HIKMICRO Analyzer

User Manual

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Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Note	Provides additional information to emphasize or supplement important points of the main text.

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Chapter 1 Overview

This user manual provides the operation guide of the client. To ensure the properness of usage and stability of the client, refer to the contents below and read the manual carefully before installation and operation.

1.1 Introduction

The client is used to view and analyze the temperature information contained in the pictures recorded by the thermal device and generate a report. The radiometric images and JPEG images can be imported to the client, and the client provides image management function, including file classification, adding tags for images, etc. Multiple operations can be performed in the process of temperature measurement data analysis, including configuring measurements, adjusting measurement parameters, setting image display mode, setting color coloration, etc. After image analysis, you can view the measurement results, save the pictures or export the report as required.

1.2 Workflow

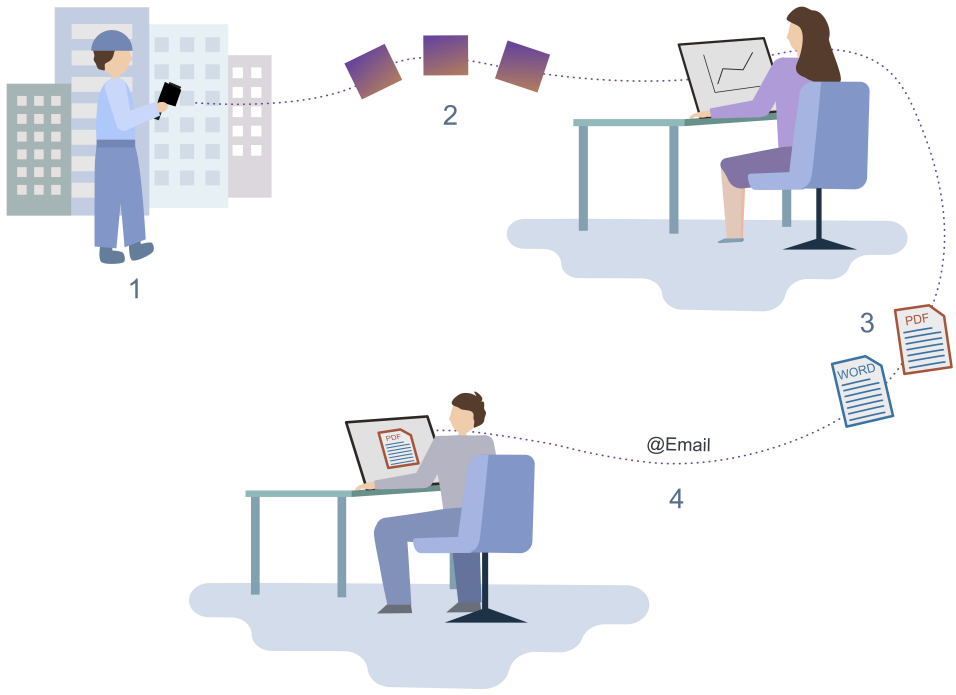


Figure 1-1 Workflow

1. Use your device to take thermal images.
2. Import the images into HIKMICRO Analyzer.
3. Generate a thermography report in PDF format or in ODT format to further edit it.
4. Send the report to other people via e-mail.

1.3 Running Environment

The followings are the recommended running environments for installing the client.

- Operating System
  - Microsoft Windows 7 / Windows 8.1 / Windows 10 (32-bit/64-bit operating system)
  - Windows SP3 (32-bit operating system)
  - Windows server (64-bit operating system)
- CPU: i5-4590 or above
- RAM: 4G or above
- Graphics Card: RADEON X700 series 256M or above

Chapter 2 Install Software

2.1 Software Installation

Open the software installation package, and then double-click to run the setup, click **I agree to the terms in License Agreement** in the pop-up window. Select **One-Click Installation** or **Customize** according to your requirement.

One-Click Installation

The software is installed in the path by default: C:\Program Files.

Customize Installation

Click and select the installation path.

After installation, you can check **Create a Desktop Icon** as needed.

Chapter 3 Upgrade Software

3.1 Software Upgrade

Before You Start
An earlier version have been installed.

Steps
1. Open the software installation package, and then double-click  to run the setup.
2. Click **Upgrade** in the pop-up window.

Note
The software will be upgraded to the same path of the earlier version.

What to do next
After upgrade, check **Create a Desktop Icon** as needed.

Chapter 4 Uninstall Software

4.1 Uninstall or Modify Software

Before You Start

Before uninstalling or modifying the software, please make sure you have stopped running the software.

Steps

1. Click → **Control Panel** → **Procedures and Functions** in the Windows operating system.
2. Right-click **HIKMICRO Analyzer** and then select **Uninstall/Modify**, or simply double-click **HIKMICRO Analyzer**.
3. In the pop-up window, select:
   - **Uninstall**.
   - **Modify**.

   A prompt will pop up after the uninstallation or modification is completed.

Chapter 5 User Interface

This chapter describes the application pages, the supported system settings, and user help.

5.1 Application Pages

After starting the HIKMICRO Analyzer, you are presented with the Image Management page. In the left pane, you can click Image Management, Image Analysis, and Video Analysis to switch between the pages.

5.1.1 Library

In the top left corner of Image Management page, click the library name, the center pane displays all images that have been imported to the client. When you right-clicking an image, you can quickly locate the folder where you have saved the images on your computer. When you click a folder you have created in the left pane, the images grouped in that folder will be displayed in the center pane.

5.1.2 Video Analysis

5.1.3 Image Analysis

On the Image Analysis page, you can edit and analyze images for more accurate temperature information. In the left pane, you can view the image information, configure temperature parameters, and check temperature measurement results. After analyzing images, you can click **Report** to select a template and generate the report.

5.2 Settings

In the Settings window, you can switch the display language, the display temperature unit and the distance display unit.

Note

Some settings require a restart of the HIKMICRO Analyzer Clientbefore a change takes effect.

5.2.1 Switch Languages

On the menu bar, click **Settings → Language** to select a language.

5.2.2 Switch Temperature Display Unit

Steps

1. On the menu bar, click **Settings → General** .
2. In Display Unit, select a temperature unit.

5.2.3 Switch Distance Display Unit

Steps

1. On the menu bar, click **Settings → General** .
2. In Display Unit, select a distance unit.

5.2.4 Switch Area Display Unit

Steps

1. On the menu bar, click **Settings → General** .
2. In the Display Unit, select an area unit.

5.3 User Help

You can view the user manual and version information of the HIKMICRO Analyzer Client, and give us your feedback.

5.3.1 View User Manual

On the menu bar, click **Help → User Manual** .

5.3.2 View Client Version

On the menu bar, click **Help → About** .

Chapter 6 Image Management

6.1 Navigation for Image Management Page



Figure 6-1 Image Management Page

No.	Description
1	• The number in the bracket indicates the number of files inside and the number of files that can be added in total. • You can create folders to group images. • In **Local File** tab, you can view images stored on the local PC.
2	Toolbar. You can import images, delete images, move images, etc.
3	You can add color tags for files, filter files by conditions (remark, color tag, capture time, etc.), and sort files by day/month/year/color tag.
4	Image Window: Display thumbnails of image in a folder by time, color tag, or name.

6.2 Library Management

The Library page shows all files imported to the client. Here you can navigate to any folder where you have saved your thermal images, both locally on your computer and on any connected network shares. You can view, categorize, edit, sort, add tag to files, etc.

6.2.1 Create Library

When you open the client for the first time after installation, you need to create a library.

In the pop-up window, create a name and select a folder for saving images.

Note

- Saving to the C drive or desktop is not recommended.
- The folder for saving images should be an empty folder.
- You can view or edit the folder path of the library. See details in ***Change Library Location*** .

After creating the library, you can download sample pictures to the library. The sample pictures can be used for image management, image analysis, and report generating.

6.2.2 Rename Library

You can right-click the library name and select **Rename** to rename the library.

6.2.3 Change Library Location

You can view or edit the saving folder path of the library.

Steps

1. On the menu bar, click **Settings → General** to view or edit the folder path for saving images.
2. Click under **Path Settings** to change the folder path for saving images.
3. Click **OK**.

6.2.4 View library Details

You can right-click the library name and select **View Details** to view the basic information of the library, including the time when it's created and last edited, library capacity, and existing number of files in the library.

6.3 Folder

You can create and name different folders according to your usage scenarios, and import files to the folders. The folders can be used to categorize files from the library.

Go to → **Library** → **Folders** to view the folder list.

6.3.1 Create Folder

Before importing images, you should create the folder.

Note

Up to 32 folders can be added to the client and up to 350 images can be added to a folder.

Go to → **Library** to enter the library page. Perform one of the following operations to create a folder:

- Click to create a new folder.
- Click **File** → **Create Folder** to create a new folder.

Note

The newly created folder is named **New Folder_No. (0)**. The No. represents the order of creation. The number in the brackets represents the number of images in the folder.

6.3.2 Rename Folder

Right-click the folder name and select **Rename** to rename the folder.

6.3.3 Delete Folder

Right-click the folder name and select **Delete** to delete the folder.

6.4 Import Image

Before image analysis, you can import images to library or folders for image management.

Steps

Note

- The image should be the picture with temperature information, namely the captured picture in the thermal device.
- Batch importing files is supported. The file extension should be .jpeg or .jpg.
- Up to 10240 images can be imported to the software.

1. On the page, click **Import**.

   Note

   Choose one of the following ways to import images.
   - Press shortcuts (Ctrl + O) to import images.
   - In the menu bar, click **File → Import Image** to import images.
   - Drag the images from a local folder to this page to import images.
   - Under the menu bar, click **Local File** to select one or more images, right-click an image, and click **Import to Folder** to import images.
   - Under the menu bar, click **Local File** to select one or more folders, right-click a folder, and click **Only Import to (Library Name)** to import images to the created library.
   - When the library or folder is empty, you can select the library or folder, and click the empty area on the right to import images.
2. Select the image(s) to be imported.
3. Click **OK**.

6.5 Image Categorization

After images are imported, you can manage the images by folder, including importing images to folder, adding images to folder, and moving images to folder.

6.5.1 Import Image to Folder

Choose one of the following ways to import images to folder.

- Press shortcuts (Ctrl + O) to import images.
- In the menu bar, click **File → Import Image** to import images.
- Drag the images from a local folder to this page to import images.
- Under the menu bar, click **Local File** to select one or more images, right-click an image, and click **Import to Folder** to import images.
- When the folder is empty, you can select the folder and click the empty area on the right to import images.

6.5.2 Copy Image to Folder

The client supports copying images from the library or a folder to a new folder.

1. Select the image to be copied.

   Note

   You can select single or multiple images. For selecting multiple images, you can press the Ctrl key and then click the images to be selected, or check the boxes on the upper-right corner of the images one by one.
2. Choose one of the following ways to copy the image to another folder.
   - Click ··· **More → Copy to** .
   - Right-click the image and select **Copy to**.
3. Select the folder to be copied to.

   Note
   - The image can not be copied to the recycle bin or the library.
   - The image will be copied to the new folder, and exist in the old folder.

6.5.3 Move Image to Folder

The client supports moving pictures between folders.

Steps

1. Select the image to be moved.

   Note

   You can select single or multiple images. For selecting multiple images, you can press the Ctrl key and then click the images to be selected, or check the boxes on the upper-right corner of the images one by one.
2. Choose one of the following ways to move the image to another folder.
   - Click ··· **More → Move to** .
   - Right-click the image and select **Move to**.
3. Select the folder to be moved to.

   Note
   - The image can not be moved to the recycle bin or the library.
   - The image will be moved to the new folder, and be deleted from the old folder.

6.6 Rename Image

Choose one of the following way to rename the image.

- Righ-click the image you want to rename and click **Rename**.
- Check the image you want to rename. Click ··· **More → Rename** .

Note

The file name in local PC will not be modified after it's renamed.

6.7 Delete Image

You can delete a single image or batch delete multiple images.

- Delete single image:
  - Hover over the image and click on the lower-right corner of the image, and then click **OK** in the pop-up window.
  - Right-click the image and select **Delete from Library**, and then click **OK** in the pop-up window.

    Note

    You can also select **Delete File Permanently** to delete the image completely from the local folder.
- Batch delete images:
  Press Ctrl on the keyboard and then click the pictures or check the images on the top-right corner one by one to select multiple images.
  - Click **Delete** in the tool bar. Click **OK** in the pop-up window.
  - Right-click the images and select **Delete from Library**, and then click **OK** in the pop-up window.

    Note

    You can also select **Delete File Permanently** to delete the images completely from the local folder.

Note

If you are deleting images from library, the deleted images will be moved to the recycle bin by default; If you are deleting images from folders, you can check **Move to Recycle Bin**.
In the recycle bin, you can restore the image or delete the images completely from the local folder.

6.8 Add Tag to Image

If no tags are added to the image on device, you can add one on the client; if a tag is already added, you can change it on the client.

You can add tags to images for classification as needed. For example, according to the handling priority, you can add a red tag to the image which needs to be processed immediately.
Select the image to be tagged, and then select the color tag. After adding a tag, the tag will be displayed under the picture.

Right-click the image with a tag, and then click **Reset Tag** to reset the added tag.

6.9 Add Text Annotation

You can add text annotations to images, for the convenience of filtering images.

