testo · Smart Probes

Instruction manual

1 Contents

2 Safety and the environment

2.1. About this document

Use

> Please read this documentation through carefully and familiarize yourself with the product before putting it to use. Pay particular attention to the safety instructions and warning advice in order to prevent injuries and damage to the products.

> Keep this document to hand so that you can refer to it when necessary.

> Hand this documentation on to any subsequent users of the product.

Symbols and writing standards

Representation	Explanation
⚠	Warning advice, risk level according to the signal word: **Warning!** Serious physical injury may occur. **Caution!** Slight physical injury or damage to the equipment may occur. > Implement the specified precautionary measures.
ⓘ	Note: Basic or further information.
1. ... 2. ...	Action: more steps, the sequence must be followed.
> ...	Action: a step or an optional step.
- ...	Result of an 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.
... | ...	Functions/paths within a menu.
"..."	Example entries

2.2.   Ensure safety

> Do not operate the instrument if there are signs of damage at the housing, mains unit or feed lines.

> Do not perform contact measurements on non-insulated, live parts.

> Do not store the product together with solvents. Do not use any desiccants.

> Carry out only the maintenance and repair work on this instrument that is described in the documentation. Follow the prescribed steps exactly. Use only original spare parts from Testo.

> Dangers may also arise from the systems being measured or the measuring environment: Note the safety regulations valid in your area when performing the measurements.

2.2.1.   Safety and the testo 510i

• Magnetic field

• May be harmful to those with pacemakers.

> Keep a minimum distance of 10 cm between pacemaker and instrument.

2.2.2.   Safety and the testo 549i

• Risk of injury due to pressurized, hot, cold or toxic refrigerants/media!

> Only to be used by qualified staff.

> Wear protective goggles and safety gloves.

> Before applying pressure to the measuring instrument: always fix the instrument tightly onto the pressure connection

> Comply with the permissible measuring range (0 to 60 bar). Pay particular attention to this in systems with R744 refrigerant, since these are frequently operated at higher pressures!

2.2.3.   Safety and the testo 805i

- •   Laser radiation! Class 2 laser
- >   Do not look into the laser beam!

2.3.   Protecting the environment

- >   Dispose of faulty rechargeable batteries/spent batteries in accordance with the valid legal specifications.
- >   At the end of its useful life, send the product to the separate collection for electric and electronic devices (observe local regulations) or return the product to Testo for disposal.

3   Specifications

Testo Smart Probes are different hand-held measuring instruments for various applications that communicate with your mobile terminal devices by means of an app. The respective Smart Probe performs the measurement and is operated by your mobile terminal device. The various Smart Probes allow you to measure the temperature, humidity, flow, and volume flow at the outlet, or perform pressure, differential pressure, and non-contact temperature measurements in the duct.

4 Product description

4.1. Overview of Smart Probes

1 Measuring unit
2 LED
3 Key
4 Battery compartment (at the back)
5 Direction of flow testo 405i / testo 410i (not shown)
  (An arrow on the top of the housing displays the direction of
  flow in which the measuring instrument has been calibrated and
  which achieves the best measurement results. Please note the
  direction of flow during usage.)

4.2. LED status

LED status	Meaning
Flashing red	Low battery status
Flashing yellow	• Smart Probe is switched on. • Smart Probe is searching for a BT connection, but is not connected.
Flashing green	• Smart Probe is switched on. • Bluetooth is connected.

