



IRSoft – PC software

Instruction manual



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1 About this document

- Please read this instruction manual 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 injury and damage to the product.
- Keep this documentation to hand so that you can refer to it when necessary.
- Hand this instruction manual on to any subsequent users of the product.



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

Symbols and writing standards

Display	Explanation
	Note: basic or further information
1 2 ...	Action: several steps, the sequence must be followed
>	Action: one step or optional step
▶	Result of an action
✓	Requirement
Menu	Elements of the program interface
[OK]	Buttons of the program interface
... ...	Functions/paths within a menu
"..."	Example entries

2 Specifications

2.1 Use

The IRSofT software is used to analyze, process and archive the images taken by a Testo thermal imager. It also has integrated reporting for the clear presentation of the data. Settings can be made on the connected thermal imager via the instrument control.

2.2 System requirements

Operating system

The software can be run on the following operating systems:

- Windows® 10
- Windows® 11

Computer

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

- 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 or AMD Athlon 64 X2 4400+
 - 4 GB RAM
 - 3 GB available hard drive capacity
 - DirectX 9c graphics device
 - For computers with Windows 7 operating system: WDDM 1.0 driver

Information/special requirements for the video function:

- 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.
- We recommend using a dedicated graphics card with its own local memory.
- 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 a 64-bit operating system
 - Using a dedicated graphics card with its own local memory.
 - Capturing without analysis tools, which can be added during later evaluation.

3 First steps

3.1 Installing the software/driver



Administrator rights are required for installation.

- > You can download the software free of charge and licence-free via the following link: **www.testo.com/irsoft**.
- ▶ The installation program starts automatically.

If the installation program does not start automatically:

- 1 Open the download folder and launch IRSoft.exe.
 - 2 Follow the instructions of the installation wizard.
 - 3 Click on **[Finish]** to complete the software installation.
-



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 will be established.
 - ▶ The driver installation will be carried out automatically.

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

- ✓ The **Found New Hardware** window opens.
- 1 Click on **Search for and install driver software** and then on **[Continue]**.
 - 1.1 If the driver is not automatically found:
Click on **Search computer for driver software** and then on **[Browse]**. Enter the following path:
Windows® 32 bit
C:\Program Files\Testo\IRSoft\USBDriver

Windows® 64 bit
C:\Program Files (x86)\Testo\IRSoft\USBDriver

- ▶ The **Windows Security** window opens.
- 2 Click on **Install this driver software anyway**.
- 3 Click on **[Close]**.

3.2 Launching the software

Start IRSoft



The user interface of the software is opened in the language of the operating system, if it is supported. If the operating system language is not supported, the user interface will be in English.

- > Click on  | **(All) Programs | Testo | IRSoft**.

Establishing a connection with the instrument

- 1 Press the  button to switch the instrument on.
- 2 Connect the instrument to the PC using the USB cable.
- ▶ The connection will be established.
- ▶ The instrument switches to slave mode, and all control keys on the instrument are disabled except for the  button.
- ▶ The instrument is identified by the PC as a USB mass storage device. The operating system automatically assigns a drive letter to the instrument's memory (SD card). This is displayed in Windows Explorer.

Using the Import Assistant

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



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

- 1 Click on **[Next]**.
- 2 Highlight the folders or images to be transferred. Selecting a folder automatically includes all subfolders.

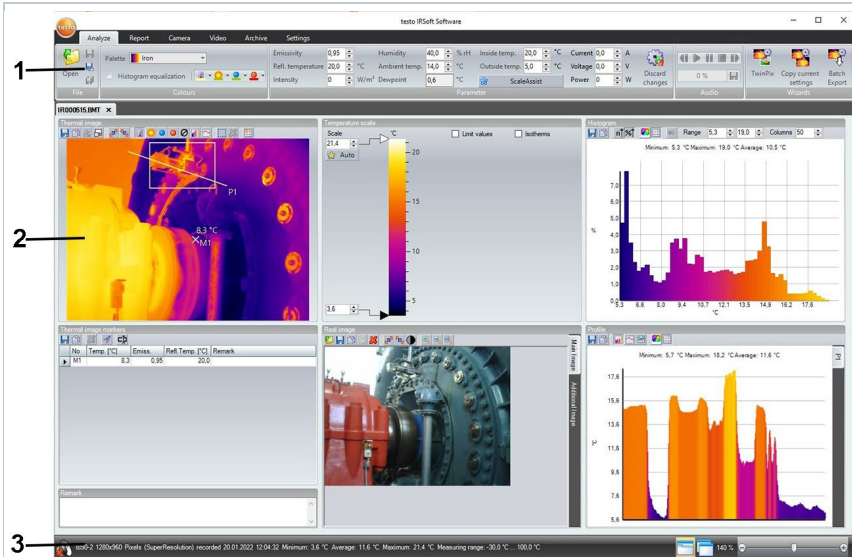
- 3 Click on **[Next]**.
- 4 Select the location you want to save them to:
 - In the archive (only for images from imagers that support the SiteRecognition function, e.g. testo 883 / testo 885 / testo 890)
 - In the file system (target directory must be specified).
- 5 If required, activate the optional functions **Set target directory as default** and **Delete data in the device after copying**.
- 6 Click on **[Next]**.
 - When importing to the file system: in the selected target directory, a folder is created with the date of the data transfer to prevent previous folders with the same name from being overwritten. 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.
- 7 Click on **[Finish]**.
 - ▶ The Import Assistant is closed.

Enabling/disabling the Import Assistant

- > Click on the **Camera** tab in IRSofT and make the required change in the **Import Assistant** group.

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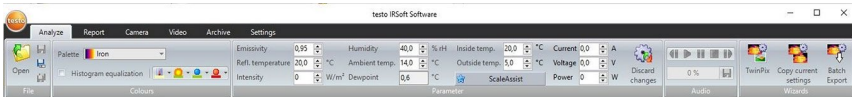
4.1 User interface



3

Element		Element	
1	Multifunction bar	2	Workspace
3	Status bar		

4.2 Multifunction bar



The multifunction bar helps you to carry out modifications/settings and to find the associated functions and commands quickly.

The functions and commands are divided into different groups under these tabs: **Analyze**, **Report**, **Camera**, **Video**, **Archive** and **Settings**.

Depending on the tab selected, the functions/commands below vary.

The **Analyze** tab contains functions/commands for:

- Opening and saving IR images
- Setting and copying image properties
- Playing/saving audio comments

- Creating image overlays (IR image - real image)
- Exporting multiple images simultaneously



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

The **Report** tab contains functions/commands for:

- Creating reports
- Editing reports

The **Camera** tab contains functions/commands for:

- Configuring the imager
- Enabling/disabling the Import Assistant

The **Video** tab contains functions/commands for:

- Capturing and analyzing videos
- Customizing the capture settings
- Opening and saving IR videos

