

Operating Instructions



Model: R-ID and R-ID Plus
R-1234yf / R-134a Refrigerant Analyzer

Contents

Refrigerant Analyzer Warnings	3
General Cautions	4
Introduction	6
Features	7
R-ID and R-ID Plus Components	8
First Use	13
Power on the Refrigerant Analyzer	13
Calibration	14
Testing the Refrigerant	15
Viewing the Test Results	15
Understanding the Test Results	16
Replacing the Sample Hose Assembly	18
Information Screens	18
Software Updates	19
Settings	19
Error Messages	20
Spare Parts List	21
Specifications	22

For Your Safety:



PLEASE READ THIS MANUAL IN ITS ENTIRETY BEFORE ATTEMPTING INSTALLATION OR OPERATION! Attempting to operate this tool without fully understanding its features and functions may result in unsafe conditions.

Refrigerant Analyzer Warnings

- **Refrigerant Blend Warning:** Operate this unit with vehicles or cylinders marked to contain R-1234yf, R-134a or R-12 refrigerant. Cross-contamination with other refrigerant types causes severe damage to the A/C system, to service tools, and to equipment. DO NOT mix refrigerant types in a system or in the same container.
- **Sample Hose Warning:** Replace the sample hose as soon as liquid, oil, or red spots (discoloration) begin to appear on the inside diameter of the sample hose or white filter element. FAILURE TO PROPERLY MAINTAIN AND REPLACE THE SAMPLE HOSE WILL RESULT IN SEVERE DAMAGE OR INACCURATE RESULTS.
- **Flammability Warning:** Some vehicles may contain flammable refrigerants such as hydrocarbons. R-1234yf is considered a flammable substance. Failure to follow the manual can result in serious injury or death. Less than 2 grams of refrigerant are vented with each sample. This refrigerant analyzer is designed with sealed heat sources and without sparking components.
- **Sample Input Warning:** DO NOT attempt to introduce liquid or samples heavily laden with oil into the low side sampling hose configuration. Damage caused to the refrigerant analyzer due to the use of the wrong hose configuration on the wrong port will void the warranty.
- **Battery Charging Warning:** When charging the internal battery with the supplied power supply, the power supply may become warm. If the power supply becomes warm, unplug the cord to avoid overheating. When charging multiple analyzers, allow the charger to cool before charging the next battery.

- **Air Sensor Warning:** The air detection sensor is a chemical fuel cell sensor that will eventually expire. The user must return the unit to an approved vendor in order to replace the air detection sensor whenever the refrigerant analyzer indicates as such. Failure to replace the air detection sensor will result in non-functionality of the refrigerant analyzer.
- **Power Source Warning:** Connection to power sources greater than 13 VDC could cause damage not covered under the warranty.
- **Operational Warning:** Personal injury and/or equipment damage may occur if the equipment is used in a manner not specified by the manufacturer.

General Cautions



- **Always** wear eye and skin protection when working with refrigerants. Escaping refrigerant vapors will present a freezing danger. **DO NOT** direct refrigerant escaping from the sample hose toward exposed skin or toward the face.
- **Always** turn the compressor or automobile engine OFF before connecting the refrigerant analyzer to an air conditioning system.



- **Always** inspect the sample hose before each use. Replace the hose if it appears cracked, frayed, obstructed, or coated with oil.
- **Do Not** direct refrigerant vapors venting from hoses towards the skin.



- **Do Not** disassemble the refrigerant analyzer. There are no serviceable internal components, and disassembly will void the warranty.
- **Always** place the unit on a flat and sturdy surface.
- To reduce the risk of electrical shock, **DO NOT** disassemble the refrigerant analyzer or use the unit in wet or damp areas.

- Some systems may contain hydrocarbons or flammable refrigerants. This refrigerant analyzer is designed with sealed heat sources and without sparking components. Ensure adequate ventilation and always take proper precautions when working with refrigerants.



- **Do Not** breathe refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose, and throat. Use recycling equipment certified to meet the requirements of SAE J2788, J2843, J3030, or J2851 to remove refrigerant from the A/C system. If accidental system discharge occurs, immediately ventilate the work area. There must be adequate ventilation in the vehicle servicing area.



