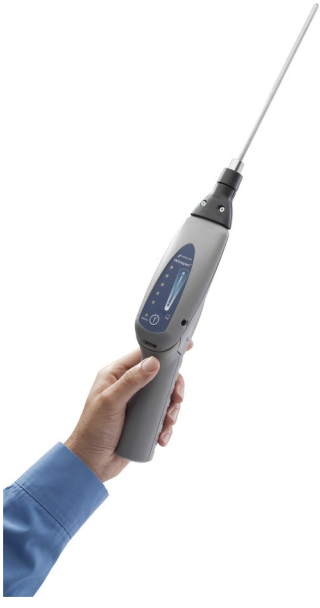
O P E R A T I N G M A N U A L



Whisper®

Ultrasonic Leak Detector

INFICON

INFICON

CE

EU DECLARATION OF CONFORMITY

This declaration is issued under the sole responsibility of the manufacturer INFICON. The object of the declaration is to certify that this equipment, designed and manufactured by INFICON, is in conformity with the relevant Community harmonization legislation. 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:	Whisper® Ultrasonic Leak Detector	
Model Number:	711-202-Gxx	(Applicable to all Group numbers)
	711-203-Gxx	(Applicable to all Group numbers)
Applicable Directives:	2014/30/EU	General EMC
	2011/65/EU	RoHS
Applicable Standards:		
Safety:	EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements.
	IEC 60825-1:2014	Safety of Laser Products - Part 1: Equipment Classification and requirements.
Emissions:	CISPR 11/EN 55011:2009 (+A1:2010)	Emission standard for industrial, scientific, and medical (ISM) radio RF equipment (Class B)
Immunity:	EN 61326-1:2013	Edition 2.0 (EMC - Measurement, Control & Laboratory Equipment) Immunity per Table A.1 - Portable Test and Measurement Equipment
RoHS:	EN 50581:2013	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

CE Implementation Date: April 20, 2016

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ANY QUESTIONS RELATIVE TO THIS DECLARATION OR TO THE SAFETY OF INFICON'S PRODUCTS SHOULD BE DIRECTED, IN WRITING, TO THE AUTHORIZED REPRESENTATIVE 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.

CAUTION

Whisper includes a built-in laser pointer. It is important to adhere to the following warnings and safety instructions to prevent injury:

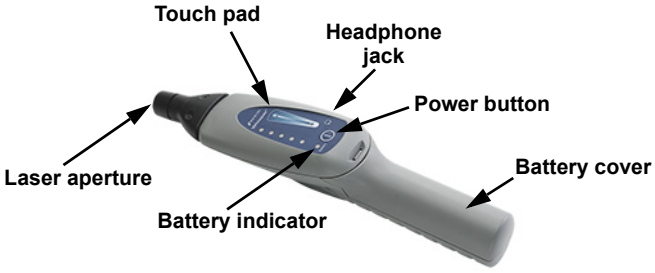
- **Never shine a laser pointer into a person's eyes or stare into the laser beam. This can cause instant temporary vision dysfunction such as flash-blindness, disorientation, or glare. This can be particularly dangerous if the exposed person is engaged in a vision-critical activity such as driving. In addition, prolonged and/or repeated exposure to the laser beam can be hazardous and damaging to eyes.**
- **Never aim a laser pointer anywhere at or near any person or animal. Laser pointers are designed to point at inanimate objects only. In some states and provinces, it is illegal to aim a laser pointer at a law enforcement officer or any other person. The purchaser/user is responsible for ensuring that his or her use of the laser pointer conforms to any local laws.**
- **Do not point a laser pointer at mirror-like surfaces. A reflected beam can act like a direct beam to the eye.**
- **Laser pointers are not toys. Do not allow a minor to use a laser pointer unsupervised. In some states and provinces, it is illegal for a minor to purchase and/or use a pointer. The purchaser/user is responsible for ensuring that his or her purchase or use of the laser pointer conforms to any local laws.**
- **Laser pointer not available in Japan.**

Applications

- A/C refrigerant leaks (any and all types of refrigerant)
- Checking seals around windows, refrigerators, etc. (when using Whisper Transmitter)
- Diagnosing mechanical equipment such as pistons, solenoids, bearings, etc. (when using contact probe)
- Diagnosing solenoid operations
- Leaks in pneumatic control systems
- Leaks in compressed air systems
- Leaks in vacuum systems
- Steam traps
- Electrical arcing

