

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



D-TEK™ Select
Refrigerant Leak Detector



DECLARATION OF CONFORMITY

This is to certify that this equipment, designed and manufactured by INFICON® Inc., Two 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	D-TEK Select Refrigerant Leak Detector
Applicable Directives	73/23/EEC as amended by 93/68/EEC 89/336/EEC as amended by 93/68/EEC
Applicable Standards	EN61010-1: 2001; EN61326-1 A2:2000 Industrial
CE Implementation Date	December 8, 2003
Authorized Representative	Gary W. Lewis Vice President, 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

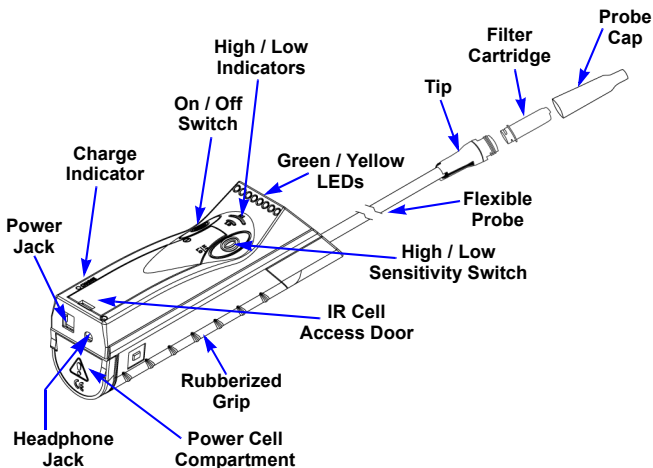
This symbol is used to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying this instrument.

INFICON® and D-TEK™ Select are trademarks of INFICON.

Thank you for buying the INFICON D-TEK Select Refrigerant Leak Detector!

With normal use, your D-TEK Select from INFICON will give you years of trouble-free service.

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



Getting Started

The D-TEK Select is shipped with the infrared cell and power stick installed. The nickel/metal hydride batteries in the power stick are not yet charged. To charge them, connect the cord of the AC power adapter to the power jack at the rear of the instrument, and plug the adapter into the appropriate mains outlet. The battery charging light (rear left side) will flash when the detector is charging, changing to steady illumination when the power stick is charged. Allow 10 hours for the full charge.

NOTE: You should expect 6½ hours of operation from a fully charged power stick. The D-TEK Select will operate on battery power only. It will not operate off the AC power adapter.

Using Your INFICON D-TEK Select



WARNING

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

Using the D-TEK Select is simple. Press the power switch once to turn the detector ON. The green ON indicator lamp will illuminate, and the yellow indicator lamps will illuminate from left to right in a running fashion while the infrared cell warms up (approximately 60 seconds). When the detector is warmed up and ready for use, the yellow lamps extinguish and you will hear a steady beeping.

The D-TEK Select provides similar responses to all CFC's, HCFC's, HFC's and refrigerant blends (i.e., R-404A, R407C, R-410A) as well as SF6. There is no need to select the refrigerant you're working with.

NOTE: The D-TEK Select does not detect R-11 and R-123, due to the particular physical properties these refrigerants possess.

Headphone sets may be used with the D-TEK Select. When the headphones are plugged into the detector, the audio signal will only be heard through the headset.



WARNING

ONLY USE HEADPHONE SETS SUPPLIED BY INFICON, PART #032-404. SERIOUS HEARING DAMAGE MAY OCCUR IF OTHER HEADPHONE SETS ARE USED.

Finding Leaks

1. Place the tip of the leak-detector probe as close as possible to the site of the suspected leak. Try to position 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 D-TEK Select 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 source, its yellow lamps will illuminate and it will emit a different audible tone.

4. When the D-TEK Select 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, press the sensitivity switch to change to the LOW sensitivity setting. The LOW sensitivity setting helps find the exact site when a leak is large.
6. Once you have isolated the leak source, return the sensitivity setting to HIGH to continue using the D-TEK Select.

Recharging the Power Stick

A fully charged power stick should provide power for greater than 6½ hours of continuous operation. When the battery is fully depleted, the D-TEK Select will shut down. To show the battery is depleted, the green ON indicator, last yellow leak indicator and the amber battery charging indicator will flash. Recharge the D-TEK Select by connecting the supplied AC wall adapter, or using the cigarette lighter adapter.

NOTE: The D-TEK Select does not need to be fully charged to operate nor fully discharged before recharging.