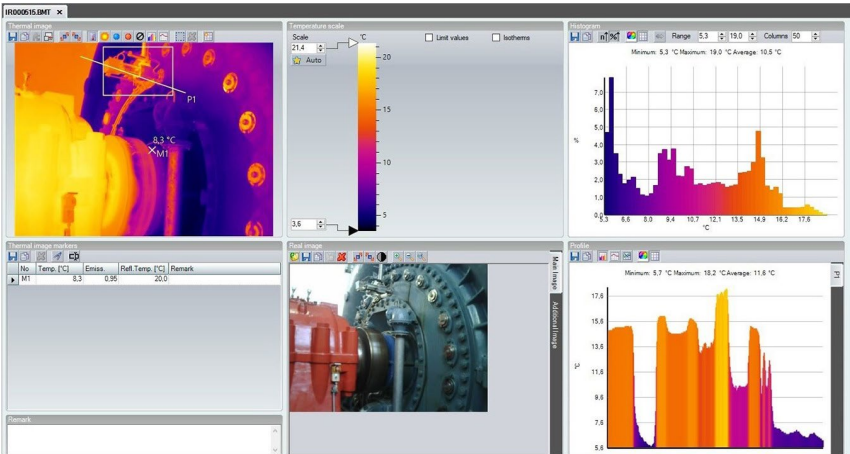
The **Archive** tab contains functions/commands for:

- Creating and editing archives
- Archiving images (for cameras with the site recognition function)
- Printing markers
- Creating reports
- Searching for and opening archived images

The **Settings** tab contains functions/commands for:

- Setting the workspace view
- Setting the IR image presentation
- Setting the temperature unit
- Setting the user interface view (colour scheme)
- Enabling/disabling tool tips
- Enabling/disabling the automatic program update
- Setting the image preview (IR image / real image)
- Creating user-generated report templates
- Setting the display language

4.3 Workspace



Information is displayed and edits are carried out in the workspace. The workspace display changes depending on the page layout selected. The workspace is divided into different document windows:

1. Thermal image (see 5.4.1 Thermal image document window)
2. Temperature scale (see 5.4.2 Temperature scale document window)
3. Histogram (see 5.4.3 Histogram document window)
4. Thermal image markers (see 5.4.4 Thermal image markers document window)
5. Real image (see 5.4.5 Real image document window)
6. Profile (see 5.4.6 Profile document window)
7. Remark (see 5.4.7 Remark document window)



Depending on the workspace view selected and the screen size, not all document windows are visible. Use the scroll bars if necessary.



The workspaces in the **Video** and **Archive** tabs are set up differently. Refer to the description in the relevant sections.

4.4 Status bar



Information about the open image is displayed in the status bar: Audio comments exist (playback possible by clicking on the symbol) / do not exist , imager type, number of pixels, image type (only in the case of

4 Product description

SuperResolution and panoramic images), recording date and time, min./max./mean value and measuring range.

You can change the workspace view via  (Tabbed windows) and  (Overlapping windows).

The size of the workspace sections can be adjusted using the zoom function . This is only available for specific section layouts.

5 Using the software

5.1 Performing program settings

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

5.1.1 Changing the workspace view

Tabbed windows/overlapping windows

- 1 Click on the **Settings** tab in the multifunction bar.
- 2 Change the workspace view in the **Layout** group.



For quick changes to the workspace view: click on  (Tabbed windows) or  (Overlapping windows) in the status bar.

Tab groups

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

- ✓ At least 2 IR images are open.
 - ✓ The **Tabbed windows** workspace view is selected, see above.
- 1 Right-click on the tab of an IR image that you would like to compare with another IR image.
 - ▶ A shortcut menu opens.
 - 2 Select the option **New Horizontal / New Vertical Tab Group** from the shortcut menu.
 - ▶ The IR image can be compared with the other IR image.
 - ▶ The tabs can also be organized in the **Settings** tab under the **Open images** section.



You can arrange images that are already open under one another or next to one another.



The user-defined settings for the workspace view are saved and are available again when the system is restarted.

5.1.2 Image quality

The image quality can be optimized:

- **Image smoothing**: the image quality is optimized using a calculation method.
- **Radial distortion correction** (not available for images from testo 870, testo 880, testo 885, testo 890): compensates for any visual distortion when capturing images with wide-angle lenses.
- **Display temperature values**: temperature values for the set measuring tools (e.g. measure point, average, hot & cold spot) are displayed in the thermal image.

- 1 Click on the **Settings** tab.
- 2 Activate/deactivate the required function under the **Image quality** group.

5.1.3 Temperature unit

Temperature readings can be displayed in either **°C** or **°F**.

- 1 Click on the **Settings** tab.
- 2 Select the required option in the **Temperature unit** group.

5.1.4 Colour scheme

The colour scheme for the software interface can be set.

- 1 Click on the **Settings** tab.
- 2 Select the required option in the **Color scheme** group.

5.1.5 Tool tips

All of the functions and commands available in this software are described in more detail in Tool tips in IRSoft.

- > Move the mouse pointer over the functions/commands in IRSoft.
- ▶ Tool tips are displayed.

Activate/deactivate Tool tips:

- 1 Click on the **Settings** tab.
- 2 In the **Tool tip** group, select the option **Show/Hide**.

5.1.6 Program update

The software can automatically search for program updates. An internet connection is required for this. If an update is available, you will be notified.

- 1 Click on the **Settings** tab.
- 2 Activate/deactivate the **Check automatically** feature in the **Program update** group.

5.1.7 Preview image

Instead of the thermal image, the attached real image (if available) can be used for the Explorer preview.

- 1 Click on the **Settings** tab.
- 2 Activate/deactivate the **Real image preview** function in the **Settings** group.



Following the switch-over, sometimes the Windows Explorer still displays the old preview images, since images were saved in the background.

Remove old preview images:

- 1 Click on the Windows Start icon.
 - 2 In the field **Search programs/files**, type the command "Disk Cleanup".
 - ▶ The **Disk Cleanup** program is displayed under **Program**
 - 3 Click on **Disk Cleanup**.
 - ▶ Search starts.
 - ▶ If multiple drives are present on the PC, the drive containing the old preview images must be selected in the **Drive** dialogue box with a mouse click.
 - 4 Press **OK**.
 - ▶ The program scans the drive for files that can be deleted.
 - 5 In the dialogue box, select the program file **Thumbnail views** by clicking on it (put a ✓).
-

- 6 Press **OK**.
 - 7 Click on **Delete files**.
 - ▶ The old preview images will be removed from the drive.
-

5.1.8 Program language

The program interface language can be changed.

- 1 Click on the **Settings** tab.
- 2 Click on  and select the required language from the drop-down list.
- 3 Confirm the advisory message with **[OK]** and restart the software.

5.1.9 Report templates

User-specific report templates can be created, see 5.7 Report Designer.

5.2 Selecting images



During the image selection of IIRSoft, the following images are shown:

- IR images without attached real image (**IR**).
- IR images with attached real image (**IV**).

Real images alone (**VI**) are not displayed.

Please use Windows Explorer for access to the real images.

Opening IR images



The number of images that can be opened in parallel is limited depending on their size (pixel count):

- 160 x 120: approx. 52 images
 - 320 x 240: approx. 50 images
 - 640 x 480: approx. 36 images
 - 1280 x 960: approx. 20 images
 - 1712 x 1214: approx. 9 images
-



In the **Report wizard** menu, more stored images can be opened than the above-mentioned quantity of images for opening in parallel, depending on their size. To do this, first close all images in IIRSoft and then **open the Report wizard** menu, see 5.5 Creating a report.