- **Do Not** use any hose(s) other than those supplied with the refrigerant analyzer. The use of other hose types will introduce errors into the refrigerant analysis and refrigerant analyzer calibration.
- **Always** verify that the refrigerant, tested from the low side, does not contain or will not emit heavy loads of oil or liquid.



- **Never** admit any sample into the refrigerant analyzer at pressures in excess of 500 PSIG.
- **Never** obstruct the air intake, sample exhaust, or case vent ports of the refrigerant analyzer during use.
- **Do Not** use the coupler supplied on the service end of the R-134a or R-1234yf sample hoses for any application other than with the refrigerant analyzer. The coupler supplied is a modified version that does not contain a check valve and is not suitable for any other refrigerant application.

Introduction

The R-ID and R-ID Plus R-1234yf / R-134a Refrigerant Analyzers are designed for use independently or in conjunction with an SAE J2843 or J3030 approved A/C service machine to determine the purity of R-134a or R-1234yf refrigerant. The refrigerant analyzers use non-dispersive infrared (NDIR) technology to determine the weight concentration of R-1234yf or R-134a refrigerant. Acceptable refrigerant purity as it relates to these refrigerant analyzers have been defined by the SAE as a refrigerant mixture that contains 98.0% or greater of R-1234yf or R-134a by weight.

The refrigerant analyzers are supplied complete with an R-1234yf sample hose, an R-134a sample hose (R-12 coupler sold separately), a 100–240 VAC power transformer, built in lithium-ion battery, thermal printer (R-ID Plus model only), and all required plumbing housed within a hard-shell portable storage case.

Sample gas is admitted into the refrigerant analyzers through the supplied sample hose and presented to the sensing device. The refrigerant analyzers provide the user with a digital display of refrigerant purity. The refrigerant analyzers only consider the weights of the refrigerant and contaminants in the total mixture. Air is measured and displayed separately. Other contents such as refrigerant oil and dye are not considered contaminants.

Required SAE Statement (SAE J2912): “If the refrigerant being tested is identified as contaminated (i.e., less than 98% pure R-1234yf or HFC-134A), any visual percentages displayed of HFC-134a (R-134a) and/or HFO-1234yf (R-1234yf), outside the design certified value, is informational and may not be accurate.”

Features

- Quickly and accurately determines refrigerant purity
- Advanced ergonomic design
- Displays % purity for R-1234yf, R-134a, and R-12
- Displays % for R-22, unknown refrigerant, and hydrocarbons
- Displays air % independent of the refrigerant sampled
- Capable of analyzing R-12 (1/4" flare coupler sold separately)
- Multiple languages: English (default), German, Spanish, French, Italian, Portuguese, Chinese, Japanese, Korean, and Russian
- Easily prints test results with built-in printer (optional)
- Uses Standard 2.25" (57 mm) thermal paper
- Bluetooth compatible (optional)
- Improved oil resistance with user replaceable hose assembly
- Fender-compatible resting surface
- Full color liquid crystal display (LCD) with on-screen instructions
- Accelerated 70 second test time
- Internal, rechargeable lithium-ion battery for cordless operation in any location
- USB port for connection to the A/C service machine and remote software updates
- All accessories stored in a hard-shell portable storage case

R-ID and R-ID Plus Components

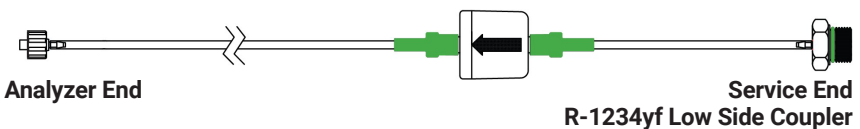
Base Unit

The R-ID and R-ID Plus Refrigerant Analyzer base unit houses the LCD, electrical connections, and rechargeable battery. These components require no maintenance; therefore, **there are no serviceable internal components, and disassembly will void the warranty.**



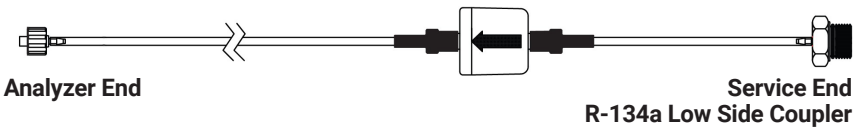
R-1234yf Sample Hose

The 6.5 ft (2m) R-1234yf sample hose is constructed of polyurethane ether. The hose is provided with a refrigerant analyzer inlet port mating connector on one end and a brass flow restrictor on the other end. The brass flow restrictor screws into the R-1234yf low side coupler. The sample hose is considered a consumable maintenance part. A spare R-1234yf sample hose is also provided.



