testo

IRSoft · PC-Software

Instruction manual

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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.

> **i**   Knowledge of Windows® operating systems is required when working with the software.

Symbols and writing standards

Representation	Explanation
i	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 program interface.
[OK]	Buttons of the program interface.
... | ...	Functions/paths within a menu.
"..."	Example entries

3 Specifications

3.1. Use

The IRSoft software is used for the analysis, processing and archiving of the images recorded by a testo thermal imager. It also has integrated reporting for the clear presentation of the data.

The settings can be performed on the connected thermal imager via the instrument control.

3.2. System requirements

Operating system

The software can be run on the following operating systems:

- Windows$^®$ XP Service Pack 3 (32 bit)
- Windows$^®$ Vista Service Pack 2 (32 bit / 64 bit)
- Windows$^®$ 7 Service Pack 1(32 bit / 64 bit)

Computer

The computer must meet the requirements of the corresponding operating system. The following requirements must additionally be fulfilled::

- Interface USB 2.0 or higher
- Internet Explorer 6.0 or higher
- When used in conjunction with testo 882, testo 885 and testo 890:
  - Intel Core i3-2310M 2.1 GHz, Intel Pentium Dual Core E2220 2.4 GHz 2.4 GHz or AMD Athlon 64 X2 4400+
  - 4 GB RAM
  - 3 GB available hard drive capacity
  - DirectX 9c graphics device
  - For computers with Windows Vista/Windows 7 operating system: WDDM 1.0 driver

Information/special requirements for the video function:

- Windows 7 ServicePack 1 (32 bit/64 bit)
- No remote desktop support
- No terminal server
- Hardware device (HAL) required. This is missing in some virtual environments, we recommend VMWare Workstation >Version 6.

- Only WDDM drivers are supported. The use of XDDM drivers may work but is not recommended, as it leads to performance losses.
- Due to the large amounts of data, we recommend using an internal hard drive or a serial ATA BUS to capture videos.
- Processes running in parallel may have a considerable impact on the speed when showing and capturing videos. We recommend closing any programs that are not required.
- The maximum video stream frequency is 25 Hz. Depending on the system environment, the achievable value may be lower. To achieve the highest possible video stream frequency, we recommend:
  ◦ Using Windows 7 SP1 64 bit.
  ◦ Using a dedicated graphics card with a separate local memory.
  ◦ Capturing without analysis tools, which can be added during later evaluation.

4 First steps

4.1. Installing the software/driver

i Administrator rights are required for installation.

1. Insert the program CD in the CD-ROM drive of the computer.

If the installation program does not start automatically:

> Open My Computer, select the CD drive and start the **Setup.exe** file.

2. Follow the instructions of the installation wizard.

When installing under Vista, please note the following steps during the installation procedure:

• The **User Account Control** window opens.
    > Click on **[Continue]**.
• The **Windows Security** window opens.
    > Click on **Install this driver software anyway**.

3. To finish the software installation, click on **[Finish]**.

After completion of the software installation, the instrument must be connected to the PC to continue with the driver installation.

4. Switch on the instrument: **[⏻]**.

5. Connect the instrument to the PC using the USB cable.

- The connection is established.

- The driver installation is performed automatically.

In some cases, the instrument driver may not be automatically recognized. In this case, continue as follows:

Windows XP:

- The **Found New Hardware** window is opened.

1. Select **No, not this time** and click on **[Next]**.

2. Select **Install the software automatically** and click on **[Next]**.

For testo 885 and testo 890 imagers, the operating steps described above must be carried out six times in total.

If the driver is not automatically found:

> Enter the driver path in the CD directory: **Driver** folder:

3. Click on **[Finish]**.

Windows Vista / Windows 7:

- The **Found New Hardware** window is opened.

1. Click on **Locate and install driver software** and then on **[Continue]**.

If the driver is not automatically found:

> Click on **Browse my computer for driver software** and then click on **[Browse]**. Enter the driver path in the CD directory: **Driver** folder:

- The **Windows Security** window opens:

2. Click on **Install this driver software anyway**.

3. Click on **[Close]**.

4.2. Starting the software

Start IRSoft

i	The user interface of the software is opened in the language of the operating system if this is supported. If the operating system language is not supported, the user interface is in English.

> Click on ![Windows] | (**All**) **Programs** | **Testo** | **IRSoft**.

i	Under Windows Vista, the **User Account Control** window is opened during the initial start of the software. > Click on **Allow**.

Establishing a connection with the instrument

1. Press the **[⏻]** button to switch on the instrument.

2. Connect the instrument to the PC using the USB cable.

- The connection is established.

- The instrument switches into slave mode, where all control keys of the instrument are deactivated except the **[⏻]** button.

- The instrument is identified by the PC as a USB memory device. The operating system automatically assigns the memory of the instrument (SD card) a drive letter. This is displayed in Windows Explorer.

i	Depending on the settings in the operating system, the **Devices with Removable Storage** (Windows XP) or **AutoPlay** (Windows Vista) window may be opened when the instrument is connected. This can be ignored or closed.

Using the Import Wizard

The Import Wizard supports you when transferring images from the thermal imager to the PC.

> **i** Only **.bmt** and **.bmp** files and folder structures are transferred.

1. Click on **[Continue]**.
2. Highlight the folders or images to be transferred.

When a folder is marked, all subfolders are automatically included.

3. Click on **[Continue]**.
4. Select the location you want to save them to:
   - In the archive (only for images from imagers that support site recognition, e.g. testo 885 / 890)
   - In the file system (target directory must be specified).
> If required, activate the optional functions **Set target directory as default** and **Delete data in the device after copying**.
5. Click on **[Continue]**.
- When importing to the file system: In the selected target directory, a folder is created with the date of the data transfer to prevent the overwriting of previous folders with the same designation. The folders and the images are saved in this directory.
- When adding to the archive: the images are inserted into the archive structure. Existing images are not overwritten.
6. Click on **[Finish]**.
- The Import Wizard is closed.

Activating/deactivating the Import Wizard

> In IRSoft click on the **Imager** tab and carry out the desired change in the **Import Wizard** group.
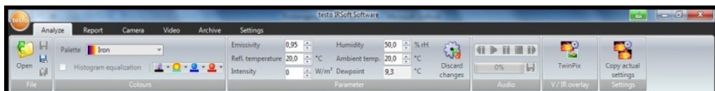
5 Product description

5.1. User interface
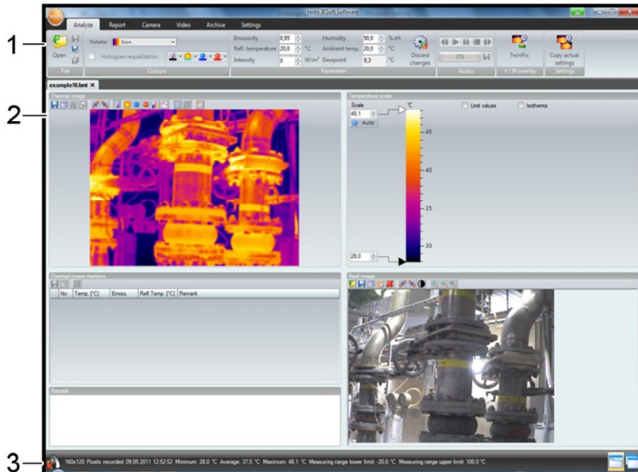
1   Ribbon
2   Work space
3   Status bar

Explanations of the individual areas: see below.

5.2. Ribbon

The ribbon helps you to carry out modifications and settings and to find the relevant functions and commands quickly.

The functions are divided into different groups on four tabs: **Analysis**, **Report**, **Imager** and **Settings**.

The functions/commands vary depending on the tab selected.

The tab **Analysis** contains function/commands for:

- Opening and saving infrared images
- Setting and copying image properties
- Playing/saving audio comments
- Creating image overlays (IR image - real image)
- Copying image settings

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> **i** If no IR image is opened, only the function for opening IR images is displayed.