- 1 To open IR images:
 - 1.1 Click on the Testo logo  in the multifunction bar and select **Open**  or
 - 1.2 Click on the **Analyze** tab and select **Open** .
- 1.1 If the Windows dialogue with the IR images does not open: navigate to the directory with the IR images.
- 1.2 If you wish to display preview images: in the Windows dialogue **Menu View**  | select **Thumbnail view**.
- 2 Highlight one or several IR images. If you wish to select multiple images: Hold down the Ctrl key and click on the images.
- 3 Click on **[Open]**.
 - ▶ The selected IR image will be displayed in the **Thermal image** document window.
 - ▶ If you have opened an IR image with an attached real image: the real image will be displayed in the **Real image** document window.
 - ▶ If multiple images were highlighted: depending on the workspace view selected, the rest of the IR images will be displayed in individual tabs or individual windows.



To open images stored in the **Archive**, see 5.10 Archive (only for testo 885-2, testo 890-2 and testo 883).



Alternatively, you can also select an IR image when IRTSoft is not open. Please note that multiple IR images cannot be selected in this case.

- 1 Open Windows Explorer and navigate to the directory where the IR images are located.
- 2 Double-click on the IR image you wish to open.
 - ▶ IRTSoft starts automatically and the selected IR image will be displayed in the **Thermal image** document window.

Importing a real image

See 5.4.5 Real image document window.

5.3 Editing image properties

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



- Changes to the image properties will only be applied to the currently selected IR image in the **Thermal image** document window. To transfer image properties to other open IR images, see 5.3.5 Applying settings to multiple images.
- Changes to the **Parameter** group can affect the measurement result.
- The functions in the **Colors** group are for editing the visual presentation of the thermal image and have no influence on the measurement results.

- 1 In the multifunction bar, click on the **Analyze** tab.
 - 2 Edit the IR image properties using the functions and commands in the multifunction bar.
- ▶ If changes have been made but not yet saved, appears after the file name.

5.3.1 Colors

Selecting a palette

You can choose between several predefined 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.



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	Evaluation
green	0...64%RH	non-critical
yellow/orange	65...80%RH	potentially critical

Colour	Surface moisture	Evaluation
red	>80%RH	critical

Selecting colour for temperature measuring points, profile line and histogram area

- > Click on **Color temperature measuring points, profile line, histogram area**  and select a colour.

Selecting colour for temperature correction

Set the colour of region markers in the thermal image in the **Thermal image** document window.

- > Click on **Color region markers**  and select a colour for IR image area markers.

Selecting colour for cold/hotspots

- > Click on **Color coldspot**  / **Color hotspot**  and select a colour.

5.3.2 Parameter

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



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

Function	Procedure
Set Emissivity, Refl. temperature, Intensity, Humidity, Ambient temp., Inside temp., Outside temp.	> 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.
 ScaleAssist	The scale limits are automatically adjusted to the calculated ScaleAssist min./max. values. Blue star: Scale Assist is not being used. Yellow star: Scale Assist is active.

Function	Procedure
Current (A), Voltage (V), Power (W)	> 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.
Discard changes	> If you want to reset the changes back to the most recently saved parameters: Click on Discard changes  .



The humidity, ambient temperature, inside and outside 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.

5.3.3 Playing/saving audio comments

This 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),  (Start),  (Pause),  (Stop),  (Fast-forward).
- > Click on  to save the audio file in MP3 or Wave file format.

5.3.4 Creating an image overlay with TwinPix

An image overlay can be created from the IR image and the attached real image (taken with the thermal imager)¹ or the imported real image (taken with a separate imager) (see 5.4.5 Real image document window). Both images are then displayed together in one image. The images are aligned by setting marking points. The image overlay simplifies orientation within the image, making it easier to locate specific measuring points, for example.

- 1 Click on **TwinPix** .
 - ▶ The **Wizard for TwinPix** opens.

¹ The real-image lens and IR lens have a different slant due to the spatial separation. This means that the image areas do not correspond exactly (parallax error).

- ▶ 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 or on **[Next]**.

- 3 Set marking points in the IR image and in the real image. Please note the following:
- Set the marking points in 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 for the analysis (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 the marking point with the mouse button pressed.

To delete a marking point:

- > Select the point in the list below the image and click on **[Delete]**.
 - ▶ The point will be deleted. The corresponding point with the same number in the other image will also be deleted.

4 Click on **[Next]**.

- ▶ The image overlay is displayed.
- ▶ If the result is not satisfactory: Go back to the **Image markings** tab and optimize the marking points (move them, add more points).

The following functions are available to adjust the image overlay:

Setting the transparency level

The **Transparency level** controls the proportion of IR and real image in the overlay. The IR measurement values can even be read off with the setting 100% real image (no IR image visible).

- > Click on the slider. Hold down the mouse button and move the slider.

Setting infrared limit values

The observation area of the image overlay can be limited using the infrared limit values. Only values above an upper limit value or values below a lower limit value are displayed as infrared image information. In the non-relevant temperature range, only the real image is displayed.



When infrared limit values are activated, setting the transparency level to 100% infrared is recommend. This makes the relevant temperature ranges most clearly visible.

Function	Procedure
Activate Use upper limit value or Use lower limit value	> Activate the required limit value  .
Set Lower / upper limit value (only available when the limit value is activated)	> Click on the number and change it by means of input via the keyboard or via  or > Click on the slider for the lower / upper limit value. Hold down the mouse button and move the slider.

Setting the infrared range

The observation area of the image overlay can be limited using the infrared range. Only values between the two range limits are displayed as infrared image information. In the non-relevant temperature range, only the real image is displayed.



When the infrared range is activated, setting the transparency level to 100% infrared is recommended. This makes the relevant temperature range most clearly visible.

Function	Procedure
Activate Use infrared range	> Activate the temperature range  .
Set Lower/Upper range limit value (only available when the infrared range is activated)	> Click on the number and change it by means of input via the keyboard or via  or > Click on the slider for the lower / upper range limit value. Hold down the mouse button and move the slider.

5 Click on **[Finish]**.

- ▶ The wizard will be closed. The image overlay is applied to the **Thermal image** document window. All analysis functions can be applied to the image overlay, see 5.4 Analyzing images. When reporting, the overlaid image is displayed instead of the IR image.

- To cancel an image overlay, see 5.4.1 Cancelling image overlay.

5.3.5 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 or on **[Next]**.
- 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 required settings to activate them. (☒).
- 6 Click on **[Next]**.
 - The image settings are copied over. The result is displayed as a
- 7 Click on **[Finish]**.



If the selected images have different detector sizes, you will receive an error message.

"Error: The selected images have different detector resolutions."

5.3.6 Batch export

Multiple images can be exported at once without having to open them.

- 1 Click on **Batch export** .

- ▶ The wizard for the batch export opens.
 - ▶ The **Instructions** tab contains a description of the function. This tab can be hidden: ☒ **Do not show this page again.**
- 2 Click on the **BMT Files** tab or on **[Next]**.
- 3 Choose an option to select the images to be exported:
 - **Export the images that are currently open.**
 - **Export images from the file system:** **[Add...]** opens the Windows dialogue box for opening files and the images can be added.
- 4 Click on **[Next]**.
- 5 Choose an option to select the target folder:
 - **Export to source folder.**
 - **Export to this folder:** **[Browse...]** opens the Windows dialogue box for searching for folders and the target folder can be selected.
- 6 Click on **[Next]**.
- 7 Choose an option to select the file format.
- 8 Click on **[Next]**.
 - ▶ The export is carried out. The result is displayed as a table.
- 9 Click on **[Finish]**.

5.4 Analyzing images

IR images can be edited and analyzed in the individual document windows below the workspace.

