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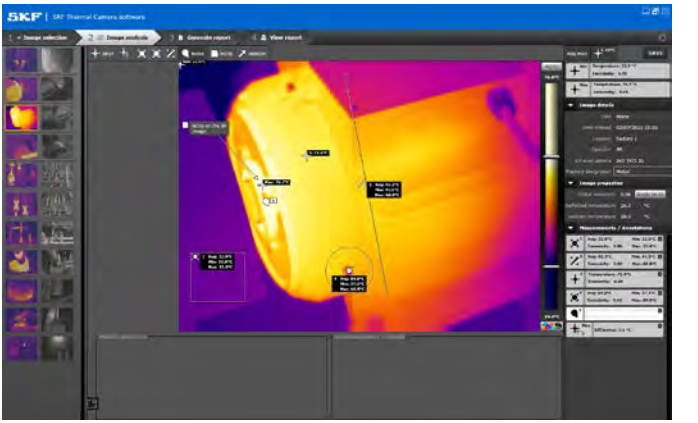

SKF TKTI

Thermal Camera Software

Instructions for use

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Original instructions

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1. Introduction

The SKF TKTI Thermal Camera Software is an easy to use Windows based software for infrared image analysis and report creation.
It can only be used with images taken by the SKF Thermal Cameras TKTI 21 and TKTI 31.
It can not be used with images from other SKF Thermal Camera models.

The software and updates can be downloaded from www.SKF.com

The Software has been designed to be easy to use with no special skills required, allowing:

- Powerful and quick infrared image analysis.
- Quick creation of professional reports.
- Easily loading and selection of infrared images.
- Software installation on many users computers.
- Key image parameters to be easily modified.
- Creation and preview of comprehensive and professional reports in pdf and word format.
- In just one click, printing, local saving and emailing of reports.

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1.1 Installing and starting the Software

To install the SKF TKTI Thermal Camera Software onto a PC:

1. Insert the CD into the PC or download the software from www.SKF.com.
2. Use windows explorer to view the files on the CD.
3. Open and run the file “SKF TKTI Thermal Camera setup.exe”.
4. Follow the steps to install the software on your PC.

Note:
Microsoft .NET Framework version 4.0 or later is required.
The software requires a minimum resolution of 1024x768.

Once the software has successfully been installed an icon appears on the PC Desktop.
The software is also accessible from the program list in the Windows Start menu.

To start the software,
double click on this icon.

Figure 1 Software Icon

The following window will appear:

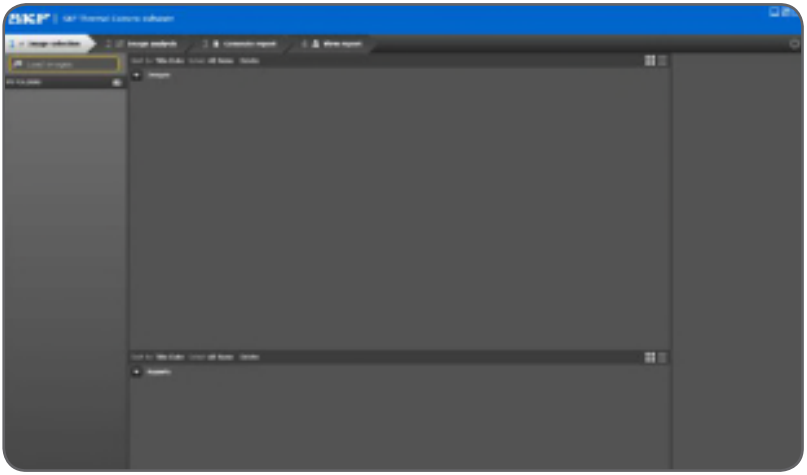

Figure 2 Blank start screen

Note:
Use the top right icons to minimize, maximize or close the software.