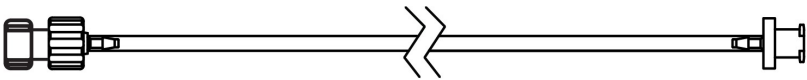
R-134a Sample Hose

The 6.5 ft (2m) R-134a sample hose is constructed of polyurethane ether. The hose is provided with a refrigerant analyzer inlet port mating connector on one end and a brass flow restrictor on the other end. The brass flow restrictor screws into the R-134a low side coupler. The sample hose is considered a consumable maintenance part. A spare R-134a sample hose is also provided.



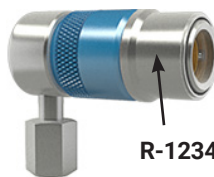
Sample Hose Extensions

The sample hose extensions allow the user to easily connect and disconnect the hose assembly to the refrigerant analyzer. The extension is connected directly to the refrigerant analyzer and the sample hose connects to the male fitting on the opposite end.



R-1234yf Low Side Coupler

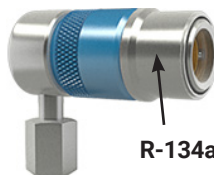
The R-1234yf low side coupler is designed with a quick connect adapter to quickly connect the hose assembly to the low side Schrader valve on a R-1234yf vehicle.



R-1234yf (engraved in fine text)

R-134a Low Side Coupler

The R-134a low side coupler is designed with a quick connect adapter to quickly connect the hose assembly to the low side Schrader valve on a R-134a vehicle.



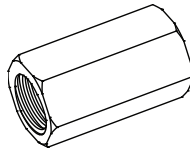
R-134a (engraved in fine text)

USB Cord

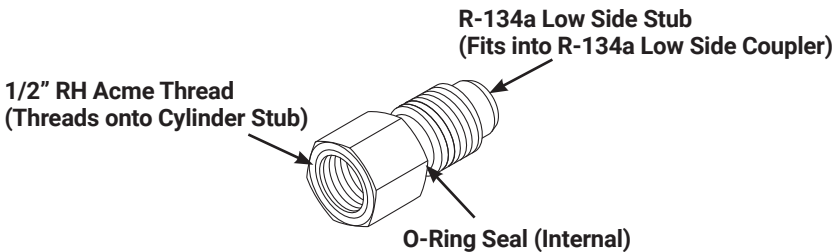
The USB cord is provided to connect the refrigerant analyzer with an SAE J2843 or J3030 approved A/C service machine. If connecting to an approved A/C service machine, follow the instructions on this machine to operate the refrigerant analyzer.

**R-1234yf Tank Adapter Fitting**

The R-1234yf tank adapter fitting will provide the user with an adapter to allow connection of the R-1234yf sample hose to the 1/2" LH Acme threads on the R-1234yf cylinder.

**R-134a Tank Adapter Fitting**

The R-134a tank adapter fitting will provide the user with an adapter to allow connection of the R-134a sample hose and low side coupler to a R-134a cylinder Acme port.



A/C Power Adapter

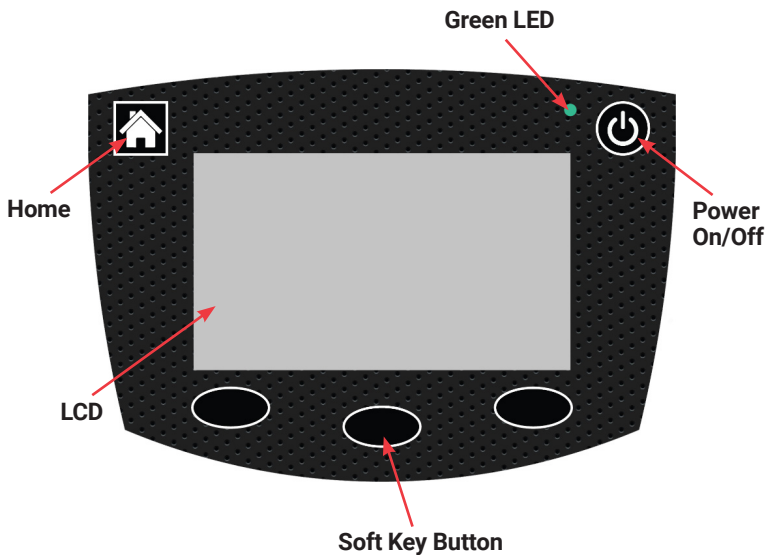
The R-ID and R-ID Plus Refrigerant Analyzers are powered via a lithium-ion battery. You can also power the unit with the A/C power adapter which converts a standard 100–240 VAC 50/60 Hz wall outlet to 12 VDC, 1.6A. This A/C power adapter will also charge the battery when connected to the refrigerant analyzer.