Specifications

Sensitivity	Detects a leak through a 0.004 in. (0.01 cm) diameter orifice at 5.0 psig from a 12 in. (30.5 cm) distance
Usage	Indoor or Outdoor
Operating Temperature Range	+32°F to +122°F (0°C to +50°C) (may be operated for a limited time in lower temperature environments)
Storage Temperature Range	+14°F to +140°F (-10°C to +60°C)
Humidity	85% RH NC Max.
Altitude	6500 ft. (2000 m)
Power Supply	2 “D” cell alkaline batteries
Battery Life (with laser off)	Approximately 165 hours
Battery Life (with laser on)	Approximately 115 hours
Laser Pointer Class (Laser pointer not available in Japan)	2
Pollution Degree	2
Overvoltage Category	2
Weight (with battery, not including case or accessories)	1.06 lb. (482 g)



Introduction

Whisper will detect and locate sources of ultrasonic disturbance through the use of sophisticated circuitry.

An ultrasonic disturbance is created when objects collide. Vacuum leaks create collisions between molecules flowing through an orifice. Pressure leaks create collisions between molecules exiting an orifice. All gases and liquids create disturbances if forced into, or out of, an orifice. All solid materials create disturbances when any friction exists.

Whisper is capable of detecting and locating sources of ultrasonic disturbances created by gases, liquids, or solids.

Whisper has different ways of indicating these disturbances. When used without headphones, Whisper's indicators will illuminate and the unit will beep in response to sources of ultrasonic noise. When headphones are plugged in, Whisper's heterodyne feature is enabled, bringing ultrasonic frequencies to a range audible to the human ear. This is often the best way to use Whisper. You can also use the metal contact probe on solid objects. Please refer to the appropriate sections of this manual for more information on these features and how to best use them.

General Information

Whisper is sensitive only to ultrasound (40 to 43 kHz) and is unaffected by audible noise.

INTERNAL NOISE CONTROL (I.N.C.) allows the use of this instrument in extremely noisy environments such as mechanical rooms, around operational chillers, etc. Drag your finger upward on the sensitivity touch pad to increase sensitivity when experiencing little or no environmental noise. Drag your finger downward on the sensitivity touch pad to reduce sensitivity in response to an increase in environmental noise.

Many variables can affect the amount of ultrasound generated by the leakage of gas through an orifice. Such factors include the pressure/vacuum relative to the surrounding environment, how smooth the edges of the orifice are, the diameter of the orifice, Whisper's distance from the orifice, and the presence of airflow, which may dissipate the ultrasound.

As you use Whisper, keep in mind that these factors may affect your ability to detect ultrasonic leaks.

Locating Leaks

NOTE: Bumping the accessory probe or nose piece into objects while seeking leaks will cause false alarms. Leaks will be indicated by a beeping alarm and flashing indicators. Disregard occasional short alarms.

WARNING

Always keep clear of hot and/or moving engine and machinery parts. Damage or injury could result.

1. Long press the power button to turn Whisper On/Off. The Battery indicator will illuminate while Whisper is On.

   NOTE: If the Battery indicator flashes, the batteries are low and should be replaced.

2. Press the power button briefly to enable/disable the laser pointer feature (if equipped). This feature allows for easier and more accurate location of a leak site. See “Laser Pointer Feature” for more information.

3. Point Whisper in the direction of the suspected leak and scan the area by making a slow “X” (a vertical and horizontal type sweeping motion) while keeping the nose piece (or rubber extension probe) pointed in the general direction of the suspected leak.

4. If you are using Whisper without headphones, it will beep when an ultrasonic disturbance is detected. If you are using headphones, Whisper will make a variety of different noises due to its heterodyne feature. (See "Heterodyne Feature" for more information.) To isolate the ultrasonic disturbance, gradually decrease sensitivity by slowly dragging your finger down the touch pad until the beeping stops. The sensitivity level will be indicated briefly by the number of illuminated indicators next to the touch pad.

5. Move closer to the suspected leak, continuing the sweeping pattern and narrowing the range of the sweep by making smaller patterns until beeping resumes. This will lead to the location of the disturbance. To narrow the scan area, attach the flexible rubber extension to the probe and repeat step 3.

6. Repair all leaks as located and repeat scan.

Heterodyne Feature

Whisper features heterodyne capability, which converts the ultrasonic frequencies to sounds that can be heard by the human ear. This allows you to easily isolate the ultrasonic source.

