



TA430D

Refrigerant Leak Detector Instruction Manual



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1. GENERAL INFORMATION

Thank you for purchasing Infrared Refrigerant Leak Detector. Read through the instruction manual before operation for correct and safe usage. Please store and retain this instruction manual for future reference.

2. FEATURES

Infrared Refrigerant Leakage Detector uses a newly developed infrared gas sensor which is extremely sensitive to variety of general used refrigerant. It provides features of fast-response, high-reliability, and long-durability. It is an ideal tool for maintaining the air-condition or a cooling system with compressor and refrigerant.

- Microprocessor Control with advanced digital signal processing.
- Multi-color visual display.
- Mute function to turn off audible alarm.
- Turbo-High-Medium-Low leak sensitivity selector.
- Low battery indication.
- Infrared gas sensor.
- Detection of Freon gases, including R-134a, R-410A, R-407C, R404A, R22, R32, HFO-1234yf, etc.
- Carrying case included.
- 15.5" (40 CM) flexible stainless probe.
- Ambient concentration reset at default.
- Disable Auto-reset (Ambient concentration reset).

- Peak Hold function – find leaks in noisy environments.
- Automatic zero and background compensation at default.
- AC USB Adapter: @5V 1A

3. SPECIFICATIONS

Detectable Gases:

R-134a, R-404A, R-407C, R-410A, R-404A, R-22, R32, HFO-1234yf etc.

Sensitivity:

	T	H	M	L
R-22, R-32, R-134a, 404A, 407C, 410A, HFO-1234yf	3g/ year	10g/ year	50g/ year	100g/ year

Alarm Method:

Buzzer, Tricolor LED bar Indicator

Power Usage:

3.7Vdc rechargeable Lithium-ion battery

Snake Tube length: 40cm (15.5")

Dimension / Weight:

198 x 70 x 42.5 mm (approximately 365g)

Accessories:

User manual, carry case, Li-ion battery, Micro USB

Cable, AC-USB adapter

Battery Life: Approximately 5 hours normal use

Battery Charge Time: approximately 6 hours

Auto power OFF: 10 minutes

Warm-Up Time: Approximately 45 seconds

Operating Temperature & Humidity:

0 ~ 40°C, < 80% RH

Storage Temperature & Humidity:

-10 ~ 60°C, < 70% RH

Altitude: < 2000M (6500')

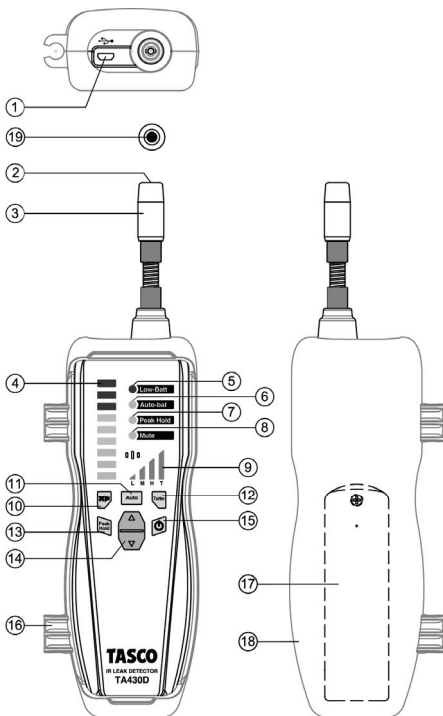
4. OPERATION GUIDE

- (1) The Infrared Refrigerant Leak Detector unit is not equipped with anti-explosive designs and measures. Do not use this unit in the environment with the burnable gases.
- (2) There are some environmental conditions that might cause error reading:
 - Pollutant places.
 - Large temperature variation.
 - Places with high wind velocity.
 - Organic solvent, adhesive vapor, fuel gas and vesicant will cause abnormal response from the sensor. Try to avoid the environment involved with this substance.

- Places fill with too much to Freon gas.
- (3) Please note that a white filter must be installed into the probe tip. If a white filter is missed and the operator directly detects the leakage, the Infrared Chamber system will be damaged. If a white filter is dirty, please replace a new one.

5. PARTS & CONTROL

5-1 Panel Description

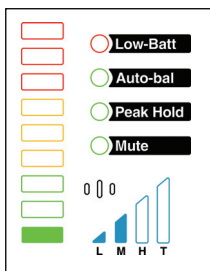


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- | | |
|---------------------------------|--------------------------|
| ① USB Power | ② Sensor Probe |
| ③ Sensor Protector | ④ LED Leak Indicators |
| ⑤ Low Battery Indicator | ⑥ Auto-Balance Indicator |
| ⑦ Peak Hold Indicator | ⑧ Mute Indicator |
| ⑨ Sensitivity T/H/M/L Indicator | |
| ⑩ Mute Button | ⑪ Auto Reset Button |
| ⑫ Turbo Button | ⑬ Peak Hold Button |
| ⑭ Sensitivity H/M/L Button | |
| ⑮ Power On/Off | ⑯ Probe Clamp |
| ⑰ Battery Cover | ⑱ Holster |
| ⑲ White Filter | |
-