NOTE: Use of any other power source may cause damage to the unit and void the warranty.

Control Panel

The control panel serves as the main user interface and features three soft key buttons. The current function for each button is displayed above the soft key buttons on the full color LCD. A Home button and a Power button are also found at the top of the control panel.

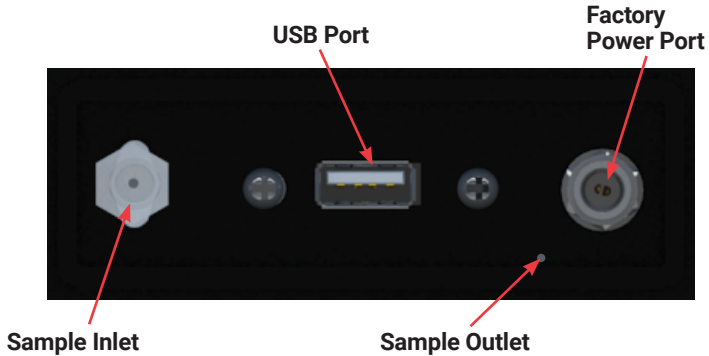


Back Panel Connections

The connections located on the back panel are illustrated below.



CAUTION: The sample outlet port should never be obstructed. Keep the sample outlet port free and clear at all times. DO NOT operate near open flame.



Hard Shell Portable Storage Case

The hard shell portable storage case is custom fit to the R-ID and R-ID Plus Refrigerant Analyzers. It provides rugged protection for the tool, as well as storage for all components. The storage case is general purpose and is **not** waterproof.



First Use

The R-ID and R-ID Plus Refrigerant Analyzer have a built in lithium-ion battery. Prior to first use, charge the battery for a minimum of two hours with the included A/C power adapter. The refrigerant analyzer will both function and charge the battery when the A/C power supply is connected.

Power on the Refrigerant Analyzer

For use with an SAE J2843 or J3030 certified A/C service machine, connect one end of the provided USB cable to the USB port on the back of the refrigerant analyzer and connect the other end of the USB cable to the A/C service machine.

NOTE: If the unit is used as an independent device, the USB cable should not be connected.

Press the upper right Power button and the splash screen shown in **(Figure 1)** will appear. Press Next and the device will warm up as shown in **(Figure 2)**. Warm up will take approximately 30 seconds.

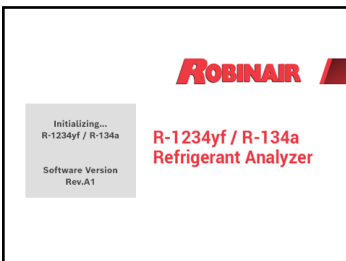


Figure 1

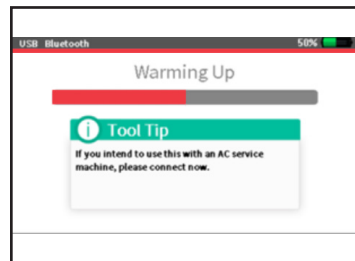


Figure 2

Once the refrigerant analyzer warms up, the screen in **(Figure 3)** will appear offering the option to change settings or start an analysis. If you wish to adjust factory settings, select the left soft key and refer to the Settings section (page 19). To begin an analysis, select the right soft key. Next select the type of refrigerant you wish to test **(Figure 4)**.

NOTE: If you are analyzing an R-12 vehicle or cylinder, you must select the R-134a mode.