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2. Usage Notes

- The SKF TKTI Thermal camera software is compatible with the SKF TKTI 21 and SKF TKTI 31.
- The images loaded in the application are copied locally to the user's computer. This prevents the original image from being corrupted.
- The original image is NEVER modified or deleted by the application. Only the local copy is modified and saved.
- The analyzed images are saved, by default, automatically every two minutes.
- Auto-save also saves images when another tab is selected and when the software is closed. It is recommended to keep this feature enabled
  This helps ensure that the modifications made to the image are saved in the event a power shortage or computer crash.
- Only saved images will be used for generating reports.
- Reports will also be saved automatically on the user's computer.

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3. Image Properties

- The images are saved in the camera on a micro-SD card in the folder DCIM.
- The images are named “IR_X.jpg” with X being a running number starting with “IR_1.jpg”.
- The .jpg image contains the infrared image. In addition the digital image when saved and the voice comment when recorded are saved in the .jpg image.
- The .jpg images can be visualized by virtually any image viewing software.

3.1 Loading images from the Camera

a) Switch On the camera and wait until it is fully operational.
b) Connect the camera to the PC via the USB cable.
Use the mini USB connector on the right side of the camera.

Figure 3 Use the mini USB connector

c) Open Windows Explorer, or another file browser, to select the micro SD card in the camera.
d) This will normally be shown as a removable disk.

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3.2 Loading images from the memory Card

An alternative to loading the images form the camera is to load the images directly from the micro-SD card

a) Take the micro-SD card out of the camera and insert into a suitable card reader (provided).
b) Connect the memory card reader to the PC.
c) Open Windows Explorer to select the files with the images on the micro-SD card.

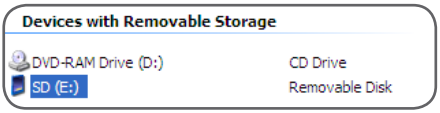

Figure 4

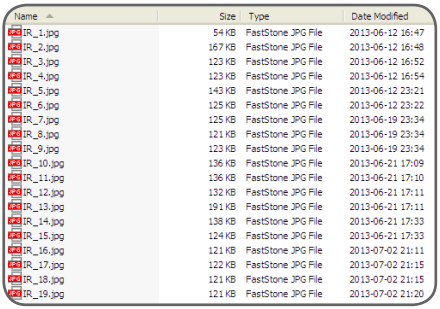

Figure 5

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4. Image Selection

4.1 Folder creation

The images are placed in folders.
Reports can be created with the images contained in a folder.

a) Click on the button circled in red on Figure 6 to add a folder.
b) Type a folder name and click OK or press the Enter key.

By right clicking on a folder, it is possible to add a sub-folder.
Folders can also be renamed or deleted using the right click function

Note:
The first folder can also be created automatically when no folder has been previously created.

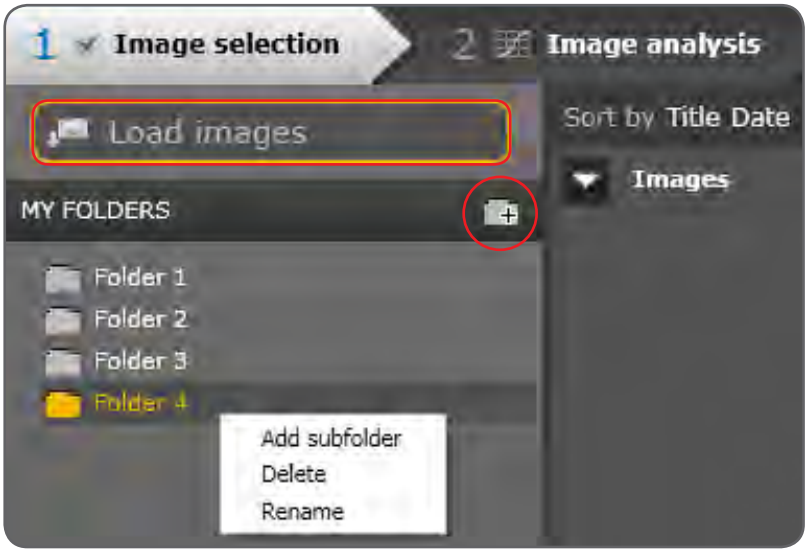

Figure 6 Add a Folder

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4.2 Image loading

Images can be loaded by clicking on the “Load Images” button highlighted in red on Figure 6.

