



testo 552 - Digital Vacuum Gauge with Bluetooth

Instruction manual



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1 Safety and waste disposal

1.1 About this document

- The instruction manual is an integral part of the instrument.
- Keep this document throughout the entire operating life of the instrument.
- Always use the complete original instruction manual.
- Please read this instruction manual through carefully and familiarise yourself with the product before putting it to use.
- Pay particular attention to the safety instructions and warning advice in order to prevent injury and damage to the product.

1.2 Safety

General safety instructions

- Only operate this instrument in the proper manner, for its intended purpose and within the parameters specified in the technical data.
- Do not apply any force to open the instrument.
- Do not operate the instrument if there are signs of damage at the housing, mains unit or connected cables.
- Always comply with the locally valid safety regulations when carrying out measurements. Dangers may also arise from objects to be measured or the measuring environment.
- Do not store the product together with solvents.
- Do not use any desiccants.
- Only perform maintenance and repair work on this instrument that is described in this documentation. Follow the prescribed steps exactly.
- Use only original spare parts from Testo.
- Make sure that your refrigeration system is properly earthed, as otherwise the measuring instrument might get damaged.
- 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.

1 Safety and waste disposal

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.

Batteries

- Improper use of batteries may cause the batteries to be destroyed, or lead to injury due to current surges, fire or escaping chemicals.
- Only use the batteries supplied in accordance with the instructions in the instruction manual.
- Do not short-circuit the batteries.
- Do not take the batteries apart and do not modify them.
- Do not expose the batteries to heavy impacts, water, fire or temperatures in excess of 60 °C.
- Do not store the batteries in the proximity of metal objects.
- Do not use any leaky or damaged batteries.
- In the event of contact with battery acid: rinse affected areas thoroughly with water, and if necessary consult a doctor.
- Take batteries out of the instrument immediately if they are not functioning properly or if they show signs of overheating.
- Remove all batteries from the instrument if it is to remain unused for a longer period.

Warnings

Always pay attention to any information denoted by the following warnings. Implement the precautionary measures specified!

Display	Explanation
 WARNING	Indicates possible serious injury.
 CAUTION	Indicates possible minor injury.
ATTENTION	Indicates possible damage to equipment.

1.3 Waste disposal

- Dispose of faulty rechargeable batteries and spent batteries in accordance with the valid legal specifications.
- At the end of its useful life, dispose of the instrument via separate collection for electro- and electronic devices. Please observe local regulations concerning waste disposal. Or alternatively return the product to Testo for disposal.

2 General technical data

Feature	Values
Vacuum measuring range	0 to 26.66 mbar / 0 to 20,000 microns
Sensor overload (relative)	5 bar / 72 psi
Vacuum resolution	1 micron (from 0 to 1,000 microns) 10 microns (from 1,000 to 2,000 microns) 100 microns (from 2,000 to 5,000 microns) 500 microns (from 5,000 to 10,000 microns) 5,000 microns (from 10,000 to 20,000 microns)
Vacuum accuracy	±(10% of m.v. +10 microns) (100 to 1,000 microns)
Operating temperature	-10 to 50 °C / 14 to 122 °F
Storage temperature	-20 to 50 °C / -4 to 122 °F
Temperature measuring range	-10 to 50 °C / 14 to 122 °F
Temperature resolution	0.1 °C / 0.1 °F
Battery life	50 h (without background illumination and Bluetooth)
Protection class	IP 42
Parameter	mmHG, Torr, mbar, hPa, micron, inH ₂ O, inHg, Pa
Measuring cycle	0.5 sec
Sensor	1× Pirani sensor
Connections	- 2× 7/16" UNF - 1× MiniDIN (t570)

Setting values alarm treshold

Unit	Setting range	Resolution
mbar / hPa	0 - 7,5	0,05
micron	0 - 7500	50

2.1 Bluetooth module



The use of the wireless module is subject to the regulations and stipulations of the respective country of use, and the module may only be used in each case in countries for which a country certification has been granted.

The user and every owner undertake to adhere to these regulations and prerequisites for use, and acknowledge that the re-sale, export, import, etc. in particular in, to or from countries without wireless permits, is their responsibility.

