



Thermal Imaging Software Client

User Manual

Legal Information and Symbol Conventions

Legal Information

About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the company website.

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

Trademarks

Trademarks and logos mentioned are the properties of their respective owners.

Disclaimer

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS MANUAL AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". OUR COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL OUR COMPANY BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF OUR COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS. YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND OUR COMPANY SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, OUR COMPANY WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.

YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW. ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS.




Thermal Imaging Software User Manual

YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.

IN THE EVENT OF ANY CONFLICTS BETWEEN THIS MANUAL AND THE APPLICABLE LAW, THE LATER PREVAILS.

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.

Contents

Chapter 1 Overview	1
1.1 Introduction	1
1.2 Running Environment	1
1.3 Software Installation.....	2
Chapter 2 Material Management	2
2.1 Create Material Set.....	3
2.2 Import Material	4
2.3 Material Operation	5
Chapter 3 Material Analysis	6
3.1 Flow Chart.....	8
3.2 Add Material to Work Set	9
3.3 Thermography Analysis	9
3.3.1 Configure Thermography Rule.....	9
3.3.2 Set Thermography Parameters	12
3.3.3 View Thermography Result	13
3.4 Image Analysis	15
3.4.1 Set Palettes Mode.....	15
3.4.2 Set Color Alarm.....	16
3.4.3 Switch Image Display Mode.....	19
3.4.4 Set Thermography Range	22
3.4.5 Picture Information	23
3.5 Save and Export Analysis Result	24
3.5.1 Save Picture	24
3.5.2 Export Picture	24
Chapter 4 Export Report	25
Chapter 5 System Settings.....	28
Chapter 6 More Functions.....	30

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 can be imported to the client as materials, and the client provides material management function, including material classification, adding tag for material, etc. Multiple operations can be performed in the process of thermography data analysis, including configuring thermography rules, adjusting thermography parameters, setting image display mode, setting color coloration, etc. After material analysis, you can view the thermography results, save the pictures or export the report as required.

The topology of the usage scene is as follows:



Figure 1-1 Topology

1.2 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
- Video Card: RADEON X700 series


Thermal Imaging Software User Manual

- GPU: 256M or above

1.3 Software Installation

In this capture, we introduce how to install, uninstall and modify the software.


Install Software

Open the software installation package, and then 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

Click  and select the installation path.


After installation, you can select **Create a Desktop Icon** according to your requirement.

Uninstall Software



Note


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

Click  → **Control Panel** → **Functions and Procedures** in the Windows operating system. Rightclick **Thermal Imaging Software** and then select **Uninstall/Modify**, and then select **Uninstall** in the popup window. **Modify Software**




Note

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

If you need to modify the software, you can click  → **Control Panel** → **Functions and Procedures** in the Windows operating system. Right-click **Thermal Imaging Software** and then select **Uninstall/Modify**, and then select **Modify** in the pop-up window.

Chapter 2 Material Management

The client supports material management. You can create material set and import materials to the material set. The imported materials can be reused and can be classified, viewed, edited and sorted by the users, etc.

Click  to enter the material management page. The descriptions of the functions of the material management page are as follows:

Thermal Imaging Software User Manual

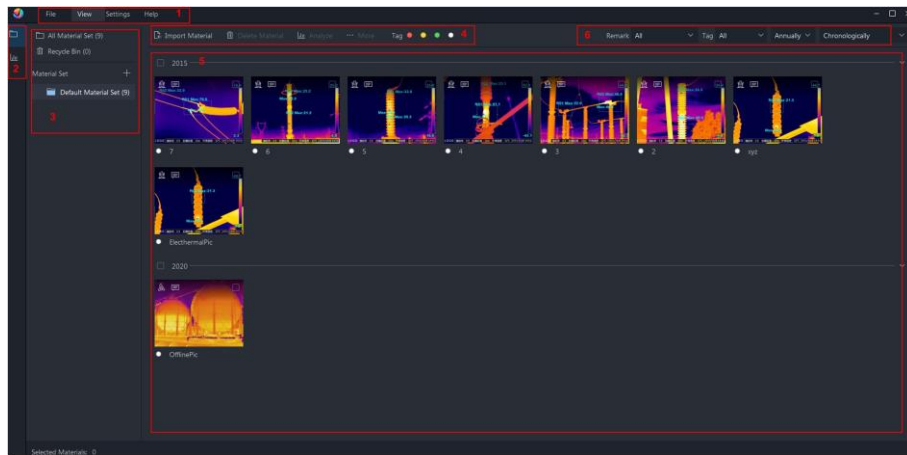


Figure 2-1 Material Management Page Menu Bar1

The menu bar includes file management, view switching, client settings and help information.

Navigation2

You can switch to  material analysis page, and start material analysis.

Material Set and Recycle Bin3

All material set, customized material set and recycle bin. The number in the bracket indicates the number of materials inside.

Tool Bar4

The tool bar includes importing, deleting, moving and adding materials, adding tag, and switching to material analysis page.

Material Window5

Display the materials by time, and you can select or delete the materials in this window.

Search and Sorting Condition6

You can search the materials by remark and tag, and sort the materials by day/month/year. The materials can also be sorted chronologically or reverse chronologically.

2.1 Create Material Set



Material set is used to classify the materials. The users can name the material set according to the actual scene, and import materials to the material set. Before importing materials, you should create the material set.



Note

Up to 32 material sets can be added to the client.

Perform one of the following operations to create a material set:

- Click  →  to create a new material set.
 - Click **File** → **New Material Set** to create a new material set.
-



Note

The newly created material set is named as **New Material Set_No. (0)**. The No. represents the order of creation. The number in the brackets represents the number of materials in the material set.

Right click the material set name and select **Delete** to delete the material set.