Select any image on the memory card or other storage location to automatically load all images contained in a folder.
It is not possible to load two images with the same title.
To solve this issue either create a new folder or rename the image.

Note:
It is also possible to load only the selected images, uncheck the option “Automatically load all files from the source folder on image loading” in the settings window.

4.3 Image selection

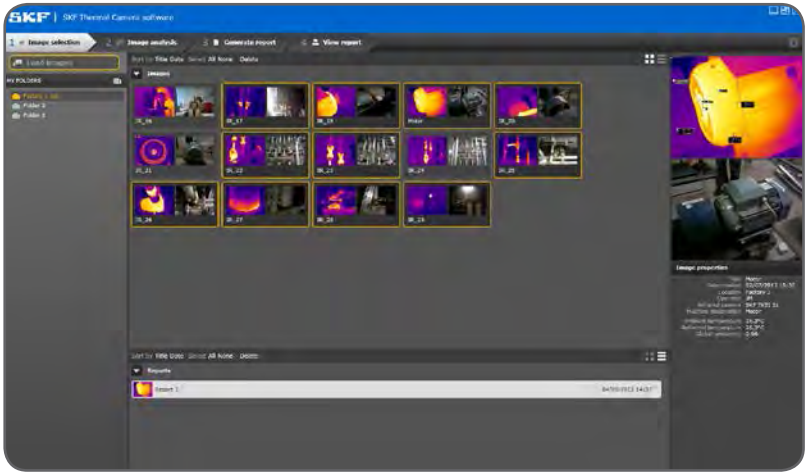

Figure 7 Selected images highlighted in yellow

- Hover the mouse over any image to instantly see in the right panel, of the window, a larger view of the infrared image as recorded by the camera, the digital image (when present) and the image properties.
- Images can be sorted by title or by date.
- Images can be displayed as thumbnails or as a list.
- Selected images can be deleted by clicking on “delete” once the images to be deleted are selected.

To select images for further analysis, click once on the image to highlight them in yellow. Click again on an image to deselect it.
All images highlighted in yellow will be selected for “2 Image Analysis”.

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Note:
It is possible to select All or None images.

Note:
The reports are stored in Folders. Double click on a report to open it in “4 View Report”.

5. Image Analysis

Once the required images have been selected, click once on the tab “2 Image Analysis”.

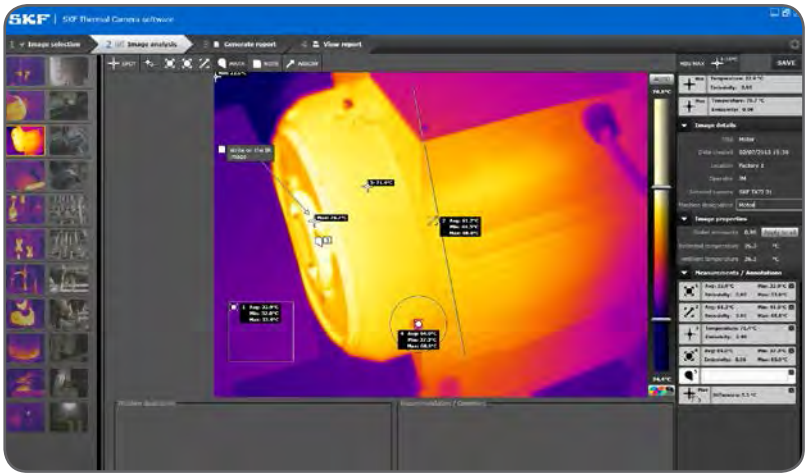

Figure 8 Image Analysis

5.1 Image selection

Select an image on the left part of the screen for analysis.
The current image will be highlighted in yellow.
Infrared images and visual images can be analyzed and commented.