5 First steps

5.1. Switching on/off

testo 549i
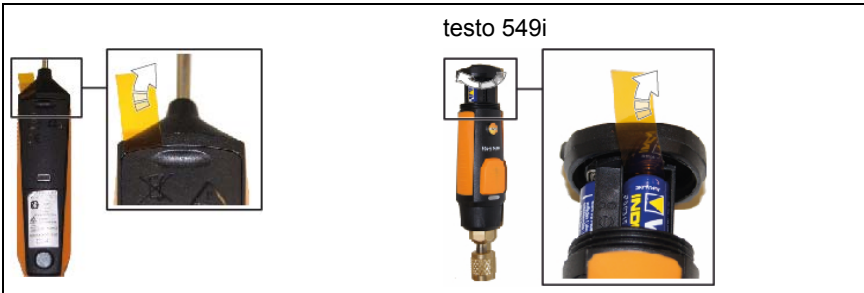
5.1.1. Switching on

1. Pull the film out of the battery compartment.
2. Press the button on your Smart Probe.
- The Smart Probe switches on.

5.1.2. Switching off

1. Press and hold the button on your Smart Probe.
- The Smart Probe switches off.

5.2. Establishing Bluetooth® connection

i 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
- Tested with the following smartphones/tablets:
 www.testo-international.com/de/smartprobesmanuals/

✓ The testo App Smart Probe is installed on your terminal device and ready for use.

1. Press the button on the Smart Probe.
- The Smart Probe switches on.
- The LED flashes yellow while connecting via Bluetooth and then flashes green once the connection is established.
- The connection between the Smart Probe and your mobile terminal device is established.

5.3. Transmitting readings

✓ The Smart Probe is switched on and connected to your mobile
terminal device via Bluetooth.

- The current readings are automatically displayed in the App.

6 Using the App

6.1. Overview of operating controls
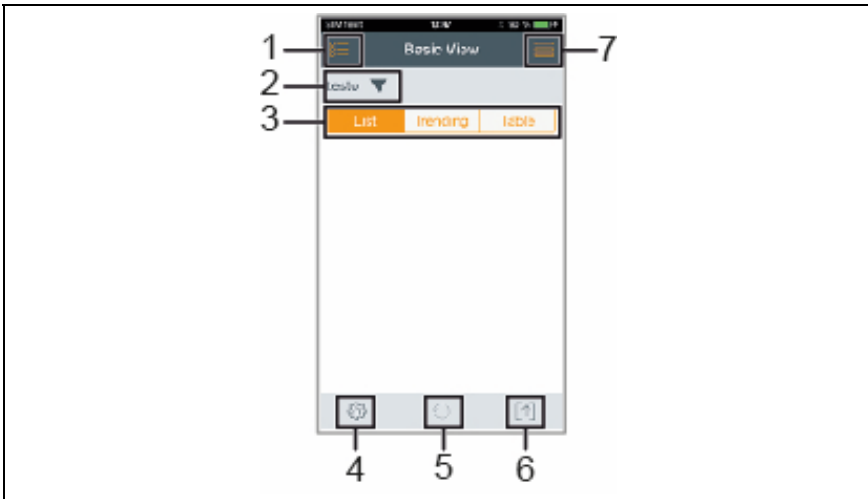
1   Choice of applications.

2 testo ▼ Display of connected Smart Probes.

3   Switch between the views (list, graphic diagram, table)

4 ⚙ Measurement settings. (The menu changes depending on
the Smart Probe connected and the application selected)

5 ◯ Restarts the measuring value recording in graph and table
format.

6 ⬆ Export the readings.

7 ☰ Options menu

6.2.   App options

6.2.1.   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.

6.2.2.   Display Tutorial

i   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**.

6.2.3.   Show help

i   An internet connection is required to display the testo website.

1. Tap ▤ -> **Help**
- The page **Fehler! Linkreferenz ungültig.** is displayed.

6.2.4.   Display testo website

i   An internet connection is required to display the testo website.

1. Tap ▤ -> **About/Link** -> **Testo**
- The page **Fehler! Linkreferenz ungültig.** is displayed.

6.2.5.   Display App Info

i   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.

6.3. Application menus

6.3.1. Selecting the application menu

1. Press [icon].
- A selection of menus for various applications is displayed.
2. Select the required application.
- The selection disappears and your selected application is displayed.

6.3.2. Setting favourites

1. Press [icon].
- A selection of applications is displayed.
2. Press ☆ next to the application that you would like to designate as a favourite.
- The asterisk is displayed in orange ★, and the selected application is listed under **Show Favorites**.

6.3.3. Displaying information about an application

1. Press [icon].
- A selection of applications is displayed.
2. Press ⓘ.
- The information about an application is displayed.

