

USER MANUAL

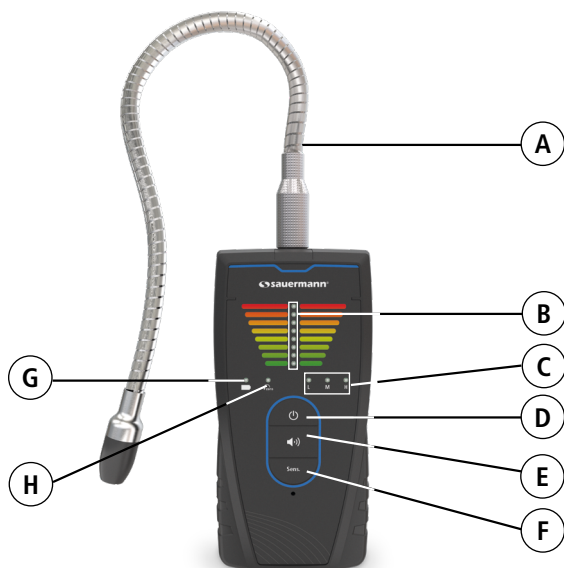
Si-RD3

REFRIGERANT LEAK DETECTOR

1 - Instrument description

The Si-RD3 refrigerant leak detector uncovers leaks of most common refrigerant gases to a high degree of sensitivity, including all HCFC and HFC refrigerants, R1234yf, R1234ze, R290, R600a, and 5% hydrogen-95% nitrogen mixtures (Nidron 5 and Trace-A-Gas).

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| (A) Detection probe | (E) Activation / deactivation button for the audible signal |
| (B) Leds of graphic visualisation of thresholds | (F) Sensitivity/Manual autozero button |
| (C) Leds of sensitivity | (G) Batterie led |
| (D) On/off button | (H) Autozero led |



2 - Safety and environment

About this document

Please read this document and familiarize yourself with the product before putting it to use. Keep this document on hand so that you can refer to it when necessary. Pass this documentation on to any subsequent users of the product.



Avoid personal injury/damage to equipment

- This device has been developed to detect CFC, HCFC and Nidron 5/Trace-A-gas and for an indoor use. Please always use the device in accordance with its intended use and within parameters described in the technical features in order not to compromise the protection ensured by the device.
- Only the accessories provided with the device or available as an option must be used.
- Never store the product together with solvents, acids or other aggressive substances.
- Only carry out maintenance and repair work that is described in the documentation. Follow the detailed steps when doing so. Use only original spare parts from Sauermann.
- If the device falls or in case of similar inconveniences, or if an irregular malfunction appears, please do not use the device and bring it back to your distributor to ensure your own safety.
- The device must not be used in ATEX zones according to applicable standards.
- The device does not contain any internal part repairable by the user. Do not open the instrument.
- This device can pose a risk for wearers of pacemakers. Respect a distance of at least 10 cm (4") between the device and the wearer.
- Observe safety distances to products that can be damaged by the magnetic field (e.g. monitors, computers, credit cards).

Exclusions and restrictions of liability

The application operation is under the exclusive customer or user entity responsibility, who acknowledges using this system at his/her own risks. The customer or user entity explicitly exclude Sauermann, and every other company through which the it could have been sold of any kind of responsibility or warranty regarding any direct, indirect, accidental, consecutive or non-consecutive damage that could have been subjected, for some or all, by partial or total non-respect, voluntary or involuntary, of recommendations, conditions and prerequisites indicated hereafter.

