

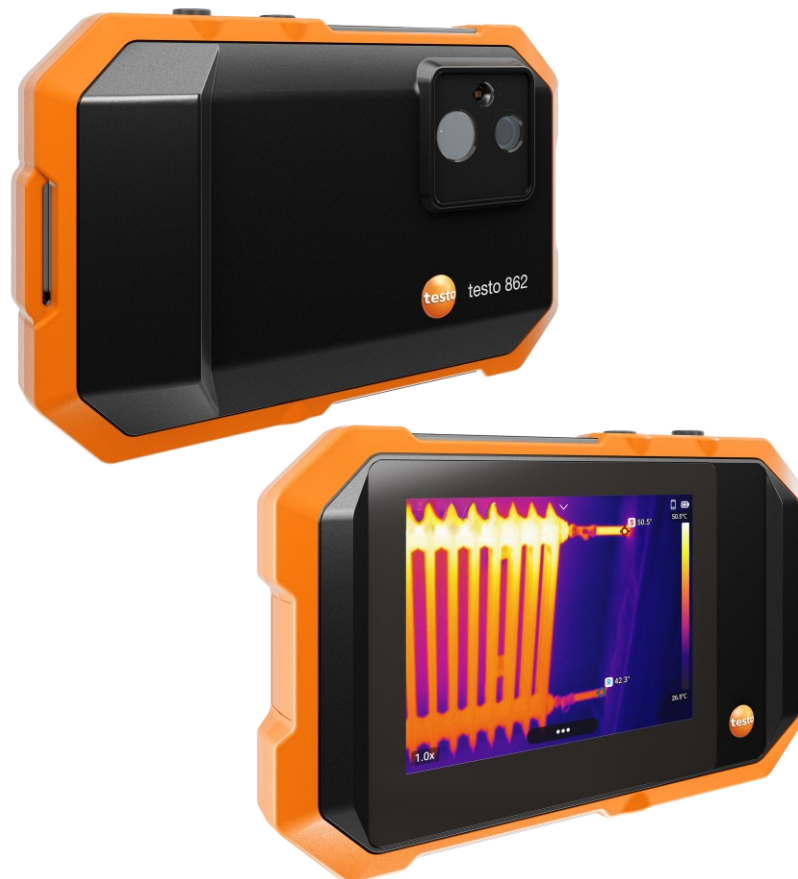


testo 862-1 / testo 862-2 – Thermal imager

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Instruction manual



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1 About this document

- The instruction manual is an integral part of the instrument.
- Please keep this documentation available for future reference.
- Always use the complete original instruction manual.
- Please read this instruction manual through carefully and familiarize yourself with the product before putting it to use.
- Hand this instruction manual on to any subsequent users of the product.
- Pay particular attention to the safety instructions and warning advice in order to prevent injury and damage to the product.

2 Safety and disposal

2.1 Security

General safety instructions

- Only operate the product properly, for its intended purpose, and within the parameters specified in the technical data.
- Do not apply any force.
- Do not operate the instrument if there are signs of damage to the housing or connected cables.
- Dangers may also arise from objects to be measured or the measuring environment. Always comply with the locally valid safety regulations when carrying out measurements.
- 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 when doing the work.
- Use only original spare parts from Testo.

2 Safety and disposal

Warnings

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

DANGER

Risk of death!

WARNING

Indicates possible serious injury.

CAUTION

Indicates possible minor injury.

ATTENTION

Indicates possible damage to equipment.

Built-in batteries

DANGER

Risk of death!

The built-in battery can explode if it gets too hot.

- Do not expose the product to ambient temperatures above 158°F.
- Do not heat batteries above the permitted temperature or burn them. If a battery is heated, this may lead to the leakage of battery acid and/or to an explosion. Lithium batteries can, for instance, react very strongly in combination with fire. This may involve battery components being emitted with considerable power.
- Do not consume the battery; risk of burns due to hazardous substances. Keep new and used batteries away from children.
- Lithium batteries must be transported and shipped in accordance with the local and country-specific regulations.

2.2 Disposal

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



WEEE Reg. No. DE 75334352

3 Product-specific information

- Do not use in areas where the camera may come into contact with moving parts.
- Do not operate the device in environments above 95 %rh (non-condensing).
- Do not use the device outdoors when it is raining or in similar situations.
- In certain countries, use of the device in the 5-GHz Wi-Fi frequency band is restricted to indoor use. For details on the list of countries and certification, please refer to the enclosed onepager for the device, doc. no. 0971 8620 (also available for download).
- Observe the permissible storage and transport temperature as well as the permissible operating temperature (e.g. protect the measuring device from direct sunlight)!
- Improper handling or use of force will invalidate the warranty!

3.1 Product-specific approvals

For the relevant country approvals, please refer to the printed quick reference guides or short instructions enclosed with the products.

Please note the following country-specific information for the product authorization.



The use of a product with wireless technology is subject to the regulations and stipulations of the respective country of use and the module may only be used in countries for which a national certification has been granted. The user and every owner has the obligation to adhere to these regulations and prerequisites for use and acknowledges that the re-sale, export, import, etc., in particular in, to or from countries without wireless authorization, is their responsibility.

