seitron
Innovation Technology

USE AND MAINTENANCE

Be Cool Evo Smart Kit

Digital manifold Smart Kit

INDICE

1.0 IMPORTANT INFORMATION

1.1 About this manual

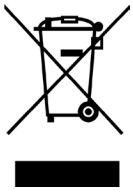
- This manual describes the operation, features, and maintenance of the Be Cool Evo M4S digital pressure gauge, the Be Cool Evo V1S vacuum gauge, and the Be Cool Evo T1S temperature probes.
- Read this operating and maintenance manual before using the instrument. The operator must be familiar with the manual and follow its instructions carefully.
- This user and maintenance manual is subject to change as a result of technical improvements - the manufacturer accepts no responsibility for any errors in content or printing.

Respect your environment, think before printing the complete manual.

1.2 Safety warnings

ATTENTION!
The magnets on the back of the instrument can damage credit cards, hard disks, mechanical watches, pacemakers, defibrillators, and other devices sensitive to magnetic fields. It is recommended to keep the instrument at least 25 cm away from these devices.

ATTENTION!
Read the information carefully and take appropriate measures to ensure safety in order to avoid any danger to people and property.
Failure to comply with these instructions may cause danger to people, the system, or the environment and may result in loss of liability.



WARNING! Proper disposal
Ensure that the battery pack is disposed of correctly at the end of its life using the appropriate containers. This device must not be disposed of as municipal waste. Follow the instructions provided by current national legislation.

2.0 SAFETY

2.1 Safety check

- Use the products as described in the chapter "Permitted use of the product".
- When using the equipment, comply with current safety regulations.
- Do not use the equipment if it is damaged.
- Keep the equipment away from solvents.
- For instrument maintenance, strictly follow the instructions provided in this manual in the chapter "Maintenance."
- Any work not specified in this manual may only be carried out by Seitron service centers. Otherwise, Seitron declines all responsibility for the normal functioning of the instrument and the validity of the relevant approvals.
- Carefully read the maintenance instructions for the refrigeration system before operating the equipment.

⚠ ATTENTION!

- **RISK OF INJURY CAUSED BY HIGH-PRESSURE, HOT, COLD, OR TOXIC REFRIGERANTS!**
- **WEAR PROTECTIVE EYEWEAR AND GLOVES.**
- **ALWAYS ATTACH THE DIGITAL PRESSURE GAUGE TO THE SUSPENSION HOOK TO PREVENT ACCIDENTAL FALLS AND THE CONSEQUENT RISK OF BREAKAGE.**
- **RESPECT THE MEASUREMENT RANGE LIMITS INDICATED IN THE CHAPTER 'TECHNICAL FEATURES'.**
  NOTE FOR R744 SYSTEMS: CAREFULLY CHECK THE COMPATIBILITY OF THE INSTRUMENT, AS THESE SYSTEMS OFTEN OPERATE AT HIGH PRESSURES.

2.2 Permitted use of the product

This chapter describes the areas of application for which the Multifunction Digital Pressure Gauge Kit is intended. All devices in the Be Cool Evo series are portable measuring instruments intended for use in the installation and/or maintenance of refrigeration systems and heat pumps.

⚠ ATTENTION!

- **THE USE OF THIS EQUIPMENT IS RESERVED EXCLUSIVELY FOR QUALIFIED TECHNICIANS. THE DEVICE IS NOT INTENDED FOR USE BY INEXPERIENCED USERS.**

2.3 Unauthorized use of the product

The use of the digital pressure gauge kit in areas of application other than those mentioned in paragraph 2.2 "Permitted use of the product" is at the operator's own risk and the manufacturer accepts no responsibility for any loss, damage, or costs that may arise.
It is mandatory to read and pay attention to the instructions in this user and maintenance manual.
The Be Cool Evo Smart digital pressure gauge kit must not be used:

- as an alarm device in the field of security.
- In ATEX classified areas.
- Refrigeration systems containing ammonia (R717 or NH3).
- Do not use the product if damaged. Do not attempt to repair it to avoid further damage. If the instrument is damaged, immediately notify Seitron S.p.A. customer care (customer.care@seitron.it).
- Strictly follow the safety instructions for the cooling system where you are working. COMPLY with the measurement range limits indicated in the "Technical Features" section.
- Do not use the device with third-party battery chargers; only use the one supplied by Seitron S.p.A.
- Do not attempt to attach the product to metal surfaces: the magnets on the back of the digital pressure gauge are only used to attach the support hook to the instrument itself.

2.4 Precautions for using the Li-Ion battery pack

Be careful when handling the internal battery pack in Be Cool Evo M4S; incorrect or improper use could cause serious physical injury and/or breakage:

- Do not short-circuit: ensure that the terminals do not come into contact with metal or other conductive materials during transport and storage.
- Do not apply with reversed polarity.
- Do not expose batteries to contact with liquids.
- Do not burn the batteries or expose them to temperatures above 60°C.
- Do not attempt to disassemble the battery.
- Do not knock or puncture the batteries. Improper use may cause damage and internal short circuits that are not always visible externally.
- If the battery pack has been dropped or hit against a hard surface, regardless of the condition of the outer casing:
  - Discontinue use;
  - Dispose of the battery in accordance with the disposal instructions.
  - Do not use batteries that are leaking or damaged.
  - Only charge the batteries in the device.
  - In case of abnormal operation or signs of overheating, immediately remove the battery pack from the instrument. Caution: the battery may be hot.
  - Do not use the instrument during thunderstorms to avoid being struck by lightning and running the risk of causing damage to people and property.

3.0 PACKAGE CONTENTS

The standard contents of the Digital manifold Smart Kit consist of:

No. 1 4-way digital manifold (Be Cool Evo M4S)

No. 1 Digital micron vacuum gauge (Be Cool Evo V1S)

No. 2 Be Cool Evo Smart temperature probes (Be Cool Evo T1S)

No. 1 Yellow flexible refrigerant gas hose without valve, with 3/8" SAE connection and NBR seals

No. 1 Yellow refrigerant gas hose with valve, 1/4" SAE connection and Teflon gaskets

No. 1 Blue refrigerant gas hose with valve, 1/4" SAE connection and Teflon gaskets

No. 1 Red refrigerant gas hose with valve, 1/4" SAE connection and Teflon gaskets

No. 1 Battery charger with plug (EU - Type C) (The type of plug included varies depending on the destination market)

No. 1 USB cable type A / Type C	
No. 1 T-fitting with 1/4" SAE swivel ring nut	
Hard case	
Shoulder strap	

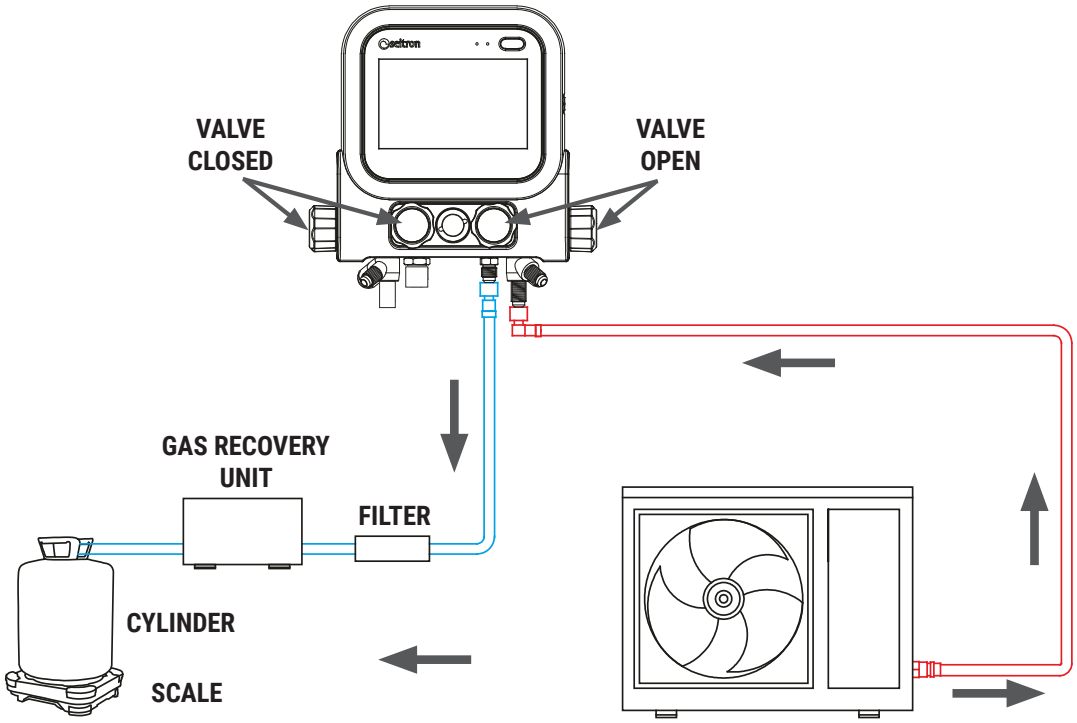
Documentation provided:

- Quick guide
- WEEE Instructions
- Simplified declaration of conformity
- Test reports

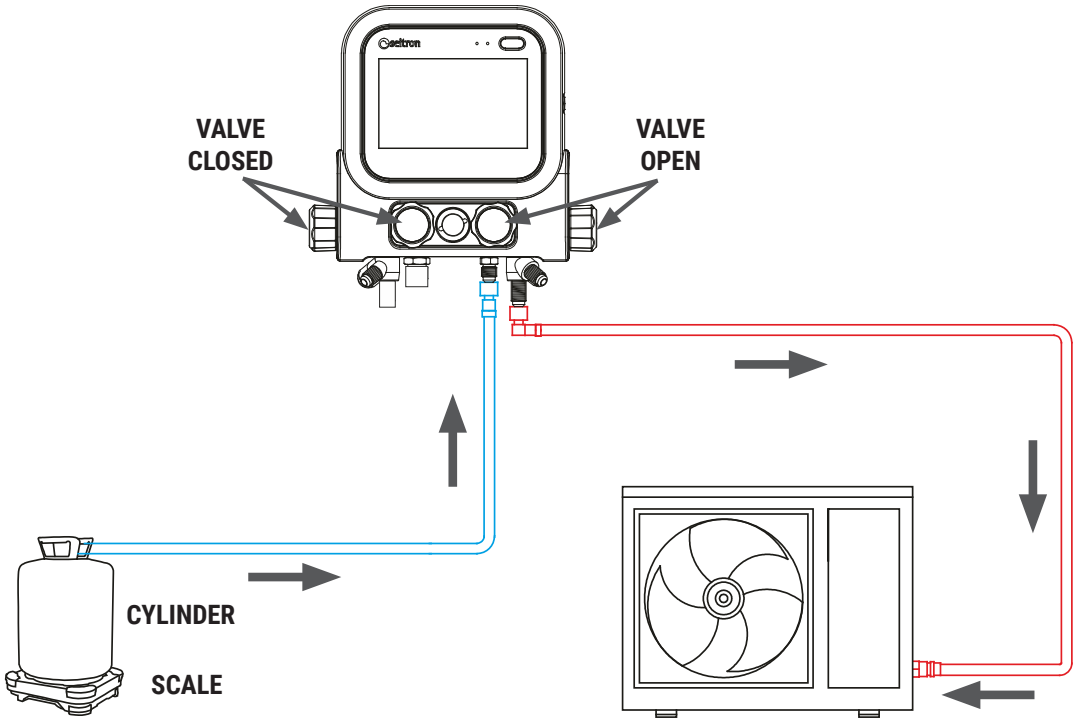
4.0 CONNECTION DIAGRAMS

Before taking any measurements, make sure that the hoses used are in perfect condition and correctly inserted. It is recommended to tighten the connections manually only, avoiding the use of tools that could damage the components.
The maximum permissible tightening torque is 5.0 Nm (3.7 ft*lb).

4.1 EMPTYING THE SYSTEM



4.2 SYSTEM REFRIGERANT CHARGING

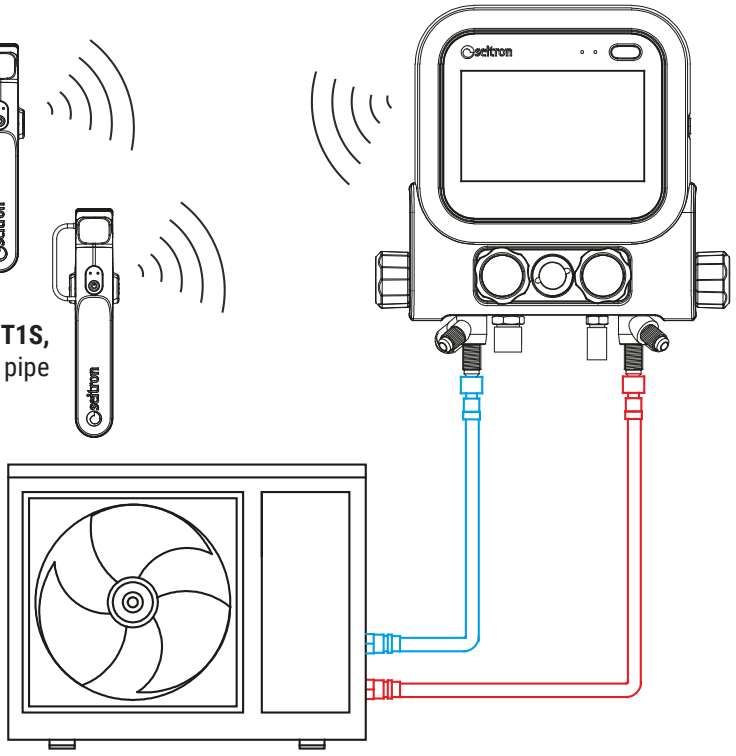


4.3 SYSTEM PRESSURE MEASUREMENT

ALL VALVES ON THE INSTRUMENT MUST BE CLOSED

Be Cool Evo T1S,
to be applied to the low-pressure pipe

Be Cool Evo T1S,
to be applied to the high-pressure pipe

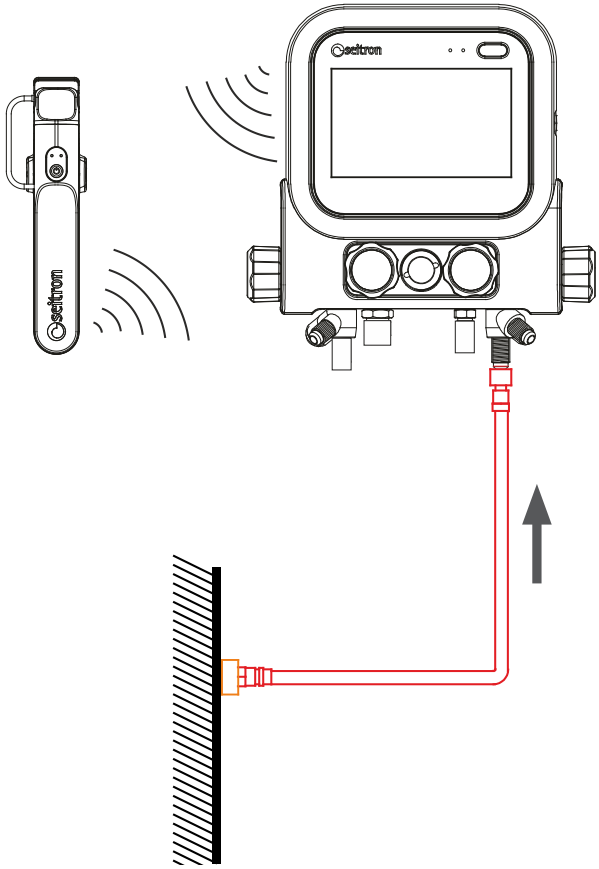


4.4 SYSTEM TIGHTNESS TEST

ALL VALVES ON THE INSTRUMENT MUST BE CLOSED

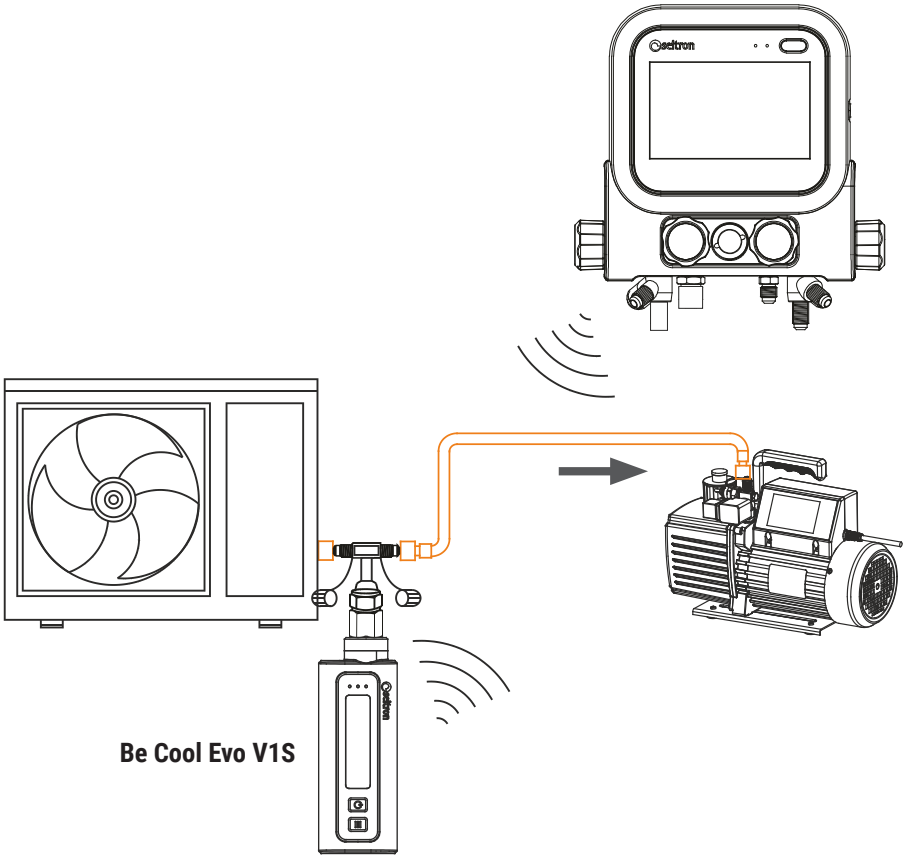
To perform a proper tightness test, enable **Temperature Compensation** in the Settings menu, then connect the **Be Cool Evo T1S** temperature probe to the instrument.

To ensure accurate measurement, the probe must remain suspended in the air and must not be placed on any surface.



4.5 SYSTEM VACUUM HOLD TEST

WARNING!TO PERFORM AND MAINTAIN THE VACUUM, THE SYSTEM MUST BE FREE OF REFRIGERANT GAS AND A DEDICATED FLEXIBLE HOSE MUST BE USED.



5.0 CONNECTION

5.1 Block diagram - Connection to Be Cool Evo Smart

ATTENTION

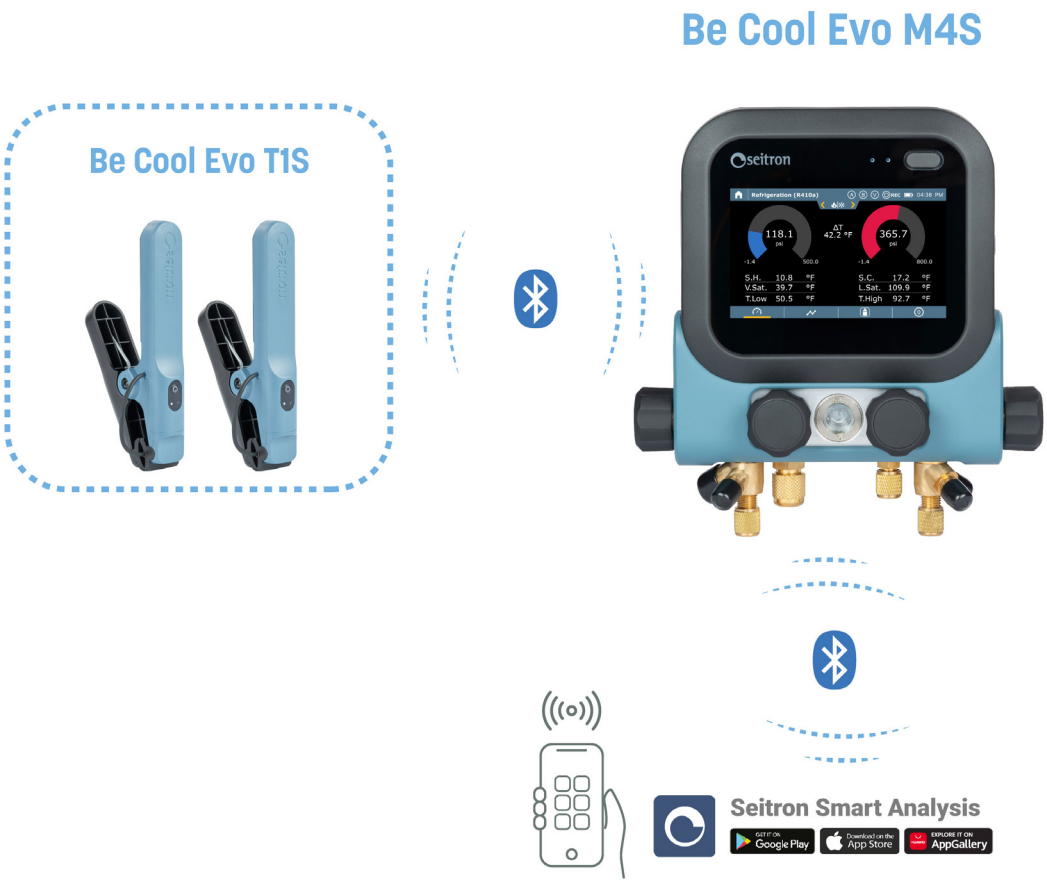
- **THE DEVICES IN THIS KIT HAVE NOT BEEN PRE-PAIRED AT THE FACTORY.**
- **FOR THE PAIRING PROCEDURE, REFER TO CHAPTER 6.0 PAIRING.**
- **BE COOL EVO M4S CAN CONNECT A MAXIMUM OF ONE VACUUM GAUGE AND TWO TEMPERATURE PROBES.**
- **DEPENDING ON USE, CONNECT THE VACUUM GAUGE AND/OR ONE OR BOTH TEMPERATURE PROBES TO THE MANIFOLD.**

5.2 Block Diagram – Connection to the Seitron Smart Analysis App

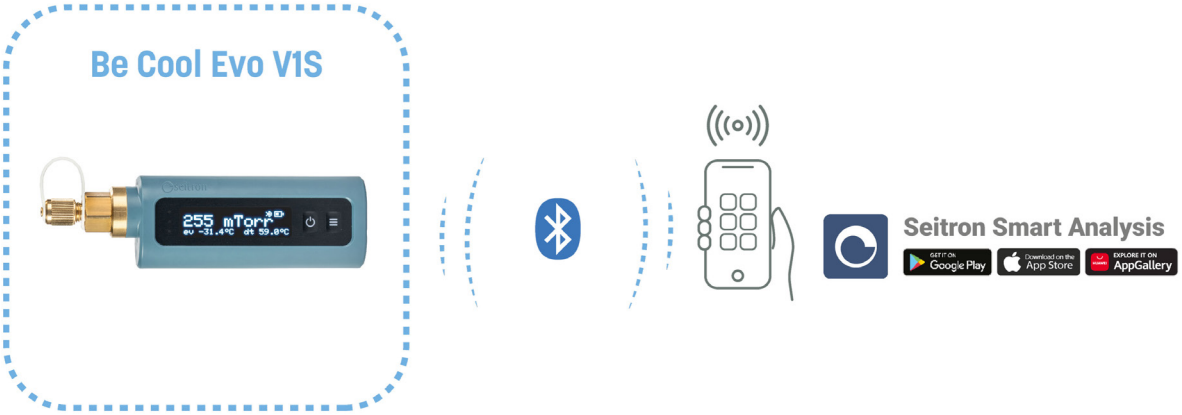
WARNING

- **THE SEITRON SMART ANALYSIS APP ALLOWS THE CONNECTION OF EITHER ONE MANIFOLD OR ONE VACUUM GAUGE, OR ALTERNATIVELY, A MAXIMUM OF TWO TEMPERATURE PROBES.**
- **TO PAIR DEVICES WITH THE APP, REFER TO THE "SEITRON SMART ANALYSIS" SECTION OF THIS MANUAL.**
- **A VACUUM GAUGE AND/OR TEMPERATURE PROBE CANNOT BE USED SIMULTANEOUSLY WITH BOTH THE MANIFOLD AND THE SEITRON SMART ANALYSIS APP.**
- **DEPENDING ON THE APPLICATION, CONNECT ONE OR BOTH TEMPERATURE PROBES TO THE MANIFOLD.**