6.4. Displaying Smart Probe details

✓ One or more Smart Probes are connected to your mobile terminal device via Bluetooth.
1. Press testo ▼.
- All connected Smart Probes are displayed in this list.
2. Select the Smart Probe to display the details you would like to see.
- A list appears with the details for the Smart Probe.
3. Press **Close** to exit the detailed view.

6.5. 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 Smart Probe in the form of a list. Readings from all connected Smart Probes 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 Smart Probes can be selected by pressing ◄ ►.

6.6. Settings view

1. Press 🔅 and select **Edit View**.
- An overview of all Smart Probes and their measurement parameters is displayed.
2. Move the required reading up or down to the position it should be.
3. Press 👁 to hide a Smart Probe reading.
4. Press ▼ to select the unit for a reading.
5. Press **OK** to confirm your settings

6.7. Retaining readings

Readings are retained in the "**List**" view; in the "**Trend**" and "**Table**" view, the current readings are still displayed.
- ✓ The Smart Probe is switched on, connected to your mobile terminal device via Bluetooth, and readings are transmitted.
1. Press the button on your Smart Probe.
- The current reading is retained.
2. Press the key again.
- The instrument again displays the current readings.

6.8.   Exporting readings

6.8.1. 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.

6.8.2. 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.

6.8.3. 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.

7 Maintaining the product

7.1. Maintaining Smart Probes

Cleaning the instrument
> Do not use any aggressive cleaning agents or solvents!
> Mild household cleaning agents or soap suds may be used.
> If the housing of the instrument is dirty, clean it with a damp cloth.

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

Ensuring measuring accuracy
> Testo Customer Service would be glad to further assist you if you so wish.
> Keep within the permissible measuring range!
> Calibrate instrument regularly (recommendation: once a year).

7.2. Smart Probes App

The testo Smart Probes App is kept updated via the Play Store for Android devices and the App Store for iOS devices. Please update the App as soon as a new update is available. We therefore recommend that you do not disable automatic notifications when new updates are available.

8 Tips and assistance

8.1. Questions and answers

Question	Answer
LED flashes red	• Batteries are almost spent. • Change batteries.
The instrument switches itself off	Remaining battery capacity insufficient > Change the batteries.
--- lights up instead of the measurement parameter display	• Outside the permissible measuring range. > Keep within the permissible measuring range. or • Sensor is defective > Contact your testo Service department.
The App cannot be found in the store	• No correct search terms were entered. > Enter an unambiguous search term, e.g.: "testo Smart Probes" or use the link on the testo website. or • Your mobile terminal device does not meet the technical requirements (iOS 8.3 or later, Android 4.3 or later / Bluetooth 4.0 (Low Energy)) > Please check the technical data for your mobile terminal device

8.2. Accessories and spare parts

Designation	Item number
testo Smart Case (Refrigeration) for storing and transporting 2 × testo 115i and 2 × testo 549i, dimensions 250 × 180 × 70 mm	0516 0240
testo Smart Case (Heating) for storing and transporting testo 115i, testo 410i, testo 510i, testo 549i and testo 805i, dimensions 250 × 180 × 70 mm	0516 0270
testo Smart Case (VAC) for storing and transporting testo 405i, testo 410i, testo 510i, testo 605i testo 805i and testo 905i, dimensions 270 × 190 × 60 mm	0516 0250

9 Technical data

9.1. Bluetooth module

> **i** 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.

9.2. General technical data

> **i** All accuracy specifications apply at a nominal temperature of 22 °C.

9.2.1. testo 905i

Feature	Values
Measuring range	-50 to 150 °C / -58 to 302 °F
Accuracy ± 1 digit	± 1 °C / ± 1.8 °F
Resolution	0.1 °C / 0.1 °F
Measurement rate	1/sec
Available units of measurement	°C, °F
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-20 °C to +50 °C / -4 to 122 °F
Battery type	3 micro batteries AAA
Battery life	150 h
Dimensions	222 mm × 30 mm × 24 mm Probe shaft length 100 mm Probe shaft diameter 4 mm
Directives, standards and tests	EU guideline: 2014/30/EU

