing counterclockwise.
   - The base contact assembly may adhere to the tip housing as it comes out. If so, the tip housing will tend to spring-back clockwise with every counterclockwise turn.
   - Continue turning as described until the metal housing can be lifted away from the wand. You may have to hold it in place after each turn.
   - Pull the housing up just far enough to view the insulation on the white plastic base contact.
   - Grip the exposed white insulation with needle-nosed pliers, holding it firm with the Gooseneck.
   - Separate the metal housing away from the Gooseneck.
4. The sensor tip will commonly remain in the metal housing, and must be forced out from the top (toward the Gooseneck end) with a toothpick or similar instrument.

Replace or clean the sensor as desired then reassemble in reverse order. Proper function depends on the unit's electrical contacts. Make sure the tip assembly is making good contact with the base and there is good metal-to-metal contact on the tip housing-to-Gooseneck connection.

Calibration

When properly maintained, your instrument is sensitive to refrigerant leaks as small as .4 ounces per year. To ensure your instrument is performing at its peak, send it to the UEi factory or a qualified instrument calibration facility for annual certification.

Battery Replacement

Always use a fresh replacement battery of the specified size and type. Immediately remove the old or weak battery from the meter and dispose of it in accordance with your local disposal regulations. Batteries can leak chemicals that corrode electronic circuits. If your meter is not going to be used for a month or more, remove and store the battery in a place that will not allow leakage to damage other materials.

Replace battery when:

- The green "**READY**" light begins to glow red
- No lights or other activity occurs upon turning the instrument on
- Tic rate quickly begins to increase when no refrigerant is being detected*

*An increase in tic rate may be experienced if the unit remains on for a long period. This is a normal response to decreasing battery life. Turn the unit off and allow it to recalibrate in fresh air if this occurs.

To install a new battery, follow these procedures:

1. Remove the battery cover.
2. Remove the battery using a coin or screwdriver.
3. Replace the battery, observing indicated polarity.

Troubleshooting

If I See This Malfunction	I Should Check For	Then Take This Corrective Action
Instrument does not turn on	Battery voltage	Replace low battery
	Mode switch position	Place firmly in Low or High position
Instrument does not tic after it is switched on, but the lights work	Earphone jack	Remove earphone plug or debris inserted in receptacle
Appropriate indicators do not light	Battery voltage	Replace low battery
The tic rate does not increase when the sensor is exposed to refrigerant or other detectable gas	Airflow to sensor	Clear restriction
	Sensor connection	Clean and tighten sensor component contacts
	Sensor contamination	Clean or replace sensor
Tic rate increases during use	Reduced battery voltage	Cycle off (5 seconds) and back on (Recalibrates to compensate for decreasing voltage)
	Moisture in sensor cavity	Disassemble and dry sensor
Tic rate remains fast after warm up	Moisture in sensor cavity	Disassemble and dry sensor
	Battery voltage	Replace low battery
The green power-on indicator appears red	Battery voltage	Replace low battery

This unit contains no user serviceable parts beyond those listed in the table. In the event your instrument is physically damaged or does not function properly after taking the listed action, please return the instrument to UEi following the warranty and service instructions.

Specifications

Operating Conditions

To ensure accurate readings from your RLD10, use it only when ambient air is within this range:

Temperature:	32 to 120˚F
Humidity:	0 to 80% RH (non condensing)

Gasses Detected

The RLD10 detects a wide variety of refrigerant. The following list represents a portion of the refrigerant and gasses detected:

R11	R12	R13	R22
R23	R113	R114	R134A
R500	R502	Halons	R404A
SF6	Perchlorethylene	Blends	R410A

Physical Characteristics

Size: Height by Width by Depth (with probe wrapped around boot)	8" x 4" x 1 1/2"
Probe length: fully extended	18 1/2" (47cm)
Weight (battery installed)	14.1 Oz (400g)

Functional Characteristics

Power requirements	One 9 volt alkaline battery
Average battery life (Continuos use)	Approximately 8 hours
Leak detection sensitivity	.4 Oz/year (11 grams/year) R134A using LS20 leak standard
Sensor	Corona discharge
Duty cycle	Continuos
Typical response time	Less than 1 second (allows for 1"/sec seek rate)
Warm up period	10 second average
Sensor output (voltage/current)	A. No -load high voltage: 2500V ±10% B. Current: 24 mA C. Loaded high voltage: 2400V ±50V (loaded with 100.0 M Ohms
Visual level indicators	Four tic-rate scaled LED indicators changing from green to yellow to light red to red (indicating relative, not specific quantities)

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Refrigerant Leak Detector

Limited Warranty

The RLD10 is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase. If within the warranty period your instrument should become inoperative from such defects, the unit will be repaired or replaced at UEi's option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Batteries and consequential damage resulting from failed batteries are not covered by warranty.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. UEi shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss. A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered. Instruments out of warranty will be repaired (when repairable) for a service charge. Return the unit postage paid and insured to:

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This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

PLEASE
RECYCLE