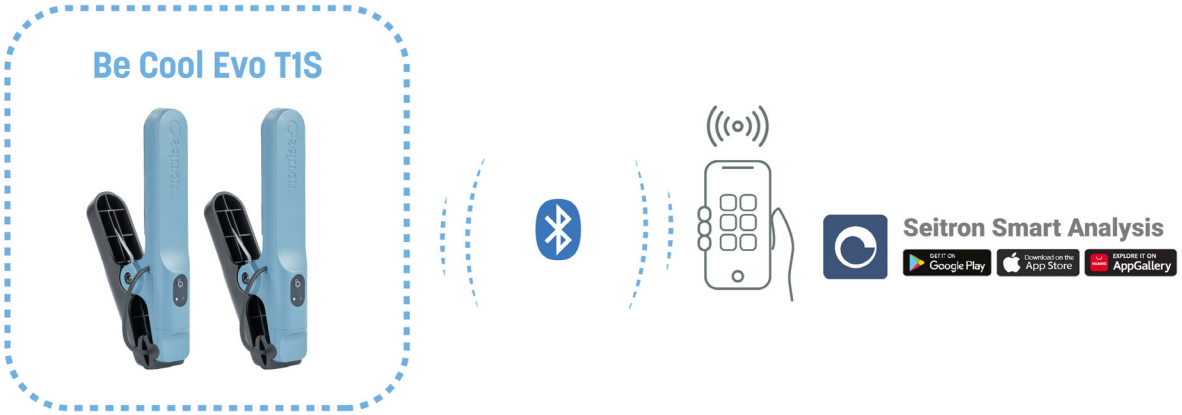
5.2.1 Connection to Be Cool Evo M4S



5.2.2 Connection to Be Cool Evo V1S



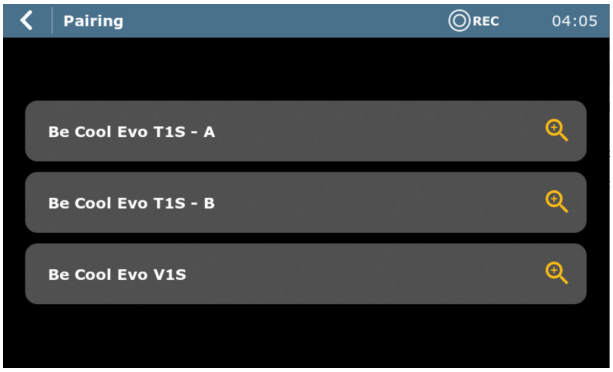
5.2.3 Connection to two Be Cool Evo T1S units



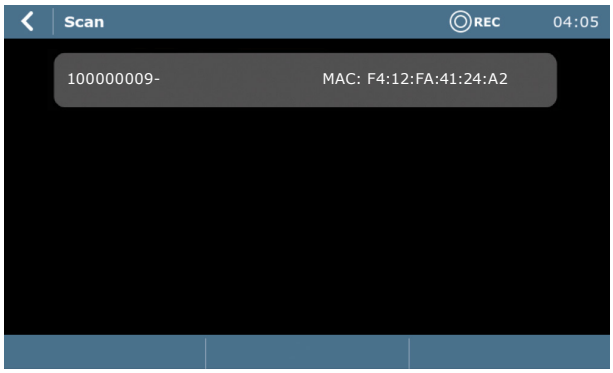
6.0 PAIRING (Connecting temperature probes and/or vacuum gauge to the instrument)

1. Turn on the devices to be paired: press and hold the key ⏻ until all LEDs light up briefly; then release the button.

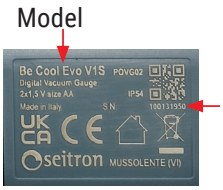
2. Access the Pairing menu on Be Cool Evo M4S: Settings=>Pairing.

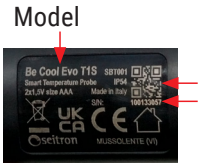


3. Click on the icon "🔍" relating to the device you want to associate to start scanning:
   Be Cool Evo T1S - A
   Be Cool Evo T1S - B
   Be Cool Evo V1S

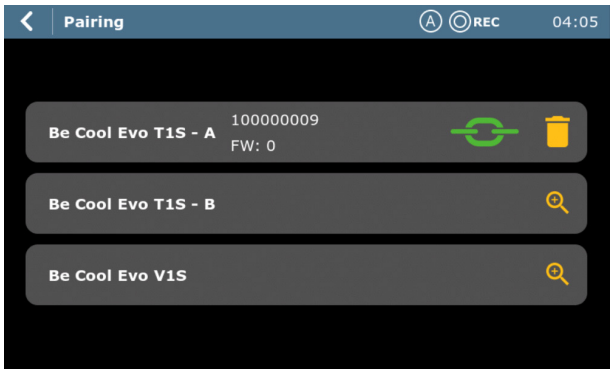


4. Wait 10 seconds and select the line corresponding to the serial number of the Bluetooth® device to be paired; the serial number can be found on the device's nameplate preceded by "S/N:"





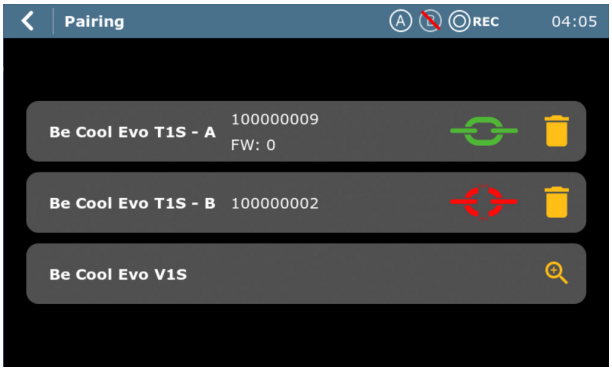
5. The instrument automatically pairs with the selected Bluetooth® device.
   The icon for the associated device appears in the top bar: A B V.



Once paired, the devices will automatically connect when turned back on.

LEGEND

🔍	Search for devices (no devices associated): Start scanning to pair a new device.
🗑	Disconnect device: Removes the device from the list of saved devices.
⛓	Connected device: associated and connected. The icons "A B V" relating to the associated devices appear in the top bar.
⛓	Device not connected: paired, but not connected. The icons "A B V" appear in the top bar for devices that are paired but not connected.



SECTION
Be Cool Evo M4S

4-way digital manifold

7.0 GENERAL FEATURES

The instrument is designed for use in the installation and/or maintenance of cooling systems and heat pumps.

The instrument features:

- Pneumatic manifold
- 5” Color TFT Touch Screen display with scratch-resistant cover lens
- Bluetooth® communication with temperature probes, vacuum gauge, and mobile app
- Rechargeable Li-ion battery pack
- On-board memory for measurement storage
- Simple and intuitive user interface, designed for use without a manual
- Hanging hook to secure the instrument to the system piping during use
- USB Type-C connector for battery charging and/or instrument-to-PC communication

7.1 Typical use

- Measurement of system temperature and pressure (with automatic calculation of subcooling and superheating)
- Pressure test of the system
- Vacuum execution and maintenance

Compatible refrigerant gases:

R113	R114	R115	R116	R12	R123	R1233ZD	R1234ZE	R1234YF	R124	R125
R13	R134a	R14	R141B	R142B	R143A	R152A	R170	R22	R23	R236FA
R245FA	R290	R32	R401A	R401B	R401C	R402A	R402B	R403B	R404A	R406A
R407A	R407B	R407C	R407D	R407F	R408A	R409A	R410A	R410B	R412A	R413A
R414A	R414B	R416A	R417A	R417C	R420A	R421A	R421B	R422A	R422B	R422C
R422D	R424A	R426A	R427A	R428A	R429A	R434A	R437A	R438A	R441A	R443A
R448A	R449A	R450A	R452A	R452B	R453A	R454A	R454B	R455A	R458A	R500
R502	R503	R507A	R508A	R508B	R514A	R600	R600a	R601a	R718	R744
R227ea	R403A	R405A	R407E	R407H	R409B	R423A	R425A	R430A	R431A	R432A
R433A	R435A	R436A	R436B	R442A	R444A	R501	R504	R509A	R510A	R512A
R513A										

7.2 Maintenance

In order to ensure the correct functioning of the instrument and the accuracy of measurements, Seitron recommends performing an annual calibration or whenever necessary.
Calibration and any recalibration can be performed at the Seitron Service Center.
The product is supplied with a test report.

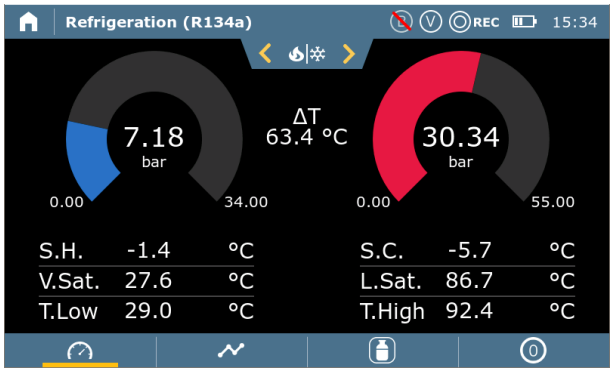
8.0 PRODUCT DESCRIPTION

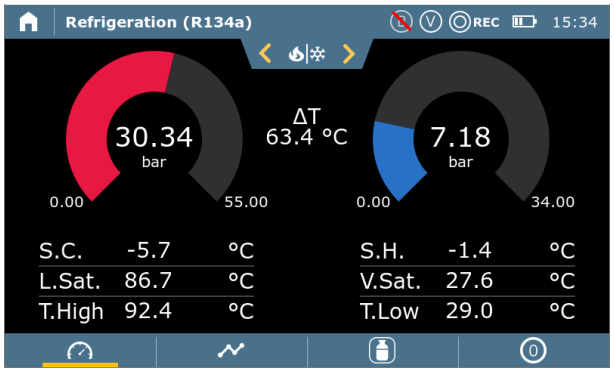
8.1 Main functions

REFRIGERATION - System pressure and temperature measurement
Be Cool Evo M4S is a comprehensive diagnostic tool for analyzing the status of a refrigeration system in real time. By configuring the tool with the refrigerant gas in operation, it is possible to obtain accurate and reliable measurements, which are essential for proper maintenance and troubleshooting.

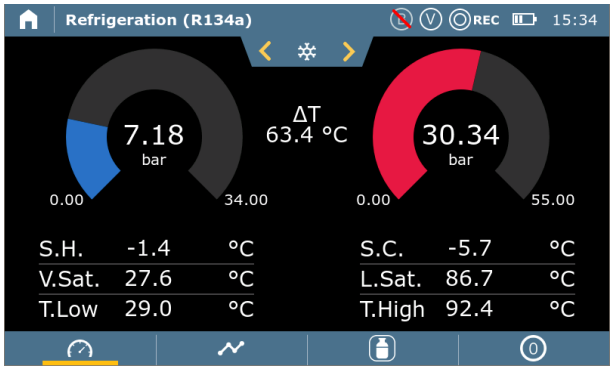
Be Cool Evo M4S has 3 different display modes, which can be set from the instrument:

Automatic ( ): use in cooling/heating systems (heat pump)
The automatic mode has been specially developed for air conditioning systems that perform the dual function of cooling and heating (heat pump). Regardless of how the hoses are connected, the instrument automatically detects the low-pressure side and the high-pressure side.
The high pressure will be displayed with the red pressure gauge, along with the relevant parameters, while the low pressure will be displayed with the blue pressure gauge, along with the relevant parameters. The highest temperature detected by one of the two probes is positioned on the detected high-pressure branch, while the lowest temperature is positioned on the detected low-pressure branch.

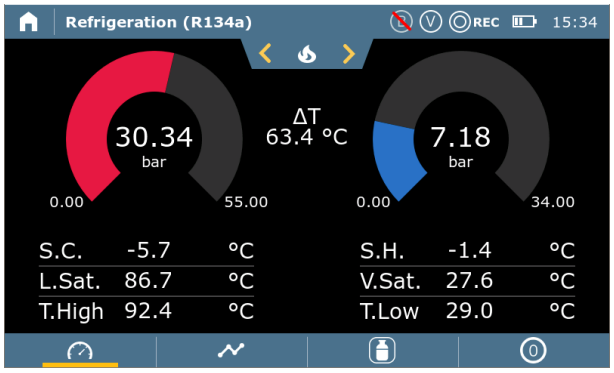




Cooling ( ): use on cooling systems.
Pay attention when connecting the hoses to the instrument: The low pressure hose must be connected to the left branch of the instrument, while the high pressure hose must be connected to the right branch.
If the connections are reversed, the pressure display will be reversed with respect to the color of the pressure gauges, as the blue pressure gauge will remain fixed on the left of the display while the red one will remain on the right.
The highest temperature detected by one of the two probes is positioned on the right branch, while the lowest temperature is positioned on the left branch regardless of the pressure.



Heating ( ): use in heating systems.
Pay attention when connecting the hoses to the instrument: The high-pressure hose must be connected to the left branch of the instrument, while the low-pressure hose must be connected to the right branch.
If the connections are reversed, the pressure display will be reversed with respect to the color of the pressure gauges, as the red pressure gauge will remain fixed on the left side of the display while the blue one will remain on the right.
The highest temperature detected by one of the two probes is positioned on the left branch, while the lowest temperature is positioned on the right branch regardless of the pressure.



TIGHTNESS – System Pressure Tightness Test

By filling the system with nitrogen, it is possible to perform a test to check for leaks in the circuit by measuring the pressure drop over a set period of time. An alarm can also be set so that if the pressure decreases by a specific percentage over a given time interval (configurable values) relative to the initial pressure, the instrument displays a pop-up and emits an acoustic signal to identify the leak condition.
The instrument displays the initial pressure, current pressure, pressure differential (dP), leak rate expressed in %/minute, and the alarm threshold.

VACUUM – Evacuation and Vacuum Hold Test

By connecting a vacuum gauge and a vacuum pump (not supplied) to the system, it is possible to evacuate the air from the circuit.
In this way, the data regarding the vacuum being created in the system can be viewed on the manifold screen. This vacuum is necessary to prevent condensation in the air from causing oxidation within the system's metal pipes.

8.1.1 Data Logging and Storage

The instrument is equipped with internal memory for storing all measurements and calculated data. Each data point is stored with a date and time stamp, creating a complete history of activities.
In **Settings => Record** it is possible to configure the sampling frequency, which affects the total storage capacity this ranges from one sample per second (for 46 hours of recording) up to one sample per hour (for over 165,000 hours).
To start recording, simply go to **Settings => Record** or press the "REC" button on the top bar of the display. The "  " icon, in the upper part of the display confirms that logging mode is active for the instrument and all connected probes.
Be Cool Evo M4S constantly monitors the internal memory status.
Available space can be checked at any time in the "Record" menu. If the maximum capacity is reached, the system will automatically stop the recording session and display the warning message: "Recording memory is full". In this state, it will not be possible to start new recordings until memory space is cleared.
For detailed instructions, refer to paragraph "Record" on page 32.

Finally, to analyze or share results, simply connect to the Seitron Smart Analysis app: from here you can download detailed reports in .csv or .pdf format, organized by test, date, and time.

8.1.2 Bluetooth® Connection

Be Cool Evo M4S features an internal Bluetooth® module, which allows communication with the latest generation smartphones or tablets running Google Android v.5.0 (Lollipop) or higher, after installing the "Seitron Smart Analysis" app available on the Play Store and App Store.
The maximum transmission range in open field is 100 meters, provided that the connected device features Class 1 Bluetooth® connectivity.
This solution allows greater freedom of movement for the operator, who is no longer directly tied to the acquisition and analysis instrument, providing significant advantages for many applications.

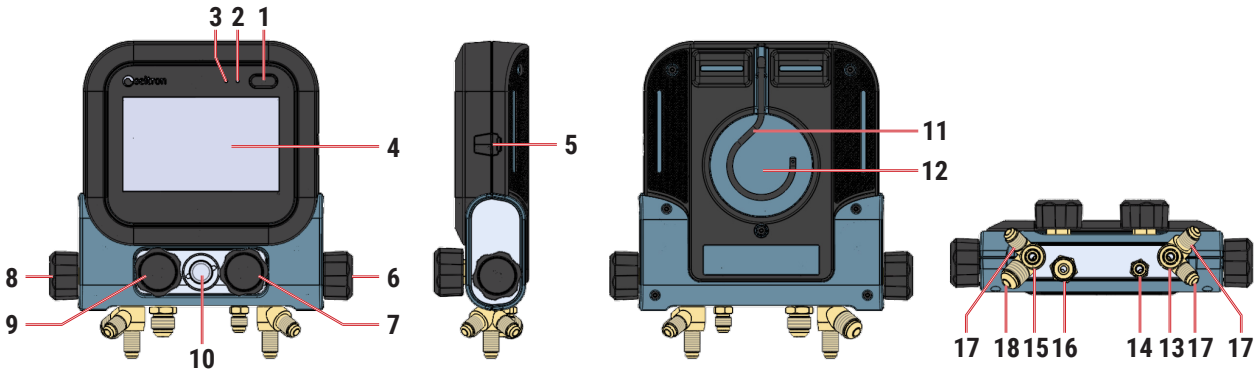
8.1.3 Available Apps

Seitron Smart Analysis

The Seitron Smart Analysis mobile app is available for devices featuring:
- Google Android OS v.5.0 and later
- Apple iOS v.12.2 and later

Features available with Be Cool Evo:
- Display of the associated instrument's rating plate data
- Instrument configuration (e.g., changing refrigerant gas or units of measurement)
- Starting measurements and/or tests with one or more paired instruments
- Setting alarm thresholds
- Starting data logging on the smartphone or tablet memory
- Remote real-time viewing of measurements/tests (data or graph format) and saving acquired data
- Generating, editing, viewing, storing, and/or exporting reports (in .csv format, importable into Excel, and/or .pdf)
- Deleting stored measurements

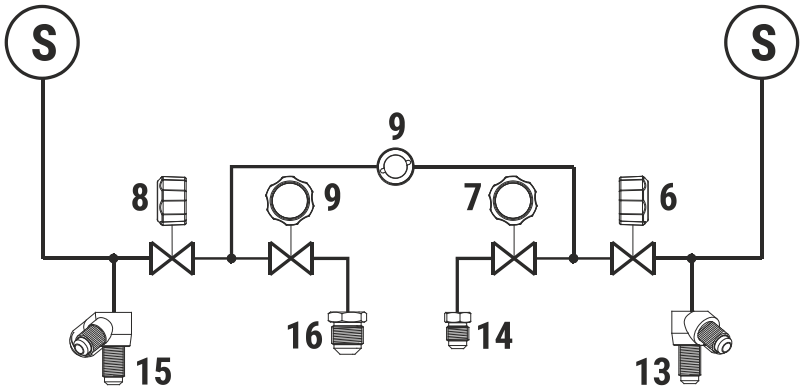
8.2 Mechanical description



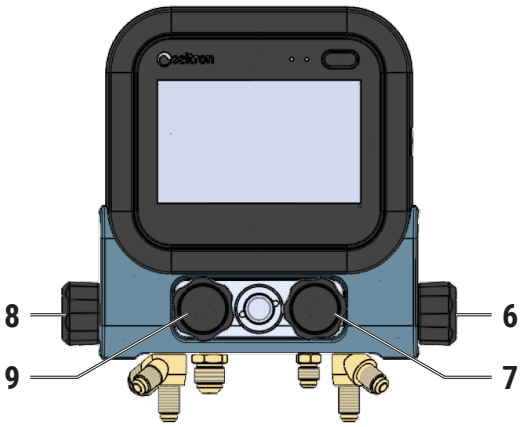
Description of user interfaces	
1	Multifunction button: Press and hold for 3 seconds to turn the instrument on/off Press and hold for more than 10 seconds to reset the instrument
2	Flashing red LED: low battery Red LED steady on: battery charging in progress Green LED steady on: battery charged (visible only if the battery is charged with the device turned off)
3	White LED: Steady on: Sleep mode (screen off) Slow flashing (every 5 seconds): Bluetooth connected Fast, intermittent flashing: Bluetooth advertising (sending data packet)
4	Color TFT touch screen display
5	USB Type-C interface (with safety cover)
Description of the manifold	
6	Right branch valve control knob High/Low pressure
7	Control knob for right branch valve connecting refrigerant gas charge
8	Left branch valve control knob High/Low pressure
9	Left branch valve control knob (fitting with 3/8 SAE connection)
10	Refrigerant gas flow control window
13	1/4 SAE connection for refrigerant gas piping on the right branch High/Low pressure
14	1/4 SAE refrigerant gas charge pipe connection
15	1/4 SAE connection for left branch refrigerant gas pipe High/Low pressure
16	3/8 SAE connection for connection to vacuum pump
17	1/4 SAE blind fitting for hose support
18	3/8 SAE blind fitting for hose support
S	Pressure sensor
Other	
11	Hook for hanging the instrument
12	Magnetic section for hook attachment

The hose connections are knurled and must be tightened by hand only, without the use of tools.

8.2.1 Simplified diagram of the manifold



8.2.2 Valve control knobs



From the point of view of the refrigerant gas path, the Be Cool Evo M4S works like a traditional four-way tester: opening the valves opens the passages.
The pressure applied is measured with both open and closed valves.
- To open the valve: turn the valve regulator counterclockwise.
- To close the valve: turn the valve regulator clockwise.

Excessive tightening of valve regulators:
• Damage to the PTFE gasket
• Mechanical deformation of the valve piston and failure of the PTFE gasket
• Damage to the thread of the threaded rod and that of the valve screw
• Valve knob breakage
Tighten the valve regulators manually only. Do not use any tools to tighten the valve regulators.

8.2.3 Connection diagrams

All Be Cool Evo M4S connection diagrams are shown in the chapter "4.0 CONNECTION DIAGRAMS" on page 12.

Before taking any measurements, make sure that the hoses used are in perfect condition and correctly inserted. It is recommended to tighten the connections manually only, avoiding the use of tools that could damage the components. The maximum permissible tightening torque is 5.0 Nm (3.7 ft*lb).

9.0 TECHNICAL FEATURES

Power Supply:	3.7 Vdc Li-Ion rechargeable battery
Battery Charger:	External 5Vdc 2A battery charger
Charging Time:	5 hours from 0% to 90% (6 hours for 100%)
Battery Life:	12 hours of continuous operation
Display Type:	5” IPS capacitive touch screen
Pressure Measurement Range:	-1.0 - +55.0 bar (-14.5 - +800 psi)
Accuracy:	± 0,5 % FS
Resolution:	0.03 bar (0.5 psi)
Sampling Frequency:	0.5 seconds
Units of Measurement:	psi, kg/cm2, cmHg, inHg, bar, kPa, MPa
Overload:	69 bar (1000 psi)
Recording Time:	1382 hours (30-second intervals)
Pressure Fittings:	3 x 1/4 SAE* + 1 x 3/8 SAE*1
Sensor Interface:	PS/2*2
Connectivity:	Communication Port: USB Type-C
	Bluetooth: Class 1 / Range: <100 meters (open field)
Protection Rating:	IP54
Operating Temperature:	-10 .. 50 °C / -14 .. 122 °F
Storage Temperature:	-20 .. 60 °C / -4 .. 140 °F
Operating Humidity:	20% .. 80% RH non-condensing
Storage Humidity:	10% .. 90% RH non-condensing

10.0 COMMISSIONING

10.1 Preliminary operations

Remove the instrument from its shipping packaging and perform an initial inspection. Check that the contents match your order. If any signs of tampering or damage are noticed, immediately report the issue to the SEITRON Service Center or your local representative, while retaining the original packaging.
The instrument's rating plate indicates the serial number and model. Please provide both of these details for any request regarding technical service, spare parts, or technical and application support. Seitron maintains an archive of historical data for every instrument at its headquarters.
It is recommended to perform a full battery charge cycle before the first use.

Marking Data Example:

10.2 Instrument power supply

The instrument is equipped with a high-capacity rechargeable Li-Ion battery. If the battery is too low to continue with measurements, you can continue operating the instrument by connecting the supplied AC adapter, which will power the instrument and recharge the battery at the same time.
The battery charging cycle takes up to 6 hours for a full recharge and ends automatically.

ATTENTION
If the device is not going to be used for a long period of time, it should be stored after a full recharge cycle. It is also recommended to recharge the device at least once every 3 months.

10.2.1 Internal battery charge level

The display constantly shows the charge status of the internal battery via the symbol at the top right of the display.