1. On the image analysis page, select an image and click on the right to open the Image Information panel.

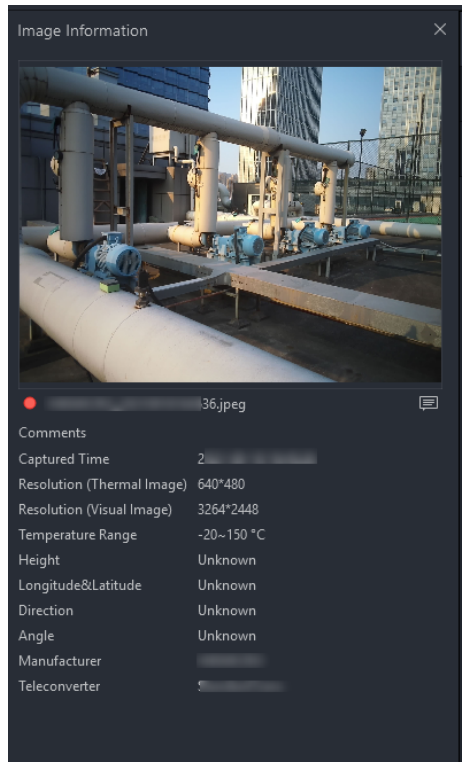


Figure 6-2 Image Information

2. Click and enter the text annotation in the box. You can view the entered annotation in the Comments Row.

   Note

   The added text annotation will be auto-filled into the text annotation object.

6.10 Image Grouping and Sorting

You can group and sort images by time, tag, etc.

- On the upper-right corner of the client, click and select **Time** (Annually/Monthly/Daily) or **Tag** to display the images in groups.
- On the upper-right corner of the client, click and select **Time**, **Tag**, or **Name** to sort images in positive/reverse order.

Note

The images without capturing time will be displayed on the **Unknown** column.

6.11 Image Filtering

Set different conditions to filter the the images.

6.11.1 Filter Images by Time Range

Steps

1. On the top right corner, click to open the filtering panel.
2. Select Time.
   - **Known**: Select the specific time range.
   - **Unknown**: To filter out the images of unknown time.
3. Click **Filter** to search for the target images.
4. **Optional:** Click → **Reset** to reset the filter condition.

6.11.2 Filter Images by Tag

Steps

1. On the top right corner, click to open the filtering panel.
2. Select the tag color.
3. Click **Filter** to search for the target images.
4. **Optional:** Click → **Reset** to reset the filter condition.

6.11.3 Filter Images by Text Annotation

Steps

1. On the top right corner, click to open the filtering panel.
2. Select from All, No Comments, or With Comments.

   Note

   - If you select All or With Comments, you can enter key words for fuzzy search. Voice annotation is not supported.
   - Refer to ***Add Text Annotation*** for text annotations.
3. Click **Filter** to search for the target images.

4. **Optional:** Click → **Reset** to reset the filter condition.

6.11.4 Filter Images by Image Name

Steps

1. On the top right corner, click to open the filtering panel.
2. Enter the key word for the image name.
3. Click **Filter** to search for the target images.
4. **Optional:** Click → **Reset** to reset the filter condition.

6.11.5 Filter Images by Device Name

Steps

1. On the top right corner, click to open the filtering panel.
2. Select a device name from the drop-down list.
3. Click **Filter** to search for the target images.
4. **Optional:** Click → **Reset** to reset the filter condition.

Chapter 7 Image Analysis

7.1 Add Image to Analysis Task List

Before image analysis, images should be added to the analysis task list.

Note

Up to 512 images can be added to the analysis task list.

7.1.1 Add Single Image

You can add images in a folder to the analysis task list one by one.

Steps

1. Select a folder.
2. Right click an image.
3. Select **Add to Analysis Task List**.

   Note

   Double click the image, or right click the image and select **Analyze** to directly enter the Image Analysis page.

7.1.2 Add Multiple Images

You can add multiple images in a folder to the analysis task list.

Steps

1. Select a folder.
2. Select multiple images.
   - In the top right corner of an image, select the check box.
   - At the top of the window displaying image thumbnails, select the year check box to select all images of the year.
3. Right click an image.
4. Select **Add to Analysis Task List**.

   Note

   You can select **Analyze** to directly enter the Image Analysis page.

7.1.3 Add All Images

You can add all images in a folder to the analysis task list one by one.

Steps

1. Select a folder.
2. Add all images to the analysis task list.
   - Right click a folder and select **Add to Analysis Task List**.
   - At the top of the window displaying image thumbnails, select the **Select All** check box, right click an image to select **Add to Analysis Task List**.

Note

After right clicking an image or a folder, you can select **Analyze** to directly enter the Image Analysis page.

7.2 Navigation for Image Analysis Page

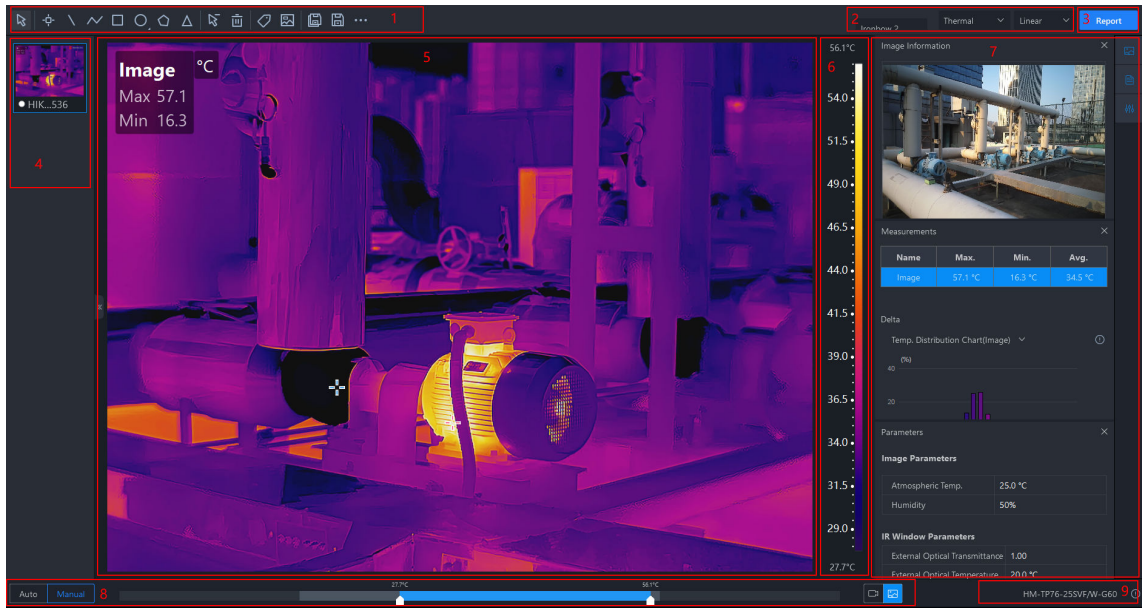


Figure 7-1 Image Analysis Page

No.	Description
1	Toolbar. Including measurement tools, exporting and saving images, editing the color of measurement tools, etc.
2	Select palettes and image display mode.
3	Export the image analysis report.
4	Analysis Task List: Before image analysis, the image should be added to the analysis task list. You can switch the image that is being analyzed currently. Hover the cursor over a thumbnail in the list and click to remove from the list.

No.	Description
5	Image Window: Displays the enlarged image. You can draw measurement tools in the window and view the temperature results overlaid on the image and displayed in the Measurements pane.
6	Temperature Scale: The temperature scale will change with the adjustment in Level & Span. **Note** Only when the Imaging Algorithm is linear, the scale mark will be displayed on the temperature scale.
7	Image Information, Measurements, and Parameters Pane: You can drag the pane to a position as needed. • Image Information: View the visual image, capture time, image resolution, etc. • Measurements: View temperature measurement results of the whole image or of the selected measurement tool on the image. • Parameters: Configure temperature measurement parameters.
8	Level & Span: You can adjust the temperature scale close to the temperature of the target in Manual/Auto mode.
9	The serial No. and the device model of the device which captured the image.

7.3 Temperature Measurement Tools

7.3.1 Add a Measurement Tool

To measure a temperature, you can use one or more measurement tools (spot, circle, line, etc.). When you add a measurement tool to the image, the measured temperature will be displayed in the right Measurements pane. The tool setup will be saved to the image file and the measured temperature results will be available for creating your thermography report.

Do one of the following to select a measurement tool:

- In the menubar, click **Measurement** to select a measurement tool.
- In the tooblar, select a measurement tool.

The following is the description on how to add measurement tools in the toolbar:

Spot

Line

Polyline

Area

Temperature Difference (Delta) Calculation

Spot

Click to add a spot measurement tool to the location as needed on the image.
Double-click to add spots continuously on the image.

Line

Click , and then draw a line for measurement on the image.

Polyline

Click , and then draw a polyline for measurement on the image. Up to 10 nodes are supported when drawing a polyline.

Area

You can measure temperatures in areas by adding tools including rectangle, circle, ellipse, and polygon. You can draw different shapes according to the actual scenarios. For example, for an irregular area, you can select polygon measurement tool for measurement.

- Click , or , and left-click the mouse to draw an area.
- Click , and left-click the mouse to draw the first line of the polygon, left click the mouse again to draw the next line. Right-click the mouse to finish. Up to 10 nodes are supported when drawing a polygon.

Temperature Difference (Delta) Calculation

After setting the formula, the delta between temperatures will be calculated automatically and you can view the delta in the Measurements panel.

Note

At least one delta has been added on the image.

In the toolbar, click to set the following parameters:

Name

Create a name for the delta.

Formula (Required)

Select measurements and temperatures for the expression to calculate the delta.

Note

The dotted line between two measurement tools will not always be displayed on the image. For example, if a temperature type selected in a delta is average temperature, the dotted line will not be displayed.

7.3.2 Edit a Measurement Tool

Move a Measurement Tool
Resize a Measurement Tool
Edit Delta Calculation
Modify Display Color of Measurement Tool

Move a Measurement Tool

In the toolbar, click , select a measurement tool on the image and drag it to a new location.

Resize a Measurement Tool

1. In the toolbar, click .
2. Select a measurement tool on the image.
3. Drag the node on the tool to resize the tool.

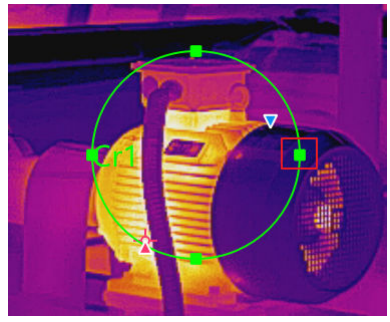


Figure 7-2 Resizing a Measurement Tool

Edit Delta Calculation

In the Measurements pane, you can right click a delta and select **Edit** to edit the delta.

Modify Display Color of Measurement Tool

If the display color of a measurement tool is similar to the color of the image, making it difficult to distinguish it from the image, you can modify the color of the measurement tool.
1. In the toolbar, click .
2. Select a measurement tool on the image.
3. Right-click the measurement tool and select **Measurement Attributes**.
4. In Color, select a color and click **OK**.

Note

In the menubar, click **Measurement → Edit Measurement Color** , and in the drop-down list of Default Color, select a color. After the modification, newly added measurement tools and deltas will be displayed in the new color, and the color of those added before remains the same.

7.3.3 Delete a Measurement Tool

You can delete measurement tools one by one and remove all measurement tools.

Note

After deleting a measurement tool, if a delta calculation is related with the deleted tool, the delta will also be deleted.

Delete One Measurement Tool

- Click and select a measurement tool on the image to delete it.
- Right-click a measurement tool and select **Delete Measurement**.
- Select a measurement tool on the image, and in the menubar, click **Measurement → Delete Measurement** .

Clear All Measurement Tools

- Right-click any location on the image (except locations within measurement tools) and select **Remove All Measurements**.
- In the menubar, click **Measurement → Remove All Measurements** .
- In the toolbar, click to remove all measurement tools.

Delete Delta

In Measurements pane, right-click a measurement tool and select **Delete**.

7.3.4 Set Measurement Parameters

Different measurement parameters can be adjusted to obtain thermal images for better monitoring effect.

Measurement Parameters

Configure Measurement Parameters

Configure Measurement Parameters

- After configuring measurement, right-click the measurement in the image and select **Measurement Attribute** to rename the measurement, set the color of the measurement and configure the measurement parameters.
- Right-click any area on the image (except the area in measurement tools) and select **Global Measurement Attribute** to rename the configure the image parameters.
- On the right side of Image Analysis page, click to open the Parameters pane to configure measurement parameters or image parameters.

Note

- You can drag the window to the middle of the client for a convenient view. You can also click » to hide this window.
- For example, if you select the L1 measurement, the suffix of the parameter is L1. If you don't select any measurement, the suffix of the parameter is Image, which indicates the measurement parameters of the current image.
- If you need to configure the parameters of the other measurement, select the measurement in the image, or select the measurement on the right side of the **Measurement Parameters**, and configure the parameters of the new selected measurement.
- If the measurement parameter is selected as Image, click to synchronize the measurement parameters of the image to all measurements of the current image.

Measurement Parameters

Atmospheric Temperature

It refers to the actual temperature of the measured environment.

Humidity

Measure the moisture content in the air.

External Optical Transmittance

The transmission of any external lenses or windows used in front of the camera.

External Optical Temperature

The temperature of any external lenses or windows used in front of the camera.

Emissivity

Every object has emissivity, which can be affected by surface temperature, surface roughness, degree of oxidation, coating, etc. Emissivity = Measured Value / Standard Value. The measured value refers to the temperature measured by infrared measurement devices, and the standard value is measured by contact measurement devices. Since any object is impossible to have no reflection at all, this value is generally less than 1.