The tab **Report** contains function/commands for:
- Creating reports
- Editing reports

The tab **Imager** contains function/commands for:
- Configuring the thermal imager
- Activating/deactivating the Import Wizard

The **Video** tab includes functions/commands for:
- Capturing and analysing videos

The **Archive** tab includes functions/commands for:
- Archiving images (for cameras with the site recognition function)

The tab **Settings** contains function/commands for:
- Setting the work space view
- Setting the infrared image presentation
- Setting the temperature unit
- Setting the user interface view (colour scheme)
- Activating/deactivating the tips
- Activating/deactivating the automatic program updates
- Setting the image preview (IR image/real image)
- Creating user-generated report templates

5.3. Work space
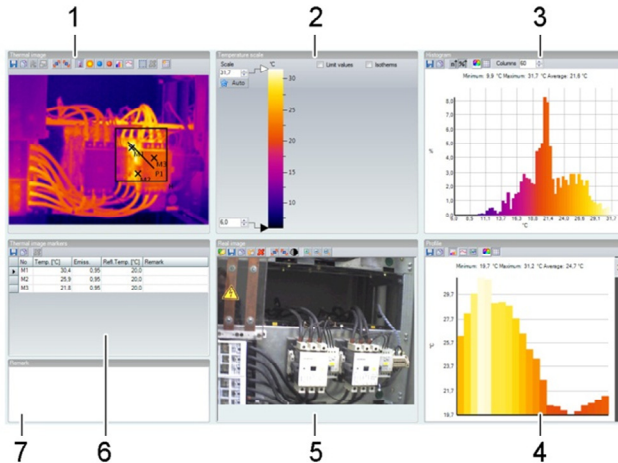
Information is shown and editing performed in the work space. The work space display varies depending on the page layout selected. The work space is divided into different document windows:

1 Thermal image (see Thermal image document window, page **24**)

2 Temperature scale (see Temperature scale document window, page **29**)

3 Histogram (see Histogram document window, page **31**)

4 Thermal image markings (see Thermal image markers document window, page **32**)

5 Real image (see Real image document window, page **34**)

6 Profile (see Profile document window, page **36**)

7 Comments (see Comments document window, page **37**)

> **i** Depending on the work space view selected and the size of the screen, not all document windows are visible. If necessary, use the scroll bars.

> **i** The work spaces on the **Video** and **Archive** tabs are set up differently. Refer to the description in the relevant sections.

5.4. Status bar
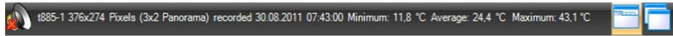
Information on the open image is shown in the status bar: Audio comments exist 🔊 (possible to play by clicking on the symbol)/do not exist 🔇, imager type, number of pixels, image type (only in the case of SuperResolution and panoramic images), recording date, min./max./mean value.

It is possible to change the work space view via ▭ (tabs) and ▭ (overlapping windows).

6 Using the software

6.1. Performing program settings

Program settings can be performed on the **Settings** tab.

6.1.1. Modifying the work space view

Tabbed windows/overlapping windows

The work space view can be modified in the **Settings** tab.

1. In the ribbon, click on the **Settings** tab.
2. Modify the work space view in the **Work space view** group.

> For quick changes to the work space view: Click on ⬚ (tabs) or ⬚ (overlapping windows) in the status bar.

Tab groups

Arranging the tabs into groups makes it easier to compare several IR images.

Prerequisites:

- At least 2 IR images are open.
- The **Tabbed windows** work space view is open, see above.

1. Right-click on the tab of an infrared image that you wish to compare with another infrared image.
- A context menu is opened.
2. From the context menu, select the option **New Horizontal / New Vertical Tab Group**.
- The infrared image can be compared with the other infrared image.
> If you wish to compare more than 2 images: Repeat the procedure starting with step 3.

6.1.2. Image presentation

The image presentation can be optimized:

- **Image smoothing**: the image presentation is optimized by means of an algorithm.
- **Radial distortion correction** (not available for images from testo 880, testo 885, testo 890): compensates for the optical distortion in images made with wide-angle lenses.

1. Click on the **Settings** tab.
2. Activate/deactivate the desired function under the **Image presentation** group.

6.1.3. Temperature unit

The display of temperature values can be changed between the units **°C** and **°F**.
1. Click on the **Settings** tab.
2. Select the desired option in the **Temperature unit** group.

6.1.4. Colour scheme

The colour scheme of the software interface can be set.
1. Click on the **Settings** tab.
2. Select the desired option in the **Colour scheme** group.

6.1.5. Tips (tool hints)

All of the functions and commands available in this software are described in more detail in tips (tool hints) in IRSoft.
> Move the mouse pointer over the functions/command in IRSoft.
- Tips (tool hints) are displayed.

Activate/deactivate tips (tool hints):
1. Click on the **Settings** tab.
2. In the group **Tips** select the option **Display**/**Hide**.

6.1.6. Program update

The software can automatically search for program updates. An Internet connection is required for this.
If there is an update, you will be informed.
1. Click on the **Settings** tab.
2. Under the **Program update** group, activate/deactivate the **Autom. check** function.

6.1.7. Settings

Instead of the thermal image, the attached real image (if present) can be used for the Explorer preview.
1. Click on the **Settings** tab.
2. Activate/deactivate the **Real image preview** function under the **Settings** group.

6.1.8. Program language

The program interface language can be changed.
1. Click on the **Settings** tab.
2. Click on ▼ and select the desired language from the drop-down list.

3. Confirm the advisory message with **[OK]** and restart the software.

6.1.9. Report templates

User-specific report templates can be created, see Report Designer, page **39**.

6.2. Selecting images

> **i** During the image selection of IRSoft, the following images are shown:
> • Infrared images without attached real image (**IR**).
> • Infrared images with attached real image**IV**).
> Real images alone (**VI**) are not displayed.
> > Please use Windows Explorer for access to the real images.

Opening infrared images

> **i** The number of images that can be opened in parallel is limited depending on their size (pixel count):
> • 160x120: approx. 52 images
> • 320x240: approx. 50 images
> • 640x480: approx. 36 images
> • 1280x960: approx. 20 images
> • 1712x1214: approx. 9 images

1. To open infrared images:
   > In the ribbon, click on the testo logo and select **Open**
   or
   > Click on the **Analysis** tab and select **Open**.
   > If the Windows dialogue with the infrared images does not open: navigate to the directory with the infrared images.
   > If you wish to display preview images: In the Windows dialogue **Menu View** | select **Thumb view**.
2. Highlight one or several infrared images.
   > If you wish to highlight several images: Hold down the Ctrl-key and click on the images.
3. Click on **[Open]**.
- The selected infrared image will be displayed in the **Thermal image** document window.

- If you have opened an infrared image with an attached real image: the real image will be displayed in the **Real image** document window.
- If several images were highlighted: Depending on the work space view selected, the rest of the infrared images will be displayed in individual tabs or in individual windows.

> **i** To open images stored in the Archive, see Archive (only for testo 885 / 890), page 53.

> **i** Alternatively, you can also select an infrared image when IRSoft is not open. In this case, multiple infrared images cannot be selected.
>
> 1. Open Windows Explorer and navigate to the directory where the infrared images are located.
> 2. Double-click on the infrared image you wish to open.
> - IRSoft starts automatically and the selected infrared image will be displayed in the **Thermal image** document window.

Importing real images

See Real image document window page 34.

see Archive (only for testo 885 / 890), page 54

6.3. Edit image properties

Image properties can be edited in the **Analysis** tab.

> **i**
> • Changes to the image properties will only be accepted for the currently selected infrared image in the **Thermal image** document window. To transfer image properties to other open infrared images, see Accepting settings for multiple images page 24.
> • Changes in the **Parameter** group can affect the measurement result.
> • The functions in the **Colours** group are for editing the visual presentation of the thermal image and have no influence on the measurement results.

1. In the ribbon, click on the **Analysis** tab.
2. Edit the infrared image properties with the functions and commands in the ribbon.

- If changes have been made but not yet saved, 🌟 appears after the file name.

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6.3.1. Colours

Selecting a palette

You can choose between several existing colour palettes for the infrared image.

> Click on ▾ and select a colour palette from the drop-down list.

When **Humidity image** is selected, the relative surface moisture is calculated for each pixel and the temperature image is converted to a humidity image. The ambient temperature and humidity parameters are calculated, together with the measured surface temperature.

> **i** With an IR image saved as a humidity image in the thermal imager, the parameters entered in the imager are saved with the image.
>
> With an IR image saved as a temperature image in the thermal imager, the parameters must be entered later on. If this is not done, the image appears completely green.

The humidity image shows which areas are at risk of mould:

Colour	Surface moisture	Assessment
green	0…64%RH	noncritical
yellow/orange	65…80%RH	potentially critical
red	>80%RH	critical

Selecting colour temperature measuring points, profiles and histograms

> Click on **Colour temperature measuring points, profile and histogram** 📊 ▾ and select a colour.

Selecting colour for temperature correction

Changes the marker colour with the temperature correction in the **Thermal image** document window.

> Click on **Colour region markers** 🔴 ▾ and select a colour for infrared image area markers.

Select colour for coldspots/hotspots

> Click on **Colour coldspot** 🔵 ▾ / **Colour hotspot** 🔴 ▾ and select a colour.