9.2.2. testo 410i

Feature	Values
Measuring range	0.4 to 30 m/s / 80 to 5,900 fpm -20 to 60 °C / -4 to 140 °F
Accuracy ± 1 digit	± (0.2 m/s + 2% of m.v.) (0.4 to 20 m/s) ± (40 fpm + 2% of m.v.) (80 to 4,000 fpm) ± 0.5 °C / ±0.9 °F
Resolution	0.1 °C / 0.1 °F 0.1 m/s / 1 fpm
Measurement rate	1/sec
Available units of measurement	°C, °F, m/s, fpm, m³/h, cfm, l/s
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-20 °C to +50 °C / -4 to 122 °F
Battery type	3 micro batteries AAA
Battery life	130 h
Dimensions	154 mm × 43 mm × 21 mm 40 mm vane diameter
Directives, standards and tests	EU guideline: 2014/30/EU

9.2.3. testo 405i

Feature	Values
Measuring range [1]	0 to 30 m/s / 0 to 5,900 fpm -20 to 60 °C / -4 to 140 °F
Accuracy ± 1 digit	± (0.1 m/s + 5% of m.v.) (0 to +2 m/s) ± (0.3 m/s + 5% of m.v.) (2 to +15 m/s) ± (20 fpm + 5% of m.v.) (0 to +394 fpm) ± (59 fpm + 5% of m.v.) (394 to +3,000 fpm) ± 0.5 °C / ±0.9 °F
Resolution	0.01 m/s / 1 fpm 0.1 °C / 0.1 °F

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[1] Please switch on the Smart Probe in the following ambient conditions: > 10 °C, air velocity 0 m/s = protective cap closed to enable the sensor to heat up.

Feature	Values
Measurement rate	1/sec
Available units of measurement	°C, °F, m/s, fpm, m³/h, cfm, l/s
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-20 °C to +50 °C / -4 to 122 °F
Battery type	3 micro batteries AAA
Battery life	15 hrs
Dimensions	200 mm × 30 mm × 41 mm Extendible telescope 400 mm Probe shaft diameter 12 mm Probe tip diameter 9 mm
Directives, standards and tests	EU guideline: 2014/30/EU

9.2.4. testo 549i

Feature	Values
Measuring range	0 to 60 bar (rel) / 0 to 870 psi (rel)
Overpressure	65 bar
Accuracy ± 1 digit	0.5% of final value of measuring range
Resolution	0.01 bar / 0.1 psi
Measurement rate	2/sec
Available units of measurement	bar, psi, MPa, kPa
Connection	1× 7/16" UNF / 1/4" SAE connection
Overload rel.	65 bar
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-20 °C to +50 °C / -4 to 122 °F
Battery type	3 micro batteries AAA
Battery life	150 hrs
Measurable media	CFC, HFC, HCFC, N, H20, CO2
Dimensions	125 mm × 32 mm × 31 mm
Directives, standards and tests	EU guideline: 2014/30/EU

9.2.5.   testo 805i

Feature	Values
Measuring range	-30 °C to 250 °C / -22 to 482 °F
Accuracy ± 1 digit	± 1.5 °C or ± 1.5% of m.v. (0 to 250 °C) ± 2.0 °C (-20.0 to -0.1 °C) ± 2.5 °C (-30.0 to -20.1 °C) ± 2.7 °F or ± 1.5% of m.v. (32 to 482 °F) ± 3.6 °F (-4 to 32 °F) ± 4.5 °F (-22 to -4 °F)
Resolution	0.1 °C / 0.1 °F
Measurement rate	2/sec
Available units of measurement	°C, °F
Connection	7/16" – UNF
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-10 °C to +50 °C / 14 to 122 °F
Battery type	3 micro batteries AAA
Battery life	30 hrs
Optics	10:1
Laser marking	Diffraction lens as laser marking (laser circle)
Dimensions	140 mm × 36 mm × 25 mm
Emission level	Adjustable from 0.1 to 1.0
Directives, standards and tests	EU guideline: 2014/30/EU