3.2 Products with wireless technology

Changes or modifications that have been made without the explicit consent of the competent approval authority may lead to cancellation of the type approval.

Data transfer may be disturbed by equipment that uses the same frequency range (ISM band).

Places where the use of radio communication links is not permitted include aeroplanes and hospitals. For this reason, the following points must be ensured before entering:

- Switch the instrument off.
- Disconnect the instrument from any external power sources (mains cable, external energy storage units, etc.).

4 Intended use

The testo 862 is a handy and robust thermal imager. It enables non-contact determination and display of the temperature distribution of surfaces.

Areas of application

- Preventive maintenance / servicing: Electrical and mechanical inspection of systems and machines
- Building inspection: Energy assessment of buildings (heating, ventilation and air conditioning trades, building technicians, engineering offices, experts)

ATTENTION

Restrictions on the field of use

- Do not use the instrument in potentially explosive atmospheres!
- The device is not a medical device and must not be used on humans or animals.

5 Product description

5.1 Instrument overview

The diagram shows the testo 862 instrument from two perspectives. The top view shows the front with a touchscreen monitor (2) displaying a thermal image, an infrared camera (3) above it, a trigger button (6) on the right, and a flash light (7) and integrated digital camera (8) on the bottom right. The bottom view shows the back with an On/Off button (1) on the left, a mounting option for a wrist strap (4) on the right, a USB-C connection (5) on the left, and a thread for mounting on a tripod (9) on the right. The instrument has an orange protective case.

1	On/Off button	2	Touchscreen monitor
3	Infrared camera	4	Mounting option for wrist strap
5	USB-C connection	6	Trigger button
7	Flash light	8	Integrated digital camera
9	Thread for mounting on tripod		

Explanation of icons on the type plates

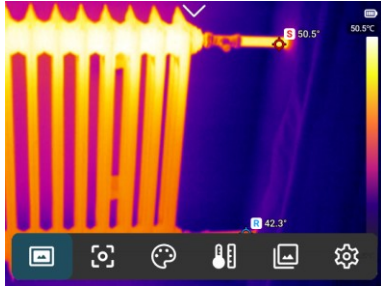
	Refer to instruction manual
	Do not dispose of old appliances with household waste.
	Declaration of conformity: Products marked with this symbol comply with all applicable Community regulations of the European Economic Area.
	Test symbol of the FCC in the USA
	Australian test symbol

5 Product description

	Japanese test symbol
	Korean test symbol
	Brazilian test symbol
	Chinese RoHS (Restriction of Hazardous Substances) symbol

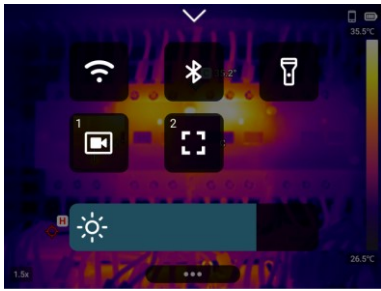
5.2 Main menu

The **Main menu** can be accessed by tapping on the lower display part.

	Image/Video mode	
	Spots and other tools	
	Color palettes	
	Scale – manual/auto modes	
	Gallery	
	Settings	

5.3 Quick select menu

The **Quick select menu** can be accessed by swiping down on the down arrow icon .

	Activate/ deactivate WiFi [WiFi Settings]	
	Activate/ deactivate Bluetooth [Bluetooth]	
	Flash light	
	Custom button 1 (Video mode selected in this example)	
	Custom button 2 (Fullscreen mode selected in this example)	
	Display brightness	

Changing assignment

- 1 Select the menu  **Settings**.
- 2 Select the sub-menu  **System settings** →
 **Quick menu custom buttons**.
- 3 Select **Custom button 1** or **Custom button 2**.
- 4 Activate the switch.
- 5 Press  to confirm your selection.

Description of the possible custom buttons

Menu item	Function
 Video mode	In this mode, the capture image button records a video. Press once to start, and again to stop and save the recording.
 Fullscreen mode	When Fullscreen Mode is activated, the scale and menu icons are hidden. By clicking anywhere on an empty area of the screen, these elements are displayed again.
 Humidity mode	Depicts the risk of mould at thermal weak spots in the thermal image using traffic light colours.
 Delta Heat mode	Allows quick determination of the spread of flow and return temperature on radiators.
 Emissivity settings	The emissivity can be set either by scrolling up and down on the displayed scale or by Manual Input . The default value is „0.95“.
 NUC (Non-Uniformity Correction)	Performs a manual zero calibration.

6 First steps

6.1 Charging the battery

DANGER

- Do not charge the battery in potentially explosive atmospheres!
- The device may only be charged outside a potentially explosive atmosphere in an ambient temperature range of 32°F ... 95°F using the appropriate charger.

WARNING

Risk of injury! Damage to the device!

Deformation in the battery area!

Check the device regularly for deformations in the battery area. If you notice any deformation, the device must no longer be used. Switch it off to avoid physical injury or damage to the device. Dispose of the device properly (observe local regulations) or return it to Testo for disposal.



Only charge the battery with the USB cable supplied by Testo.
Charging input: 5 V DC, max. 2 A

1

Connect the device to the mains via the mains adapter. To do this, insert the plug of the power supply unit into the charging socket on the right-hand side of the device.



