testo 550s / testo 557s digital manifold

Instruction manual



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1 About this document

- The instruction manual is an integral part of the instrument.
- Pay close attention to the safety instructions and warning advice in order to prevent injury and damage to the product.
- Please read this instruction manual carefully and familiarize yourself with the product before putting it to use.
- Familiarity with a PC as well as the Microsoft® products is assumed in this documentation.

Symbols and writing standards

Display	Explanation
	Note: basic or further information
	Warning advice, risk level according to the signal word: **Warning!** Serious physical injury may occur. **Caution!** Minor physical injury or damage to the equipment may occur. > Take the specified precautionary measures.
1 2 …	Action: several steps, the sequence must be followed
-	Result of an action
✓	Requirement
>	Action
Menu	Elements of the instrument, the instrument display or the program interface.
[OK]	Control keys of the instrument or buttons of the program interface.

2 Safety and disposal

Please observe the **Testo information** document (enclosed with the product).

3 Product-specific approvals

Please find the current country approvals in the **Approvals and Certifications** document.

4 Product-specific information

- The measuring instrument being dropped or any other comparable mechanical stress may cause breakage of the pipe pieces in the refrigerant hoses. The valve positioners may also suffer damage, causing further damage inside the measuring instrument that is not necessarily visible externally. Therefore, always replace the refrigerant hoses with new ones after the measuring instrument is dropped or after any comparable mechanical stress. For your own safety, you should return the measuring instrument to the Testo Customer Service for technical inspection.
- Electrostatic charging may destroy the instrument. Integrate all the components (system, manifold's valve block, refrigerant bottle, etc.) into the potential bonding (earthing). Please see the safety instructions for the system and the refrigerant used.
- Refrigerant gases can harm the environment. Please note the applicable environmental regulations.
- Use with A2L refrigerants

  Testo measuring instruments (as of July 2020) can be used in compliance with the prescribed laws, standards, directives and safety regulations for refrigeration systems and refrigerants as well as regulations of the manufacturers of refrigerants of safety group A2L as per ISO 817.
  Regional standardization and interpretation must always be observed.
  For example, DIN EN 378-Part 1-4 applies to the scope of the EN standards.
  During maintenance work, the employer must ensure that a hazardous explosive atmosphere is prevented (see also: TRBS1112, TRBS2152 VDMA 24020-3).
  A hazardous and potentially explosive atmosphere must be anticipated during maintenance and repair work on refrigeration systems with flammable refrigerants (e.g. those of category A2L and A3).
  Maintenance, repairs, removal of refrigerants and commissioning of systems may only be carried out by qualified personnel.

5 Use

testo 550s and **testo 557s** are digital manifolds for maintenance and service work refrigeration systems, heat pumps, and other air conditioning systems. They may only be used by qualified authorized personnel.

The functions of the instruments **testo 550s** and **testo 557s** mean they can replace mechanical manifolds, thermometers and pressure/temperature charts. Pressures and temperatures can be applied, adapted, tested and monitored.

The instruments **testo 550s** and **testo 557s** are compatible with most non-corrosive refrigerants, water and glycol. The instruments **testo 550s** and **testo 557s** are not compatible with refrigerants containing ammonia.

The products must not be used in potentially explosive atmospheres!

6 Product description

6.1 Overview of the testo 550s



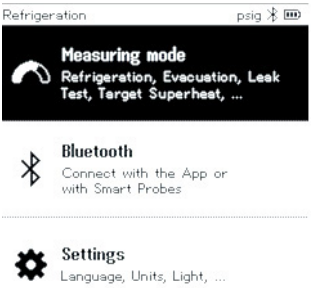
1	Mini-DIN probe socket for NTC temperature probe, with socket cover	**2**	Foldable suspension device (rear).
3	Display. Instrument status icons	**4**	Rear • Battery compartment • Mini USB port for firmware update It is not possible to charge rechargeable batteries in the instrument.
5	Control keys	**6**	Sight glass for refrigerant flow
7	2 x valve positioner	**8**	3 x hose bracket for refrigerant hoses
9	3 x connections 7/16" UNF, brass Left/right: Low/high pressure for refrigerant hoses with quick release screw fitting; passage can be closed via valve positioner center: e.g. for refrigerant bottles, with sealing cap, refrigerant hoses with quick-release screw fitting; passage can be closed via valve positioner.		

6.2 Overview of the testo 557s



1	Mini-DIN probe socket for NTC temperature probe, with socket cover	**2**	Foldable suspension device (rear).
3	Display. Instrument status icons	**4**	Rear • Battery compartment • Mini USB port for firmware update It is not possible to charge rechargeable batteries in the instrument.
5	Control keys	**6**	Sight glass for refrigerant flow
7	4 x valve positioner	**8**	4 x hose bracket for refrigerant hoses
9	Connection 7/16" UNF, brass. High pressure, for refrigerant hoses with quick-release screw fitting, passage can be closed via valve positioner.	**10**	Connection 5/8" UNF, brass, for vacuum pump
11	Connection 7/16" UNF, brass, e.g. for refrigerant cylinders, with sealing cap	**12**	Connection 7/16" UNF, brass. Low pressure, for refrigerant hoses with quick-release screw fitting, passage can be closed via valve positioner.

6.3 Overview of main menu



Measuring mode	**Refrigeration** **Evacuation** **Pressure Leak Test** **Target Superheat** **Compressor Test (DLT)** **Delta T**
Bluetooth®	Connection to the **testo Smart** App or **Smart Probes**
Settings	**Duration** **Brightness** **Auto Off** **Auto Tfac (Temperature compensation factor)** **Units** **Language** **Setup Wizard** **Factory Settings** **Information**

6.4 Control keys

Symbol	Meaning
	• Open menu • Confirm input • Switch on the display illumination: Press and hold the key for >2s • Switch off the display illumination: Press and hold the key for >2s
	Change/navigate the display screen.
	• Switches to the measurement view • Back to the menu • Switch off the instrument: Press and hold the key for >2s

7 First steps

7.1 Inserting (rechargeable) batteries

1. Unfold the suspension hook and open the battery compartment (clip lock).
2. Insert the batteries (scope of delivery) or rechargeable batteries (4 x 1.5V, type AA / Mignon / LR6) into the battery compartment. Observe the polarity!
3. Close the battery compartment.

▸ After insertion of the batteries, the instrument switches on automatically and goes into the settings menu.

When not in use for a long period: Take out the (rechargeable) batteries.

7.2 Switching the instrument on and off

Current status	Action	Function
Instrument off	Press 	Instrument is switched on.
When the measuring instrument is started for the first time, the setup wizard guides you through the following setting parameters step by step: - **Language** - **testo Smart App**		
Instrument on	Press  and hold down (> 2 s)	Instrument is switched off.

The instrument setup that is implemented can be adapted at any time in the **Settings** menu.

7.3 Setup wizard

When the **testo 550s** / **testo 557s** is started up for the first time and after the factory settings have been reset, the setup wizard is activated and guides you step-by-step through the following setup parameters.

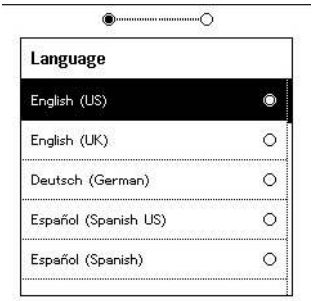
The instrument setup that is implemented can be adapted at any time in the **Settings** menu.

Language selection and QR code

✓ Instrument is switched on and the initialization phase has been completed.

1 Select language: Press **[▲] / [▼]** and **[Menu/Enter]** to confirm.

Selecting the language activates the appropriate presetting of the units of measurement



2 Take a photo of the QR code with a mobile device of the testo Smart App and press **[Menu/Enter]** to confirm.



- The measurement menu is displayed.

8 Using the product

8.1 Preparing for measurement

8.1.1 Operating the valve positioners

With respect to the refrigerant flow path, the digital manifold behaves just like a conventional four-way manifold: The passages are opened by opening the valves. The applied pressure is measured with the valves closed and the valves opened.

- Open the valve: Turn valve positioner counterclockwise.
- Close the valve: Turn valve positioner clockwise.

⚠ WARNING

Valve positioner tightened too tightly.

- Damage to the PTFE seal (1).
- Mechanical deformation of the valve piston (2) leading to the PTFE seal (1) falling out.
- Damage to the thread of the threaded spindle (3) and the valve screw (4).

Broken valve knob (5).

Only tighten the valve positioner hand-tight. Do not use any tools to tighten the valve positioners.



8.1.2 Automatic mode

The manifold automatically detects the pressure difference between the low-pressure and high-pressure sides. If the measured pressure on the low pressure side is 14.7 psi higher than on the high pressure side, a dialogue appears and the display can be changed accordingly. If “yes” is selected, the low pressure moves from left to right and the high pressure moves from right to left.

This mode is particularly suitable for air conditioning systems that provide cooling and heating.

8.2 Measuring mode

⚠ WARNING

Risk of injury caused by refrigerant that is under high pressure, hot, cold, or toxic!

> Wear protective goggles and safety gloves.

> Before applying pressure to the measuring instrument: Always fasten the measuring instrument on the suspension hook to prevent it from falling (danger of breakage).

> Before each measurement, check the refrigerant hoses are intact and connected properly. Ensure seals are clean and intact. Do not use any tools to connect the hoses; only tighten hoses hand-tight (max. torque 5.0 Nm/3.7 ft*lb).

> Comply with the permissible measuring range (-1 to 60 bar/-14,7 to 870 psi). Pay attention to this in systems with R744 refrigerant, since these are frequently operated at higher pressures!

8.2.1 Refrigeration

The **Refrigeration** application is used to determine the following system measuring values:

- High pressure
- Low pressure
- Refrigerant evaporating temperature
- Refrigerant condensation temperature
- Temperature of suction line
- Temperature of liquid line
- Superheating
- Subcooling

An NTC temperature probe (accessory) must be connected for measuring the pipe temperature and for automatic calculation of superheating and subcooling.

These can be fixed cable temperature probes or testo Smart Probes (e.g. **testo 115i**).

Before each measurement, check that the refrigerant hoses are in perfect condition.

