

O P E R A T I N G M A N U A L



Compass™
Refrigerant Leak Detector

Declaration of Conformity

This is to certify that this equipment, designed and manufactured by INFICON Inc. 2 Technology Place, East Syracuse, NY 13057 USA meets the essential safety requirements of the European Union and is placed on the market accordingly. It has been constructed in accordance with good engineering practice in safety matters in force in the Community and does not endanger the safety of persons, domestic animals or property when properly installed and maintained and used in applications for which it was made.

Equipment Description	Compass Refrigerant Leak Detector
Applicable Directives	73/23/EEC as amended by 93/68/EEC 89/336/EEC as amended by 93/68 EEC 2002/95/EC (RoHS)
Applicable Standards	EN 61010-1: 2001, EN 61326: 2000-11, EMC Cl A, Immunity Criteria B
CE Implementation Date.	December, 2006
Authorized Representative	Duane Wright, Manager-Quality Assurance INFICON Inc.

Any questions relative to this declaration or to the safety of INFICON products should be directed, in writing, to the quality assurance department at the above address.



WARNING

This symbol is used to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying this instrument.

INFICON, Compass and "Laboratory Accurate. Toolbox Tough." are trademarks of INFICON.

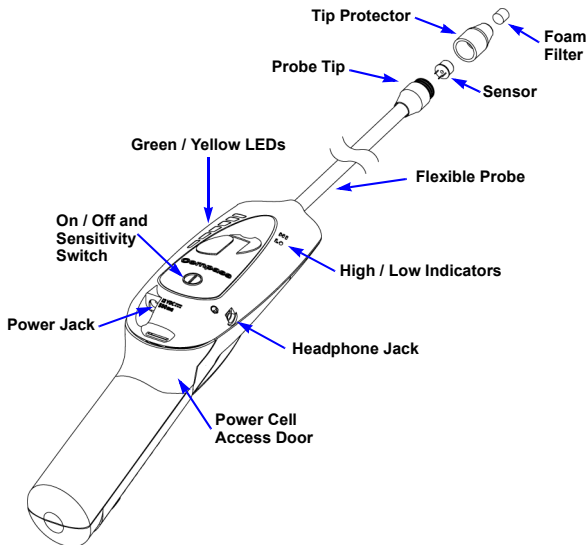
Thank you for buying the INFICON® Compass™ Refrigerant Leak Detector!

The Compass combines sophisticated technology with durability for an instrument with outstanding sensitivity that's still Laboratory Accurate, Toolbox Tough. With normal use and little special care, your Compass Refrigerant Leak Detector from INFICON will give you years of trouble-free service.

Compass High Performance Features:

- Electrochemical heated-diode sensor.
- "No-reset" detection of CFCs, HCFCs, and HFCs.
- Sensitivity of 0.15 oz/year (4 g/a) on HIGH sensitivity,
1.2 oz/year (34 g/a) on LOW sensitivity.
- Automatic adjustment ("zeroing") to refrigerants in leak test area.
- Rugged flexible probe.

- ♦ Foam filter for sensor protection.
- ♦ Multi-function control button for power and HIGH / LOW sensitivity selection.
- ♦ LED power indicator.
- ♦ Variable-pitch audible leak alarm.
- ♦ Progressive yellow LED leak indicators.
- ♦ Rechargeable, replaceable NiMH power stick.
- ♦ AC power adapter (100, 120, 230 V(ac) models available) to charge/power the instrument.
- ♦ 12 V(dc) vehicle adapter.



To get the best performance from your Compass Leak Detector, please read this manual carefully before you start using the instrument. If you have any questions or need additional assistance, please call 1-800-344-3304. We'll be happy to help you.

Getting Started: Installing the Sensor and Charging the Power Stick



WARNING

DO NOT OPERATE THIS INSTRUMENT IN THE PRESENCE OF GASOLINE, NATURAL GAS, PROPANE, OR IN OTHER COMBUSTIBLE ATMOSPHERES.

The Compass Refrigerant Leak Detector is shipped with the heated diode sensor packed separately. The sensor is located in the protective foil package along with a desiccant capsule to keep it dry. Installation of the sensor in the leak detector is required before use. To install the sensor:

1. Locate the end of the leak detector probe and tip protector. The tip protector should be in the detector's storage case. The three sockets in the end of the probe are for the leads of the sensor to fit into.
2. Remove the sensor from its protective foil package. The sensor is the small metal "can" with a hole in the top.
3. Carefully align the three leads (the small wires coming out of the bottom of the can) on the sensor with the three sockets in the end of the probe. Insert the sensor leads into the sockets and gently press in the sensor until the leads are no longer visible.