9.2.6.   testo 605i

Feature	Values
Measuring range	-20 to 60 °C, -4 to 140 °F, 0 to 100% RH
Accuracy ± 1 digit	± 1.8% RH + 3% of m.v. at +25 °C (5 to 80% RH) ± 0.03% RH / K (0 to 60 °C) ± 0.8 °C (-20 to 0 °C) / ± 1.44 °F (-4 to 32 °F) ± 0.5 °C (0 to +60 °C) / ± 0.9 °F (32 to 140 °F)
Resolution	0.1 °F / 0.1 °C 0.1% RH

Feature	Values
Measurement rate	1/sec
Available units of measurement	°C, °F, %RH, °Ctd, °Ftd, wetbulb °C, wetbulb °F
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-20 °C to +50 °C / -4 to 122 °F
Battery type	3 micro batteries AAA
Battery life	150 h
Dimensions	243 mm × 30 mm × 24 mm Probe shaft length 100 mm
Directives, standards and tests	EU guideline: 2014/30/EU

9.2.7. testo 510i

Feature	Values
Measuring range	-150 … 150 hPa / 60 in wc
Accuracy ± 1 digit	± 0.05 hPa (0 to 1.00 hPa) / ± 0.02 in wc (0 to 0.4 in wc) ± 0.2 hPa + 1.5% of m.v. (1.01 to 150 hPa) ± 0.08 in wc + 1.5% of m.v. (0.41 to 60 in wc)
Overpressure	500 mbar
Resolution	0.01 hPa / 0.01 inch wc
Measurement rate	2/sec
Available units of measurement	mbar, hPa, Pa, mmHg, inHg, in WC, psi, mmWC In conjunction with Pitot tube (optional): m/s, fpm, m³/h, cfm, l/s
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-20 °C to +50 °C / -4 to 122 °F
Battery type	3 micro batteries AAA
Battery life	150 hrs
Dimensions	148 × 36 × 23 mm
Directives, standards and tests	EU guideline: 2014/30/EU

9.2.8. testo 115i

Feature	Values
Measuring range	-40 to 150 °C / -58 to 302 °F
Accuracy ± 1 digit	± 1.3 °C (-20 to 85 °C) ± 2.34 °F (-4 to 185 °F)
Resolution	0.1 °C / 0.1 °F
Measurement rate	1/sec
Available units of measurement	°C, °F
Storage temperature	-20 °C to 60 °C / -4 to 140 °F
Operating temperature	-20 °C to +50 °C / -4 to 122 °F
Battery type	3 micro batteries AAA
Battery life	150 h
Dimensions	183 mm × 90 mm × 30 mm max. 35 mm pipe diameter
Directives, standards and tests	EU guideline: 2014/30/EU

10 Certifications

Product	testo 115i, testo 405i, testo 410i, testo 510i, testo 549i, testo 605i, testo 805i, testo 905i
Mat.-No.	0560 1115, 0560 1405, 0560 1410, 0560 1510, 0560 1549, 0560 1605, 0560 1805, 0560 1905

Country	Comments	
Australia		E 1561
Brazil		
	"Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário. "	
Canada	Product IC ID: testo 115i IC ID: 12231A-1115 testo 405i IC ID: 12231A-1405 testo 410i IC ID: 12231A-1410 testo 510i IC ID: 12231A-1510 testo 549i IC ID: 12231A-1549 testo 605i IC ID: 12231A-1605 testo 805i IC ID: 12231A-1805 testo 905i IC ID: 12231A-1905 see IC Warnings	

China	CMII ID:
	testo 115i CMIIT ID: 2015DP6557
	testo 405i CMIIT ID: 2015DP6558
	testo 410i CMIIT ID: 2015DP6612
	testo 510i CMIIT ID: 2015DP6559
	testo 549i CMIIT ID: 2015DP6560
	testo 605i CMIIT ID: 2015DP6561
	testo 805i CMIIT ID: 2015DP6562
	testo 905i CMIIT ID: 2015DP6563
Europa + EFTA	$C\epsilon$ The EU Declaration of Conformity can be found on the testo homepage www.testo.com under the product specific downloads. **EU countries:** Belgium (BE), Bulgaria (BG), Denmark (DK), Germany (DE), Estonia (EE), Finland (FI), France (FR), Greece (GR), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovakia (SK), Slovenia (SI), Spain (ES), Czech Republic (CZ), Hungary (HU), United Kingdom (GB), Republic of Cyprus (CY). **EFTA countries:** Iceland, Liechtenstein, Norway, Switzerland
Hongkong	Authorized