Right click the material set name and select **Rename** to rename the material set.

2.2 Import Material



Before material analysis, you can import materials to the material set.

Steps



Note

- The material should be the picture with temperature information, namely the captured picture in the thermal device.
 - Only JPEG format picture is supported.
 - Up to 1000 materials can be imported to the software.
-

1. On the  page, select the material set to be imported, and then click  **Import**.
 2. **Optional:** Check **Copy to Management Path** as required.
-



Note

After checked, the materials can be copied to the management path of the client. The modified picture will not replace the pictures in the original path.

If not checked, the material set only records the file path of materials. The modified picture will replace the pictures in the original path as well.


3. Select the material(s) to be imported.

4. Click **Confirm**.

2.3 Material Operation

The client supports multiple and flexible material management operations, including moving or adding material (picture) to a new material set, deleting material, adding tag to material, filtering and sorting the material, adding material to work set, starting thermography analysis, etc.

Move or Add Material to Material Set

For material to be moved, select the material on the upper-right corner of the material picture, and then click  **More** → **Add to/Move to** , and then select the material set to be added/moved to.



Add to

The material will be copied to the new material set, and exist in the old material set.



Move to

The material will be moved to the new material set, and be deleted from the old material set.




- You can select single or multiple materials. For selecting multiple materials, you can press Ctrl key and then click the materials to be selected, or check the boxes on the upper-right corner of the materials one by one.
 - The material can not be moved to the All material set. The material can not be added to the recycle bin.
-

Delete Material

- Delete single material: Click  on the lower-right corner of the material and then click **Delete** in the pop-up window, to delete the material to the recycle bin.
 - Batch delete materials: Select multiple materials, and then click  **Delete**. Click **Delete** in pop-up window to delete the materials to the recycle bin.
-



- The deleted material is moved to the recycle bin. If you need to recover the material, you can recover the material to the material set.
 - You can perform one of the following operations to select multiple materials:
 - Press Ctrl on the keyboard and then click the material pictures to select multiple materials.
 - Click  the lower-right corner of the materials one by one to select multiple materials.
-

Thermal Imaging Software User Manual

Add Tag to Material

You can add tag to the material for classification according to your requirements. For example, you can add tag to the material according to the priority of handling, and add red tag for material which need to be handled immediately.

Select the material need to be added tag, and then select the color tag. After adding tag, the tag will be displayed on the left-corner of the picture.

Right-click the material with a tag, and then click **Delete Tag** to delete the added tag.

Material Filtering and Sorting

On the upper-right corner of the client, you can filter the materials by remark or tag.



Note

For more details about material remark, refer to **Picture Information** .


On the upper-right corner of the client, select **Day/Monthly/Annually** and **Chronological/Reverse Chronological** to classify or sort the materials.





Note

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

Add Material to Material Set

Right click the material and select **Add to Work Set**, and the material will be added to work set. After being added, the material can be viewed on the  page.

Start Thermography Analysis

Select one or more material(s). select  **Analyze** to add the selected material(s) to the work set of the  page, and then begin thermography analysis.




Note

For more details about thermography analysis, refer to **Material Analysis** .

Chapter 3 Material Analysis

After the materials are imported to the client, you can analyze the materials in the material analysis module. The material analysis includes thermography analysis, image analysis, and saving or exporting pictures. By configuring thermography rule, adjusting thermography parameter, the client can calculate the thermography result and grey-scale map.

Click  to enter the material analysis page. The descriptions of the functions of the material analysis page are as follows:

Thermal Imaging Software User Manual



Figure 3-1 Material Analysis Menu Bar1

Menu bar includes file and picture operation, temperature rules selecting, image mode (palettes mode and displaying mode) switching, view switching, settings and help information.

Tool Bar2

Tool bar includes the icons of different thermography rules, exporting, saving, saving as and editing the color of thermography rule.

Navigation3

You can switch to  material management page to import new material, delete material, etc.

Work Set4

Before material analysis, the material should be added to the work set. You can switch the material that is being analyzed currently.

Material Window5

Display the enlarged material picture. You can draw thermography rules in the window and the temperature will be displayed.

Manual AGC6

You can manually set the thermography range or set the client to automatically adjust the thermography range, namely the difference and range between the minimum temperature and maximum temperature of the environment.

Temperature, Palettes Mode, Color Coloration, and Image Display Mode Switching, and Exporting Report7

You can select the maximum temperature, minimum temperature or average temperature to be displayed, and switch the palettes mode, color coloration and image display mode. You can export the report.

Thermal Imaging Software User Manual

Thermography Results, Thermography Parameters and Picture Information8

You can view the thermography results, including the temperature of each rule and the greyscale map. You can also set the thermography parameters and view the picture information.

3.1 Flow Chart

Follow the flow chart when you first configure and operate the thermography analysis.