NOTE: You must be careful not to bend the sensor leads because this can cause erratic operation (see Troubleshooting.)

4. Place the tip protector (with filter installed) over the sensor and tighten snugly by turning the cap in a clockwise direction, being careful not to overtighten.
5. The nickel/metal hydride power stick is not yet charged. To charge it, connect the cord of the AC power adapter to the power jack and plug the adapter into the appropriate outlet. Allow 10 hours for a full charge. The Compass does NOT have a fast charge feature.

NOTE: You should expect 5 hours of operation from a fully charged power stick. Some batteries perform best after several full charge/discharge cycles. The Compass will operate off the AC power adapter. Connecting the supplied AC power adapter will allow operation of the detector while the power stick charges. You do not have to discharge the power stick completely before recharging it; there is no "memory" effect to the power stick.

Using Your INFICON Compass



WARNING

FAILURE TO OPERATE THIS INSTRUMENT IN THE MANNER INTENDED BY INFICON MAY RESULT IN PERSONAL INJURY.

Using the Compass Refrigerant Leak Detector is simple: Press the control button to turn the instrument ON. The green ON indicator LED will illuminate and all of the yellow leak indicator LEDs will illuminate. When the yellow LEDs extinguish and the instrument beeps at a rate of about one beep per second, the instrument is ready to use.

The INFICON Compass Refrigerant Leak Detector provides similar responses to all CFC's (e.g., R-12), HCFC's (e.g., R-22), HFC's and refrigerant blends (e.g., R-134A, R-404A, R407C, R-410A) as well as SF6. There is no need to change settings for the refrigerant you're working with.

The Compass has two sensitivity settings: HIGH and LOW. The sensitivity indicators are located on the upper right hand face of the instrument. LOW is eight (8) times less sensitive than HIGH sensitivity. You will know what the instrument is set to by looking at the indicators on the face of the instrument to see which one is illuminated. The Compass is automatically set to HIGH sensitivity when powered on. If you would like to set the Compass to LOW sensitivity, press the control button quickly. The LOW sensitivity indicator will illuminate. To return to HIGH sensitivity, depress the control button again, and the HIGH sensitivity indicator will illuminate.

Headphones may be used with the Compass Refrigerant Leak Detector. When the headphones are plugged into the detector, audio will only be heard through the headset.

Finding Leaks

1. Place the tip of the leak detector probe as close as possible to the site of the suspected leak. Try to pass the probe within 1/4 inch of the possible leak source.
2. Slowly (approximately 1-2 inches per second) move the probe past each possible leak point.
NOTE: It is important to move the tip of the probe past the leak to get a correct reading. The Compass only responds to changes in concentration of the refrigerant from the leak. Moving the probe permits the instrument to respond properly to these changes.
3. When the instrument detects a leak, its yellow LEDs will illuminate and it will begin to beep rapidly.
4. When the Compass signals a leak, pull the probe away from the leak for a moment, then bring it back to pinpoint the location.
5. If the concentration of the refrigerant gas is high, set the sensitivity to LOW before repositioning the probe at the suspected leak source. The LOW sensitivity setting helps find the exact site when a leak is large. To adjust the sensitivity, quickly depress the control button on the leak detector and the LOW sensitivity indicator will illuminate. Continue leak checking.
6. Once you have isolated the leak source, return the sensitivity setting to HIGH by pressing the control button once again.
7. When you've finished leak-testing, turn OFF the instrument by pressing the main button for one second.
8. Store your INFICON Compass in the supplied storage case when not in use.

Choosing Power Options

The INFICON Compass Refrigerant Leak Detector will operate with a charged power stick or by connection to the AC power adapter. When the instrument is plugged in using the AC power adapter, the power stick will continue to be charged while the Compass is operating, although more slowly than if the instrument is off.

A 12 V(dc) power cord is also included, designed to charge and power the Compass from your vehicle's cigarette lighter.

NOTE: The detector will NOT operate without the power stick installed.

Recharging the Power Stick

A fully charged power stick should provide power for greater than 5 hours of continuous operation.