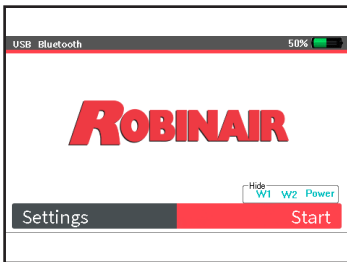


Figure 3

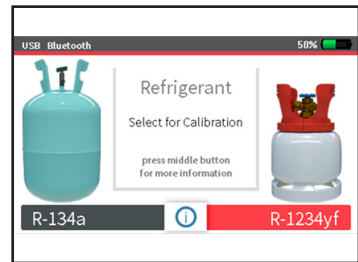


Figure 4

Calibration

Each time the refrigerant analyzer begins a new test cycle it must complete an air calibration. The calibration takes 30 seconds and pulls fresh air into the unit via an internal pump. This fresh air purges any excess refrigerant from the unit and ensures accurate test results. Calibration **requires** that a sample hose be connected to the device and disconnected from the vehicle or refrigerant source.

Once the sample hose is connected to the refrigerant analyzer, press Start to begin the air calibration as shown in **(Figure 5)**. This will begin the calibration process and display the screen shown in **(Figure 6)**.



Figure 5

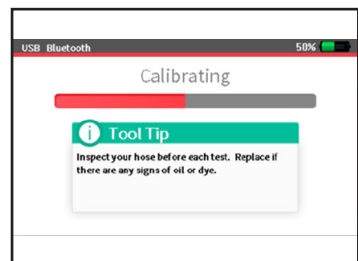


Figure 6

Testing the Refrigerant

After the air calibration is complete, the refrigerant analyzer is ready for testing and will direct you to connect the hose to a refrigerant source as shown in **(Figure 7)**. Connect the hose to the vehicle's low side Schrader valve. Allow the refrigerant to flow for a few seconds and then press the Test button to begin the test. The testing screen shown in **(Figure 8)** will display.

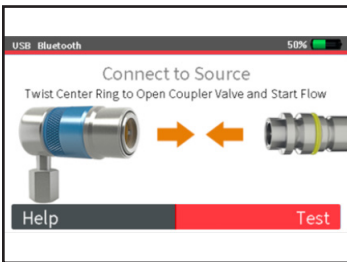


Figure 7

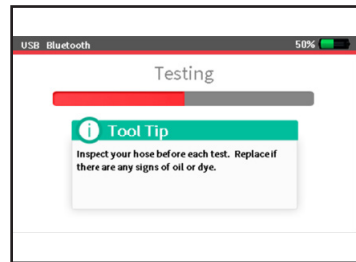


Figure 8

Viewing the Test Results

Upon completion of testing, the refrigerant analyzer will display the screen shown in **(Figure 9)**. Disconnect the coupler from the refrigerant source and select Results to display the test results **(Figure 10)**. The percentage displayed for each refrigerant indicates the total purity weight of that refrigerant, equaling 100%, with air and non-condensable gases measured independently. Pressing Print will print the test results. Pressing Print Prior 5 Results will print the last 5 tests completed.

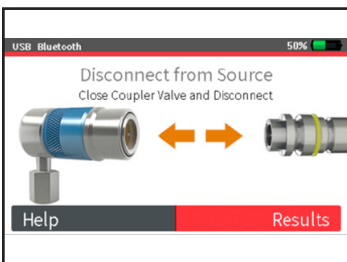


Figure 9

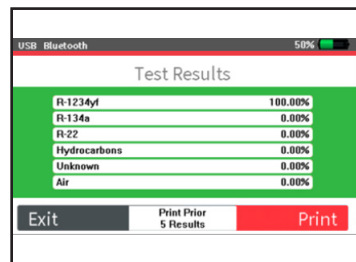


Figure 10

If the refrigerant analyzed is 98.0% pure or greater, the refrigerant is deemed suitable for standard recovery and reuse. Should the refrigerant be less than 98.0% pure, the refrigerant is not suitable for standard recovery and should not be reused. In either case, verify that the hose is disconnected from the refrigerant source and press Exit to return to the main screen (**Figure 11**).



Figure 11

NOTE: In R-134a mode, R-12 and R-1234yf are combined into one reading referred to as R-12 / R-1234yf.