Japan	testo 115i
	204-540016
	testo 405i
	204-540017
	testo 410i
	204-540018
	testo 510i
	204-540019
	testo 549i
	204-540020
	testo 605i
	204-540021
	testo 905i
	204-540023
	see Japan Information
Korea	
	testo 115i Certification No. MSIP-CRM-Toi-115i
	testo 405i Certification No. MSIP-CRM-Toi-405i
	testo 410i Certification No. MSIP-CRM-Toi-410i
	testo 510i Certification No. MSIP-CRM-Toi-510i
	testo 549i Certification No. MSIP-CRM-Toi-549i
	testo 605i Certification No. MSIP-CRM-Toi-605i
	testo 805i Certification No. MSIP-CRM-Toi-805i
	testo 905i Certification No. MSIP-CRM-Toi-905i
	see KCC Warning

Taiwan	testo 115i	NCC: CCAB16LP177FT0
	testo 405i	NCC: CCAB16LP177AT3
	testo 410i	NCC: CCAB16LP1770T1
	testo 510i	NCC: CCAB16LP177DT9
	testo 549i	NCC: CCAB16LP177ET1
	testo 605i	NCC: CCAB16LP177BT5
	testo 805i	NCC: CCAB16LP177CT7
	testo 905i	NCC: CCAB16LP177GT2
Turkey	Authorized	
USA	Product FCC ID:	
	testo 115i	FCC ID: 2ACVD-1115
	testo 405i	FCC ID: 2ACVD-1405
	testo 410i	FCC ID: 2ACVD-1410
	testo 510i	FCC ID: 2ACVD-1510
	testo 549i	FCC ID: 2ACVD-1549
	testo 605i	FCC ID: 2ACVD-1605
	testo 805i	FCC ID: 2ACVD-1805
	testo 905i	FCC ID: 2ACVD-1905
	see FCC Warnings	
Russia	Authorized	
Philippines	Authorized	
South Africa	testo 115i	TA-2016/1207
	testo 405i	TA-2016/1201
	testo 410i	TA-2016/1200
	testo 510i	TA-2016/1199
	testo 549i	TA-2016/1198
	testo 605i	TA-2016/1204
	testo 805i	TA-2016/1206
	testo 905i	TA-2016/1205

Bluetooth SIG List	Bluetooth®	Range 15 m (free field) (varies with the used mobile device)
	Bluetooth® type	LSD Science & Technology Co., Ltd L Series BLE Module (08 Mai 2013) based on TI CC254X chip
	Qualified Design ID	B016552
	Bluetooth® radio class	Class 3
	Bluetooth® company ID	10274

IC Warnings

This instrument complies with Part 15C of the FCC Rules and

Industry Canada RSS-210 (revision 8). Commissioning is subject to

the following two conditions:

(1) This instrument must not cause any harmful interference and

(2) this instrument must be able to cope with interference, even if

this has undesirable effects on operation.

Cet appareil satisfait à la partie 15C des directives FCC et au standard Industrie Canada RSS-210 (révision 8). Sa mise en service est soumise aux deux conditions suivantes :

(1) cet appareil ne doit causer aucune interférence dangereuse et

(2) cet appareil doit supporter toute interférence, y compris des interférences qui provoquerait des opérations indésirables.

FCC Warnings

Information from the FCC (Federal Communications Commission)

For your own safety

Shielded cables should be used for a composite interface. This is to ensure continued protection against radio frequency interference.

FCC warning statement

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

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Shielded interface cable must be used in order to comply with the emission limits.

Warning

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

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received,

including interference that may cause undesired operation.

KCC Warning

해당 무선 설비는 운용 중 전파혼신 가능성이 있음

Japan Information

当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している。