6.3.2.   Parameter

The settings from the recording of the thermal image can be corrected.

i	Changes to the settings influence the measurement result. The settings should therefore only be changed with the utmost caution.

Function	Procedure
Set **Emissivity**, **Reflected temperature**, **Intensity**, **Humidity**[1], **Ambient temperature**[1]	> Click on the number and change it by means of input via the keyboard or via ⬆. You can find more information on the individual properties in the instruction manual of the thermal imager.
Dewpoint	Dewpoint temperature: The value is calculated from the humidity and the ambient temperature and cannot be changed manually.
Discard changes	> If you wish to reset the changes back to the most recently saved parameters: Click on **Discard changes** 🔄.

6.3.3.   Playing/saving audio comments

The function is only available if an audio comment is attached to the thermal image currently selected (see status bar). It is not possible to record, change or delete audio comments.

> Click on the control key symbols to control the audio functions: ⏮ (Rewind), ▶ (Play), ⏸ (Pause), ⏹ (Stop), ⏭ (Fast-forward).

> Click on 💾 to save the audio file in the file format MP3 or Wave.

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[1] The humidity and ambient temperature are transmitted by the thermal imager and can be changed in IRSoft.

When shown as a humidity image: correct values must be entered to calculate the relative surface moisture. When shown as a temperature image: the values are for information purposes only.

6.3.4.   Creating image overlay with TwinPix

An image overlay can be created using the IR image and the attached real image[2] (taken with the thermal imager) or the imported real image (taken with a separate imager) (see **Real image document window** page 34). Both images can be shown together in one image. The images are aligned by setting marking points.

The image overlay simplifies the orientation in the image, whereby the localization of certain measurement points is made easier, for example.

1. Click on **TwinPix** .
- The **Wizard for TwinPix** is opened.
- The **First steps** tab contains a description of the image overlay function. This tab can be hidden: ☑ **Do not show this page again**.
2. Click on the **Image markings** tab.
3. Set marking points in the IR image and the real image. Note the following while doing this:
    • Set the marking points at the same position in both images: Use distinctive spots. The zoomed image sections with the cursor position displayed below the images help with precise positioning.
    • Distribute the marking points throughout the image. Set additional marking points in the image area that is of particular importance (if possible).
    • The marking points must be set in the same order in both images.
    • At least four marking points must be set.
    • The points are numbered automatically.

To move a marking point:
> Move marking point with mouse button pressed.
To delete a marking point:
> Select the point in the list below the image and click on **[Delete]**.
- The point is deleted. The corresponding point with the same number in the other image is also deleted.
4. Click on **[Continue]**.
- The image overlay is displayed.

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[2] The real-image lens and IR lens have a different slant due to the special separation. This means that the image areas do not correspond exactly (parallax error).

- If the result is unsatisfactory: Return to the **Image markings** tab and optimize the marking points (moving, supplementing with additional points)

The following functions are available to adjust the image overlay:

Setting transparency level

The **Transparency level** regulates the proportion of the infrared or the real image in the overlay. The IR readings can even be read off with the setting 100 % real image (no IR image visible).

> Click on the controller. Hold the mouse button down and move the controller.

Setting infrared limit values

The observation area of the image overlay can be limited with the infrared limit values. Only values above an upper limit value or values below a lower limit value are shown as infrared image information. Only the real image is shown in the irrelevant temperature range.

> ℹ️ With activated infrared limit values, setting the transparency level to 100 % infrared is recommended. The relevant temperature ranges are thereby most clearly visible.

Function	Procedure
Activate **Use upper limit value** or **Use lower limit value**	> Activate the desired limit value ☑.
Set **Upper/lower limit value** (only available with activated limit value)	> Click on the number and change it by means of input via the keyboard or via 🔼🔽. **or** > Click on the controller of the lower/upper limit value. Hold the mouse button down and move the controller.

Setting infrared range

The observation area of the image overlay can be limited with the infrared range. Only values between the two range limits are shown as infrared image information. Only the real image is shown in the irrelevant temperature range.

> ℹ️ With an activated infrared range, setting the transparency level to 100 % infrared is recommended. The relevant temperature range is thereby most clearly visible.

Function	Procedure
Activate **Use infrared range**	> Activate the alarm range ☑.
Set **Upper/lower area limit value** (only available with activated infrared range)	> Click on the number and change it by means of input via the keyboard or via ⬍. **or** > Click on the controller of the lower/upper range limit value. Hold the mouse button down and move the controller.

5. Click on **[Finish]**.

- Assistant will be closed. The image overlay is applied in the **Thermal image** document window. All analysis functions can be applied on the image overlay, see **Evaluating images** page 24. The overlaid image is shown instead of the IR image during reporting.

> To cancel image overlay, see Thermal image document window, page **24**.

6.3.5.   Copying settings for several images

Copies the image settings of the currently selected image to other images. Image settings can only be copied to images taken with an imager that has the same detector size.

1. Click on **Copy actual settings** 🖼.

- The wizard for copying settings is opened.

- The **Instructions** tab contains a description of the function. This tab can be hidden: ☑ **Do not show this page again**.

2. Click on the **Destination** tab.

3. Select an option for copying the image settings:

   • **Copy settings to all open images**.

   • **Copy settings to files from disc**: if this option is selected, the images you want to copy the image settings to must not be open. **[Add…]** opens the Windows dialogue box for opening files and the images can be added.

4. Click on **[Next]**.

5. Click on the desired settings to activate them (☑).

6. Click on **[Next]**.

- The image settings are copied over. The result is displayed as a table.

7. Click on **[Quitter]**.

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6.3.6. Accepting settings for multiple images

Copies the image settings of the currently selected thermal image into all open thermal images.

1. Click on **Thermal image settings** .
- A dialogue box with the parameters is opened.
2. Select the parameters that you wish to accept for the other infrared images and click on **[OK]**.
- The settings are accepted for all open infrared images.

6.4. Evaluating images

IR images can be edited and evaluated in the individual document windows below the work space.

6.4.1. Thermal image document window

The following functions are available in the **Thermal image** document window:

- Saving/exporting the infrared image
- Copying the infrared image to the clipboard
- Extract single images from a panoramic image
- Export an image with detector resolution from a SuperResolution image (standard imager resolution)
- Rotating the infrared image
- Specifying the readings for one pixel in an infrared image
- Temperature correction in an infrared image area (adjust emissivity and reflected temperature for the area)
- Specifying a hotspot/coldspot for an infrared image area
- Creating a histogram of an infrared image area
- Creating a temperature profile for a line
- Moving/deleting measuring points/range
- Carrying out data agglomeration
- Cancelling image overlay

Saving/exporting the infrared image

> **i** When exporting infrared images in BMP, JPG and PNG format only the image data is exported, no readings.
>
> If you wish to create a temperature table for the infrared image, the infrared image must be saved in XLS/XLSX format (Excel).

1. Click on **Save thermal image** .
- The Windows dialogue for saving files is opened.

2. Enter a file name.

> If you wish to export the temperature values of the infrared image: Select the XLS file format.

> If you wish to export the image data of the infrared image: Select file format BMP, JPG or PNG.

3. Select a storage location and click on **[Save]**.

Copying an infrared image to the clipboard

If you copy the infrared image to the clipboard, both an infrared image file and the temperature value of each individual pixel in the thermal image can be inserted into other programs.

1. Click on **Copy to clipboard** .

2. To insert an image file/text file into Excel, Powerpoint or Word:
    1. Open the desired program.
    2. In the program toolbar, click on the **Edit** tab.
    3. From the context menu, select the option **Paste content**.
    > If you wish to insert an infrared image file: Select the option **Bitmap** and click on **[OK]**.
    > If you wish to insert the temperature of each individual pixel in the infrared image: Select the option **Text** and click on **[OK]**.

Extract single images from a panoramic image

Extracts one or several single images from a panoramic image.

The function is only available if the currently selected image was taken as a panoramic image (see imager instruction manual).

1. Click on **Extract single image out of panorama** .

- The panorama export wizard is opened.

- The **Instructions** tab contains a description of the function. This tab can be hidden: ☑ **Do not show this page again**.

2. Click on the **Images** tab.

3. Select the single images to be extracted (☑).

4. Click on **[Next]**.

5. Perform the required settings (file format, file name, save location).

6. Click on **[Next]**.

- Image extraction is carried out. The result is displayed as a table.

7. Click on **[Finish]**.

Exporting an IR image with detector resolution from a SuperResolution image

An image in standard imager resolution (detector resolution) can be exported from an IR image taken with SuperResolution.