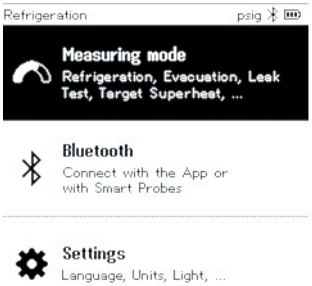
Before each measurement, zero the pressure sensors. All connections must be pressureless (ambient pressure). Press the **[▲] (P=O)** key for 2 seconds to zero the sensors.

✓ The instrument is switched on and the measurement menu is displayed.

✓ All connections must be pressureless (ambient pressure).

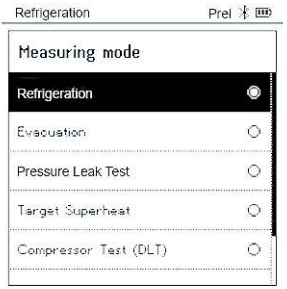
1 Press **[Menu/Enter]** to confirm.

- The main menu is displayed.

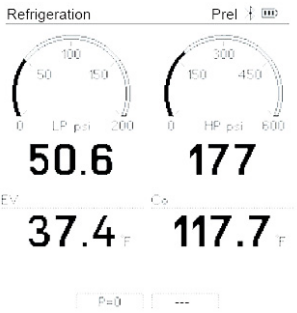


2 Press **[Menu/Enter]** to confirm.

3 Select **Refrigeration** and press **[Menu/Enter]** to confirm.



- The measurement menu is displayed.



4 Connect the refrigerant hoses.

4.1 Close the valve positioners.

4.2 Connect the refrigerant hoses for low-pressure side (blue) and high-pressure side (red) to the measuring instrument.

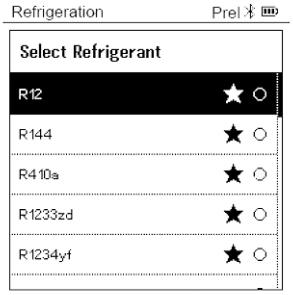
4.3 Connect the refrigerant hoses to the system.

5 Connect **testo 115i** or fixed cable probes.

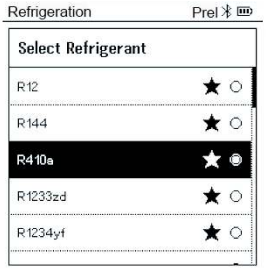
6 Set refrigerant.

6.1 Press the key [▼] (Rxx) (refrigerant number according to ISO 817).

- The refrigerant menu opens and the current refrigerant is highlighted.



6.2 Setting the refrigerant: Press [▲] or [▼] to select the refrigerant and press [Menu/Enter] to confirm.



Users have the option of setting up favorite refrigerants on the instrument and in the app. These then appear at the beginning of the refrigerant list.
To do this, the testo Smart App must be connected to the instrument via Bluetooth.
In the refrigerant list (App), now choose the refrigerant as a favorite by clicking on the star.
The new favorite refrigerant will now be synchronized to the **testo 550s** or **testo 557s**.
Note: During synchronization, the refrigerant list/selection on the instrument must remain closed.

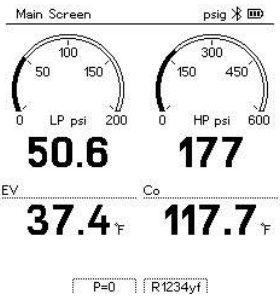
- The newly set refrigerant is displayed in the refrigerant list.

7 Press the [▲] (P=O) key for 2 seconds to zero the sensors.

- Zeroing takes place.

8 Pressurize the measuring instrument.

- The measurement starts automatically.



- Measurement results are displayed:
  - Low/high pressure
  - Condensation (CO) and evaporation temperature (EV)
  - Suction and liquid line temperature
  - Superheating and subcooling

With zeotropic refrigerants, the evaporation temperature to/Ev is displayed after complete evaporation. The condensation temperature tc/Co is displayed after complete condensation.

The measured temperature must be assigned to the superheating or subcooling side (t_{oh} <--> t_{cu}). Dependent on this assignment, the display will show t_{oh}/T1 resp. Δt_{oh}/SH or t_{cu}/T2 resp. Δt_{cu}/SC, depending on the selected display.

Reading and display illumination flash:

- 1 bar/14.5 psi before reaching critical refrigerant pressure
- When max. permissible pressure of 60 bar/870 psi is exceeded.

All values can be saved and sent in the app. The data can also be transferred between the app and the testo DataControl software.

8.2.2 Evacuation

Via the **Evacuation** application, foreign gases and moisture can be removed from the refrigeration circuit.

The **testo 552i** is recommended for carrying out the measurement. The measurement is also possible without the **testo 552i**, with **testo 550s**/**testo 557s**. However, this is not advisable due to insufficient accuracy.

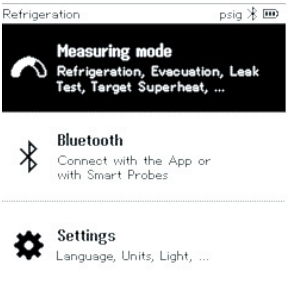
✓ The instrument is switched on and the measurement menu is displayed.

✓ **Bluetooth®** is enabled.

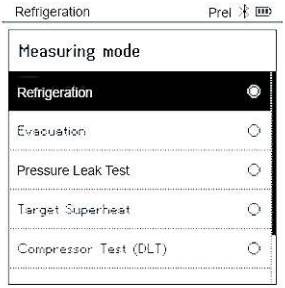
✓ Hoses are connected.

1 Press **[Menu/Enter]**.

2 Press **[▲] / [▼]** to select **Measuring Mode** and press **[Menu/Enter]** to confirm.

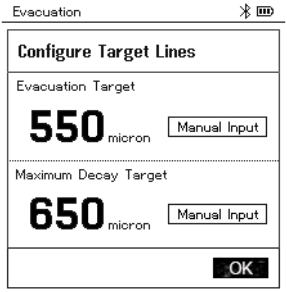


- The **Measuring Mode** menu is displayed.



3 Press **[▲] / [▼]** to select **Evacuation** and press **[Menu/Enter]** to confirm.

- The **Configure Target Lines** menu is displayed.



Evacuation Target will be set at 500 microns as a default. Maximum decay target will be set at 1000 microns as a default.

4 Adjust the **Target Line** value

4.1 Press the **[▲]** key and in the **Target Line** field, select **Manual Input**.

4.2 Press **[Menu/Enter]** to confirm.

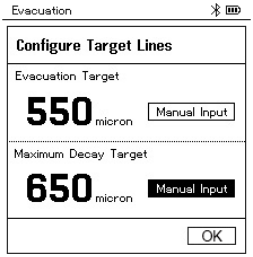
- The field is activated.

4.3 Press **[▲] / [▼]** to set the value.

4.4 Press **[Menu/Enter]** to confirm.

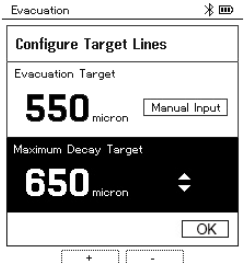
5 Adjust the **Maximum Decay Target** value

5.1 Press the **[▼]** button and in the **Maximum Decay Target** field, select **Manual Input**.



5.2 Press **[Menu/Enter]** to confirm.

- The field is activated.

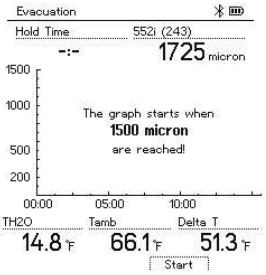


5.3 Press **[▲] / [▼]** to set the value.

5.4 Press **[Menu/Enter]** to confirm.

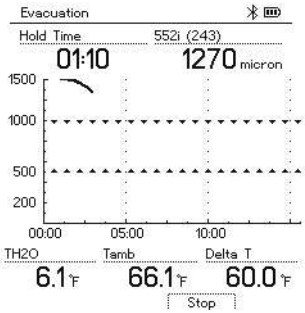
6 Confirm the entries in steps 4 and 5:
Press **[▼]** to select **OK** and press **[Menu/Enter]** to confirm.

- A connection is established with available Bluetooth® probes.
- **testo 552i** is switched on and connected automatically.
- The **Evacuation** measurement menu is displayed.



7 Start measurement: Press the **[▼] (Start)** key.

- Once the measuring range 0 to 20,000 microns / 0 to 26.66 mbar is reached, the current vacuum value is shown on the instrument display. The instrument also displays the current ambient temperature, the water evaporation temperature which corresponds to the vacuum reading, and the delta between these two temperatures.



8 End measurement: Press the **[▼] (Stop)** key.

- The measurement result is displayed.

Press the **[▲] New** key to reset the determined values. If necessary, a test can also be started again.

9 Press **[Menu/Enter]** to return to the main menu.

8.2.3 Pressure Leak Test

The temperature compensated leak test can be used to check the leak tightness of systems. For this purpose both the system pressure and the ambient temperature are measured over a defined period of time.

A temperature probe that measures the ambient temperature or a Smart Probe for measuring the air temperature can be connected. As a result, information is provided about the temperature-compensated differential pressure and about the temperature at the beginning/end of the test. Due to the temperature compensation, the actual pressure drop is displayed as delta P. If no temperature probe is connected, you may also perform the pressure leak test without temperature compensation.

Surface temperature probes (e.g. **testo 115i**) can also be used for the temperature-compensated leak testing, but must not be used to measure surface temperature. They must be positioned as far as possible to measure the air temperature. If a surface probe is used, in the **Settings** menu of the **testo 550s** / **testo 557s**, the **Auto Tfac (Temperature compensation factor)** must be switched off, see section 8.3.4.

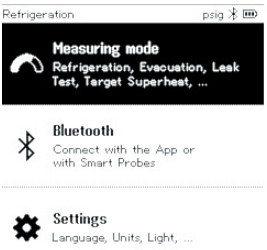
The **testo 550s** or **testo 557s** manifold is used to carry out the measurement.

✓ The instrument is switched on and the measurement menu is displayed.

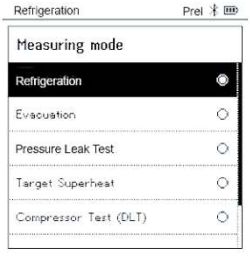
✓ Hoses are connected.

1 Press **[Menu/Enter]**.

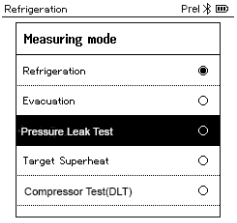
2 Press **[▲] / [▼]** to select **Measuring Mode** and press **[Menu/Enter]** to confirm.