Distance

The distance between the object and the thermal device.

Reflective Temperature

When objects with low emissivity are monitored, the reflective temperature can be significantly affected. The way of measuring reflective temperature: first select the location of the measurement target, and then find the reflecting surface according to your position and the measurement target (referring to the optical light path diagram), and measure its temperature by setting the emissivity as 1. The average temperature of the reflecting surface is the reflective temperature.

Alarm Type/Threshold

When the max. temperature / avg. temperature / min. temperature is above or below the alarm threshold, the alarm will be triggered. The alarm measurement tool will be displayed in the alarm color for further analysis. For details about temperature alarm analysis, refer to ***Temperature Alarm Analysis*** .

Delta

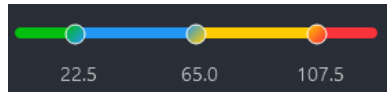


Figure 7-3 Delta

The upper and lower limits of the delta range correspond to the temperature measurement range of the device. The range from the lower limit to the first value indicates that the temperature is normal; the range from the first value to the second indicate the need for inspection; the range from the second value to the third indicate the need for maintenance after the operation stops; the range from the third value to the upper limit indicates the need for immediate maintenance.

After setting the values, the temperature difference result in the Measurements window will be displayed according to the color of the range in which the delta result is.

For example, the value of the first range on the left is set to 22.5, if the delta is less than or equal to 22.5, then the delta result will be displayed in green font color.

7.3.5 Calculate Area

Support calculate the area of the surface enclosed by area measurement tools (rectangle, polygon, circle, and ellipse). The calculation is an estimate of the surface area based on the distance.

Before You Start

Make sure you have added an area measurement tool to the image. For details about adding measurement tools, refer to

Steps

1. Select an area measurement tool on the image.
2. Open the Measurements pane.
3. In **Area Calculation**, click the value filed to set the pixel pitch, the focal length, and the distance according to actual needs.

   The calculated area is displayed at the bottom of the Measurements pane.

7.3.6 Overlay Measurement Results

After enabled, you can select measurement tools, temperature types, and deltas to be overlaid on the image to view measurement results conveniently.

Steps

1. In the menubar, click .
2. In the **Overlay Settings** window, select the position to overlay measurement results.
3. Check the measurement tools, temperature types, and deltas to be overlaid on the image.
4. Click **OK**.

7.3.7 Apply Measurement Tools to All Images in Analysis Task List

When analyzing multiple images at a time, you can apply the measurement tools laid out on an image to the others in the others in the analysis task list to improve image analysis efficiency.

Do one of the following:

- In the menubar, click **Measurement → Apply Measurements to All** .
- On the Library tab, right click an image in a folder, and select **Apply Measurements to All**.

7.3.8 Apply Image Parameters to All Images in Analysis Task List

When analyzing multiple images at a time, you can apply the image settings to the others in the analysis task list to improve image analysis efficiency.

In the menubar, click **Image → Apply Image Parameters to All** , and the settings of the current image (palettes type, image display mode, and advanced edition) will be applied to the others in the analysis task list.

7.4 Temperature Alarm Analysis

When the measurement results of a measurement tool is above or below the alarm threshold you set, the measurement tool will be displayed in the alarm color you set, so that you can easily analyze an abnormal temperature.

7.4.1 Enable/Disable Alarm Analysis

After enabled, when the measurement results of a measurement tool is above or below the alarm threshold you set, the measurement tool will be displayed in corresponding alarm color you set. At the same time, the measurement results of the measurement tool in the Measurements pane will be displayed in red.

Steps

1. Click to open the **Parameters Configuration** pane.
2. In **Measurements Parameters**, select an alarm type in the drop-down list.

Note

In the drop-down list, you can select **Disable** to disable this function.

3. Set the alarm threshold.

7.4.2 Change Alarm Color of Measurement Tool

You can change the alarm color of measurement tools. For example, if the alarm color of the measurement tool is close to the color of the image, you can change the color of the measurement tool.

Steps

1. Do one of the following to open the Color settings window:
   - In the menuebar, select **Measurement → Edit Measurement Color** .
   - In the toolbar, click ••• **→ Edit Measurement Color** .
2. In **Alarm Color** drop-down list, select an alarm color as needed.

   All old and new measurement tools whose measrement results is above or below alarm thresholds will be displayed in the new alarm color.

7.4.3 Re-tag Images

If you need to reset the tag color of an image set on the device or in the Image Management tab, you can retag the image during image analysis.

In the toolbar, click to select a tag color. After selection, the tag color of the image in the Image Management page will also be changed.

7.5 Image Editing Tools

You can edit images (via setting image display mode, palettes, etc) to make it easier to analyze the image.

Note

The display mode available is relied on the image type. For example, if the image is captured by a device that only supports the thermal channel, then the display mode is only the thermal mode.

7.5.1 Thermal

Thermal imaging is based on the difference of infrared radiation of objects. The thermal device can transfer the infrared radiation distribution emitted naturally on the surface of objects into visual images. Since different objects or different parts of the same object have different thermal radiation characteristics (e.g. temperature difference and emissivity), different objects can be

distinguished because of their differences in thermal radiation. We can monitor the environmental temperature change in time according to the thermal image. The thermal mode has the advantages of wide detection range, low information loss, uninterrupted throughout the day and night, and is not affected by the detection effect. In the thermal mode, the image resolution is low and the image lacks the sense of hierarchy. Because of the transmission distance, the contrast of different objects in the image is low and blurred.

You can do one of the following to set the display mode as Thermal:

- In the menu bar, click **Image → Display Mode → Thermal** .
- In the upper-right corner of Image Analysis page, select **Thermal** in the drop-down list.

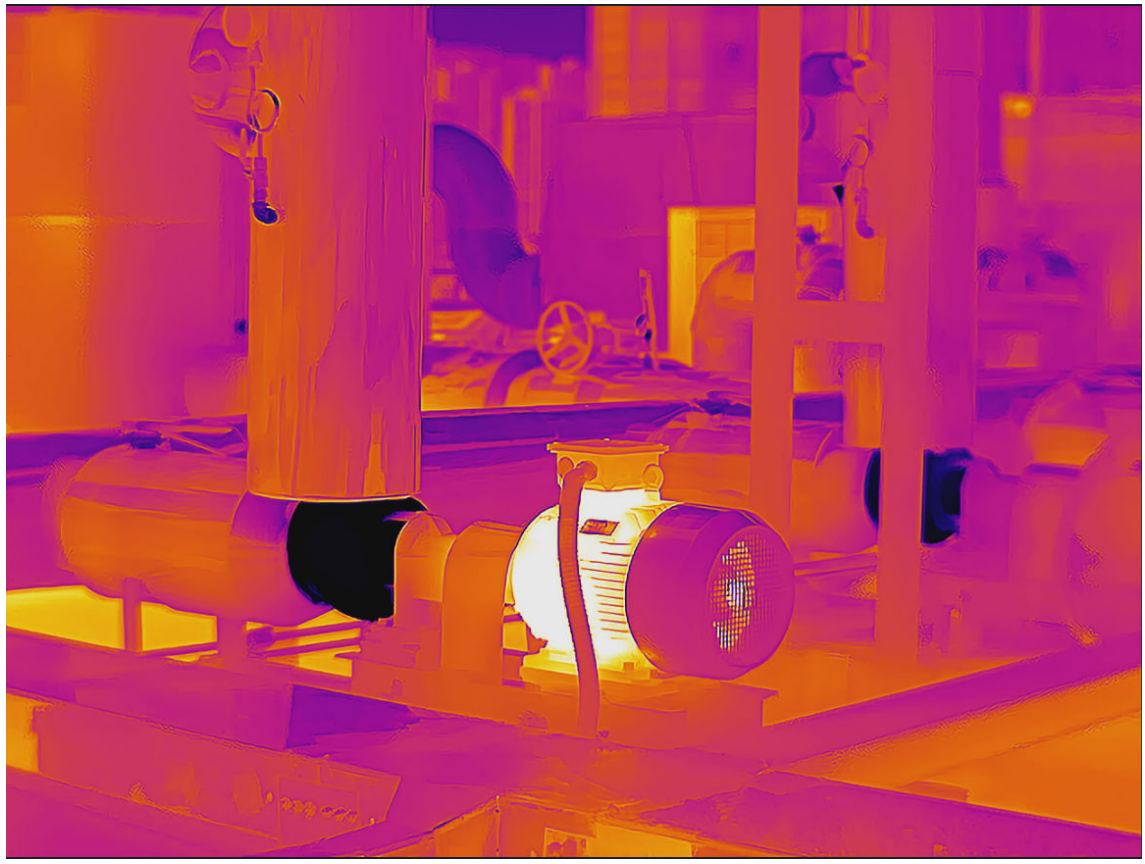


Figure 7-4 Thermal

7.5.2 Fusion

In the fusion mode, the thermal image and the optical image are combined to make the image boundary clear, so that it can not only continuously detect the temperature of the environment of the object, but also distinguish the shape of the object in the environment.

You can do one of the following to set the display mode:

- In the menu bar, click **Image → Display Mode → Fusion** .
- In the upper-right corner of Image Analysis page, select **Fusion** in the drop-down list.

Note

If necessary, click **Adjust Fusion Alignment** to align the visual image with the radiometric image.

- Click / to zoom in/out the visual image.
- Click / / / to adjust the position of the visual image.
- Click **Reset** to restore all settings.

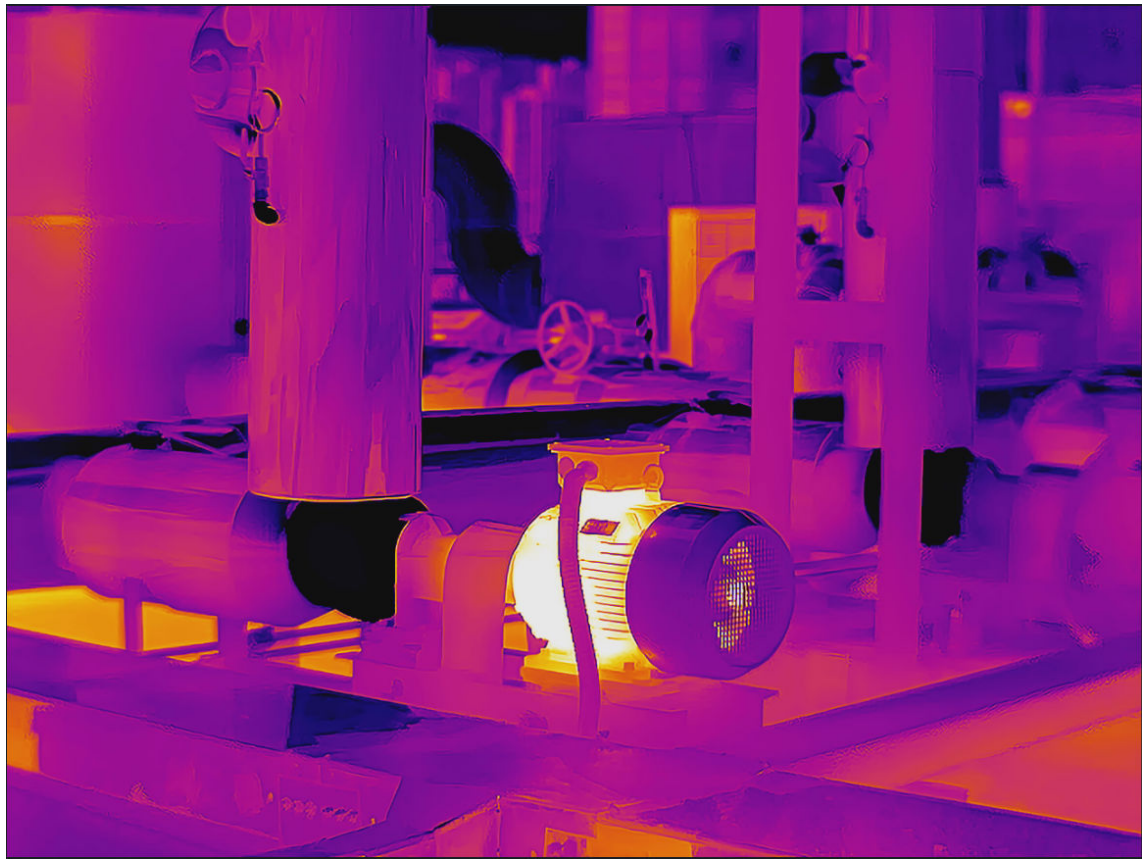


Figure 7-5 Fusion

7.5.3 Blending

You can adjust the visible light ratio. If the image in Thermal mode is not clear, you can increase the ratio of visible light so as to get more details for making accurate decisions.

1. You can do one of the following to set the display mode:

- In the menu bar, click **Image → Display Mode → Blending** .
- In the upper-right corner of Image Analysis page, select **Blending** in the drop-down list.