The device can become very warm when charging and should not be held in the hand.



The battery level can be checked in the top-right corner of the display.



If the testo 862 is not charged for more than 6 months, the battery may become deeply discharged. This may prevent the device from turning on and negatively affect the battery's health and lifespan.
Therefore, charge the battery at least every 6 months, even when not in use.

6.2 Establishing a Bluetooth connection



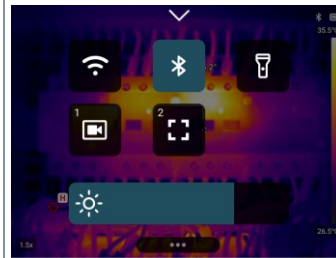
Via Bluetooth the thermal imager can be connected with the testo 770-3 clamp meter and the testo 605i thermohygrometer.



The testo 605i or testo 770-3 is turned on and located near the thermal imager.

- 1 Swipe down on the down arrow icon  to open the quick selection menu.

- 2 Tap the Bluetooth icon .



- ▶ The connection to the measurement device is established.

6.3 Establishing a Smart App connection

(currently only available for firmware update)



To establish a connection, you need a tablet or smartphone with the Testo Smart App already installed on it. Bluetooth and WLAN must be activated.

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

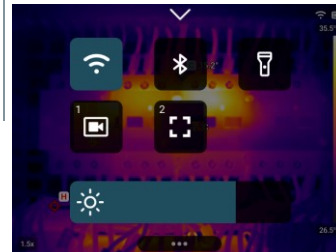
Compatibility:

Requires one of the two most recent major versions of iOS and Android.



After installing the testo Smart App, the location data must be released so that the connection can be established.

- 1 Swipe down on the down arrow icon  to open the quick selection menu.



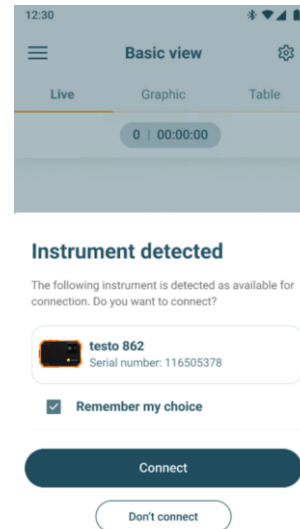
6 First steps

- 2 Tap the WiFi  icon.
- 3 Open the testo Smart App.
 - ▶ The app automatically searches for Bluetooth® devices in the vicinity.
- 4 If several devices are found, select the testo 862 and select **Connect**.

The connection is established via WLAN.

If applicable, also confirm the pairing request of the operating system (Android / iOS).

 - ▶ If the connection is successful, the device is visible on the app in the **Device list** menu and the smartphone symbol is visible on the display of the testo 862.



7 Performing the measurement

CAUTION

High thermal radiation (e.g. due to sun, fire, furnaces)
Detector may be damaged!

- Do not point the camera at objects with temperatures > 1,202° F.

Ideal framework conditions

- Building thermography, investigating the building shell:
Considerable temperature difference between inside and outside required
(ideal: $\geq 59^{\circ}\text{F}$ / $\geq 81^{\circ}\text{F}$).
- Consistent weather conditions, no intensive sunlight, no precipitation, no strong wind.
- To ensure maximum accuracy, the camera requires an adjustment time of 10 minutes after it is switched on.

Important camera settings

- Emissivity and reflected temperature must be set correctly in order to precisely determine the temperature. Subsequent adjustment is possible via the PC software IRSofT, if required.
- When auto-scaling is activated, the colour scale is continuously adjusted to the min./max. values of the current measurement image. This means that the colour assigned to a specific temperature is changing constantly! To be able to compare multiple images based on the assigned colour, scaling must be set manually to fixed values, or must be subsequently adjusted to uniform values using the PC software IRSofT.

7.1 Save an image

- 1 Press the **Button**.
- ▶ The image is automatically saved.
 - ▶ An infrared image is saved.

In video mode, pressing the trigger starts recording. Pressing the trigger again stops the recording and saves the video.



If you want to save an image in JPEG format (without temperature data) in addition to the infrared image: select **Settings** → **System settings** → **JPEG saving** and activate the switch.

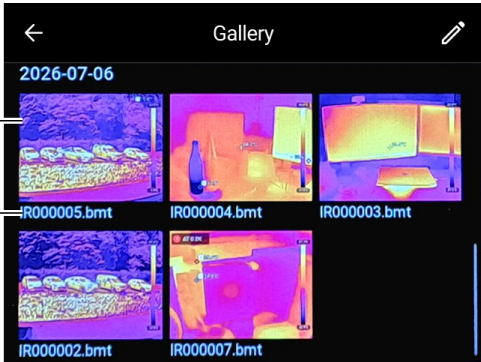
7.2 Gallery

Saved images and videos can be displayed, analysed or deleted.

File names

1

2



	Designation	Explanation
1	-	Infrared image preview
2	IR 000000	Infrared image Consecutive number



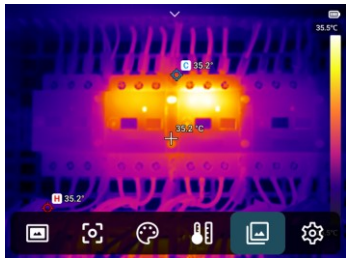
File names can be changed via the PC, e.g. in Windows Explorer.