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5.2 Interface description

5.2.1 Span/level and colour palette

Figure 9 Span/Level bar and colour palettes

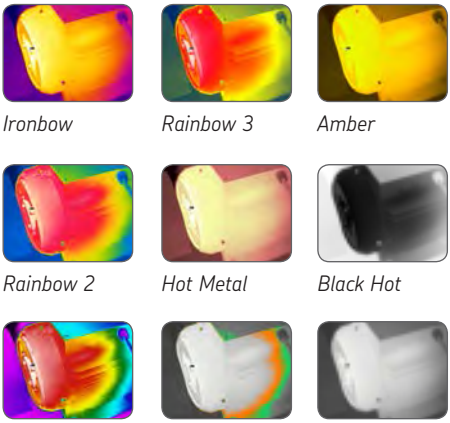

Figure 10 Colour palette examples

The Span and Level can be manually adjusted to highlight a particular zone of the image.

- Drag the top and bottom sliders to change the limits.
- Drag the full bar at once when the vertical double arrow appears.
- Click on the "Auto" button to go back to the automatic Span/Level settings

The user can choose between 9x colour palettes

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5.2.2 Minimum and Maximum Temperature

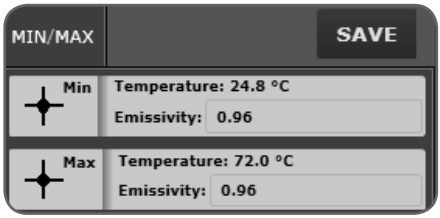

Figure 11 Min/Max temperature

Click successfully on the MIN/MAX button to display:
Minimum temperature -> Maximum temperature -> Both together -> None
The emissivity of both temperatures can be individually set.

Use the "SAVE" button to manually save an image

Note:
The local image is saved; the original image is no modified.

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5.2.3 Image Details and Properties

Figure 12 Image Details and Properties

- **Title:** Shows the original image title. User editable.
- **Date Created:** Date when image was saved. User editable.
- **Location:** To be filled by the user.
- **Operator:** To be filled by the user. When operator is filled in the first image, it will be automatically filled in the other images.
- **Infrared Camera:** Shows which SKF Thermal Camera has taken the image.
- **Machine Designation:** To be filled by the user.
- **Global Emissivity:** Camera value by default. User editable.
  All new temperature cursors will use the global emissivity value for temperature calculation. Click on **"Apply to all"** to apply the set emissivity to all cursors.

Note:
See SKF TKTI 21 & 31 instructions for use (ref MP 5417) for a list of the common emissivities.

- **Reflected temperature:** Camera value by default. Usually set to the ambient temperature. Useful to compensate the temperature when there is a hot object in the background radiating on the measured object. User editable.
- **Ambient temperature:** Camera value by default. The camera measures the ambient temperature and fills in this value automatically. User editable.

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5.2.4 Text Fields

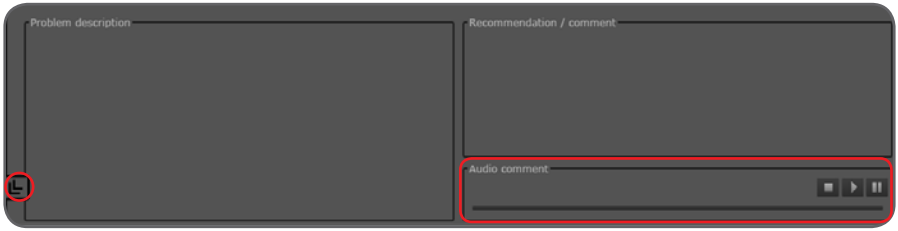

Figure 13 Problem Description and Recommendation

- **Problem Description:** Use this field to describe any problem shown on the picture.
- **Recommendation/Comment:** Write any comment or recommendation.

Note:
Both filled texts will show on the report. Texts can be copied and pasted in this software. We recommend a maximum of 11 lines per text field.

