Temperature Measurement Quick Guide

(How to use HIKVISION thermal camera's temperature measurement function)

HIKVISION SUPPORT TEAM

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Contents

Temperature Measurement Introduction

Theory:

Everything (temperature above absolute zero -273℃) in nature has the thermal radiation. Thermal camera receives infrared radiation of object, and infrared detector converts the power signal of object radiation into electrical signal. With system processing, get the related thermal image of the object surface distribution. Then it displays the temperature distribution on the surface of an object.

Advantage:

1. Noncontact strategy without destroying the temperature distribution of objects. It's suitable for far distance target, high speed moving target, charged target, high temperature target etc.
2. Temperature measurement response fast, No thermal inertia.
3. Wide range of temperature measurement.
4. High sensitive of temperature measurement.

Temperature Measurement Category

Temperature measurement includes Accurate Thermometric and Temperature Exception. They have same configuration and display. But accuracy and product model have some differences as the below table shows.

Category	Accuracy	Range	Product

Accurate Thermometric	Max ±2℃/±2%	-20~550℃	Model suffix band “T”
Temperature Exception	±8℃	-20~150℃	All series thermal camera

Chart 1

Temperature Measurement Detection

Purpose:

When you enable this function, it measures the actual temperature of the spot being monitored. And compares temperature of selected regions and alarms. The device alarms when temperature exceeds the temperature threshold value.

Part 1 Temperature Measurement Configuration

Steps:

1. Enter **Configuration > Advanced Configuration > System > VCA Resource Type** to select **Temperature Measurement + Behavior Analysis** as VCA Resource Type.
2. Enter **Configuration > Advanced Configuration > Temperature Measurement** Configuration.

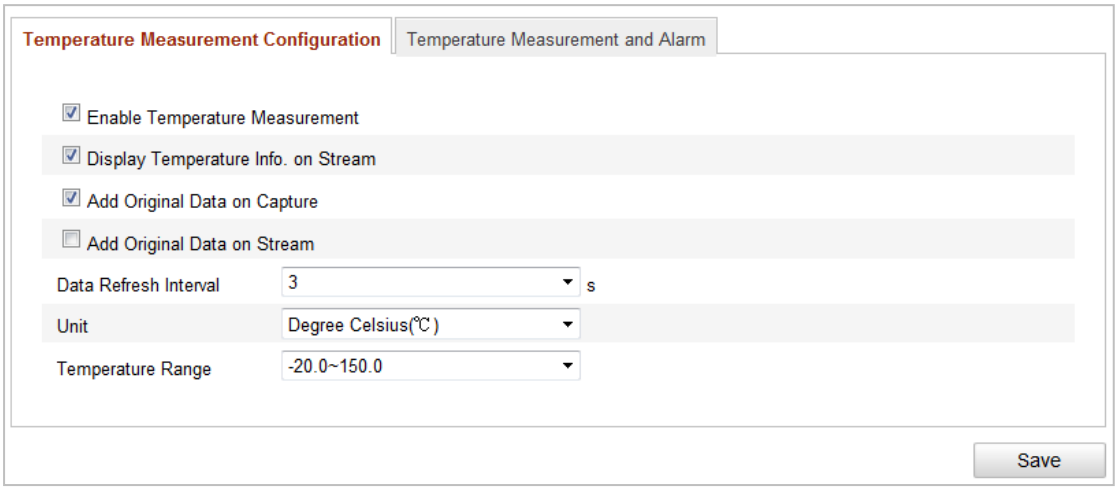

Figure 1

3. Check the checkboxes of the interface to set the temperature measurement configurations.
   - **Enable Temperature Measurement:** Check the checkbox to enable temperature measurement function.
   - **Display Temperature Info. on Stream:** Check the checkbox to display temperature information in live view.
   - **Add Original Data on Capture:** Check the checkbox to add original data on capture.
   - **Add Original Data on Stream:** Check the checkbox to add original data on stream.
   - **Data Refresh Interval:** Select the data refresh interval from 1s to 5s.
   - **Unit:** Display temperature with Degree Celsius (°C)/Degree Fahrenheit (°F)/Degree Kelvin (K).
   - **Temperature Range:** Set the temperature range.
4. Click **Save** to save the settings.

Part 2 Temperature Measurement and Alarm

Steps:

1. Enter **Configuration > Advanced Configuration > Temperature Measurement and Alarm**.
2. Set the alarm rule: Select a temperature measurement rule from the rule list and configure the parameters.
   - **Name:** You can customize the rule name.
   - **Type:** Select point, line, or frame as rule type. Support 1 line, 10 points, 10 frames.
   - **Emissivity:** Set the emissivity of your target. Note: The emissivity of each object is different. Every emissivity of different objects can be obtained by query from internet. Range [0~1]. 0.96 is the recommend value.
   - **Distance (m):** The straight-line distance between the target and the device. Range [1~10000].