Displaying a saved image or video

Saved images or videos can be viewed and analyzed in the image gallery.

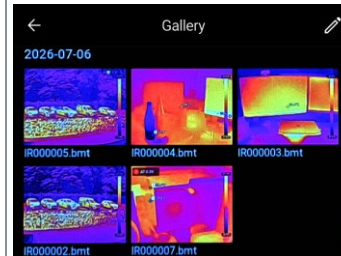
- 1
- Select  **Gallery** function.

► All saved images are displayed in the form of an infrared image preview.



7 Performing the measurement

- 2 Tap an image or a video.



- ▶ The image or video is displayed.
- ▶ To play a video, tap the display and select "Play".

Analyzing/ modifying an image

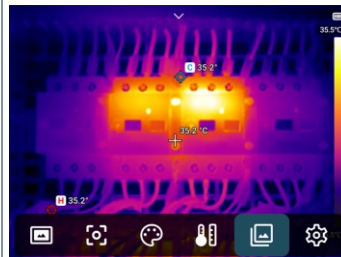
The measurement functions **Center spot**, **Hotspot**, **Coldspot** and **Differential temperature** can be used to analyze or modify saved images.

For a description of the individual functions, please also read the information in the following sections.

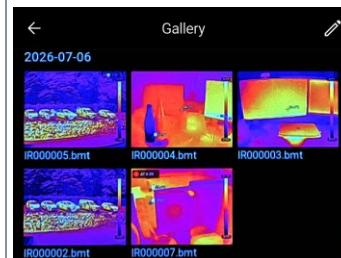
Videos can only be shown or deleted, but not modified.

- 1 Select  **Gallery** function.

- ▶ All saved images and videos are displayed in the form of an infrared image preview.



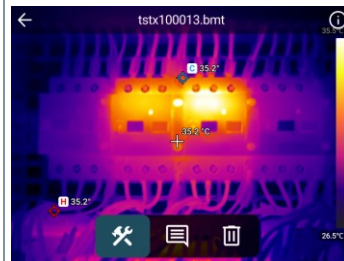
- 2 Tap an image.



- ▶ The image is displayed.

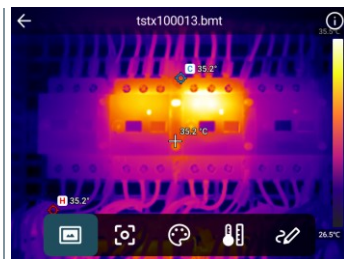
7 Performing the measurement

- 3 Press  to modify the image.



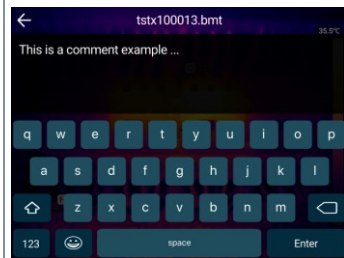
- The following modify options are available:

-  : Change image mode
-  : Adapt spots and other tools
-  : Modify color palette
-  : Modify scale
-  : Activate drawing tools



- 3.1 Press  to add a comment for the image.

A screen keyboard is shown.

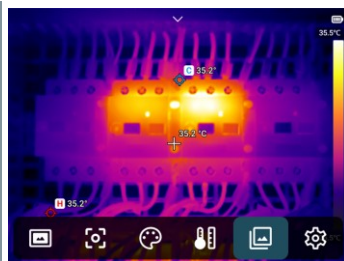


- 4 Press  to save or cancel the changes.

Delete image or video

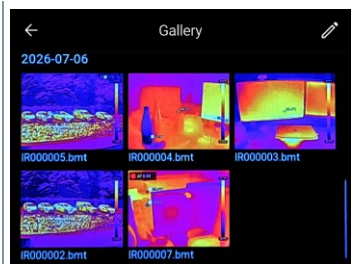
- 1 Select  Gallery function.

- All saved images and videos are displayed in the form of an infrared image preview.



7 Performing the measurement

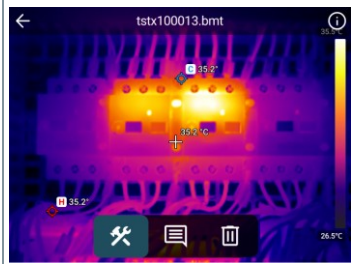
2 Tap an image or video.



▶ The image or video is displayed.

3 Press  .

▶ Delete image? is displayed.



4 Press **Yes** to delete the image or video.

4.1 Press **No** to cancel the process.

7.3 Configure main-view

The main-view can be configured individually.

- 1 Select  **Settings** →  **Main-view elements**.
 - ▶ The following options are available:
 -  **Center spot**: the temperature measuring point in the centre of the image is marked with white crosshairs and the value is displayed.
 -  **Cold spot**,  **Hot spot**: the lowest or highest temperature measuring point is marked with blue or red crosshairs and the value is displayed.
 -  **Fullscreen mode**: in full-screen mode, all controls - such as the scale and menu buttons - are hidden; only the selected measurement points and ranges are visible
 -  **Time & Date**: date and time information is added in the saved images.
 -  **Hints in DeltaHeat mode**: on-screen hints (e. g. talking an image, adjusting spots) are shown when DeltaHeat mode is activated.
- 2 Activate / deactivate the required switches.
- 3 Press  to confirm your selection.