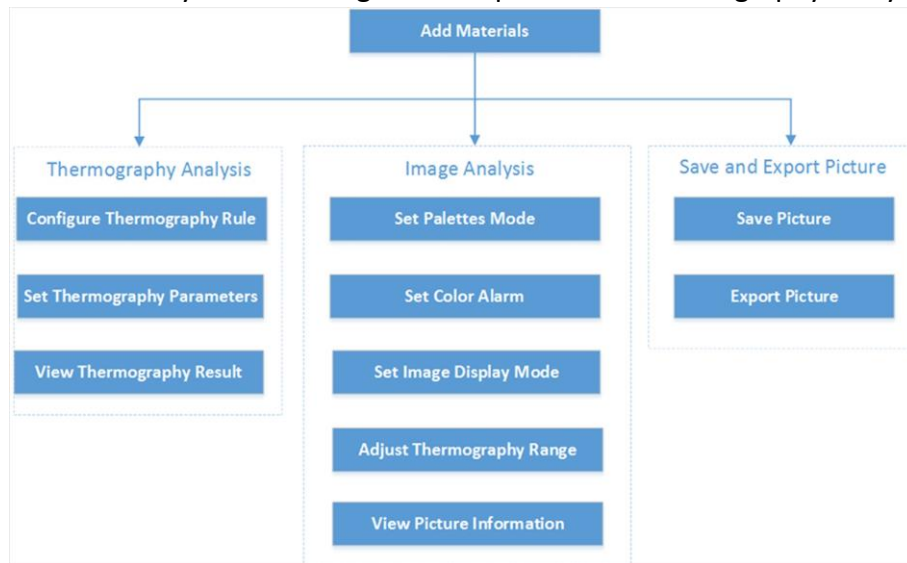


Figure 3-2 Flow Chart

- **Add Material:** Add material pictures to the work set for analysis. For details, refer to **Add Material to Work Set**.
- **Configure Thermography Rule:** Add the thermography point or draw the thermography area. For details, refer to **Configure Thermography Rule**.
- **Set Color Coloration:** When the temperature of the object reaches the threshold you set, the color alarm will be triggered. For details, refer to **Set Color Alarm**.
- **Set Palettes Mode:** Select the palettes mode according to the requirements. For details, refer to **Set Palettes Mode**.
- **Switch Image Display Mode:** Select the image displaying mode as **Thermal**, **PIP**, **Combination** or **Optical**. For details, refer to **Switch Image Display Mode**.
- **Set Thermography Range:** Set the thermography range to achieve the best image luminance and contrast ratio. For details, refer to **Set Thermography Range**.
- **View Thermography Result:** View the grey-scale map and thermography point temperature to observe the temperature range and temperature variation. For details, refer to **View Thermography Result**.

Thermal Imaging Software User Manual

- **View Picture Information:** You can view the picture information and add text note. For details, refer to *Picture Information* .
- **Save Picture and Export Report:** You can save or export the modified picture, and export the thermography result as a report. For details, refer to *Save and Export Analysis Result* .

3.2 Add Material to Work Set

Before material analysis, the material should be added to the work set.




Note


Up to 16 materials can be added to the work set.



Two methods are supported to add the material to the work set:

Directly Move Material to Work Set

Open the file path of the material in the computer, and directly move the material to the work set in the  page.

Add Materials to Work Set from Material Set

On the  page, right-click the material and select **Add to Work Set** to add the material picture to the work set.

In the  page, select one or multiple material(s), and then click  **Analyze** to add the material(s) to the work set and start thermography analysis.

3.3 Thermography Analysis

Thermography analysis refers to the analysis of the temperature information in the picture. By setting the thermography rules, adjusting the thermography parameters, you can view the thermography results calculated by the client, including the temperature and grey-scale map of each thermography rule and the general.

3.3.1 Configure Thermography Rule

The thermography rules include point thermography, line thermography and area thermography to meet the requirements of different thermography scenes.

After the materials are added to the work set. You can perform one of the following operations to select thermography rule for drawing:


- Click **Thermography** in the menu bar to select the thermography rule.
- Select the thermography rule in the tool bar.




Figure 3-3 Thermography Rules in Tool Bar

Point Thermography

You can customize a thermography point, to view the temperature of this point.

Click  → **Customized Point** and click in the picture to select a point to be viewed, the customized thermography point will be added.


Click  → **Display Center Point** to display the center point of the material picture.



Note





Move the cursor to the thermography point, the cursor will turn to a cross cursor, and then you can move the location of the thermography point.

Line Thermography

Click , and then draw a line for thermography in the picture.

Area Thermography

Supports adding areas (including rectangle, circle, ellipse and polygon) for thermography. You can draw different area shapes according the actual scenes. For example, for irregular area, you can select polygon for thermography.

- Click  or  or  on the left panel, and left-click the mouse to draw the area, which will be displayed as rectangle, circle or ellipse automatically.
- Click  on the left panel, and then left click the mouse to draw the first line of the polygon, leftclick the mouse again to draw the next line. Right-click the mouse to finish polygon drawing.





Note


- When the cursor turns to a double sided arrow, you can adjust the size of the area. When the cursor turns to a cross cursor, you can move the location of the area.
 - When you finish drawing area thermography rule, you can right click to end drawing.
 - You can double-click the picture to view the picture in full screen.
-


Delete Thermography Rule



- Click  to delete the selected thermography rule.
- Click  to delete all the thermography rules.

Edit Thermography Rule

Click  → **Edit Color** or **Thermography** → **Edit Color** , and select the displaying color or the thermography rule. After selected, the new drawing thermography rule will be displayed in the new color, and the old rules remain unchanged.

Click  , and then select the rule to be edited to adjust the rules. For example, you can drag the end of the rule line to stretch or shorten the line. For the rectangle rule, you can click the angle of the rectangle to enlarge or narrow the rectangle.

Select Temperature to Be Displayed

Click **Thermography** → **Result Display** or click the drop-down list of the **Show** on the right-upper corner of the client, and check **Min. Temperature**, **Max. Temperature** and **Average Temperature** to be displayed in the rule and in the thermography results.

Rule IDs of Thermography Rules

Thermography Rules	Rule IDs
Customized Point	P0, P1...
Line	L0, L1...
Rectangle	R0, R1...
Circle	Cr0, Cr1...
Ellipse	Ep0, Ep1...
Polygon	Po0, Po1...



Note

- You can set **Area Thermography Rule Display** to select temperature information type (min. temperature, max. temperature and average temperature) to be displayed. You can set **Temperature Display Location** to select the location to display the temperature (display on the top-left or display with rule) . For details, refer to **System Settings** .
- The temperature of each thermography rule is displayed on the bottom of the picture.
- For point thermography, only the average temperature will be displayed.