ATTENTION!
THE INSTRUMENT IS SHIPPED WITH A CHARGE LEVEL NOT EXCEEDING 30%, IN COMPLIANCE WITH CURRENT AIR TRANSPORT REGULATIONS.
BEFORE USE, PERFORM A FULL 6-HOUR CHARGE CYCLE. IT IS RECOMMENDED TO CHARGE THE DEVICE AT AN AMBIENT TEMPERATURE BETWEEN 10 °C AND 30 °C.

Pay particular attention to the following symbols:

SYMBOL	BATTERY STATUS
	**Battery charged (100%).**
	**75% remaining charge.**
	**50% remaining charge.**
	**25% remaining charge.**
	**Less than 25% remaining charge.**
 **Flashing light**	**Less than 5% residual charge - 1 hour autonomy. Recharge the battery.**

When the device is in low power mode (display off), the two LEDs on the top of the device indicate the battery charge status:

WHITE LED	RED LED	BATTERY STATUS
Flashing	Off	Battery charged (does not provide information about the remaining charge level).
Steady on	Flashing (2 flashes per second + 3-second pause)	5% remaining charge - 1 hour of battery life. Recharge the battery.

The device will not start if the battery charge is less than 4.8%; when the power button is pressed, the system will start with the display off, the red LED will flash for 10 seconds with 1 pulse of 100 ms every second, then turn off. The instrument can be left in stock for a period depending on the battery charge level; below is a table specifying this time depending on the charge level.

BATTERY CHARGE LEVEL	STOCK DURATION
100%	120 days
75%	80 days
50%	45 days
25%	30 days

10.2.2 Battery charging

To recharge the instrument battery, connect the supplied external power supply to the USB Type-C connector. The instrument, connected to the external power supply, can operate with completely drained batteries.

ATTENTION!
THE LOW VOLTAGE OUTPUT IS 5 VOLTS WITH A DELIVERABLE CURRENT OF 2A.
LOW VOLTAGE POWER CONNECTOR: USB TYPE A SOCKET + CONNECTION CABLE WITH TYPE C PLUG.

The symbol "  " appears while the battery is charging. The red and green LEDs on the top of the device provide information on the battery charge status:

WHITE LED	RED LED	GREEN LED	BATTERY STATUS
Off	Steady on	Off	Device turned off, charging.
Off	Off	Steady on	Device turned off, charging complete (100%)
Flashing (3 flashes every 3 seconds)	Steady on	Off	Device turned on (energy-saving mode), charging.

10.3 Power On/Off

INSTRUMENT STATUS	ACTION	FUNCTION
OFF	Press and hold the power button until the "Seitron" start screen appears.	The device turns on* and displays the home screen.
ON	Press and hold the power button for > 3 seconds.	The device turns off. If measurement recording is enabled (the icon "●", at the top right of the display, is lit), the device does not turn off. You must first stop recording (tap the icon "●") and then turn off the device.

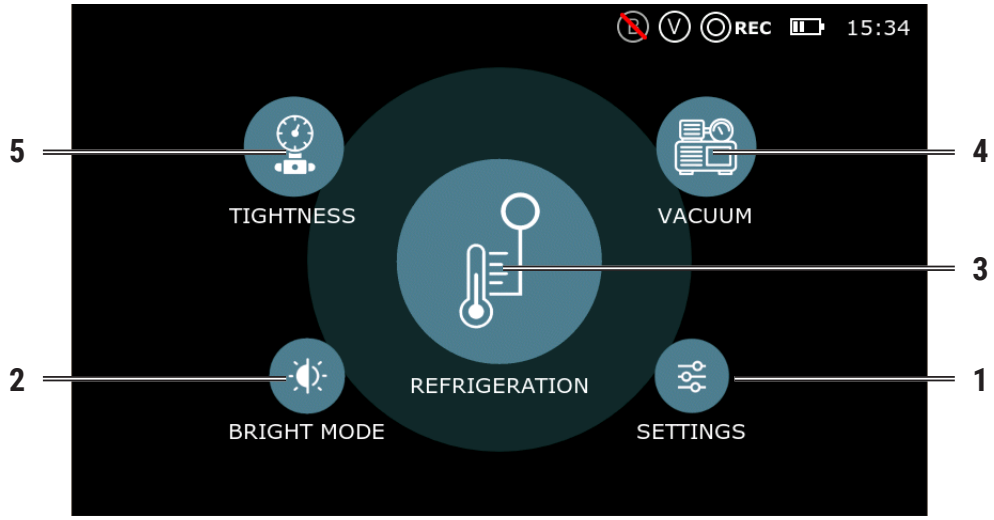
10.4 Energy saving mode

For information on the instrument's energy saving modes, see the paragraph "11.1.2 Screen" on page 31.

INSTRUMENT STATUS	White LED	ACTION	FUNCTION
Screen off activated: instrument turned on.	Flashing (3 flashes every 3 seconds)	Press and hold the power button for more than 1 second or tap the display.	The instrument exits low power mode.
Auto power off enabled, but data recording is active (deep sleep mode).	Flashing (3 flashes every 3 seconds)	Press and hold the power button for > 3 seconds.	The instrument exits low power mode.

11.0 INSTRUMENT MENU

Once the instrument has finished booting up, the display shows the home page screen.



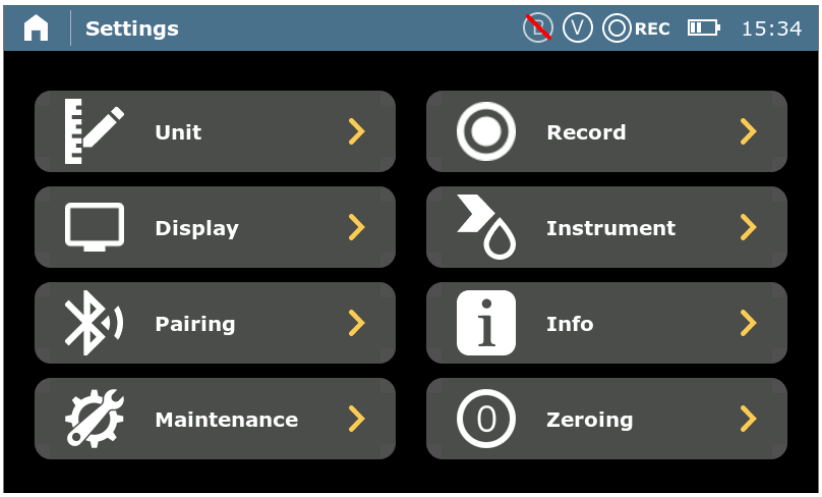
Tap the icon to access the corresponding function.
The status bar at the top of the page displays the time, battery charge indicator, Bluetooth® connection, connected devices, and recording status.

If the recording icon "●" is on, means that recording has started, on the contrary "◎" the instrument is not recording the measurement.
To start/stop data recording, access the "Settings => 9.1.5 Record" menu or tap the icon "◎" / "●".

1	Access the Settings menu, where the user can configure the instrument's reference parameters. For full details, refer to the paragraph "11.1 Settings Menu" on page 31.
2	Switch from a light background (LIGHT THEME) to a dark background (DARK THEME).
3	Measure the pressure and temperature on both sides of the system (high and low pressure). For full details, refer to the paragraph "11.2 REFRIGERATION" on page 34.
4	Access the menu for vacuum execution and maintenance of the system. For full details, refer to the paragraph "11.3 VACUUM" on page 38.
5	Access the menu for performing the pressure leak test on the system. For full details, refer to the paragraph "11.4 TIGHTNESS TEST" on page 42.

11.1 Settings Menu

The "Settings" screen allows you to set a series of system variables, specifically:



11.1.1 Unit

In this submenu, you can select the units of measurement for the following physical quantities: Temperature - Pressure - Vacuum.
To go back, press the arrow at the top left of the screen; any changes made will be saved automatically.

11.1.2 Screen

This section allows you to configure the parameters related to the device's display and energy saving.

Brightness

Allows you to adjust the brightness level of the display.

Screen Off (Standby)

Set an inactivity timer (selectable from 15 seconds to 10 minutes) after which the display enters energy-saving mode by turning off. The unit remains on and operational.
You can disable this feature by selecting "Off."

Auto Shutdown

Set an inactivity timer (selectable from 5 to 30 minutes) after which the device will automatically turn off. If the instrument is recording data, after the shutdown time has elapsed, the instrument will not turn off, but will enter "deep sleep" mode, keeping data recording active in accordance with the settings made.
To disable the function, select "OFF."

Language

Allows you to set the desired language for the user interface.
Changes are saved automatically when you exit the menu using the arrow icon at the top left.

11.1.3 Pairing

Association Procedure

For detailed instructions on pairing probes and vacuum gauges, refer to chapter 6.0 Pairing.

Connection Limits

A maximum of two temperature probes (Clamp A/B) and a vacuum gauge can be connected to the instrument.

Automatic Reconnection

When the device is turned on, previously paired devices will be detected and reconnected automatically.

Replacing a Device

If a device needs to be replaced, the existing device must be unpaired before proceeding with a new pairing:

1. From the "Pairing" menu, press the button "" (trash can) of the probe or vacuum gauge to be deleted.
2. Once the operation is complete, the free slot will be displayed (e.g., "Clamp A," "Vacuum gauge") and you can start the pairing procedure for the new device by pressing the button .
3. It is now possible to pair a new device by following the pairing procedure.

11.1.4 Maintenance

This menu is password protected and for the exclusive use of Seitron authorized service centers.

11.1.5 Record

In this menu, you can enable/disable the recording of all measurements and calculated data for the instrument and all connected probes. Each piece of data is stored with the date and time, creating a complete history of activities.

Record interval

Set the regular data storage interval (from 1 second to 1 hour).

Recording

Press the right cursor to enable/disable data recording on the instrument's internal memory. Alternatively, simply press the "REC" button located on the top bar of the display.
When the Be Cool Evo M4S is storing measurements, the icon "●", at the top right of the display, is lit.
To analyze or share the results, simply connect to the Seitron Smart Analysis app: from here, you can download detailed reports in .csv or .pdf format, broken down by test, date, and time.

Delete memory

With the "Clear memory" button, you can delete all data stored in the memory.

WARNING!

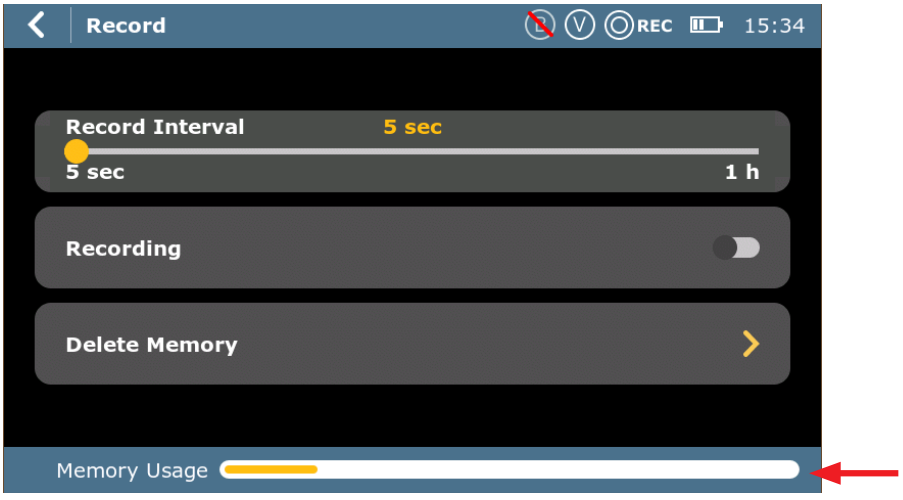
Data recording stops automatically when the internal memory is full. The icon "●" on the display will turn off to indicate that the interruption has occurred.

To resume recording, you must delete the data stored in the instrument's internal memory by pressing the memory delete button.

Before deleting the memory, we recommend downloading all data saved on your mobile device using the Seitron Smart Analysis app.

Memory Usage

At the bottom of the screen is the Memory Usage section, which allows you to monitor your storage status in real time.
The graphic bar clearly shows the distribution of space: the portion highlighted in yellow indicates the memory currently occupied, while the remaining part of the bar represents the free space still available for recordings.



11.1.6 Instrument

This menu allows you to configure the basic settings of the instrument.

Date/Time

There are two separate menus for date and time.

Date: Allows you to set the current date on the device. This setting is essential for the correct recording of data.
It is also possible to enable the international date format "year-month-day" (yyyy-mm-dd).

Time: Allows you to set the current time on the device. This setting is essential for the correct recording of data.
It is also possible to enable the 12-hour format (AM/PM).

Update FW

For the entire procedure for updating the instrument firmware, see the chapter "12.0 MAINTENANCE" on page 45.

11.1.7 Info

This section contains the device identification data and the contact details of the service center.
The information displayed, such as model, serial number, and firmware number, is essential and must be provided to the operator when requesting technical support in order to ensure fast and effective service.

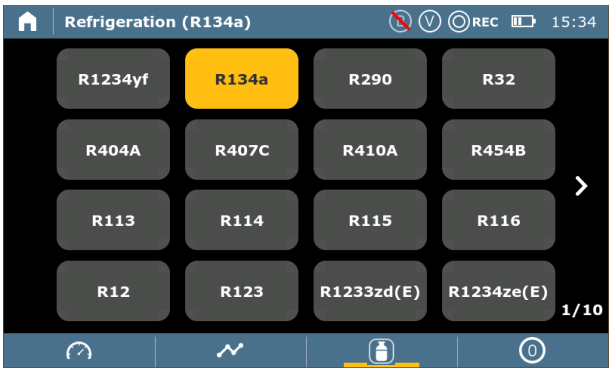
11.1.8 Zeroing

This function initiates the auto-zero phase of the pressure sensors.
To ensure correct measurement, the operation must be performed with the instrument exposed to ambient air. You will be explicitly asked to disconnect all hoses and connections from the system before proceeding.

11.2 REFRIGERATION

Refrigeration is a comprehensive diagnostic tool for analyzing the status of a refrigeration system in real time.

Setting the system refrigerant gas



By selecting the specific refrigerant gas from the settings menu (key), it is possible to obtain accurate and reliable measurements, which are essential for proper maintenance and troubleshooting.

The monitored data are reported below.

Operating pressures of the system branches (HP/LP)
The **evaporation pressure (low pressure side**, LP, blue pressure gauge) and the **condensation pressure (high pressure side**, HP, red pressure gauge) are displayed.
These values represent the pressure levels at which the refrigerant undergoes phase changes.

Operating temperatures of the system branches (T.HIGH/T.LOW)
These correspond to the temperatures measured by external probes connected at specific points in the system, typically the superheat temperature (on the compressor suction line - **T.HIGH**) and the liquid temperature (on the liquid line, at the condenser outlet - **T.LOW**).

Calculated data:

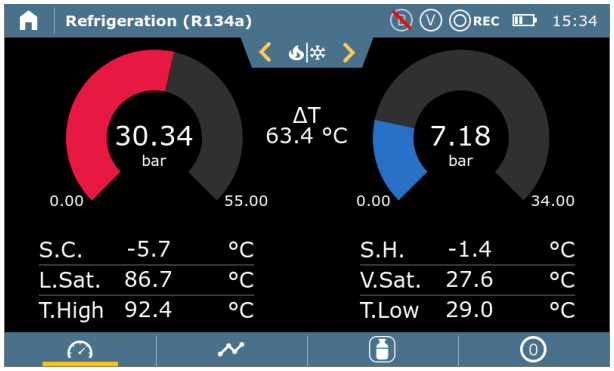
ΔT
The value **ΔT corresponds to the temperature difference T.LOW - T.HIGH**.

Saturation Temperatures
For each measured pressure (HP and LP), **the instrument calculates the corresponding saturation temperature** (condensation "**L.SAT**" and evaporation "**V.SAT**") based on the pressure-temperature (P-T) curve of the selected refrigerant. This value indicates the temperature at which the fluid changes state at a given pressure.

Superheating Temperatures (S.H.)
This automatically calculated value is crucial for verifying that the refrigerant is completely in the gaseous phase before entering the compressor, protecting it from damage.
A correct superheat value is essential to ensure that only superheated vapor reaches the compressor, preserving its mechanical integrity and optimizing its volumetric efficiency.
Abnormal overheating may indicate an incorrect refrigerant charge or a problem with the expansion valve.

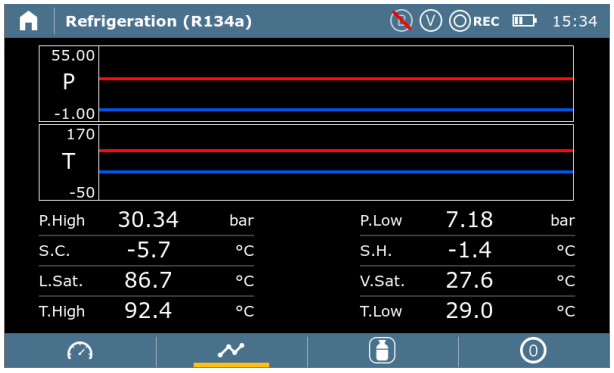
Subcooling Temperatures (S.C.)
This automatically calculated value indicates that the refrigerant is completely in the liquid phase at the condenser outlet, ensuring the efficiency of the expansion valve.
Adequate subcooling ensures that only liquid refrigerant reaches the laminating device (expansion valve), maximizing the efficiency of the expansion process and preventing the formation of flash gas. It is a key indicator for assessing the correct refrigerant charge level.
The combined analysis of these parameters allows for accurate diagnosis of the system's health, identifying problems such as insufficient or excessive gas charges, obstructions in the circuit, or component malfunctions.

Display on digital pressure gauges (key)



Be Cool Evo M4S is equipped with two digital pressure gauges, which replicate the display of traditional analog instruments.
The digital pressure gauge indicator automatically adapts to the selected pressure measurement unit.
The current measured pressure is accurately displayed in the center of each pressure gauge.
This hybrid display allows you to observe pressure fluctuations in real time with the same immediacy as an analog pressure gauge.
All essential temperature readings are grouped below each digital pressure gauge: system temperatures measured by clamp-on probes and calculated saturation temperatures (L.Sat/V.Sat.), Superheating (S.H.) and subcooling (S.C.).

Chart Display (key)



The dynamic line graph display is ideal for analyzing pressure and temperature trends over time.
The graph mode tracks pressure and temperature changes in real time. A guideline moves across the screen showing the most recent data, while data recorded in previous moments remains visible on the left, providing a useful visual comparison. The time span displayed is approximately 10 seconds.

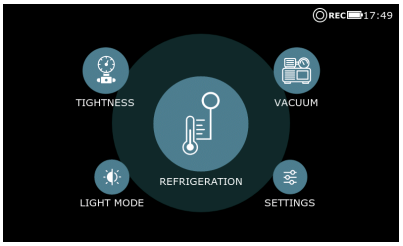
Exit Mode

To end the measurement session and return to the main menu, simply press the key.

11.2.1 Refrigeration Measurement - Procedure

To perform the test, follow the instructions in the following points.

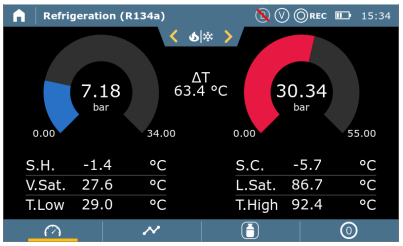
1. Turn on the device.
   Once startup is complete, the display shows the home page.



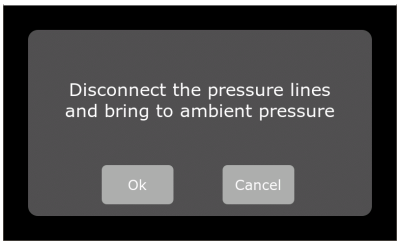
2. Check that both clamp-on temperature probes are paired with the instrument and have charged batteries. For detailed instructions on pairing the probes, refer to the product quick start guide.

3. Access the "REFRIGERATION" menu.

   Before connecting the instrument to the system, it is necessary to zero the pressure sensors at ambient pressure to ensure accurate pressure readings.

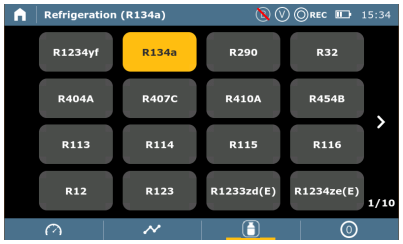


4. Press the key ⓪ to reset the pressure sensors.



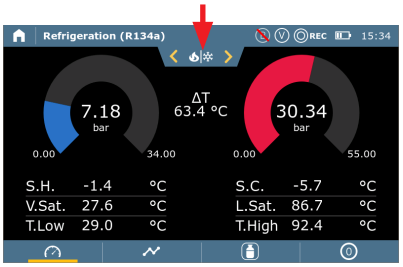
5. Connect the flexible hoses and clamp-on temperature probes to the high- and low-pressure branches of the system (for connection to the instrument, refer to the quick guide provided).

6. Press the key 🔒 to set the refrigerant used in the system in exam.
   Once the refrigerant has been selected, it will appear in the bar at the top.



NOTE:
Before proceeding with the test, it is necessary to set the type of refrigerant used in the system under test in order to avoid errors in calculating the temperature.

7. Set the operating mode corresponding to the system in question (setting indicated by the red arrow). Press the yellow arrows to set the desired operating mode; the corresponding symbol will appear inside the clickable icon.
   For full details on how to view, see the paragraph "8.1 Main functions" on page 22.



❄	**Cooling** (low pressure branch, blue pressure gauge will be positioned to the left of the display)
🔥	**Heating** (heat pump - high pressure branch - red pressure gauge, located to the left of the display)
❄🔥	**Automatic** (automatic cooling/heating recognition (heat pump).

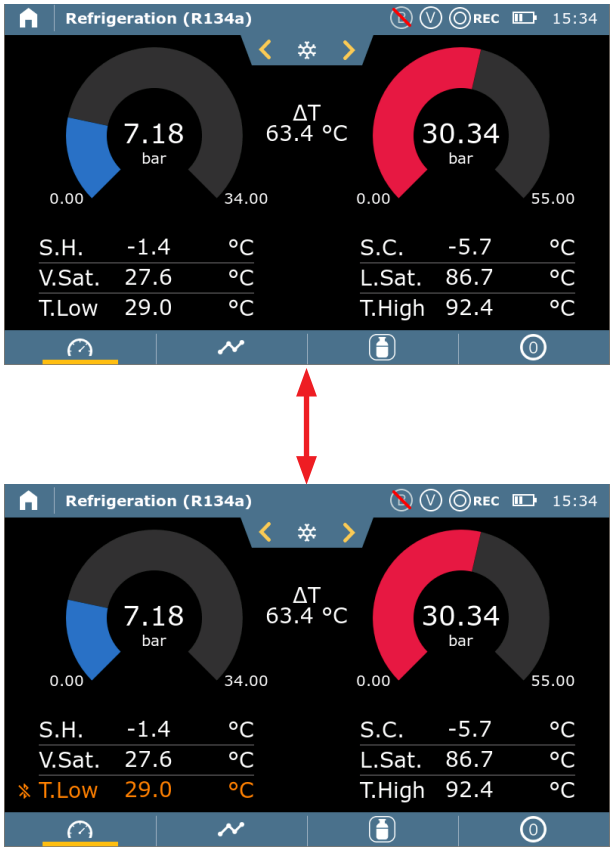
9. If you want to save the measurement, press the "REC" button located on the top bar of the display; the "●", icon in the upper right corner of the display will light up.

10. Pressurize the instrument and proceed with the measurement.
By clicking on the button the instrument displays the measurement on digital pressure gauges, while by clicking on the button the instrument displays the measurement on a chart.
For full details on how to view, see the paragraph "8.1 Main functions" on page 22.

ATTENTION

If communication between a probe and the instrument is interrupted, the crossed-out probe icon will appear at the top of the display. At the same time, the temperature value will turn orange and will be accompanied by a crossed-out Bluetooth symbol. In this condition, the measurement displayed will remain locked on the last value detected before disconnection. Once the connection is restored, the system will automatically return to the standard real-time display.

Example:



11.3 VACUUM

Vacuuming a refrigeration system is a fundamental and mandatory procedure that must be performed before introducing refrigerant gas into the refrigeration system.
After emptying the system, vacuuming consists of removing the air and, above all, the moisture present inside the system pipes.
The necessary tools are as follows:
- Vacuum pump
- Dedicated flexible hose
- Manifold Be Cool Evo M4S or Seitron Smart Analysis mobile App
- Vacuum meter Be Cool Evo V1S

ATTENTION!
USE A DEDICATED FLEXIBLE TUBE FOR VACUUM APPLICATIONS AND MAINTENANCE.