7.4 Configure alarm settings

- 1 Select  Settings →  Alarm settings.
 ▶ Alarm settings opens.
- 1 Upper and lower alarm limits can be set and activated individually and the color can be selected.
- ▶ All areas above the upper alarm limit or below the lower alarm limit are highlighted in the selected color.
- 3 Press  to confirm your selection.

7.5 Setting the scale

Manual scaling can be activated instead of automatic scaling (continuous automatic adjustment to the current min./max. values). The scale limits can be set within the measurement range.



Auto-scaling continuously adjusts the scale to the readings presented, and the colour assigned to a temperature value changes.

In manual scaling fixed limit values are defined, and the colour assigned to a temperature value is fixed (important for visual image comparisons).

Scaling influences the way the infrared image is shown on the display but does not affect the recorded measuring values.

7 Performing the measurement

Setting automatic scaling

- 1 Select the  **Scale** function.
- 2 Tap on .
- 3 Press  to confirm your selection.

Setting manual scaling

The lower limit value, the temperature range (upper and lower limit value simultaneously) and the upper limit value can be set.

- 1 Select the  **Scale** function.
- 2 Tap on .
- 3 Tap the up, down, or middle arrow to set the upper limit, lower limit, or mean.

The values can be set either by scrolling up and down on the displayed scale or by  **Manual Input**.
- 4 Press  to confirm your selection.



7.6 Setting measuring parameters

Emissivity information:

The emissivity describes the capability of a body to emit electromagnetic radiation. This is material-specific and must be adapted for correct measurement results.

Non-metals (paper, ceramic, gypsum, wood, paints and coatings), plastics and food have high emissivity, which means that the surface temperature can be easily measured using infrared.

Because of their low or non-uniform emissivity, bright metals and metal oxides only have limited suitability for infrared measurement. Highly inaccurate measurements should be expected. A remedy for this is coatings that increase emissivity, e.g. paint or emission adhesive (accessory: 0554 0051), which must be applied to the object to be measured.

The following table gives typical emissivities of important materials.

Material (material temperature)	Emissivity
Aluminium, bright rolled (338 °F)	0.04
Cotton (68 °F)	0.77
Concrete (77 °F)	0.93
Ice, smooth (32 °F)	0.97
Iron, emery-ground (68 °F)	0.24
Iron with casting skin (212 °F)	0.80
Iron with rolling skin (68 °F)	0.77
Gypsum (68 °F)	0.90
Glass (194 °F)	0.94
Rubber, hard (73 °F)	0.94
Rubber, soft grey (73 °F)	0.89
Wood (68 °F)	0.94
Cork (68 °F)	0.70
Radiator, black anodised (122 °F)	0.98
Copper, slightly tarnished (68 °F)	0.04
Copper, oxidised (266 °F)	0.76
Plastics: PE, PP, PVC (68 °F)	0.94
Brass, oxidised (392 °F)	0.61
Paper (68 °F)	0.97
Porcelain (68 °F)	0.92
Black paint, matt (176 °F)	0.97
Steel, heat-treated surface (392 °F)	0.52
Steel, oxidised (392 °F)	0.79
Clay, burnt (158 °F)	0.91
Transformer paint (158 °F)	0.94
Brick, mortar, plaster (77 °F)	0.93

Reflected temperature information:

Using this offset factor, the reflection is calculated out based on the low emissivity, and the accuracy of the temperature measurement with infrared measuring instruments is improved. In most cases, the reflected temperature is identical to the ambient air temperature. Only when objects with strong emissions at much lower temperatures (such as cloudless skies during outdoor readings) or much higher temperatures (such as ovens or machines) are in proximity to the object being measured should the radiation temperature of these sources be determined and used. The reflected temperature has little effect on objects with high emissivity.

7.6.1 Selecting the emissivity

- 1 Select the menu  **Settings**.
 - 2 Select the sub-menu  **Measuring parameters**.
 - 3 Select  **Emissivity** and set the required value.
- The emissivity can be set either by scrolling up and down on the displayed scale or by **Manual Input**.
The default value is „0.95“.

7.6.2 Setting RTC

- 1 Select the menu  **Settings**.
 - 2 Select the sub-menu  **Measuring parameters**.
 - 3 Select  **Reflected temperature** and set the required value.
- The reflected temperature can be set either by scrolling up and down on the displayed scale or by **Manual Input**.
The default value is „77 °F“.

7.6.3 Setting ambient conditions

Measurement deviations arising due to high humidity or large distances to the object to be measured can be corrected. Correction parameters must be entered for this.

If the camera is connected via Bluetooth to a testo 605i thermohygrometer, the ambient temperature and humidity are transferred automatically and shown on the display.

Values for ambient temperature (Temperature) and ambient humidity (Humidity) can be set manually.