5.4.1 Thermal image document window

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

- Saving/exporting an IR image
- Copying an IR image to the clipboard
- Extracting individual images from a panoramic image
- Exporting an image with detector resolution from a SuperResolution image (standard imager resolution)
- Rotating an IR image

- Determining measurement values at an IR image point
- Temperature correction in an IR image area (adjust emissivity and reflected temperature for the specific area)
- Identifying hotspots/coldspots within an IR image area
- Determining the average temperature of an IR image area
- Creating a histogram of an IR image area
- Creating a temperature profile for a profile line
- Moving/deleting measuring points/areas
- Carrying out data agglomeration
- Cancelling image overlay (TwinPix)

Saving/exporting an IR image



When exporting IR images in BMP, JPG and PNG format, only the image data is exported, not the readings.

If you want to create a temperature table for the IR image, the IR image must be saved in XLS/XLSX format (Excel).

- 1 Click on **Save thermal image** .
 - ▶ Windows dialogue box for saving files opens.
- 2 Enter a file name.
 - 2.1 If you wish to export the temperature values of the IR image: Select file format XLS.
 - 2.2 If you wish to export the image data of the IR image: Select file format BMP, JPG or PNG.
- 3 Select the location you want to save it to and click on **[Save]**.

Copying an IR image to the clipboard

When you copy the IR image to the clipboard, an IR image file and also the temperature value of each individual pixel of the thermal image can be pasted into other programs.

- 1 Click on **Copy to clipboard** .
- 2 To insert an image file/text file into Excel, Powerpoint or Word:
 - 2.1 Open the required program.
 - 2.2 In the toolbar of the program, click on the **Start** tab.

2.3 Select the **Insert** menu.

2.4 From the shortcut menu, select the option **Insert content....**



Insert image file/text file into Libre/OpenOffice Calc, Impress or Writer:

1. Open the program.
2. In the toolbar of the program, click on the **Edit** tab.
3. Select the **Insert content...** menu.
4. Select **Bitmap** from the opened menu.
5. Click on **[OK]**.

- > If you wish to insert an IR image file: select the **Bitmap** option and click on **[OK]**.
- > If you wish to insert the temperature of each individual pixel in the IR image: select the **Text** option and click on **[OK]**.

Extracting individual 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 opens.
 - ▶ 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 individual 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 opens.
- 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 an IR image

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

Determining measurement values at an IR image point

To determine the temperature, the emissivity and the reflected temperature at an IR image point.



If you wish to determine the temperature within one IR image area (temperature correction), you should first highlight the IR 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 a point in the IR image.
 - ▶ The temperature, emissivity and reflected temperature of the measuring point set here will be displayed in the **Thermal image markers** document window.

For more information on editing the measurement results (e.g. changing the emissivity), see 5.4.4 Thermal image markers document window.

Temperature correction in an IR image area

To determine emissivity and reflected temperature within an IR image area.



IR image areas with temperature correction should not overlap, as only one emissivity and one reflected temperature per pixel is correct.

If two IR image areas do overlap, the parameters (emissivity and reflected temperature) of the most recently entered IR image area will be used to determine the temperature.

- 1 Click on **Temperature correction**
 - 2 Select a marking form from the drop-down menu (Rectangle, Circle, Ellipse, Polygon or Whole Image)
 - 3 With the mouse button pressed, drag the mouse to highlight an IR image area in the thermal image.
- ▶ Measurement results for the selected IR image area will be displayed in the **Thermal image markers** document window.

For more information on editing the measurement results, see 5.4.4 Thermal image markers document window.

Identifying hotspots/coldspots

To determine the hottest/coldest point within an IR image area.

- 1 Click on **Coldspot** / **Hotspot** .
 - 2 Select a marking form from the drop-down menu (Rectangle, Circle, Ellipse, Polygon or Whole Image).
 - 3 With the mouse button pressed, drag the mouse to highlight an IR image area in the thermal image.
- ▶ The hotspot/coldspot of the selected IR image area will be displayed in the **Thermal image markers** document window.

Determining the average temperature

To determine the average temperature within an IR image area.

- 1 Click on **Average**
- 2 Select a marking form from the drop-down menu (Rectangle, Circle, Ellipse, Polygon or Whole Image).
- 3 With the mouse button pressed, drag the mouse to highlight an IR image area in the thermal image.

- ▶ The average temperature of the selected IR image area will be displayed in the **Thermal image markers** document window.

Creating a histogram

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

- 1 Click on **Histogram** .
 - 2 Select a marking form from the drop-down menu (Rectangle, Circle, Ellipse, Polygon or Whole Image).
 - 3 With the mouse button pressed, drag the mouse to highlight an IR image area in the thermal image.
- ▶ The temperature distribution in the selected IR image area will be displayed in the **Histogram** document window.

Creating a new histogram deletes the existing one.

For more information on editing the histogram, see 5.4.3 Histogram document window.

Creating a temperature profile

To display a temperature curve via a line.

- 1 Click on **Temperature profile** .
 - 2 Select the orientation of the profile line from the drop-down menu (Horizontal, Vertical, Arbitrary).
 - 3 Click and drag with the mouse button to draw a profile line in the IR image.
- ▶ The temperature profile will be displayed in the **Profile** document window.

Max. 5 profile lines per image can be created.

For more information on editing the temperature profile, see 5.4.6 Profile document window.

Deleting/moving image marks on the IR image



If IR image areas are moved, the measurement markers set in them should be moved along with them.

If the measuring point is to remain in the same position or if IR image areas are deleted, the parameters (emissivity and reflected temperature) of the measuring point must be checked.

- > Click on the measurement markers in the IR image (not possible if the **Temperature**  tool is activated) **or**
- > Click on the **Marking tool**  and, while holding down the mouse button, draw a frame around the measuring points/areas that you wish to delete/move.
- > If you wish to delete measuring points/areas: click on **Delete** .
- ▶ The measurement markers in the IR 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 drag the measurement points/areas to the required position.
- ▶ The measurement results will be updated according to the adjustments 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

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

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

5.4.2 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), manual scaling and ScaleAssist. The scale limits can be set within the measuring range that is valid for the image. All temperatures that go below or exceed the min./max. value are displayed in the colour of the min./max. value (depending on the selected colour palette). 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 down the mouse button and move the arrow.
Perform Automatic scale	> To perform automatic scaling: Click on [ Auto]. - The scale limits are adjusted to the min/max values.  When auto scaling and ScaleAssist are active, the star symbol is yellow.
ScaleAssist	> To activate ScaleAssist: 1. Enter the inside and outside temperature 2. Click on ScaleAssist - The scale limits are automatically adjusted to the calculated ScaleAssist min/max values.



You will find the **ScaleAssist** function in the multifunction window.

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 Lower/upper limit value (only available when limit values are activated)	> Click on the number and change it by means of input via the keyboard or via . or > Click on the tip of the arrow of the lower/upper limit value on the scale. Hold down the mouse button and move the arrow.
Select Lower/upper limit value color (only available when limit values are activated)	> Click on Color lower/upper limit value  and select a colour.
Set Transparency² (only available when limit values are activated)	1. Click on Color lower/upper 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 range limit can be defined. Temperatures between the lower and upper range limits are marked with one colour.

Function	Procedure
Activate Isotherms	> Activate the isotherms  .
Set Lower/Upper range limit value (only available when isotherms are activated)	> 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 range limit on the scale. Hold down the mouse button and move the arrow.

² The set value for transparency is also used for the limit values and isotherms.