- The **Measuring Mode** menu is displayed.



3 Press **[▲] / [▼]** to select **Pressure Leak Test** and press **[Menu/Enter]** to confirm.



- For the temperature-compensated leak test, a connection is established with available Bluetooth® probes. If cable probes are connected to the instrument, they are prioritized for the compensation. Please note that only air probes are ideal for temperature-compensated leakage testing.

- **testo 905i / testo 605i** is switched on and automatically connected. Other temperature probes compatible with **testo 550s / testo 557s** can be connected.
- The **Pressure Leak Test** menu is displayed.

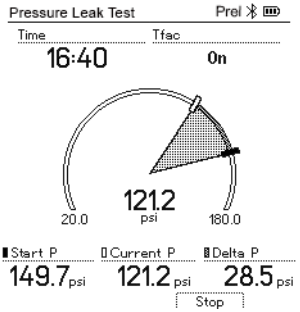
T Comp is shown on the display if a compatible probe is connected via Bluetooth® or cable. The temperature compensation is used for the measurement result.

4 Press the **[▼] (Start)** key.

- The leakage test is carried out.

5 Press the **[▼] (Stop)** key.

- The leakage test is terminated.
- The measurement result is displayed.



Start the measurement once pressure has been achieved. Once pressure has been reached, press start to enable the Pressure Leak Test. This will begin the test and the clock.

Press the **[▲] New** key to reset the determined values. If necessary, a test can also be started again.

The measurement result can be displayed graphically on the manifold as well as in the app.

6 Press **[Menu/Enter]** to return to the main menu.

8.2.4 Target Superheat

This feature makes it possible to connect the **testo 550s** and **testo 557s** manifolds to two additional **testo 605i** Smart Probes in order to calculate the target superheat. This application can only be used for split air conditioning systems/heat pumps with a fixed expansion valve. The two connected **testo 605i** Smart Probes determine the Outdoor Dry Bulb Temp (**ODDB)** and Return Air Wet Bulb (**RAWB)** values. The target superheat value appears on the display as a result.

The following are used for the measurement:

- **testo 115i** (clamp thermometer) or
- fixed cable probes
- **testo 605i**

Alternatively, the values can be configured manually.

Before each measurement, check that the refrigerant hoses are in perfect condition.

Before each measurement, zero the pressure sensors.

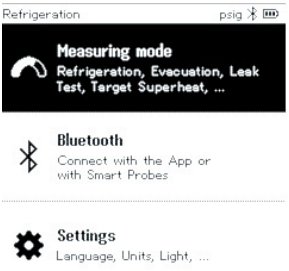
✓ The instrument is switched on and the measurement menu is displayed.

✓ All connections must be pressureless (ambient pressure).

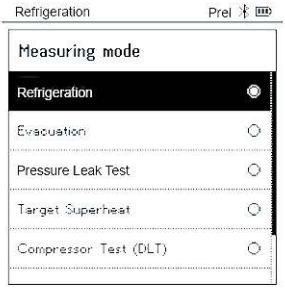
✓ **Bluetooth®** is enabled.

1 Press **[Menu/Enter]**.

2 Press **[▲] / [▼]** to select **Measuring Mode** and press **[Menu/Enter]** to confirm.

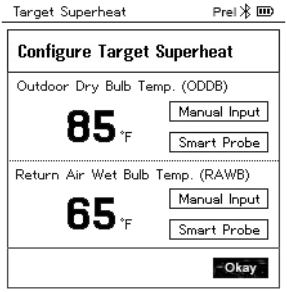


- The **Measuring Mode** menu is displayed.



3 Press **[▲] / [▼]** to select **Target Superheat** and press **[Menu/Enter]** to confirm.

- The **Configure Target Superheat** menu is displayed.



The values can either be configured manually via **Manual Input** or recorded by the **testo 605i** via **Smart Probe**. When a **Smart Probe** is selected, available **testo 650i** instruments are displayed for the connection.

4 Adjust values for **Outdoor Dry Bulb Temp.**

4.1 Press the **[▲]** key and in the **Outdoor Dry Bulb Temp.** field, select **Manual Input**.

4.2 Press **[Menu/Enter]** to confirm.

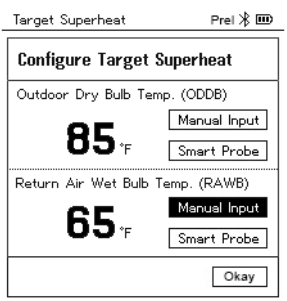
- The field is activated.

4.3 Press **[▲] / [▼]** to set the value.

4.4 Press **[Menu/Enter]** to confirm.

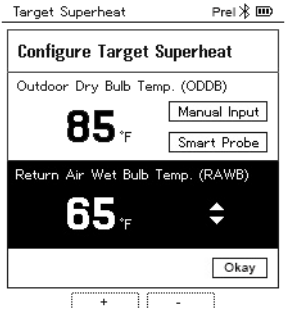
5 Adjust the **Return Air Wet Bulb Temp.** value

5.1 Press the **[▲] / [▼]** key and in the **Return Air Wet Bulb Temp.** field, select **Manual Input**.



5.2 Press **[Menu/Enter]** to confirm.

- The field is activated.

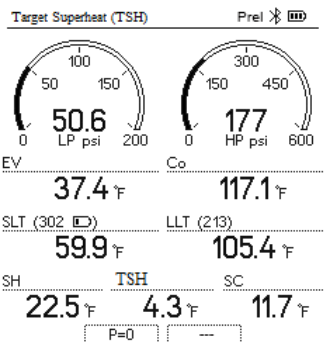


5.3 Press **[▲] / [▼]** to set the value.

5.4 Press **[Menu/Enter]** to confirm.

6 Confirm the entries in steps 4 and 5:
Press [▼] to select **Okay** and press **[Menu/Enter]** to confirm.

- The **Target Superheat** measurement menu is displayed.



7 Connect the refrigerant hoses.

7.1 Close the valve positioners.

7.2 Connect the refrigerant hoses for low-pressure side (blue) and high-pressure side (red) to the measuring instrument.

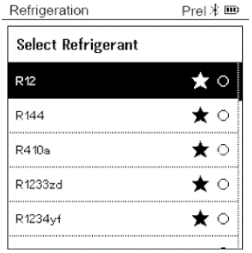
7.3 Connect the refrigerant hoses to the system.

8 Connect **testo 115i**/fixed cable probes.

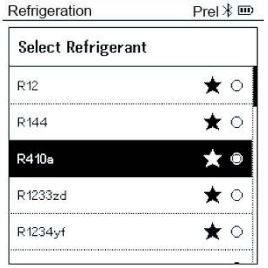
9 Set refrigerant.

9.1 Press the key [▼] (Rxx) (refrigerant number according to ISO 817).

- The refrigerant menu opens and the current refrigerant is highlighted.



9.2 Setting the refrigerant: Press [▲] or [▼] to select the refrigerant and press [Menu/Enter] to confirm.



- The newly set refrigerant is displayed in the refrigerant list.

10 Press the [▲] (P=O) key for 2 seconds to zero the sensors.

- Zeroing takes place.

11 Pressurize the measuring instrument.

- The measurement starts automatically.

- Measurement results are displayed:
  - Low/high pressure
  - Condensation and evaporation temperature
  - Suction and liquid line temperature
  - Superheating and subcooling
  - Target superheat TSH

8.2.5 Compressor Test (DLT)

For this mode, 3 temperature probes are used. In addition to the conventional temperature sensors for superheating and subcooling, an additional temperature probe must be connected via Bluetooth.

The testo 115i (clamp thermometer) or fixed cable probes are used to carry out the measurement.

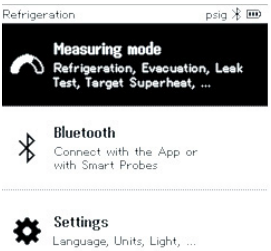
Before each measurement, check that the refrigerant hoses are in perfect condition.

Before each measurement, zero the pressure sensors.

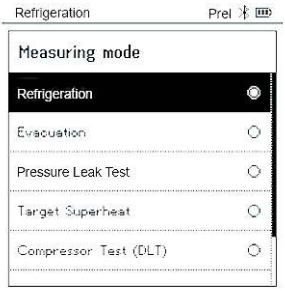
✓ The instrument is switched on and the measurement menu is displayed.

1 Press [Menu/Enter].

2 Press [▲] / [▼] to select Measuring Mode and press [Menu/Enter] to confirm.



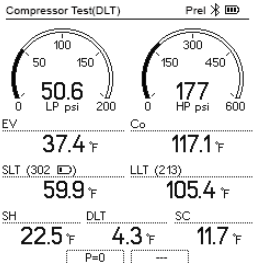
- The Measuring Mode menu is displayed.



3 Press [▲] / [▼] to select Compressor Test (DLT) and press [Menu/Enter] to confirm.

▸ The measurement menu is displayed.

The DLT temperature is shown on the display.



4 Connect the refrigerant hoses.

4.1 Close the valve positioners.

4.2 Connect the refrigerant hoses for low-pressure side (blue) and high-pressure side (red) to the measuring instrument.

4.3 Connect the refrigerant hoses to the system.

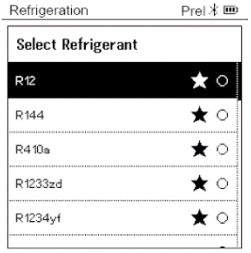
5 Connect the **testo 115i** or fixed cable probes and third temperature probe to the compressor outlet.

Recommended to use a wireless probe for the compressor outline line to not impede the fan blade.

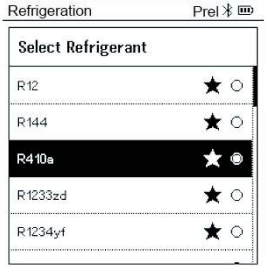
6 Set refrigerant.

6.1 Press the key [▼] (Rxx) (refrigerant number according to ISO 817).

- The refrigerant menu opens and the current refrigerant is highlighted.



6.2 Setting the refrigerant: Press **[▲]** or **[▼]** to select the refrigerant and press **[Menu/Enter]** to confirm.



- The newly set refrigerant is displayed in the refrigerant list.

7 Press the **[▲] (P=O)** key for 2 seconds to zero the sensors.

- Zeroing takes place.