Thermal Imaging Software User Manual

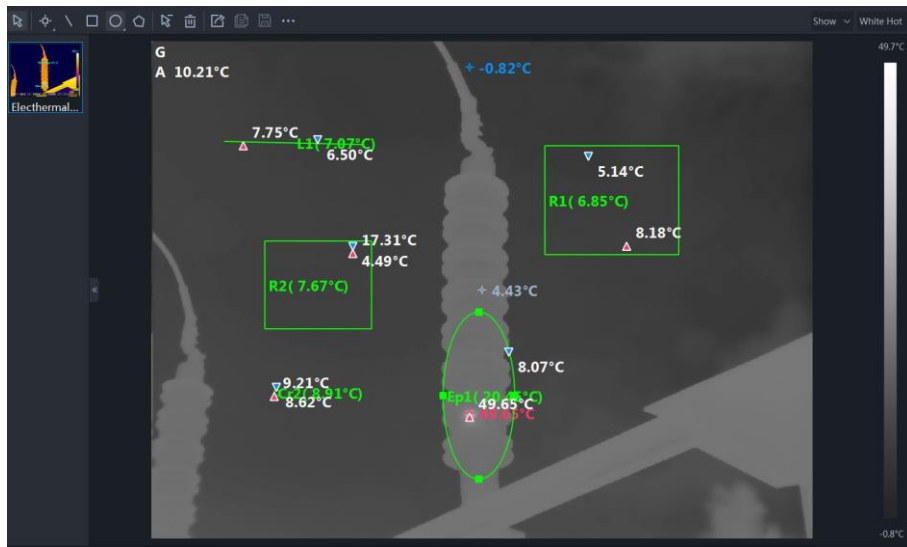




Figure 3-4 Thermography Rules


3.3.2 Set Thermography Parameters

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

Enter the  page. Perform one of the following operations to open the Parameter Configuration window.

- After configuring thermography rule, right click the rule in the picture and select **Export Rule Attribute** to open the window of Rule Attribute Configuration, to rename the rule, set the color of the rule and configure the thermography parameters of the rule.
- After configuring thermography rule, click  in the right-panel of the client to enter the Parameter Configuration page. The suffix of the parameter indicates the selected rule or general parameter.

Note

- You can drag the window to the middle of the client for convenient view. You can also click  hide this window.
- For example, if you select the L1 rule, the suffix of parameter is L1. If you don't select any rule, the suffix of parameter is G, which indicates the general parameter of the current picture.
- If you need to configure the parameters of the other rule, select the rule in the picture, and configure the parameters of the new selected rule.

Note

In different streaming mode, the parameters that can be set are different.

Thermal Imaging Software User Manual

Range Switchover

Thermography range is restricted to measure the maximum and minimum temperature more accurately.

Humidity

Measure the moisture content in the air.

Emissivity

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

Environment Temperature

It refers to the actual temperature of the measured environment.

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.

Distance

The distance between the object and thermal device.

Alarm Type

When the max.temperature/avg.temperature/min.temperature is above or below the alarm threshold, or the temperature different (between the max.temperature and min.temperature) is above or below the alarm threshold , the alarm will be triggered.

Alarm Threshold

When the max.temperature/avg.temperature/min.temperature is above or below the alarm threshold you set, or the temperature different (between the max.temperature and min.temperature) is above or below the alarm threshold , the alarm will be triggered.


3.3.3 View Thermography Result

After configuring the thermography rule and thermography parameters, you can view the thermography results, including the maximum temperature, minimum temperature and average temperature of the general material picture and each rules, and the grey-scale map, to display the grey-scale distribution of each frame.

Enter the page.




Thermal Imaging Software User Manual

Click  on the right panel of the client to open the window of thermography results.



Note

You can drag the window to the middle of the client for convenient view. You can also click  to hide this window.

View the Max.Temperature, Min.Temperature and Average Temperature

On the Thermography Results window, the maximum temperature, minimum temperature and average temperature are displayed in the table.



Note

In the thermography results, the rule with alarm triggered will be displayed in red. Besides, the rule will also be marked as red in the material picture.


Thermography Results >>			
Name ^	Max. Te...	Min. Te...	Avg.Te...
Cr2	9.21°C	8.62°C	8.91°C
 Ep1	49.65°C	8.07°C	20.45°C
R1	8.18°C	5.14°C	6.85°C
R2	17.31°C	4.49°C	7.67°C
L1	7.75°C	6.50°C	7.07°C
G	49.65°C	-0.82°C	10.21°C

Figure 3-5 Thermography Result

View Grey-Scale Map

On the Thermography Results window, the grey-scale map of the selected thermography rule or the general material picture is displayed.

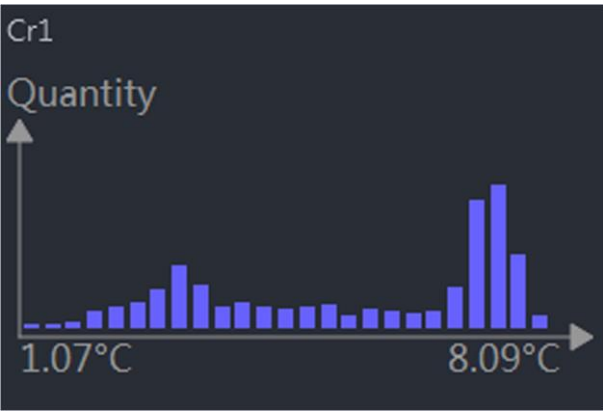


Figure 3-6 Grey-Scale Map

3.4 Image Analysis

By image analysis, you can accurately view and recognize the object in the picture, the alarm area and temperature distribution. The image analysis includes setting the palettes mode, setting the color alarm, switching the image displaying mode, and setting the thermography range, etc.