Function	Procedure
Select Isotherm color (only available when isotherms are activated)	> Click on Color isotherms  and select a colour. If Rainbow is selected, the isotherm is displayed in a rainbow colour palette. This makes temperature gradations within the isotherm visible.  If Rainbow is selected, we recommend setting the colour palette of the IR image to Greyscale.
Set Transparency ³ (only available when isotherm limit values are activated)	1. Click on Color isotherms . 2. Click on the number next to Transparency and change it by means of input via the keyboard or via .

5.4.3 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 measuring points) and relative (percent of measuring points) scaling
- Setting the background colour for the histogram
- Show/hide grid lines of the histogram
- Total value range display of the diagram
- Manual adjustment of the value range (x-axis) of the diagram
- Setting the number of columns over the temperature range being assessed



Changes are only visible if a histogram had already been created in the **Thermal image** document window for the currently displayed IR image, see 5.4.1 Creating a histogram.

³ The set value for transparency is also used for the limit values and isotherms.

Function	Procedure
Saving a histogram as an image file	1. Click on Save file . - Windows dialogue box for saving files opens. 2. Enter a file name. 3. Select a file format (BMP, JPG, PNG). 4. Select the location you want to save it to and click on [Save].
Copying a histogram to the clipboard	1. Click on Clipboard . - Image file from the histogram can be inserted in other programs (e.g. Microsoft Word).
Selecting scaling	Choose between absolute (number of measuring points) and relative (percent of measuring points) scaling. > Click on Absolute scaling  or Relative scaling .
Selecting background colour	> Click on Background color  and select a colour.
Show/hide grid lines	> Click on Grid lines  .
Selecting value range	> Click on Total measuring range . or > Click on the number and change the value range (x-axis) of the diagram by means of input using the keyboard or via .
Specifying the 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 .

5.4.4 Thermal image markers document window

Displays the measurement results of the image markers that were implemented in the **Thermal image** document window. It is possible to change the emissivity and the reflected temperature of the inserted image marker at the same time here as well. Additional comments/remarks 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
- Calculating the temperature difference (**DeltaT**) between set thermal image markers or between an input value and thermal image markers.
- User-defined input fields
- Changing emissivity and reflected temperature for image markers at specific points/areas
- Entering remarks

Heading	Heading
Saving/exporting measurement results in Excel	Determined measurement results for the image markers are saved in an Excel spreadsheet. 1. Click on Save file . - Windows dialogue box for saving files opens. 2. Enter a file name. 3. Select the file format XLS. 4. Select the location you want to save it to and click on [Save].
Copying measurement results to the clipboard	 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, Excel).
Deleting image marker	1. Highlight the row to be deleted. 2. Click on Delete .

Heading	Heading
Delta T calculation	1. Click on [DeltaT] 2. Calculate the temperature difference: select the required thermal image markers or enter an input value. 3. Change the input value: click on the number and change it by means of input via the keyboard or by clicking  with the mouse. 4. Confirm by clicking [OK] - Up to 10 temperature differences can be calculated. - The results are displayed in a separate table in the Thermal image markers document window.
User-defined input fields	>Click on . - Thermal abnormalities and the load condition can be defined.  This information is displayed in the "Industry thermography (incl. SiteRecognition and equipment list)" report.
Changing emissivity and reflected temperature for image markers at specific points/areas	 Changes to the settings affect the measurement result. The settings should only be changed with the utmost caution! > Click on the value (emissivity or reflected temperature) in the table and change it using the keyboard or via . - The temperature value of the measuring point adapts to the set emissivity/reflected temperature. - Changes can be seen in the Thermal image document window.
Entering Remarks	> Click in the Remark field and enter the text using the keyboard.

5.4.5 Real image document window

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

- Importing a real image

- Exporting a real image
- Copying a real image to the clipboard
- Inserting a real image from the clipboard
- Deleting a real image
- Rotating a real image
- Changing the brightness of a real image
- Changing an image section
- Inserting an additional image

Function	Procedure
Importing a real image	1. Click on Open . - The folder containing the real images opens. 2. Select a real image and click on [Open]. - The selected real image will be displayed in the Real image document window.
Exporting a real image	1. Click on Save file . - The Windows dialogue box for saving files opens. 2. Enter a file name. 3. Select a file format (BMP, JPG, PNG). 4. Select the location you want to save it to 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).
Inserting a real image from the clipboard	> Click on Clipboard Insert . - A confirmation prompt appears. > 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 . - A confirmation prompt appears. 2. Click on [OK]. - The real image is deleted.

Function	Procedure
Rotating a real image	> Click on Rotate left  or Rotate right  .
Changing the brightness of a real image	1. Click on Brightness . - The dialogue box opens. 2. Change the brightness of the real image using the slider. 3. Click on [OK].
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.
Inserting an additional image	1. Click on [Additional Image] 2. Use Open file to add an additional image file to the thermal image.

5.4.6 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
- Show/hide grid lines

Function	Procedure
Saving a temperature profile as an image file	1. Click on Save file . - The Windows dialogue box for saving files opens. 2. Enter a file name. 3. Select a file format (BMP, JPG, PNG). 4. Select the location you want to save it to and click on [Save].
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 a filled profile: click on . Several profile lines are displayed in individual tabs (P1, P2, etc). > To select a line profile: click on . Several profile lines are displayed in individual tabs (P1, P2, etc). > To select a general line profile for all profile lines: click on .
Changing the background colour of the temperature profile	> Click on Background color  and select a colour.
Show/hide grid lines	> Click on Grid lines  .

5.4.7 Remark document window

- > Use the keyboard to enter remarks about the currently selected IR image in the text field.

5.5 Creating a report

You can create a report with one or more IR images. IR images that are already open can be selected, or stored IR images can be opened in the **Report wizard** menu.

The Report wizard guides you through the process. There are several report templates available to you for easy reporting:

- Thermal bridges in building envelopes according to EN 13187 (detailed method)
- Thermal bridges in building envelopes according to EN 13187 (simplified test)
- Industry thermography (incl. SiteRecognition)

- Industry thermography (incl. SiteRecognition and equipment list)
- Industrial thermography
- MaxiPicture
- MultiPicture
- Short report
- Standard report (incl. cover picture)
- Standard report (humidity)
- Standard report (solar)
- Standard report

1 | In the multifunction bar, click on the **Report** tab.

2 | Click on **Report wizard** .

▶ | The Report wizard opens.

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
- Ambient conditions
- Conclusion
- Preview

> | Work through the individual tabs from left to right and pay attention to the respective info tips  at the bottom of the window.

▶ | The data entered will automatically appear in the report.

Saving a report

1 | Click on the **Preview** tab.

▶ | A preview of the report is opened.

2 | Click on **Save report** .

- ▶ Windows dialogue box for saving files opens.
- 3 Enter a file name and select a file format.
- 4 Select the location you want to save it to and click on **[Save]**.
- ▶ The report will be saved in TIR file format. This will create a file containing the images and the report data entered.



Reports created with IRSOFT version 2.4 or higher 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** .
 - ▶ Windows dialogue box for saving files opens.
- 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.

Print report

- 1 Click on the **Preview** tab.
 - ▶ A preview of the report is opened.
- 2 Click on **Print** .
 - ▶ The Windows dialogue for printing the report opens.
- 3 If necessary, make the printing settings and click on **[Print]**.
 - ▶ The report is printed.

5.6 Editing a report

Data in a saved report can be edited.

- 1 Select the images you want to change and then click on **[Open]**.