- **Audio Comment:** When an audio comment was recorded on the camera, it can be listened to using the play, pause and stop buttons.

Use the button circled in red on figure 13 to maximize the image size on the screen, this is particularly useful for laptops will smaller screens.

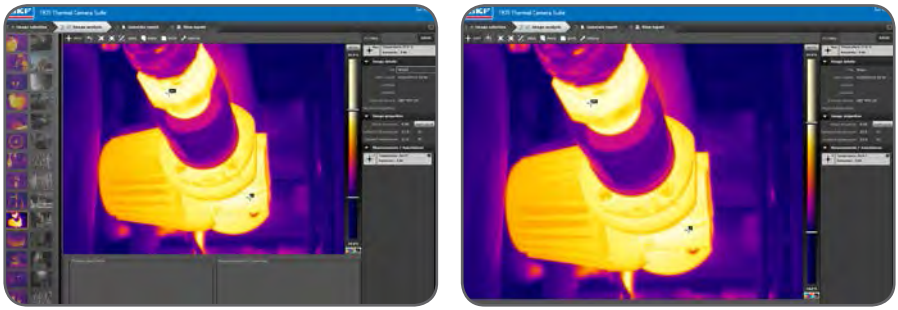

Figure 14 Two different possible views for image analysis

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5.3 Analysis Tools

Figure 15 Analysis Tools

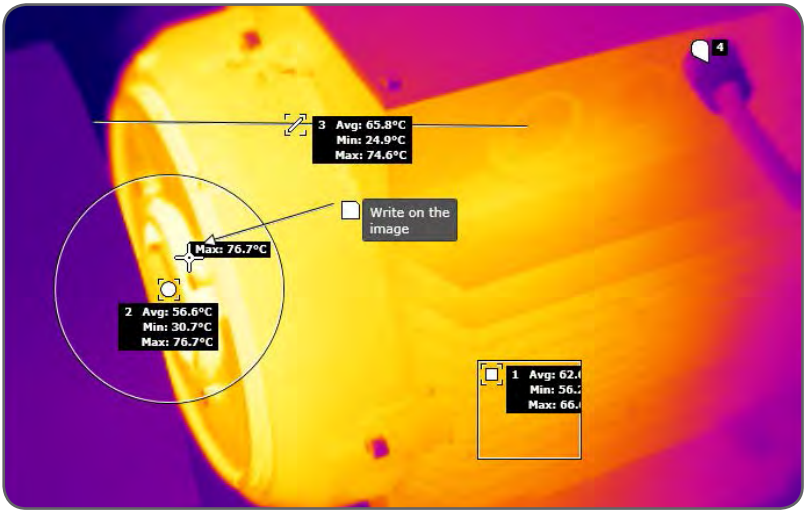

Figure 16 Measurement cursors

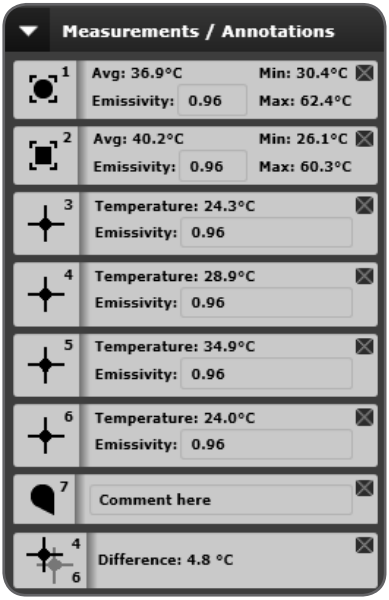

Figure 17 Measurements bar

- The individual emissivity of each spot can be adjusted at any time in the bottom right measurements bar.
- Temperature cursors and marks can be individually selected and deleted from the measurement bar by clicking on the top right cross.
- A maximum 18 elements can be added on an infrared image.

Note:
Display temperatures on the infrared image itself by clicking on the button “1:10°C”.