Symbols used

For your safety and in order to avoid any damage of the device, please follow the procedure described in this user manual and read carefully the notes preceded by the following symbol:



The following symbol will also be used in this user manual, please read carefully the information notes indicated after this symbol:



Warning: possibility of electric shock



3 - Standard

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Sauermann could voice the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

4 - Technical specifications

Mode	Indicative measuring range (g/year)	Visual alarm
Low sensitivity ("L" on the device)	From 0 to 300 g/year	All the LEDs (8) for 300 g/year
Normal sensitivity ("M" on the device)	From 0 to 30 g/year	All the LEDs (8) for 30 g/year
High sensitivity ("H" on the device)	From 0 to 3 g/year	All the LEDs (8) for 3 g/year

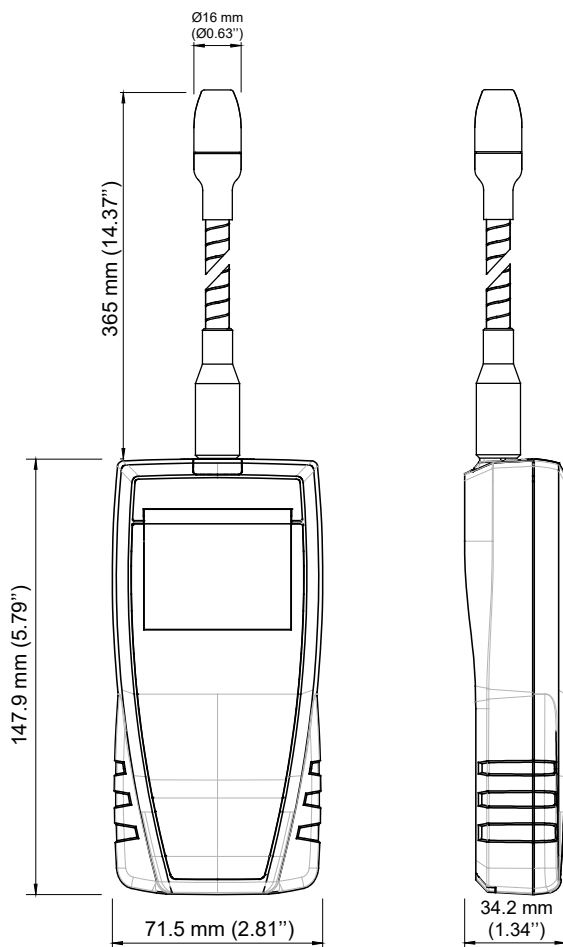
5 - General features

Main detected refrigerants	HFC: R134a, R404a, R407c, R410a, R32, R422a/b/c/d, R425a, R507a, R125 HCFC: R22 / CFC: R12, R502 Others: 5% hydrogen - 95% nitrogen (Nidron 5, Trace-A-Gas), R290, R600a, R1234yf, R1234ze
Measuring element	Semiconductor sensor
Display	13 LEDs: 8 for the graphic visualization of thresholds 3 for the sensitivity of detection 2 for the battery level and manual autozero
Indication	LED: gradual lighting up when the gas concentration increases Audible: the beep frequency increases when the gas concentration increases
Probe	Flexible, 300 mm length
Autonomy*	> 12 hours
Housing	ABS topsafe, protection IP54
Keypad	3 keys
European directives	2014/30/EU EMC; 2014/35/EU Low Voltage; RoHS 2011/65/EU (EU)2015/863; 2012/19/EU WEEE
Power supply	4 AAA LR03 1.5 V batteries
Ambiance	Air and non-corrosive gases
Conditions of use (°C, %RH, m)	From 0 to +50 °C. In non condensing conditions. From 0 to 2000 m.
Storage temperature**	From -20 to +80 °C
Auto-extinction	15 min
Weight	295 g (10.4 oz)

*Battery life given at 20°C (68°F) with alkaline batteries.

**If the instrument is stored outside the operating temperature (for example in a van, a warehouse, etc.), please wait for 10 minutes in its operating temperature before starting and using it.

6 - Dimensions



7 - Accessories

Designation	Sale reference	Description
CQ 15	24633	Magnetic protective housing
F-DFC	24458	Set of 5 filters, PU20 white foam
C-DFC	24457	Replacement sensor
FFT-CFC	22131	Vial of test liquid. Compact reference leak source.

8 - Operating instructions

Insert the batteries

- Remove the batteries compartment cover at the back of the device.
- Put the 4 alkaline AAA LR03 1.5V batteries supplied with the instrument.
- Carefully respect the polarity.
- Put back the battery compartment.