8 Pressurize the measuring instrument.

- The measurement starts automatically.

- The measurement result is displayed.

9 Press **[Menu/Enter]** to return to the main menu.

8.2.6 Delta T

Temperature 1 and temperature 2 are measured. The difference is shown on the display as the delta temperature.

The **testo 115i** (clamp thermometer) or fixed cable probes are used to carry out the measurement.

✓ The instrument is switched on and the measurement menu is displayed.

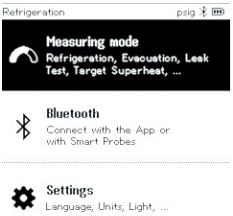
✓ The steps described in the **Preparing for measurement** section have been followed/carried out.

✓ **testo 115i** is switched on.

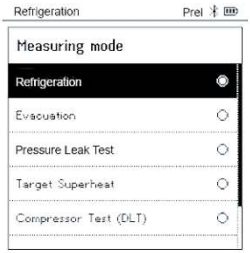
1 Place the **testo 115i** at the measuring points.

2 Press [Menu/Enter].

3 Press [▲] / [▼] to select Measuring Mode and press [Menu/Enter] to confirm.

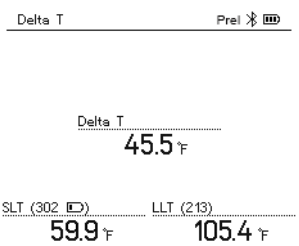


- The Measuring Mode menu is displayed.



4 Press [▲] / [▼] to select Delta T and press [Menu/Enter] to confirm.

- The measurement result is displayed.



5 Press **[Menu/Enter]** to return to the main menu.

8.3 Bluetooth

testo 550s / **testo 557s** have the option of establishing a Bluetooth® connection with wireless probes as well as a connection to the testo Smart App at the same time.

If the **testo 550s** or **testo 557s** is used with Smart Probes, they must be at least 8 in apart.

8.3.1 Probes compatible with the instrument

Smart Probes

Order no.	Designation
0560 2115 02	**testo 115i** – clamp thermometer with smartphone operation
0560 2605 02	**testo 605i** – thermohygrometer with smartphone operation
0564 2552 01	**testo 552i** – vacuum Smart Probe
0560 1905	**testo 905i** – temperature probe with smartphone operation

NTC probes

Order no.	Designation
0613 1712	Robust air temperature probe (NTC)
0613 5505	Clamp probe (NTC) for temperature measurements on pipes (Ø ¼ to 1 ¼ inch), 5ft m fixed cable
0613 5506	Clamp probe (NTC) for temperature measurements on pipes (Ø ¼ to 1 ¼ inch), 16ft fixed cable

Order no.	Designation
0613 5507	2 x clamp probes (NTC) for temperature measurements on pipes (Ø ¼ to 1 ¼ inch), 5ft fixed cable
0613 4611	Temperature probe with Velcro (NTC)
0613 5605	Pipe wrap probe (NTC), measuring range: -58 to 248 °F
0613 1912	Waterproof surface temperature probe (NTC) for flat surfaces, measuring range: -58 to 248 °F

8.3.2 Establishing a connection

To establish a connection via Bluetooth®, you need a tablet or smartphone with the testo Smart App installed on it.

You can get the App for iOS instruments in the App Store or for Android instruments in the Play Store.

Compatibility:

Requires iOS 12.0 or later/Android 6.0 or later, requires Bluetooth® 4.0.

Once the connection between the app and the **testo 550s** and **testo 557s** has been successfully established, the app is in second screen mode. This is indicated by a yellow frame in the app.

This means that all measurement data from the manifold is being mirrored on the app. The measurement can now be controlled from both instruments. It is possible to carry out the following actions:

- Start measurement
- Stop measurement
- Reset measurement
- Configure measurement
- Select refrigerant

8.3.3 Switching on/off

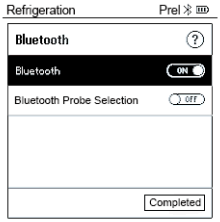
✓ The instrument is switched on and the measurement menu is displayed.

1 Press **[Menu/Enter]**.

2 Press **[▲] / [▼]** to select **Bluetooth**: and press **[Menu/Enter]** to confirm.



- The **Bluetooth** menu is displayed.



8.3.3.1 Switching on

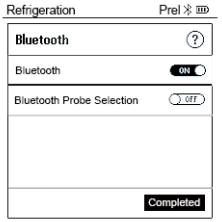
✓ The Bluetooth menu is selected.

1 **[Menu/Enter]**

- In the On/Off switch icon, ON is displayed.



2 Enable Bluetooth®: Press **[▼]** to activate the **[Completed]** button and press **[Menu/Enter]** to confirm.



- When the Bluetooth® icon is shown on the display, Bluetooth is switched on.
- Bluetooth® automatically searches for and connects available probes.

- After opening the App, the instrument is automatically connected if it is within range. The instrument does not have to be connected to the smartphone/tablet via settings beforehand.

8.3.3.2 Switching off

✓ The Bluetooth® menu is activated.

1 [Menu/Enter]

- In the On/Off switch icon, OFF is displayed.



3 Disable Bluetooth®: Press [▼] to activate the [Competed] button and press [Menu/Enter] to confirm.



- When the Bluetooth® icon is not shown on the display, Bluetooth® is switched off.

8.3.3.3 Manual probe selection

If this menu is activated, it appears before a measurement.

✓ The Bluetooth® menu is activated (in the On/Off switch icon, ON is displayed.

1 Press [▼] to select **Manual probe selection**.
Enable function: Via [Menu/Enter], set the switch to [ON].

An info window with the available probes appears before each measurement to be carried out. The information must be confirmed by pressing [Menu/Enter]/[Okay].

Disable function: Via [Menu/Enter], set the switch to [OFF].

If the advanced Bluetooth® settings are switched off, the instrument automatically connects to the first compatible Smart Probe.

2 Press [▼] to click on the [Completed] button and press [Menu/Enter] to confirm.

In the Bluetooth® menu, you will obtain further information.

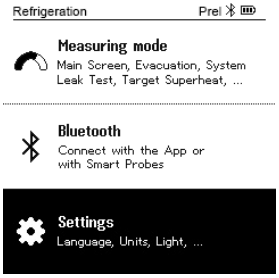
Display	Explanation
Bluetooth® flashes	There is no Bluetooth® connection, or a potential connection is being searched for.
Bluetooth® is permanently displayed	There is a Bluetooth® connection, the number of connected Bluetooth® probes is displayed next to it.
Bluetooth® is not displayed	Bluetooth® is disabled.

8.4 Settings

✓ The instrument is switched on and the measurement menu is displayed.

1 Press [Menu/Enter].

2 Select Settings: Press [▼] and then [Menu/Enter] to confirm.



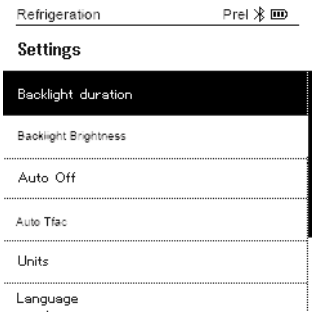
- The Settings menu is displayed.
Available settings:
- Duration
- Brightness
- Auto Off
- Auto Tfac (Temperature compensation factor)
- Units
- Language
- Setup Wizard
- Factory Settings
- Instrument

8.4.1 Backlight Duration

Set the backlight duration for the display.

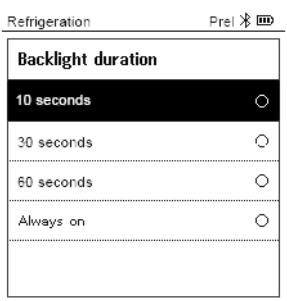
✓ The **Settings** menu is activated.

1 Press **[▲] / [▼]** to select **Backlight duration** and press **[Menu/Enter]** to confirm.



- Menu properties are displayed.

2 Press **[▲] / [▼]** to select the backlight duration and press **[Menu/Enter]** to confirm.



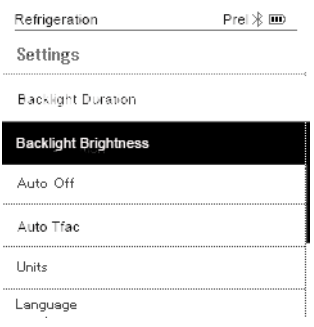
3 Press **[ESC]**: 1x main menu view, 2 x measurement menu view.

8.4.2 Backlight Brightness

Set the brightness for the display.

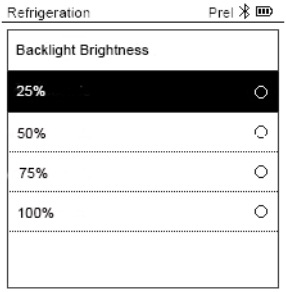
✓ The **Settings** menu is activated.

1 Press [▲] / [▼] to select the **Backlight brightness** and press [Menu/Enter] to confirm.



- Menu properties are displayed.

2 Press [▲] / [▼] to select the brightness value (25%, 50%, 75%, 100%) and press [Menu/Enter] to confirm.



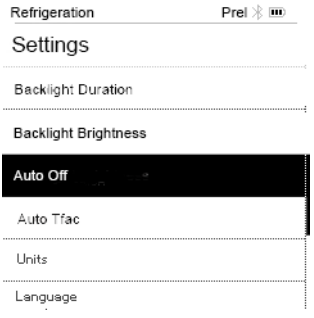
3 Press [ESC]: 1x main menu view, 2 x measurement menu view.

8.4.3 Auto Off

You can manage the energy consumption for your instrument yourself.

✓ The **Settings** menu is activated.

1 Press [▲] / [▼] to select [Auto OFF] and press [Menu/Enter] to confirm.



- Menu properties are displayed.

2 Press [▲] / [▼] to select **Auto OFF**
On: The instrument automatically switches off after 30 minutes of inactivity.



The instrument switches off automatically if no pressure is measured and no key has been pressed within 10 minutes. As long as pressure is present, the instrument remains on.

- Off: Continuous operation

3 Confirm selection by pressing [Menu/Enter].

4 Press [ESC]: 1x main menu view, 2 x measurement menu view

Unsaved readings are lost when the measuring instrument is switched off.