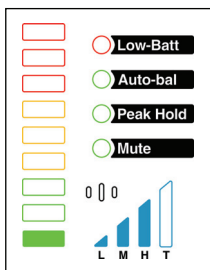
5-2 LED Leak Indicator Definition:



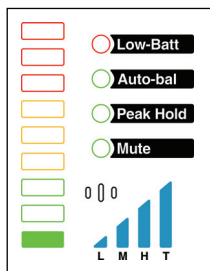
**Low
Concentration
Indication**



**Medium
Concentration
Indication**



**High
Concentration
Indication**



**Turbo
Concentration
Indication**

6. GETTING STARTED

6-1 Installing Batteries

- Loose the screw and remove the battery compartment door located on the bottom of the instrument as show below (Fig.1).
- Install Lithium-ion battery pack.
- Reinstall the battery cover by aligning it with the handle.

When the battery is nearing the end of their useful life, the  **Low-Batt** red LED low battery indicator will flash. The battery should be recharged as quickly as possible.

6-2 Charging

When the battery is being charging, the  **Low-Batt** red LED low battery indicator will light up. It will be off after charging is completed.

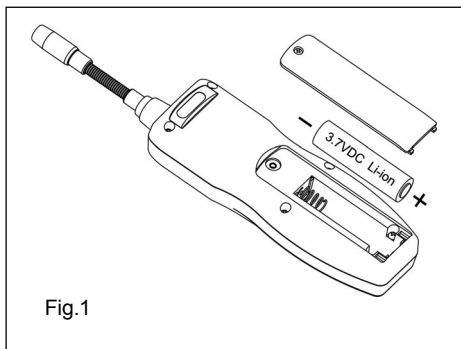
6-3 Lithium Battery Care

The Infrared Refrigerant Leak Detector contains a very powerful Lithium-ion battery. For a long battery life and safe operation, you must observe the following:

CAUTION!

- (1) Do not short-circuit battery.
- (2) Do not reverse connect.
- (3) Do not disassemble or reconstruct battery.

- (4) Do not expose the battery to temperatures higher than 140°F (60°C).
- (5) Do not charge the battery in or nearby heated places, such as fire, hot vehicles, or direct sunlight.
- (6) Do not expose the battery to direct impact or throw it.
- (7) Do not get the battery wet.
- (8) Do not deform or pierce the battery in any way.
- (9) If there is any battery leakage, do not touch the battery. In the case that electrolyte gets into the eyes, flush with fresh water, do not rub, and see a physician immediately.
- (10) Replace immediately if there is any deformity, bad smell, color change, or other abnormality.



6-4 Automatic Ambient Reset Feature

This Infrared Refrigerant Leak Detector features an Automatic Ambient Reset function that sets the unit to ignore ambient concentrations of refrigerant.

- **Automatic Ambient Setup** - Upon initial power on, the unit automatically sets itself to ignore the level of refrigerant present at the tip. Only a level, or concentration, greater than this will cause an alarm.

Note: Press  **Auto button** for 2 second to call off Automatic Ambient Setup. Press  **Auto button** for 2 second again to recall Automatic Ambient Setup.

CAUTION!

Be aware that this feature will cause the unit to ignore any refrigerant present at turn on. In other words, with the unit off if you place the tip up to a known leak and switch the unit on, no leak will be indicated!

6-5 Button Feature

-  **Power Button**

Press the **Power button** to turn on. Press again for 3 seconds to turn off the power.

- **Auto Button**

Press  for 2 seconds to turn on /off.

Auto-Balance Function:

To decide the method to screen the background signal off.

(1) Auto-bal On (default setting):

The tester will use the time averaging of the total signal as its background level and seeking for higher concentration space. Under this setting, the user should move the sensor slowly around the testing area to seek the potentially leaking location.

Note: The unit can be moved to fresh air and reset for background signal level sensitivity. Resetting the unit with no refrigerant present (fresh air) causes any level above zero to be detected.

(2) Auto-bal Off:

The tester will use a selected signal level and show the concentration increasing as the sensor move around. The background signal level can be set anytime by pressing the “Auto” button to reselect the new reference level. Under this mode, it will be helpful to point out the exact location of the leaking.

Disable Ambient Reset - When the Auto-bal light is off, it indicates the Reset function is in manual

mode which is only for the sensitivity H/M/L level. Press the “Auto” button once to enable manual Reset function.

Note: At High sensitivity Level: To use auto-balance off mode, the tester needs heating up time more than 3 minutes after turning on, then turn off the Auto-Balance. Proper background level setting needs to be considered.

- **Turbo Button**

Press the **Turbo Button** to detect the highest sensitivity at 3g/year.

- **Button**

To select Sensitivity Level at High or Medium or Low.

The default sensitivity level is set at High.

- **Peak Hold Button**

The Peak Hold function holds the highest change in concentration achieved while continuing to detect leaks. Press **Peak Hold button** to toggle this function on and off  **Peak Hold**.

- **Mute Button**

If the environment requires silence during leak detection work, the user may press **MUTE button**

to turn off the audible alarm and solely rely on visual LED indicators. Press **MUTE button** to toggle this function on and off  **Mute**.