Feature	Value
Bluetooth	Range 20 m (free field) (Varies depending on the capability of the mobile terminal device used.)
Bluetooth type	LSD Science & Technology Co., Ltd L series BLE module (08 May 2013) based on TI CC254X chip
Qualified Design ID	D030430
Bluetooth radio class	Class 3
Bluetooth company	10274

3 Description of the instrument

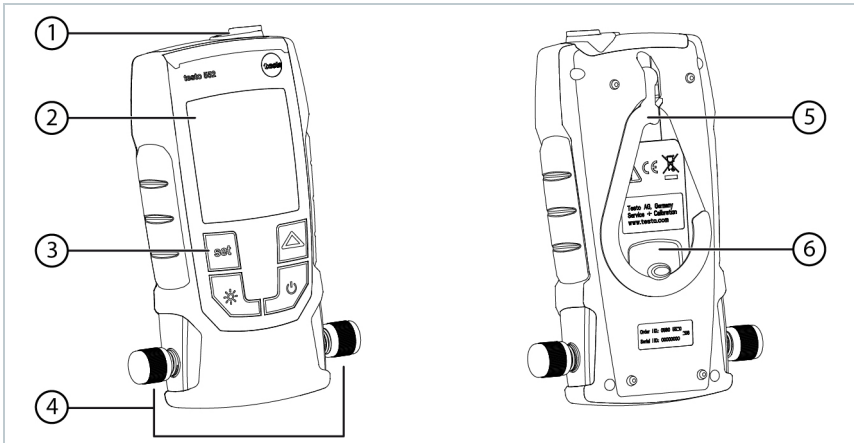
3.1 Use

The testo 552 is a digital vacuum gauge for the precise measurement of extremely small pressures in the vacuum range. This allows you to monitor the evacuation (usually during commissioning) of refrigeration systems and heat pumps.

With the testo 552, you can therefore measure the current pressure in a refrigeration system, and thus gather information about the degree of dehumidification and the removal of foreign matter (oils, foreign gases, etc.).

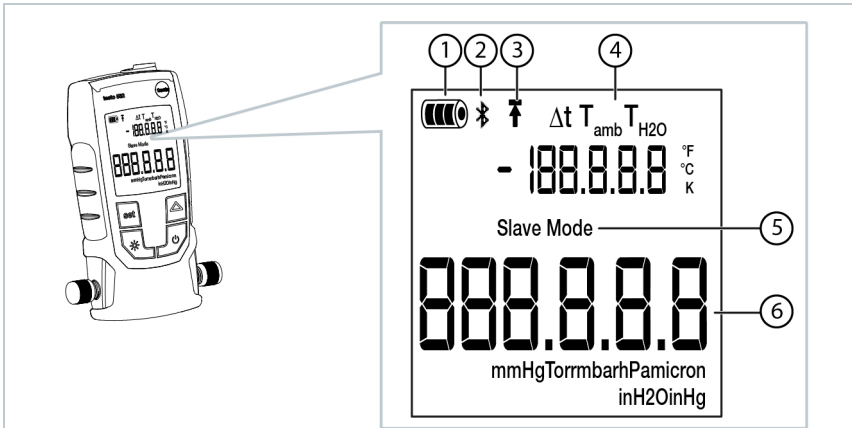
A vacuum gauge is always used in conjunction with a vacuum pump (generates the vacuum). A manifold (analogue or digital) is also often used in order to obtain controlled access to the refrigeration system.

3.2 Instrument overview



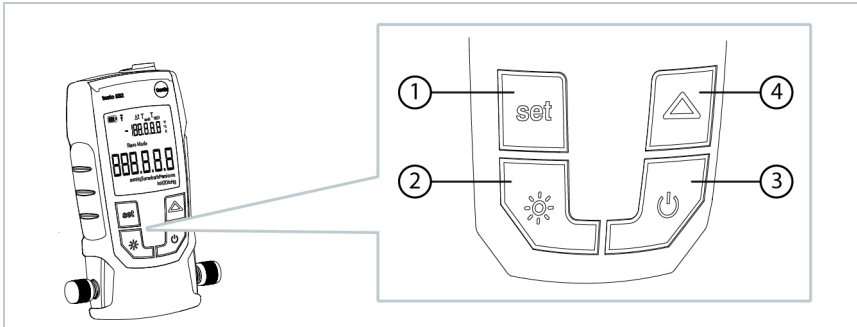
Element	Function
1 MiniDIN probe socket	Cable connection for connecting to the testo 570.
2 Display	Displays instrument status icons, measuring units and measuring values.
3 Control keys	Instrument operation.
4 Connections 7/16" UNF, brass	Connection of refrigerant hoses, vacuum pump, manifolds, etc..
5 Hook	Suspension device
6 Battery compartment	Contains two AA batteries.