After activating the vacuum pump, it sucks the air out of the system, causing the moisture in the pipes to evaporate. This operation lowers the pressure in the system, also lowering the boiling point of the water. In this way, the water can evaporate even at room temperature and then be extracted in the form of steam.
It is necessary to check the vacuum level achieved using the Be Cool Evo V1S vacuum gauge.
Depending on the size of the system, a good vacuum level is typically below 500 microns (or approximately 0.67 millibars). This value ensures that almost all moisture has been removed.
Once the desired vacuum level is reached, the vacuum pump is switched off and the system circuit remains isolated. At this point, it is necessary to perform the vacuum hold test: the pressure value measured by the Be Cool Evo V1S vacuum gauge will be observed for a set period of time:
- If the vacuum level remains stable, the system is leak-free.
- A rising pressure value indicates either the presence of a leak that must be identified and repaired, or the presence of residual moisture that is evaporating.

Only after verifying the vacuum hold can you proceed with the refrigerant gas charging.

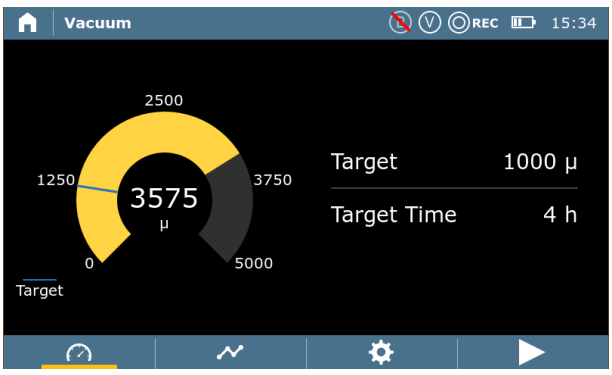
Evacuating the system and verifying the vacuum hold is not an optional operation; it is essential to ensure the correct operation, efficiency, and longevity of the system. The presence of air and moisture (water) inside the circuit—where only refrigerant gas and compressor oil should circulate—causes severe damage.

The main problems caused by missing or incorrect evacuation are:

Acid formation:	Moisture, when mixed with refrigerant gas and oil, creates acidic solutions that corrode the metal parts of the system, particularly the compressor motor windings, leading to premature failure.
Ice formation:	Due to the low temperatures at the expansion point (expansion valve or capillary tube), water can freeze. This blocks or obstructs the flow of refrigerant, compromising the entire system's operation.
Poor performance and inefficiency:	Air is a "non-condensable" gas that occupies volume and alters the system's operating pressures. Its presence prevents the refrigerant from completing its thermodynamic cycle correctly, leading to reduced cooling efficiency and increased energy consumption.
Compressor damage:	Abnormal pressures and the presence of acids put stress on the compressor—the "heart" of the system—leading to accelerated wear and possible mechanical failure.

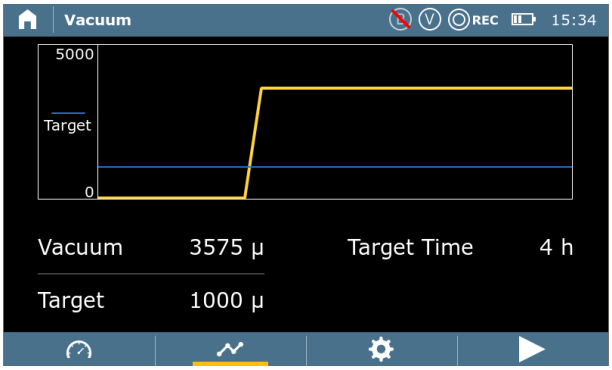
The "Vacuum" menu contains settings relating to vacuum execution and vacuum testing.

Display on digital pressure gauge (key)



Be Cool Evo M4S is equipped with a digital gauge that replicates the layout of a traditional analog instrument. The indicator automatically adapts to the selected pressure unit of measurement. The current pressure value is precisely displayed at the center of the digital gauge. This hybrid display allows you to monitor the vacuum level in real time with the same immediacy as an analog gauge. The settings related to the evacuation process and the subsequent vacuum hold test are grouped next to the digital gauge.

Chart Display (key)

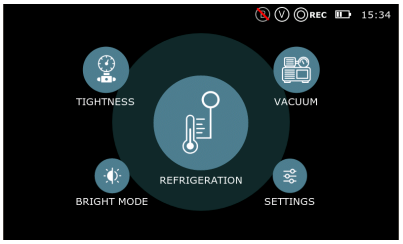


This display, similar to those in the Pressure/Temperature menu, shows a line graph illustrating how the vacuum level changes over time. New data is added in real time to the right of the graph, creating a visual history of the last 10 seconds that scrolls to the left. This allows you to easily monitor the progress of the process.

11.3.1 Evacuation and Vacuum Hold – Procedure

To evacuate the system and perform the vacuum leak test, follow the instructions in the following points.

1. Turn on the device.
   Once startup is complete, the display shows the home page.



2. Check that the vacuum gauge is connected to the instrument.
   For detailed instructions on pairing the vacuum gauge, please refer to the product quick start guide.

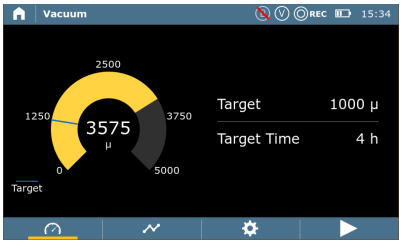
It is necessary to check that the vacuum gauge batteries have sufficient power to cover the entire measurement session.

3. Make the connections to the system.
   For detailed instructions on connections, please refer to the product quick start guide.

4. Turn on the vacuum gauge connected to the system..

If you wish to store data relating to evacuation and vacuum leak testing, you must start recording before beginning the procedures. This option can be found in the Settings > Recording menu or by pressing the "REC" button located on the top bar of the display.; the icon "●", in the upper right corner of the display, lights up.

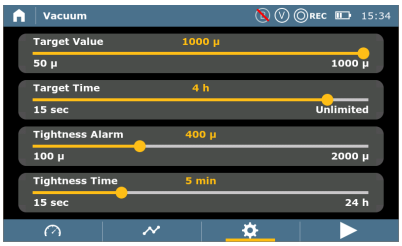
5. Access the "VACUUM" menu.



6. Push the key "": Set the license plate data required to evacuate the system and perform the vacuum leak test.

Evacuation Data:

Target Value:
The Target Value (or Evacuation Target) is the specific vacuum level you want to reach during the evacuation process. It is the minimum absolute pressure value (usually measured in microns/mTorr) that the system must reach. Achieving this value ensures that most of the air and, above all, moisture has been removed from the circuit. A common target value for HVAC/R systems is below 500 microns.



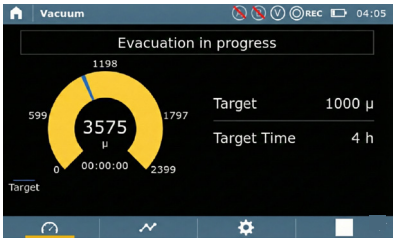
Target Time:
The Target Time is the maximum duration set to reach the vacuum "Target Value." It is used to monitor the efficiency of the process. If the pump does NOT reach the target value within this time, it could indicate a problem, such as a significant leak in the system or an underperforming vacuum pump.

Vacuum Hold Test Data:

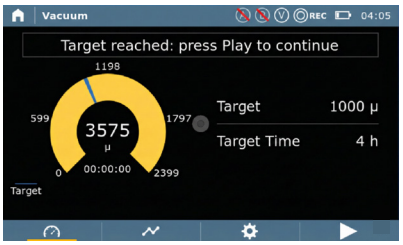
Tightness Alarm:
The Tightness Alarm is the maximum pressure limit that must not be exceeded during the vacuum hold test. If, after isolating the pump, the pressure rises and exceeds this threshold, it means there is a leak in the system or that residual moisture is still evaporating.

Tightness Time:
The Hold Time is the duration of the vacuum hold test. During this interval, the pressure is monitored to ensure it does not rise above the " Tightness Alarm". Stable pressure (or a minimal increase) throughout the hold time indicates that the system is leak-free and ready to be charged with refrigerant.

6. Turn on the vacuum pump.

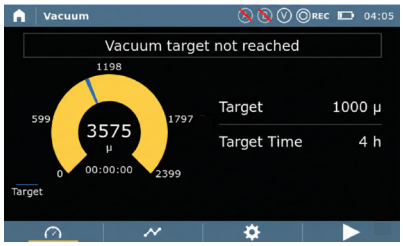


7. Press the key ▶ to start the evacuation process.
The evacuation will last for the duration set in the “T.Target” parameter to reach the value set in “Target.”
By clicking directly on the key “ ” you can switch to the chart view.
To stop measuring the vacuum, press the key ■.



8. Outcome of the vacuum tightness test:
Target reached: Press play to continue.
The evacuation has been successfully completed.
Proceed with the vacuum tightness test (step 9).

Vacuum target not reached.
The set target value was not achieved.



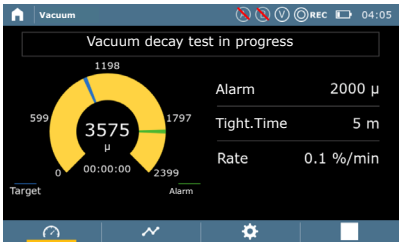
Possible causes:

The most common cause for failing to reach the target vacuum is a leak that allows air to enter the system during evacuation:

- **System leaks:** Even a micro-leak in connections, welds, piping, or components can prevent reaching a deep vacuum.
- **Hose and vacuum gauge gaskets:** Rubber gaskets on service hoses and inside the vacuum gauge may be worn, dirty, or damaged, creating an entry point for air.
- **Service valves:** Access valves may not seal correctly. It is good practice to remove the valve core with a proper core removal tool before starting the procedure.
- **Issues with the Vacuum Pump and Instrumentation:** The equipment used to create and measure the vacuum is another potential source of problems.
- **Contaminated vacuum pump oil:** Vacuum pump oil absorbs moisture and impurities. Saturated oil cannot reach low vacuum levels. Contaminated oil often appears milky or cloudy.
- **Underpowered vacuum pump:** If the pump capacity (measured in CFM or l/min) is inadequate for the system size, reaching the target vacuum may be excessively slow or impossible.
- **Inaccurate or faulty vacuum gauge:** If the gauge is not correctly calibrated or is damaged, it may provide incorrect readings.

- **Inadequate connection hoses:** Using hoses that are too small in diameter or excessively long can restrict flow, significantly slowing down the evacuation process.
- **Internal System Contamination**: Sometimes, the problem is not a leak but the presence of substances inside the system that evaporate during the vacuum process, creating a vapor load that the pump struggles to remove.
- **Excessive moisture in the system:** If the system has been open to the atmosphere for a long period of time or if water has entered, the trapped moisture will take much longer to be completely evacuated. Water boils at lower temperatures under vacuum, but the evaporation (degassing) process can be slow.
- **Moisture-saturated coolant oil:** The oil inside the compressor can absorb moisture. During vacuuming, this moisture is slowly released, counteracting the action of the pump.

Proceed with the vacuum decay test of the system.



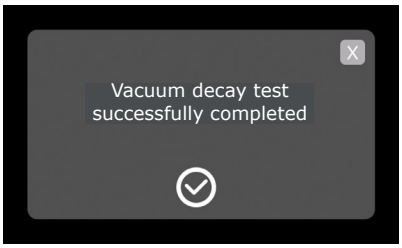
9. Isolate the vacuum pump from the system.

10. Start the vacuum tightness test by pressing the button ▶.
The vacuum leak test will last for the duration set in the "Tight.Time" parameter. During this interval, the pressure must not exceed the "Alarm Threshold," expressed as "Rate" (permitted decay rate in %).

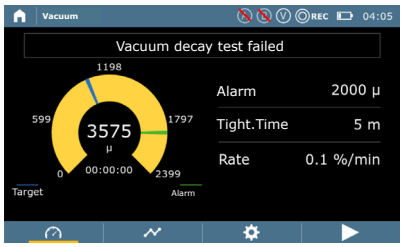
11. Test result:

The test is considered passed if the pressure loss remains below the set "Alarm threshold." If this value is exceeded, a leak warning will be displayed in the system.

Vacuum decay test successfully completed.



Vacuum decay test failed.



11.4 TIGHTNESS TEST

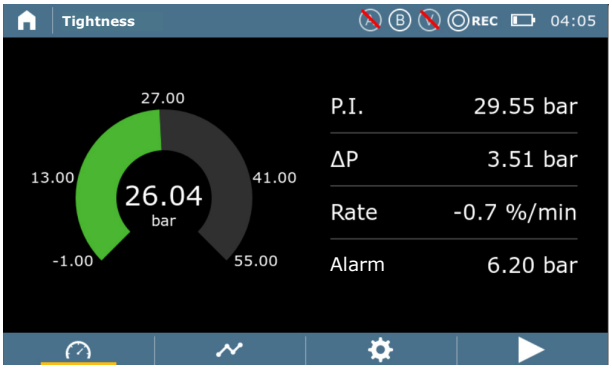
The pressure tightness test of the refrigeration system is a fundamental test to verify that there are no refrigerant gas leaks.
This control is crucial for three fundamental reasons:
1. Prevents refrigerant gas leakage, in compliance with F-Gas regulations.
2. Ensures the energy efficiency of the system.
3. Protects critical components from failure and irreversible damage.

The most reliable method is pressure testing with nitrogen, an inert, dry gas. The test involves pressurizing the entire system to a value higher than normal operating pressure to simulate the most critical conditions.

The pressure tightness test is performed in the following steps:

1. Recovery of refrigerant gas from the system.
2. Vacuuming and maintaining a vacuum to eliminate all traces of moisture and other non-condensable substances.
3. Filling the system with nitrogen until the specified test pressure is reached.
4. The system is kept under pressure for an appropriate period of time (from a few hours up to 48 hours for the most rigorous tests). During this phase, it is essential to wait for the gas temperature to stabilize. Pressure and temperature are constantly monitored with precision instruments, such as digital pressure gauges and temperature probes.
5. Final Check: At the end of the observation period, the result is analyzed:
   Tightness test passed: If the pressure has remained constant (taking into account natural variations due to temperature), the system is considered to be sealed and you can proceed with charging the refrigerant.
   Tightness test failed: If there is a drop in pressure, the presence of a leak is confirmed.
   At this point, locate the exact point of the leak and proceed with the repair.

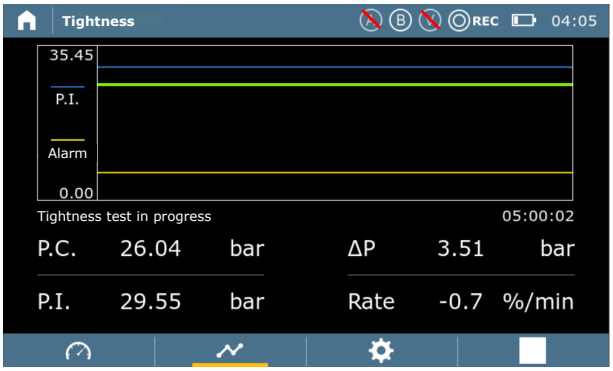
Display on digital pressure gauge (key)



Key to the data displayed:
P.I. Initial pressure
ΔT Pressure difference:
Current pressure - Initial pressure
Rate Pressure decay rate (in %/min)
Alarm Alarm threshold calculated based on the "Acceptable loss" parameter set.

Be Cool Evo M4S is equipped with a digital pressure gauge, which replicates the display of a traditional analog instrument. The indicator automatically adapts to the selected pressure measurement unit. The current pressure value is displayed accurately in the center of the pressure gauge. This hybrid display allows you to observe pressure fluctuations in real time with the same immediacy as an analog pressure gauge.
The measured and calculated pressure values are grouped together on the side of the digital pressure gauge, along with the settings made for performing the system pressure tightness test.

Graph Display (key)



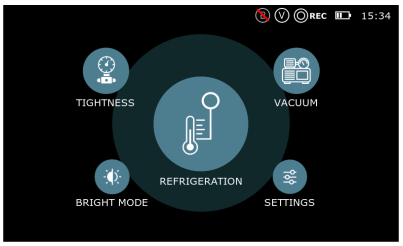
Key to the data displayed:
P.C. Current pressure
P.I. Initial pressure
ΔT Pressure difference:
Current pressure - Initial pressure
Rate Pressure decay rate (in %/min)
Alarm Alarm threshold calculated based on the set "Acceptable loss" parameter.

This display, similar to those in the Pressure/Temperature menu, shows a line graph illustrating how pressure changes over time.
New data is added in real time on the right side of the graph, creating a visual history of the last 10 seconds that scrolls to the left. This allows you to easily monitor the progress of the test.

11.4.1 Performing the tightness test

To perform the pressure leak test on the system, follow the instructions in the points below.

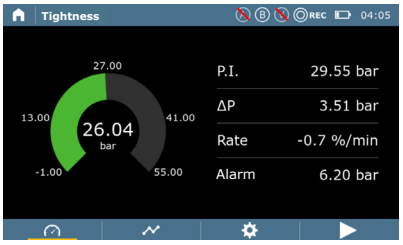
1. Turn on the device.
   Once startup is complete, the display shows the home page.



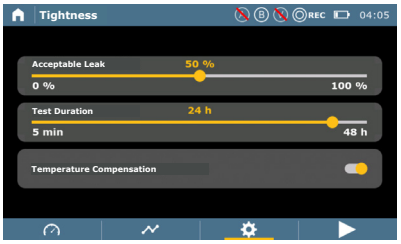
2. If you want to perform the leak test with temperature compensation, turn on the **Be Cool Evo T1S** ambient temperature probe; check that it is paired with the instrument.
   For detailed instructions on pairing the temperature probe, please refer to the product quick start guide.

It is necessary to verify that the battery life of the temperature probe is sufficient to cover the entire measurement session.

3. Make the connections to the system.
   For detailed instructions on connections, please refer to the product quick start guide.
4. Fill the system with an adequate amount of nitrogen until the specified test pressure is reached.
5. Access the “TIGHTNESS“ menu.



6. Set the plate data required to perform the tightness system test.



Acceptable Leak (in %):
This parameter defines the maximum percentage pressure drop allowed for the system to be considered "tight." A correctly set value allows you to distinguish between a real leak and normal micro-variations in the system.

Test Duration:
Set the monitoring period during which the system will remain pressurized. The duration depends on the level of accuracy required and the relevant regulations.

Temperature Compensated:
Enabled “  “: The leak test is performed taking into account pressure variations due to changes in ambient temperature. The calculation will be performed automatically using the data collected by the **Be Cool Evo T1S** probe connected to the instrument, reducing the pressure reading error caused by the effects of temperature fluctuations.
Disabled “  “: The tightness test can be performed without temperature compensation.

6. Press the key  to start the tightness test.
   The test will run for the duration set in the "Test Duration" parameter.
   By clicking on the button “  “ switch to chart view.
   To stop the tightness test, press the key  .

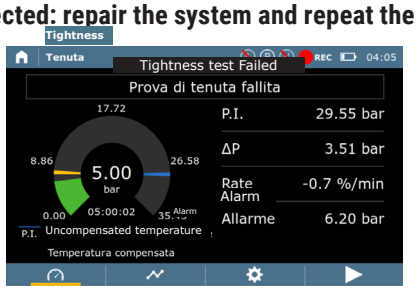
If you wish to store data relating to evacuation and vacuum tightness testing, you must start recording before beginning the procedures. This option can be found in the Settings > Record menu or by pressing the "REC" button located on the top bar of the display; the icon “●“, in the upper right corner of the display, lights up.

7. Test result:

The test is considered passed if the pressure value remains above the value set in the "Acceptable leak" parameter for the entire duration of the test.
Conversely, there is a loss if the pressure value falls below the value set in the "Acceptable leak" parameter; in this case, the instrument signals an alarm.

Tightness test successfully completed.

Leak detected: repair the system and repeat the test



12.0 MAINTENANCE

12.1 Routine maintenance

This instrument has been designed and manufactured using high-quality components. Proper and systematic maintenance will prevent malfunctions and increase the overall life of your device.
The basic operations to be performed by the operator are as follows:

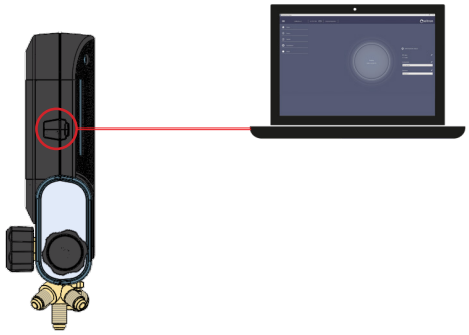
- Avoid exposing the instrument to significant temperature changes before use and, if necessary, wait until its temperature returns to within the operating parameters.
- Do not use abrasive detergents, thinners, or other similar cleaning agents to clean the instrument.

12.2 Firmware update

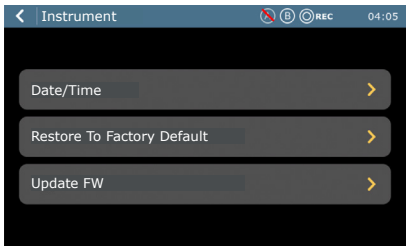
The manufacturer periodically releases firmware updates for the instrument in order to correct any errors, improve performance, or add additional features.
The update can be performed by the user by following the simple instructions below.

Instructions for updating Be Cool Evo M4S with new firmware:

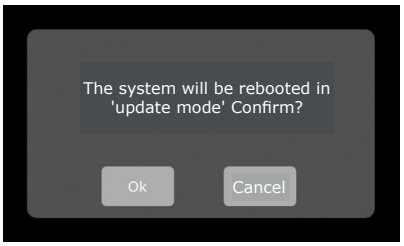
1. Go to the website www.seitron.com and download the firmware file available in the "Download - Firmware" paragraph. This file is compressed and has a .zip extension.
2. Unzip the folder with the .zip extension.
3. Connect the device to your computer using the USB cable:



4. Turn on the instrument.
6. Access the instrument's "Firmware Update" menu, located in "SETTINGS - Instrument."



7. Press the "FW Update" button:



8. Press the OK button; the tool restarts in Firmware Update mode; the display shows "waiting for drag and drop".
9. At this point, the PC sees the device as an external memory; **BE COOL EVO (D)** appears in the list of peripherals.
10. Drag the firmware file you just downloaded onto the "**BE COOL EVO (D)**" device icon.
11. The instrument display shows "upload in progress"; wait until the new firmware is completely installed on the instrument.
12. Once installation is complete, the display will show "upload successful"; at this point, the device will restart automatically.

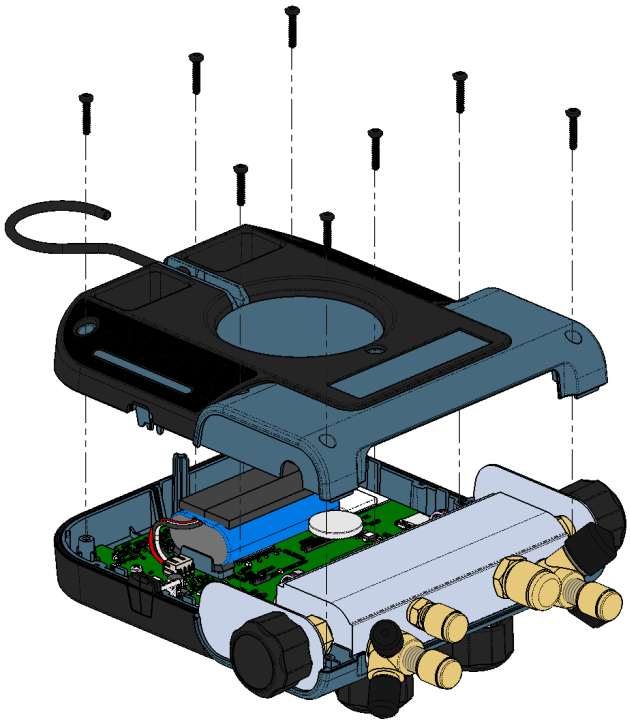
12.3 Battery replacement

To replace the battery pack, proceed as follows:

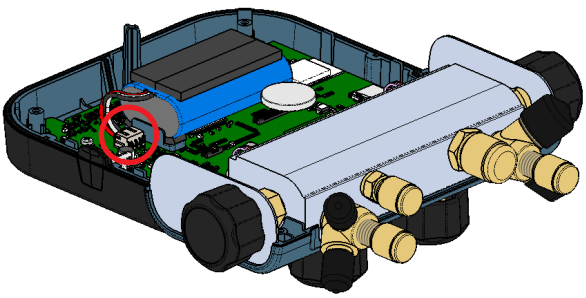
1. Accessibility to the internal parts of the instrument:

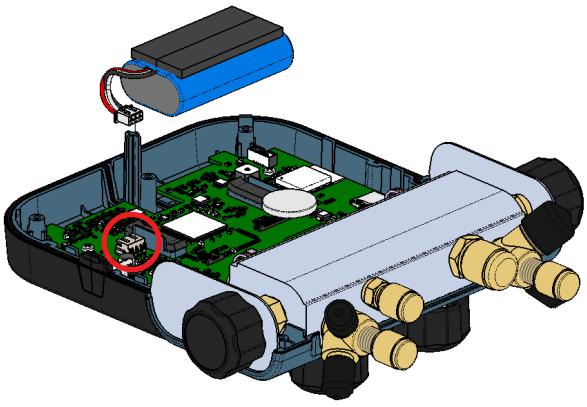
ATTENTION!