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5.3.1 Spot temperatures

The spot temperatures show the temperature of a given point.
Spots can be dragged anywhere on the image.
Spot temperature difference: Choose two spots including Min and Max to show the temperature difference between these two.

5.3.2 Areas: Rectangles, Circles and Lines

Areas are useful to measure the temperature in a zone larger than a spot.
For each rectangle, circle or line, the user can see the minimum, maximum and average temperature in the measurement bar.
To modify an area dimensions, click on the area icon next to its number on the image or select the area in the right bar.
To drag an area, click on the area icon next to its number on the image and drag the area.

5.3.3 Marks, Notes, Arrows

These can be used on both the Infrared and the visual images.
Marks will spot a location on the image; the text associated will be in the Measurements bar.
Notes allow writing text directly on the image.
Arrows allow drawing an arrow on the image.

Note:
Arrows and Notes can be deleted directly on the image by clicking on the black cross.
They do not count as an element.

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6. Report generation

6.1 Report Creation

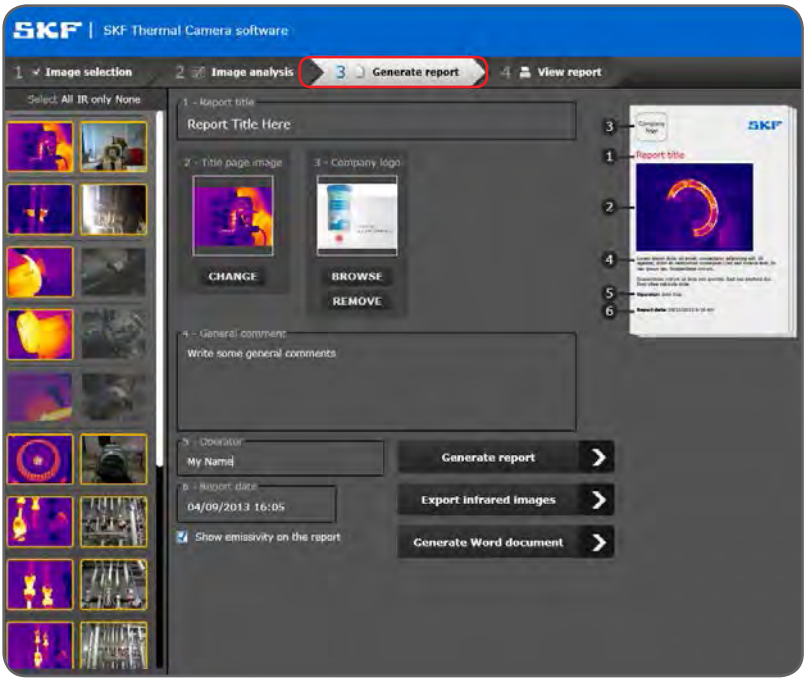

Figure 18 Generate Report view

- Click on the tab "3 Generate Report" highlighted in red on Figure 18.
- Select the images in the left panel that should be integrated into the report.
  Infrared images and visual images can be independently selected.
  Selecting All or None is possible.
  Click on "IR only" to select all infrared images only.
  Images highlighted in yellow will be included in the report.
- Report Title: Fill in the report title to be shown on the front page. Mandatory field.
- Title page image: The first infrared image in the left panel is used as a front page image by default. Another infrared image from the left panel can be selected by clicking on the "CHANGE" button.
- Company logo: Insert your company logo into the report.
  The company logo will show on the top left part of each report page.
  When a logo is already selected in the settings page it will be automatically used for the report. Select "BROWSE" to select another logo.
  Select "REMOVE" to show no company logo on the report.
  The logo file size must be below 1 MB.

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- **General comment:** Insert comments for the report front page.

- **Operator:** Filled in automatically, if this text field was filled in the first Infrared image. Will be displayed on the front page.

- **Report Date:** Automatically filled in and user editable. Will be displayed on the front page.

- Click on **"Generate report"** to generate a .pdf report.