The function is only available if the currently selected image was taken with SuperResolution (see imager instruction manual).

1. Click on **Export with detector resolution** .
-   Windows dialogue box for saving files is opened.
2. Enter a file name. The file type (**.bmt**) must be retained!
3. Select the location you want to save it to and click on **[Save]**.

The function is only available if a TwinPix was created for the currently selected image.

Rotating the infrared image

>   Click on **Rotate left** or **Rotate right** .

Specifying the readings for one pixel in an infrared image

For specifying the temperature, the emissivity and the reflected temperature for one pixel in an infrared image.

i	If you wish to specify the temperature within one infrared image area (temperature correction), you should first highlight the infrared image area and then position the measuring points on it. Otherwise, the correctness of the temperature displayed for the measuring point cannot be guaranteed.

1. Click on **Temperature** .
2. Click on one point in the infrared image.
-   Temperature, emissivity and reflected temperature of the measured point set here will be displayed in the **Thermal image markers** document window.

For further information about editing measurement results (e.g. changing emissivity), see **Thermal image markers document window** page 32.

Correcting temperature in an infrared image area

For specifying emissivity and a reflected temperature within an infrared image area.

> **i** Infrared images areas with temperature corrections should not overlap each other because only one emissivity and one reflected temperature is correct per pixel.
>
> However, if two infrared image areas do overlap, the parameters (emissivity and reflected temperature) of the most recently entered infrared image area will be used to specify the temperature.

1. Click on **Temperature correction** 🔴.
2. Select a marking form from the drop-down menu (rectangle, circle, ellipse, free form shape)
3. Drag the mouse with the mouse button pressed to highlight an infrared image area in the thermal image.
- The measurement results of the selected infrared image area will be displayed in the **Thermal image markers** document window.

For further information about editing measurement results see **Thermal image markers document window** page 32.

Specifying a hotspot/coldspot

For specifying the hottest/coldest point within an infrared image area.

1. Click on **Coldspot** 🔵 / **Hotspot** 🔴.
2. Select a marking form from the drop-down menu (rectangle, circle, ellipse, free form shape)
3. Drag the mouse with the mouse button pressed to highlight an infrared image area in the thermal image.
- The hotspot/coldspot of the selected infrared image area will be displayed in the **Thermal image markers** document window.

Creating a histogram

For displaying the frequency of a temperature within an infrared image area.

1. Click on **Histogram** 📊.
2. Select a marking form from the drop-down menu (rectangle, circle, ellipse, free form shape)
3. Drag the mouse with the mouse button pressed to highlight an infrared image area in the thermal image.
- The temperature distribution in the selected infrared image area will be displayed in the **Histogram** document window.

Creating a new histogram deletes the existing one.

For further information about editing the histogram see **Histogram document window** page 31.

Creating a temperature profile

For displaying a temperature progression over a line.

1. Click on **Temperature profile** 🔲.
2. Select the characteristics of the line from the drop-down menu (horizontal, vertical, diagonal)
3. Drag the mouse with the mouse button pressed to draw a line in the infrared image.
- The temperature profile will be displayed in the **Profile** document window.

Max. 5 profile lines per image can be created.

For further information about editing the temperature profile see **Profile document window** page 36.

Moving/deleting image markers in the infrared image

> **i** If infrared image areas are moved, the set measurement markers should be moved along with them.
>
> If the measurement point remains in the same position or if infrared image areas are deleted, the parameters (emissivity and reflected temperature) of the measurement points must be checked.

> Click on the measurement markers in the infrared image (not possible if the **Temperature** 🔲 tool is activated) **or**
> Click on the **Marking tool** 🔲 and drag the mouse with the mouse button pressed to create a frame around the measurement points/range that you wish to delete/move.
> If you wish to delete measurement points/ranges: Click on **Delete** 🔲.
- The measurement markers in the infrared image are deleted.
- The measurement results will be removed from the **Thermal image markers**, **Histogram** and **Profile** document windows.
> If you wish to move measurement markers: Hold down the mouse button and move the measuring points/range.
- The measurement results will be adjusted according to the movement in the **Thermal image markers**, **Histogram** and **Profile** document windows.

Carrying out data agglomeration

The image can be divided into individual areas. Statistical data can be shown for the individual areas.

> Click on **Data agglomeration** 🔲 and then on the required agglomeration level (**None**, **One**, **Two**, **Three**, **Four**).

> Click on **Data agglomeration** 🔳 and then on the required information (**Min**, **Max**, **Avg**).

Cancelling image overlay

1. Click on **Undo TwinPix** 🖼.
- A confirmation request will follow.
2. Click on **[Yes]**.

6.4.2. Temperature scale document window

The following functions are available in the **Temperature scale** document window:

• Setting the scale
• Setting the limit values
• Setting the isotherm area

Setting the scale

You can choose between automatic scaling (adjustment to the min./max. values) and manual scaling. The scale limit values can be set within the measuring range that is valid for the image. All temperatures that are greater or less than the min./max. value are shown in the min./max. value colour (depending on the colour palette set). Temperature ranges that are not relevant can thus be hidden.

When the **Humidity image** palette is selected, scale adjustments cannot be made.

Function	Procedure
Set **Min./max. values**	> Click on the number and change it by means of input via the keyboard or via ⬍.
	or
	> Click on the arrowhead of the min./max. value on the scale. Hold the mouse button down and move the arrow.
Carry out **Automatic scaling**	> To carry out automatic scaling: Click on **[⭐ Auto]**.
	- The scaling limit values are adjusted to the min./max. values.

Setting the limit values

A lower and an upper limit value can be defined. Temperatures below the lower limit value or above the upper limit value can be

marked with one colour. The transparency of the limit value colours can be set.

Function	Procedure
Activate **Limit values**	> Activate the limit values ☑.
Set **Upper/lower limit value** (only available with activated limit values)	> Click on the number and change it by means of input via the keyboard or via ⬍. **or** > Click on the arrowhead of the lower/upper limit value on the scale. Hold the mouse button down and move the arrow.
Select **Upper/lower limit value colour** (only available with activated limit values)	> Click on **Colour upper/lower limit value** 🎨 and select a colour.
Set **Transparency** (only available with activated limit values)	1. Click on **Colour upper/lower limit value** 🎨. 2 Click on the number next to **Transparency** and change it by means of input via the keyboard or via ⬍.

Setting isotherms (temperature range)

A lower and an upper area limit value can be defined.
Temperatures between the lower and upper area limit values are marked with one colour.

Function	Procedure
Activate **Isotherms**	> Activate the isotherms ☑.
Set **Upper/lower area limit values** (only available with activated isotherms)	> Click on the number and change it by means of input via the keyboard or via ⬍. **or** > Click on the arrowhead of the lower/upper area limit value on the scale. Hold the mouse button down and move the arrow.

| Function	Procedure
Select **Isotherm colour** (only available with activated isotherms)	> Click on **Colour isotherms** 🖼 and select a colour. If **Rainbow** is selected, the isotherm is shown in a rainbow colour palette. Temperature gradings within the isotherm are thus rendered visible. ℹ If **Rainbow** is selected, we recommend setting the colour palette of the IR image to **Greyscale**.

6.4.3. Histogram document window

The following functions are available in the **Histogram** document window:

- Saving a histogram as an image file
- Copying a histogram to the clipboard
- Choosing between absolute (number of the measurement points) and relative (percent of the measurement points) scaling:
- Setting the background colour for the histogram
- Switching grid lines in the histogram on/off
- Setting the number of columns over the temperature range being assessed

ℹ Changes can only be seen if a histogram had already been created in the **Thermal image** document window for the infrared image currently open, see Creating a histogram page 27.

Function	Procedure
Saving a histogram as an image file	1. Click on **Save file** 💾. - The Windows dialogue for saving files is opened. 2. Enter a file name. 3. Select a file format (BMP, JPG, PNG). 4. Select a storage location and click on **[Save]**.

Function	Procedure
Copying a histogram to the clipboard	1. Click on **Clipboard** 🗎. - Image files from the histogram can be inserted in other programs (e.g. Microsoft Word).
Selecting scaling	Choosing between absolute (number of the measurement points) and relative (percent of the measurement points) scaling. > Click on absolute scaling ⁿ↑ or relative scaling %↑.
Selecting background colour	> Click on **Background colour** 🎨 and select a colour.
Switching grid lines on/off	> Click on **Grid lines** ▦.
Specifying number of columns	Set the number of columns over the temperature range being assessed (settings between 10 and 100 columns are possible): > Click on the number and change it by means of input via the keyboard or via ⬍.