3.4.1 Set Palettes Mode

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.













Enter the  page.

Click **Image → Palettes Mode** and select the palettes mode.

You can also select palettes mode in the drop-down list of the upper-right corner of the client.

Palettes Mode	Color Style
Black Hot	
Fusion1	
Fusion 2	

Thermal Imaging Software User Manual

Rainbow	
Ironbow 1	
Palettes Mode	Color Style
Ironbow 2	
Dark Brown	
Color 1	
Color 2	
Ice Fire	
Rain	
Green Hot	
Red Hot	
White Hot	
Dark Blue	

3.4.2 Set Color Alarm


When the temperature of the object pixel in the video reaches the temperature limit, it will be marked with different colors, to trigger alarms and draw the user's caution.

Enter the  page.





Click **Image → Palettes Mode** and select the color alarm type and set the temperature limit.

You can also select color alarm type in the drop-down list of the upper-right corner of the client.

After the settings, the material in the material window will change to incandescent image mode, and when the thermography temperature reaches the alarm limit, the object pixel in the material will be marked with different color.

Coloration Type	Descriptions	Color
Above Alarm	When the temperature of the object is higher than the maximum temperature, the object turns to red. If the luminance of the object increases, the red color turns to shallow.	

Thermal Imaging Software User Manual

Below Alarm	When the temperature of the object is lower than the minimum temperature, the object turns to blue. If the luminance of the object increases, the blue color turns to shallow.	
Interval Alarm	When the temperature of the object is higher than the minimum temperature and lower than the maximum temperature, the object	
Coloration Type	Descriptions	Color
	turns to yellow. If the luminance of the object increases, the yellow color turns to shallow.	
Insulation Alarm	When the temperature of the object is higher than the maximum temperature, the object turns to purple. If the luminance of the object increases, the purple color turns to shallow. When the temperature of the object is lower than the minimum temperature, the object turns to cyan. If the luminance of the object increases, the cyan color turns to shallow.	Maximum Temperature Limit  Minimum Temperature Limit 