- When the power stick voltage is low, the green ON indicator will flash and you will have adequate power to use the Compass for a short time.
- When the power stick is fully depleted, the Compass will shut down and the green ON indicator and highest yellow leak indicator LED will flash in an alternating manner. Recharge the Compass by connecting it to the supplied AC power adapter, or by using the cigarette lighter adapter. Allow 10 hours for a full charge.

NOTE: The power stick does not need to be fully charged to operate nor fully discharged before recharging.

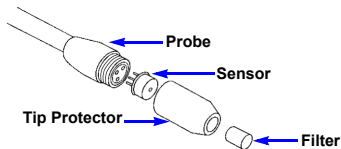


WARNING

DO NOT ATTACH ANY OTHER POWER CORDS TO THE COMPASS POWER JACK EXCEPT THE AC POWER ADAPTER AND DC CORDS DESIGNED FOR THIS INSTRUMENT.

Changing the Filter

The foam filter in the probe tip should be replaced if it becomes plugged with water or oil or appears dirty. To replace the filter, twist off the tip protector (counter clockwise) and simply push out (with a paper clip or similar object) the filter from the sensor side (larger end) of the tip protector. Slide the new filter into the small hole in the tip protector, then replace the tip protector. If the sensor becomes unseated when you remove the tip protector, take it out and plug it back in, as described in the next section.



Changing the Sensor

The Compass's electrochemical heated diode sensor is located in the tip of the probe. This specialized sensor will operate for about 100 hours. When that amount of time has passed, or you feel you may have missed some refrigerant leaks, you should replace the sensor. A reference refrigerant leak is also available separately from INFICON to check your sensor's sensitivity. (See Replacement Parts and Accessories.)

To change the sensor:

1. Turn off the leak detector.
2. Locate the end of the probe and twist off (counter clockwise) the tip protector. Pull the sensor (the small "can" with the hole in the top) straight out to unplug it. If the detector was just on for a while, the sensor will be warm but it will not burn you.
3. Remove the replacement sensor from the protective foil package.
4. Carefully align the 3 leads (small wires coming out the bottom of the can) on the sensor with the 3 sockets in the end of the probe. Insert the leads into the sockets and gently press the sensor's leads into the end of the probe.

NOTE: You must be careful not to bend the sensor leads because this can cause erratic operation (see Troubleshooting.)

5. Take this opportunity to change the filter, too. (see Changing the Filter.)
6. Place the tip protector over the sensor and tighten snugly by turning the cap in clockwise direction, being careful not to over-tighten and damage the tip protector.

Removing/Replacing the Power Stick

The Compass uses a pre-assembled power stick. Do not attempt to disassemble it.

The power stick is connected to the circuit board via a miniature electrical connector. Slide the old power stick out of the Compass and disengage the connector. Push the miniature connector on the new power stick into the mating connector on the circuit board and slide the new power stick into the Compass. Additionally, ensure the two halves are connected correctly, as the connector is polarized and damage may result to either the battery or the Compass if attached incorrectly.

Once the power stick is in place, close the battery compartment by sliding the compartment cover over the detector's bottom housing until it latches. Ensure the wire leads on the power stick are not pinched in the plastic housing. Plug the AC adapter into an electrical outlet and allow 10 hours to fully charge the new power stick.

Cleaning the Compass Housing

The Compass plastic housing can be cleaned with standard household detergent or isopropyl alcohol. Take care to prevent the cleaner from entering the instrument. Since gasoline and other solvents may damage the plastic, protect your Compass from contact with these substances.

Troubleshooting

NOTE: The internal parts of the Compass Leak Detector are not serviceable. Do not attempt to disassemble the instrument, except for replacing the filters, sensor or power stick. Opening the plastic housing for any reason will void the warranty.