- **ACCESS THE INTERNAL PARTS ONLY IF IT IS ABSOLUTELY NECESSARY TO REPLACE THE BATTERY.**
- **BEFORE ACCESSING THE INTERNAL PARTS, THE TOOL MUST BE SWITCHED OFF AND MUST NOT BE CONNECTED TO THE MAINS VIA THE CHARGER.**
- **WHEN OPENING/ASSEMBLING THE INSTRUMENT, ENSURE THAT THE SCREWS ARE NOT LOST.**



2. Remove the battery connector.
3. Remove the battery pack.
4. Insert the new battery, reversing the steps described above.





SECTION

Be Cool Evo V1S

Digital micron vacuum gauge

13.0 GENERAL FEATURES

Be Cool Evo V1S is designed for use in the installation and/or maintenance of cooling systems and heat pumps as a tool for performing vacuum tests and leak tests.

The instrument is equipped with:

- Display OLED 128x32
- Battery powered (2x1.5 V size AA)
- 1/4 SAE fitting
- Measurement storage memory
- Bluetooth® interface

13.1 Package contents

The standard contents of the Be Cool Evo V1S digital vacuum gauge consist of:

- n°1 Be Cool Evo V1S digital vacuum gauge
- n°1 Brass T-fitting with central connection and 1/4" swivel union
- n°2 1.5 V AA batteries (alkaline - non-rechargeable)
- Quick guide
- WEEE Instructions
- Simplified declaration of conformity
- Test report

13.2 Typical use

- Vacuum execution and maintenance.

13.3 Maintenance

In order to ensure the correct functioning of the instrument and the accuracy of measurements, Seitron recommends performing an annual calibration or whenever necessary.
Calibration and any recalibration can be carried out at the Seitron Service Center.
The product is supplied with a test report.

14.0 PRODUCT DESCRIPTION

14.1 Main functions

The Be Cool Evo V1S is a professional dual-function vacuum gauge: in addition to accurately measuring the degree of vacuum in refrigeration circuits, it also detects the ambient temperature, providing essential data for correct vacuum execution. Its use is crucial during the installation and maintenance of cooling systems and heat pumps.
Performing a vacuum in a refrigeration system is a fundamental and mandatory procedure that must be carried out before introducing refrigerant gas into the system and consists of removing air and moisture from the pipes using a special vacuum pump.
Achieving the correct vacuum level, measured by the Be Cool Evo V1S vacuum gauge, guarantees the absence of non-condensable gases, thus ensuring ideal conditions for maximum system efficiency and durability and preventing condensation in the air from causing oxidation in the metal pipes of the system.
Designed for maximum versatility, the Be Cool Evo V1S can operate in standalone mode, in combination with the Be Cool Evo M4S digital manifold, or interfaced with the Seitron Smart Analysis app.

14.1.1 Data Recording and Storage

The Be Cool Evo V1S is equipped with an internal memory that stores all measurements and calculated data, associating each record with a date and time to create a complete history.
To enable this data logging function, you must pair the vacuum gauge with the Seitron Smart Analysis app and activate recording on the instrument's internal memory.
When activated, recording is indicated by the icon "⊙" lighting up (on the upper portion of the display) and a flashing green LED (one flash every 5 seconds).
This setting remains configured in the vacuum gauge, automatically starting recording each time it is turned on. To disable recording, you must always use the app.
The Seitron Smart Analysis app also allows you to customize the sampling frequency, thus affecting the total memory capacity: ranging from one sample per second (for 46 hours of recording) to one sample per hour (for over 165,000 hours).
If the memory is full, recording is automatically interrupted; a warning (pop-up) appears on the display, the icon "⊙" turns off, and the green LED stops flashing.
Finally, the app allows you to download all the data recorded by the device to create and share professional reports in .csv or .pdf format.
For a complete guide to settings, refer to the chapter "Seitron Smart Analysis App."

14.1.2 Bluetooth® connection

Be Cool Evo V1S is equipped with an internal Bluetooth® module, which allows communication with latest-generation smartphones or tablets running Google Android v.5.0 (Lollipop) or higher operating systems, after installing the dedicated "Seitron Smart Analysis" app available on the Play Store and App Store.
The maximum transmission range in open space is 100 meters, provided that the connected device has Class 1 Bluetooth® connectivity.

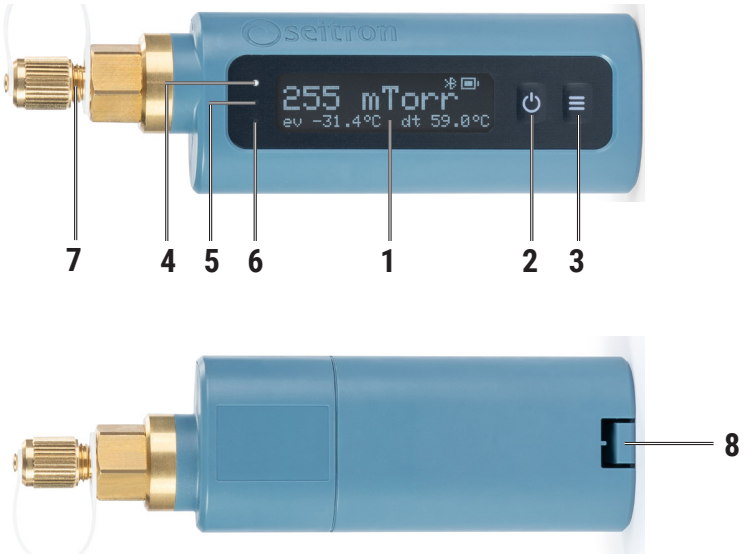
14.1.3 Available apps

Seitron Smart Analysis

The Seitron Smart Analysis mobile app is available for devices equipped with:
- Google Android operating system v.5.0 and later
- Apple iOS operating system v.12.2 and later

Features available with Be Cool Evo:
- Display of the license plate data of the associated instrument
- Instrument configuration (e.g., vacuum operation data, units of measurement)
- Firmware update
- Start of measurements and/or tests with one or more combined instruments
- Setting alarm thresholds
- Start recording on the memory of the smartphone or tablet you are using
- Remote viewing of measurements/tests in real time (data or chart format) and saving of acquired data
- Generation, modification, display, storage, and/or export (in CSV format, importable into Excel, and/or PDF) of reports
- Deletion of measurements in memory

14.2 Mechanical description



1	Display
2	Multifunction button - See paragraph "14.3 Definition of multifunction keys" on page 51.
3	Multifunction button - See paragraph "14.3 Definition of multifunction keys" on page 51.
4	White LED
5	Green LED
6	Red LED
7	1/4 SAE connection
8	Clip for accessing the battery compartment

14.3 Definition of multifunction keys

⏻	**Power On/Off** Press and hold the button until all LEDs briefly light up; then release the button. **Shutdown** Press and hold the button for more than 3 seconds. **In parameter configuration mode** Short press: exits the selected parameter, saving the setting made.
☰	**Parameter Display/Configuration Mode** Short pressure: Displays the parameters of Be Cool Evo V1S Each additional press of the button selects the next parameter. Press and hold (2 seconds): Enters the selected parameter edit mode. Each additional prolonged press of the button selects the value. **Turning on the display from power-saving mode** Short pressure.

14.4 Definition of LEDs

White	**Flashing (2 flashes per second + 3-second delay)** Bluetooth® turned on, waiting to be connected to the Seitron Smart Analysis app or the Be Cool Evo M4S manifold. **Flashing (1 flash every 5 seconds)** Be Cool Evo V1S is connected to the Seitron Smart Analysis app or to the Be Cool Evo M4S manifold.
Green	**Flashing (1 flash every 5 seconds)** Data recording in progress.
Red	**Flashing (2 flashes per second + 3-second delay)** Low battery: 2 hours of battery life (5% remaining charge)

14.5 Display interface

1	**Battery charge indicator** Indicates the battery charge level (for more details, see the section "16.2.1 Internal battery charge level" on page 55.
2	**Bluetooth icon** Indicates that Bluetooth® is turned on.
3	Indicates that the instrument is recording measurements to internal memory.
4	**Vacuum measurement display** Display the measured vacuum level. The unit of measurement (mbar, Pa, psi, mmHg, inHg, mTorr, Torr, µm) is configurable.
5	**Temperature display:** ev = Water evaporation temperature dt = Tamb - ev The temperature unit of measurement (°C or °F) is configurable. The ambient temperature value (Tamb) can be viewed under the NTC parameter by entering "Parameter Display/ Configuration Mode."

14.6 Wiring diagram

See the chapter "4.0 CONNECTION DIAGRAMS" on page 12.

ATTENTION!
- **RISK OF INJURY CAUSED BY HIGH-PRESSURE, HOT, COLD, OR TOXIC COOLANTS!**
- **WEAR PROTECTIVE EYEWEAR AND GLOVES.**
- **BEFORE TAKING ANY MEASUREMENTS, ENSURE THAT THE REFRIGERANT HOSES ARE INTACT AND CORRECTLY CONNECTED. TO CONNECT THE HOSES, AVOID USING TOOLS AND TIGHTEN THEM MANUALLY ONLY (MAX. TIGHTENING TORQUE 5.0NM / 3.7FT*LB).**
- **RESPECT THE PRESSURE MEASUREMENT RANGE INDICATED IN THIS MANUAL IN THE CHAPTER "TECHNICAL FEATURES."**
- **ESPECIALLY IN SYSTEMS CONTAINING R744 REFRIGERANT, KEEP IN MIND THAT THESE OFTEN OPERATE AT HIGHER PRESSURES!**
- **FOR THE EXECUTION AND MAINTENANCE OF THE VACUUM, THE SYSTEM MUST BE FREE OF REFRIGERANT GAS AND A DEDICATED FLEXIBLE HOSE MUST BE USED.**

15.0 TECHNICAL FEATURES

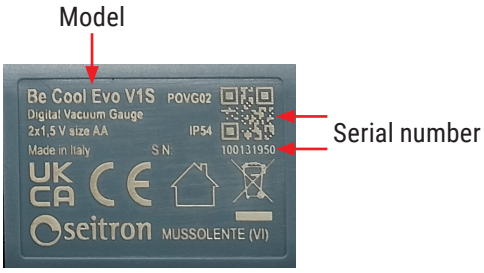
Battery Power:	2 x 1.5 V AA Alkaline (included) or NiMH Rechargeable
Battery Life:	200 hours of continuous operation
Display Type:	OLED 128x32
Recording Time:	1382 hours (30-second intervals)
Measurement Range:	1 - 20000 micron (1 - 2666 Pa)
Accuracy:	±10% rdg ±10 micron (1 .. 10000 micron) ±20% rdg (10001 .. 20000 micron)
Resolution:	1 micron [0 - +9999 micron] - 0,1 Pa [0 - +1333,2 Pa] 10 micron [+10000 - +20000] - 1 Pa [+1333,3 - +2666,6 Pa]
Vacuum Units:	micron, inHg, Torr, psia, mbar, mbar, mTorr, Pa, kPa
Fitting:	1/4 SAE
Connectivity:	Bluetooth: Class 1 / Range: <100 meters (open field)
Protection Rating:	IP54
Operating Temperature:	-14 - +122 °F / -10 - +50 °C
Storage Temperature:	-4 - +140 °F / -20 - +60 °C
Operating Humidity:	20% - 80% RH non-condensing
Storage Humidity:	10% - 90% RH non-condensing

16.0 COMMISSIONING

16.1 Preliminary operations

Remove the instrument from the packaging used for shipping and proceed with an initial inspection. Verify that the contents match what was ordered. If you notice any signs of tampering or damage, immediately report the fact to the SEITRON Service Center or its representative agent, retaining the original packaging.
The serial number and model of the instrument are shown on the instrument's nameplate.
Please provide both pieces of information for any technical assistance or technical and application clarifications. Seitron keeps an archive of historical data for each instrument at its headquarters.

Data marking example:



16.2 Instrument power supply

The device is powered by two 1.5 V AA batteries. Two alkaline batteries (non-rechargeable) are included in the package, but rechargeable NiMH batteries can also be used as an alternative.

ATTENTION
- If the instrument is not going to be used for a long period of time, it is advisable to remove the batteries before storing it.
- For battery insertion/replacement, refer to the maintenance section of this manual.

16.2.1 Internal battery charge level

The display constantly shows the charge status of the internal battery via the symbol at the top right of the display.
Pay particular attention to the following symbols:

SYMBOL	BATTERY STATUS	RED LED
	**Battery charged (100%).**	**Off**
	**75% remaining charge.**	**Off**
	**50% remaining charge.**	**Off**
	**25% remaining charge.**	**Off**
 **Flashing light**	**5% remaining charge.** **Battery life: 2 hours.**	**Flashing light:** **2 flashes per second + 3-second wait.**

The device will not start if the battery charge is less than 4.8%; when the power button is pressed, the system will start with the display off, the red LED will flash for 10 seconds with 1 pulse of 100 ms every second, then turn off.

17.0 OPERATION

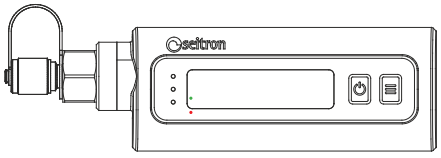
17.1 Power On/Off

Turning on the instrument
With the device turned off (OFF), press and hold the button ⏻ until all LEDs light up briefly; then release the button.
The instrument turns on and begins the startup phase.

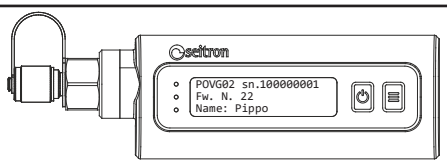
Turning off the instrument
With the device turned on (ON), press and hold the button ⏻ for 2 seconds.

17.1.1 Instrument startup phase

The display remains off and for a few moments the white LED lights up first, followed by the green and red LEDs.

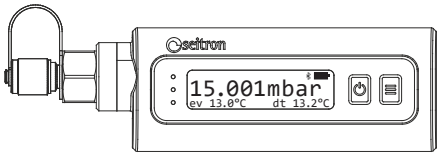


All LEDs turn off and the display shows:
Device code
Serial number (SN) of the device
Firmware version (Fw)
Device name



The white LED flashes (2 flashes per second + 3-second wait) to indicate that Bluetooth® is on and waiting to be connected to the Seitron Smart Analysis App or the Be Cool Evo M4S manifold, indicated by the symbol "ᛒ" lighting up.

The display shows the vacuum measurement screen.



17.1.2 Instrument configuration

Once the device has finished booting up, you can set the available user parameters:
LCD Eco Mode: Sets the time since the last key press, after which Be Cool Evo V1S switches to energy-saving mode (the screen turns off) while continuing to function correctly.
Auto shutdown: Be Cool Evo V1S switches off after the set time under the following conditions:
- LCD Eco Mode activated (display off)
- Data recording is not active
- Not connected to any device

Udm Temp.: Set the temperature measurement unit.
Udm Press.: Set the pressure measurement unit.
Lingue: Set the language

To configure the parameters:
Directly from the device or from a smartphone or tablet after installing the dedicated "Seitron Smart Analysis" app.

17.2 Pairing

Be Cool Evo V1S offers the flexibility to connect to the Seitron Smart Analysis App or to the Be Cool Evo M4S manifold. The connection is exclusive: the vacuum gauge connects to only one device at a time.
The same logic applies to automatic reconnection: if both known devices are nearby, the Be Cool Evo V1S immediately connects to the first one it detects. Immediately afterwards, it interrupts its signal and becomes "invisible" to other devices.

17.2.1 Be Cool Evo V1S - App Seitron Smart Analysis Pairing

- Download and install the Seitron Smart Analysis app on your smartphone or tablet.
- To pair, follow the step-by-step instructions on the app screen.
- You will be asked to select the instrument corresponding to a specific serial number; the serial number is marked on the back of the instrument followed by "S/N:".

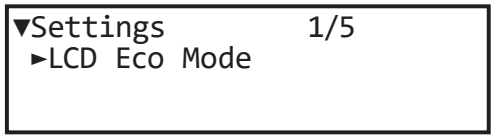
For more information, see the section "Seitron Smart Analysis" on page 77.

17.2.2 Be Cool Evo V1S - Be Cool Evo M4S (Manifold) Pairing

For detailed instructions, please refer to the product quick start guide.

18.0 MENU

To access the Be Cool Evo V1S menus to configure the available user parameters, briefly press the button ☰; the display will show the first available parameter:

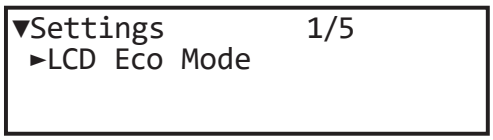


- To scroll through the available user parameters, briefly press the button ☰.
- To enter the editing mode for the selected user parameter, press and hold the button ☰ for 2 seconds.
- To modify the user parameter, press and hold the button ☰ for 2 seconds.
- To exit the user parameter editing mode and save the setting, briefly press the button ⏻.
- To exit the user parameter menu, briefly press the button ⏻.

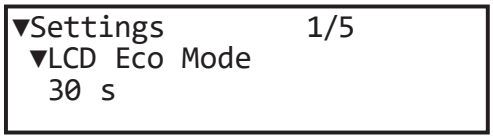
18.1 LCD Eco Mode

Set the time after which, since the last key press, Be Cool Evo V1S switches to energy-saving mode; the display turns off while the instrument continues to operate, keeping any LED indicators active.
This mode is useful for preserving battery life.

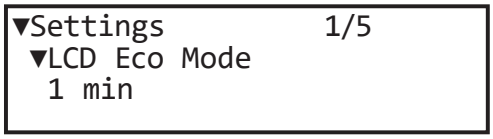
Once the LCD Eco Mode parameter is selected, press and hold the button ☰ for 2 seconds to enter the parameter editing mode.



The display shows the current setting.
The display shows the current setting. To set a new value, press and hold the button ☰ for 2 seconds; each change is automatically saved.
Alternatively, briefly press the button ⏻ to exit the editing mode.



Briefly press the button ⏻ to exit the parameter editing mode and save the setting.



Briefly press the button ☰ to select the next parameter, otherwise, briefly press the button ⏻ to exit the instrument menu.

18.2 Auto Power Off (Auto Shutdown)

Set the time after which Be Cool Evo V1S switches off.
This mode is useful for preserving battery life in case you forget to turn off the instrument.

Once the Auto Power-Off parameter is selected, press and hold the button ☰ for 2 seconds to enter the parameter editing mode.

The display shows the current setting.
To set a new value, press and hold the button ☰ for 2 seconds; each change is automatically saved.
Alternatively, briefly press the button ⏻ to exit the editing mode.

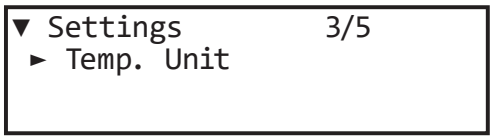
Briefly press the button ⏻ to exit the parameter editing mode and save the setting.

Briefly press the button ☰ to select the next parameter, otherwise, briefly press the button ⏻ to exit the instrument menu.

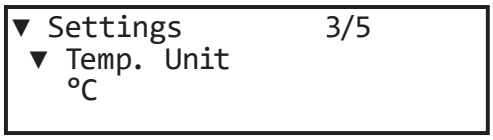
18.3 Temp. Unit.

Set the measurement unit for temperature: °C or °F.

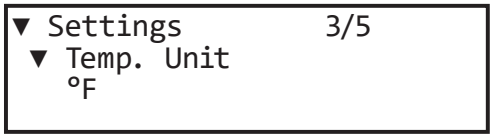
After selecting the Temp. unit parameter, press and hold the ☰ button for 2 seconds to enter parameter edit mode.



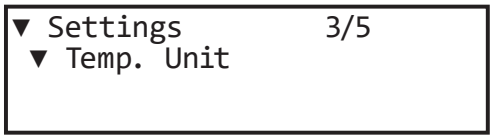
The display shows the current setting.
To set a new value, press and hold the ☰ button for 2 seconds; each change is automatically saved.
To exit edit mode, briefly press the button ⏻.



Briefly press the button ⏻ to exit parameter editing mode and save the setting.



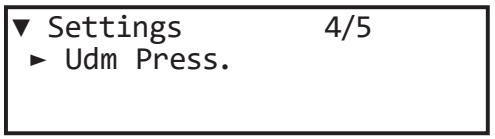
Briefly press the button ☰ to select the next parameter, otherwise briefly press the button ⏻ to exit the instrument menu.



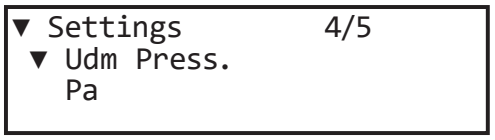
18.4 Press. Unit

Set the pressure measurement unit.

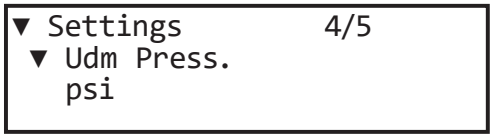
Once the Pres. unit parameter is selected, press and hold the button ☰ for 2 seconds to enter the parameter editing mode.



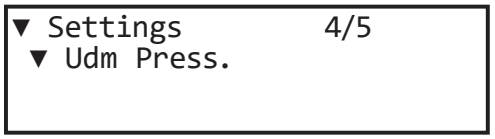
The display shows the current setting.
To set a new value, press and hold the button ☰ for 2 seconds; each change is automatically saved.
Alternatively, briefly press the button ⏻ to exit the editing mode.



Briefly press the button ⏻ to exit the parameter editing mode and save the setting.



Briefly press the button ☰ to select the next parameter; otherwise, briefly press the button ⏻ to exit the instrument menu.



18.5 Languages

Set the language.

Once the Language parameter is selected, press and hold the button ☰ for 2 seconds to enter the parameter editing mode.

The display shows the current setting.
To set a new value, press and hold the button ☰ for 2 seconds; each change is automatically saved.
Alternatively, briefly press the button ⏻ to exit the editing mode.

Briefly press the button ⏻ to exit the parameter editing mode and save the setting.

Briefly press the button ☰ to select the next parameter; otherwise, briefly press the button ⏻ to exit the instrument menu.

19.0 MAINTENANCE

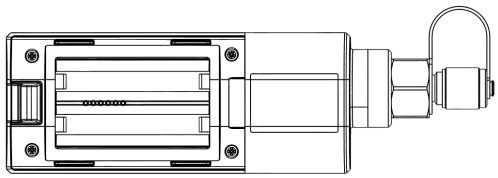
19.1 Inserting/Replacing Batteries

To insert/replace the batteries, proceed as follows:

Open the battery compartment door by pressing the lever indicated by the arrow inward.

When replacing the batteries, remove them using a tool if necessary.

Insert the new batteries (2 x 1.5 V size AA), observing the polarities indicated.



ATTENTION

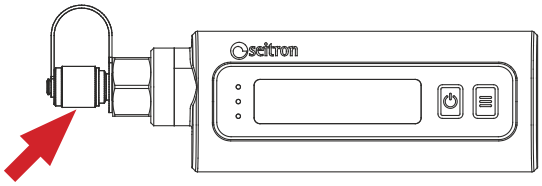
- **WHEN REPLACING BATTERIES, DISPOSE OF THEM IN THE APPROPRIATE CONTAINERS FOR SEPARATE COLLECTION.**

19.2 Cleaning the instrument

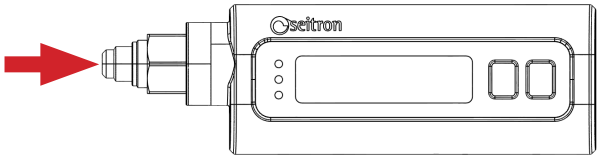
If the vacuum gauge case is dirty, clean it using neutral detergents or simply soap and water.
Do not use aggressive detergents or solvents!

19.3 Cleaning the entrance

Unscrew the knurled ring nut.