2. Drag the slider left of right to adjust the visible light ratio.

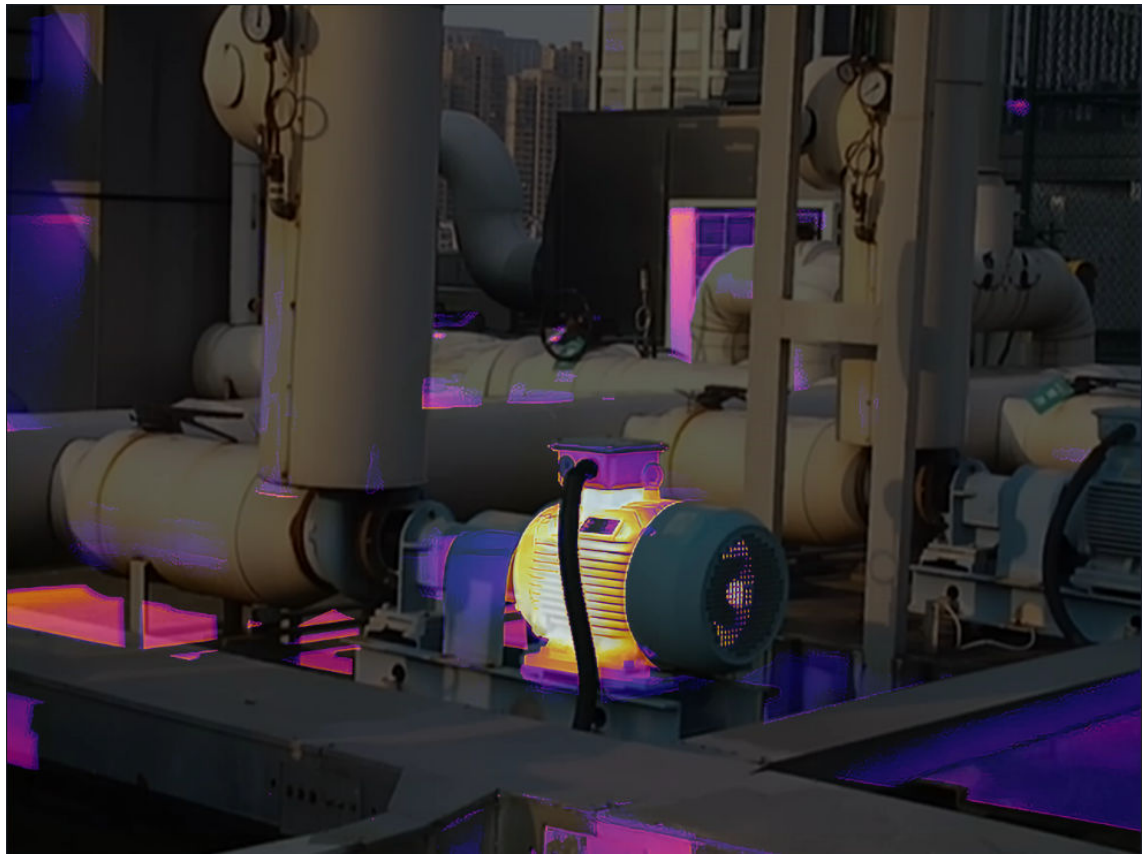


Figure 7-6 Blending

7.5.4 PIP (Picture in Picture)

In PIP (picture in picture) mode, an optical image is the background of the image, and the thermal image is in the center of the image. When the thermal device is one-channel, we cannot only view the actual environment but also view the temperature changes in the environment in PIP mode.

You can do one of the following to set the display mode as Thermal:

- In the menu bar, click **Image → Display Mode → PIP** .
- In the upper-right corner of Image Analysis page, select **PIP** in the drop-down list.

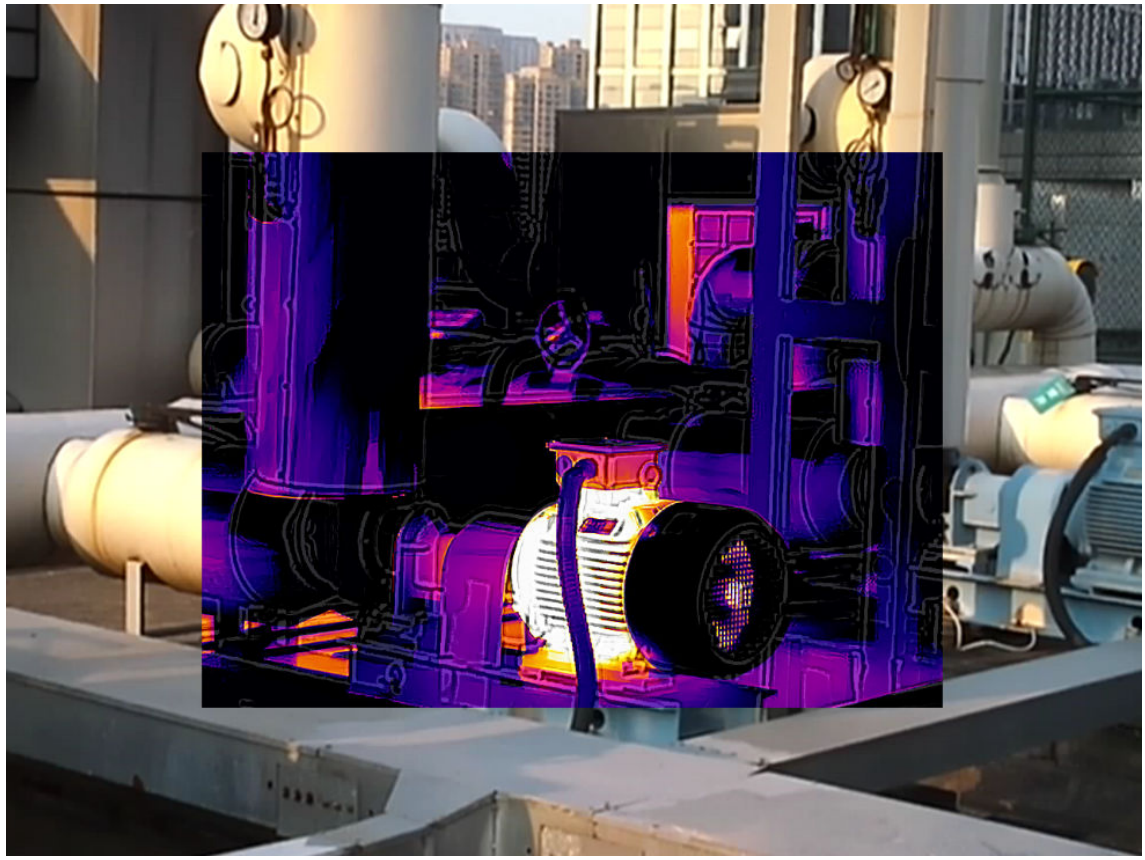


Figure 7-7 Picture in Picture

7.5.5 Visual

In the this mode, the image is close to the true color of the real environment or object. In the thermal mode, it is difficult to distinguish the shape of the object. You can switch to optical mode to draw the measurements (area), and then switch to thermal mode to view the temperature information in the measurement area.

You can do one of the following to set the display mode as Visual:

- In the menu bar, click **Image → Display Mode → Visual** .
- In the upper-right corner of Image Analysis page, select **Visual** in the drop-down list.

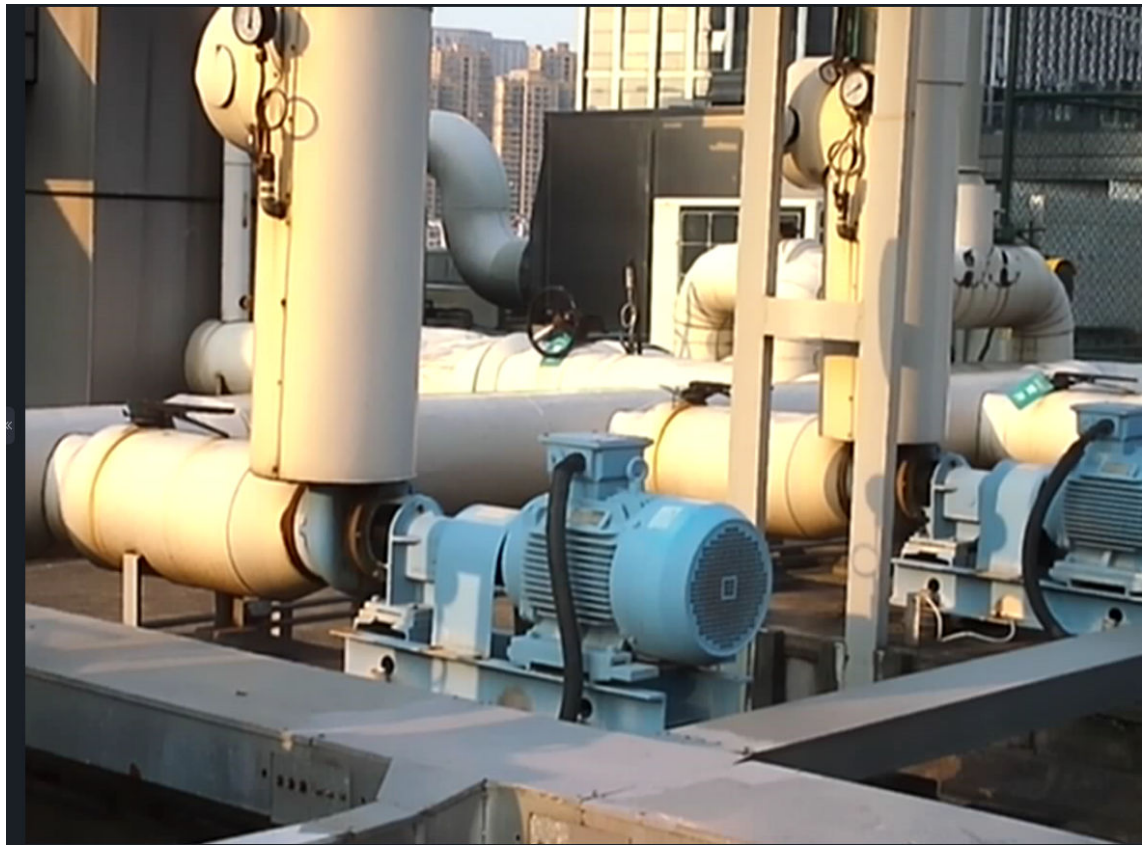


Figure 7-8 Visual

7.5.6 Palettes

Palette is a method to transform the display of images from black and white into colorful ones. Since human eyes are not sensitive to the resolution of black and white images, palette processing can transform different grey-scales in the black and white images into different colors according to linear or nonlinear mapping function, thereby enhancing the recognizability of the image boundary, improving the capability of human eyes to identify details of the image and allowing users to obtain information hidden in the grey-scale image that cannot be directly observed by naked eyes. Palettes mode is the color displaying mode of the transformed image, which can be manually set on the client.

Set Palettes

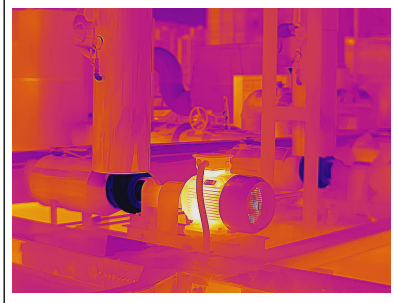
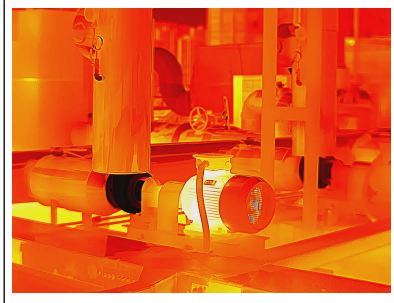
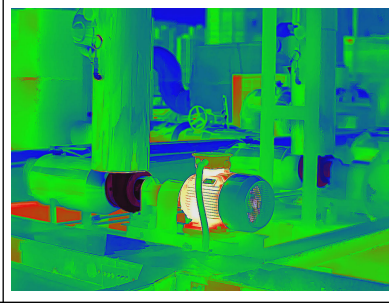
Palettes

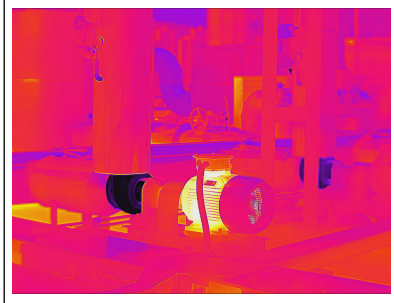
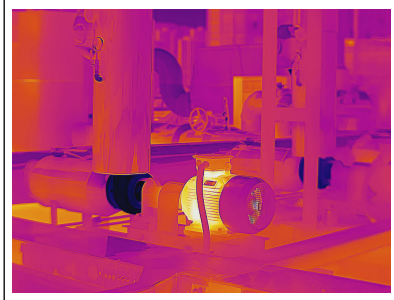
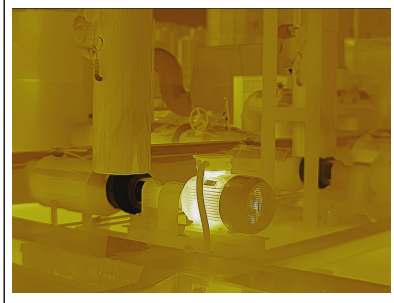
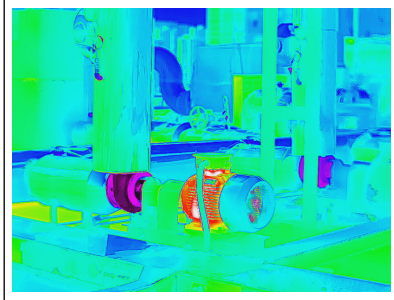
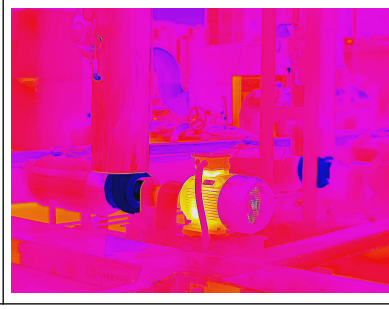
Set Palettes

