

Delicacy DF-01 Automatic Halogen Leak Detector

Specifications

Power Supply: 3V DC: two cell alkaline batteries
 Maximum Sensitivity: Per Delicacy Rating Criteria
 Certified for R12, R22 and R134a (14gr/yr)
 Ultimate sensitivity: Less than 0.1 oz/yr (3gr/yr) for all Halogen based refrigerants.
 Sensing Tip Life: Approx. 20 hours
 Operating temperature: 30 to 125°F (0 to 52°C)
 Battery Life: Approximately 30 hours under normal use
 Duty Cycle: Continuous, no limitation
 Response Time: Instantaneous
 Reset Time: two seconds
 Warm-Up Time: Approximately 6 seconds
 Unit Weight: 560grams
 Unit Dimensions: 9" x 2.5" x 2.5" (22.9cm x 6.5cm x 6.5cm)

Warranty: Consult warranty conditions.

General Information

An advanced microprocessor is the heart of this unit, its Digital signal Processing permits better management of the circuitry and sensing tip signal than ever before possible. Additionally, the number of components used in the circuit is reduced nearly 40%, increasing reliability and performance. The microprocessor monitors the sensing tip and battery voltage levels 4000 times per second. Compensate for even the most minor fluctuation in signal. This translates into stable and dependable tool in almost any environment. Convenience features have been added to enhance the usability of the DF-01. Seven levels of sensitivity provide an increase of 64 times from level 1 to level 7. Unique Tri-Color LED show a progressive and wide ranging leak size indication, communicate the sensitivity level, and provide a true voltage indication of battery power level. A tactile keypad controls all functions of operation. A revolutionary new case design gives the user convenience to control, and places the visual indicators in direct sight during use.

Features

Microprocessor control, with Advanced Digital Signal Processing
 Tricolor visual display
 Seven (7) levels of sensitivity provide an increase of up 64x
 Tactile keypad controls
 Real time sensitivity adjustment
 Battery Test function
 Battery Voltage indication
 Certified to delicacy for R134a, R12, R122
 Detects ALL halogenated Refrigerants
 Cordless and portable, operates on 2 "C" cell batteries
 14" (35.5cm) flexible, stainless probe
 One year warranty

Parts and Controls

1. Sensing Tip
2. Tip Protector
3. Power ON/OFF
4. Reset Button
5. Sensitivity Up
6. Sensitivity Down
7. LED Leak Indicators
8. Flexible Probe

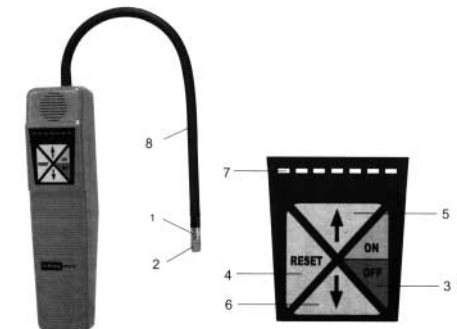
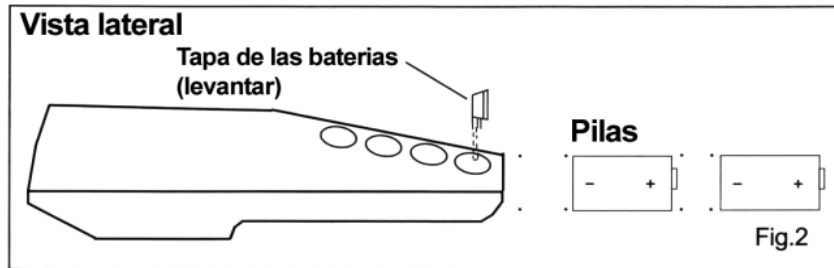


Fig.1

Getting Started

Installing Batteries

Remove the battery compartment door located on the bottom of the instrument by sliding up, as shown below. Install batteries, Positive Polarity outwards (towards battery door). (See Fig. 2).



Operating Features

Power Indication/ Battery Test

The DF-01 provides two indications of battery voltage status; a Constant Power indicator (leftmost LED).

The Constant Power indicator allows the user to see the battery level at all times. The LED will remain on whenever the unit is powered on. It may appear as one of three colors (See fig. 3):

Green- Battery voltage is normal, sufficient for proper operation.

Orange- Battery voltage is approaching the lower threshold for operation, replace as soon as possible.

Red- Battery voltage is below acceptable operating level.



Automatic Circuit/Reset Feature

The Delicacy DF-01 features an automatic circuit and a Reset function key that set the unit to ignore ambient concentrations of refrigerant.

Automatic Circuit- Upon initial power on, the unit automatically set itself to ignore the level of refrigerant present at the tip. Only a level, or concentration, greater than this will cause an alarm. Caution: Be aware that this feature will be turned off. If you place the tip up to a known leak and switch the unit on, no leak will be indicated.