Problem	Cause	Remedy
1. Green ON light flashes but detector still runs.	1. Power stick voltage is low.	1. Finish current job and recharge power stick, or be prepared to plug in AC adapter to power leak detector.
2. Green ON light and highest yellow leak indicator LED flash in an alternating manner.	2. Power stick is completely depleted of charge and cannot power detector.	2. Recharge power stick for 10 hours. Or, if immediate use is required, recharge power stick for a few minutes and plug AC adapter into outlet to operate the instrument off AC voltage.
3. Green ON light, high sensitivity indicator and low sensitivity indicator flash in an alternating manner.	3. Power stick has an open.	3. Instrument will not run without power stick. Purchase new power stick from distributor and install in leak detector.
4. Instrument will not shut off.	4. May not be pressing control button long enough.	4. Press and hold control button for one second to shut down.
5. Leak detector is erratic, alarms after a slight bump, or when moving the probe.	5. Sensor leads are bent, not allowing for proper contact with sockets. Or, humidity has been absorbed by sensor over a long period of not operating the detector. NOTE: Sudden whipping of the leak detector probe or blowing into the sensor tip will affect air flow over the sensor and cause the instrument to alarm.	5. Remove protective cap and sensor. Inspect sensor leads for straightness. If bent, use needle nose pliers to gently straighten wires. Install sensor and test detector. Or, if the Compass has not been used for 5 weeks or longer, humidity may have been absorbed by the sensor. Turn on the Compass and allow it to run for a minimum of 20 minutes or until alarm clears. Note: Absorption of moisture in no way affects life or sensitivity of sensor.

Problem	Cause	Remedy
6. Leak detector is not very sensitive, seems to have missed leaks, or picks up some refrigerant types but not others.	6. Sensor has reached the end of its useful life.	6. Purchase new sensor from distributor and install in Compass.
If you require additional assistance, please call 1-800-344-3304.		

Replacement Parts and Accessories

Replacement parts and accessories for your Compass are available through the same dealer from whom you bought the instrument.

Replacement Power Stick	712-700-G1
Replacement Sensor	703-020-G1
Replacement Filters	705-600-G1
Replacement plastic storage case	717-700-G1
Headphones	032-0404
12-volt cord with cigarette-lighter plug, 12 ft. (3.7 m)	703-055-P1
120-volt adapter and cord, 6 ft. (1.8 m)	033-0019
230-volt (Euro plug) adapter and cord, 6 ft. (1.8 m)	033-0020
230-volt (UK plug) adapter and cord, 6 ft. (1.8 m)	033-0022
100-volt adapter and cord, 6 ft. (1.8 m)	033-0018
Optional TEK-Check R134a reference leak	703-080-G1

Specifications

Usage	Indoor or Temporary Outdoor
Minimum sensitivity to R22, R134a, and R410a	0.15 oz/yr (4 g/a)
Battery life	approximately 5 hours
Operating temperature range	-4 °F to 122 °F (-20 °C to +50 °C)
Charging temperature range	+32 °F to 104 °F (0 °C to +40 °C)
Storage temperature range	-4 °F to 131 °F (-20 °C to +55 °C)
Humidity	85% RH NC Max.
Altitude	6500' (2000 m)
Pollution degree	2
Overvoltage category	2
Weight (with power cells)	1.1 lbs (500 g)

Warranty and Liability-Limitation

INFICON warrants your Compass Refrigerant Leak Detector to be free from defects of materials or workmanship for two years from the date of purchase. INFICON does not warrant items that deteriorate under normal use, including power stick, sensor and filters. In addition, INFICON does not warrant any instrument that has been subjected to misuse, negligence, or accident, or has been repaired or altered by anyone other than INFICON.

INFICON liability is limited to instruments returned to INFICON, transportation prepaid, not later than thirty (30) days after the warranty period expires, and which INFICON judges to have malfunctioned because of defective materials or workmanship. INFICON liability is limited to, at its option, repairing or replacing the defective instrument or part.

This warranty is in lieu of all other warranties, express or implied, whether of MERCHANTABILITY or of FITNESS FOR A PARTICULAR PURPOSE or otherwise. All such other warranties are expressly disclaimed. INFICON shall have no liability in excess of the price paid to INFICON for the instrument plus return transportation charges prepaid. INFICON shall have no liability for any incidental or consequential damages. All such liabilities are EXCLUDED.

Return Materials Authorization Procedure

Please see your INFICON distributor for assistance. All instruments and parts returned to INFICON for repair or credit must be properly packaged, insured, shipped transportation charges prepaid, and must have a Return Material Authorization (RMA) number issued before the material is returned. The RMA number is to be marked on all shipping labels and packing slips. If you have any questions contact us at 1-800-344-3304.

NOTES



TWO TECHNOLOGY PLACE
EAST SYRACUSE, NY 13057-9714 USA

Phone: +315.434.1100
Fax: +315.437.3803
E-Mail: service.tools@inficon.com
www.inficon.com

074-458-P1E