- 1 Select the menu  **Settings**.
 - 2 Select the sub-menu  **Measuring parameters**.
 - 3 Select  **Ambient temperature**,  **Relative humidity** or  **Distance** and set the required value.
- The values can be set either by scrolling up and down on the displayed scale or by **Manual Input**.
The default values are "77° F", "55 %RH" and "1.64 ft".
- The  **Dew point temperature** is calculated from the ambient temperature and relative humidity. You can use manual input values or connect a testo 605i thermohygrometer for automatic real-time values.

7.6.4 Setting electrical parameters

To take measurements on electrical systems, you can manually enter current, voltage, and power.



If a testo 770-3 clamp meter is connected via Bluetooth, the current, voltage, and power values can be imported automatically.

- 1 Select the menu  **Settings**.
- 2 Select the sub-menu  **Measuring parameters**.

- 3 | Select  **Electrical parameters** and set the required value.
 - ▶ The values can be set either by scrolling up and down on the displayed scale or by **Manual Input**.

7.7 Adjust System Settings

7.7.1 Select the language

The user interface language can be set.

- 1 | Select  **Settings** →  **System settings** →  **Language**.
- 2 | Highlight the desired language, then press  to confirm your selection.

7.7.2 Setting the wireless options



Via WiFi the thermal imager can be connected with the testo Smart App, also see chapter "6.3 Establishing a Smart App connection".



Via Bluetooth the thermal imager can be connected with the testo 770-3 clamp meter and the testo 605i thermohygrometer, also see chapter "6.2 Establishing a Bluetooth connection".

- 1 | Select  **Settings** →  **System settings** →  **WiFi**
Settings or  **Bluetooth**.
 - ▶ WiFi resp. Bluetooth can be activated / deactivated in these menus.
For the WiFi it is additionally possible to switch the frequency between 2.4 GHz and 5 GHz.
- 2 | Select the desired option, then press  to confirm your selection.

7.7.3 Define custom buttons

- 1 Select the menu  **Settings**.
- 2 Select the sub-menu  **System settings** →
 **Quick menu custom buttons**.
- 3 Select **Custom button 1** or **Custom button 2**.
- 4 Activate the switch.
- 5 Press  to confirm your selection.

Description of the possible custom buttons

Menu item	Function
 Video mode	In this mode, the capture image button records a video. Press once to start, and again to stop and save the recording.
 Fullscreen mode	When Fullscreen Mode is activated, the scale and menu icons are hidden. By clicking anywhere on an empty area of the screen, these elements are displayed again.
 Humidity mode	Depicts the risk of mould at thermal weak spots in the thermal image using traffic light colours.
 Delta Heat mode	Allows quick determination of the spread of flow and return temperature on radiators.
 Emissivity settings	The emissivity can be set either by scrolling up and down on the displayed scale or by Manual Input . The default value is „0.95“.
 NUC (Non-Uniformity Correction)	Performs a manual zero calibration.

7.7.4 Setting the measurement range

The camera's measurement range can be set manually or switched automatically.

When the measurement range is switched automatically, the camera detects the temperature and automatically switches to the appropriate measurement range.

- 1 Select  **Settings** →  **System settings** →  **Measurement range**.
- ▶ You can choose from the measurement ranges **-14°F~302 °F** and **167°F~1022 °F**, or select the **Automatic** setting.
- 2 Highlight the desired setting, then press  to confirm your selection.

7.7.5 Setting distance unit and temperature unit

The distance unit and temperature unit can be set.

- 1 Select  **Settings** →  **System settings** →  **Distance unit resp.**  **Temperature unit**.
- 2 Highlight the desired unit, then press  to confirm your selection.

7.7.6 Setting power-save options

The illumination intensity of the display can be set via the quick select menu. A lower intensity increases the battery life.

The time until automatic switch-off can be set.

- 1 Select  **Settings** →  **System settings** →  **Auto Power-Off**.
- 2 Select the desired time, then press  to confirm your selection.

7.7.7 Save JPEG

Infrared images are saved in BMT (image with all temperature data) format. The image can also be saved in JPEG format (without temperature data) at the same time. The image content corresponds to the infrared image shown on the display, including scale display and image marks for the selected measuring functions. The JPEG file is saved under the same file name as the associated BMT file and can be opened on the PC, even without using the IRSoft PC software.

- 1 Select  **Settings** →  **System settings** →  **JPEG saving**.
- 2 Activate the switch.
- 3 Press  to confirm your selection.

7.7.8 Set time/date

Time and date can be set. The time and date format are set automatically based on the selected user interface language.

- 1 Select  **Settings** →  **System settings** →  **Time & Date**.
- 2 Select **Set date** or **Set time**.
 - ▶ You can set the time and date by scrolling up and down through the displayed numbers..
- 3 Set the desired numbers, then press  to confirm the current setting.

7.7.9 Instrument info

- 1 Select  **Settings** →  **System settings** →  **Instrument information**.
 - ▶ The following instrument information is displayed:
 - Internal memory usage
 - Device data (e.g. serial number, device name, firmware version)

7.7.10 Reset options

Factory settings

The instrument settings can be reset to the factory settings.



Time/date, country settings and image counter are not reset.

- 1 Select **Settings** → **System settings** → **Reset options**.
- ▶ **Factory reset?** is displayed.
- 3 Select **Yes** to reset to factory settings.
- 3.1 Select **No** to cancel the process.