3.3 Displays overview



Element	Function
1 Icon [🔋]	Displays the remaining battery capacity. 🔋 >75% 🔋 >50% 🔋 >25% 🔋 <10%
2 Icon [📶]	Bluetooth® appears when Bluetooth has been activated on the instrument.
3 Icon [📏]	An alarm threshold is set.
4 Temperature display	<ul style="list-style-type: none"> - selected, currently measured temperature - Measurement parameter: T_{H_2O} = evaporation temperature of water T_{amb} = ambient temperature Δt = temperature difference between evaporation temperature of water and ambient temperature - unit set (°C, °F)
5 Slave Mode	Appears when the testo 552 is connected to the testo 570 via a connecting cable and the testo 570 is in Evacuation mode.
6 Pressure display	Displays the currently measured pressure, the measurement parameter and the unit set (mmHG, Torr, mbar, hPa, micron, inH2O, inHg).

3.4 Control keys overview



Element	Function
1 set	<ul style="list-style-type: none"> - Switches to the settings. - Switches between the set-up options. (This function is disabled, when connected to the App with BT)
2 	Switches the display illumination on or off.
3 	Switches the instrument on or off.
4 	<ul style="list-style-type: none"> - Switches between the temperature displays. - Navigates in the Set menu.
5 set + 	Switches Bluetooth® on or off (press and hold down for 3 sec.)

3.5 Connection options overview

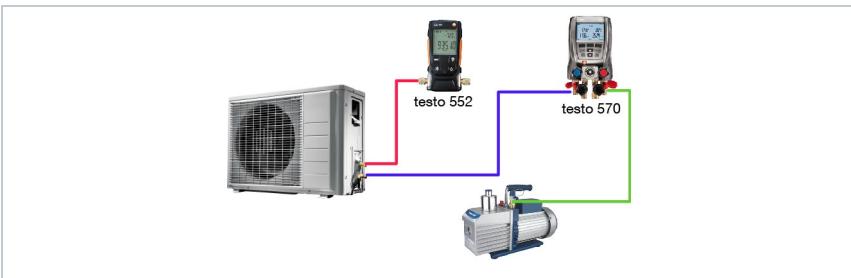


In regard to the following connection options, the testo 570 is used to represent any manifold and can use the testo 552 as a probe via a MiniDIN connecting cable (see Option 2).

Option 1 (recommended)



The testo 552 is connected at the point that is furthest from the vacuum pump. This ensures that a sufficiently deep vacuum is generated throughout the system in order to remove any moisture or foreign gases that may be present.



Option 2

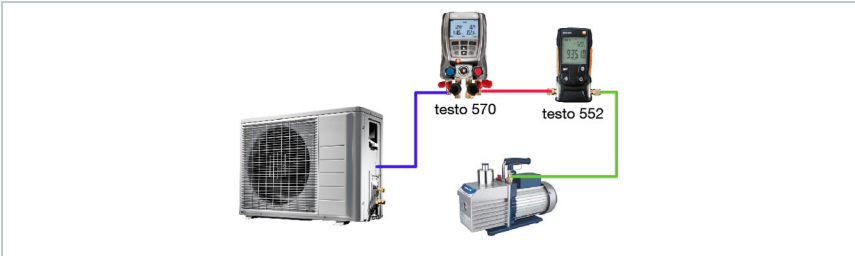


Option 3

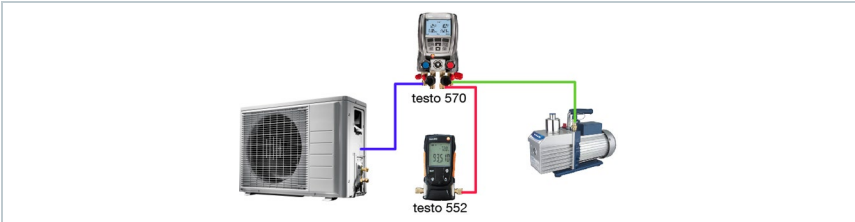


3 Description of the instrument

Option 4



Option 5



4 Operation

4.1 Connecting




Always use refrigerant hoses that are specifically intended for evacuations.