8.4.4 Auto Tfac (Temperature compensation factor)

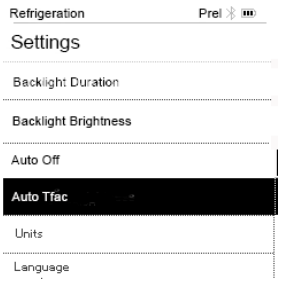
A surface compensation factor has been set in the measuring instrument to reduce the measuring errors in the main field of applications. This reduces measuring errors when using surface temperature probes.

Surface temperature probe

An NTC temperature probe (accessory) must be connected to measure the pipe temperature and to automatically calculate superheating and subcooling.

✓ The Settings menu is activated.

1 Select Auto Tfac and press [Menu/Enter] to confirm.



- Menu properties are displayed.

2 Press [▲] / [▼] to activate (On)/deactivate (Off) Auto Tfac and press [Menu/Enter] to confirm.



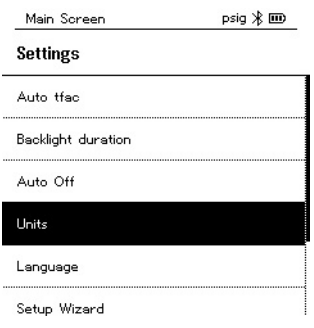
Press [▲] / [▼] to select the question mark icon and press [Menu/Enter] to open. You will obtain further information on temperature compensation.

3 Press [ESC]: 1x main menu view, 2 x measurement menu view

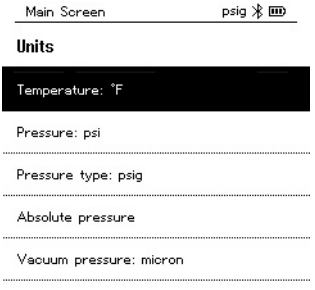
8.4.5 Units

✓ The Settings menu is activated.

1 Press [▲] / [▼] to select [Units] and press [Menu/Enter] to confirm.



- Menu properties are displayed.



Adjustable units

Measurement parameter	Unit	Description
Temperature	°C, °F	Set unit for temperature.
Pressure	psi, kPa, MPa, bar	Set unit for pressure.
Pressure mode	Prel, Pabs	Depending on the chosen unit for pressure: Change between absolute and relative pressure displays.
Absolute pressure	bar (Pabs)	Set the current absolute pressure (current air pressure values for your region can be obtained, for example, from the local weather service or on the Internet).
Vacuum pressure	Micron, mbar, Torr, mTorr inH2O, in Hg, hPa, Pa	

3 Press [ESC]: 1 x Units menu, 2 x main menu view, 3 x measurement menu view.

8.4.6 Language

✓ The Settings menu is activated.

1 Press [▲] / [▼] to select [Language] and press [Menu/Enter] to confirm.



- Menu properties are displayed.

2 Select language: [▲] / [▼] and press [Menu/Enter] to confirm.



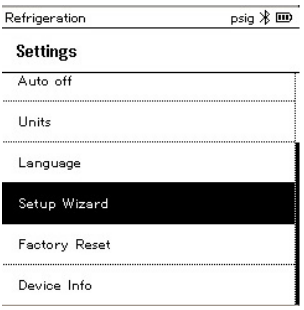
Selecting the language activates the appropriate presetting of the units of measurement.

3 Press [ESC]: 1 x Units menu, 2 x main menu view, 3 x measurement menu view.

8.4.7 Setup Wizard

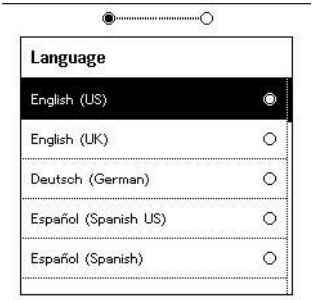
✓ The Settings menu is activated.

1 Press [▲] / [▼] to select [Setup Wizard] and press [Menu/Enter] to confirm.



- Language selection opens.

2 Press [▲] / [▼] to select the language.



- The units for the respective country are set automatically.

- Barcode is displayed and the testo Smart App can be downloaded from the respective app store.

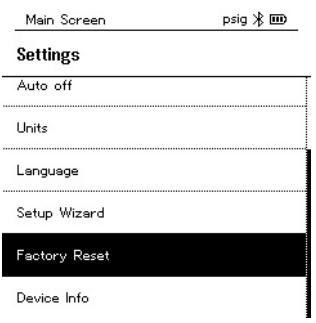


8.4.8 Factory Settings

The instrument is reset to the factory settings.

✓ The **Settings** menu is activated.

1 Press **[▲] / [▼]** to select **[Restore Factory Reset]** and press **[Menu/Enter]** to confirm.



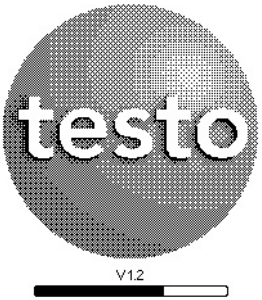
- Menu properties are displayed.

2 Start **[Restore Factory Reset]**: Press **[▲] / [▼]** to select **[Do a factory reset]** and press **[Menu/ESC]** to confirm.

Press **[Back]** to quit the process.



- **[Restore Factory Reset]** is carried out.

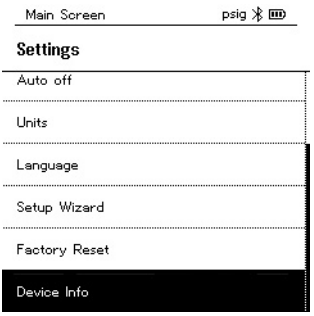


3 See **Setup Wizard**.

8.4.9 Instrument

✓ The **Settings** menu is activated.

1 Press **[▲] / [▼]** to select **[Device Info]** and press **[Menu/Enter]** to confirm.



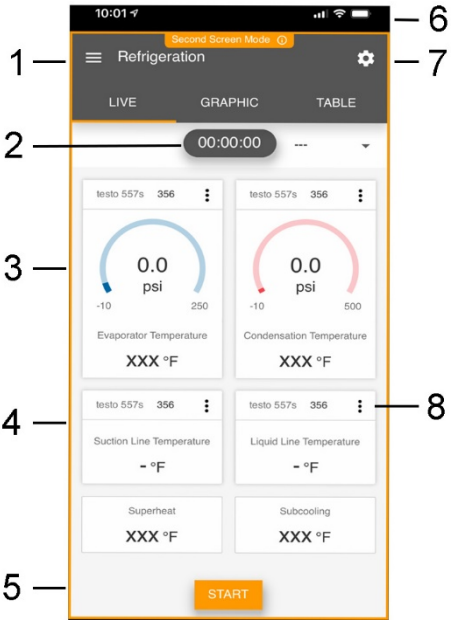
- The **Versions Info** menu is displayed.

The following information can be viewed:
- Serial number
- Firmware version
- Refrigerant version
- BLE Version)

2 Press **[ESC]**: 1 x **Units** menu, 2 x main menu view, 3 x measurement menu view.

9 Smart App

9.1 App – user interface



1		Open main menu
2		Display of the measurement period
3		Display of calculated measurement results
4		Reading for each probe
5		Can be controlled with different function keys
6		Device status bar
7		Configuration
8		Edit reading display

Further symbols on the user interface (without numbering)

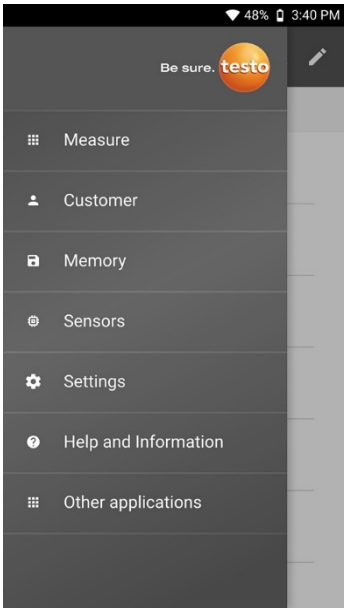
	One level back
	Exit view
	Share report

	Search
	Favorite
	Delete
	Further information
	Display report
	Multiple selection

9.2 Main menu

The **Main menu** can be accessed via the icon at top left. To exit the main menu, select a menu or right-click on the guided menus. The last screen displayed is shown.

	Measure
	Customer
	Memory
	Sensors
	Settings
	Help and Information



Additional icons:

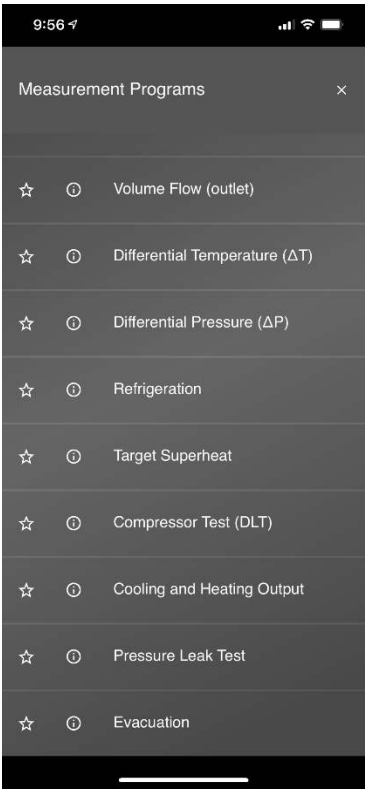
	One level back		Delete
	Exit view		Further information
	Share measurement data/reports		Display report
	Search		Edit
	Favorite		

9.3 Measurement menu

The **testo Smart App** has permanently installed measurement programs. These enable the user to carry out convenient configuration and implementation of specific measuring tasks.

The **testo Smart App** offers the following **Measurement menus**:

Basic view
Volume flow – duct
Volume flow – outlet
Differential temperature (ΔT)
Differential pressure (ΔT)
Refrigeration
Target superheat
Cooling and heating output
Leakage test
Evacuation



9.3.1 Basic view

In the **Basic view** application menu, the current measuring values can be read, recorded and saved. The Basic view is particularly suitable for fast, uncomplicated measurements without the specific requirements of a standard-compliant measurement.

All Bluetooth® probes compatible with the testo Smart App are displayed in the **Basic view**.