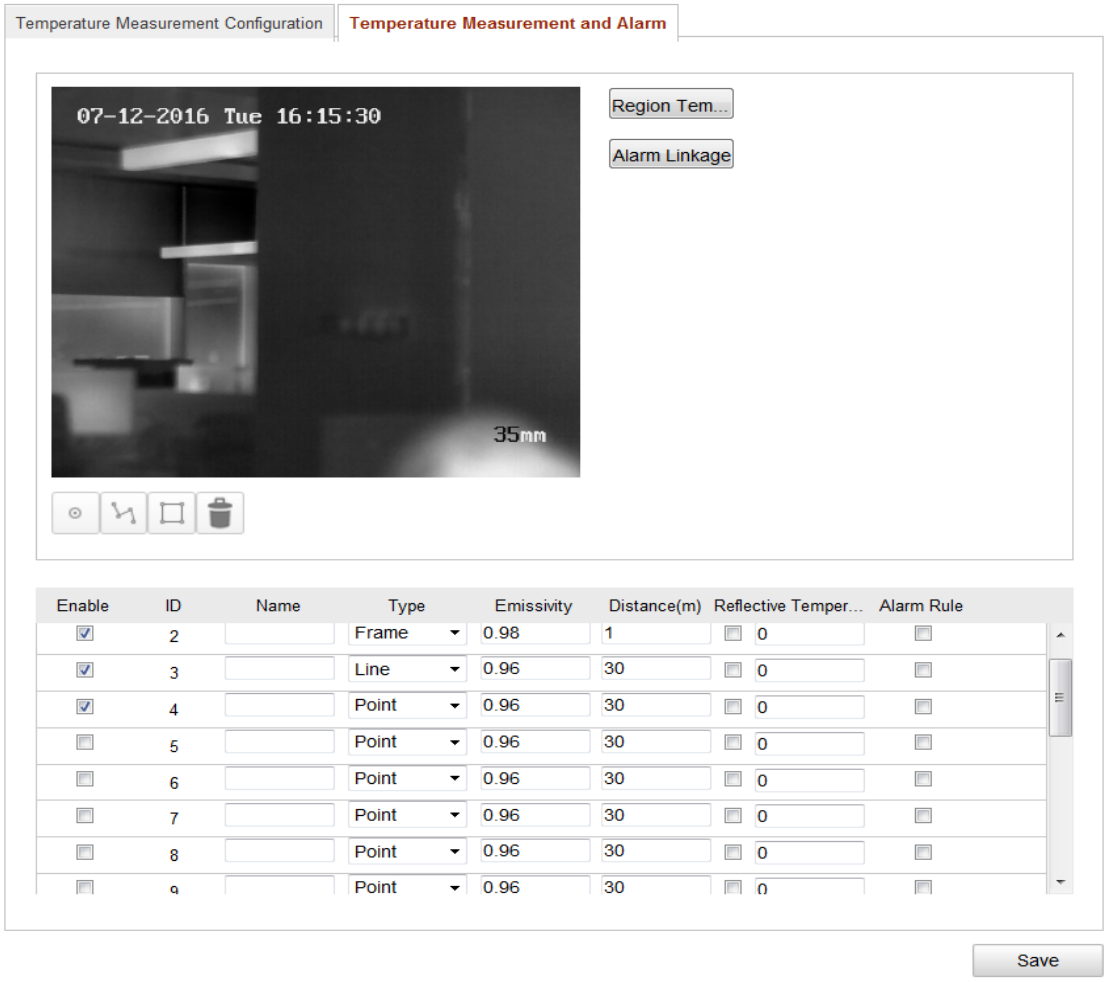

Figure 2

- **Reflective Temperature:** If there is any target with high temperature in the scene but not in the preview screen, check the checkbox and set this target's temperature as reflective temperature to correct the temperature. If no such target exists, uncheck the checkbox.

  For example:

  There is a target with 180 °C temperature in the scene but not in the preview screen (Figure 3). If uncheck the checkbox of reflective temperature, the measured object's temperature is 90 °C (Figure 4). If check the checkbox and set this target's temperature (180 °C) as reflective temperature, the measured object's temperature is 49.8 °C (Figure 5). It's consistent with the actual temperature of the object.