Keep the vacuum gauge inlet free of grease, oil, and other deposits; clean with a damp cloth if necessary.



19.4 Cleaning the inside of the entrance and replacing the filter

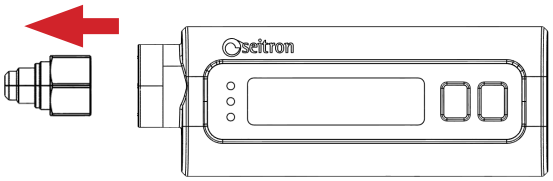
ATTENTION!

POSSIBLE DAMAGE TO THE SENSOR!

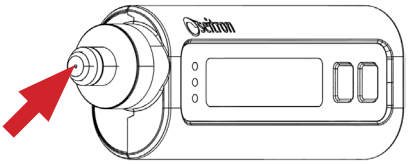
- DO NOT USE SHARP OR POINTED OBJECTS TO PERFORM THE OPERATIONS DESCRIBED BELOW.

Turn off the instrument.

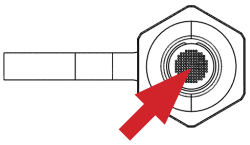
Unscrew the hexagonal fitting, separating it from the vacuum gauge body.



If the sensor inlet is visibly dirty with oil or grease, clean it as described in section 17.5 Cleaning the sensor.



Using long-nose pliers, remove the black filter.

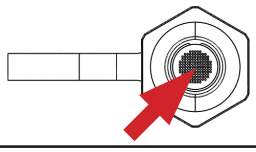


Check if the filter is dirty and clean it with a paper towel if necessary.
If it cannot be cleaned, replace it with a new one, which must be purchased separately.

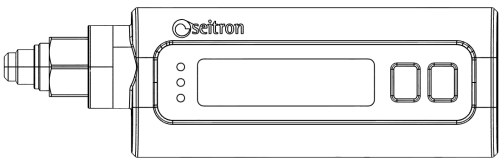
Clean the inside of the fitting using neutral detergents or simply soap and water, then leave it to dry before reassembling it.
Do not use aggressive detergents or solvents!

Check the integrity of the O-ring and replace it if damaged.
Check that the O-ring is well lubricated; if not, lubricate the O-ring with silicone grease.

Reinsert the black filter into its slot.



Screw the hexagonal fitting onto the vacuum gauge body.



19.5 Firmware Update

The firmware can only be updated using the Seitron Smart Analysis App.
See the section "Seitron Smart Analysis" on page 77.

SECTION

Be Cool Evo T1S

Smart temperature probe

20.0 GENERAL FEATURES

The Be Cool Evo T1S temperature probe is designed for use in the installation and/or maintenance of cooling systems and heat pumps.

Be Cool Evo T1S features:

- Battery power supply (2x1.5 V AAA)
- Measurement storage memory
- Bluetooth® interface

20.1 Package Contents

The standard package of the Be Cool Evo T1S temperature probe includes:

- No. 1 Be Cool Evo T1S Smart temperature probe
- 2x 1.5 V AAA batteries (alkaline - non-rechargeable)
- Quick Guide
- WEEE Instructions
- Simplified Declaration of Conformity
- Test Report

20.2 Typical Use

- Temperature measurement.
- During the system leak test: when left in ambient air, it measures the temperature used for temperature compensation.
- High and low pressure line temperature measurement: during pressure verification of cooling systems or heat pumps.

20.3 Maintenance

To ensure the correct operation of the instrument and measurement accuracy, Seitron suggests performing a calibration annually or whenever deemed necessary. Calibration and any necessary recalibration can be performed at the Seitron Service Center. The product is supplied with a test report.

21.0 PRODUCT DESCRIPTION

21.1 Main functions

Main Functions The Be Cool Evo T1S temperature probe detects the refrigerant pipe temperature, providing essential data for pressure measurement in a cooling system or heat pump.
Alternatively, it detects the ambient temperature, providing essential data for a correct system leak test with temperature compensation. Its use is crucial during the installation and maintenance of cooling systems and heat pumps. Designed for maximum versatility, Be Cool Evo T1S can operate either paired with the Be Cool Evo M4S 4-way digital manifold or interfaced with the Seitron Smart Analysis app.

21.1.1 Data Logging and Storage

Be Cool Evo T1S is equipped with internal memory that stores all measurements, associating a date and time with each record to create a complete history.

To enable this data logging function, the probe must be paired with the Seitron Smart Analysis app and recording must be activated on the probe's internal memory.

When activated, recording is indicated by the green LED flashing (one flash every 5 seconds). This setting remains saved in the probe, automatically starting recording at each subsequent power-up. To deactivate recording, you must always use the App.

The Seitron Smart Analysis app also allows you to customize the sampling frequency, thus affecting the total memory capacity: ranging from one sample every second (for 46 hours of recording) up to one sample every hour (for over 165,000 hours). If the memory is full, recording stops automatically and the green LED stops flashing. Finally, via the App, it is possible to download all data recorded by the temperature probe to create and share professional reports in .csv or .pdf format. For a complete guide to settings, refer to the “Seitron Smart Analysis App” chapter.

21.1.2 Bluetooth® Connection

Be Cool Evo T1S features an internal Bluetooth® module, allowing communication with latest-generation smartphones or tablets running Google Android v.5.0 (Lollipop) or higher, subject to installation of the “Seitron Smart Analysis” App available on the Play Store and App Store. The maximum transmission range in open field is 100 meters, provided that the connected device features Class 1 Bluetooth® connectivity.

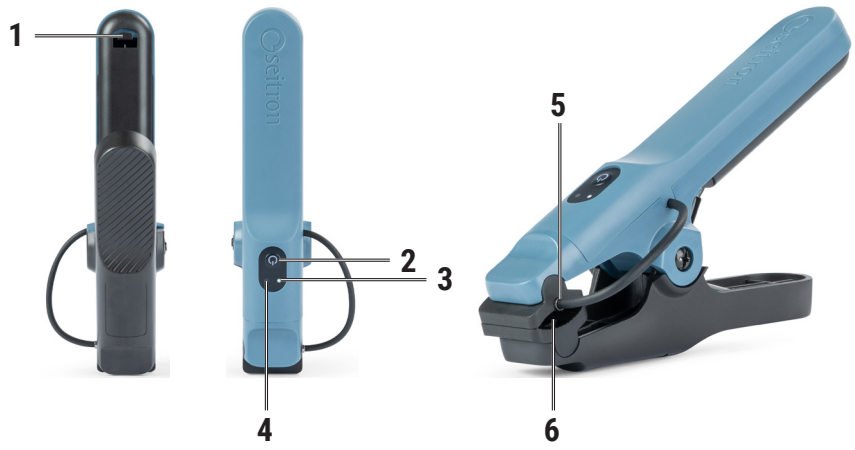
21.1.3 Available Software and Applications

Seitron Smart Analysis

The Seitron Smart Analysis mobile app is available for devices featuring:
- Google Android OS v.5.0 and later
- Apple iOS v.12.2 and later

Features available with Be Cool Evo:
- Display of associated instrument rating plate data
- Instrument configuration (e.g., unit of measurement)
- Firmware update
- Start recording to Smartphone or Tablet memory
- Remote real-time viewing of measurement/test (data or graph format) and saving acquired data
- Generation, editing, viewing, archiving, and/or exporting of reports (in .csv format, importable to Excel, and/or .pdf)
- Deletion of measurements in memory

21.2 Mechanical Description



1	Battery compartment access clip
2	Multifunction button (See paragraph "21.3 Multifunction Button Definition" on page 71)
3	White LED
4	RGB LED (Red - Green - Blue)
5	Sensing element
6	Clamp: for pipes with diameter from 1/4” (6.35 mm) to 1”3/8” (34.925 mm)

21.3 Multifunction Button Definition

⏻	**Power ON** Press and hold the button until all LEDs light up briefly; then release the button. **Power OFF** Press and hold the button for more than 3 seconds.

21.4 LED Definition

White		**Flashing (2 flashes/sec + 3 sec pause)** Bluetooth® on, waiting to connect to the Seitron Smart Analysis App or Be Cool Evo M4S manifold. **Flashing (1 flash every 5 seconds)** Be Cool Evo T1S is connected to the Seitron Smart Analysis App or Be Cool Evo M4S manifold.
RGB	**Red**	**Flashing (2 flashes per second + 3 second pause)** Probe configured for high temperatures. Low battery: 2 hours of battery life (5% remaining charge). **Flashing (1 flash every 5 seconds)** Probe configured for high temperatures.
	Blue	**Flashing (2 flashes per second + 3 second pause)** Probe configured for low temperature. Low battery: 2 hours of battery life (5% remaining charge). **Flashing (1 flash every 5 seconds)** Probe configured for low temperature.
	Green	**Flashing (1 flash every 5 seconds)** Data recording in progress.

21.5 Wiring Diagram

See chapter "4.0 CONNECTION DIAGRAMS" on page 12.

22.0 TECHNICAL FEATURES

Battery Power:	2x 1.5 V size AAA Alkaline (supplied) or NiMH Rechargeable
Battery Life:	100 hours of continuous operation
Logging Time:	890 hours (30-second intervals)
Measurement Range:	-50 °C - +150 °C
Accuracy:	±1 °C full range
Resolution:	0,1 °C
Units of Measurement:	°C, °F
Process Connection:	For pipes with diameter from 1/4” (6.35 mm) to 1”3/8” (34.925 mm)
Connectivity:	Bluetooth: Class 1 / Range: <100 meters (open field)
Protection Rating:	IP54
Operating Temperature:	-10 °C - 50 °C / -14 - +122 °F
Storage Temperature:	-20 - +60 °C / -4 °F - +140 °F
Operating Humidity:	20% - 80% RH non-condensing
Storage Humidity:	10% - 90% RH non-condensing

23.0 COMMISSIONING

23.1 Preliminary operations

Remove the probe from the shipping packaging and perform an initial inspection.
Check that the contents match your order. If any signs of tampering or damage are noticed, immediately report the issue to the SEITRON Service Center or your local representative, while retaining the original packaging. The probe's rating plate indicates the serial number and model.
Please provide both of these details for any request regarding technical service or technical and application support. Seitron maintains an archive of historical data for every instrument at its headquarters.

Rating plate data example:

23.2 Temperature Probe Power Supply

The temperature probe is powered by two 1.5 V AAA batteries. Two alkaline batteries (non-rechargeable) are included in the package, but NiMH rechargeable batteries can also be used as an alternative.

WARNING
- If the temperature probe is not used for a long period, it is advisable to store it with the batteries removed.
- For battery insertion/replacement, refer to the maintenance chapter of this manual.

23.2.1 Internal Battery Charge Level

The Be Cool Evo T1S temperature probe indicates via the Red or Blue LEDs if the autonomy falls below 2 hours of operation (5% residual charge).
In this case, the Red or Blue LED will flash as follows: **2 flashes per second + 3-second pause**. The temperature probe will not start if the battery charge is below 4.8%.

23.3 Temperature Probe Startup

With the device OFF, press and hold the button ⏻ until all LEDs light up briefly; then release the button.
The temperature probe is on; the white LED flashes (2 flashes per second + 3-second pause) to indicate Bluetooth® is on and waiting to connect to the Seitron Smart Analysis App or the Be Cool Evo M4S manifold.

23.4 Temperature Probe Shutdown

With the device ON, press and hold the button ⏻ for 2 seconds.

23.5 Temperature Probe Configuration

Configuration of the temperature probe is performed exclusively via Smartphone or tablet after installing the “Seitron Smart Analysis” APP.

Unit of measurement:	Allows setting the desired unit for temperature (e.g., °C or °F).	
Operating Mode (High/Low/Auto):	Manual:	Manually sets whether the probe is used on the “High temperature” or “Low temperature” line.
	Automatic:	In this mode, the manifold autonomously decides whether the temperature detected by the probe is high or low.

23.6 Pairing

Be Cool Evo T1S offers the flexibility to connect to the Seitron Smart Analysis App or the Be Cool Evo M4S 4-way digital manifold. The connection is exclusive: the temperature probe connects to only one device at a time.
The same logic applies to automatic reconnection: if both known devices are nearby, the Be Cool Evo T1S immediately connects to the first one it detects. Immediately after, it stops its signal and becomes "invisible" to other devices.

23.6.1 Pairing Be Cool Evo T1S - Seitron Smart Analysis App

- Download and install the Seitron Smart Analysis App on your Smartphone or tablet.
- To pair, follow the on-screen instructions in the App step-by-step.
- You will be asked to select the temperature probe corresponding to a specific serial number; the serial number is marked on the back of the instrument followed by “S/N:”.

For more information, see the section "Seitron Smart Analysis" on page 77.

23.6.2 Pairing Be Cool Evo T1S - Be Cool Evo M4S (Manifold)

For detailed instructions, refer to the product's Quick Guide.

24.0 MAINTENANCE

24.1 Battery Insertion/Replacement

To insert/replace the batteries, proceed as follows:

Open the battery compartment door by pressing the lever indicated by the arrow inwards.

In case of replacement, remove the batteries, prying them out with a tool if necessary.

Insert the new batteries (2 x 1.5 V size AAA), respecting the indicated polarity.

WARNING

- **WHEN REPLACING BATTERIES, DISPOSE OF OLD BATTERIES IN THE APPROPRIATE RECYCLING CONTAINERS.**

24.2 Cleaning the Instrument

If the probe housing is dirty, clean it using neutral detergents or simply soap and water.
Do not use aggressive detergents or solvents!

24.3 Firmware Update

The firmware can be updated exclusively using the Seitron Smart Analysis App.
See the section "Seitron Smart Analysis" on page 77.

SECTION

Seitron Smart Analysis

Mobile app

25.0 GENERAL OVERVIEW

The Seitron Smart Analysis application is the essential digital tool for interacting with your portable instruments directly from a smartphone or tablet. It is available for free download on the Google Play Store and Apple App Store.

System Requirements
For optimal performance, ensure that your device features:
- Google Android OS v.5.0 and later
- Apple iOS v.12.2 and later

Features:
View instrument rating plate data.
Configure the instrument.
Update firmware.
Start measurements and/or tests.
Start data logging to the memory of the Smartphone or Tablet in use.
View real-time analysis remotely from the portable analyzer and save acquired data.
View, export (in .csv format, importable into Excel, and/or .pdf), or delete stored analyses.

The app interface automatically adapts to the connected instrument, enabling only the parameters and functions compatible with the instrument currently in use.

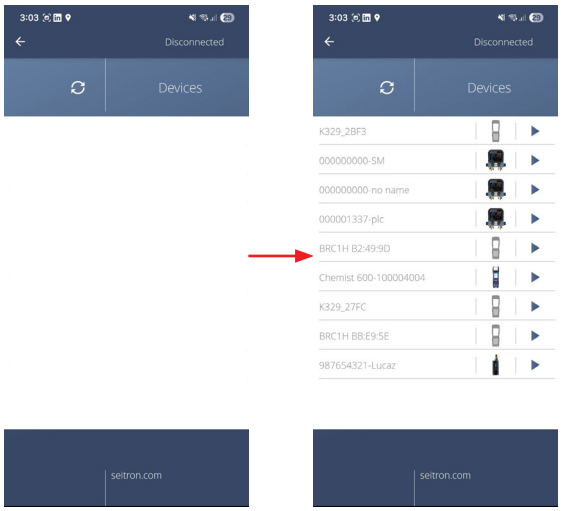
26.0 PAIRING

To pair the APP with a Be Cool Evo device, follow the step-by-step procedure outlined below.

1. Download the Seitron Smart Analysis App from [Google Play Store / Apple App Store].
2. Install the Seitron Smart Analysis App on your mobile device.
3. Launch the App; the Pairing screen will appear.

4. Turn on the Be Cool Evo device you intend to pair with the App.

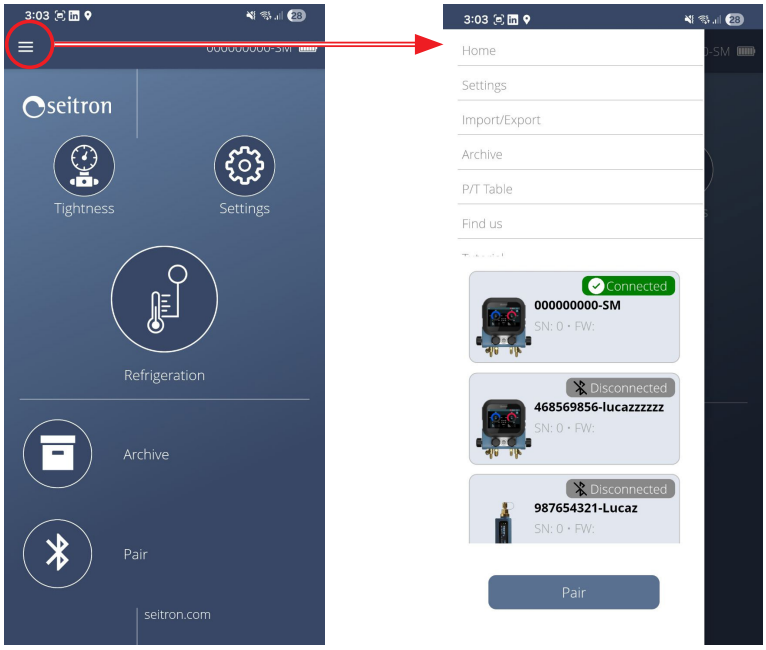
5. Tap the icon "  "; the device search page will appear:



6. Find the serial number of the instrument to be associated; the serial number of the instrument is shown on the nameplate preceded by S.N. Tap the corresponding line.

7. The selected tool is associated with the App.

27.0 GENERAL MENU

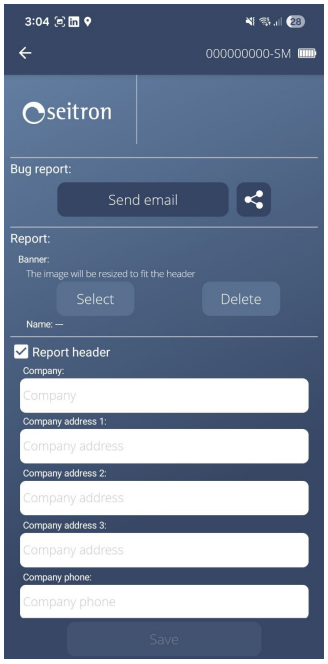


27.1 Home

Pressing this button takes you to the app's home page.

27.2 Settings

This screen allows you to customize report generation, the company data included, and the general settings of the app.



27.2.1 Bug Report

This section allows you to send a bug report (error) to the app developers.
Send email: by pressing this button, you send the bug report directly to the developers.

 : By pressing this button, you can share the report via email or other installed apps, instead of sending it directly.

27.2.2 Report

This section allows you to configure the graphic appearance of the documents generated by the application, allowing you to add a professional touch to the documents generated by the App.

Header management (Banner)

You can customize the top of each report by inserting an identifying image (for example, your company logo).

Insert image: Touch the button " Select " to browse the gallery or files on your device.
Once you have selected the file, the image will be displayed as a banner at the top of newly generated reports.

Image removal: If you want to delete the custom header or replace it, touch the button " Delete ".
The system will remove the current image, returning to the standard format.

Technical note for the user
Although this section concerns the report's graphic layout, remember that the instrument's technical settings (such as pressure or temperature units of measurement) are configured separately on the instrument settings page. Ensure that you have correctly saved each technical change using the command " Save " before proceeding with the generation of the final document.

Report header

This section allows you to configure the company information that will automatically appear on every document generated.
Select the "Report header" checkbox to enable the inclusion of company data in the report. If the checkbox is not selected, the text fields will remain disabled:

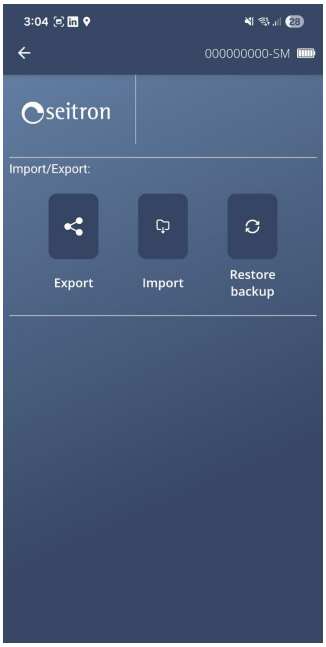
Company: Enter your company name.
Address (Rows 1, 2, 3): Fill in these fields to enter the location details (street, city, postal code). Up to three lines are available to ensure maximum precision.
Company Phone Number: Enter the company phone number to be displayed.

Save

To make the changes effective, complete the save procedure by pressing the " Save " button.
If you accidentally exit the page, the application detects any unsaved changes and displays a warning message, asking you to confirm whether you want to save before proceeding.

27.3 Import/Export

This screen allows you to manage the application archive, offering tools for data backup and transfer.



Export

Select this command to create a file containing all the data in the app. You can share it via email, messaging systems, or save it to an external cloud service. This is recommended periodically to avoid loss of information.

Import

Use this feature to load data from a previously saved file into the application. It is ideal for adding new databases or transferring specific archives.

Restore backup

This command allows you to restore the application to a previously saved state.
Warning: restoring a backup may overwrite your current data; make sure you have saved your recent analyses before proceeding.

27.4 Analysis archive

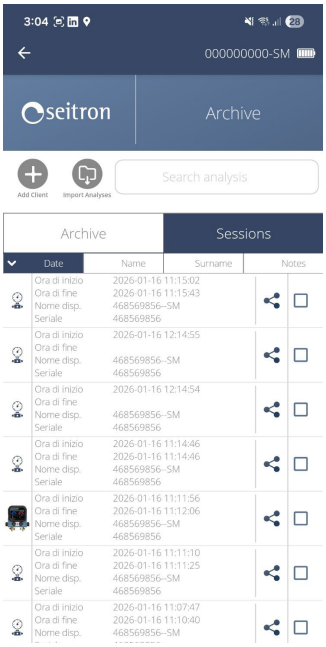
All data collected during technical tests is stored, organized, and consulted in the Analysis Archive.

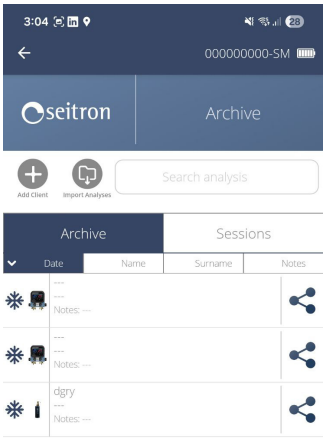
Key Features
- Allows you to view a chronological list of all saved analyses, making it easy to retrieve previously performed tests.
- Allows you to generate and share documents in PDF format (for official reports) or CSV format (compatible with Excel for advanced tabular analysis).
- Using the dedicated command, you can delete each individual report.
- Associate each analysis with customer and installation site data, ensuring complete traceability of interventions.

To keep your archive secure at all times, periodically use the Global Export (Backup) function in the "Data Management" screen to save a backup copy of all your analyses to a cloud service or email.

The archive is divided into two main sections:

1. Analysis archive: Show the list of customers with their associated measurements.
2. Sessions: Lists individual measurement sessions that are not yet associated with a specific customer (when you start recording a measurement, it is stored in Sessions because it cannot be immediately associated with a customer).



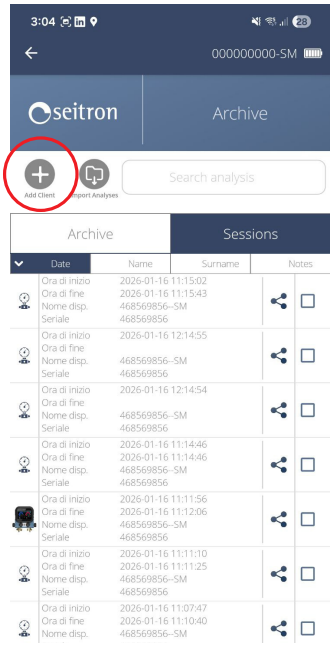


Search and Sorting:

1. Use the Search Bar at the top to find a customer by date, time, first name, last name, or note.
2. Tap the column headers (Date, First Name, Last Name, Notes) to sort the list in ascending or descending order.

Add customer

On this screen, you can fill in the customer fields to be associated with the measurements stored on the device.



By tapping the "+" button, you can add a new customer by filling in the requested information:

Customer: Name of the owner of the plant or company.
Contact and Address Details: Enter Contact Person, Phone Number, and Email Address.

System: Name of the plant under consideration (Generator)
Full address of the site in question
c Notes: A space for technical notes or reminders.

Operator: Data relating to the operator who performed the measurement.