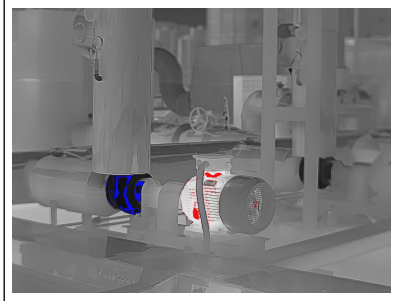
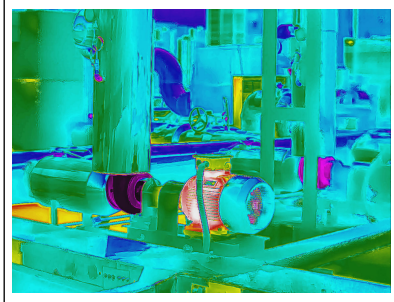
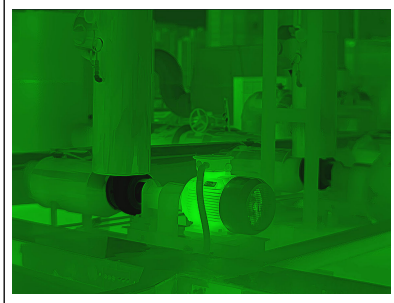
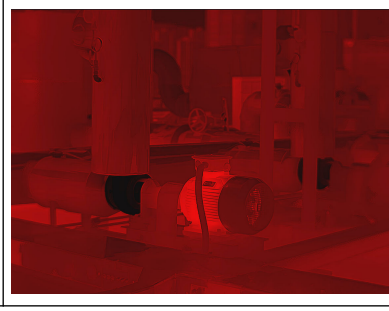
You can do one of the following to set palettes:

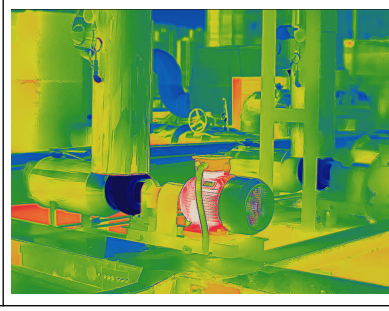
- In the menu bar, click **Image → Palettes Mode** .
- In the upper-right corner of Image Analysis page, select a palette type in Color Alarms in the drop-down list.

Palettes

Palettes	Image Example
Black Hot	
Fusion 1	
Fusion 2	
Rainbow	

Palettes	Image Example
Ironbow 1	
Ironbow 2	
Dark Brown	
Color 1	
Color 2	

Palettes	Image Example
Ice Fire	
Rain	
Green Hot	
Red Hot	

Palettes	Image Example
White Hot	
Dark Blue	

7.5.7 Focus Mode Palettes

Focus mode palettes allows to mark the targets of certain temperature range with fusion palettes and the others with white hot palettes.

Set Focus Mode Palettes

Focus Mode Palettes

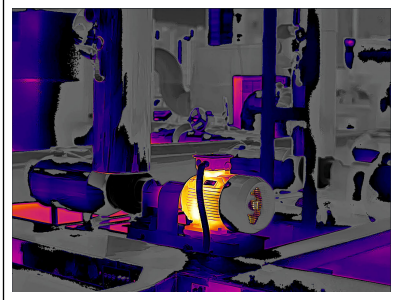
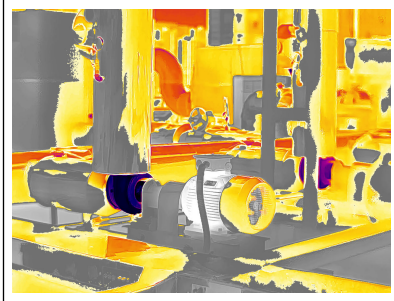
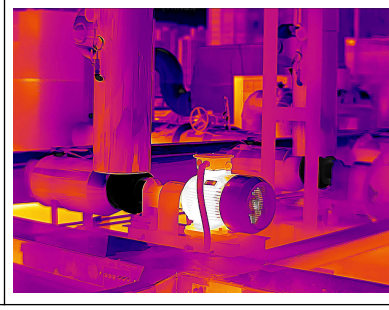
Set Focus Mode Palettes

1. You can do one of the following to set focus mode palettes:

- In the menu bar, click **Image → Display Mode → Focus Mode Palettes** .
- In the upper-right corner of Image Analysis page, select a palette type in Focus Mode Palettes in the drop-down list.

2. On the right side of the focus mode palette's name, set the temperature threshold or the temperature range. After the settings, when the temperature reaches the alarm limit, the object pixel in the image will be marked with a different color.

Focus Mode Palettes

Focus Mode Palettes	Description	Image Example
Above Focus	Set the temperature threshold, and the targets with the temperature higher than the set value are displayed with fusion palettes.	
Below Focus	Set the temperature threshold, and targets with the temperature lower than the set value are displayed with fusion palettes.	
Interval Focus	Set the temperature range (e.g., 90 °C to 150 °C), and targets with temperatures in the range are displayed with fusion palettes.	

7.5.8 Set Color Alarms

Color alarms allow you to mark the targets of certain temperature range with a different color from the rest.

Set Color Alarms

Color Alarms

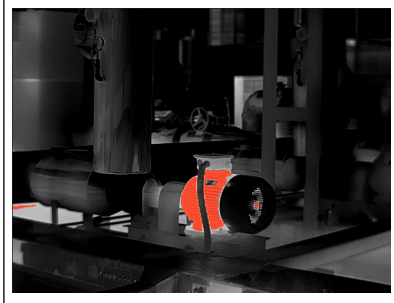
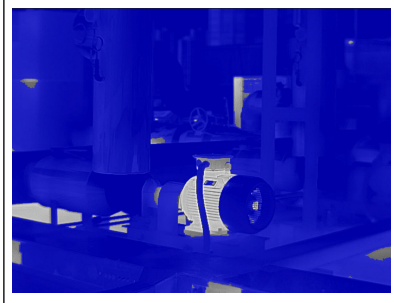
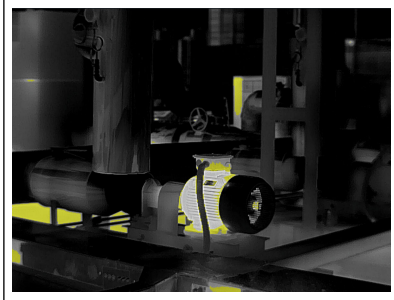
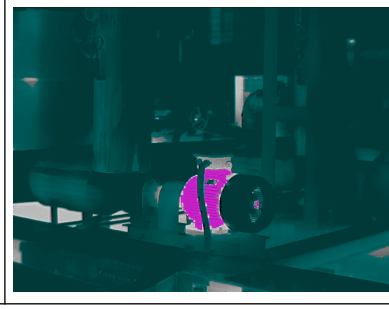
Set Color Alarms

1. You can do one of the following to set color alarms:

- In the menu bar, click **Image → Palettes Mode** .
- In the upper-right corner of Image Analysis page, select an alarm type in Palettes in the drop-down list.

2. On the right side of the alarm type's name, set the temperature threshold or the temperature range. After the settings, when the temperature reaches the alarm limit, the object pixel in the image will be marked with a different color.

Color Alarms

Color Alarms	Description	Image Example
Above Alarm	Targets with the temperature higher than the set value are displayed in red.	
Below Alarm	Targets with the temperature lower than the set value are displayed in blue.	
Interval Alarm	Targets with the temperature in the set range are displayed in yellow.	
Insulation Alarm	Targets with the temperature out of the section (e.g., 70 °C or 125 °C) are displayed in purple or blue.	

7.5.9 Color Distribution

You can change the distribution of colors in an image. A different color distribution allows you to analyze the image more easily and thoroughly.

You can do one of the following to change the color distribution:

- In the menubar, click **Image → Imaging Algorithm** , select **Linear**/**Histogram**.
- In the upper-right corner of Image Analysis page, select a color distribution in the drop-down list.

Table 7-1 Color Distribution

Color Distribution	Description
Linear	Suitable when the temperature span of an image is large. For details about checking the temperature span of an image, refer to ***Table 7-2*** .
Hitogram	Suitable when the temperature span of an image is small. For details about checking the temperature span of an image, refer to ***Table 7-2*** .

7.5.10 Advanced Image Editing

You can adjust image parameters like brightness, contrast, sharpness, etc. for better analysis.

1. After the image is analyzed or added to the analysis task list, click to enter the Image Analysis page.
2. Click **Image → Advanced Editing** , or in the menu bar click → **Advanced Editing** .
3. Set the following parameters as needed.

Parameter	Description
Brightness	Drag or enter an integer on the right to adjust the brightness of the image.
Contrast	Contrast is the brightness level difference between the brightest area and the darkest area in an image. The greater the contrast is, the larger the difference will be. Drag or enter an integer on the right to adjust the contrast of the image.
Sharpness	Sharpness describes the clarity of detail in the image. The greater the sharpness is, the clearer the image will be. Drag or enter an integer on the right to adjust the sharpness of the image.

In the Image Enhancement area, set the following parameters as needed.

Parameter	Description
Digital Noise Reduction	Digital noise reduction can remove the noise from a signal to make the image clearer. Select noise reduction mode in the drop-down list.
Noise Reduction Level	Drag or enter an integer on the right to adjust the noise reduction level.

After setting parameters, do the following as needed.

- Click **OK** to save current settings.
- Click **Preview** to preview the effect of edited parameters.
- Click **Reset** to restore default settings.

7.6 Level and Span

Changing the temperature levels can makes it easier to analyze a temperature anomaly. There are three modes for adjusting the levels and span, including Auto and Manual. The following chapters will describe how to use these modes.

7.6.1 Auto Level and Span

In this mode, the HIKMICRO Analyzer will automatically calculate the temperature scale for best contrast and brightness of the image.

Steps

1. Select the Intelligent mode.
   - In the menubar, click **Image → AGC → Auto** .
   - At the bottom of the image, select **Auto**.

Note

- If the image effect in this mode does not meet you need, you can drag the sliders under the image or click **Manual** to manually adjust the temperature scale. For details, refer to ***Manual Level & Span*** .
- In Auto mode, right click an area measurement tool (including rectangle, circle, ellipse, and polygon), and select **Regional Image Enhancement**. The client will automatically calculate the temperature scale of the area, and switch to **Manual** mode where you can further adjust the temperature scale manually. For details, refer to ***Manual Level & Span*** . Besides, in Manual mode, if you move or resize this area measurement tool, the image effect will change at the same time.

7.6.2 Manual Level & Span

You can manually adjust the top and bottom levels in the temperature scale. If you change the temperature scale to values close to the temperatures of the object, it is easier to find an abnormal temperature.

Steps

1. Select the Manual mode.
   - In the menubar, click **Image → AGC → Manual** .
   - At the bottom of the image, select **Manual**.
2. Adjust the temperature scale.
   - At the bottom of the image, drag the sliders to the left or to the right to change the top and bottom levels in the temperature scale.
   - Move the cursor to the middle of the two sliders (the cursor turns to a hand shape icon), and then drag the cursor to adjust its location to adjust the temperature scale.

Note

During adjusting, the top and bottom levels of the palette bar beside the image will change at the same time.



Table 7-2 Description for Bars at the Bottom of Image

1	The maximum adjustable temperature range. • If you select on the right side of the bar, the maximum adjustable temperature range is determined by the measurement range set on the device when the image is captured. • If you select on the right side of the bar, the maximum adjustable temperature range is calculated by the client.
2	The temperature span of the image (the temperature range between the highest temperature and the lowest temperature of the image).
3	The temperature scale to which you need to pay attention. That is, the temperature scale of the target. The top and bottom levels of the scale is the same as those of the palette bar.