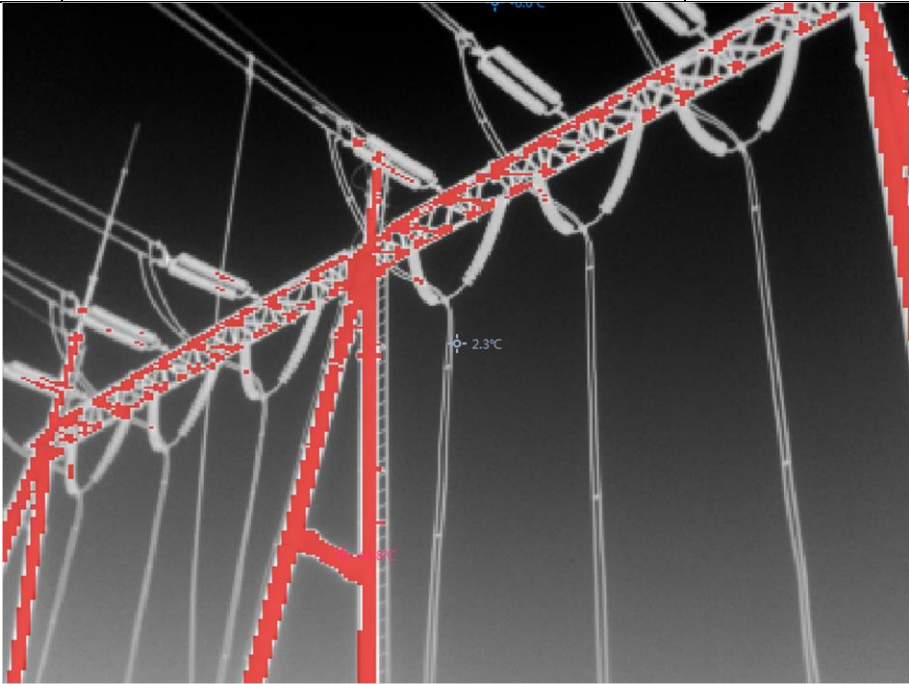


Figure 3-7 Above Alarm



Figure 3-8 Below Alarm

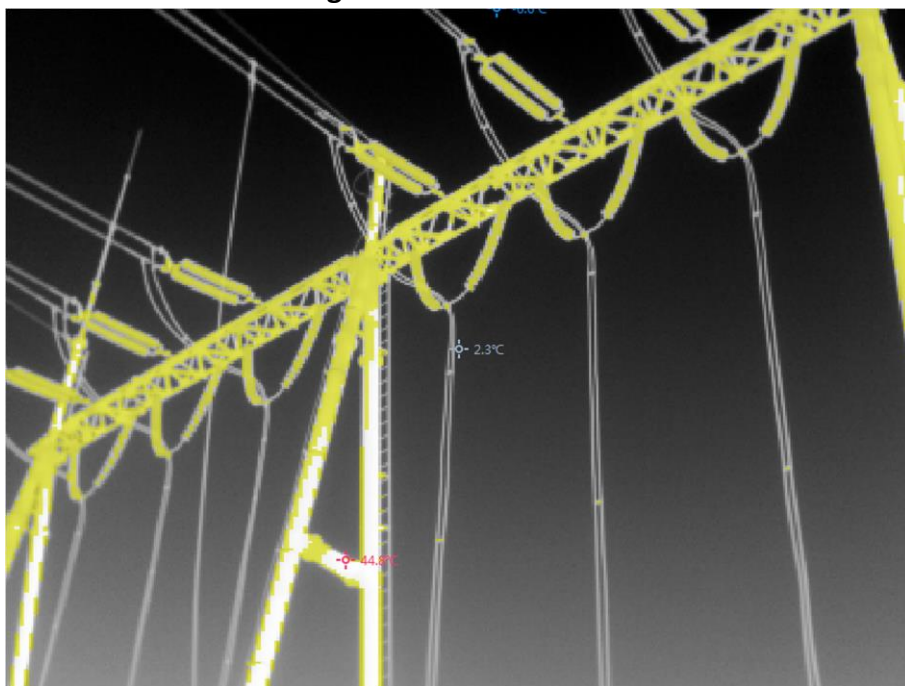


Figure 3-9 Interval Alarm

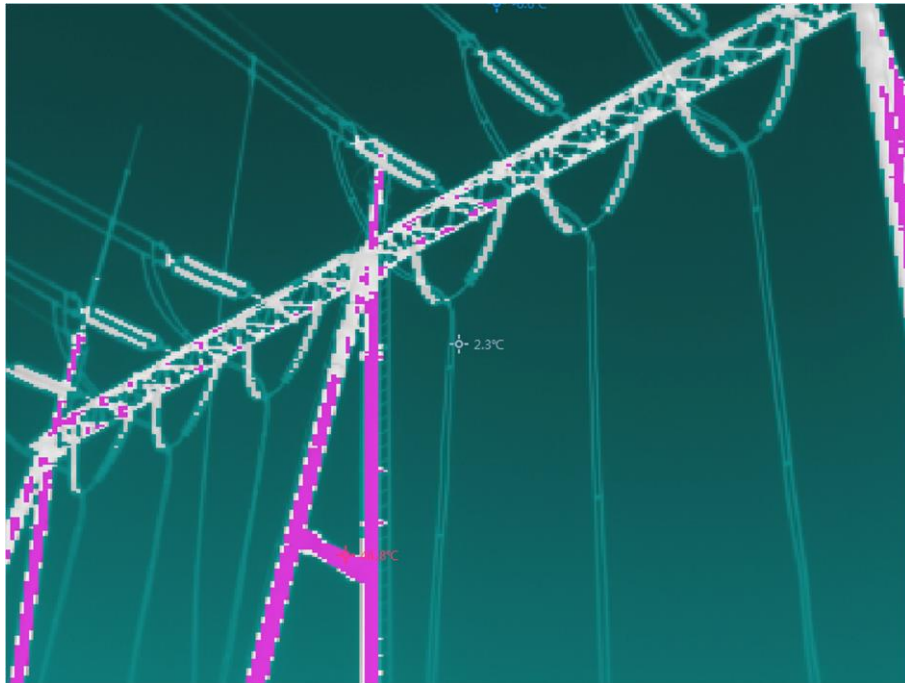


Figure 3-10 Insulation Alarm

3.4.3 Switch Image Display Mode

According to the actual scene, you can switch the image display mode, including thermal, fusion, PIP (picture in picture) and optical.

Enter the  page.

Click **Image → Display Mode** , and then select different display mode.

You can also select palettes mode in the drop-down list of the upper-right corner of the client.



Note

The display mode differs according to the picture type. For example, if the picture is captured by device that only supports the thermal channel. The display mode is only thermal mode.

Thermal Mode

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 visible images. Since different objects or different parts of the same object have different thermal radiation characteristics (e.g. temperature difference, emissivity and), different objects can be distinguished because of their differences in thermal radiation. We can monitor the environmental

Thermal Imaging Software User Manual

temperature change in time according to the thermal image. 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 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.



Figure 3-11 Thermal Mode

Fusion Mode

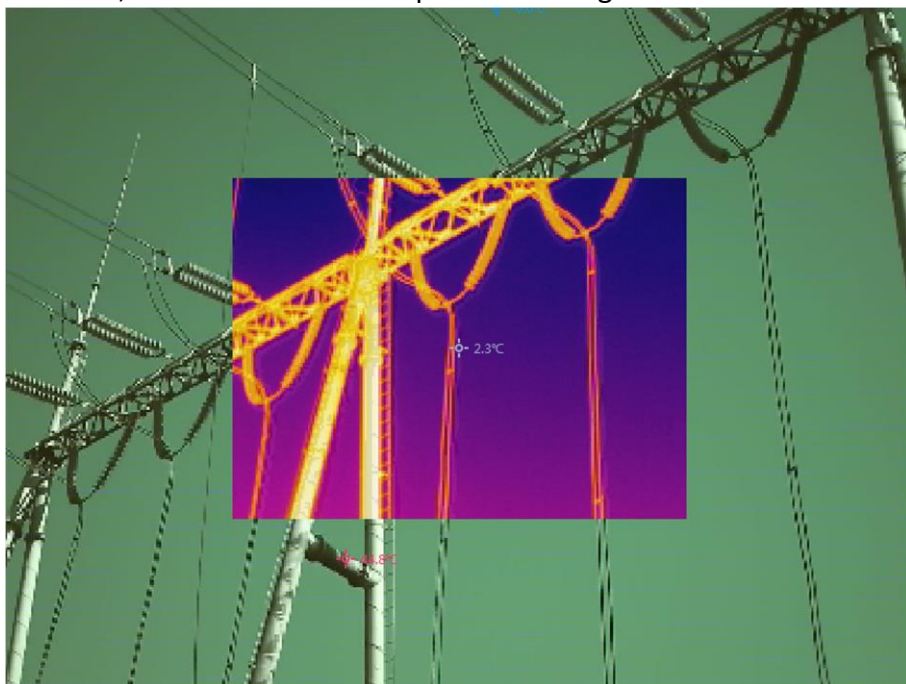
In fusion mode, the thermal image and optical image is combined to make the image boundary clear, so that is can not only continuously detect the temperature of the environment of object, but also distinguish the shape of the object in the environment.