- Click on **"Generate Word document"** to generate a word document.
  The word document will be saved on the user chosen location. It is fully editable and customizable.
  The word document generator does not require Microsoft Word to be installed on the user's computer. The document format is .docx.
  Microsoft Office 2007 or later is preferred to ensure best compatibility with the generated file.

- Click on **"Export infrared images"** to save the edited infrared images to a user chosen location.
  The images are in the .jpg format. They cannot be re-opened by the SKF Thermal Camera Software.
  All created elements will be displayed on the images together with the Span/Level bar.

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6.2 View and Export Reports

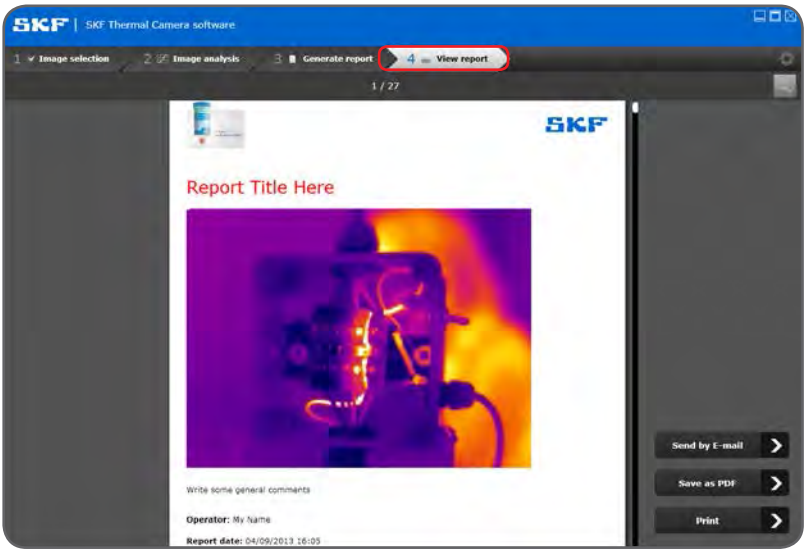

Figure 19 Report viewing mode

In "**4 View Report**" as shown on Figure 19, the user can:

- View the generated report
- Change the zoom level by clicking on the top right magnifier glass icon.
- Browse through the different pages by using the mouse wheel track pad. Alternatively the scroll bar on the right of the page can be used.
- Pages can also be dragged with the mouse cursor.

The reports are saved as a .pdf file, and can be printed and send by email.

- **E-mail:** Opens a new email on the default email client on the computer. The report will be added as an attachment in pdf format. The report title will be used as a file name for the .pdf file.
- **Save as pdf:** Save the report in .pdf format to the user chosen location.
- **Print:** Open the prints window to print the report.

Note:
The last generated or selected report will be shown when clicking on **“4 View Report”**.

Reports are associated to folders and saved together with the images selected in **“1 Image selection”**.
Previously created reports can be loaded using the image selection tab. Select the folder where the images and report are saved.
Double click on a report to open it in the report viewer tab.

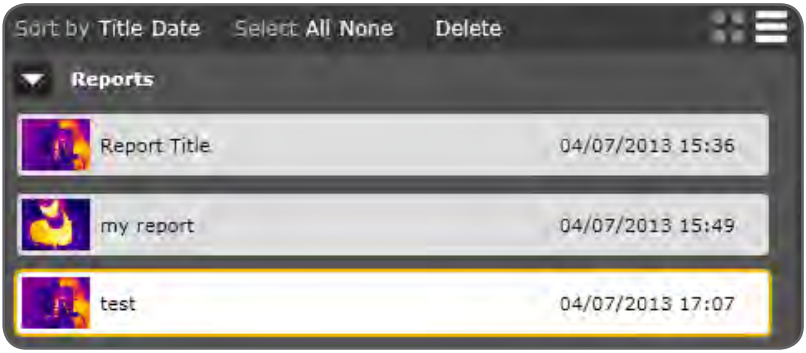

Figure 20 Report browser

Reports can be sorted, selected and deleted in the same way images are selected, (See chapter Image selection).