6.4.4. Thermal image markers document window

Shows the measurement results of the image markers performed in the **Thermal image** document window. The emissivity and the reflected temperature of the inserted image marker can be changed at the same time here as well. Additional comments can be entered for each individual image marker.

The following functions are available in the **Thermal image markers** document window:

- Saving/exporting measurement results for the image markers in Excel
- Copying measurement results to the clipboard
- Deleting measurement results for the image markers
- Modifying emissivity and reflected temperature for image markers at specific points/ranges
- Entering comments

Function	Procedure
Saving/exporting measurement results in Excel	The measurement results for the image markers are saved in an Excel table. 1. Click on **Save file** 🖫. - The Windows dialogue for saving files is opened. 2. Enter a file name. 3. Select the file format XLS. 4. Select a storage location and click on **[Save]**.
Copying measurement results to the clipboard	**ⅈ** The data cannot be inserted into other programs as an image file. > Click on **Clipboard** 🖺. - Measurement results can be inserted in other programs (e.g. Microsoft Word, Powerpoint).
Deleting image markers	1. Highlight the line to be deleted. 2. Click on **Delete** ✖.
Modifying emissivity and reflected temperature for image markers at specific points/ranges	**ⅈ** Changes to the settings influence the measurement result. The settings should only be changed with the utmost caution! > In the table, click on the value (emissivity or reflected temperature) and modify it via the keyboard or 🔼. - The temperature of the measurement point adjusts to the set emissivity/reflected temperature. - Changes can be seen in the **Thermal image** document window.
Entering comments	> Click in the comment field and use the keyboard to enter the text.

6.4.5. Real image document window

The following functions are available in the **Real image** document window:

- Importing real images
- Exporting real images
- Copying a real image to the clipboard
- Inserting a real image from the clipboard
- Deleting a real image
- Rotating a real image
- Modifying the brightness of a real image
- Change image section

Function	Procedure
Importing real images	1. Click on **Open** . - The folder containing the real images opens. 2. Highlight a real image and click on **[Open]**. - The real image selected will be displayed in the **Real image** document window.
Exporting real images	1. Click on **Save file** . - The Windows dialogue for saving files is opened. 2. Enter a file name. 3. Select a file format (BMP, JPG, PNG). 4. Select a storage location and click on **[Save]**.
Copying a real image to the clipboard	> Click on **Clipboard** . - The real image can be inserted in other programs (e.g. Microsoft Word, Powerpoint).

Function	Procedure
Inserting a real image from the clipboard	> Click on **Clipboard Insert** 📋. - The confirmation request is opened. > If you wish to insert the real image from the clipboard: Click on **[Yes]**. - The real image is inserted from the clipboard. > If you wish to cancel the process: Click on **[No]**.
Deleting a real image	1. Click on **Delete** ✖. - The confirmation request is opened. 2. Click on **[OK]**. - The real image is deleted.
Rotating a real image	> Click on **Rotate left** 🔄 or **Rotate right** 🔄.
Modifying the brightness of a real image	1. Click on **Brightness** ◐. - The dialogue box is opened. 2. Use the scroll bar to modify the brightness of the real image. 3. Click on **[OK]**.

Function	Procedure
Zoom in/zoom out/move real image/fit to document window	> Click on **Zoom in** ⊕ (or move the mouse wheel forwards) to zoom in on the real image. > Click on **Zoom out** ⊖ (or move the mouse wheel back) to zoom out of the real image. > Click on **Fit** ⊡ to fit the real image to the document window. If the set image size is bigger than the document window: > Click with the mouse button on the real image and move the image while holding the button down to change the visible image section. ⓘ The currently visible real image section is displayed in a report. Check how the real image looks before creating a report.

6.4.6.   Profile document window

Displays the temperature profiles created in the **Thermal image** document window.

The following functions are available in the **Profile** document window:

- Saving a temperature profile as an image file
- Copying a temperature profile to the clipboard
- Selecting the presentation of the temperature profile
- Changing the background colour of the temperature profile
- Switching grid lines on/off

Function	Procedure
Saving a temperature profile as an image file	1. Click on **Save file** 🖫. - The Windows dialogue for saving files is opened. 2. Enter a file name. 3. Select a file format (BMP, JPG, PNG). 4. Select a storage location and click on **[Save]**.

Function	Procedure
Copying a temperature profile to the clipboard	> Click on **Clipboard** 🗎. - Image file from the profile can be inserted in other programs (e.g. Microsoft Word).
Selecting the presentation of the temperature profile	> To select filled out profile: Click on 📊. Several profile lines are displayed in individual card tabs (**P1**, **P2**, …). > To select a line profile: Click on 🖼. Several profile lines are displayed in individual card tabs (**P1**, **P2**, …). > To select a general line profile for all profile lines: Click on 🖼.
Changing the background colour of the temperature profile	> Click on **Background colour** 🎨 and select a colour.
Switching grid lines on/off	> Click on **Grid lines** ▦.

6.4.7. Comments document window

> Use the keyboard to enter the comments about the currently selected infrared image in the text field.

6.5. Creating a report

You can create a report with one or more infrared image(s). A Report Wizard will guide you through the process. Several report templates are available for creating simple reports:

- Thermal bridges in building shells in accordance with EN 13187 (comprehensive)
- Thermal bridges in building shells in accordance with EN 13187 (simplified test)
- Industrial thermography
- MaxiPicture
- MultiPicture
- Short report
- Standard
- Standard report (humidity)
- Standard report (solar)

1. In the ribbon, click on the **Report** tab.

2. Click on **Report Wizard** .
- The Report Wizard is opened.

Report tab

Depending on the report template selected, the Report Wizard is divided into the following tabs:
• Template
• Image selection
• Company address / Logo
• Address / Location
• Job description
• Freetext
• Ambient conditions
• Conclusion
• Preview
> Work through the individual tabs from left to right and note the respective tips at the bottom of the window.
- The data entered appear automatically in the report.

Saving a report

1. Click on the **Preview** tab.
- A preview of the report is opened.
2. Click on **Save report** .
- The Windows dialogue for saving files is opened.
3. Enter the file name and select a file format.
4. Select a storage location and click on **[Save]**.
- The report will be saved in TIR file format. This will create a file with the images and the report data entered.

> **i** Reports that are created with IRSoft as of version 2.4 cannot be opened with older software versions.

Saving the report as a PDF or RTF

1. Click on the **Preview** tab.
- A preview of the report is opened.
2. Click on **PDF** or **RTF** .
- The Windows dialogue for saving files is opened.
3. Enter a file name, select a storage location and click on **[Save]**.
- The report is saved as a PDF or RTF.

Reports saved in RTF format are compatible with Office 2003 and higher.

Printing report

1. Click on the report tab **Preview**.
- A preview of the report is opened.
2. Click on **Print** .
- The Windows dialogue for printing a report is opened.
3. Complete the print settings if necessary and click on **[Print].**
- The report is printed.

6.6.   Modifying the report

Data in a saved report can be modified.

1. In the **Report** tab, click on **Restore saved report** .
- The Windows dialogue is opened.
2. Navigate to the directory where the report is stored.
3. Select a report and click on **[Open]**.
- The Report Wizard is opened.
- Report texts can be modified in the Report Wizard.
> To edit images afterward:
   1. Click on the Report Wizard.
   - The report data are displayed in the work space in individual document windows.
   - Report texts remain in the Report Wizard.
   2. Carry out the desired image edits.
   3. In the Report tab, click on **Report Wizard**.
   - The edited image is inserted in the Report Wizard.
   - The existing texts are displayed.
4. Save the report with the changes.

6.7.   Report Designer

With the Report Designer you can create your own report template by changing an existing template to meet your needs. There are tools available to help you design and edit the report template to your liking.

> **i**   The Report Designer is used exclusively for creating individualised report templates. The reports themselves are created by selecting the report template in the Report Wizard.

Opening the Report Designer

Requirement: at least one infrared image must be open.

1. Select the **Settings** tab and click on **Report Designer** .

- The dialogue box is opened.

2. Select the report template that you would like to edit and click on **[OK]**.

- The Report Designer is opened.

6.7.1. User interface

Ribbon
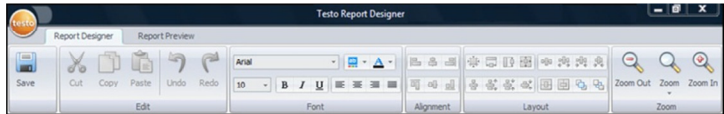
The ribbon helps you to carry out modifications and settings in the Report Designer and to find the relevant functions and commands quickly.

The functions and commands are divided into different groups on two tabs: **Report Designer** and **Preview**.

The functions/commands and the work space vary depending on the tab selected.