Reset Feature- Pressing the RESET key during operation performs a similar function. When the RESET key is pressed it programs the circuit to ignore the level of refrigerant present at the tip. This allows the user to “home-in” on the source of

the leak (higher concentration). Similarly, the unit can be moved to fresh air and reset for maximum sensitivity. Resetting the unit with no refrigerant present (fresh air) causes any level above zero to be detected. Whenever the unit is reset the LED's (except the leftmost power indicator) will turn red for 2 seconds. This provides a visual confirmation of the reset action.

Sensitivity Adjustment

The delicacy DF-01 provides seven level of sensitivity, the sensitivity level is indicated on the visual display when either the SENSIVITY↑ or SENSIVITY↓ are pressed. The base beeping tone is also an indication of sensitivity level.

Operating Features

When the unit is switched on, it is set to sensitivity level 5.

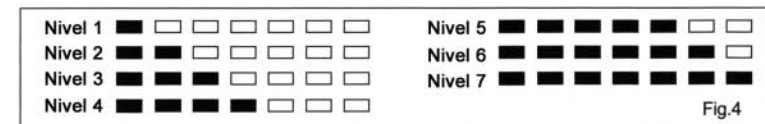
To adjust the sensitivity, press the SENSIVITY↑ or SENSIVITY↓. When the key is pressed, the visual display will show the LED's red. The number of LED's lit, indicating the level (See Fig. 4). Level one (lowest sensitivity) is shown by the leftmost LED. Counting from left, levels 2 through 7 are indicated by the corresponding number of red LED, i.e. level 7 is shown by all LED lit.

Pressing the SENSIVITY↑ or SENSIVITY↓ will change the sensitivity.

The keys can be pressed intermittently to change levels one at a time, or held down to move quickly through the levels.

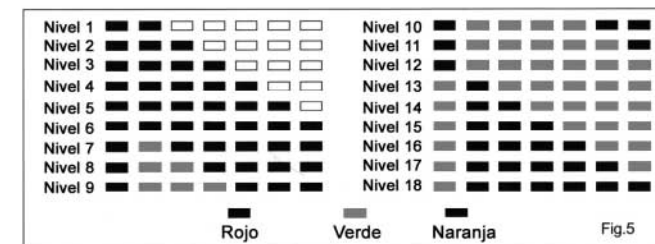
Each time the level is increased (or decreased), the relative sensitivity is doubled.

This allows sensitivity to be increased as much as 64 times.



Alarm Indications

The delicacy DF-01 features 6-alarm levels. This permits a clear indication of relative leak size and strength. The progressive indicators can be used to home-in on a leak; as the increasing alarm levels indicate that the source (highest concentration) is being approached. Each level is indicated by additional LED in one of three colors, Red, Green or Orange (See Fig. 5).



Operating Instructions

Operation:

Switch the unit on by pressing the ON/OFF key. The display will illuminate with the reset indication (Left LED green, all others RED) for 3 seconds.

Verify the battery level by observing the constant power indicator (see above).

Upon Turning on, the unit is set to sensitivity level 5. A rapid, but steady beep rate will be heard. If desired, the sensitivity can be adjusted by pressing the SENSIVITY↑ or SENSIVITY↓, as described above.

Begin searching for leak. When refrigerant is detected, the audible tone will change to a “siren” type sound, distinctly different from the base beep rate. Additionally, the visual indicators will light progressively as described in the Alarm indications section.

Sensitivity can be adjusted at any time during operation by using the SENSIVITY↑ or SENSIVITY↓. This adjustment will not interrupt detection. If a full alarm occurs before the leak is pinpointed, press the RESET key to reset the circuit to a zero reference as described above.

For the purpose of the accuracy and reliability of the unit, the RESET function can be frequently used.

Operating Tips

The following section includes several general operating tips, and the delicacy recommended procedure for leak detection.

Adjust the sensitivity up, only when a leak can't be found. Adjust the sensitivity down only when resetting the unit do not allow to “home in” on the leak.

In areas that are heavily contaminated with gas, the unit may be reset to block out ambient concentrations of gas. The probe should not be moved while the unit is being reset. The unit can be reset as many times as needed.

In windy areas, even a large leak can be difficult to find. Under these conditions, it is best to shield the potential leak area.

Be aware that the detector may alarm if the sensing tip comes in contact with moisture and/or solvents. Therefore, avoid contact with these when leak checking.

DF-01 Recommended Procedure

Note: On Automotive A/C Systems leak test with the engine not in operation.

The air conditioning or refrigeration system should be charged with sufficient refrigerant to have a gauge 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 measurable, since this pressure may not be reached.