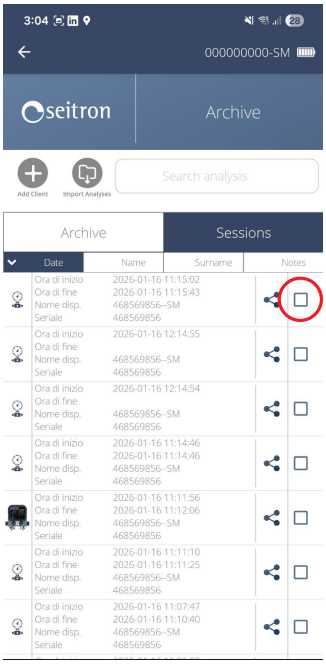
Note
Only the following data will be included in the report:
Customer First and Last Name
Generator
System notes

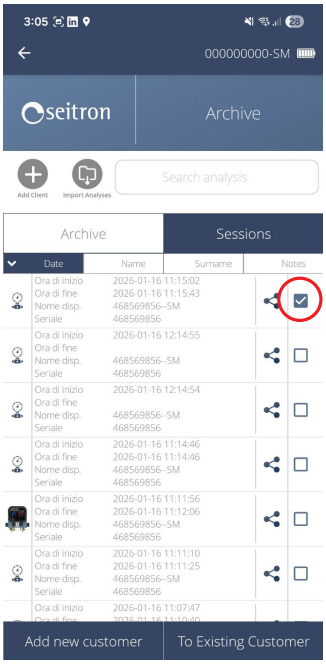
Sharing

Share: Tap the icon for " " to send the report in PDF, CSV, or XML format via email, WhatsApp, or other apps.

Associate a measurement with a customer (from the "Sessions" tab only)

Associate the measurement with a customer: Tap the icon " ", to which a flag is added " " and two new icons appear at the bottom: "Add new customer" and "Add to customer".
It is possible to associate one or more measures simultaneously with a single customer by selecting the relevant measures.

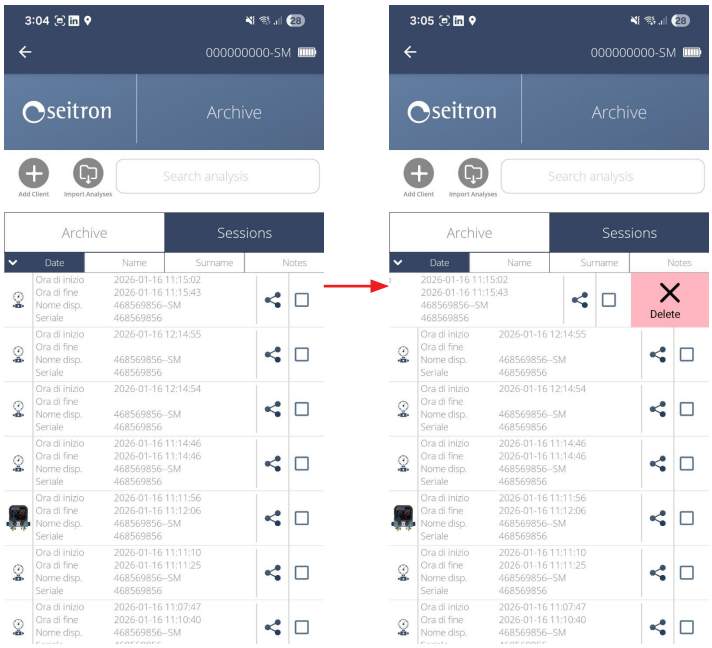




Delete

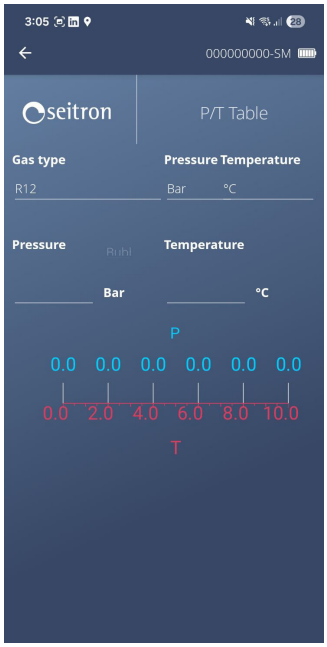
From the "Analysis Archive" or "Sessions" list, swiping the measurement row to the left or right (Swipe) displays the "X Delete" icon to permanently delete the selected measurement from the phone's memory.

To delete the selected row, tap the icon " ✕ Delete ".



27.5 P/T Table (Pressure/Temperature Ratio)

This section of the application acts as a dynamic calculator to instantly determine the correspondence between the pressure and saturation temperature of a refrigerant gas.



How to use the tool

Refrigerant Gas Selection

Tap the "Gas type" field to select the refrigerant you are working with from the database (e.g., R452A).

Measurement unit configuration

The "Units" fields show the units of measurement currently set for pressure (e.g., Bar) and temperature (e.g., °C). These reflect the preferences saved in the instrument's general settings.

Calculation

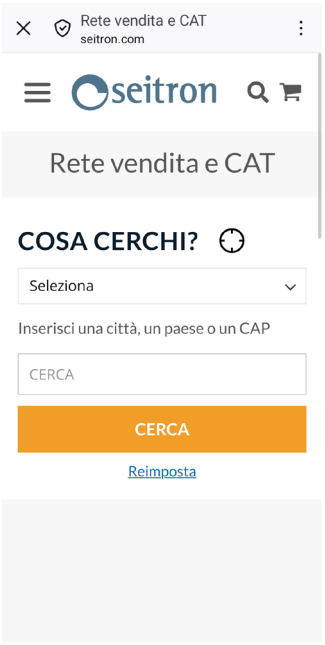
By entering a numerical value in the "Pressure" field, the app will automatically calculate and display the corresponding saturation "Temperature." Similarly, by entering a temperature, you will obtain the equivalent pressure value.
To ensure accurate calculations, make sure you have selected the correct gas before entering the values. Remember that gases set as "Favorites" on the settings page will be easier to find when navigating.

Visual Reference

At the bottom of the screen there is a graduated scale (marked with P in blue and T in red) that provides an immediate visual indication of the position of the detected value relative to the operating range.

27.6 Find us

The "Find us" menu is a tool integrated into the app that allows you to quickly locate the Seitron professional support closest to your geographical location or the site of your intervention.
Pressing the "Find us" button takes you to the Seitron "Sales network and CAT" (Technical Assistance Center) screen, where you can perform a targeted search by selecting the required data.



28.0 SETTINGS

In this menu, you can configure the main data of the instrument associated with the App.
The data is contextual to the associated instrument: Be Cool Evo M4S, Be Cool Evo T1S, or Be Cool Evo V1S.
Through this screen, you can set the instrument to your operational needs: it allows you to define the units of measurement (such as pressure, temperature, and vacuum), set the data recording times, and manage energy saving through auto-shutdown.
In addition, the menu offers tools for instrument maintenance, such as managing preferred refrigerant gases and the ability to rename the device to recognize it more easily during Bluetooth connection.
Main Features
Customize Units of Measure: Choose how to display data (e.g., Bar or PSI for pressure, °C or °F for temperature).
Manage Device: Change the device name ("Advertising Name") and adjust the screen brightness or theme (Light/Dark).
Configure Analysis: Set the interval at which the instrument records samples and define the times for automatic shutdown.
Advanced Maintenance
Reset Analysis: Clear the instrument's internal memory of old saved analyses.
Firmware Update: Install the latest version of the system software to keep the instrument up to date.
Favorite Gas List: Select and mark the refrigerant gases you use most often to find them quickly while working.

Version	Version of the configuration set on the instrument.
Firmware version	Firmware version installed on the instrument.
Serial number	Device serial number.
Device name	The name that will appear on your smartphone when you search for the device via Bluetooth (maximum 10 characters).
Pressure unit	Set the unit for pressure measurements (e.g., bar, psi, kPa, MPa).
Temperature unit	Choose between degrees Celsius (°C), Fahrenheit (°F), or Kelvin (K).
Vacuum unit	Defines the unit for the vacuum gauge (e.g., mbar, micron, Pascal, Torr).
Weight unit	Set the unit for connected scales (kg or lb).
Recording interval	Frequency with which the instrument saves data during an internal analysis (from 5 seconds to 1 hour).
Refrigerant gas	Select the refrigerant gas used in the system to be monitored, which is used for automatic calculation of saturation temperatures.
Working mode	Configure the device to operate in Hot mode (Heating/High temperature), Cold mode (Cooling/Low temperature), or Automatic mode (only for Be Cool Evo M4S).
Language	Set the language of the instrument interface.
Theme	Set the light or dark theme for the device display.
Auto Shutdown	Set how long the device should remain inactive before it automatically turns off to save battery power.
Screen Off	Defines the time after which the screen dims or enters power-saving mode.
Brightness	Adjusts the brightness of the screen (value from 20 to 100).
App rec. interval (s)	Every set seconds the App records a piece of data coming from the instrument.
Max. chart size	Maximum number of points displayed simultaneously in real-time graphs (from 30 to 300).
Diagnostic activity	When activated, the app saves detailed technical logs that are useful in case of assistance.
Preferred gases	Select the most frequently used gases to display them at the top of the list on the system configuration screen.

28.1 Save

After changing one or more parameters, it is essential to press the key " Save " at the bottom of the screen to transmit the new settings to the instrument.

28.2 Reset analysis

Clear the instrument's internal memory of old saved analyses.

28.3 Update FW

Feature only available for Be Cool V1S and Be Cool T1S.

Before starting the firmware update, ensure that the following safety conditions are met to avoid interruptions during loading:

1. Battery Level: The instrument battery must have a charge of more than 30%.
2. Recording status: No data recording should be active.
3. Firmware File: Make sure you have downloaded the updated firmware file provided by Seitron to your smartphone/ tablet. Visit the website www.seitron.it

Update Procedure:

1. Scroll to the bottom of the page and locate the FW Update button.
2. Tap the button to start the procedure.
3. File Selection: The app will automatically open your device's file manager (File Picker).
4. Browse through the folders on your smartphone and select the firmware file specific to your device.
5. Once the file has been selected, the app will begin transmitting the data to the device.
   Important: During this phase, do not close the app or move your smartphone away from the device to avoid interrupting the Bluetooth connection.
6. Once the download is complete, the tool will finish the installation and the app will return to the previous screen.

Common Error Messages

"Insufficient battery": If the charge is below 30%, the app will block the operation for safety reasons.

"Recording in progress": If the device is saving data, you must first stop recording before you can update the firmware.

29.0 TIGHTNESS TEST

This menu in the Seitron Smart Analysis app allows you to perform a tightness test on the system, monitoring pressure variations over time, with the option of compensating the data based on temperature.
Before starting the tightness test, you must set the required parameters to automatically determine whether the test has passed or failed:

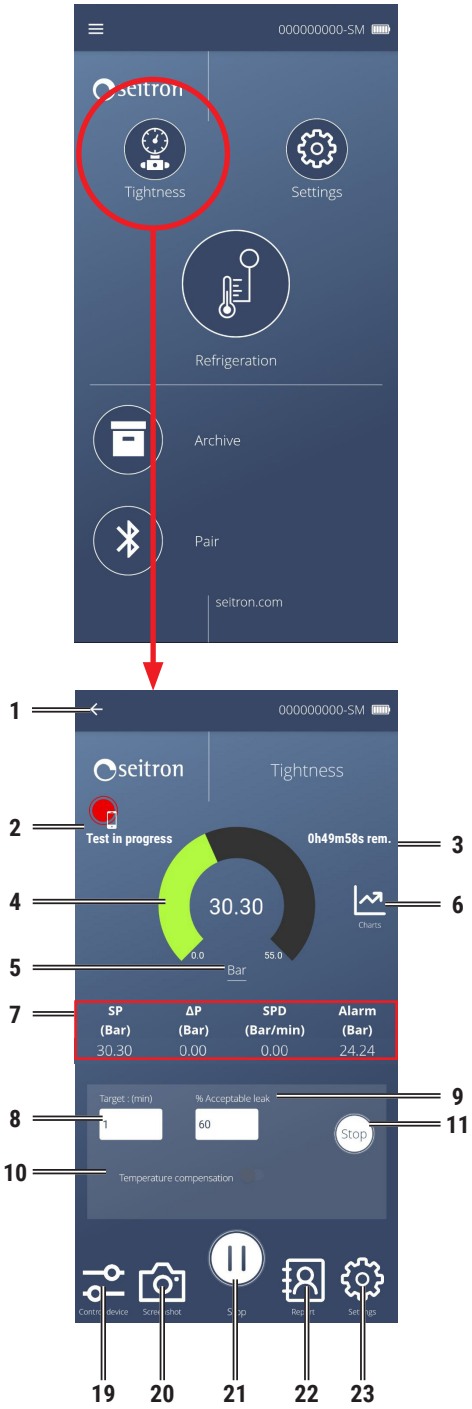
Selecting the Unit of Measure: Tap the pressure gauge or the arrow next to the unit (e.g., bar, psi, kPa) to select the desired one.

Set the Duration: Enter the total number of minutes for which you want to monitor the system in the "Target Time (min)" field.

Set Acceptable Loss: Enter the maximum percentage of pressure drop allowed for the system to be considered leak-proof in the "% Acceptable Loss" field.

Temperature Compensation: If you have temperature probes connected, you can activate the "Temperature compensated" switch. This corrects the pressure reading based on environmental temperature changes.

The system calculates technical data such as pressure drop (ΔT) and leakage rate, and also offers a temperature compensation function to correct readings based on environmental temperature variations. Finally, you can document your analysis by taking screenshots, viewing graphs, or generating professional reports.



1	Return to the main screen
2	Test Status: Shows whether the test is in progress, passed, or failed. The icon " " shows that the test is being stored on the mobile device memory.
3	Time Remaining: A stopwatch that indicates how much time is left until the end of the test.
4	Digital Pressure Gauge: Displays the current pressure in real time.
5	Select the unit of measurement: Tap the pressure gauge (e.g., bar, psi, kPa) to select the desired unit.
6	View the pressure trend on a time graph.
7	PI: value recorded at the start of the test. ΔT: pressure variation compared to the initial value. VEL: Leak Rate: Indicates how quickly the pressure is dropping (e.g., bar/min). Alarm: value below which the pressure leak test is considered failed (calculated value)
8	Target Time: Enter the total minutes for which you want to monitor the system.
9	% acceptable loss: Enter the maximum percentage of pressure drop allowed for the system to be considered leak-proof.
10	Enable/disable temperature compensation. If you want to perform the temperature-compensated leak test, enable the data and connect the temperature probe to the instrument.
11	Pressing the "Test" button starts the leak test, which is saved in the memory of the mobile device. Once the test has started, the "Stop" button appears. Pressing this button interrupts the leak test of the system.
19	Commands (see section "30.1 Commands" on page 92).
20	Take a snapshot of the current screen to save it in the work session (see section "30.2 Screenshot" on page 93).
21	Allows you to start or stop recording data in the internal memory of the Seitron instrument (see paragraph "30.3 Start rec." on page 93).
22	Generate a professional report with the test results to share or save (see section "30.4 Report" on page 94).
23	Access the general device settings (see chapter "28.0 SETTINGS" on page 87.

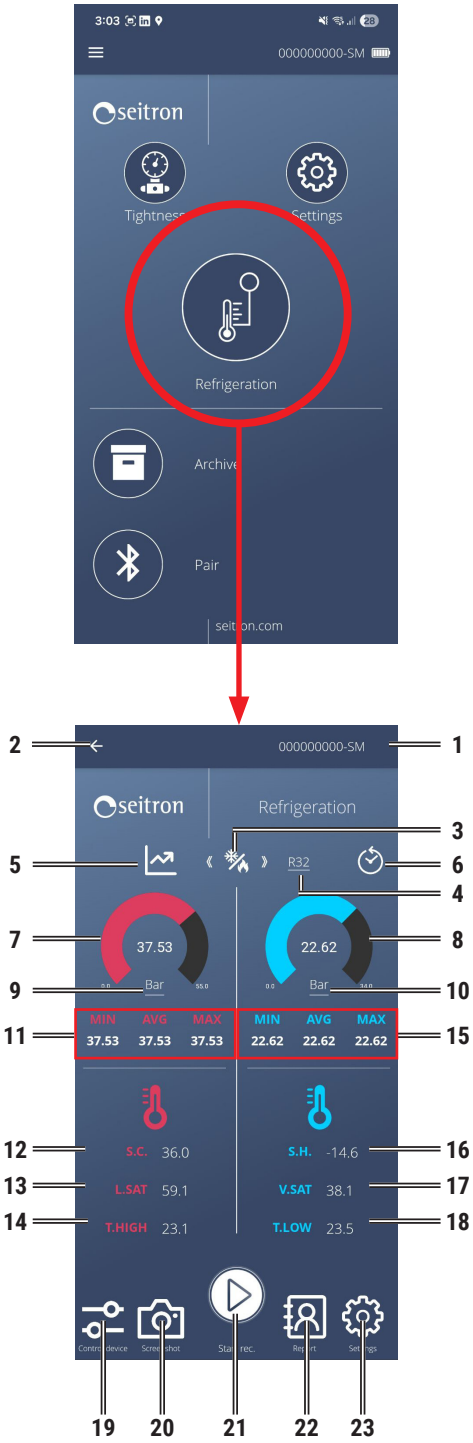
29.1 Tightness test start

Ensure the system is pressurized (see paragraph "11.4 TIGHTNESS TEST" on page 42).
Tap the central circular “Test” button (marked by the white ring icon). The app will automatically record the Initial Pressure and start the countdown.
Monitoring: If the pressure drops below the calculated limit (based on the set acceptable leak), the test will stop, and the message “Test Failed” will appear. If the pressure remains within the limits when the time is up, the message “Test Passed” will appear.
You can manually stop the test at any time by pressing the “Stop” button.

Important Note
If Temperature Compensation is active but the probe is disconnected during the test, the analysis will be automatically interrupted to prevent erroneous data. Ensure the probe is connected.

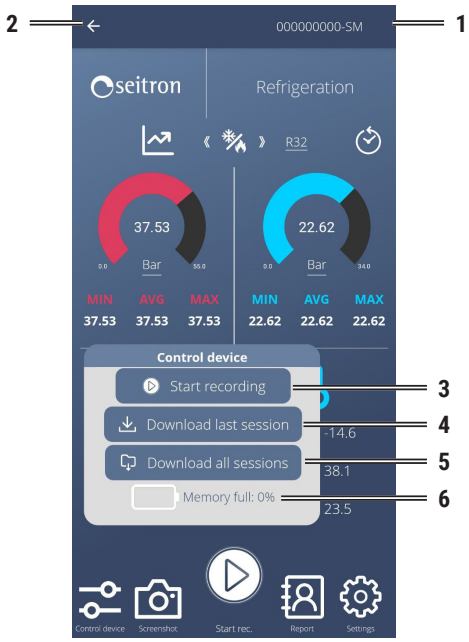
30.0 REFRIGERATION

This section of the Seitron Smart Analysis App acts as an Advanced Digital Manifold (PT Analysis) for monitoring refrigeration and air conditioning systems.
The menu enables real-time viewing of circuit pressures and temperatures, distinguishing between the high and low pressure sides. The interface automatically calculates key technical parameters such as Subcooling and Superheating based on the selected refrigerant gas, while also allowing for data logging, viewing time-based graphs, and generating professional maintenance reports.



1	Be Cool Evo M4S battery level indicator.
2	Return to main screen
3	System operating mode setting: **Cooling** (low-pressure side, the blue gauge will be positioned on the left of the display) **Heating** (heat pump - high-pressure side - the red gauge will be positioned on the left of the display) **Automatic** (automatic cooling / heating (heat pump) detection)
4	Selected refrigerant setting
5	View graph Normally, the App displays all pressure measurement data in “Dashboard” mode. By selecting the “Graph” function, the App displays the detected data in two distinct graphs: - Pressure values of the high and low-pressure lines - Minimum and maximum temperatures detected by the clamp probes connected to the low and high-pressure lines respectively.
6	View digital gauges
7	High-pressure side gauge (hot)
8	Low-pressure side gauge (cold)
9	Pressure unit of measurement setting
10	Pressure unit of measurement setting
11	Minimum, average, and maximum temperature measured by the clamp probe connected to the high-pressure branch
12	Subcooling (calculated temperature)
13	Condensation temperature of the selected refrigerant
14	Maximum temperature detected by the clamp probe connected to the high-pressure line
15	Minimum, average, and maximum temperature detected by the clamp probe connected to the low-pressure line
16	Superheating (calculated temperature)
17	Evaporation temperature of the selected refrigerant
18	Minimum temperature detected by the clamp probe connected to the low-pressure line
19	Commands (see paragraph "30.1 Commands" on page 92)
20	Takes a snapshot of the current screen to save it in the work session (see paragraph "30.2 Screenshot" on page 93)
21	Allows starting or stopping data logging in the Seitron instrument's internal memory (see paragraph "30.3 Start rec." on page 93)
22	Generates a professional report with test results to share or save (see paragraph "30.4 Report" on page 94)
23	Accesses general device settings (see chapter "28.0 SETTINGS" on page 87)

30.1 Commands



1	Be Cool Evo M4S battery charge status indicator.
2	Return to the main screen
3	Start recording on the Be Cool Evo M4S: measurements are saved to the device's memory. The "" icon appears in the top left corner of the App (**Fig. a**). The "REC" icon appears on the instrument display. With this mode active, it is NOT possible to switch off the instrument. To switch off the instrument, you must first stop recording (via the instrument or the App - **Fig. b**).
4	Download the last session saved on the Be Cool Evo M4S memory.
5	Download all sessions stored on the Be Cool Evo M4S memory.
6	Information regarding the memory of Be Cool Evo M4S.

Fig. a

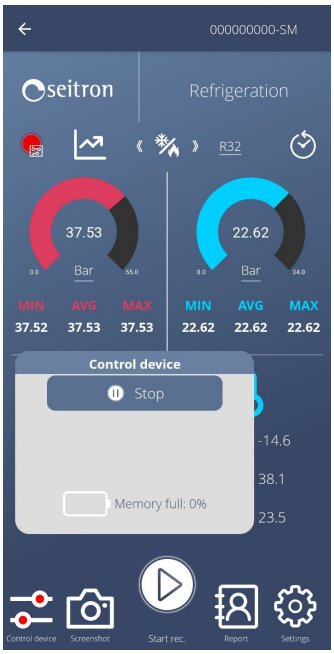


Fig. b

30.2 Screenshot

By pressing the Screenshot button, the displayed image is saved in the internal memory of the mobile device used, in a .jpg file.
Examples:

30.3 Start rec.

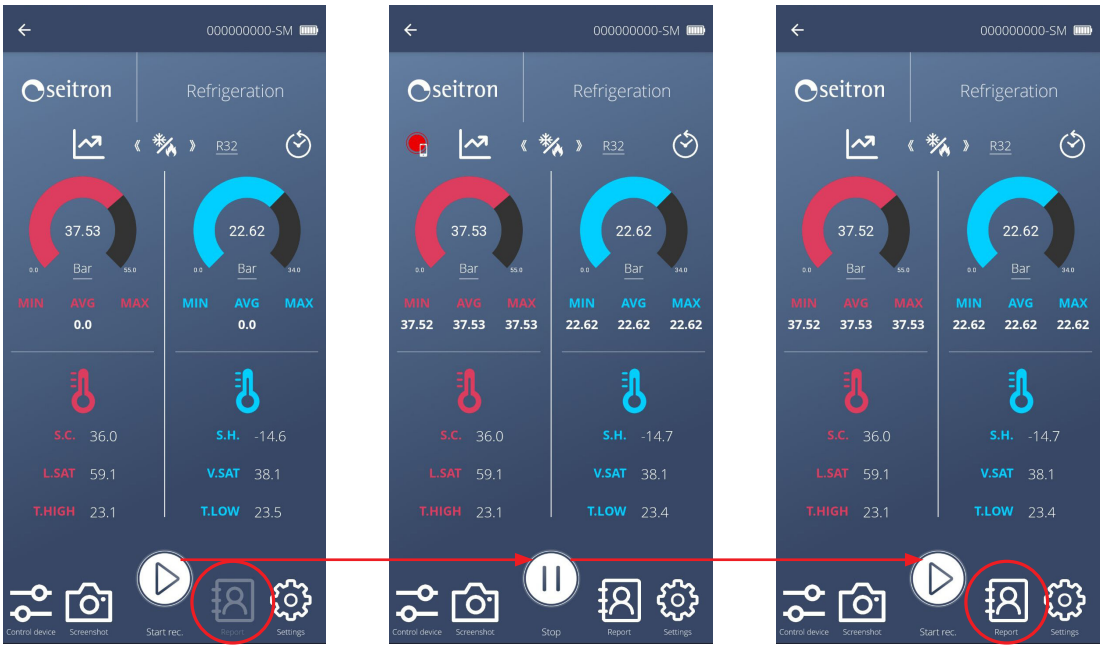
By pressing the button "  ", The recording of measurements on the mobile device's internal memory is started: The icon "  " appears in the app, on the upper left corner.