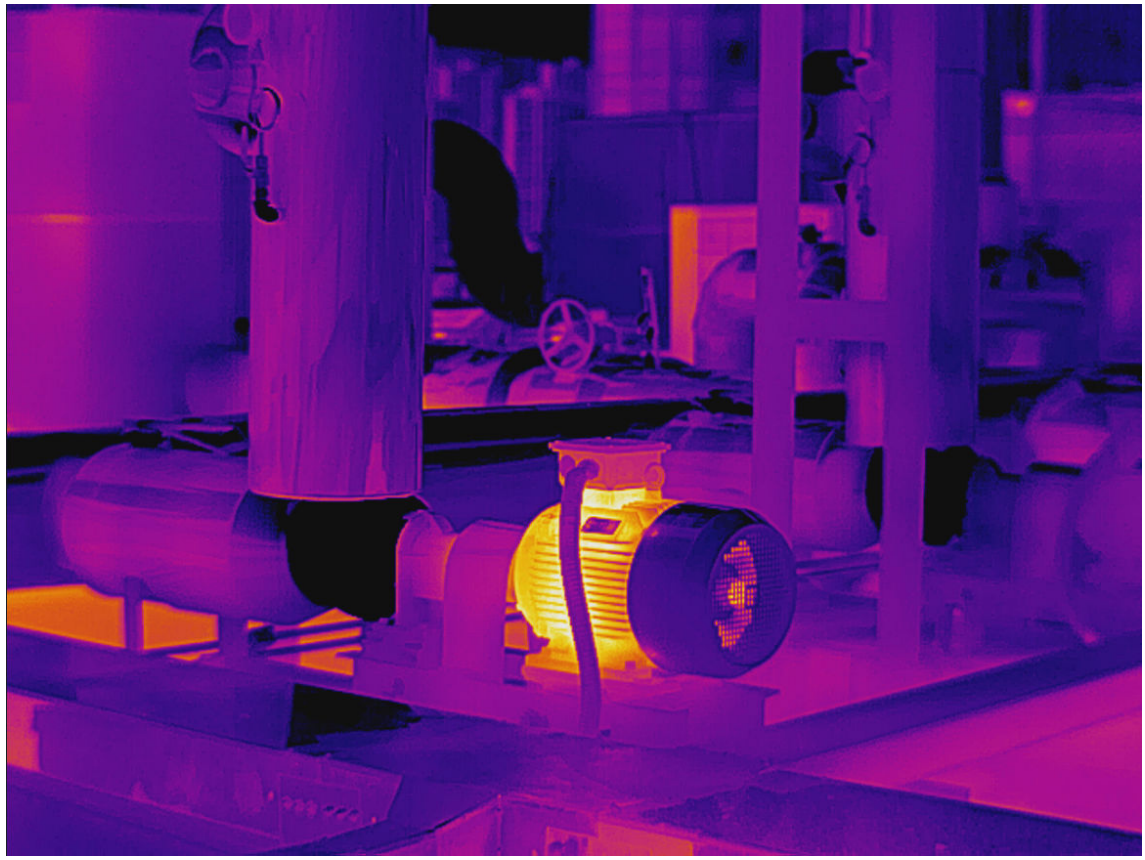


Figure 7-9 Image Example (Manual)

7.7 Save/Export Image

7.7.1 Save Image

After the image analysis, you can save the modified image information (measurements, temperature information, text annotation, etc.) for future reference.

- On the page, click or click **File → Save** to save the modified image information.
- On the page, click or click **File → Save as** , and enter the image name and select the path to be saved, to save the modified image to the designed path.

7.7.2 Export image

After editing and analyzing the image, you can export images, to make it a backup file in your PC or share it with third parties.

Steps

Note

The image exported can not be used for temperature measurement analysis.

1. Enter the page, and select the image to be exported.
2. Perform one of the following operations to open the window of Export Image.
   - Click → in the menu bar to export the image.
   - Click **File → Export image** to export the image.

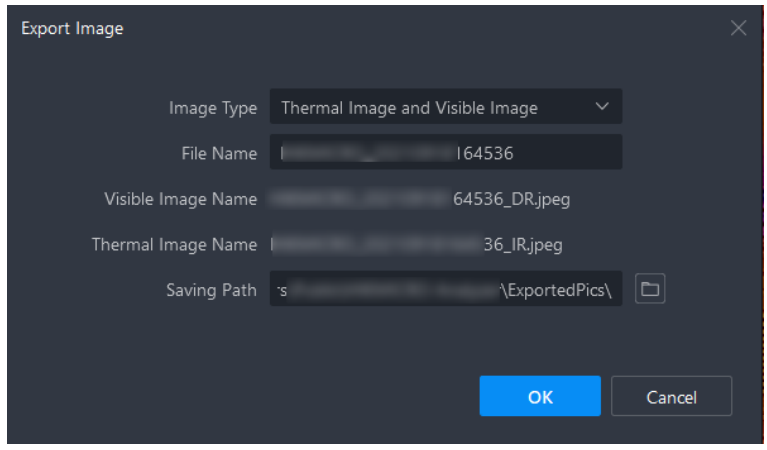


Figure 7-10 Export Image

3. Set relevant parameters.

   Image Type

   You can export both thermal images and visual images, or you can select either one kind of them to export.

   Note

   The image types that can be exported are subject to device.

   File Name

   You can customize the file name for the thermal and the visual image(s) simultaneously.

   Saving Path

   The image is saved in the default directory, or you can select another saving path.
4. Click **OK** to export the image.

7.7.3 Export Temperature Matrix

You can export the temperature matrix of an image or a measurement in a CSV file for further analysis.

Steps

1. On page, click → **Export Temp. Matrix** .
2. Check the information needed in the file.

   Matrix of Whole Image

   Temperature values of all pixels corresponding to the resolution of the camera module will be included in the exported file.

   Matrix of Measurements

   Temperature values of all pixels of the measurement(s) will be included in the exported file.

   Measurement Information

   General parameters or parameters of measurements will be included in the file, including distance and emissivity.

   Details

   Measurement results of the image or measurements will be included in the file, such as average temperature and Min. temperature.
3. Create a name for the file, and select the file location. Click **OK** to export the file in CSV format.
4. Click **Open File** to view the temperature matrix.

7.8 Exit Image Analysis

Follow one of the following methods to exit image analysis:

- Click **File → Exit** .
- On the navigation panel on the left, click / to switch to the Library or Video Analysis page.

Note

If you need to export the report, click **Report** on the top right corner. See details in ***Generate Report*** .

Chapter 8 Report Template

You can select from existing templates or customize templates to generate reports and save them to the local PC.

All templates including existing and customized ones for the content page are displayed in the Select Template window.

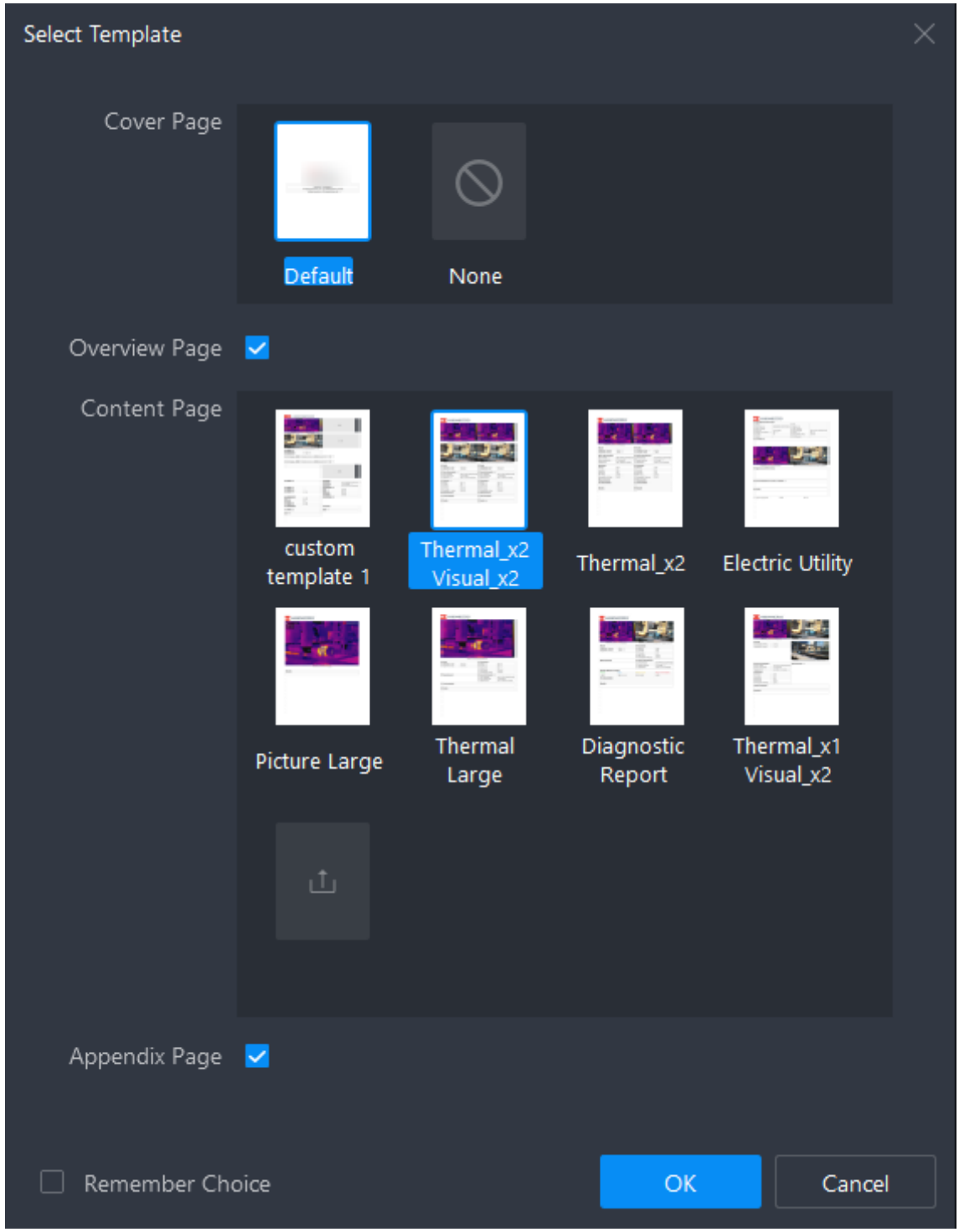


Figure 8-1 Select Template

8.1 Select Template

Steps

1. On the Image Analysis page, click **Report** on the top right corner.
   The Select Template window pops up.
2. Select a template as needed.
3. Click **OK** to generate an editable report file.

8.2 Import Template

Before You Start

Open the Select Template window. See details in ***Select Template*** .

Steps

1. For the Content Page, click  .
2. Select a template file from the local PC (template format in ART or DAT supported).
3. Click **Open** to import the template.

8.3 Use Saved Template

Before You Start

After editing the generated report, you can save the customized content page as a new template for future use. See details in ***Save as Template*** .

Steps

1. On the Image Analysis page, click **Report** on the top right corner.
   The Select Template window pops up.
2. Select a saved customized template, and click **OK** to generate the report.

Chapter 9 Report

You can generate a report file from the image information (temperature information, parameters, text annotations, etc) and save it to the local PC for comparison, analysis, and summarization of temperature measurement statistics.

Note

All images in the task list will be exported as report content.

9.1 Generate Report

Before exporting a report, you can generate an editable report file for preview and editing.

9.1.1 Generate Report with Picture Not Analyzed

You can generate an editable report directly with pictures that have not been analyzed.

Generate Report with Picture from Library

Steps

1. Go to → **Library** page and perform one of the following operations to generate a report.
   - Check one or multiple images in the library. Right-click the image(s) and select **Generate Report** or **File → Generate Report** .
   - Check one or multiple images in the folder. Right-click the folder/image(s) and select**Generate Report**, or click **File → Generate Report** .
2. Select a template for the report. See details in ***Report Template*** .
3. Click **OK** to generate an editable report.

   Note

   For editing the report, see details in ***Edit Report*** .

Generate Report with Local File

Steps

1. Go to → **Local File** .
2. Check one or multiple images. Right-click the image(s) and select **Generate Report**.
3. Select a template for the report. See details in ***Report Template*** .
4. Click **OK** to generate an editable report.

Note

For editing the report, see details in ***Edit Report*** .

9.1.2 Generate Report with Analyzed Picture

You can generate an editable report directly with pictures that have been analyzed.

1. On the Image Analysis page, click **Report** on the top right corner.
2. Select a template for the report. See details in ***Select Template*** and ***Use Saved Template*** .
3. Click **OK** to generate an editable report.

Note

For editing the report, see details in ***Edit Report*** .

9.2 Report Editing Page

You can view the thumbnails, configure the objects, change the template, etc.

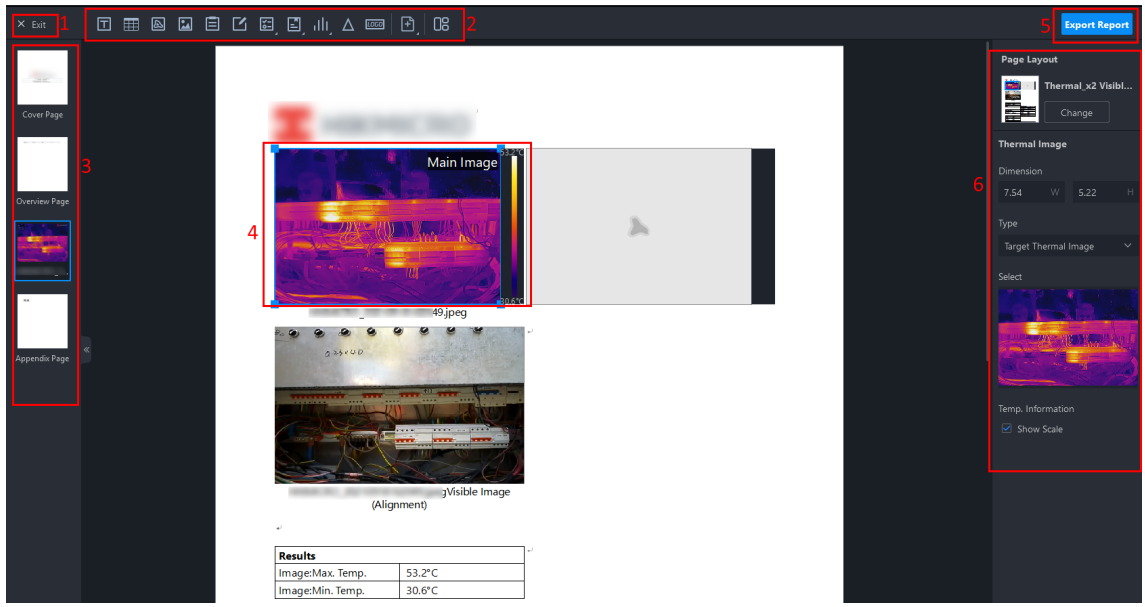


Figure 9-1 Report Editing Page

No.	Description
1	Exit report editing.