The tab **Report Designer** contains function/commands for:

- Saving the report template
- Editing the report template
- Changing the report template view

The tab **Preview** contains function/commands for:

- Printing a report
- Editing and aligning the page layout
- Changing the report template view

Work space
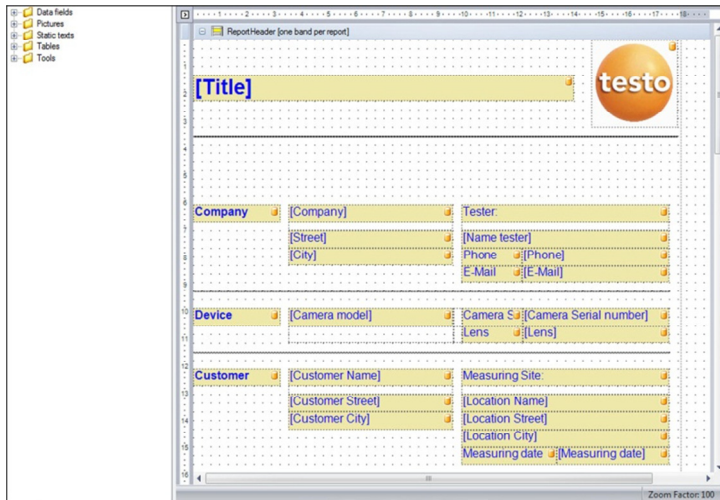
Modifications are carried out in the work space in the **Report Designer** tab. It consists of the file directory tree and the open report template. The file directory tree contains prescribed fields that you can pull into the report template.

When the **Preview** tab is selected, the work space view changes.

6.7.2. Functions and commands

All of the functions/commands in the ribbon are described in more detail in tips (tool hints).

> Move the mouse pointer over the functions/command in the ribbon.

- Tips (tool hints) are displayed.

6.7.3. Editing a report template

Overview

The open report template consists of various areas. Fields can be inserted into or removed from each area.

• Report Header: contains fields with general information that appear once in the report template (e.g. company, instrument, client, etc.). When the report is created later, this information appears at the beginning of the report.

• Page Header: contains fields with information that appears on each page in the header.

- Bottom Margin: contains fields with information that appears on each page in the footer.
- Detail: contains fields with information about the corresponding measurements (e.g. location, ambient conditions, etc.)
- Detail Report "Picture": contains placeholders for image and text fields with information about the infrared images (emissivity and reflected temperature, comments about the individual infrared images, histogram, temperature profile, etc.). The Detail Report "Picture" area is repeated in the report depending on the number of infrared images.
- Report Footer: contains fields with information that appears at the end of the report template (e.g. general comments, conclusion, date and signature, etc.)

> **i** Text changes:
> Only carry out text changes in fields without the symbol 🗄.

Dragging prescribed fields into the report template

You can integrate data, images, tables and tools from the file directory tree into the report template to modify it to meet your needs.

> **i** Note the report template areas into which you drag the fields. For example, image fields should only be integrated into the **Detail Report "Picture"** area. Because the image fields serve as placeholders, each may only be dragged once into the **Detail Report "Picture"** area.

1. Click on the **Report Designer** tab.
2. In the file directory tree, click on the desired option.
3. Hold down the mouse buttons and drag the field into the desired position in the report template.
- The field is aligned to the grid.

> **i** With free text fields, additional, freely selectable information can be included in reports.
> If a free text field is included in the report template, the **Freetext** tab is also shown in the report wizard.

Modifying fields

Font, font size and text alignment can be changed for the fields.
1. Click on the **Report Designer** tab.
2. In the report template, click on the field that you wish to adjust.

3. To highlight several fields:
   > Hold down the Ctrl-key and click on the fields **or**
   > Drag the mouse to create a marker frame around the fields.
4. Use the editing functions in the ribbon to modify the fields.
- The changes will be applied to all highlighted fields.

Aligning fields

Requirement: at least two fields must be highlighted.
1. Click on the **Report Designer** tab.
2. To highlight several fields:
   > Hold down the Ctrl-key and click on the fields **or**
   > Drag the mouse to create a marker frame around the fields.
3. Use the editing functions in the ribbon to align the fields.
- The changes will be applied to all highlighted fields.

Moving field(s)

1. Click on the **Report Designer** tab.
2. In the report template, click on the field(s) that you wish to move.
3. Hold down the mouse button and drag the field(s) to the desired position.
- The field(s) align to the grid.

Modifying field size(s)

1. Click on the **Report Designer** tab.
2. In the report template, click on the field(s) where you wish to adjust the size.
3. Click on one of the black contact points of the field(s) and change the size of the field(s) by dragging with the mouse button pressed.

Deleting field(s)

1. Click on the **Report Designer** tab.
2. In the report template, click on the field(s) that you wish to delete.
3. To delete fields:
   > On the keyboard, press the **[Del]** key **or**
   > Right-click with the mouse and select **Delete**.

Deleting a field has no effect on the size and position of other fields. Empty spaces between fields can be prevented by moving fields or changing their size.

Entering text in a text field

1. Click on the **Report Designer** tab.
2. Double-click on a text field in the report template and enter the text via the keyboard.
- Text appears as a fixed block if the report template is selected in the **Report Wizard**.

Saving a report template

1. Click on the **Report Designer** tab.
2. Click on **Save** 💾.
- The Windows dialogue for saving files is opened.
3. Enter a file name and click on **[Save]**.
- The report templates are saved in a folder based on the operating system and operating system language.
> To find the report templates: Select the search function in Explorer and search for the ***.repx** file.
- Report templates (file format .repx) will be displayed.

Deleting a report template

i	• Note that report templates are deleted permanently. After they are deleted, report templates **cannot** be restored.
	• Only "User" type report templates can be deleted.

Requirement: the Report Designer must be closed.

1. In IRSoft, in the ribbon, click on the **Settings** tab.
2. In the ribbon, click on the **Report Designer**.
- The dialogue box is opened.
3. Select the report template that you wish to delete.
4. Click on **[Delete]**.
- The confirmation request is opened.
> If you wish to permanently delete the report template: Click on **[Yes]**.
> If you wish to cancel the process: Click on **[No]**.

Editing the page layout

1. Click on the **Preview** tab.
2. Use the editing functions in the ribbon to adjust the page layout.

6.8. Configuring the instrument

The configuration makes it possible to perform settings on the thermal imager using IRSoft.

In both tabs **Picture settings** and **Instrument settings**, all settings can be performed that can also be performed using the instrument menu of the thermal imager. For this, please also observe the instruction manual for the thermal imager.

A user-defined material list from specified materials (including the associated emissivity) can also be copied over to the imager. Additional functions can be activated in the imager by entering an activation code, e.g. SuperResolution (not for testo 880) and full radiometric video measurement (only for testo 885-2 and testo 890-2).

Requirement:

• Thermal imager is connected to the PC
• Thermal imager is switched on and recognised by the PC

1. In the ribbon, click on the **Imager** tab.
2. Click on **Configuration** 🐾.
- The **Characteristics of Testo Thermal Imager** dialogue window is opened.
3. Choose between image and instrument settings.
4. Complete the settings (see Picture settings page 45 and Instrument settings page 47).
> If you wish to transfer the settings to the thermal imager: Click on **[Apply]**.
> If you wish to discard the settings: Click on **[Cancel]**.
5. Click on **[OK]**.
- The dialogue window is closed.

Picture settings

Function availability depends on the model of the connected imager.

Function	Settings
Selecting the temperature scale	Choose between automatic and manual scaling: > Select the desired option. > With the selection of **manual**: Enter the min. and max. value.

Function	Settings
Setting the palette, temperature unit, LCD brightness, measuring range	Select required settings: > Click on ▾ and select the desired value from the drop-down list.
Transferring materials	Transfer the desired materials with the corresponding emissivity to the thermal imager or IRSoft: ⓘ The language of the materials to be chosen from depends on the language of the operating system. The language of the materials present in the thermal imager depends on the setting of the instrument language during commissioning. It is therefore possible that materials are displayed in different languages. 1. Click on the materials in the **Materials in thermal imager** list that are not required and remove these by clicking on ⟨⟨. 2. Click on the required materials in the **For selection of stationary materials** list and copy these by clicking on ⟩⟩ in the thermal imager. A maximum of 8 materials can be saved in the thermal imager.
Emissivity settings	Activate desired material: > Click on ▾ and select the desired material from the drop-down list. > With the selection of **User-defined**: Enter the value of the emissivity.