Plug the included headphones into the jack on the right side of Whisper to enable heterodyne capability. Dragging your finger upward/downward on the sensitivity touch pad will increase/decrease the volume of the headphones.

NOTE: Sensitivity defaults to a lower level when headphones are plugged in to protect against hearing damage. Use the touch pad to increase sensitivity if needed.

Laser Pointer Feature

Whisper (if equipped) features an integrated laser pointer. This feature is designed to aid in pinpointing leak sites. To enable/disable the laser pointer feature, briefly press the power button. The laser pointer will automatically disable if Whisper is turned Off.

NOTE: Laser pointer not available in Japan.

WARNING

Do not aim the laser pointer at any person or animal.

High Noise Environments

In noisy environments, it may be necessary to “tune out” unwanted signals from other areas in close proximity to where you are scanning for leaks. Begin by pushing the rubber extension probe over the nose piece. When the extension is attached, Whisper’s sensing angle is reduced, increasing the directional capability and reducing the effects of the adjacent noise sources. This allows Whisper's detection capabilities to become more directional. If you suspect the reading originates from a source other than what you are scanning, point the probe toward the suspected source (maybe a compressor, V-belt, discharging steam line, etc.) and slowly decrease sensitivity until the alarm stops. Turn the probe back in the direction of the suspected leak and continue to scan. This step may have to be repeated as you move around to other locations in search of leaks. If the probe is close to internal moving parts of equipment, and the alarm sounds, push the rubber probe against the equipment housing. If the alarm still sounds, internal friction of moving parts, and not a leak source, may be causing the alarm.

Using the Contact Probe (if equipped)

The optional metal contact probe offers additional capabilities when used with Whisper. The contact probe can be a useful accessory in diagnosing machinery. For best results, always use the headphones when using the contact probe to enable the heterodyne feature.

To use the contact probe, twist the threaded end into Whisper's plastic nose piece and turn Whisper On. Touch the end of the contact probe to bearing housings, solenoids, pistons, and other mechanical equipment to allow the frequencies to travel into Whisper's ultrasonic transducer. Adjust sensitivity as needed. Properly functioning machinery sounds smooth and clear, while poorly functioning machinery may make irregular or grinding noises. Over time you will learn to recognize when machinery sounds to be in good working order or when it sounds worn and in need of maintenance.

WARNING

Do not place the contact probe in running machinery, fan cages, drive belts, or other moving parts. Always use extreme caution when using the contact probe around machinery.

Whisper Transmitter Accessory (if equipped)

Whisper Transmitter is an accessory which can be used with the Whisper Ultrasonic Leak Detector to locate leaks in walk-in coolers/freezers, wall and ceiling joints, around doors, windows, body seals, rubber moldings, ducts, etc. Whisper Transmitter produces the frequency detected by Whisper. By placing Whisper Transmitter in a sealed area and scanning the exterior of the area. Whisper can detect any signal escaping the sealed area. A flaw in the seal can be quickly and accurately pinpointed.

1. Turn the transmitter power switch on. The POWER indicator will illuminate to indicate it is operating.

   NOTE: You will not be able to hear the tone generated by the transmitter.
2. Place Whisper Transmitter into the area to be tested. Seal area to be tested completely.
3. Set the "Sensitivity" control on Whisper to maximum.
4. Scan the exterior area for the suspect leaks. To pinpoint leaks, see "Locating Leaks" on page 7.

NOTE: When using Whisper Transmitter and headphones, Whisper will indicate ultrasonic disturbances through a variable-pitch tone

If your Whisper did not come with a Whisper Transmitter, you may order one under part number 711-600-G1 from your authorized distributor.

Care and Maintenance

To clean exterior surfaces, wipe with a soft damp cloth.

When the batteries near the end of their useful life, the battery indicator will flash. To change the batteries, depress the release tab using a coin or screwdriver and slide the cover back. Replace the batteries with two new “D” cell alkaline batteries. Replace the cover by holding it in place along the side rails while sliding it forward to engage both the rear hooks and the front release tab.

To avoid accidental damage to Whisper or the headphones, unplug the headphones when placing it in the case for storage.

Warranty

INFICON warrants your Whisper Ultrasonic 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, such as power cells. 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’s 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’s 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.

Accessory/Replacement parts

Whisper Transmitter 711-600-G1

Contact probe. 711-316-G1

Rubber extension probe 070-1128

Standard headphones 032-0430

Premium headphones 032-0427

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