No.	Description
	Note Unsaved data will be lost.
2	Click different icons on the tool bar to add different objects, add pages, and change template.
3	View the thumbnails of report pages.
4	Drag and move the objects.
5	Export the report to the local PC.
6	Edit report objects, changes the template, change the page layout, etc.

9.3 Edit Report

The report is generated from the template and selected image(s). You can edit, move and add objects in the report.

9.3.1 Add Object

Perform one of the operations to add objects.

- On the menu bar, click **Content → Insert Object** .
- Click the specific object icon on the tool bar.

Icon	Object
	Text: general text.
	Table: custom table.
	Thermal Image.
	Visual Image.
	Measurements: temperature measurement results.
	Text Annotation.
	Parameters (Thermography parameters): ◦ Select **Image Parameters**. ◦ Select **Measurement Parameters**.
	Information:

Icon	Object
	◦ Select **Image Information**. ◦ Select **Device information**. ◦ Select **Environment Information**.
	Temp. Distribution Charts: ◦ Select **Temp. Distribution Bar Chart**. ◦ Select **Temp. Distribution Line Chart**.
	Delta.
	Logo.

Note

Objects cannot be added to the cover page, overview page, or appendix page.

9.3.2 Move/Adjust Object

You can move and adjust the object in the report.

Select an object in the report. You can perform the following operations:

- Drag the object to the position where needed.
- Drag the four corners of an image object to adjust its size; drag the two sides of a table object to adjust its width.

  Note

  You can also enter the specific value of size in the object configuration panel on the right.

9.3.3 Edit Object

Objects inlcuded in the report vary by the template selected. Imformation related to the selected image(s) will be automatically filled into the corresponding objects. You can edit the exsiting objects, including changing the linked thermal image, setting the image type, customizing texts, etc.

Note

For objects that can be linked with thermal images, you can view the thermal image No. from the drop-down list of Link Thermal Image.

Thermal Image

Images added to the analysis task list will be automatically displayed in the Thermal Image object.

Steps

1. Click a thermal image in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the specific value for width and height, to adjust the size of the thermal image.
Select Type	Select a thermal image type in the drop-down list. • **Listed Radiometric Image**: Thermal picture captured when the measured object is not for sure in normal condition. Under **Image Edition**, click + / × to add/delete the thermal image. • **Compared Radiometric Image**: Thermal picture captured when the measured object is in normal condition. Under **Select**, click + / × to add/ delete the thermal image.
Delete/ Change Thermal Image	Hover over the image thumbnail, and click **Delete**/**Select** to delete/change the thermal image. **Note** If the object is already linked with a thermal image, When you delete the linked thermal image or the object linked with the thermal image, the linkage will be deleted as well, which cannot be undone.
Displayed Items	Check **Temperature Scale** to display the scale bar on the right of the thermal image.
Set as Main Image	Right-click the thermal image and select **Set as Main Image**. After it is set as the main image, the thermal image will be displayed as the thumbnail of the current page on the left for preview.

   The configuration effect can be synchronously previewed on the report.

Visual Image

Visual images and regular images linked with thermal images will be displayed in the Visual Image object.

Steps

1. Click an image in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the specific value for width and height, to adjust the size of the image.

Select Type Select an image type in the drop-down list.

- **Auto-selection**: The object will be auto-filled with the picture linked with the thermal image.
- **Other Image**: You can add regular pictures from the local PC. Click + to add a picture. Hover over the added picture and click × to delete the picture.
- **Aligned Visual Image**: When you select this type, the object will be auto-filled with the corresponding aligned visual image to the linked thermal image.

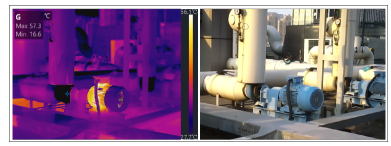


Figure 9-2 Aligned Visual Image

- **Full-Size Visual Image**: When you select this type, the object will be auto-filled with the corresponding full-size visual image to the linked thermal image.

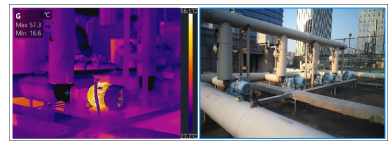


Figure 9-3 Full-Size Visual Image

Link Thermal Image Select a thermal image from the drop-down list to be linked with the object. The object will be auto-filled with the linked thermal image.

The configuration effect can be synchronously previewed on the report.

Image Information

The image name, resolution, picture size, and capture time will be displayed in this object.

Steps

1. Click the image information object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with the information of the linked thermal image.

Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Display Items	Check the items to be displayed in the object as needed.

The configuration effect can be synchronously previewed on the report.

Device Information

The information of the capture device including device model, device serial No., capture time, etc. will be displayed in this object.

Steps

1. Click the device information object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with the device information of the linked thermal image.
Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Display Items	Check the items to be displayed in the object as needed.

The configuration effect can be synchronously previewed on the report.

Environment Information

The information of the measured object including address, device name, weather, etc will be displayed in this object.

Steps

1. Click the Environment Information object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with the environment information of the linked thermal image.

Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Display Items	Check the items to be displayed in the object as needed.

The configuration effect can be synchronously previewed on the report.

Image Parameters

The parameters for the global image including the distance, humidity, atmospheric temperature, etc. will be displayed in this object.

Steps

1. Click the Image Parameters object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with parameters for the global image of the linked thermal image.
Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Display Items	Check the items to be displayed in the object as needed.

The configuration effect can be synchronously previewed on the report.

Measurement Parameters

The parameters for measurement tools including emissivity, distance, etc. will be displayed in this object.

Steps

1. Click the Measurement Parameters object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with parameters for measurement tools of the linked thermal image.

Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Display Items	Check the items to be displayed in the object as needed.

The configuration effect can be synchronously previewed on the report.

Measurements

The measurements of parameters for the global image and parameters for measurement tools including the severity, the maximum temperature, the minimum temperature, the center temperature, etc. will be displayed in this object.

Steps

1. Click the Measurements object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with measurement results of the linked thermal image.
Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Display Items	Check the items to be displayed in the object as needed.

The configuration effect can be synchronously previewed on the report.

Temp. Distribution Bar Chart

The temperature distribution bar chart of the linked thermal image will be displayed in this object for further analysis.

Steps

1. Click the Temp. Distribution Bar Chart object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with the temperature distribution bar chart of the linked thermal image.

Link Measurement	Select a measurement to be applied, and the object will be auto-filled with information corresponding to the measurement.
Number of Bars	Enter a specific number for bars, or click ^ or v to increase or decrease the number of bars.

The configuration effect can be synchronously previewed on the report.

Temp. Distribution Line Chart

The temperature distribution line chart of the linked thermal image will be displayed in this object for further analysis.

Steps

1. Click the Temp. Distribution Line Chart object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with the temperature distribution line chart of the linked thermal image.
Link Measurement	Select a measurement to be applied, and the object will be auto-filled with information corresponding to the measurement. **Note** • If you change or delete the linked thermal image, the linked measurement will be changed as well. • You can only link line measurement and polyline measurement.

The configuration effect can be synchronously previewed on the report.

Delta

The table of delta ranges and standard values (based on severity results) will be displayed in this object.

Steps

1. Click the Delta object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description

Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with severity results of the linked thermal image.
Link Measurement	Select a measurement to be applied, and the object will be auto-filled with information corresponding to the measurement.
Configure Delta Range	You can edit the delta range names and standard values.

The configuration effect can be synchronously previewed on the report.

Text Annotation

The text annotation information will be displayed in this object.

Before You Start

For adding text annotations to the thermal image, see details in ***Add Text Annotation*** .

Steps

1. Click the Text Annotation object in the report.

   The object configuration pane will be displayed on the right.
2. You can perform the following operations.

Operation	Description
Edit Object Title	You can edit the object title (Text Annotation by default).
Set Size	Enter the width of the table as needed.
Link Thermal Image	Select an thermal image from the drop-down list to be linked for this object. The object will be auto-filled with text annotations of the linked thermal image.
Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Number of Bars	Enter a specific number for bars, or click or to increase or decrease the number of bars.

The configuration effect can be synchronously previewed on the report.

General Text

You can enter customized texts as needed in this object.

Steps

1. Click the Text object in the report.

   The object configuration pane will be displayed on the right.

2. You can perform the following operations.

Operation	Description
Enter Text	Double-click the object to enter texts. Press Alt + Enter for line breaking in the text object.
Select Font Size	Select a font size as needed.
Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.

The configuration effect can be synchronously previewed on the report.

General Table

You can insert a table and customize the size, and number of lines and columns.

Steps

1. Click the Table object in the report.

   The object configuration pane will be displayed on the right.

2. You can perform the following operations.

Operation	Description
Enter Text	Double-click the object to enter texts. Press Alt + Enter for line breaking in the cell.
Set Size	Enter the width of the table as needed.
Select Alignment Mode	Select , or to set the content as left aligned, centered, or right-aligned.
Set Lines and Columns	Enter the specific number of lines and columns as needed. **Note** Up to 20 lines and 10 columns are supported.
Display Items	Check the items to be displayed in the object as needed.

The configuration effect can be synchronously previewed on the report.

LOGO

Steps

1. Click the LOGO object in the report.

   The object configuration pane will be displayed on the right.

2. You can perform the following operations.

Operation	Description

Set Size Enter the specific value of width and height of the LOGO as needed.

Add LOGO Click **Add** to add a picture from the local PC.

Note

- After the LOGO is added, you can hover over added picture and click **delete** or **Select** to delete or change the LOGO.
- If you have deleted or changed the LOGO, you can click **Reset** to restore the default LOGO.

The configuration effect can be synchronously previewed on the report.

9.3.4 Delete Object

Steps

1. Perform one of the following operations to delete the selected object.
   - Select an object, right-click the object, and select **Delete Object**.
   - Select an object and click **Content → Delete Object** .

9.3.5 Manage Pages

You can add or delete report pages, or change the order of pages.

Add New Page

Perform one of the following operations to add a new page.

- Click  in the tool bar and select a page to be added.
- Click **Content → New Page** and select a page to be added.
- Right-click a page thumbnail on the left, select **New Page**, and select a page to be added.

Change the Order of Pages

In the list of page thumbnails on the left, you can drag the pages to change the order of pages.

Delete Page

Steps

1. Select a thumbnail page to be deleted on the left, and perform the following operations to delete the current page.
   - Right-click the thumbnail and select **Delete Page**.
   - On the menu bar, click **Content → Delete Page** .

- Press the Delete key.

9.3.6 Save Template

You can save your customized page as a template to the PC client or export it as a template to the local PC for future use.

Save as Template

All saved templates on the PC client will be displayed in Content Page in the Select Template window.

Steps

Note

16 templates in total are supported.

1. Select a page on the left, and perform one of the following operations to open the Save as Template window.
   - On the menu bar, click **Content → Save as Template** .
   - Right-click the page and select **Save as Template**.

   Note

   - Only content pages can be saved as templates.
   - Pictures are not required in the thermal image object for saving the page as a template.
2. Enter a name for the customized template.
3. Click **Save** to save the selected page as a template.

Export Template

Right-click the selected page on the left, and select **Export Template** to export the template file to the local PC. See details in ***Import Template*** on how to import template files to the PC client.

Note

- Only content pages can be exported as templates.
- Pictures are not required in the thermal image object for exporting the page as a template.

9.3.7 Change Template

You can preview the report rendered through the template. If you find the layout unsatisfactory, you can change the template in the page configuration panel on the right. You can change the template for the selected page or all pages.

Note

The template for the cover page, overview page, and appendix page cannot be changed.

Change Template for Selected Page

Steps

1. Select a page from the thumbnail panel and perform the one of following operations:
   - Click **Change Template** under Page Layout in the page configuration panel on the right.
   - Click **Content → Change Template** .
2. Select a suitable template to replace the one for the current page.

Change Template for All Pages

On the tool bar, click , and select a suitable template to replace the one for all pages.

9.4 Export Report

After editing and previewing the report file, you can export the report to the local PC for comparison, analysis, and summarization of temperature measurement statistics. You can perform operations including changing the report file name, changing the saving path, exporting the report as PDF or editable ODT file, and opening the folder of the exported file.

1. On the report editing page, perform one of the following operations to open the Export Report window.
   - On the top right corner of the page, click **Export Report**.
   - On the menu bar, click **File → Export Report** .
2. Select ODT or PDF as the file format, edit the file name, and configure the saving path.
3. Click **OK** to export the report.

   Note

   - In the prompt on export success, you can click **Open Folder** to view the exported report in the local PC or click **OK** to stay on the report editing page.
   - You can edit the exported ODT file on Microsoft Word.

Chapter 10 Video Analysis

You can import radiometric videos into HIKMICRO Analyzer to get temperature measurement results.