Perform a measurement

- Place the device in the required location to detect possible gas leak.
- Press ON/OFF key.
- The pre-heating phase of the sensor begins and lasts for 60 seconds. During this phase, all the visualisation leds of thresholds light one after the other. A few second before the end of the pre-heating phase, all the leds blinks at the same time.
- Place the probe as close as possible to the location of the suspected leak.
- Slowly move the probe (approximately 2 cm/second) in the direction to the possible source of the leak.



It is important to move the probe past the leak and to go back toward it. The device responds to changes in gas concentration in the air. Moving the probe allows to the device to respond properly to these changes.

- **If gas is detected, the frequency of the beep repetition will increase as the detected gas concentration increases and the leds of graphic visualisation lights from down (low gas concentration) to up (high gas concentration).**

Manual and automatic autozero functioning

The detector performs an automatic autozero every 2 s to set its minimum threshold of detection. This autozero allows to guarantee an optimum gas detection whatever the conditions of use (contaminated environment, temperature variations,...). In case of detection, according to the amplitude of gas measurement, the automatic autozero will deactivate to guarantee a better location of the leak. It will automatically reactivate after a return to normal conditions.

In case of high gas concentration with a wide contaminated area, the automatic autozero can be not enough to detect precisely the location of the leak, there will be a measurement saturation. In this case, it is possible to perform a manual autozero into the contaminated area to reset the detection and to get back to a progressive sensitivity when getting close to the leak source.

To perform a manual autozero, please see next page.

Perform an autozero

- With the device turned on.
- Press at least 3 s the  key to perform an autozero.
- The "Autozero" led turns on.

Setting of the sensitivity

If the gas concentration is high, press "**Sens**" key to set the sensitivity and like this to get a better identification of the leak source. Here are details about the three different sensitivities:

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High sensitivity ("H" on the device)	From 0 to 3 g/year	All the LEDs (8) for 3 g/year

Activate/deactivate the audible signal

- By default, when starting the device, the audible signal is always active.
- With the device turned on.
- Press  key to deactivate the audible signal.
- Press this same key to reactivate it.

9 - Maintenance

Change batteries

- With the device turned off.
- Remove the batteries compartment cover at the back of the device.
- Remove used batteries and insert new batteries (4 alkaline batteries AAA LR03 1.5 V) respecting the polarity.
- Put back the battery compartment.

Clean the instrument

- Clean the housing with a damp cloth (soap suds) if it gets dirty.
- Do not use aggressive cleaning agents or solvents.

Change the filter

- Unscrew the probe tip.
- Remove the filter located inside.
- Put a new filter.
- Screw the tip on the probe.

Test the instrument

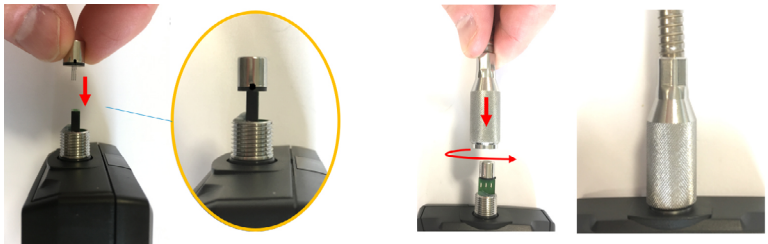
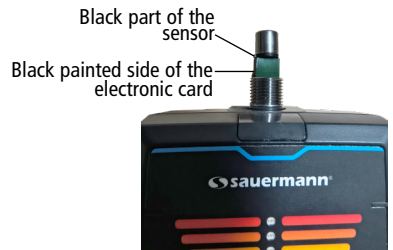
- To test that instrument / sensor is working correctly you can use a reference leak source, such as FFT-CFC (22131).

Replace the sensor

The cell to detect refrigerant is easy to replace when it is broken.

With the device turned off:

- Unscrew the flexible detection probe.
- Gently remove the existing sensor.
- Place the new sensor with 3 pins (C-DFC cell 24457). Make sure to place the black part of the sensor aligned with the black painted side on the electronic card. See pictures opposite.
- Screw the flexible detection probe.



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BE CAREFUL! Material damages can happen, so please apply the precautionary measures indicated.