By pressing the button "  " the registration is completed.

30.4 Report

The "Report" menu contains all measurements and personal data saved in the app database. The data stored here remains on the mobile device even after the device is disconnected.

To access and view the data, tap the Report icon on the main analysis screen (available only after starting a recording).

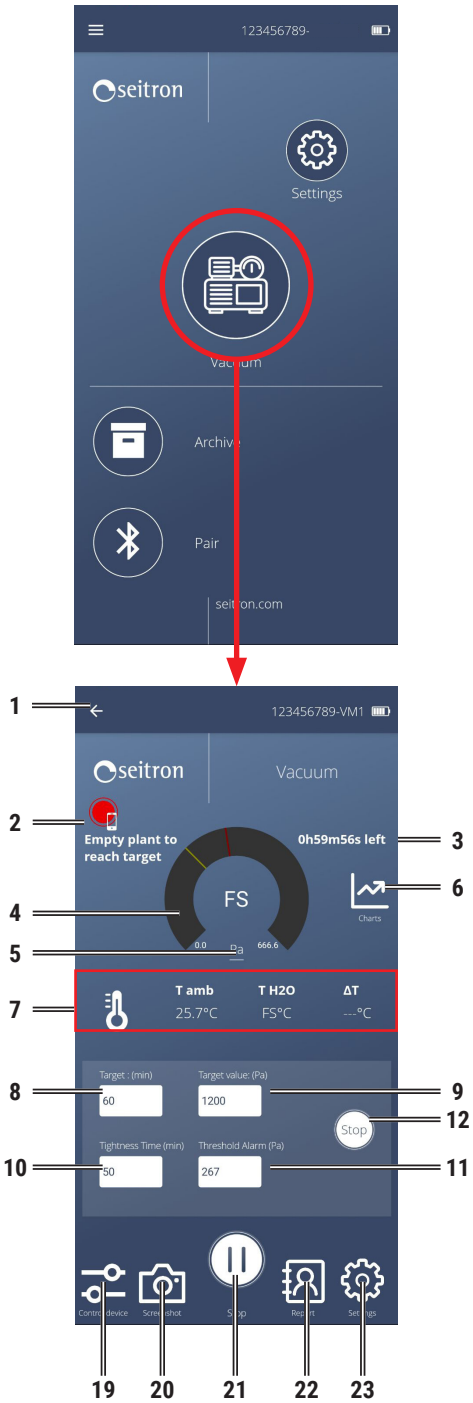


For full details, see section "25.4 Analysis archive".

31.0 VACUUM

This section of the app is dedicated to vacuum analysis and the related system vacuum hold test. It allows for real-time monitoring of the vacuum level via a digital gauge and simultaneous viewing of temperature data (ambient and water) with automatic calculation of the differential (ΔT).
Through this menu, the user can configure custom vacuum and duration targets, start automatic tests to confirm the absence of system leaks, capture screenshots of graphs, and generate complete professional technical reports for export or archiving.
Before starting the vacuum evacuation and the related vacuum hold test, you must set the desired targets in the fields at the bottom of the screen:
Vacuum Evacuation: Target Time (min) - Target Value
Vacuum Hold Test: Hold Time (min) - Alarm Threshold

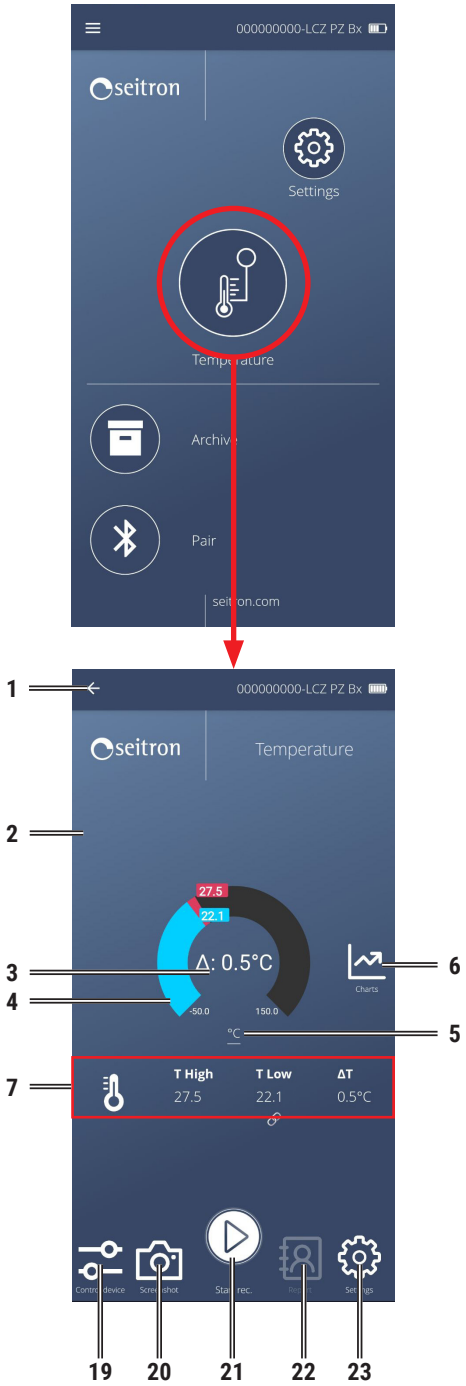
Test Outcome
The app will automatically notify you with on-screen messages:
Test Passed: If the pressure remains within the established limits during the hold phase.
Test Failed: If a leak is detected or if the target vacuum is not reached within the preset time.



1	Return to the main screen
2	Test Status: Shows whether the test is in progress, passed, or failed. The icon "" indicates whether the test is in progress, whether it is in the vacuum or leak test phase. The test is stored in the mobile device's memory.
3	Time Remaining: A stopwatch that indicates how much time is left until the end of the test.
4	Digital Pressure Gauge: Displays the current pressure in real time.
5	Select the unit of measurement: Tap the pressure gauge (e.g., mBar, mTorr, Micron) to select the desired unit.
6	View the pressure trend on a time graph.
7	T amb: Ambient temperature measured by the vacuum gauge T H2O: Evaporation temperature (calculated based on the pressure measured) ΔT: Real-time temperature difference (T amb + T H2O)
8	Target time (min): maximum time expected to reach the desired vacuum.
9	Target Value: sets the pressure value (e.g., in mTorr) that the system must reach.
10	Hold Time (min): Set how long the app should monitor vacuum stability after reaching the target.
11	Alarm threshold: pressure value that must not be exceeded during the vacuum leak test (to confirm the absence of leaks).
12	Pressing the "Test" button first starts the vacuum process and then the vacuum leak test, which are saved in the mobile device's memory. Once the test has started, the "Stop" button appears. Pressing this button interrupts the test.
19	Commands (see paragraph "30.1 Commands" on page 92).
20	Take a snapshot of the current screen to save it in the work session (see section "30.2 Screenshot" on page 93).
21	Allows you to start or stop recording data in the internal memory of the Seitron instrument (see paragraph "30.3 Start rec." on page 93).
22	Generate a professional report with the test results to share or save (see section "30.4 Report" on page 94).
23	Access the general device settings (see chapter "28.0 SETTINGS" on page 87).

32.0 TEMPERATURE

This menu is a dedicated tool for professional thermal monitoring. It allows for real-time viewing of temperatures detected by two probes (typically positioned on the hot and cold lines of a system), automatically calculating the difference between the two (ΔT). The user can observe data on a dual-display digital gauge, log trends over time, view detailed graphs, and generate technical reports ready for sharing.
In the center of the screen, you will find a digital temperature indicator. The red indicator shows the temperature of the high-temperature probe (T High), while the blue indicator shows the temperature of the low-temperature probe (T Low). The value in the center of the indicators displays the temperature difference (ΔT).

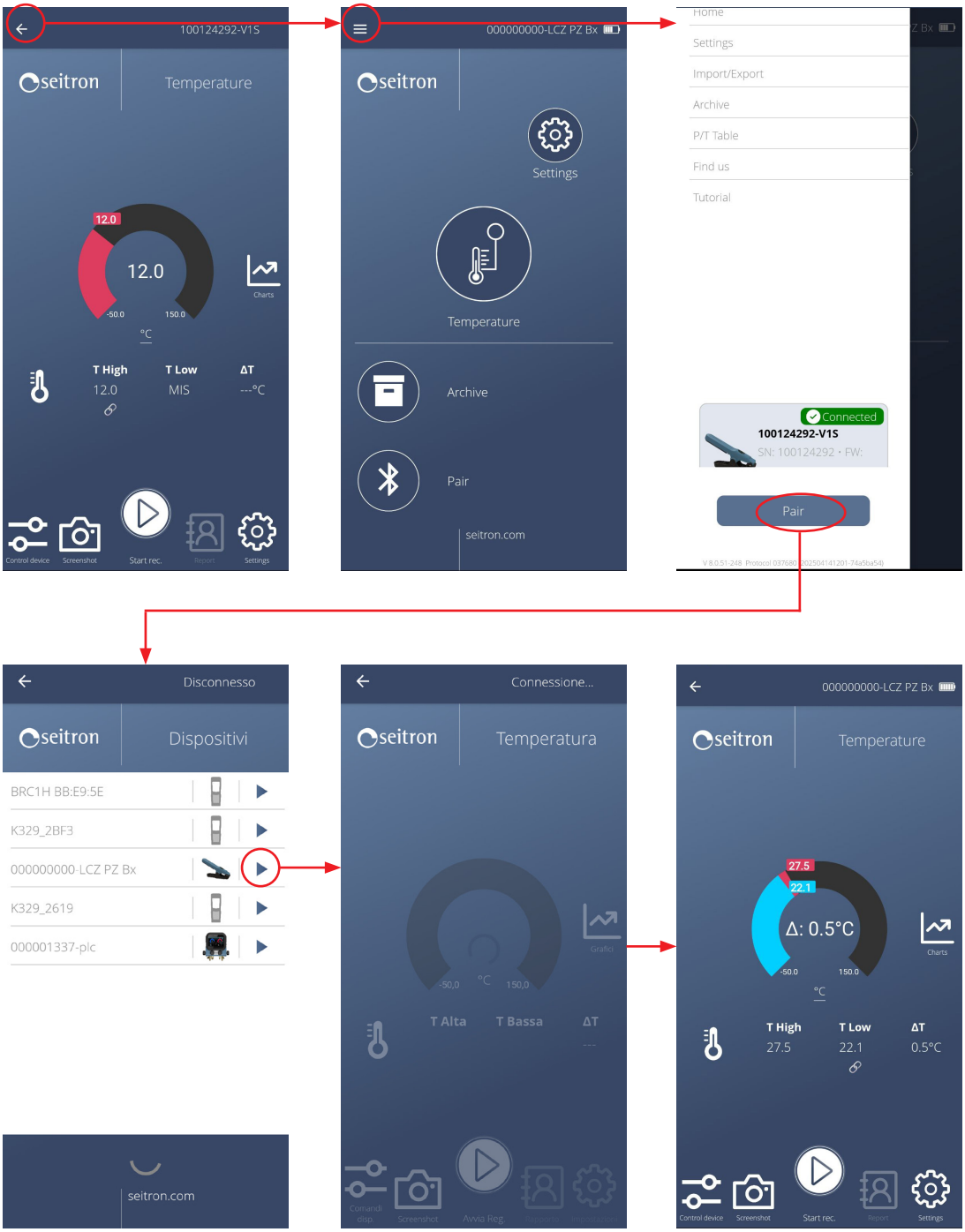


1	Return to the main screen.
2	The icon " " indicates whether the test is in progress, whether it is in the vacuum or leak test phase. The test is stored in the mobile device's memory.
3	Indicates the value of ΔT (difference calculated between the two temperatures).
4	Digital pressure gauge: Shows the current temperature in real time. Red indicator: Shows high temperature. Blue indicator: Shows low temperature.
5	Select the unit of measurement: Tap the pressure gauge to select the desired unit (°C, °F, or K).
6	View historical temperature trends on a time chart
7	Temperature monitoring: T High: The exact value measured by the probe connected to the high-temperature branch of the system. T Low: The exact value measured by the probe connected to the low-temperature branch of the system. ΔT: The difference calculated between the two temperatures.
19	Commands (see section "30.1 Commands" on page 92).
20	Take a snapshot of the current screen to save it in the work session (see section "30.2 Screenshot" on page 93).
21	Allows you to start or stop recording data in the internal memory of the Seitron instrument (see paragraph "30.3 Start rec." on page 93).
22	Generate a professional report with the test results to share or save (see section "30.4 Report" on page 94).
23	Access the general device settings (see chapter "28.0 SETTINGS" on page 87).

* For the association and configuration of each of the two probes, refer to the following paragraph.

32.1 Pairing of two probes

Once the first probe has been paired, and you wish to pair the second one as well, proceed as follows:

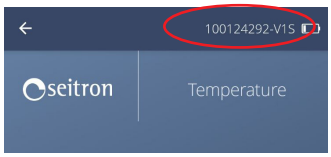


32.2 Probe configuration

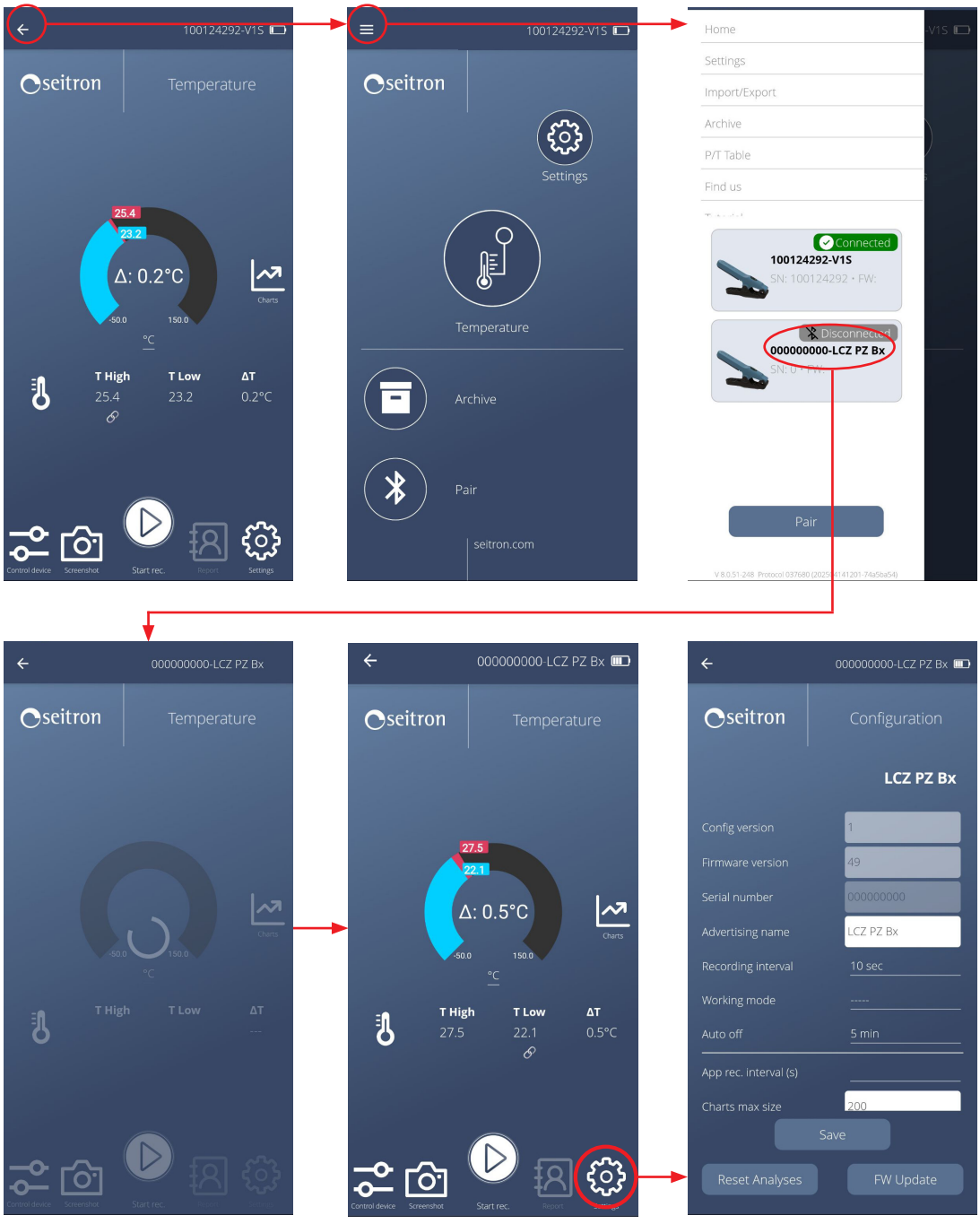
Once both probes have been paired, each probe must be configured individually by following the step-by-step procedure described below.

1. Pressing the button 

it is possible to proceed with the configuration of the probe whose ID is shown at the top right of the arrow:



2. To configure the second probe associated with the App, proceed as follows:



For probe configuration, see chapter "28.0 SETTINGS" on page 87".

APPENDIX A - TROUBLESHOOTING

BE COOL EVO M4S SECTION

PROBLEM	POSSIBLE CAUSE / SOLUTION
The device does not turn on.	Batteries completely drained. > Charge the battery and try turning it on after 5 minutes.
When the device is turned off, pressing the power button starts the system with the display off. The red LED flashes for 10 seconds and then turns off.	The battery charge is too low. > Charge the battery.
The device is turned on, with the red LED flashing.	The battery is dead. > Charge the battery (the red LED remains lit).
The device switches itself off.	Completely discharged batteries. > Charge the battery and try turning it on after 5 minutes.
Incomplete or slow charging.	The tool is switched on during charging; power is shared between operation and charger. > Turn off the device to allow it to recharge with the maximum available energy.
The device is turned off, but the white LED is flashing (3 flashes every 5 seconds).	Sleep/Energy Saving Mode: The device is turned on, but has entered power saving mode due to inactivity. > Touch the touch screen to reset the display. Logging active: The instrument is acquiring data in internal memory with the display turned off to preserve battery life. > Press and hold the ON/OFF button for 4 seconds to wake the device from sleep mode.
The device's touch screen is not functioning.	>Ensure that the ambient temperature is within the operating range of the instrument: -10 to +50 °C (-14 to +122 °F). > Instrument locked; Turn the instrument off and on again.
Azerror in pressure sensors.	Non-ambient pressure sensors. > Disconnect the lines and bring the system to ambient pressure before repeating the procedure.
The measured pressure shows “ --- “.	The permissible measurement range limit has been exceeded.
Pressure Reading Error (Err.Adc / Err.Monot.).	Sensor to be recalibrated. > Contact the Seitron service center.
The vacuum gauge shows “ ---”	- The permissible measurement range limit has been exceeded. - Check that the vacuum gauge is connected to the instrument.
The vacuum measurement shows "cal. err.".	Vacuum gauge pressure sensor calibration error. > Contact the Seitron service center.
The measured temperature shows “ --- “.	Check that the clamp-on temperature probe is connected to the instrument. The clamp-on temperature probe is connected to the instrument, but the permissible measuring range limit has been exceeded.
The pressure measurement is inaccurate.	Set the pressure to zero in ambient air.
Pressure leak test: Leak detection.	Actual physical loss or failure to compensate for temperature. > Check the tightness of the SAE brass fittings; make sure the temperature probe is connected to activate compensation.

BE COOL EVO V1S SECTION

PROBLEM	POSSIBLE CAUSE / SOLUTION
The device does not turn on.	Batteries completely discharged. >Replace the batteries.
Flashing red LED (2 flashes per second every 3 seconds).	The batteries are almost empty (approximately 2 hours of battery life remaining). >Replace the batteries.
The device switches itself off.	The remaining battery life is too low. > Replace the batteries.
The display is off, but the white LED is flashing (2 flashes every 5 seconds).	Sleep/Power Saving Mode (instrument not connected): The instrument is turned on, but has entered power saving mode due to inactivity. > Press the ON/OFF button to turn the display back on.
The display is off, but the white LED is flashing (once every 5 seconds).	Sleep/Power Saving Mode (connected device): The device is turned on, but has entered power saving mode due to inactivity. > Press the ON/OFF button to turn the display back on.
The display is off, but the white LED is flashing (2 flashes every 5 seconds) and the green LED is flashing (1 flash every 5 seconds).	Logging active (instrument connected): The instrument is acquiring data in internal memory with the display turned off to preserve battery life. > Press the ON/OFF button to turn the display back on.
The display is off, but the white and green LEDs are flashing (1 flash every 5 seconds).	Logging active (instrument not connected): The instrument is acquiring data in internal memory with the display turned off to preserve battery life. > Press the ON/OFF button to turn the display back on.
The display shows "---" instead of the measured value.	The permissible measurement range limit has been exceeded.
The message "cal. err." appears on the display instead of the measured value.	Pressure sensor calibration error. > Contact the Seitron service center.
Vacuum gauge not detected by the Seitron Smart Analysis app or by Be Cool Evo M4S.	The vacuum gauge is in Sleep mode or connected to another device. > Press the ON/OFF button on the vacuum gauge to reactivate Bluetooth (white LED in advertising mode).

BE COOL EVO T1S SECTION

PROBLEM	POSSIBLE CAUSE / SOLUTION
The device does not turn on.	Batteries completely discharged. >Replace the batteries.
Flashing red or blue LED (2 flashes per second + 3-second wait).	The batteries are almost empty (approximately 2 hours of battery life remaining). >Replace the batteries.
The device switches itself off.	The remaining battery life is too low. > Replace the batteries.
Temperature probe not detected by the Seitron Smart Analysis app or by Be Cool Evo M4S.	The temperature probe is turned off or connected to another device.

SEITRON SMART ANALYSIS APP SECTION

PROBLEM	POSSIBLE CAUSE / SOLUTION
Unable to find the app in the Store	The search key was incorrect. >Specify: Seitron Smart Analysis

APPENDIX B - SPARE PARTS AND SERVICE

Accessories

SBT001	Be Cool T1S temperature probe
POVG02	Be Cool V1S digital vacuum gauge

Spare parts

AJPB01	Li-Ion battery pack 3.7 V 6000 mAh
AAAL05	Power supply 100 .. 240 V~ / 5 VDC 2 A
WCAV0089	USB-A to USB-C adapter cable
AASI01	EU plug
AASI02	USA plug
AASI03	CHINA plug
AASI04	AUSTRALIA plug
AASI05	UK plug
AJKA01	100–240 V~ / 5 VDC 2 A power supply with 1.8 m cable + US plug + USB-A / USB-C adapter cable
AJKA02	100–240 V~ / 5 VDC 2 A power supply with 1.8 m cable + EU plug + USB-A/USB-C adapter cable
WCAP0006	Knurled brass cap 1/4" (female). For pressure gauge, Be Cool Evo M4S
WCAP0007	3/8" knurled brass cap (female). For pressure gauge, Be Cool Evo M4S
ARKT010001SE	Be Cool Evo flexible hoses: - Yellow flexible hose, without valve, 3/8" SAE connection with seals (1 pc) - Yellow flexible hose, with valve, 1/4" SAE connection with seals (1 pc) - Blue flexible hose, with valve, 1/4" SAE connection with seals (1 pc) - Red flexible hose, with valve, 1/4" SAE connection with seals (1 pc)
ARRC010001SE	T-fitting with central connection with 1/4" SAE female swivel fitting and 1/4" SAE male side connections
WCOP4119	Battery cover for temperature probe, Be Cool Evo T1S
WCAP0008	1/4" knurled brass cap (female). For vacuum gauge, Be Cool Evo V1S
WCOP0118AF	Battery cover for vacuum gauge, Be Cool Evo V1S
WGUAR045	Battery compartment gasket for vacuum gauge, Be Cool Evo V1S
WFILX0039	10 replacement filters for vacuum gauge, Be Cool Evo V1S
WVAL000037SE	Be Cool Evo smart kit case

Service centers

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http://www.seitron.com

APPENDIX C - WARRANTY

In the interest of continuous product development, the manufacturer reserves the right to make changes to technical data and performance features without prior notice.
The consumer is guaranteed against product conformity defects in accordance with European Directive 2019/771 as well as the Seitron warranty policy document.
The full text of the warranty is available from the seller upon request.

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