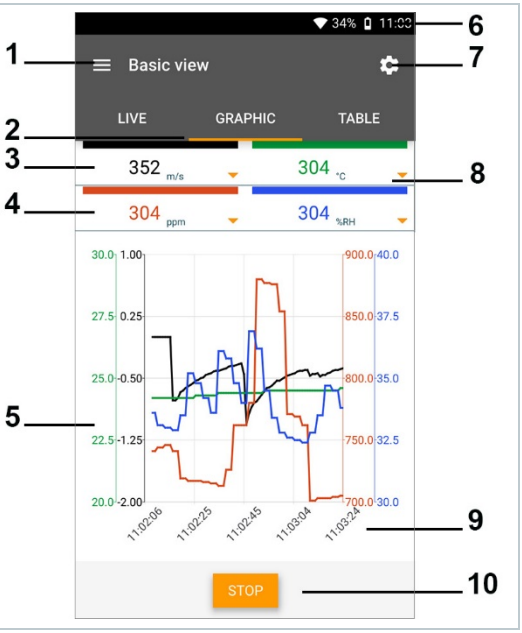
In all application menus, apart from the volume flow measurement, there are three different screens for the measurement - Live (or also Basic view), Graphic and Table.

9.3.1.1 Graphic view

In the Graphic view, the values for a maximum 4 channels can be displayed simultaneously in a chronological trend graph. All measured parameters can be displayed in the Graphic view via the channel selection (click on one of the four selection fields). Once a measurement parameter has been selected, the value is updated automatically.

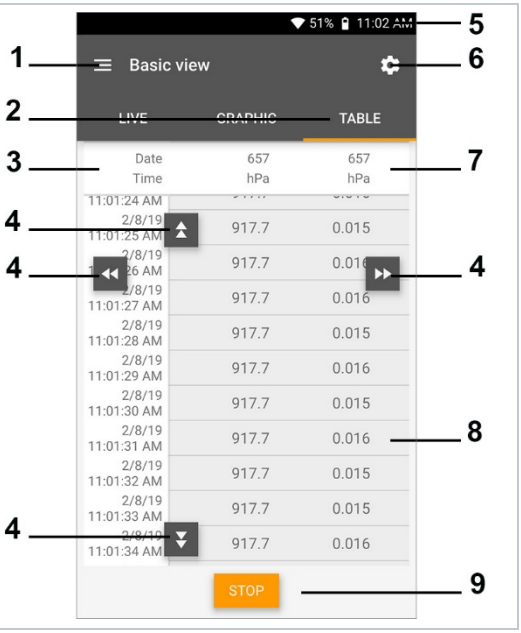
The Zoom touch function allows individual parts of the graphic to be viewed in more detail or time progressions to be displayed compactly.

1	Open the main menu
2	Change of display
3	Reading for selected channel
4	Measurement parameter and measurement unit
5	Graphic with selected channels and 4 Y-axes
6	Status bar
7	Open the configuration menu
8	Selection of other channels
9	Time axis
10	New/Start/Stop/Save button



9.3.1.2 Table view

1	Open the main menu
2	Change of display
3	Column with date and time
4	Arrow keys to go directly to the end of the table
5	Status bar
6	Open the configuration menu
7	Probe ID - measurement unit
8	Measuring values
9	New/Start/Stop/Save button



9.3.2 Refrigeration

The **Refrigeration** application is used to determine the following system measuring values:

- Low-pressure side: Evaporation pressure, refrigerant evaporation temperature to/Ev (T evap.)
- Evaporation pressure: Measured temperature toh/T1
- Evaporation pressure: Superheating Δtoh/SH
- High-pressure side: Condensation pressure, refrigerant condensation temperature tc/Co (T condens.)
- Condensation pressure: Measured temperature tcu/T2
- Condensation pressure: Subcooling Δtcu/SC

The testo 115i clamp thermometer is used for the measurement.

An NTC temperature sensor (accessory) must be connected for measuring the pipe temperature and for automatic calculation of superheating and subcooling. Testo Smart Probes (e.g. testo 115i) can be used.

Before each measurement, check that the refrigerant hoses are in flawless condition.

Before each measurement, zero the pressure sensors. All connections must be pressureless (ambient pressure). Press the button [▲] (P=O) for 2 seconds to zero the sensors.

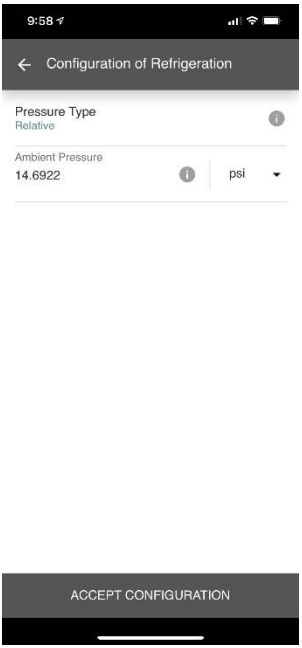
1. Click on **Measure**.
2. Click on **Refrigeration**.

▸ The Refrigeration measurement menu opens.

3. Click on ⚙.

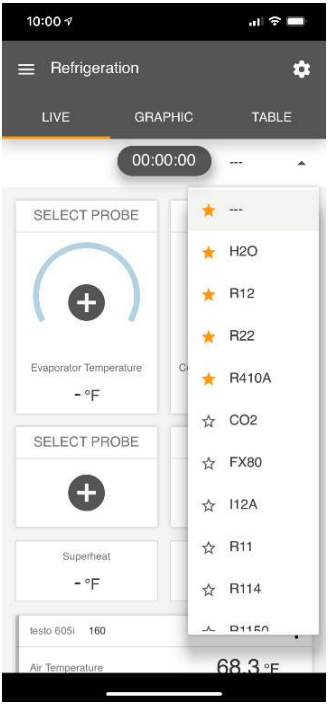
▸ Configuration menu opens.

4. Make the required settings.



5. Click on **Apply Configuration**.

6 Set refrigerant.



You have the option of setting up favourite refrigerants in the App. These then appear at the beginning of the refrigerant list.
To do this, click on the asterisk next to the refrigerant in the refrigerant list (App).

- The newly set refrigerant is displayed in the refrigerant list.

7 Click on **Start**.

- The measurement starts.
- Values currently being measured are displayed.
- Measured values can be saved or a new measurement can be started.

With zeotropic refrigerants, the evaporation temperature to/Ev is displayed after complete evaporation/the condensation temperature tc/Co is displayed after complete condensation.

The measured temperature must be assigned to the superheating or subcooling side (t_{oh} <--> t_{cu}). Dependent on this assignment, the display

will show t_{oh}/T1 resp. Δt_{oh}/SH or t_{cu}/T2 resp. Δt_{cu}/SC, depending on the selected display.

Reading and display illumination flash:

- 1 bar/14.5 psi before reaching critical refrigerant pressure
- When max. permissible pressure of 60 bar/870 psi is exceeded.

9.3.3 Target Superheat

This feature allows the calculation of target superheat in conjunction with the App and additional testo 605i Smart Probes. This application can only be used for split air conditioning systems/heat pumps with a fixed expansion valve. The two connected testo 605i Smart Probes determine the ODDB and RAWB values. As a result, the target superheat appears in the App.

The following are used for the measurement:

- testo 115i (clamp thermometer)
- testo 605i

Before each measurement, check that the refrigerant hoses are in flawless condition.

Before each measurement, zero the pressure sensors.

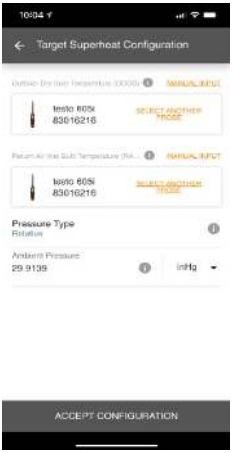
1. Click on **Measure**.
2. Click on **Target superheat**.

▸ The Target superheat measurement menu opens.

3. Click on .

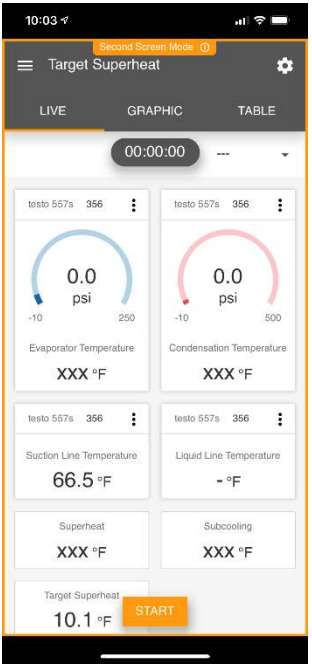
▸ Configuration menu opens.

4 Make the required settings.



5 Click on **Apply Configuration**.

6 Set refrigerant.



▸ The newly set refrigerant is displayed in the refrigerant list.

7 Click on **Start**.

▸ The measurement starts.

▸ Values currently being measured are displayed.

▸ Measured values can be saved or a new measurement can be started.

9.3.4 Pressure Leak Test

The temperature compensated tightness test can be used to check the leak tightness of systems. For this purpose both the system pressure and the ambient temperature are measured over a defined period of time.

For this purpose a temperature sensor to measure the ambient temperature may be connected (recommendation: Deactivate the surface compensation factor and use an NTC air probe or Bluetooth® temperature Smart Probes) or Smart Probe for air temperature measurement. This provides information about the temperature-compensated differential pressure and the temperature at the beginning/end of the test. Due to the temperature compensation, the actual pressure drop is displayed as delta P. If no temperature sensor is connected, you may also perform the tightness test without temperature compensation.

Surface temperature probes (e.g. testo 115i) can also be used for the temperature-compensated tightness testing, but must not be used for measuring surface temperature. They must be positioned as far as possible to measure the air temperature.

The 550i, 550s or 557s manifold is used to perform the measurement.

1 Click on **Measure**.

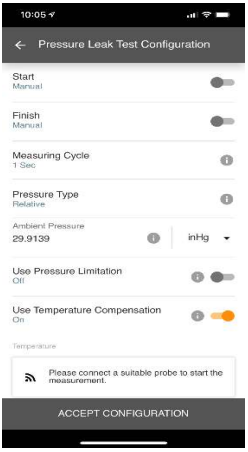
2 Click on **Leakage test**.

▸ The Leakage test measurement menu opens.

3 Click on ⚙.

▸ Configuration menu opens.

4 Make the required settings.



5 Click on **Apply Configuration**.

7 Click on **Start**.

▶ The measurement starts.

▶ Values currently being measured are displayed.