- ▶ Report text remains in the Report wizard.
 - ▶ The selected thermal images are opened in IRSofT.
- 2 Carry out the required image editing.
- 3 Save the modified thermal images.
- 4 In the Report tab, click on **Report wizard**.
 - ▶ The edited image is inserted in the Report wizard.
 - ▶ The existing text is displayed.
- 5 Save the report with the changes.

5.7 Report Designer

Use the Report Designer to create your own report template by adapting an existing template to suit your requirements. Tools are available that allow you to customize and edit the report template.



The Report Designer is designed for the exclusive purpose of creating your own report templates. The report itself is created by selecting the report template in the Report wizard.

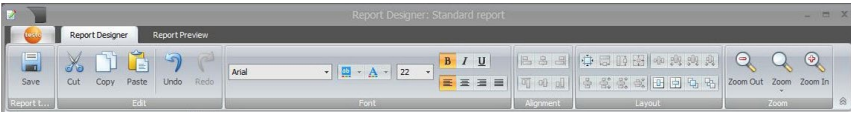
Opening the Report Designer

Prerequisite: at least one IR image must be open.

- 1 Select the **Settings** tab and click on **Report Designer** 
 - ▶ The dialogue box opens.
- 2 Select the report template that you would like to edit and click **[OK]**.
 - ▶ Report Designer is opened.

5.7.1 User interface

Multifunction bar



The multifunction bar helps you to carry out modifications/settings in the Report Designer and to find the relevant functions and commands quickly.

The functions and commands are divided into various groups, organized under the two tabs **Report Designer** and **Preview**.

Depending on the tab selected, the functions/commands and the workspace vary.

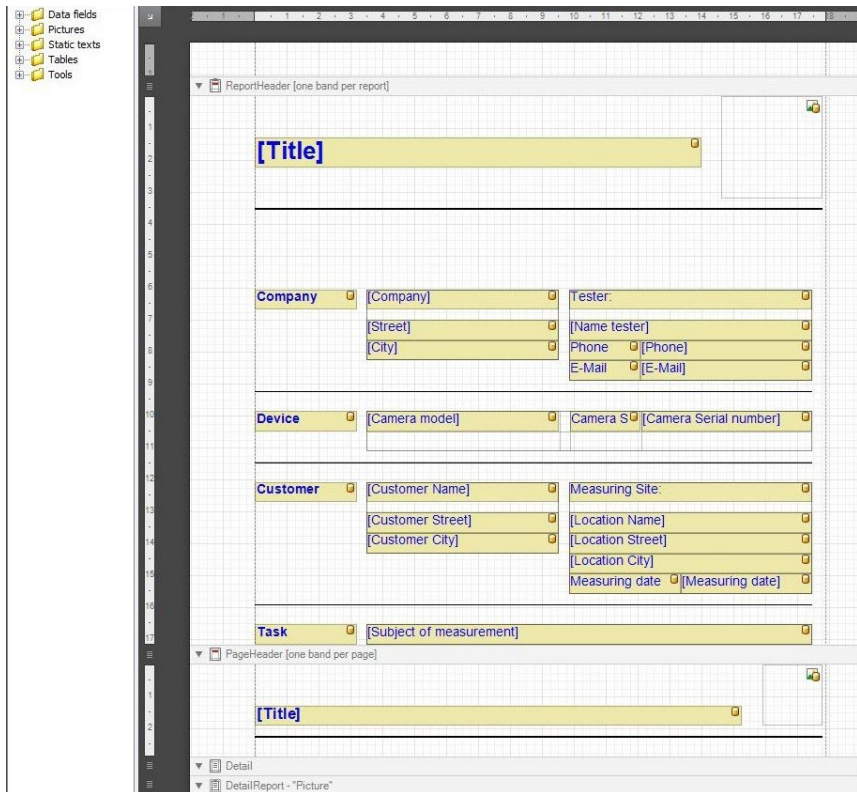
The **Report Designer** tab contains functions/commands for:

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

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

- Editing and aligning the page layout
- Zooming and navigating in the document
- Adding a watermark to the document

Workspace



Modifications are carried out in the workspace in the **Report Designer** tab. It consists of the file directory tree and the open report template. The file directory tree contains predefined fields that you can drag into the report template.

When the **Preview** tab is selected, the workspace view changes.

5.7.2 Functions and commands

All of the functions/commands available in the multifunction bar are described in more detail in the Tool tips.

- Move the mouse pointer over the functions/commands in the multifunction bar.
- Tool tips are displayed.

5.7.3 Editing a report template

Overview

The open report template consists of various sections. Fields can be added to or removed from each section:

- **Report Header:** contains fields with general information, which appears once in the report template (e.g. company, device, customer, 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.
- **Detail:** contains fields with information about the respective measurements (e.g. measuring location, ambient conditions, etc.)
- **Detail Report "Picture":** contains placeholders for image and text fields with information about the IR images (emissivity and reflected temperature, remarks about the individual IR images, histogram, temperature profile, etc.). The Detail Report "Picture" section is repeated in the report depending on the number of IR images.
- **Report Footer:** contains fields with information that appears at the end of the report template (e.g. general remarks, conclusion, date and signature, etc.)
- **Bottom Margin:** contains fields with information that appears on each page in the footer.



Text changes:

Only carry out text changes in fields without the symbol .

Dragging predefined fields into the report template

You can integrate data, images, tables and tools from the file directory tree into the report template, allowing you to customize it to meet your specific requirements.



Note the sections of the report template into which you drag the fields. For instance, image fields should only be integrated into the **Detail Report "Picture"** section. Because the image fields serve as placeholders, each may only be dragged once into the **Detail Report "Picture"** section.

- 1 Click on the **Report Designer** tab.
- 2 In the file directory tree, click on the required option.
- 3 Hold down the mouse button and drag the field to the required position in the report template.

- ▶ The field is aligned to the grid.



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 multiple fields:
 - 3.1 Hold down the Ctrl key and click on the fields **or**
 - 3.2 Drag the mouse to create a marker frame around the fields.
 - 4 Use the editing functions in the multifunction bar to modify the fields.
- ▶ The changes will be applied to all highlighted fields.

Aligning fields

Prerequisite: At least two fields must be highlighted.

- 1 Click on the **Report Designer** tab.
 - 2 To highlight multiple fields:
 - 2.1 Hold down the Ctrl key and click on the fields **or**
 - 2.2 Drag the mouse to create a marker frame around the fields.
 - 3 Use the editing functions in the multifunction bar 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 required position.

- ▶ The field(s) align to the grid.

Changing field size(s)

- 1 Click on the **Report Designer** tab.
- 2 In the report template, click on the field(s) whose size you wish to change.
- 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:
 - 3.1 On the keyboard, press the **[Del]** key **or**
 - 3.2 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** 
 - ▶ Windows dialogue box for saving files opens.
- 3 Enter a file name and click on **[Save]**.

- ▶ The report templates are saved in a folder that varies based on the operating system and operating system language.
- > To find the report templates: select the search function in the Explorer and search for the *.repx file.
- ▶ Report templates (file format.repx) will be displayed.

Deleting a report template



- Please note that report templates are permanently deleted and this cannot be undone. It is **not** possible to restore report templates after deletion.
 - Only "User" type report templates can be deleted.
-

Prerequisite: the Report Designer must be closed.

