OPERATING MANUAL


# D-TEK™ Select
## Refrigerant Leak Detector

EN

INFICON

## 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 . . . . . 2006/95/EC (LVD)
2004/108/EC (EMC)
2011/65/EU (RoHS)
2006/66/EC as amended by 2013/56/EU (Battery Directive)

Applicable Standards . . . . . EN 61010-1:2010;
EN 61326-1:2013 (Class A);
EN 62133:2013 (CB Test Cert. FI-17925)

CE Implementation Date. . . . . March 9, 2015

Authorized Representative . . . . . Brian King
Business Line Manager, Service Tools
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.

| **Specification Table in Accordance with EN 14624** | |
|---|---|
| Minimum sensitivity to R134a, fixed (static) | 1 g/yr |
| Maximum sensitivity to R134a, fixed (static) | >50 g/yr |
| Minimum sensitivity to R134a, moving (dynamic) | 1 g/yr |
| Maximum sensitivity to R134a, moving (dynamic) | >50 g/yr |
| Minimum response/detection time | <1 second |
| Zering time | 5-7 seconds |
| Recovery time for 50 g/yr exposure* | 1 second |
| Minimum sensitivity in contaminated environment | 2 g/yr |
| Calibration frequency: Check annually with calibrated leak standard. | |
| *Upper leak detection limit is not specified by INFICON as there is no upper limit to the size of the leak the detector is able to detect. As no 50 g/yr leak standard was available during testing, a 31 g/yr leak was substituted. | |

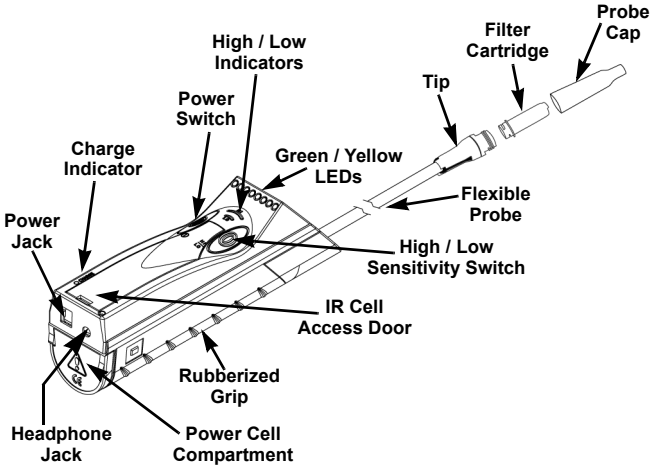
**WARNING**

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

## 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 approximately 6.5 hours of operation from a fully charged power stick. The D-TEK Select will operate off the AC power adapter. Connecting the supplied AC power adapter will allow operation of the detector while the power stick charges.

## 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 LED will illuminate, and the yellow LEDs will illuminate from left to right in a scrolling fashion while the infrared cell warms up (approximately 60 seconds). When the detector is warmed up and ready for use, the yellow LEDs 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 due to the particular physical properties of this refrigerant.

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, PN 032-0430. 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 (0.5 cm) of the possible leak source.
2. Slowly (approximately 1 - 2 inches (2.5 - 5 cm) 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 LEDs will illuminate and it will beep rapdily.
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.
7. When you are done leak checking, press the Power switch to turn the D-TEK Select OFF.

## Using the Manual Zero Mode

The D-TEK Select's automatic suppression of background contamination can be disabled, allowing for a continuous display of a leak without "zeroing it out". When the D-TEK Select is set in the manual zero mode, the technician may manually reset or zero the detector.

To initialize this function, press and hold the HI/LO switch for 5 seconds. The "HI" sensitivity indicator will flash to alert the user the detector is in manual zero mode. Increases in concentrations of refrigerants will be displayed by the illumination of the yellow LEDS. For best test results, allow the D-TEK Select to warm up for 5 - 10 minutes before engaging manual zero mode.

To "zero" the D-TEK Select, press the HI/LO switch once. Both the HI and LO sensitivity indictors will flash for a few seconds while the detector measures and sets a new background base level. Any increase in concentrations of refrigerant above this base level will be displayed.

To turn off the manual zero mode, press and hold the HL/LO switch until the HI sensitivity indicator becomes steady.

**NOTE:** When the D-TEK Select is turned on, it will always default to the automatic zeroing mode.

## Recharging the Power Stick

A fully charged power stick should provide power for approximately 6.5 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 LED, the last yellow leak LED and the amber battery charging LED will flash. Recharge the D-TEK Select by connecting the supplied AC power 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.

The D-TEK Select will operate off the AC power adapter. Connecting the supplied AC power adapter will allow operation of the detector while the power stick charges.

## 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 1000 hours.

The D-TEK Select will flash all the yellow leak LEDs 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.

**NOTE:** If the D-TEK Select does not power up after the power stick is replaced, check that the key connector on the power stick is mated properly to the connector on the circuit board. Reverse the connection if necessary and power up again. If the Hi/Lo indicators flash in a rapid, alternating manner when the AC adapter is connected, the power stick is installed backwards.

## 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 | 032-0430 |
| 12-volt cord with cigarette-lighter plug, 3.7 m (12 ft.) | 703-055-P1 |
| 120-volt mains adapter and cord, 1.8 m (6 ft.) | 033-0019-G1 |
| 230-volt (Euro plug) mains adapter and cord, 1.8 m (6 ft.) | 033-0020-G1 |
| 230-volt (UK plug) mains adapter and cord, 1.8 m (6 ft.) | 033-0022-G1 |
| 100-volt mains adapter and cord, 1.8 m (6 ft.) | 033-0018-G1 |
| 230-volt (Australia) mains adapter and cord, 1.8 m (6 ft.) | 033-0035-G1 |
| 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 | 3 g/yr) |
| Input voltage range | 12 to 16 V (dc) |
| Input current | 500 mA Max. |
| Operating and charging temperature range* | -20 °C to +50 °C ( -4°F to 122 °F) |
| Storage temperature range | -20 °C to +60 °C (-4°F to +140 °F) |
| Humidity | 95% RH NC Max. |
| Altitude | 2000 m (6500 ft.) |
| Pollution degree | 2 |
| Overvoltage category | 2 |
| Weight (with power cells) | 0.58 kg (1.28 lb.) |

*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. |
| 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. |
| | 2d) Battery may be dead. | 2d) See #3 below. |
| | 2c) Filter cartridge may be clogged, preventing air and refrigerant from passing into IR cell. | 2c) Replace used filter cartridge with a new one. |
| | 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. |
| | 2e) User may be working with R-11. | 2e) This refrigerant is only detectable if the leak is quite large. |
| 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 2d. |

| Problem | Cause | Remedy |
|---|---|---|
| 5) Unit does not power up. Hi/Lo indicators flash in a rapid, alternating manner when AC adapter is connected. | 5a) Power stick/battery has been connected in reverse. | 5a) Reverse the battery's connection and power unit up again. |

## 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 cell 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.


TWO TECHNOLOGY PLACE
EAST SYRACUSE, NY 13057-9714 USA

Phone: +1.800.344.3304
Fax: +315.437.3803
E-Mail: service.tools@inficon.com
www.inficonservicetools.com

074-392-P1L