WARNING:
Deleting a folder will delete all images and reports that it contains.

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6.3 Report layout

Figure 21 Report layout

The report includes a maximum of two pages per infrared image.
The page format is A4.

Each page contains:
- SKF logo on the top right corner
- Company logo on the top left corner
- Infrared image title
- Company name and address as a page footer (not on first page)

First page per image contains:
- Infrared Image details and properties
- Infrared image snapshot with cursors and annotations
- Measurement cursors details and annotations

Second page per image contains:
- Visual image when selected with annotation on the image
- Problem description text field
- Recommendation/Comment text field

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7. Settings

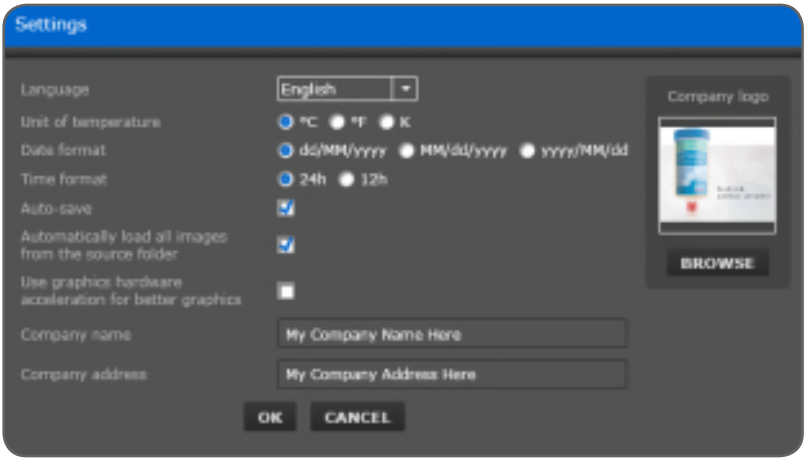

Figure 22 Settings

- **Language:** Choose the prefered language among English, French, German, Spanish, Italian, Portuguese, Russian and Simplified Chinese.
  The language will be changed instantly after selection.
- **Unit of temperature:** Choose between °C, °F and Kelvin.
- **Date Format:** Choose the preferred date format.
- **Time format:** Choose between 12h or 24h.
- **Auto-Save:** When enabled, the images and reports will be saved every two minutes. Auto-save also saves images and reports when another tab is selected and when the software is closed. It is recommended keep this feature enabled.
- **Automatically load all images from the source folder:**
  When loading images into the software, select only one image and all images from the original folder will be loaded.
- **Use graphics hardware acceleration for better graphics:**
  Disabled by default. Enable this feature on computers with Windows 7, or later, to show enhanced graphic details and display graphical elements faster.
- **Company Name:** Fill in the company name for the report.
- **Company Address:** Fill in the company address for the report.
- **Company logo:** load a company logo to be used in the report.
  The compatible formats are .jpg, .png, .bmp.
  The logo will be automatically resized; the original proportions will be kept.
  The logo file size must be below 1 MB.

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8. System requirements and troubleshooting

Configuration	Minimum	Recommended
Computer microprocessor	32-bit Pentium® class, 1,2 GHz	64-bit Dual or Quad Core, ≥ 2,5 GHz
DRAM	1 GB	4 GB or more
Monitor resolution	1024 x 768 pixels	1920 x 1080 pixels
Operating System	Microsoft® XP®	Microsoft Windows® 7-8
Operating System Components	Microsoft .NET® Framework version 4.0 or newer	Microsoft .NET® Framework version 4.0 or newer
Word document Software	Microsoft Word 2000	Microsoft Word 2007
Graphics interface hardware and RAM	No	128 MB RAM dedicated graphic card

8.1 Troubleshooting

- If some elements are not displayed correctly, restart your computer, this will normally solve the issue.
- If the software appears to be slow on your computer, especially on Windows XP, try disabling or enabling the “Graphics hardware acceleration” setting.
- Download the latest version of this software from www.skf. com.
- For more support, contact SKF Maintenance Products.

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