- 1 Click on the **Settings** tab in IRSofT.
- 2 Click on **Report Designer** in the multifunction bar.
 - ▶ The dialogue box opens.
- 3 Select the report template that you wish to delete.
- 4 Click on **[Delete]**.
 - ▶ A confirmation prompt opens.
 - > If you wish to permanently delete the report template: click on **[Yes]**.
If you wish to cancel the deletion process: click on **[No]**.

Editing the page layout

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

5.7.4 Tips & Tricks

Creating a report template with a title image

- 1 Move the **PageHeader** header bar far enough down to leave sufficient space for the title image.

- 2 In the **ReportHeader** report section, select all fields from **Company** to **Job** and move these to the bottom of the report section.
- 3 From the **PageHeader** report section, copy the fields **Title**, **Logo** and the line directly below both fields into the **ReportHeader** report section above the **Company** field.
- 4 Above the fields inserted in the last step, insert a **Page break** (**Tools** folder).
- 5 Above the page break inserted in the last step, insert the **Title Image** field (**Images** folder) and adjust the size of the field as needed.

Creating a report with an additional real image

- > In the **DetailReport - "Picture"** report section, insert the **Real image 2** field (**Images** folder) and adjust the size of the field as needed.



Use the **Real image 2** field exclusively within the **DetailReport - "Picture"** report section to ensure that it is assigned to the thermal image added to the report.

Creating a report with a digital signature

- > In the **ReportFooter** report section, insert the **Digital signature** field (**Images** folder) directly above the signature line and adjust the size of the field as needed.

Creating a report with two thermal images side by side

- 1 In the **DetailReport - "Picture"** report section, delete the **Real image** field.
- 2 In the **DetailReport - "Picture"** report section, click on the **Detail1** header bar.
 - ▶ A white box with an arrow is displayed next to **Detail1**.
- 3 Click on the box.
 - ▶ The **DetailBand advanced settings** dialogue window opens.
- 4 Make the following settings:
 - **Column direction:** **AcrossThenDown**
 - **Number of columns:** **2**

- 5 Click on the box to close the dialogue window.
 - ▶ In the **DetailReport - "Picture"** report section, a grey section is displayed with the information: **Space for repeating columns. Controls placed here will be printed incorrectly.**
- 6 Customise all fields in the **DetailReport - "Picture"** report section, ensuring that no fields protrude into this grey section.

Creating a report with fixed textual content

- 1 Go to the report section that you wish to insert text into.
- 2 Insert the **Label** field (**Tools** folder) at the required position and adjust the size of the field as needed.
- 3 Input the text into the field.

Inserting a watermark

- 1 In the multifunction bar, click on the **Preview** tab.
- 2 Click on **Watermark**.
 - ▶ The **Watermark** dialogue window opens. In the left half of the window you will see a preview of the subsequent settings.
- 3 In the text and / or picture tab make the required settings with regard to the content, layout and size of the watermark.
- 4 Under **Position**, select whether it should be printed behind or in front of the report content.
- 5 Under **Page Range**, select the pages on which the watermark is to be inserted.

5.8 Configuring the instrument

The configuration allows you to make settings on the thermal imager using IRSoft.

All settings that can also be adjusted via the instrument menu of the thermal imager can be configured in the two tabs **Image settings** and **Instrument settings**. Please also refer to 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.

Prerequisite:

- Thermal imager is connected to the PC
- Thermal imager is switched on and detected by the PC
 - 1 In the multifunction bar, click on the **Camera** tab.
 - 2 Click on **Configuration** .
 - ▶ The **Camera Settings** dialogue window opens.
 - 3 Choose between image and instrument settings.
 - 4 Make the settings (see Image settings and Instrument settings).
 - 4.1 If you wish to transfer the settings to the thermal imager: click on **[Apply]**.
 - 4.2 If you wish to discard the settings: click on **[Cancel]**.
 - 5 Click on **[OK]**.
 - ▶ The settings will be transferred and the dialogue window closes.

Image settings

Function availability depends on the model of the connected imager.

Function	Settings
Selecting the Temperature scale	Choose between automatic scaling, ScaleAssist and manual scaling: > Select the required option. > If you select manual : enter the min. and max. value.
Setting the palette, temperature unit, LCD brightness, measuring range	Select required settings: > Click on  and select the required value from the drop-down list.

Function	Settings
Transferring materials	Transfer the required materials with the associated emissivity to the 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. This may result in materials being displayed in different languages. 1. Click on the materials you do not require in the Materials in thermal imager list and remove them 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 imager.
Emissivity settings	Activate required material: > Click on  and select the required material from the drop-down list. > If you select User-defined: enter the emissivity value.

Instrument settings

Function availability depends on the model of the connected imager.

Function	Settings
Setting the Language	Activate the required language: > Click on  and select the required language from the drop-down list.
Switching the power save function on/off	Select the required setting (Switch off imager or Switch off LCD): > Click on  and select the required function from the drop-down list.

Function	Settings
Automatically hide (function keys, cursor, scale)	Activate the required function: > Click on the required functions to activate them (☒).
Carrying out a factory reset	Carry out a factory reset: 1. Click on [Factory reset] . - A confirmation prompt will appear. 2. Click on [Yes] .
Synchronize 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. The latest firmware data can be downloaded from the website www.testo.com/irsoft . 1. Click on Firmware Update.... - The Windows dialogue box for opening files opens. 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] .

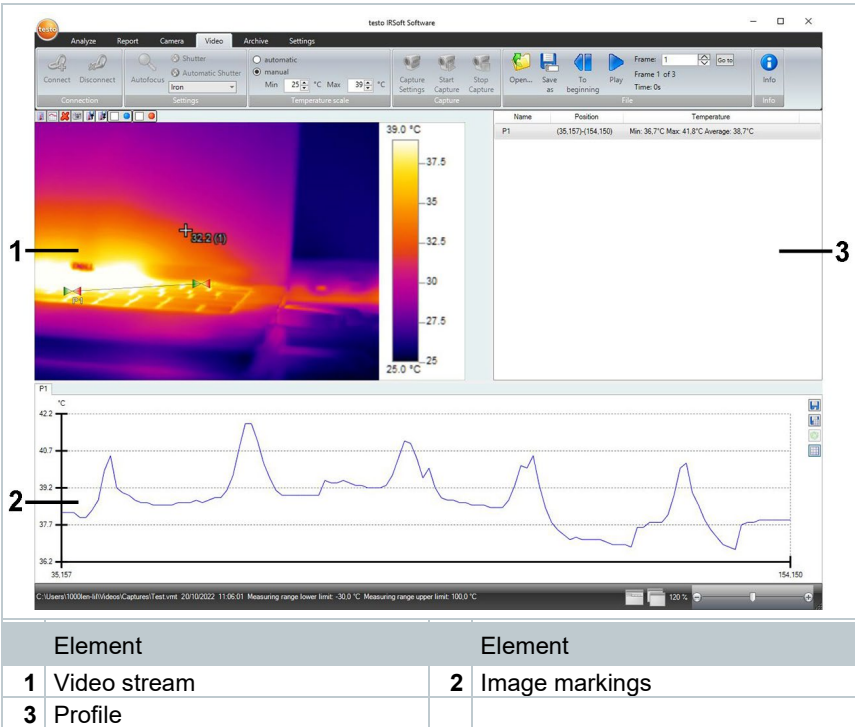
5.9 Video (only for testo 885 / 890)

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).

- ✓ The thermal imager is connected to the PC.
- ✓ The thermal imager is switched on and detected by the PC.
- > Select the **Video** tab.

