



TIF IR-1A



# OWNERS MANUAL

Infrared Refrigerant Leak Detector





**Summary Performance Report for TIF IR-1A Refrigerant Leak Detector in Accordance to EN 14624:2012.**

**Performance of Portable Leak Detectors for Halogenated Refrigerants.**

<b>Detector under test:</b>	TIF IR-1A Infrared Refrigerant Leak Detector
<b>Type of detector:</b>	Locating leak detector (type C)
<b>Gas Type:</b>	All CFC's, HCFC's, HFC's, HFO1234yf and Blends
<b>Capabilities:</b>	Non-selective
<b>Output signal:</b>	Instantaneous with audio and visual indicators
<b>Response time:</b>	<1 second
<b>Recovery time:</b>	For largest leak <2 seconds
<b>Repeatability:</b>	100 % repeatable results
<b>Calibration:</b>	No calibration required (auto calibration)

**Technical data for locating portable leak detectors:**

<b>Static upper limit for locating leaks:</b>	No upper limit (50 g/yr or greater)
<b>Static lower limit for locating leaks:</b>	0.5 g/yr (0.02 oz/yr)
<b>Dynamic upper limit for locating leaks:</b>	No upper limit (50 g/yr or greater)
<b>Dynamic lower limit for locating leaks:</b>	1.0 g/yr (0.04 oz/yr)
<b>Response time:</b>	<1 second
<b>Zeroing time:</b>	<2 seconds
<b>Lower limit contaminate environment:</b>	3.5 g/yr (0.12 oz/yr)
<b>Re-calibrating frequency:</b>	Never (automatic calibration)
<b>Leak detector weight:</b>	0.4 kg (15 oz)





## Product Description

The TIF IR-1A uses infrared optics to create a refrigerant leak detector that combines sensitivity, speed, battery life, portability and ease of use. This unit will detect leaks as small as 3 g/yr, and exceeds EN 14624.

The TIF IR-1A comes with a wall charger for its compact lithium-ion battery - which can power the leak detector for up to eight hours of continuous operation before needing to recharge. A choice of three sensitivity settings keeps false alarms to a minimum while allowing detection of even the smallest leak in a refrigerant contaminated environment. A 30 seconds self-calibration test occurs whenever the unit is powered on to ensure optimal performance. A built-in replaceable filter blocks moisture and particulates, preventing damage to the sensor.

## Specifications

Sensing element	enhanced infrared photo optics
Refrigerants	HFC, CFC, HCFC, HFO1234yf and blends
Sensitivity levels	HIGH: <3 g/yr and higher MED: <7 g/yr and higher LOW: <14 g/yr and higher Exceeds EN 14624 and SAE J2791 standards.
Response time	less than one second
Battery life	up to eight hours of continuous use before recharging
Auto off	10 minutes of inactivity
Battery	3.7 V DC, 1880 mAh rechargeable, lithium-ion battery (TIF IR-9)
Low battery LED	illuminates when one hour of battery life remains
Charge time	less than 4 hours @ 500 mA
Operating environment	0 °C (32 °F) to 50 °C (122 °F) at <75 % RH
Storage environment	<80% RH for detector and battery
For 80 % battery recovery	-20 °C (-4 °F) to 60 °C (140 °F) less than one month -20 °C (-4 °F) to 45 °C (113 °F) less than three month -20 °C (-4 °F) to 20 °C (68 °F) less than one year
Accessories included	wall charger, storage case, battery (installed), replacement filters & O-rings and operator's manual

# Safety Precautions

## **WARNING! To prevent personal injury and/or equipment damage:**



- Read, understand, and follow all warnings stated in the Lithium Battery Care section of this manual.
- **DO NOT** charge the battery with any charger other than the chargers supplied with the unit.
- **DO NOT** use the TIF IR-1A without a clean filter correctly installed in the tip.
- **DO NOT** draw moisture in through the probe.



# Lithium Battery Care

The TIF IR-1A operates on a lithium-ion type battery. For long battery life and safe operation, observe all warnings.

## **WARNING! To prevent personal injury and/or equipment damage:**



- Do not disassemble or attempt to repair the battery or protective circuit.
- Never attempt to charge the battery if it has been removed from the unit.
- Do not expose the battery to temperatures above 60 °C (140 °F).
- Do not charge the battery near a fire or in a hot vehicle or direct sunlight.



- Do not solder directly on the battery.
- Do not subject the battery to impact.
- Do not expose the battery to moisture or immerse it in fluid.
- Do not deform, pierce, or damage the battery.



- Do not touch a battery that is leaking electrolytes. If battery fluid should get in your eyes, flush with fresh water, do not rub eyes, and see a physician immediately.



- Do not use a battery if it is deformed, smells bad, changes color, or appears abnormal. Send the unit in for a replacement battery immediately.



## Charging the Lithium Battery

### 1. Before using the unit the first time:

Fully charge the battery. The unit was packaged and shipped from the factory with the battery only partially charged.

### 2. When the battery is low:

The LOW-BATT LED will illuminate in red.