Note: Keep moving slowly detection, if detected suspicious leaks, slow-moving, please repeatedly confirmed.

After the unit is warmed up, the default sensitivity level is set at "High".

6-6 Sensitivity Adjustment Feature

The Instrument provides four levels of sensitivity. When the unit is switched on, it is set to the High sensitivity level.

- To change the L/M/H sensitivity, press the

 " " key.

(1) When switching to High sensitivity, the 3 Blue LED's will light.

(2) When switching to Low sensitivity, the one Blue LED will light.

(3) When switching to Medium sensitivity, the 2 Blue LED's will light.

- To change the Turbo sensitivity, press the



Turbo button. All Blue LED's will light.



Low Sensitivity level
(1 Blue LED)



Medium Sensitivity level
(2 Blue LED)



High Sensitivity level
(3 Blue LEDs)



Turbo Sensitivity level
(4 Blue LEDs)

7. OPERATING PROCEDURE

⚠ WARNING!

Do not operate this instrument in the presence of gasoline, natural gas, propane, or in other combustible atmospheres.

● How to Find Leaks?

NOTE: A sudden whipping of the leak detector probe or "blowing" into the sensor tip will affect the air flow over the sensor and cause the instrument to alarm.

(1) Power-Up key:

The **Power button**  turns the Refrigerant Leak Detector instrument ON or OFF function.

Press it once to turn on the Refrigerant Leak Detector, the display will illuminate with flash, for 45 seconds to heat up the sensor.

Press and hold this button for 3 second to turn off the power.

(2) Enter the measuring mode

- 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 (6 mm) of the possible leak source.
- Slowly move the probe past each possible leakage point.

- When the instrument detects a leak source, the audible tone will alarm. Additionally, the visual indicators will light from lower to higher; green LED then yellow LED then red LED (highest concentration) as increasing of level indicate that the location is close to the source.
- When the Instrument signals a leakage, pull the probe away from the leak for a moment, then bring it back to pinpoint the location. If the refrigerant leak is large, setting the sensitivity switch to LOW will make it easier to find the exact site of the leak.
- Return the sensitivity switch to Turbo before searching for additional leaks.
- When you've finished leak-testing, turn off the instrument and store it in a clean place, protect the leak detector from possible damage.

(3) Leak Detection Procedure

- Press the **Power button**  for one second. The warm-up and calibration sequence takes approximately 45 seconds. The sensitivity level defaults to High at startup.
- The most likely place for a refrigerant leak is at soldered joints in refrigerant lines and changes in cross section or direction of these lines. The detect changes in concentration of refrigerant, not the absolute concentration of refrigerant. This makes

the detection of leaking locations possible with the refrigerant in the air. Use the following “**double pass**” procedure to find leaks by detecting the change in refrigerant concentration.

(A) Charge the system with sufficient refrigerant.

Turn the system on and force compressor to operate. This could set the high pressure end of the circulation ring to its operating pressure. Turn the system off for safer test operation and less interference.

(B) Visually trace the entire refrigerant system, and look for signs of air conditioning lubricant leakage, damage, and corrosion on all lines, hoses, and components. Check each questionable area with the detector probe, as well as all fittings, hose-to-line couplings, refrigerant controls, service valves with caps in place, brazed or welded areas, and areas around attachment points and hold-downs on lines and components. During this larger leakage finding process at present operating sensitivity range, please switch to the lower sensitivity range.

(C) Always go through the complete refrigerant circulation path so that no areas of potential leaks are missed. If one leakage is found,

continue to test the remaining part of the system.

- (D) Recheck service valves with caps removed. Air clean the service valve to clear the immediate area, and then check with detector with High sensitivity setting.
- (E) Move the detector at the speed no more than 75 mm/sec (3 in/sec) and as close as possible to 6 mm (1/4 in) from the surface, completely encircling each test position (switch, sensor, refrigerant tubing connection, etc).
- (F) Slower movement and closer approach of the probe normally improve the possibility of finding a leak. However, detectors made to meet this standard are based on air sampling from the 6 mm (1/4 in). Retest is advisable when a leak appears to be found at the most sensitive settings, particularly if the probe was in a static position on a joint, or making physical contact with a joint, as it was moving. Repeat the test by moving probe around that location, taking care to maintain the small gap (6 mm or 1/4 in) to confirm the leak is of repairable size. Use of the 10 g/yr position of the detector, after finding an apparent leak with the 3 g/yr setting, may also be helpful.

- (G) The leak detector is sensitive and can take up to 30 seconds to clear after detecting a small amount of contaminant. It will typically clear in 2 to 15 seconds.

When the source of the leak is detected, the detector will cause a reaction, if the first green LED continues to flash, indicating that the sensor is not restored to the best condition, please wait a few seconds to restore.

⚠ WARNING!

DO NOT use the detector without the proper filter correctly installed.

If the detector strong vibrations will cause the sensor instability, avoid violent shaking.

8. CLEANING:

The Instrument plastic housing can be cleaned with standard household detergent or isopropyl alcohol. Care should be taken to prevent the cleaner from entering the instrument. Gasoline and other solvents may damage the plastic and should be avoided.

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