WARNING

DO NOT ATTACH ANY OTHER POWER CORDS TO THE D-TEK SELECT'S POWER JACK EXCEPT THE AC POWER ADAPTER AND DC CORDS DESIGNED FOR THIS INSTRUMENT.

The battery charging indicator (rear left side) will flash when the power stick is charging, changing to steady illumination when the power stick is fully charged. Allow 10 hours for a full charge.

Changing the Filter Cartridge

The D-TEK Select utilizes a specially designed filter cartridge that fits into a protective cap. The filter cartridge should be changed when it appears dirty or when substances trapped in the filter cartridge seem to be affecting the sensitivity of the D-TEK Select.

NOTE: Water or oil will not penetrate the filter material but will prevent airflow through the filter and affect sensitivity.



CAUTION

TURN OFF THE D-TEK SELECT AND HOLD THE PROBE WITH THE FILTER TIP POINTING DOWN WHEN REMOVING THE FILTER CAP.

To change the filter cartridge, twist off the protective cap. Remove and dispose of the used filter cartridge. Do not allow any moisture or dust to get into the probe. Do not disassemble or attempt to clean the material inside the filter cartridge, as it can be damaged when handled. Slide a new filter cartridge into the cap. Twist the cap with the new filter cartridge onto the probe base until it is tight.

NOTE: It is very important that you operate the D-TEK Select with a filter cartridge installed at all times. Failure to do so could damage the leak detector's components.

Changing the Infrared Cell



WARNING

COMPONENTS MAY BE HOT. TURN OFF DETECTOR AND DISCONNECT POWER ADAPTER CORD BEFORE REMOVING THE INFRARED CELL DOOR.

The D-TEK Select's infrared cell (IR cell) is located in the body of the detector. The IR cell is a complete assembly consisting of a metal tube, connectors and electronic components. The IR cell is not designed to be taken apart. Doing so will destroy the cell. This specialized IR cell will operate for about 800 hours.

The D-TEK Select will flash all the yellow leak indicators when the IR cell has reached the end of its useful life. To replace the IR cell:

1. Locate on the top cover (at the rear of the detector) the latch for the IR cell door.
2. Using a small screwdriver, pull the latch forward and remove the door.
3. Grasp the IR cell according to the directions printed on its label. Pull it straight out so both ends are released at the same time.
4. Remove the replacement IR cell from the protective package.
5. Carefully align the male leads and air tubes on the IR cell with the connectors mounted on the circuit board. Insert the leads into the sockets and push the IR cell straight down.

NOTE: Ensure the lead connectors on the IR cell ends are not bent and the cell is seated tightly.

Removing/Replacing the Power Stick

The D-TEK Select uses a pre-assembled power stick.

Remove the battery compartment door on the back of the D-TEK Select by pressing on both release buttons on the grip and pulling the door straight out. The power stick is connected to the PCB board via a miniature electrical connector. Disengage the connector and slide the power stick out of the D-TEK Select.

Slide the new stick into the D-TEK Select and push the miniature connector on the power stick into the mating half on the PCB board. Do not bend the PCB board's connector away from the board. Once the power stick is in place, close the battery compartment by aligning the two tabs and sliding the door straight in until it latches. Ensure the wire leads on the power stick are not pinched in the door. Allow 10 hours to fully charge the new power stick.

Replacement Parts and Accessories

Replacement parts and accessories for your D-TEK Select are available through the same dealer from whom you bought the instrument.

Molded plastic storage case	712-702-G1
Headphones	032-404
12-volt cord with cigarette-lighter plug, 12 ft. (3.7 m)	703-055-P1
120-volt mains adapter and cord, 6 ft. (1.8 m)	033-0019
230-volt (Euro plug) mains adapter and cord, 6 ft. (1.8 m).	033-0020
230-volt (UK plug) mains adapter and cord, 6 ft. (1.8 m)	033-0022
100-volt mains adapter and cord, 6 ft. (1.8 m)	033-0018
Power Stick	712-700-G1
Replacement infrared cell	712-701-G1
Filter Cartridges, package of 5	712-707-G1
Replacement Probe Cap	712-705-G1

Specifications

Usage	Indoor or Outdoor
Minimum sensitivity to R12 and R134a	0.1 oz/yr (3 g/yr)
Input voltage range	12 to 16 V(dc)
Input current	500 mA Max.
Operating and charging temperature range*	+32 °F to 122 °F (0 °C to +50 °C)
Storage temperature range	+14 °F to +140 °F (-10 °C to +60 °C)
Humidity	95% RH NC Max.
Altitude	6500' (2000m)
Pollution degree	2
Overvoltage category	2
Weight (with power cells)	1.28 lb. (0.58 kg)

*May be operated for a limited time in lower temperature environments

Troubleshooting Guide

Problem	Cause	Remedy
1) All yellow lights flashing together.	1a) IR sensor cell has become unseated.	1a) Remove sensor access door and push both ends of sensor down. (Do not remove/reinsert sensor cell.) Restart unit and examine.
	1b) IR sensor cell has failed.	1b) Replace with new sensor, part number 712-701-G1. If used less than 800 hours, contact INFICON.