Instrument settings

Function availability depends on the model of the connected imager.

| Function	Settings
Setting **Language**	Activate the desired language: > Click on ▾ and select the desired language from the drop-down list.
Switching the **Power save function** on/off	Select the desired setting (**Switch off imager** or **Switch off LCD**): > Click on ▾ and select the desired function from the drop-down list.
Automatically hide (function keys, cursor, scale)	Activate the desired function: > Click on the desired functions to activate them (☑).
Carrying out **factory reset**	Carry out a factory reset: 1. Click on **[Factory reset]**. - A confirmation request will follow. 2. Click on **[Yes]**.
Synchronizing with PC clock	Synchronize the date and time of the instrument with the PC: > Click on **[Synchronize with PC clock]**.
Firmware Update…	The imager software (firmware) can be updated. Current firmware data can be downloaded from **www.testo.com/download-center** 1. Click on **Firmware Update…**. - The Windows dialogue box for opening files appears. 2. Select the update file and click on **[Open]**.
Activation code entry	Activate additional functions in the imager: > Enter the activation code and click on **[Confirm]**.

6.9. Video (only for testo 885 / 890)

With the video function, the thermal image from the imager can be displayed live on the PC and recorded.

With the testo 885-2 and testo 890-2, it is possible to carry out full radiometric video measurement and capture a logger sequence (optional instrument function).

> Select the **Video** tab.

Work space
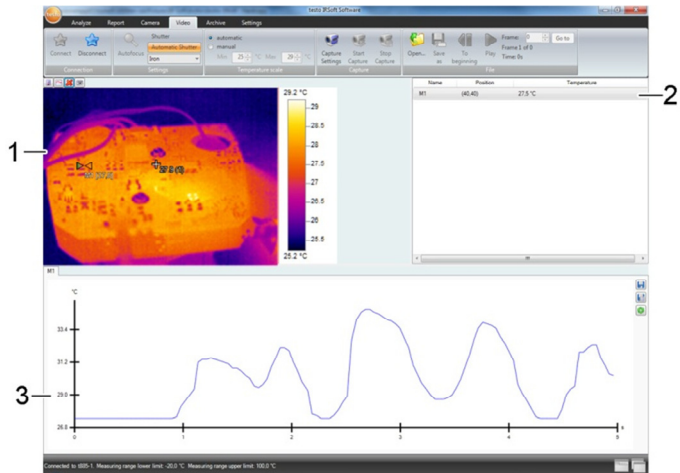
1 Video stream
2 Image marks
3 Profile

The size of an area can be adjusted by clicking and dragging the area border.

6.9.1. Establishing/disconnecting a connection

The connection to the imager can be established and disconnected again.

> Click on **Connect** to establish a connection to the imager
- The image is displayed in the software.
> Click on **Disconnect** to disconnect the connection.

6.9.2. Settings

Camera settings can be carried out using the software.

Initiating auto-focus

This function is only available if auto-focus was enabled in the camera before a connection was established.

> Click on **Autofocus**.

Initiating the shutter manually

> Click on **Shutter**.

Enabling/disabling the automatic shutter function

In the case of stable environmental conditions and set-ups that do not heat up the sensor/camera, the automatic shutter function can be disabled to avoid interruptions in the video. Deviations in accuracy and image quality are negligible in a period of up to 60 minutes.

i	The disabled status remains even after the camera has been disconnected from the PC. Re-enabling can be carried out by re-starting the camera.

> Click on **Automatic Shutter**.

If **Automatic Shutter** has an orange background, the function has been enabled.

Changing the colour palette

i	The palette setting remains in the camera even after the camera has been disconnected from the PC.

> Click on and select the required palette from the drop-down list.

6.9.3. Capturing a video/logger sequence

Start "Wizard for capture settings" and select "Capturing mode"

1. Click on **Capture Settings** .
- The **Wizard for capture settings** is opened.
- The **First steps** tab includes a description of the capture functions. This tab can be hidden: **Do not show this page again**.
2. Click on the **Capturing mode** tab.
3. Select the required capturing mode:
   • **Capturing of a video**: capturing a video sequence.
   • **Capturing a logger sequence** (only testo 885-2 and testo 890-2 with option of full radiometric video measurement):

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capturing a sequence of individual images with a defined start, duration and interval.

Capturing of a video: settings

The folder, file name, file format and maximum size or length of the video can be set.

4. Click on the **Settings** tab.

5. **File**: click on **[Browse…]** and enter the parameters/settings:

> ℹ️ The videos can be saved in various formats:
>
> - MPEG file (only for cameras with 33 Hz)/WMV file (compressed or uncompressed):
>   video file in which pure image data is saved but no measuring values (temperature or humidity values). Existing image marks (measuring points and profile lines) are also saved as image data and cannot be subsequently changed or deleted.
>   If an image mark has been set, when video capturing is carried out, the capturing of the measuring value diagram is started automatically, but there is no automatic saving. Saving measuring value diagrams as an image or exporting them as an Excel file must be done after video capturing manually via the relevant buttons, separately for each measuring value diagram.
> - VMT files (full radiometric video, only testo 885-2 and testo 890-2 with option of full radiometric video measurement): Video file in which image data, measuring values and image marks are saved. Saved files can be played back in testo IRSoft and subsequently analysed by adding or changing image marks.
>   The number of individual files captured (frames) per second corresponds to the video frequency of the camera, provided the system environment supports this frequency (see system requirements), but max. 25 Hz.

> Select folder and enter file name.

> Select the file format and click on **[Save]**.

6. **Stop capturing after…**: select **MB** (limit according to file size in megabytes, max. 4000 MB) or **sec** (limit according to duration in seconds, max. 86400 s, corresponds to 24 h) and enter the required size or duration for the video.

Capturing of a logging sequence: settings

Start criterion, capturing interval and file name/file format can be set.

4. **Start** tab: select a start criterion and enter the parameters:
   - **Immediately**: capturing starts when you click on **Start Capture**.
   - Limit value over/undershooting: capturing starts during the first over or undershooting of the set temperature after clicking on **Start Capture**.
   - Timed: capturing starts after expiry of the entered duration (max. 24 h 00 min, min. 0 h 1 min) after clicking on **Start Capture**.
5. **Interval** tab: enter the number of images to be saved and the capturing interval (min. 3 s).
6. **File** tab: select a file format and enter the parameters/settings:

> **ℹ** The logger sequences can be saved in various formats:
> - BMT files:
>   sequence of individual image files (thermal images). Image marks (measuring points and profile lines) are also saved as image data and cannot be subsequently changed or deleted.
>   If an image mark has been set, when sequence capturing is carried out, the capturing of the measuring value diagram is started automatically, but there is no automatic saving. Saving measuring value diagrams as an image or exporting them as an Excel file must be done after image sequence capturing manually via the relevant buttons, separately for each measuring value diagram.
>   The individual thermal images of the sequence can be displayed under the **Analyze** tab and analysed.
> - VMT files (full radiometric video, only testo 885-2 and testo 890-2 with option of full radiometric video measurement): Video file in which image data, measuring values and image marks are saved. Saved files can be played back in testo IRSoft and subsequently analysed by adding or changing image marks.
>   The playback speed (frames per second) corresponds to the video frequency of the camera, if the system environment supports this frequency (see system requirements), but max. 25 Hz.

> **VMT**: click on **[Browse…]**, select folder and file name and click on **[Save]**.
> **BMT**: click on **[Browse…]**, select the folder and click on **[OK]**. Enter prefix for the file name.

Saving capture settings

7. Click on the **Summary** tab.
8. Check the settings and click on **[Finish]**.

Starting/ending capture

> i   The video is saved under the file name and location
>   selected in the capture settings.

- The capture settings have been carried out.
> Click on **Start Capture**.
- Capture is started.

- The diagrams of the set measuring points/profile lines are
  captured after the start of the capture with the video. This
  enables diagram data that corresponds time-wise to the
  captured video to be saved.
> End capture manually: click on **Stop Capture**.
- If capture is not ended manually, it ends automatically
  according to the set capture criteria.

6.9.4. Playing/analysing/saving videos

Saved VMT files can be played in testo IRSoft and analysed using
the image marks. It is not possible to play saved MPEG/WMV- files
in testo IRSoft. For this, use separate software (e.g. Windows
Mediaplayer (recommended) or VLC Player).

Opening a video file

1. Click on **Open** 📁.
2. Select a video file and click on **[Open]**.

Playing a video file

> i   In logger sequence capturing mode, video playback is not
>   carried out in real time but in time lapse (with the image
>   refresh rate of the camera). The time stamp of the
>   individual images (frames) corresponds to actual time
>   during capture.