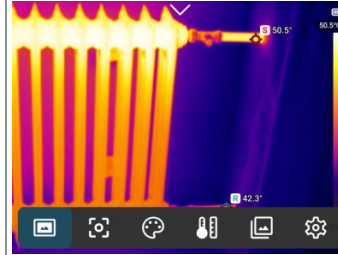
7.8 Select picture mode

1

Select the function



Picture mode.



► The submenu **Picture mode** is opened:

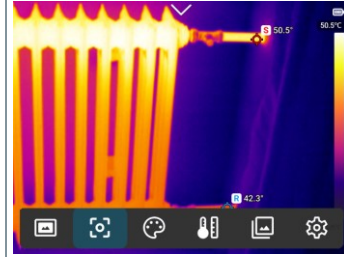
-  **Infrared mode:** In this mode, the trigger button captures an infrared picture.
-  **Visual mode:** In this mode, the trigger button captures a real-image photo. However, the temperature data is still included.
-  **Overlay:** In this mode, the trigger button captures real image photo overlayed by an infrared picture.
-  **Picture in picture:** In this mode, the trigger button captures an infrared picture, which is overlayed in the center area by an infrared picture.
-  **Humidity mode:** Depicts the risk of mould at thermal weak spots in the thermal image using traffic light colours.
-  **Video mode:** In this mode, the capture image button records a video.

2 Select the required function via touchscreen.

7.9 Setting measuring functions

1

Select the function 
Measurement settings.



► The **Measurement settings** submenu opens with the measurement settings:

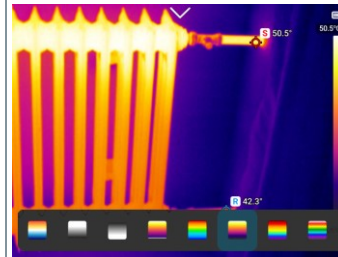
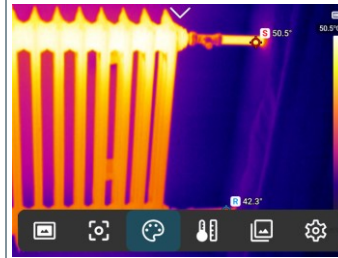
-  **Center spot:** the temperature measuring point in the centre of the image is marked with white crosshairs and the value is displayed.
-  **Hotspot:** the highest temperature measuring point is marked with red crosshairs and the value is displayed.
-  **Coldspot:** the lowest temperature measuring point is marked with blue crosshairs and the value is displayed.
-  **New Min/Max on area:** Area in the centre of the image is shown. The minimum, maximum, and average values for the area are displayed
-  **Differential temperature:** identifies the difference between two temperatures.
 -  Difference between two measuring points
 -  Difference between measuring point and value of an external probe
 -  Difference between measuring point and the reflected temperature (RTC)
 -  Difference between measuring point and dew point temperature
 -  Difference between measuring point and input value

-  Difference between flow and return temperature on radiators
 -  **Delete:** delete all activated spots and areas.
- 2 Select the required function via touchscreen.

7.10 Selecting the colour palette

This function is only available if the **Image type** is set to infrared image.

- 1 Select the  **Palette** dunction.
- 2 Select the required colour palette..



7.11 Image processing with IRSOFT PC software

The testo IRSOFT PC software allows for comprehensive analysis of radiometric thermal images and the creation of professional measurement reports.

The radiometric images (.bmt) stored in the testo 862 can be transferred to the IRSOFT PC software via a USB cable, where they can be analyzed and used to create measurement reports.

In addition to temperature values, the image files also contain the associated measurement data and camera settings, such as emissivity, reflected temperature, and scale settings. In IRSOFT, this data can be further processed and used for analyzing the thermal images.

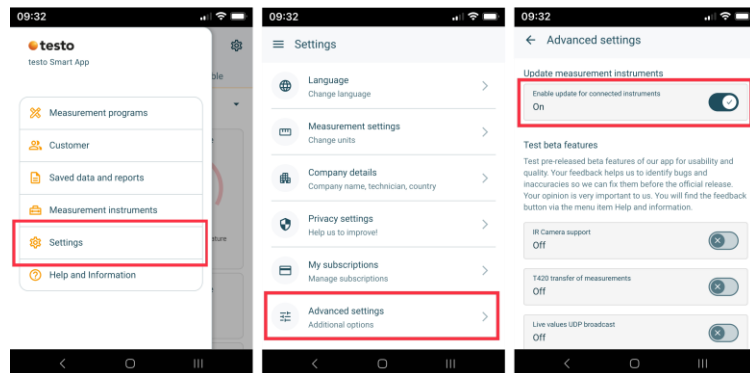
The software can be downloaded free of charge and without a license at the following link:

8 Maintaining the product

8.1 Performing a firmware update



In **Advanced settings**, make sure that in the testo Smart App the toggle switch for **Enable update for connected instruments** is always enabled.



- ✓ - New firmware versions are automatically downloaded from the testo server when the testo Smart App is open and connected to the internet.
 - For the app to recognize the availability of a new firmware version, the camera model must have been connected to the app at least once prior to the update check.
 - If new firmware is available, an update notification will appear on the screen after you connect the camera to the testo Smart App.
- 1 - Click on **Start update** to carry out the update.
- If you click on **Later**, the update notification will appear again the next time you connect.