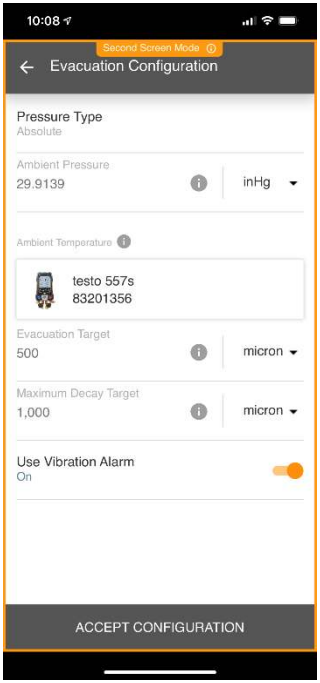


▶ Measured values are saved. The values can be exported or a report can be created.

9.3.5 Evacuation

With the Evacuation application, foreign gases and moisture can be removed from the refrigeration circuit.

1. Click on **Measure**.
2. Click on **Evacuation**.
   - The Evacuation measurement menu opens.
3. Click on ⚙.
   - Configuration menu opens.
4. Make the required settings.

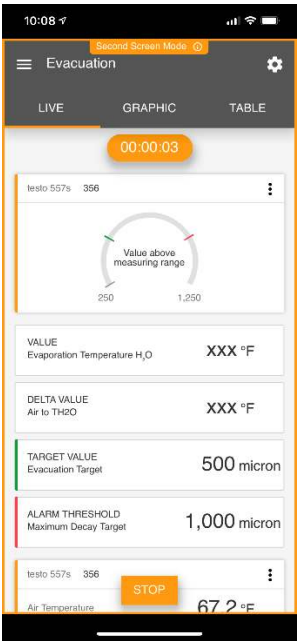


5. Click on **Apply Configuration**.

6 Click on **Start**.

▸ The measurement starts.

▸ Values currently being measured are displayed.



▸ Measured values can be saved or a new measurement can be started.

9.4 Customer

In the **Customer** menu, all customer and measuring site information can be created, edited and deleted. Fields marked with * are mandatory. Without any information in this field, no customers or measuring sites can be stored.

9.4.1 Creating and editing a customer

1 Click on ☰.

▸ Main menu opens

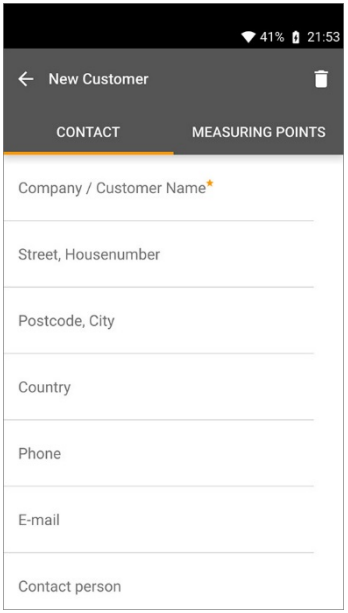
2 Click on **Customer**.

▸ The Customer menu opens.

3 Click on **+ New customer**.

▸ A new customer can be created.

4 Store all relevant customer data.



5 Click on **Save**.

▸ The new customer was saved.

9.4.2 Creating and editing measuring sites

1 Click on .

▸ Main menu opens

2 Click on **Customer**.

▸ The Customer menu opens.

3 Click on **+ New customer**.

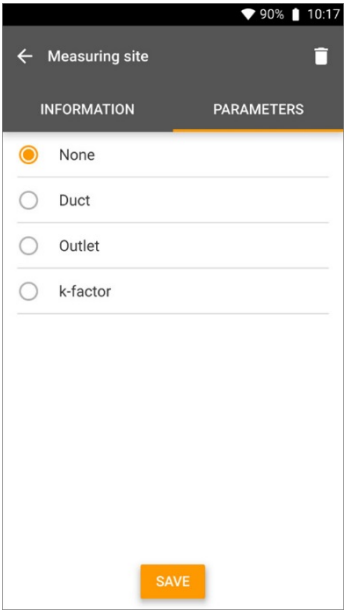
4 Click on the right tab **Measuring point**.

5 Click on **+ New measuring site**.

▸ A new measuring site can be created.

6 Store all relevant measuring site information.

7 Click on right tab **Parameters**.



8 Select further parameters.

For the duct, outlet or duct with k-factor measuring sites, further parameter settings can be implemented.

9 Click on **Save**.

▸ The new measuring site has been saved.

9.5 Memory

In the **Memory** menu, you can call up all the measurements stored on the mobile device, analyze them in detail and also create and save csv data and PDF reports. When clicking on a measurement, an overview of the measurement results is displayed.

9.5.1 Searching for and deleting measurement results

In the **Memory** menu, all stored measurements are sorted by date and time.

✓ The **Memory** menu is open.

1 Click on .

▸ Search field with measurements opens.

2 Enter the customer name or measuring site or date/time in the search field.

▸ The result is displayed.

Deleting

1 Click on .

▸ A check box is displayed in front of each measurement.

2 Click on the required measurement.

▸ A tick is displayed in the respective box.

3 Click on .

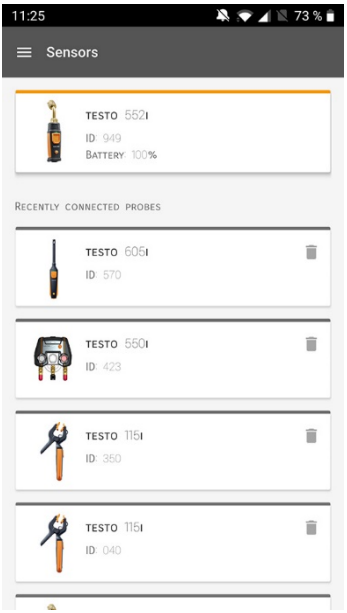
▸ Information window is displayed.

4 Acknowledge the information.

▸ Selected measurements were deleted.

9.6 Sensors

All sensors used with the App can be found in the Sensors menu. There, you can view general information about currently connected probes as well as recently connected probes.



9.6.1 Information

Information is stored for each probe.

✓ The App is connected to an instrument.

1 Click on ☰.

▸ Main menu opens.

2 Click on Sensors.

▸ The Sensors menu opens.

3 Click on one of the displayed probes.

▸ Information is displayed about the model, order number, serial number and firmware version.

9.6.2 Settings

Settings can also be made for each probe.

✓ The probe is connected to the App.

1 Click on .

▸ Main menu opens.

2  Click on **Sensors**.

▸ The Sensors menu opens.

3 Click on one of the displayed probes.

4 Click on the Settings tab.

5 Click on one of the displayed probes.

▸ Settings appear that can be changed if necessary.

9.7 Settings

9.7.1 Language

1  Click on **Settings**.

▸ The Settings menu opens.

2 Click on **Language**.

▸ A window with different languages opens.

3 Click on the required language.

▸ The required language is set.

9.7.2 Measurement settings

1.  Click on **Settings**.
   - The Settings menu opens.
2. Click on **Measurement settings**.
   - A window with different basic settings for measurement opens.
3. Click on the required settings and change if necessary.
   - The required measurement settings are set.
4.  Exit Measurement settings.

9.7.3 Company details

1.  Click on **Settings**.
   - The Settings menu opens.
2. Click on **Company details**.
   - A window with company details opens.
3. Click on the required data and enter if necessary.
   - The required measurement settings are set.
4.  Exit Company details.

9.7.4 Privacy settings

1.  Click on **Settings**.
   - The Settings menu opens.
2. Click on **Privacy settings**.
   - A window with privacy settings opens.

3 Activate or deactivate the required settings.

▸ The required settings are set.

4  Exit Privacy settings.

9.8 Help and Information

Under Help and Information, you will find information about the instrument, and the tutorial can be called up and implemented. This also where legal information can be found.

9.8.1 Instrument information

1  Click on **Help and Information**.

▸ The **Help and Information** menu opens.

2 Click on **Instrument information**.

▸ The current App version, Google Analytics instance ID, refrigerant version and update are displayed for the connected instrument.

Automatic updates for instruments can be enabled or disabled.

> Use the slider to activate or deactivate **Update for connected instruments**.

9.8.2 Tutorial

1  Click on **Help and Information**.

▸ The **Help and Information** menu opens.

2 Click on **Tutorial**.

▸ The tutorial shows you the most important steps prior to commissioning.

9.8.3 Exclusion of liability

1 Click on **Help and Information**.

▸ The **Help and Information** menu opens.

2 Click on **Exclusion of liability**.

▸ The data protection information and licence usage information is displayed.

9.9 testo DataControl archiving software

The free testo DataControl measurement data management and analysis software enhances the functionality of the testo Smart App measuring instrument with lots of useful functions:

- Manage and archive customer data and measuring site information
- Read out, evaluate and archive measurement data
- Presenting readings in graphic form
- Create professional measurement reports from the existing measurement data
- Conveniently add pictures and comments to measurement reports
- Data import from and data export to the measuring instrument

9.9.1 System requirements

Administrator rights are required for installation.

9.9.1.1 Operating system

The software can be run on the following operating systems:

- Windows® 7
- Windows® 8
- Windows® 10

9.9.1.2 PC

The computer must meet the requirements of the operating system in each case. The following requirements must also be met:

- Interface USB 2 or higher
- DualCore processor with minimum 1 GHz
- Minimum 2 GB RAM
- Minimum 5 GB available hard disk space

- Screen with a resolution of at least 800 x 600 pixels

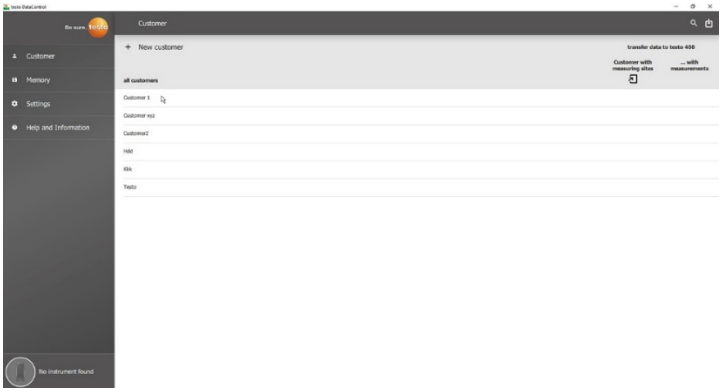
9.9.2 Procedure

✓ To transfer the data from the App to testo DataControl, both instruments must be in the same network.
For example: A notebook with installed testo DataControl and a smartphone with installed testo Smart App are connected to the same WLAN.