Figure 3-12 Fusion Mode

PIP Mode

In PIP (picture in picture) mode, 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 can not only view the actual environment, but also view the temperature changes in the environment in PIP mode.



Thermal Imaging Software User Manual

Figure 3-13 PIP Mode

Optical Mode

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




Figure 3-14 Optical Mode


3.4.4 Set Thermography Range

You can manually set the thermography range, namely the difference and range between the minimum temperature and maximum temperature of the environment, to make the monitoring of the environment temperature becomes more accurate.


On the lower-left panel of the client, you can select to automatically or manually adjust the thermography range by enabling or disabling **Adjust Thermography Range**. When the Manual AGC is enabled, the temperature range and two sliders are displayed on the right side.


- Automatically adjust the thermography range: Disable **Adjust Thermography Range**, the client will automatically adjust the temperature difference and temperature range.
- Manually adjust the temperature difference: Enable **Adjust Thermography Range**, move the cursor to the slider (the temperature value appear above the slider ), perform the one of the following operations to adjust the temperature difference, the minimum temperature and maximum temperature changes accordingly.

Thermal Imaging Software User Manual

- Drag the slider on the bar to adjust the temperature different.
- Click the temperature value above the slider and then manually enter the temperature.
- Click the temperature value above the slider and then scroll the mouse to set the temperature.
- Click the temperature value above the slider and then click  to set the temperature.

Note


By scrolling the mouse or clicking , the temperature will be changed by 0.1 °C each time.

- Manually adjust the temperature range: Enable **Adjust Thermography Range**, 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 range according to the actual scene.


3.4.5 Picture Information

You can view and edit text remark of the added picture (material) on the client. You can also play voice note if the picture was noted with voice message.


Enter the  page, select the picture to be viewed in the work set.

Click  on the right panel of the client to open the picture information window.

Note

You can drag the window to the middle of the client for convenient view. You can also click  to hide this window.

Text Remark

- Click  below the selected picture to view text remark in the pop-up dialogue box.
- You can also edit the text and click **Save** to save new remark.

Note

You can enter less than 200 words.

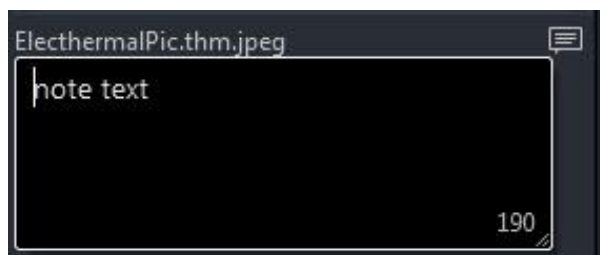




Figure 3-15 Text Remark

Voice Note

Click  to start playing voice note if the picture was noted with voice message.

View Device Model and Serial No.

Thermal Imaging Software User Manual

Select the picture to be viewed in the work set, and then click  to view the device model and serial No. of the device which captured the picture.

3.5 Save and Export Analysis Result

After completing thermography analysis for the picture, you can save picture and export analysis result.

3.5.1 Save Picture



After editing a picture, you can save its new thermography rules, palettes mode, text remarks, etc.

In the  page, click  or click **File → Save** to save the modified picture information.



Note

- For the picture imported with **Copy to Management Path**, the modified picture will not replace the picture in the original path.
 - For the picture imported without **Copy to Management Path**, the modified picture will automatically replace the picture in the original path.
-

In the  page, click  or click **File → Save as**, and enter the picture name and select the path to be saved, to save the modified picture to the designed path.

3.5.2 Export Picture


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

Steps



Note

The picture exported can not be used for thermography analysis.

1. Enter the  page, and select the picture to be exported in the work set.
2. Perform one of the following operations to open the window of Export Picture.

Thermal Imaging Software User Manual

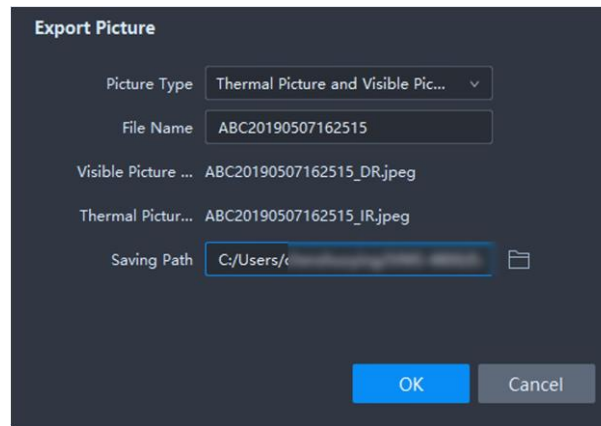


Figure 3-16 Export Picture

3. Set relevant parameters.

Picture Type

You can export both thermal picture and visible picture, or you can select either one of them to export.

File Name

You can customize file name for thermal and visible picture(s) simultaneously.

Saving Path

The picture is saved in the default directory, or you can select other saving path.

4. Click **Confirm** to export the picture.

Chapter 4 Export Report

After editing the picture, you can export report for further analysis and summarizing thermography data.

Steps


1. In the  page, click **Export** on the right-corner of the client.
2. Check the template for the exported file as **Template 1** or **Template 2** to export a standard template or a customized template.

Figure 4-1 Select Template

3. Click **Next**.
4. Set relevant parameters.

Thermal Imaging Software User Manual

The screenshot shows the 'Export' window with three steps: 1. Select Template, 2. Set Parameters (current), and 3. Complete. Under 'Basic Information', 'File Name' is 'Report', 'Saving Path' is 'C:\Users\user\Desktop\Report', and 'Format' is 'DOC'. Under 'Cover Page', 'Title' is 'Report 1', 'Author' is 'xxx', and 'Logo' has an 'Upload' button. A note states: 'Note: The picture should be in the format of JPG or PNG, and the size should be smaller than 1 MB.' At the bottom are 'Previous' and 'Next' buttons.