Take care not to contaminate the detector probe tip if the part being tested is contaminated. If the part is particularly dirty, or condensate (moisture) is

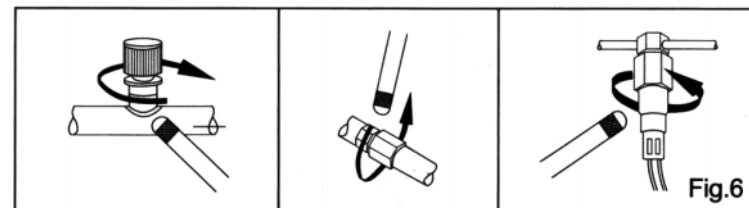
present, it should be wiped off with a dry shop towel or blown off with shop air. No cleaners or solvents should be used, since the detector may be sensitive to their ingredients.

Visually trace the entire refrigerant system. And look for signs of air conditioning lubricant leakage, damage, and corrosion on all lines, hose, and components.

Each questionable area should 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.

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.

At each area checked, the probe should be moved around the location, at a rate no more than 25 to 50 mm/second (1-2in/second). And no more than 5 mm (1/4in) from the surface, completely around the position. Slower and closer movement of the probe greatly improves the likelihood of finding a leak (see fig. 6).



An apparent leak shall be verified at least once as follows:

- Blow shop air into the area of the suspected leak, if necessary, and repeat 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.
- First move the probe to fresh air and reset. Then hold the probe tip as close as possible to the indicated leak source and slowly move around it until the leak is confirmed.

Automotive A/C Systems only-

Leak testing of the evaporator core while in the air conditioning module shall be accomplished by turning the air conditioning blower in high for a period of 15 seconds minimum, shutting it off, then waiting for the refrigerant to accumulate in the case for 10 minutes.

After such time, insert the leak detector probe into the blower resistor block or condensate drain hole, if no water is present, or into the closet opening in the heating/ventilation/air conditioning case to the evaporator, such as the heater duct or a vent duct. If the detector alarms, a leak apparently has been located.

All Systems

Following any service to the refrigerant system and any other service which disturbs the refrigerant system, a leak test of the repair and of the service ports of the refrigerant system should be done.

Applications

The DF-01 Leak Detector may also be used to:

Detect leaks in other systems and storage/recovery containers. It will respond to ALL halogenated (contains Chlorine or Fluorine) refrigerants. This includes, but is not limited to:

CFCs e.g. R12, R11, R500, R503 etc...

HCFCs e.g. R22, R123, R124, R502 etc...

HFCs e.g. R134a, R404a, R125 etc...

Blends such as AZ-50. HP62. MP39 etc...

Detect Ethylene Oxide gas leaks in hospital sterilizing equipment (it will detect the halogenated carrier gas).

Detect SF-6 in high voltage circuit breakers

Detect most gases that contain Chlorine, Fluorine and Bromine (halogen gases)

Detect cleaning agents used in dry cleaning applications such as carbon tetrachloride.

Detect halogen gases used in fire-extinguishing system

Maintenance

Proper maintenance of your Leak Detector is very important. Carefully following the instructions, outlined below, will reduce performance problems and increase the life expectancy of the unit.

WARNING: TURN UNIT OFF BEFORE REPLACING THE SENSING TIP. FAILURE TO DO SO MAY RESULT IN A MILD ELECTRICAL SHOCK!

Keep the sensing tip clean: Prevent dust, moisture and grease build-up by utilizing the provided tip protector. Never use the unit without the protector in place.

Before use the detector please inspect the tip and protector to see that they are free of dirt and/or grease. To clean:

1.Remove protector by grasping and pulling off tip.

2.Clean protector with shop towel and/or compressed air.

3.If the tip itself is dirty, it can be cleaned by being immersed in a mild solvent, such as alcohol, for a few seconds, and then using compressed air and/or a shop towel to clean.

Note: Never use solvents such as gasoline, turpentine, and mineral spirits etc... as these will leave a detectable residue and desensitize your unit.

Sensing tip replacement: the tip will eventually wear out and require replacement. It is difficult exactly when this will occur since tip longevity is directly related to the conditions and frequency of use. The tip should be replaced whenever the alarm sounds or becomes erratic, in a clean, pure, air environment.

To replace the tip:

1.Make sure the unit is OFF.

2.Remove the old tip by unscrewing counter-clockwise.

3.Use the supplied replacement tip, located in the carrying case. Replace by screwing on clockwise.

Replacement Parts

Standard Equipment

Your Halogen Leak Detector comes equipped with one Carrying Case, one Owner's Manual, 2 "C"-cell batteries and one replacement sensing tip and protector.

To purchase replacement parts for your leak detector please contact your local distributor. To ensure that you obtain the correct parts it is best to reference the part number when placing your order.

Replacement parts:

Delicacy DF-01 Maintenance Kit (2 sensing tips & 2 Tips protector)

Fixed Probe Length: 35.5cm