- 1 - Remove sealing caps.
- Connect the testo 552 to the circuit.




4.2 Switching instrument on and off

- 1 - Press .
- ▶ The instrument switches on or off.
- ▶ The instrument displays 000000 when ambient pressure is applied to the connections. The display indicates the applied pressure value once the applied pressure is within the measuring range. (0 to 20,000 microns).



4.3 Switching background illumination on and off

- 1 - Switch the instrument on.
- Press .
▶ The background illumination switches on or off.

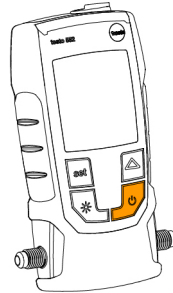


4.4 Setting units and AutoOff

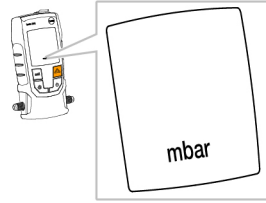


The set-up menu must always be completely navigated through, even if only one parameter needs to be changed.

- 1 - Switch the instrument on.
- 2 - Press **set** to change settings.



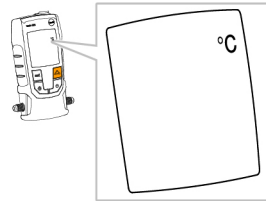
- 3 - Press Δ to set the pressure unit required.



- 4 - Press **set**.
- ▶ The unit is set.
 - ▶ The display shows the temperature unit.



- 5 - Press Δ to set the temperature unit required.

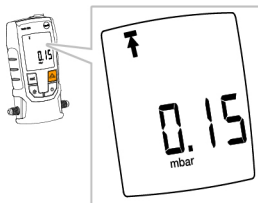


- 6 - Press **set**.
- ▶ The temperature unit is set.
 - ▶ The display shows the setting for the alarm threshold.



Adjusting the alarm threshold causes an alarm to be triggered when the set value is exceeded.

- 7 - Press Δ to set the alarm threshold.



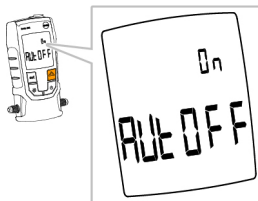
- 8 - Press **set**.

- ▶ The alarm threshold is set.
- ▶ The display shows the AutoOff setting.



If AutoOff is activated, the instrument switches off after 15 minutes when ambient pressure is applied to the sensor.

- 9 - Press Δ to switch AutoOff on or off.



- 10 - Press **set**.

- ▶ All settings are stored.
- ▶ The display changes to the measuring mode.



- ▶ The instrument can now be used.



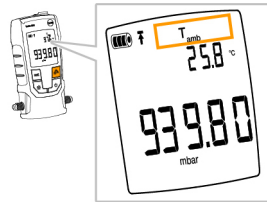
4.5 Displaying temperature values

- 1 - Press Δ to change the temperature measurement parameter.



- ▶ The temperature measurement parameter switches between TH2O, Tamb and t.

i t is displayed in K for °C, and in °F for °F.



4.6 Establishing a Bluetooth® connection



You need a tablet or smartphone with the Testo Smart Probes App already installed on it to be able to establish a Bluetooth connection.