### 3. To recharge TIF IR-1A:

Plug one end of the charger into the top of the unit, and the other end of the charger into the power source. The LOW-BATT LED will blink while charging until the battery is fully charged.

**NOTE: Charge within the charging environment specifications of 0 °C (32 °F) to 50 °C (122 °F) at <75 % RH.**

### 4. Avoid discharging the battery completely.

Recharging a partially discharged battery more frequently is better for the life of a lithium-ion battery.

## Functions and Settings

### ON/OFF Protection

Press and hold the ON/OFF button for one second to turn the TIF IR-1A ON or OFF. This one-second delay protects against accidental ON or OFF.

### LED Bar Graph Display

The eight-segment LED display indicates the degree of change in refrigerant concentration. As the concentration of refrigerant in the air increases, the number of illuminated bars on the display increases also.

### L/M/H Button (Sensitivity Levels)

Set the unit's sensitivity level by pressing the L/M/H button. Low (L), medium (M), or high (H) sensitivity level is indicated by its respective LED. The higher the background concentration of refrigerant in the air, the lower the sensitivity level should be set. To detect a very small leak in a high refrigerant background, use the Contaminate Mode.

### Mute Button

Press the MUTE button to toggle the audio portion of the TIF IR-1A ON or OFF.

### Peak Button

The PEAK function stores the highest change in refrigerant concentration achieved while continuing to detect leaks. Press the PEAK button to toggle this function ON and OFF. The PEAK LED illuminates when this function is turned on. Turning the PEAK function off clears the peak information.

## Contaminate Mode

To detect even the smallest leak in refrigerant-contaminated environments, press the PEAK button rapidly four times. The green LED will flash rapidly to show contamination mode is on. Press the PEAK button rapidly four times again to turn contamination mode off.

## Leak Detection Procedure

1. Press and hold the ON/OFF button for one second. The warm-up and calibration sequence takes approximately 30 seconds. The sensitivity level defaults to High at startup.
2. 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 TIF IR-1A detects changes in concentration of refrigerant, not the absolute concentration of refrigerant. This allows the detection of leaks in locations that may have refrigerant in the air. Use the following “double pass” method to find leaks from the detection of change in refrigerant concentration.
  - A. Charge the system with sufficient refrigerant to have a gauge pressure of at least 340 kPa (3,4 Bar) with the system off. At ambient temperatures below 15 °C leaks may not be measureable because the pressure may not be reached.
  - 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. If looking for an apparently larger leak, check first at the 7 g/yr or 14 g/yr position.
  - C. 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.
  - D. Recheck service valves with caps removed. Blow fresh air over service valve to clear immediate area, and then check with detector on 7 g/yr setting.
  - E. Move the detector at a rate of no more than 75 mm/sec (3 in/sec) and as close as possible to 9.5 mm (3/8 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 likelihood of finding a leak. However, detectors made to meet this standard are based on air sampling from the 9.5 mm (3/8 in) distance. 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 with a moving probe test at that location, taking care to maintain the small gap (9.5 mm or 3/8 in) to confirm that the leak is of repairable size.
- G. The TIF IR-1A 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.



**CAUTION: Do not use cleaning agents or solvents on or near A/C lines. Wipe away any dirt or potential false-trigger chemicals using a dry towel or fresh air.**

## Replacement Parts and Accessories

Item	Part No.
100-240 V AC Wall Charger	TIF IR-2
Extension Probe (23 cm)	TIF IR-4
Rigid Extension Probe	TIF IR-5
12 V DC Charger	TIF IR-7
Lithium-Ion Battery	TIF IR-9
EU Plug Adapter	TIF IR-10
GB Plug Adapter	TIF IR-11
Maintenance Kit: Filters (10) and O-rings (5)	TIF IR-12

# Filter Replacement

A filter, located in the tip of the wand, blocks moisture and other contaminants from the sensor. When this filter becomes wet, it restricts the flow of air and must be replaced.

**To replace the filter:**

1. Unscrew and remove the tip of the sensor to expose the white filter.
2. Remove and discard the filter.
3. Position a new filter in the tip so the round end of the filter is closest to the tip of the wand.

**NOTE: Use only factory supplied replacement filters.**

# Storage

The battery should have a 40 % to 50 % charge during prolonged storage of a month or longer. The correct storage environment is critical to battery life.

**Storage environment:**

<80 % RH for detector and battery.

**For 80 % battery recovery:**

- 20 °C (-4 °F) to 60 °C (140 °F) less than 1 month
- 20 °C (-4 °F) to 45 °C (113 °F) less than 3 months
- 20 °C (-4 °F) to 20 °C (68 °F) less than 1 year

**NOTE: Battery life will be reduced significantly if the battery is stored with a full charge and/or at high temperatures.**

# Warranty

This product has been produced to provide unlimited service. Should it become inoperable after the user has performed the recommended maintenance, a no-charge repair or replacement will be made to the original purchaser. This applies to all repairable units that have not been damaged or tampered with. The claim must be made within ONE YEAR of the date of purchase.