> Start playback: **Play**.
> Pause playback: **Pause**.
> Go back to the start: **To beginning**.
> Display a specific frame (individual image): enter number under
>   **Frame** and click on **Go to** or select frame with 🔼.

Analysing and re-saving saved videos

The analysis functions (see below) can also be applied to saved VMT files. The files can then be saved with the new/changed analysis data.

1. Click on **Save as**.
- Windows dialogue box for saving files is opened.
2. Enter a file name, select a file format and click on **[Save]**.
3. Click on **[OK]**.

Switching back to capturing mode

> Click on **Connect** to re-establish a connection to the camera

Determining measurement values at an IR image point

To determine the temperature at an IR image point.

1. Click on 🔳.
- A measuring point is inserted into the image.
- The current temperature and coordinates of the image point are displayed on the right next to the image.
- The measurement value characteristic curve of the image point is displayed in a measurement value chart below the image.

Creating a temperature profile

To display a temperature curve via a line.

1. Click on 🔳.
- A profile line is inserted into the image.
- The min./max./average temperature and coordinates of the profile line end points are displayed on the right next to the image.
- The current temperature curve of the measuring points on the profile line is displayed in a measurement value chart below the image.

Deleting/moving image marks on the IR image

> Click on the measurement mark on the IR image.
- The mark is highlighted red.
> If you want to delete the measuring point: click on **Delete** ❌.
> If you want to move the measuring point: hold down the mouse button and move the measuring point.

Producing a snapshot

One frame of the video stream can be captured and exported as a thermal image including image marks. No real image is attached to the thermal image.

1. Click on 🐾.
- Windows dialogue box for saving files is opened.
2. Enter a file name.
3. Select a folder and click on **[Save]**.

Saving a measurement value chart as an image

Measurement value charts can be saved as an image.

> **i**   Only image data is saved - no measurement values.

1. Select the relevant tab of the measuring point or the profile line and click on 💾.
- Windows dialogue box for saving files appears.
2. Enter a file name.
3. Select the location you want to save it to and click on **[Save]**.

Exporting measuring values from a measuring value diagram as an Excel file

1. Select the relevant tab of the measuring point or the profile line and click on 📄.
- Windows dialogue box for saving files appears.
2. Enter a file name.
3. Select the location you want to save it to and click on **[Save]**.

Re-starting diagram capturing

> Click on 🟢 to re-start the capturing of the measuring value diagram.

6.10. Archive (only for testo 885 / 890)

The archive function manages images captured with an imager that supports site recognition.

In the archive, measurement sites can be created and are then automatically assigned an identification number (ID). This ID can be transferred to the imager, and ID markers can be printed out and affixed to the measurement site. When carrying out a measurement on site, by setting a marker with the built-in digital imager, the images, which are then saved, are automatically allocated to the relevant measurement object (allocation is saved in this image). When transferring images to the PC, please use the import assistant and select the "Add to archive" option. The images are then saved automatically in the archive under the correct measurement object.

Work space
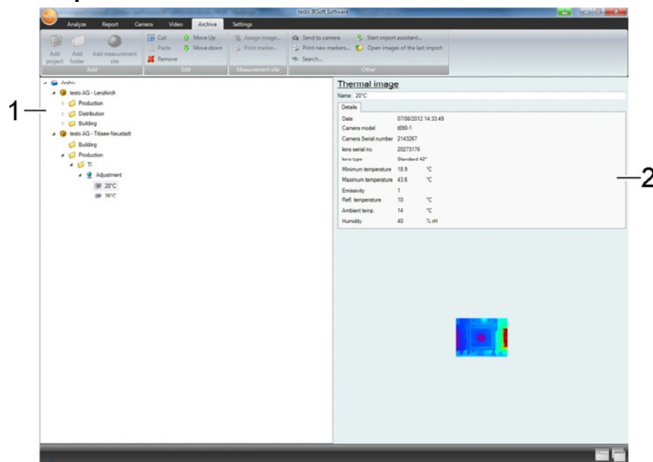
1   Archive tree
2   Information area

The size of an area can be adjusted by clicking and dragging the area border.

Opening an image from the archive
>   In the archive tree, double-click on the image you want to open.

Adding a project/folder/measurement object
To structure the archive data, projects can be created in the archive for which details in the form of address data can be saved. For further grouping, folders can be created within the projects (up to 3 folder levels are possible). Measurement objects can be created directly in a project or in folders.

Function	Procedure
Add project (only available at archive level)	> Click on **Archive**. 1. Click on **Add project**. 2. Enter a project name and the address data for the project.
Add folder (only available at the project and folder levels)	> Click on the project/folder in which you want to create a folder. 1. Click on **Add folder**. 2. Enter a folder name.

Function	Procedure
Add measurement site (only available at project and folder levels)	> Click on the project/folder in which you want to create a measurement object. 1. Click on **Add measurement site**. 2. Enter a measurement object name. - The measurement object is automatically assigned a unique ID.

Editing the archive

The archive structure can be changed.

Function	Procedure
Cut and **Paste**	1. Click on an element you want to reassign. 2. Click on **Cut**. 3. Click on the measurement object/folder/project to which the element is to be assigned. 4. Click on **Paste**.
Remove an element	1. Click on the project/folder/measurement object you want to delete. 2. Click on **Remove**.
Up or **Down** (moving an element)	1. Click on the project/folder/measurement object you want to move. 2. Click on **Up** or **Down**.

Further functions

Function	Procedure
Send to camera	1. Click on **Send to camera** to transfer the archive structure to the imager. - The archive structure is created in the imager.

Function	Procedure
Print new markers… (only available if there are still measurement objects without a printed marker)	1. Click on **Print new markers…**. - Dialogue box for printing markers appears. 2. Select the paper format used. 3. Click on the label at the position where the printing of the markers should be started. - The selected label is marked "1". Additional markers that are printed are marked "2", "3", …. 4. Click on **[OK]**. - A PDF file is created and can then be printed.
Search…	1. Click on **Search…**. - Dialogue box for searching for elements appears. 2. Select the element type you want to search for. > If necessary, enter the search filter criteria to limit the number of hits. 3. Click on **Start search**.
Start import assistant…	1. Click on **Start import assistant…**. - Dialogue box for searching for folders appears. 2. Select the folder from which you want to import data and click on **[OK]**. - The import assistant is opened. 3. For information on what to do next, see Using the Import Wizard, page **9**.
Open images of the last import	> Click on **Open images of the last import**. - All images of the last import process are opened.

Editing a measurement object

An image can be assigned manually to a measurement object. An ID marker for a measurement object can be printed. This function is suitable for reprinting markers for individual measurement sites.

Function	Procedure
Assign image…	1. Click on the measurement object to which an image should be assigned. 2. Click on **Assign image…**. - Windows dialogue box for opening files appears. 3. Select the image to which you want to assign the measurement object and click on **[Open]**.
Print marker…	1. Click on the measurement object for which you want to print an ID marker. 2. Click on **Print marker…**. - Dialogue box for printing markers appears. 3. Select the paper format used. 4. Click on the label at the position where the marker should be printed. - The selected label is marked "1". 5. Click on **[OK]**. - A PDF file is created and can then be printed.

7 Tips and assistance

7.1. Questions and answers

Question/problem	Possible causes/solution
How can the software be uninstalled?	> To uninstall the software, insert the program CD and follow the instructions of the Uninstall Wizard. If the process does not begin automatically, start the **Setup.exe** file.
How can I get information about software updates?	> Make sure that in the **Settings** tab in the **Program updates** group, the **Automatic check** function is activated. If this function is activated, you will regularly receive information as soon as a new update is available.
How can a software update be performed?	When performing a software update, the existing version does not have to be uninstalled. 1. Download the software update from the Internet to your PC. 2. Perform the installation of the new version, see **Installing the software/driver** page 8.
Then imager cannot be configured.	> Check if the instrument is recognised by the PC. > Check the connection between the instrument and the PC.
The Import Wizard does not start up.	> Start up IRSoft before connecting the thermal imager. > Check whether the Import Wizard is active: **Imager** tab | **Import Wizard**.
--- or **+++** is shown instead of the reading.	The reading was outside of the measurement range when the infrared image was recorded. No reading is available for the selected measurement point.

Question/problem	Possible causes/solution
xxx is shown instead of the reading.	Reading cannot be calculated. > Check parameter settings for plausibility.
The entire surface of a humidity image is shown in one colour.	The parameters **Temperature** and **Humidity** were not entered correctly in the camera. The humidity image cannot be shown correctly without these values. > Correct parameter settings.

If we could not answer your question, please contact your dealer or Testo Customer Service. For contact details see the rear side of this document or the web page www.testo.com/service-contact.

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