Workspace



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

Display information on the video file

- > Click on **Info** to open the dialogue window.

5.9.1 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.

5.9.2 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.



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



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.

5.9.3 Capturing a video/logger sequence

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

- 1 Click on **Capture Settings** .
 - ▶ The **Wizard for capture settings** opens.
 - ▶ The **Introduction** tab contains 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 of a logging sequence** (only testo 885-2 and testo 890-2 with option of full radiometric video measurement): capturing a sequence of individual images with a defined start, duration and interval.

Capturing of a video: Implementing settings

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

- 1 Click on the **Settings** tab.
- 2 **File**: click on **[Browse...]** and enter the parameters/settings:



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 markings (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 fully 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 analyzed 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 the folder and enter the file name.

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

- 3 **Stop capturing after....**: select **MB** (limit according to file size in megabytes, max. 10000 MB) or **sec** (limit according to duration in seconds)
- testo 885: max. 3600 s, corresponds to 1 h
 - testo 890: max. 900 s, corresponds to 15 min)
- and enter the required size or duration for the video.

Capturing of a logging sequence: Implementing 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**.
 - Time triggered: 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:



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 in the **Analyze** tab and analyzed.
- **VMT files** (full radiometric video, only testo 885-2 and testo 890-2 with option of fully 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 analyzed 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



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

- ✓ The capture settings have been implemented.
- 1 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.
- 2 End capture manually: Click on **Stop Capture**.
 - ▶ If capture is not ended manually, it ends automatically according to the set capture criteria.

5.9.4 Playing/analyzing/saving videos

Saved VMT files can be played in testo IRSOFT and analyzed 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 Media Player (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



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.

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

Analyzing 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 opens.
- 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.

- > 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 measuring value diagram below the image.

Creating a temperature profile

To display a temperature curve via a line.

- > 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 measuring value diagram below the image.

Deleting/moving image marks on the IR image

- > Click on the measurement marker in 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 opens.
- 2 Enter a file name.
- 3 Select the location you want to save it to and click on **[Save]**.

Saving current analysis tools

- 1 Click on 
 - ▶ Windows dialogue box for saving files opens.
- 2 Enter a file name.

- 3 Select the location you want to save it to and click on **[Save]**.

Applying previously saved analysis tools

- 1 Click on 
 - ▶ Windows dialogue box for opening files opens.
- 2 Select the required file and click on **[Open]**.

Displaying a coldspot / hotspot

- > Click on  or .
- ▶ Coldspot or hotspot is displayed.

Saving a measuring value diagram as an image

Measuring value diagrams can be saved as an image.



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 opens.
- 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 opens.
- 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.

Showing grid lines in the measuring value diagram

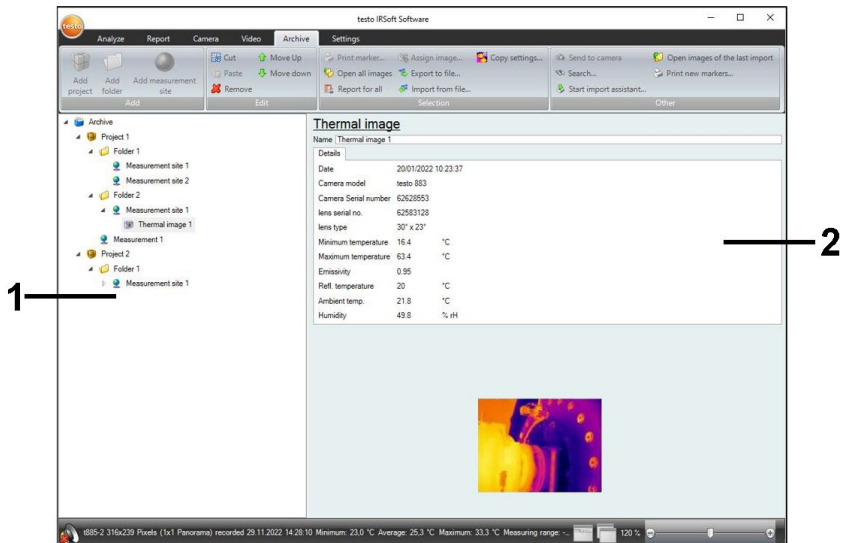
> Click on  to show the grid lines.

5.10 Archive (only for testo 883 / 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.

Workspace



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, click on the image you wish 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 wish to create a folder. 1. Click on Add folder . 2. Enter a folder name.
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 .

Selection options

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.

A report on all images below a selected element can be created or all assigned images can be opened. Selected elements can be exported or imported. The analysis settings of the current image can be copied to the selected archived images.

Function	Procedure
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.
Open all images	1. Click on the element whose assigned images you wish to open 2. Click on Open all images.... - All images below the selected element are opened.
Report for all...	1. Click on the element for which the report on all assigned images should be created. 2. Click on Report for all.... - The Report wizard opens. 3. For more information on how to proceed, see 5.5 Creating a report
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 opens. 3. Select the image to be assigned to the measurement object and click on [Open].

Function	Procedure
Export to file	1. Click on the element to be exported to an Excel file. The elements below will also be exported. 2. Click on Export to file.... - Windows dialogue box for saving files opens. 3. Select the storage location and the file name and click on Save
Import from file...	1. Click on the element under which the imported element from a prepared Excel template should be inserted. 2. Click on Import from file.... - Windows dialogue box for opening files opens. 3. Select the Excel file and click on Open. - The archive is generated automatically.
Copy settings...	1. Click on Copy settings... - The Copy Settings Assistant opens. 2. Select the images to which the settings of the currently active image in the analysis should be applied.  This function is disabled if no image is open in the "Analyze" tab

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
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. - The selected images can be opened, a report can be generated for these images or the settings of the currently active image in the analysis can be copied to them.
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 opens. 3. For more information on how to proceed, see 3.2 Using the Import Assistant.
Open images of the last import	> Click on Open images of the last import. - All images from the last import process are opened.
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", etc. 4. Click on [OK]. - A PDF file is created and can then be printed.

6 Questions and answers

Question	Possible cause / solution
How can I get information about software updates?	> Make sure that the Check automatically function is activated in the Settings tab in the Program update group. If this function is activated, you will receive regular information as soon as a new update is available.
How can a software update be performed?	When performing a software update, it is not necessary to uninstall the existing version. 1. Download the software update from the Internet onto your PC. 2. Carry out the installation of the new version, see 3.1.
How can an archive be copied to another PC?	Please get in touch with your contact at the Service department for detailed instructions.
The imager cannot be configured.	> Check whether the instrument was detected by the PC. > Check the connection between the instrument and the PC.
The Import Assistant does not start up.	> Start up IRSoft before connecting the thermal imager. > Check whether the Import Assistant is activated: Camera tab Import Assistant.
--- or +++ is displayed instead of the reading.	The reading was outside the measuring range when the IR image was recorded. No reading is available for the selected measurement point.
xxx is displayed 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 imager. Without these values, the humidity image cannot be displayed correctly. > Correct the parameter settings.

If we have not been able to answer your question: please contact your local dealer or Testo Customer Service. See the back of this document or the www.testo.com/service-contact web page for contact details.



Testo SE & Co. KGaA

Celsiusstrasse 2

79822 Titisee-Neustadt

Germany

Phone: +49 (0)7653 681-0

E-mail: info@testo.de

Internet: www.testo.com