Understanding Test Results

The refrigerant analyzer is designed to analyze the base gas it is calibrated for. When testing a R-134a vehicle, R-134a should be selected as shown in (**Figure 12**). Conversely, when testing a R-1234yf vehicle, R-1234yf should be selected as shown in (**Figure 13**). If the wrong base refrigerant is selected, the refrigerant analyzer will fail the test and produce inaccurate results.

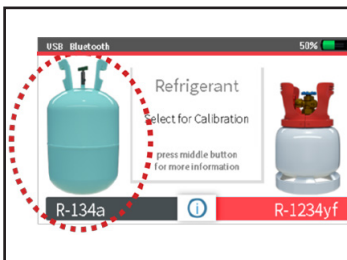


Figure 12

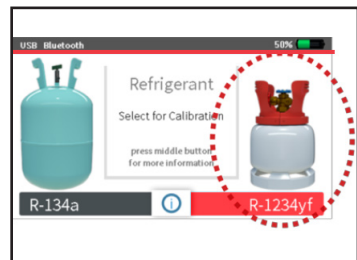


Figure 13

The refrigerant analyzer is designed to provide visual cues after analysis is complete. When the sample refrigerant is found to be 98.0% pure or greater, the refrigerant analyzer will display a green background indicator (**Figure 14**).

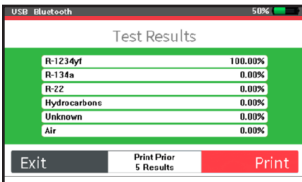


Figure 14

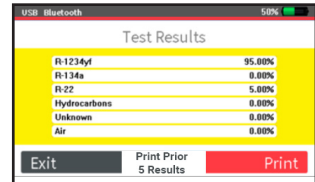


Figure 15

When the sample refrigerant is found to be between 95.0%–98.0% pure, a yellow background indicator will appear (**Figure 15**).

When the sampled refrigerant is found to be less than 95.0%, tests positive for hydrocarbons, or has a large contamination, the screen will illuminate red and **CAUTION SHOULD BE TAKEN WHEN HANDLING THIS VEHICLE OR CYLINDER** (**Figure 16**).

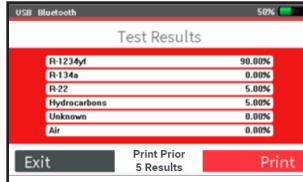


Figure 16

Please note that air is measured independently of the refrigerant. Therefore it is possible to have a percentage of air present in a sample of refrigerant that totals 100% refrigerant. An example of this is shown in (**Figure 17**).

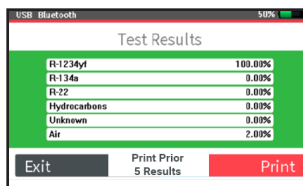


Figure 17

If an error message appears at all during or after analysis, refer to the Error Messages section (page 20).


Replacing the Sample Hose Assembly

In the event the refrigerant analyzer displays an Error #3 or Error #5, this may indicate the sample hose needs replacing. This will occur when the integrated flow restrictor becomes clogged with oil, debris, or sealant. It can also occur if there is inadequate flow, or less than 30 PSIG of refrigerant in the vehicle or cylinder. Replacement hoses for both the R-134a and R-1234yf couplers are provided in the kit. Additional replacements are listed in the Spare Parts List on page 21.

To replace the sample hose assembly, follow the instructions below:

1. Disconnect the sample hose from the refrigerant source and R-ID or R-ID Plus Refrigerant Analyzer.
2. Remove the brass restrictor end (with hose attached) from the coupler and discard. **Be sure to use a backup wrench as not to damage the coupler.**
3. Check for signs of oil and debris in the coupler.
4. Use a cleaner which ONLY contains Tetrachloroethylene and carbon dioxide. Follow safety instructions on the can and spray all parts of the coupler with the cleaner to remove any oil. DO NOT soak the part for more than 60 seconds.
5. Allow coupler to dry. Check coupler for oil once again. Failure to clean the oil out of the coupler will result in premature obstruction of the new sample hose.
6. Install the brass end of the new sample hose assembly into the coupler and tighten finger tight.

Information Screens

An information icon  or Help indication will appear at various points throughout the testing process. This button will provide additional information or tips about the command screens to help complete the refrigerant analysis.