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

Compatibility:

Requires iOS 8.3 or later / Android 4.3 or later

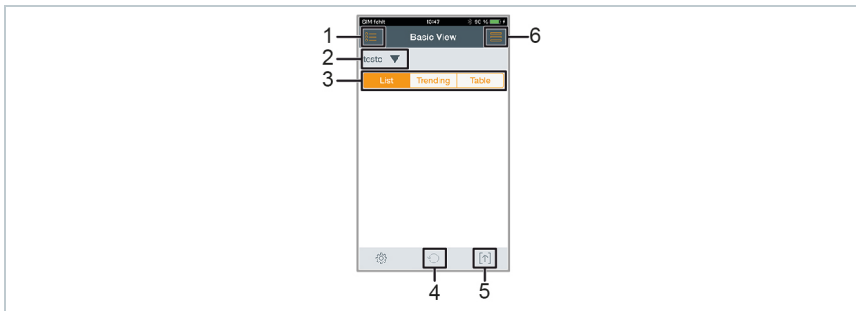
Requires Bluetooth 4.0



- 1 - Press **set** and **△** simultaneously and hold down for 3 seconds.
 - ▶ - When the Bluetooth icon is shown on the display, Bluetooth is switched on.
 - Once the APP is opened, the instrument will be connected automatically if it is within range. The instrument does not have to be connected to the smartphone / tablet beforehand via settings.
- 2 - Press **set** and **△** simultaneously and hold down for 3 seconds.
 - ▶ - When the Bluetooth icon is no longer shown on the display, Bluetooth is switched off.

Display	Explanation
📶 flashes	There is no Bluetooth® connection, or a potential connection is being searched for.
📶 is permanently displayed	There is a Bluetooth® connection
📶 is not displayed	Bluetooth® is disabled.


4.7 Overview of operating controls



1. Choice of applications.
2. Display of connected testo 552.
3. Switch between the views (list, graphic diagram, table).
4. Restarts the measuring value recording in graph and table format.
5. Export the readings.
6. Options menu.

4.8 App options


4.8.1 Set “Language”

- 1 | - Tap  -> Settings -> Language
- ▶ | A selection list is displayed.
- 2 | - Tap the required language.
- ▶ | The selected language receives a green check mark.
- 3 | - Tap ◀ several times until the measurement view is displayed.
- ▶ | The language has been changed.

4.8.2 Display Tutorial




The Tutorial guides you through the first steps when operating the testo Smart Probes App.

- 1 | - Tap  -> Tutorial
- ▶ | The Tutorial is displayed. In Tutorial, swipe to display the next page.
- 2 | - Tap X to close the Tutorial.

4.8.3 Display testo website





An internet connection is required to display the testo website.

- 1 | - Tap  -> About/Link -> Testo
- ▶ | The page www.testo-international.com is displayed.

4.8.4 Display App Info





In App Info you can find the version number of the installed App.

- 1 | - Tap  -> About/Link -> Info
- ▶ | The App's version number is displayed, as well as the ID.
- 2 | - Tap  several times until the measurement view is displayed.



4.9 List, graphic diagram and table view

The available readings can be displayed in different ways in the various views.


- List view
Displays the readings transmitted by the testo 552 in the form of a list.
Readings from all connected testo 552 are displayed here.
- Graphic diagram view
The graphical progression of up to four different readings can be displayed.
Tap on a reading above the diagram to select the readings to be displayed.
- Table view
In the Table view, all readings are displayed in sequence according to date and time. The different readings from the individual testo 552 can be selected by pressing  .

4.10 Exporting readings



4.10.1 Excel (CSV) Export

- 1 | - Press .
- ▶ | A selection of export options appears.
- 2 | - Press Export Excel (CSV).
- ▶ | A list of readings is displayed.
- 3 | - Press .
- ▶ | A selection of sending/export options appears.
- 4 | - Select your required sending/export options.

4.10.2 PDF Export

- 1 | - Press .
- ▶ | A selection of export options appears.
- 2 | - Press Export PDF.
- ▶ | A PDF is created and saved on your mobile terminal device (Android only) or sent via e-mail (iOS and Android).
- 3 | - Press Done to exit the detailed view.

4.11 Exporting a graph

- 1 | - Press .
- ▶ | A selection of export options appears.
- 2 | - Press Export Graph.
- ▶ | An image file of the trend display is created.
- 3 | - Press .
- ▶ | A selection of sending/export options is displayed.
- 4 | - Tap on the sending/export option you need

4.12 Operating as a probe on the testo 570

The testo 552 has no save or transmission function of its own.

By connecting the testo 552 to the testo 570, the data is transferred to the testo 570. From there the data can be saved or managed via the EasyKool software.