Figure 4-2 Set Parameters Saving Path

Select an saving path for the report.



Note

You should create a new folder or select an existing folder in local PC to save the report.

Format

Select the format of the exported file as **DOC** or **PDF**.

Title

Customize the report title as desired.

Author

Generally, the author refers to the person who analyzes thermography information.

Logo Position

Set logo position as left align, central, or right align.




Note

This is available when you select **Template 2** in Step 3.

Thermal Imaging Software User Manual

Picture(Scene)

Add picture(s) which can show the thermography scene(s) such as subway station and power station from local disk or from the client to the report. Click  to delete the added

picture(s).


Note

This is available when you select **Template 2** in Step 3.

Logo

You can click **Upload** and select a customized logo from local PC.

Report Contents Picture(Result)

Add picture(s) which can show the thermography result(s) from local disk or from the client to the report. Click  to delete the added picture(s).

Displayed Data

All data will be displayed in the report by default. You can customize the displayed data in the report such as thermography rule, camera information, and time.

5. Click **Next** to export the report.

What to do next

Click **Open Folder** to view the exported report in the local PC. Click **Previous** to continue exporting other report(s).

Chapter 5 System Settings

You can set the general parameters of the client, including language, thermography unit, distance unit, material management path, etc.

Click **Settings** → **Language** to switch the language.

Click **Settings** → **Option** to enter the system settings page.

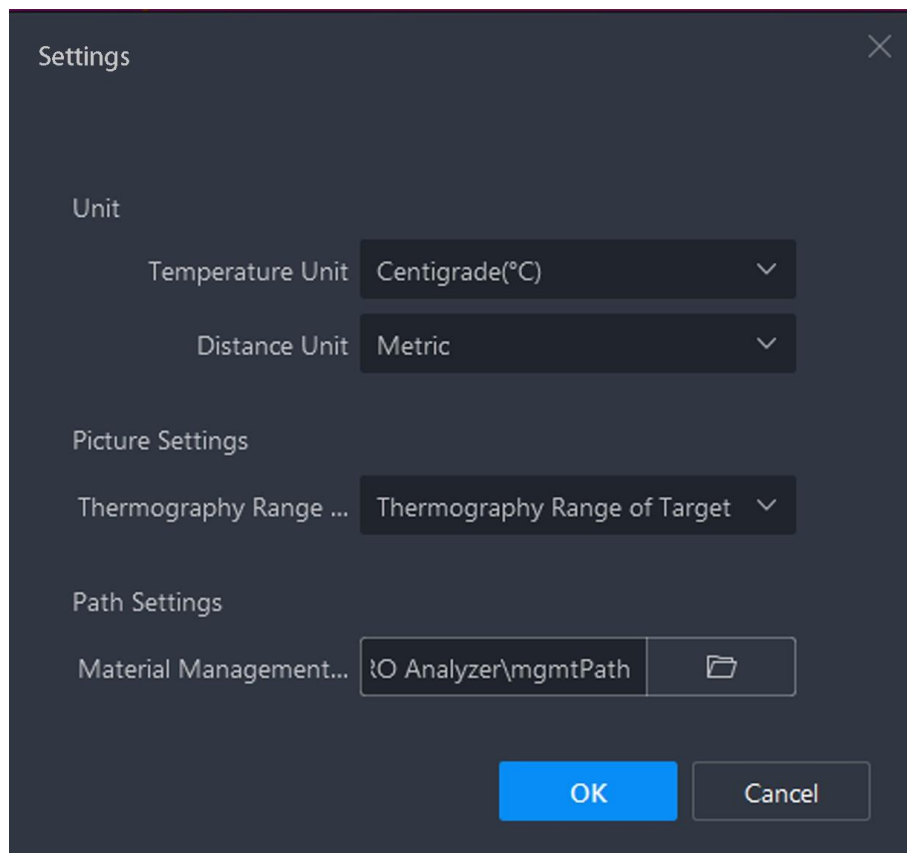


Figure 5-1 System Settings Temp. Unit

You can switch the temperature unit of the thermography result according to your requirements. Supports Centigrade (°C), Fahrenheit (°F) or Degree Kelvin (K).

Distance Units

You can switch the distance unit according to your requirements. Supports both the Metric system and Imperial system.

Thermography Range From

You can select the thermography range from **Thermography Range of Camera** or **Thermography Range of Target**.

Thermography Range of Camera

The thermography range of the material is set according to the camera which captured the material picture.

Thermography Range of Target

The thermography range of the material is set according to the target object in the material picture.

Material Management Path

You can manually set the saving path of the imported and edited material pictures.

Chapter 6 More Functions

You can view the help information, such as client version, user manual. On the material management page, you can switch the view to expand or fold all the materials. In the thermography analysis page, you can switch the view as full-screen or restore the default layout of the client.

Click **Help** to do the following operations:

Help Information

Click **Help** to do the following operations:

- **View Client Information:** Click **About** to view the name, version, and open source license of the client.
- **View User Manual:** Click **User Manual** to quickly know the functions and operating procedures of the client.
- **Feedback:** Click **Feedback**, and scan the QR code to give your advice or problems about the client.

Expand/Fold the Materials

Enter the  material management page.


- Click **View** → **Expand All** to display all the materials in the material window by cards.
- Click **View** → **Fold All** to fold all the materials in the material window, and only display the date of the materials.



Note

According to your requirements, you can click  to expand the materials in current date.

Switch Full Screen/Restore Default Layout

Enter the  thermography analysis page.

- Click **View** → **Full Screen** to display the material picture in full-screen.
- Click **View** → **Restore** to restore the default layout of the client.