The connection must **not** be interrupted during the instrument update. The update must be carried out completely and takes approx. 5 to 10 minutes depending on the smartphone used.

If the battery charge is low, first charge the battery or connect the device to the power supply.



After the update, the camera will reboot.

The firmware can be checked in the instrument menu or via the app. It is recommended to restart the testo Smart App after performing the instrument update.

8.2 Cleaning the instrument



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

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

Cleaning the camera

- > If the camera housing is dirty, clean it with a damp cloth

Cleaning the camera lens

- > Larger dust particles can be removed with a clean optical cleaning brush (available from specialist photo shops).
- > Use the lens cleaning cloth for light soiling.



Do not use cleaning alcohol!

8.3 Removing/ changing the permanently installed battery

Instructions for removing the permanently installed battery are available from Testo on request or on the Testo website:



The steps shown there should only be carried out if the device is defective and is to be disposed of.

Any necessary replacement of the permanently installed battery should be carried out only by Testo customer service

9 Technical data

9.1 testo 862-1

Feature	Value
Infrared resolution	160 x 120 Pixel
Visual resolution	2 MP
Touch screen resolution	640 x 480 Pixel
Min. object distance for visual camera	8 in
Thermal sensitivity (NETD)	0.09 F
Field of view	40° x 30°
Geometric resolution (IFOV)	4.62 mrad
Refresh rate	9 Hz / 25 Hz (depending on country version)
Focus	fix, min. focus distance 0.25 m
Measuring range	-10 ... +550 °C / +14 ... +1022 °F range 1: -10 ... +150 °C / +14 ... +302 °F range 2: +75 ... +550 °C / +167 ... +1022 °F automatic switch
Accuracy	+/- 3.6 F / +/- 2% of measured value (at 69.8 F to +77 F ambient temperature)
Operating temperature	14 °F ... 122 °F
Operating humidity	5 ... 95 % RH non-condensing
Storage temperature	-4 °F ... 158 °F
Operating altitude	≤ 2,000 m / ≤ 6,562 ft
Shock resistance (IEC 60068-2-27)	30G
Battery	Integrated Lithium-ion battery
Lifetime	3 hrs at 77 °F
Charging input	5 V DC, 2 A
Charging temperature	0 ... +45 °C / +32°F ... +113°F
Charging time	> 90% after 2 hours of charging
Level of contamination	PD2
IP class	IP 54

Feature	Value
Dimensions	135 x 88 x 24.4 mm / 5.1 x 3.5 x 1.0 in
Weight	215 g / 7.6 oz
Directives	Refer to onepager

9.2 testo 862-2

Feature	Value
Infrared resolution	256 x 192 Pixel
Visual resolution	2 MP
Touch screen resolution	640 x 480 Pixel
Min. object distance for visual camera	8 in
Thermal sensitivity (NETD)	50 mK
Field of view	56° x 42°
Geometric resolution (IFOV)	3.75 mrad
Refresh rate	9 Hz / 25 Hz (depending on country version)
Focus	fix, min. focus distance 0.25 m
Measuring range	-10 ... +550 °C / +14 ... +1022 °F range 1: -10 ... +150 °C / +14 ... +302 °F range 2: +75 ... +550 °C / +167 ... +1022 °F automatic switch
Accuracy	±3.6 °F / ±2 % of measured value (at 69.8 °F ... 77°F ambient temperature)
Operating temperature	14 °F ... 122 °F
Operating humidity	5 ... 95 % RH non-condensing
Storage temperature	-4 °F ... 158 °F
Operating altitude	≤ 2,000 m / ≤ 6,562 ft
Shock resistance (IEC 60068-2-27)	30G
Battery	Integrated Lithium-ion battery
Lifetime	3 hrs at 77 °F
Charging input	5 V DC, 2 A
Charging temperature	0 ... +45 °C / +32°F ... +113°F

10 Tips and assistance

Feature	Value
Charging time	> 90% after 2 hours of charging
Level of contamination	PD2
IP class	IP 54
Dimensions	135 x 88 x 24.4 mm / 5.1 x 3.5 x 1.0 in
Weight	215 g / 7.6 oz
Directives	Refer to onepager

10 Tips and assistance

10.1 Questions and answers

Question	Possible cause	Possible solution
The device switches off automatically	The remaining battery capacity is too low.	Charge the battery.
The app cannot be found in the store	No correct search term was entered.	Enter a unique search term, e.g. "testo Smart App" or use the link on the Testo website.
	Your mobile device does not meet the technical requirements (requires one of the two most recent major versions of iOS and Android)	Check the technical data of your mobile device.
Connection to the testo Smart App is not established	testo 862 is not in connection mode.	Ensure that Bluetooth and WLAN are activated. Switch the testo 862 off and on again to restart the connection module. If necessary, switch the mobile device off and on again.

10.2 Accessories and spare parts

Description	Order no.
Thermo-hygrometer testo 605i	0560 2605 02
Clamp meter testo 770-3	0590 7703 02
Mains unit from Testo	0554 1131

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

11 Support

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

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:



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