Problem	Cause	Remedy
2) Will not detect refrigerant.	2a) Unit may not be warmed up and ready to use.	2a) If yellow lights are scrolling, wait 90 seconds to see if the unit starts to beep and the lights stop scrolling. If not, contact INFICON.
	2b) Pump may have failed.	2b) You should hear the pump running after the warm up sequence is completed. VERIFY it is not a low battery condition (see #3). If not, contact INFICON.
	2c) Air tubing inside may have come disconnected.	2c) Contact INFICON.
	2d) Battery may be dead.	2d) See #3 below.
	2e) User may be working with R-11 or R-123.	2e) These refrigerants are only detectable if they are large leaks. INFICON will take the unit back if this is a problem.
3) After warm up sequence the green, the last yellow and the amber charging LEDs flash.	3a) Battery needs recharging.	3a) Charge battery for 10-12 hours.
	3b) Power stick has failed.	3b) Replace power stick with part #712-700-G1.
4) Pump is not working.	4a) Pump has failed.	4a) See 2b.

Warranty and Liability-Limitation

INFICON warrants your D-TEK Select 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, infrared absorption element 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

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. Please see your INFICON distributor for assistance. If you have any questions contact us at 800-344-3304.

Special Information for Automotive Technicians

The INFICON D-TEK Select Refrigerant Leak Detector Model # 712-202-GX is designed certified by MET Laboratories, Inc. to meet SAE J1627, "Rating Criteria for Electronic Refrigerant Leak Detectors" for R12, R404A and R134a. The following SAE Recommended Practice applies to this instrument and to the use of generally available electronic leak detection methods to service motor-vehicle passenger- compartment air-conditioning systems.

1. The electronic leak detector shall be operated in accordance with the equipment manufacturer's operating instructions.
2. Leak test with the engine not in operation.

3. The A/C system shall be charged with sufficient refrigerant to have a gage pressure of at least 340 kPa (50 PSI) when not in operation. At temperatures below 15 °C (59 °F) leaks may not be measurable, since this pressure may not be reached.
4. Take care not to contaminate the detector probe tip if the part being tested is contaminated. If the part is particularly dirty, it should be wiped off with a dry shop towel or blown off with shop air. No cleaners or solvents shall be used, since many electronic detectors are sensitive to their ingredients.
5. Visually trace the entire refrigerant system, and look for signs of air conditioning lubricant leakage, damage, and corrosion on all lines, hoses, and components. Each questionable area shall be carefully checked with the detector probe as well as all fittings, hose-to-line couplings, refrigerant controls, service ports with caps in place, brazed or welded areas, and areas around attachment points and hold-downs on lines and components.
6. Always follow the refrigerant system around in a continuous path so that no areas of potential leaks are missed. If a leak is found, always continue to test the remainder of the system.
7. At each area checked, the probe shall be moved around the location, at a rate no more than 25 to 50 mm/second (1 to 2 inches/second) and no more than 5 mm (1/4 inch) from the surface completely around the position. Slower and closer movement of the probe greatly improves the likelihood of finding a leak.
8. An apparent leak shall be verified at least once by blowing shop air into the area of the suspected leak, if necessary, and repeating the check of the area. In cases of very large leaks, blowing out the area with shop air often helps locate the exact position of the leak.
9. Leak testing of the evaporator core while in the air-conditioning module shall be accomplished by turning the air-conditioning blower on high for a period of 15 seconds minimum, shutting it off, then waiting for the refrigerant to accumulate in the case for time specified by section 9.1 (below), then inserting the leak detector probe into the blower resistor-block or condensate drain-hole if no water is present, or into the closest opening in the HVAC case to the evaporator, such as the heater duct or a vent duct. If the detector alarms, a leak apparently has been found.
 - 9.1. The accumulation time for evaporator testing is 13 minutes.
 - 9.2. Following any service to the refrigerant system of the vehicle, and any other service which disturbs the refrigerant system, a leak test of the repair and of the service ports of the refrigerant system shall be done.



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