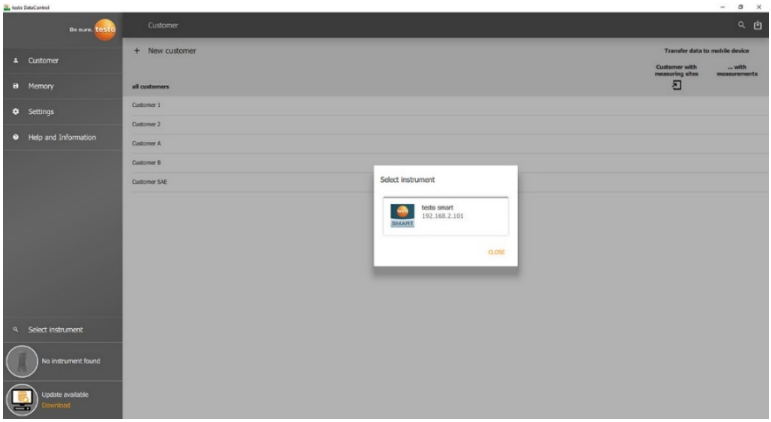
1 Open testo Smart App on the smartphone or tablet.

2 Open the testo DataControl archiving software on the PC.

3 Click on **Select instrument**.

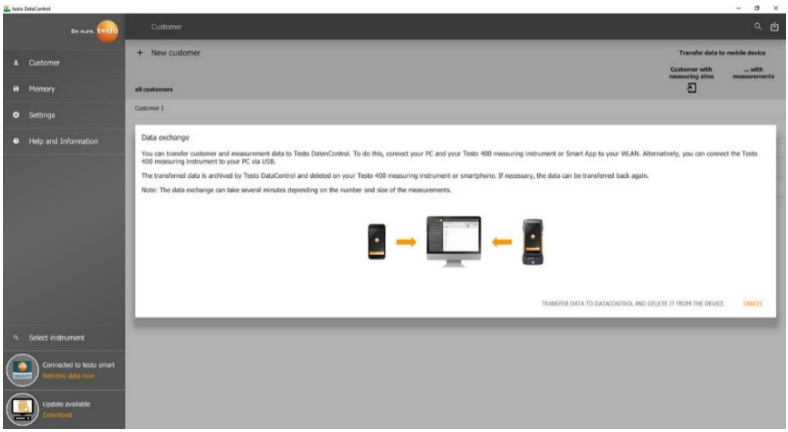


▸ An overview with available instruments opens.



4 Select instrument.

▶ A safety notice is displayed.



5 Click on **Transfer data to DataControl and delete from instrument**.

▶ Data has been successfully transferred.

10 Maintenance

10.1 Calibration

The testo 550s / testo 557s is supplied with a factory calibration certificate as standard.

Recalibration once every 12 months is recommended in many applications.

This can be carried out by Testo Industrial Services (TIS) or other certified service providers.

Please contact Testo for further information.

10.2 Cleaning the instrument

Do not use any aggressive cleaning agents or solvents! Mild household cleaning agents and soap suds may be used.

> If the housing of the instrument is dirty, clean it with a damp cloth.

10.3 Keeping connections clean

> > Keep screw connections clean and free of grease and other deposits; clean with a damp cloth as required.

10.4 Removing oil residues

> > Carefully blow out oil residues in the valve block using compressed air.

10.5 Ensuring measuring accuracy

> Testo Customer Service will be happy to help you as required.

> Check the instrument regularly for leaks. Keep to the permissible pressure range!

> > Calibrate the instrument regularly (recommendation: once a year).

10.6 Changing batteries/rechargeable batteries

✓ The instrument is switched off.

1 Fold out the suspension hook, release the clip and remove the battery compartment lid.



2 Remove the spent (rechargeable) batteries and insert new ones (3 x AAA batteries / Micro / R03) into the battery compartment. Observe the polarity!

3 Attach and close the battery compartment lid (the clip must click into place).

4 Switch the instrument on.

11 Technical data

Feature	Value	
Measurement parameters	Pressure: kPa/MPa/bar/psi Temperature: °C/°F/K Vacuum: hPa / mbar/ Torr / mTorr / inH_2O / micron / inHg / Pa	
Sensor	testo 550s	testo 557s
	Connections: 3 Valves: 3	Connections: 4 Valves: 4
	Pressure: 2 x pressure sensor Temperature: 2 x NTC Vacuum: via external probe Up to 4 Smart Probes via Bluetooth® connection	
Measuring cycle	0.5 s	
Interfaces	Pressure ports: 3 x 7/16" UNF, 1 x 5/8" UNF NTC measurement External vacuum probe	
Measuring ranges	HP/LP pressure measuring range: -100 to 6000 kPa/-0.1 to 6 Mpa/-1 to 60 bar (rel)/-14.7 to 870 psi Temperature measuring range: -50 to +150 °C / -58 to 302 °F Temperature measuring range of testo 115i: -40 to +150 °C / -40 to 302 °F Vacuum measuring range: 0 to 20,000 microns	
Overload	65 bar; 6500 kPa; 6.5 MPa; 940 psi	
Resolution	Resolution pressure: 0.01 bar/0.1 psi/1 kPa/0.001 Mpa Resolution temperature: 0.1 °C / 0.1 °F / 0.1 K Vacuum resolution: 1 micron (from 0 to 1000 microns) 10 microns (from 1000 to 2000 microns) 100 microns (from 2000 to 5000 microns) 500 microns (from 5000 to 10,000 microns) 5000 microns (from 10,000 to 20,000 microns)	

Feature	Value
Accuracy (nominal temperature 22 °C/71.6 °F)	Pressure: ±0.5% of full scale value (±1 digit) Temperature (-50 to 150 °C): ±0.5 °C (±1 digit), ±0.9 °F (±1 digit), testo 115i temperature: ±2.3 °F (-4° to 185 °F) / ±1.3 °C (-20 to +85 °C), Vacuum: ±(10 microns + 10% of m.v.) (100 to 1000 microns)
Measurable media	Measurable media: all media that are stored in the testo 557. Not measurable: ammonia (R717) and other refrigerants which contain ammonia.
Ambient conditions	Operating temperature: -20 to 50 °C / -4 to 122 °F -10 to 50 °C / 14 to 122 °F (vacuum) Storage temperature: -20 to +60 °C/-4 to 140 °F Humidity application range: 10 to 90 %RH
Housing	Material: ABS/PA/TPE Dimensions: approx. 235 x 121 x 80 mm Weight: 930 g (without batteries)
IP class	54
Power supply	Current source: Rechargeable batteries / batteries 4 x 1.5 V type AA / Mignon / LR6 Battery life: > 250 h (display illumination off, Bluetooth off, vacuum probe not connected) > 100 h (display illumination on, Bluetooth on, vacuum probe connected)
Auto off	10 min, if enabled
Display	type: Illuminated LCD Response time: 0.5 s
Directives, standards and tests	EU Directive: 2014/30/EU You can find the EU declaration of conformity under the product-specific downloads on the Testo website: www.testo.com.

Available refrigerants

Feature	Value		
No. of refrigerants	~ 90		
Selectable refrigerants in the instrument	R114	R407C	R444B
	R12	R407F	R448A
	R123	R407H	R449A
	R1233zd	R408A	R450A
	R1234yf	R409A	R452A
	R1234ze	R410A	R452B
	R124	R414B	R453a
	R125	R416A	R454A
	R13	R420A	R454B
	R134a	R421A	R454C
	R22	R421B	R455A
	R23	R422B	R458A
	R290	R422C	R500
	R32	R422D	R502
	R401A	R424A	R503
	R401B	R427A	R507
	R402A	R434A	R513A
	R402B	R437A	R600a
	R404A	R438A	R718 (H2O)
	R407A	R442A	R744 (CO2)
	R11	R227	R417A
	FX80	R236fa	R417B
	I12A	R245fa	R417C
	R1150	R401C	R422A
	R1270	R406A	R426A
	R13B1	R407B	R508A
	R14	R407D	R508B
	R142B	R41	R600
	R152a	R411A	RIS89
	R161	R412A	SP22
	R170	R413A	

12 Tips and assistance

12.1 Questions and answers

Question	Possible causes/solution
 flashes	Batteries are almost empty. > Change the batteries.
The device switches itself off.	Residual capacity of batteries too low. > Change the batteries.
Below range lights up instead of the measurement parameter display	The value is below the permissible measuring range. > Keep within the permissible measuring range.
Above range lights up instead of the measurement parameter display	The value is above the permissible measuring range. > Keep within the permissible measuring range.

12.2 Error Codes

12.2.1 Main screen

Code	Possible cause / solution
E 11	Remove the batteries and reinsert them in the instrument. If the error persists, please contact our service department.
E 12	
E 13	
E 14	
E 15	

12.2.2 Status view

Code	Possible cause / solution
E 30	An old version is still running on the testo 550s / testo 557s. Update the instrument. If the error persists, please contact our service department.
E 31	testo 550s / testo 557s is still using the old version refrigerant. If you wish to use the latest refrigerant, please update it again. If the error persists, please contact our service department.
E 32	Remove the batteries and reinsert them in the instrument. If the error persists, please contact our service department.

12.3 Accessories and spare parts

Description	Order no.
Clamp probe for temperature measurement on pipes (1.5 m)	0613 5505
Clamp probe for temperature measurement on pipes (5 m)	0613 5506
2 x clamp temperature probes kit (NTC) for digital manifolds	0613 5507
Pipe wrap probe with Velcro tape for pipe diameters of up to max. 75 mm, Tmax +75 °C, NTC	0613 4611
Water tight NTC surface probe	0613 1912
Precise, robust NTC air probe	0613 1712
Spare valve set	0554 5570
Magnetic strap	0564 1001
External vacuum probe	0564 2552

For a complete list of all accessories and spare parts, please refer to the product catalogues and brochures or visit our website www.testo.com

13 Support

You can find up-to-date information on products, downloads and links to contact addresses for support queries on the Testo website at: www.testo.com.

If you have any questions please contact your local dealer or the Testo Customer Service. You can find contact details on the back of this document or online at **www.testo.com/service-contact.**

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