Software Updates

Software updates may be made available to improve operating performance or to add additional features. Some updates will be provided at no charge to improve operating efficiencies; others will be optional, paid upgrades, to add new refrigerants or functions.

The R-ID and R-ID Plus Refrigerant Analyzers have a USB update port located on the back panel connections. This port should not be used for any other purpose other than to install factory updates or connecting to an A/C service machine. ***If you do not register the refrigerant analyzer, Robinair will not be able to inform you of any software updates.***

Settings

Pressing the Settings button as shown in (Figure 18) will provide access to various device settings as shown in (Figure 19).

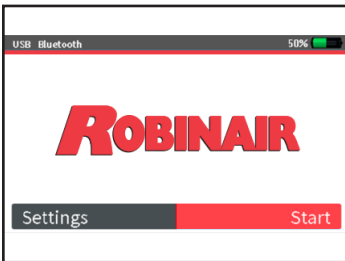


Figure 18

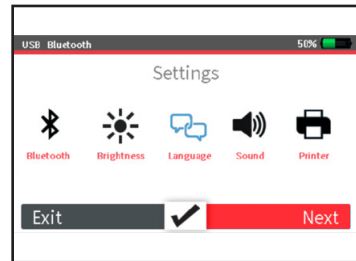


Figure 19

Using the Next button, scroll to the desired setting you wish to change.

Use the Check button to select the setting and the Exit button to return to the previous screen.

- **Brightness:** Enhances or dims the brightness of the LCD screen.
- **Language:** Changes the language to one of 10 available languages.
- **Sound:** Turns sound ON or OFF.
- **Printer:** Provides information on how to load the printer paper.

When finished adjusting the settings, press Exit to return to the home screen.

Error Messages

In the event an Error message is displayed, follow the on-screen prompt associated with the Error. Error messages that may appear include:

Error #1: The air or gas readings were unstable.

- Solution: Move the unit away from sources of electromotive force (EMF) or radio-frequency interference (RFI) such as radio transmitters and arc welders.

Error #2: The air or gas readings were excessively high.

- Solution: Move the unit away from sources of EMF or RFI such as radio transmitter and arc welders.

Error #3: The air calibration resulted in a low output.

- Solution: Prevent refrigerant from flowing into the unit through the sample inlet during air calibration.
- Solution: Allow any refrigerant in the atmosphere to dissipate before performing air calibration.
- Solution: Verify that the air intake and the exhaust are not obstructed.
- Solution: Verify that the white filter is correctly plugged into the rubber grommets.

Error #4: The unit is beyond the operating temperature range.

- Solution: Move the unit to an area where the ambient temperature is within the specified operating range.

Error #5: The refrigerant sampled has an excessively large amount of air or there was little or no sample flow due to a closed valve or plugged sample filter. This is the code to prompt the user to charge the brass filter. This should be considered more as a prompt than an actual error.

- Solution: Verify the coupler valve is open.
- Solution: Verify the sample filter is not plugged with debris or oil.
- Solution: Replace brass sample filter.

Error #6: The air sensor has expired and must be replaced before the refrigerant analyzer can be used.

Error #7: The gas pressure is out of range.

- Solution: Verify the sample exhaust port is not obstructed.

If an Error message reappears, contact Robinair Technical Services (page 23).

Spare Parts List

Item	Part Number
R-134a Tank Adapter	16301
R-12 Low Side Coupler	16907
Printer Paper Roll	34215
A/C Power Supply	19719
R-1234yf Tank Adapter	16306
R-134a Replacement Hose	16901
R-1234yf Replacement Hose	16902
R-134a Hose Kit	16905
R-1234yf Hose Kit	16906
Sample Hose Extension	16903
USB Cable	16904

Specifications

Sample Parameters:	Vapor only, oil-free, 500 PSIG, maximum 2 MPa
Detected Compounds:	R-134a, R-1234yf, R-12, R-22, hydrocarbons, air, unknown refrigerant
Sensor Technology:	NDIR
Refrigerant Sample Size:	2 grams per sample
Power Supply:	Input: 90–264 VAC, 50–60 HZ Output: 12 VDC, 1.6 A
Operational Temperature:	50–120°F (10–49°C)

NOTE: Hydrocarbons such as R290, R600, R600a, R152a, etc., are flammable contaminants.