10.1 Navigation for Video Analysis Page

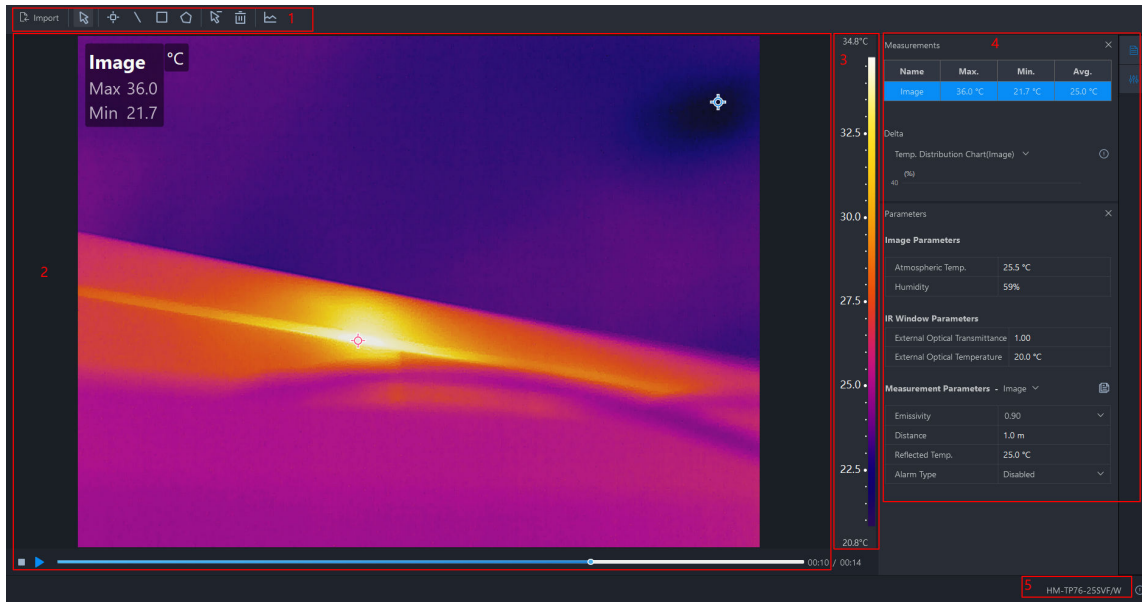


Figure 10-1 Video Analysis Page

No.	Description
1	Toolbar. Including measurement tools, importing radiometric videos, and viewing time-temperature curve.
2	Window for playing video. You can lay out measurement tool on the video image, and view measurement results immediately in the video image or in the Measurements pane.
3	Temperature Scale: Change with the temperature scale of the image.
4	Measurements, and Parameters Pane: You can drag the pane to a position as needed.

No.	Description
	• Measurements: View temperature measurement results of the whole image or of the selected measurement tool on the image. • Parameters: Configure temperature measurement parameters.
5	The serial No. and the device model of the device which captured the image.

10.2 Import and Play Video

1. Perform one of the following operations to import a video:
   - Click on the navigation panel on the left to enter the Video Analysis page, and drag a local video file to this page.
   - Click on the navigation panel on the left to enter the Video Analysis page, and click **Import** to import a local video file to this page.

   Note

   Only videos in RV format can be imported.
2. After the video is imported, you can click at the bottom to play the video, or click to pause the video.

10.3 Measurement Tools

10.3.1 Add a Measurement Tool

To measure a temperature, you can use one or more measurement tools (spot, line, etc.). When you add a measurement tool on the video image, the measured temperature will be displayed in the Measurements pane.

Do one of the following to select a measurement tool:

- In the menubar, click **Measurement** to select a measurement tool.
- In the toolbar, select a measurement tool.

The following is the description on how to add measurement tools in the toolbar:

Spot

Click to add a spot measurement tool to the location as needed on the video image.
Double-click to add spots continuously on the video image.

Line

Click , and then draw a line for measurement on the video image.

Area

You can measure temperatures in areas by adding tools including rectangle, circle, ellipse, and polygon. You can draw different shapes according to the actual scenarios. For example, for an irregular area, you can select polygon measurement tool for measurement.

- Click , and left-click the mouse and drag to draw a rectangle.
- Click , and left-click the mouse to draw the first line of the polygon, left click the mouse again to draw the next line. Right-click the mouse to finish. Up to 10 nodes are supported when drawing a polygon.

10.3.2 Edit a Measurement Tool

Move a Measurement Tool

In the toolbar, click , select a measurement tool on the video image and drag it to a new location.

Resize a Measurement Tool

1. In the toolbar, click .
2. Select a measurement tool on the video image.
3. Drag the node on the tool to resize the tool.

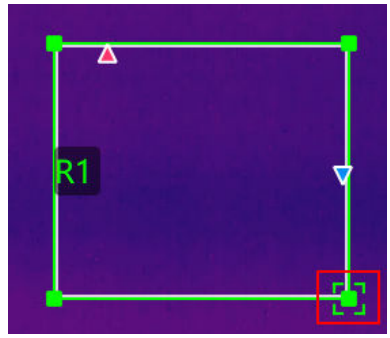


Figure 10-2 Resizing a Measurement Tool

10.3.3 Delete a Measurement Tool

Note

After deleting a measurement tool, if a delta calculation is related with the deleted tool, the delta will also be deleted.

Delete One Measurement Tool

- Click and select a measurement tool on the image to delete it.
- Select a measurement tool on the image, and in the menubar, click **Measurement → Delete Tool** .

Clear All Measurement Tools

- In the menubar, click **Measurement → Remove All Measurements** .
- In the toolbar, click to clear all measurement tools.

10.3.4 Set Measurement Parameters

Different measurement parameters can be adjusted to obtain thermal images for better monitoring effect.

Configure Measurement Parameters

- On the right side of Image Analysis pane, click to open the Parameters pane to configure measurement parameters or image parameters.

  Note

  - You can drag the window to the middle of the client for a convenient view. You can also click to hide this window.
  - For example, if you select the L1 measurement, the suffix of the parameter is L1. If you don't select any measurement, the parameter of the current image will be displayed.
  - If you need to configure the parameters of the other measurement, select the measurement in the image, or select the measurement on the right side of the **Measurement Parameters**, and configure the parameters of the new selected measurement.
  - If the measurement parameter is selected as Image, click to synchronize the measurement parameters of the image to all measurements of the current image.

Measurement Parameters

Humidity

Measure the moisture content in the air.

External Optical Transmittance

The transmission of any external lenses or windows used in front of the camera.

External Optical Temperature

The temperature of any external lenses or windows used in front of the camera.

Emissivity

Every object has emissivity, which can be affected by surface temperature, surface roughness, degree of oxidation, coating, etc. Emissivity = Measured Value / Standard Value. The measured value refers to the temperature measured by infrared measurement devices, and the standard value is measured by contact measurement devices. Since any object is impossible to have no reflection at all, this value is generally less than 1.

Distance

The distance between the object and the thermal device.

Reflected Temperature

When objects with low emissivity are monitored, the reflective temperature can be significantly affected. The way of measuring reflective temperature: first select the location of the measurement target, and then find the reflecting surface according to your position and the measurement target (referring to the optical light path diagram), and measure its temperature by setting the emissivity as 1. The average temperature of the reflecting surface is the reflective temperature.

Alarm Type / Alarm Threshold

When the max. temperature / avg. temperature / min. temperature is above or below the alarm threshold, the alarm will be triggered. The alarm measurement tool will be displayed in the alarm color. For details about temperature alarms analysis, refer to.

10.3.5 Calculate Area

Support calculate the area of the surface enclosed by area measurement tools (rectangle and polygon). The calculation is an estimate of the surface area based on the distance.

Note

Make sure you have added an area measurement tool to the image. For details about adding measurement tools, refer to

Select an area measurement tool on the video image. In the Measurements pane, click the value filed in **Area Calculation** to set the pixel pitch, the focal length, and the distance according to actual needs.

The calculated area is displayed at the bottom of the Measurements pane.

10.4 Temperature Alarm Analysis

When the measurement results of a measurement tool is above or below the alarm threshold you set, the measurement tool will be displayed in the alarm color you set, so that you can easily analyze an abnormal temperature.

10.4.1 Enable/Disable Alarm Analysis

After enabled, when the measurement results of a measurement tool is above or below the alarm threshold you set, the measurement tool will be displayed in corresponding alarm color you set. At the same time, the measurement results of the measurement tool in the Measurements pane will be displayed in red.

Steps

1. Click to open the **Parameters** pane.
2. In **Measurements Parameters**, select an alarm type in the drop-down list.

   Note

   In the drop-down list, you can select **Disable** to disable this function.
3. Set the alarm threshold.

10.5 Temperature Curve

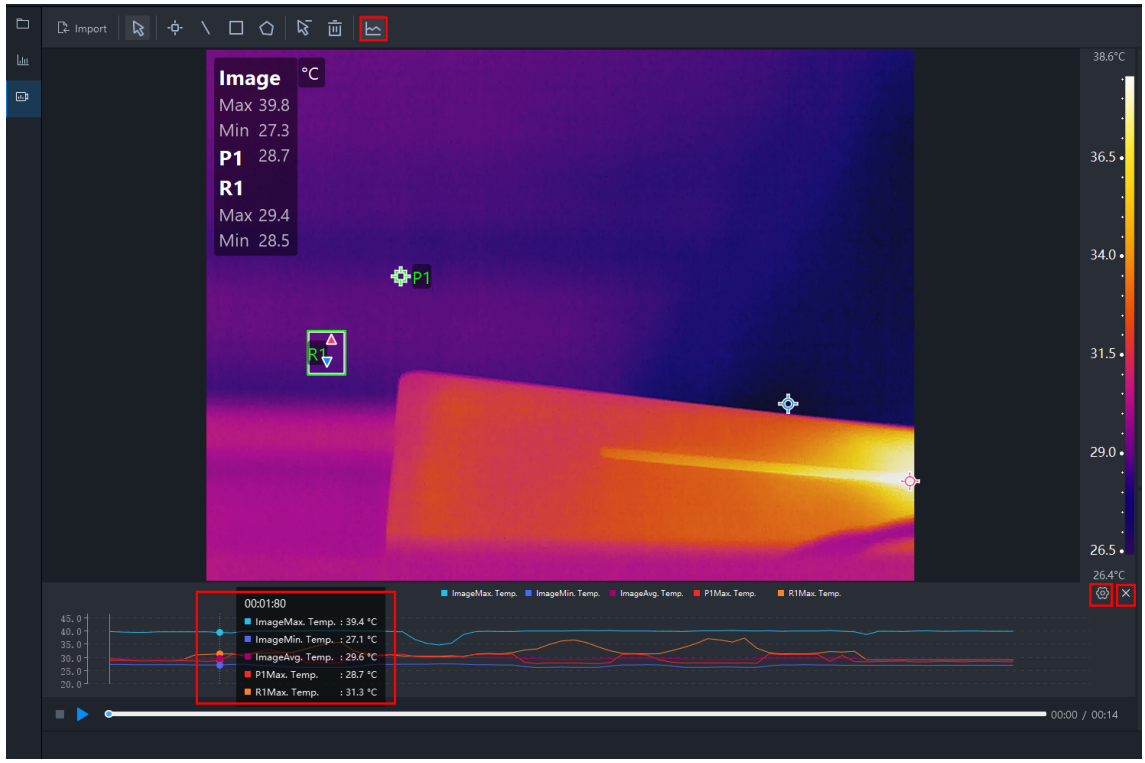


Figure 10-3 Temperature Curve

10.5.1 Enable Temperature Curve

Steps

1. On the tool bar, click to enable the temperature curve.
2. Hover over the temperature curve and view the temperature of the image at different time.

10.5.2 Configure Temperature Curve

Steps

1. Click on the upper right corner of the temperature curve.

   The temperature curve configuration window pops up.
2. Check the curve(s) to be displayed as needed (max. temperature, min. temperature, average temperature, or customized measurements).

   Note

   Maximum 6 curves can be displayed.

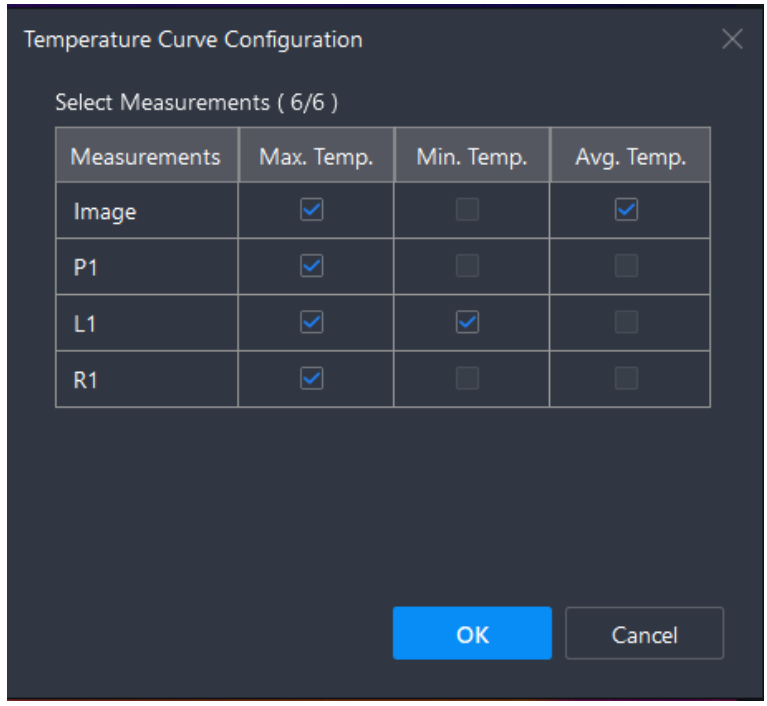


Figure 10-4 Temperature Curve Configuration

3. Click **OK**.

10.5.3 Disable Temperature Curve

Click  again or click  on the upper right corner of the temperature curve to hide/close the temperature curve window.

10.6 Stop and Delete Video

Click  below the video to stop and delete the video.

Note

The video file is only deleted from the PC client, not from the local PC.

10.7 Exit Video Analysis

Click different icons in the navigation bar on the left to switch to another page, or exit the PC client directly.



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