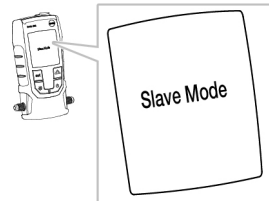
In combination with the testo 570, the testo 552 can be used as a high precision vacuum probe, if connected to the front of the testo 570 using the connection cable 0554 5520. The firmware version 1.09 or later must be installed for this.

Before connecting both instruments, the testo 552 must be switched on and the same pressure unit must be set on both instruments.

The testo 570 will only connect to the testo 552 once the Evacuation mode has been activated. When used as a probe, the testo 552 cannot be operated, all keys are deactivated.

In order to be able to use the readings from the testo 552 via the testo 570 in the EasyKool software, you need EasyKool software version 4.0 or later.

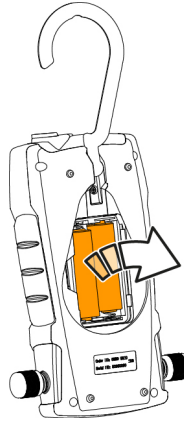
- 1 - Connect the connecting cable to the MiniDIN probe socket of the testo 552.
- 2 - Connect the connecting cable to the front-end MiniDIN probe socket of the testo 570.
- 3 - On the testo 570 set Evacuation mode.
 - ▶ The testo 552 switches to Slave mode.
 - ▶ The keys of the testo 552 are deactivated.
 - ▶ The readings are transmitted to the testo 570.
- 4 - Remove the connecting cable.
 - ▶ The testo 552 exits Slave mode.



5 Maintenance

5.1 Changing batteries

- 1 - Switch the instrument off.
- 2 - Flip hook up.
- 3 - Open the battery compartment.
- 4 - Remove batteries.
- 5 - Insert new batteries, observing the indications inside the battery compartment.
- 6 - Close the battery compartment.
- 7 - Fold hook down.



5.2 Cleaning the instrument



Contaminants such as oil may impair the accuracy of the vacuum sensor. Complete the following steps to clean the sensor.

CAUTION

Carrying out cleaning with the instrument switched on may result in damage to the sensor!

- Before cleaning, switch the instrument off!

CAUTION

Damage to the sensor due to sharp objects!

- Do not insert any sharp objects into the connections!

- 1 - Switch the instrument off.
- 2 - Put a few drops of rubbing alcohol into one of the two connections.
- 3 - Seal the opening by placing your finger on it or screw on the sealing caps.

5 Maintenance

- Shake the instrument briefly.
- 4 - Remove all the alcohol from the instrument.
- 5 - Repeat this process at least twice.
- 6 - Leave the instrument to dry for at least 1 hour. To dry the sensor faster, you can connect the probe directly to a vacuum pump and draw vacuum.

6 Tips and assistance

6.1 Questions and answers

Question	Possible cause / solution
Readings are incorrect.	<ul style="list-style-type: none"> - Check that the testo 552 is connected properly. - Connect the testo 552 directly to the vacuum pump in order to check the values. - Check that all hoses are leak-tight. - Clean the sensor as described in the Cleaning the instrument section.
Instrument displays oooooo	The applied pressure is outside the specified measuring range. (0 to 20,000 microns).
Err0	- No connection between sensor and instrument, send instrument in to Testo Customer Service.
Err1	- No calibration possible, send instrument in to Testo Customer Service.
Err2	- Temperature outside the measuring range, adjust temperature value.
Err3	- Temperature outside the measuring range, adjust temperature value.
Err4	- Sensor broken, send instrument in to Testo Customer Service.
Err5	- Sensor's electrical circuit interrupted, send instrument in to Testo Customer Service.

If we have not been able to answer your question, please contact your dealer or Testo Customer Service. You will find contact details on the back of this document or on the website www.testo.com/service-contact

6.2 Accessories and spare parts

Description	Item no.
Connecting cable for testo 552	0554 5520

7 EC Declaration of Conformity

Testo SE & Co. KGaA hereby declares that the testo 552 (0560 5522) comply with Directive 2014/53/EU.

The full text of the EU Declaration of Conformity can be found on the following website: <https://www.testo.com/eu-conformity>.



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