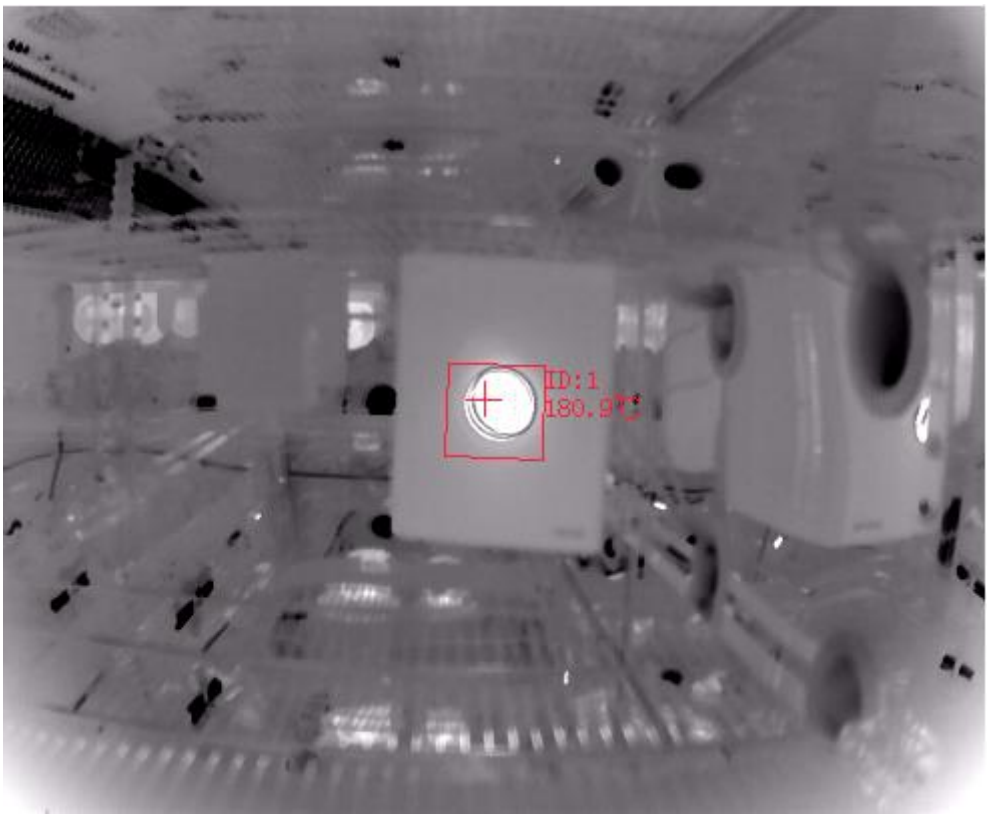

Figure 3

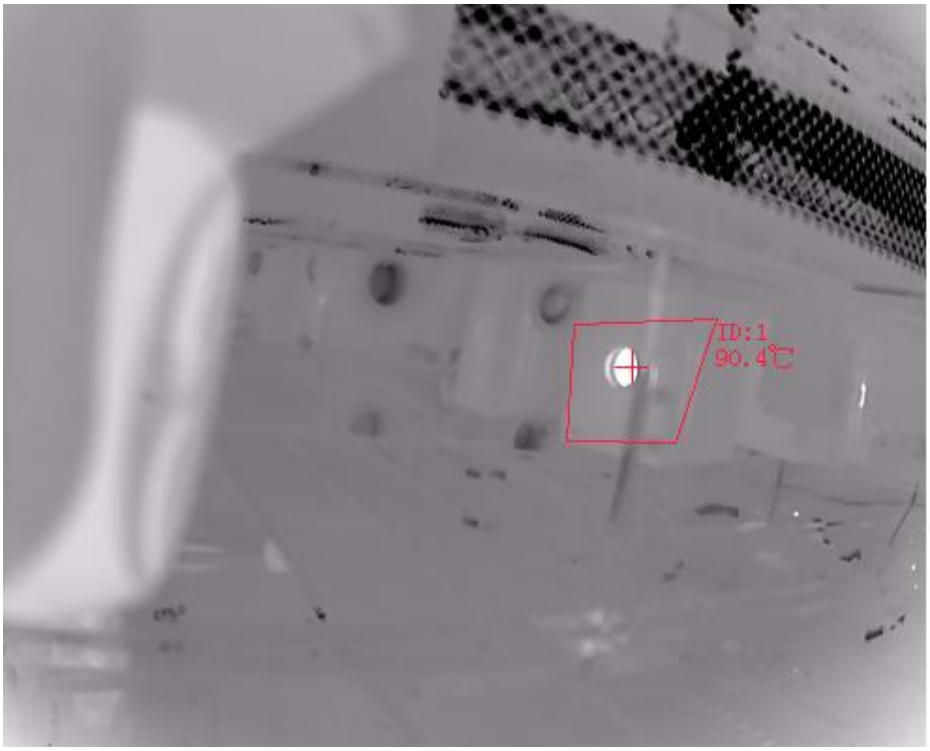

Figure 4

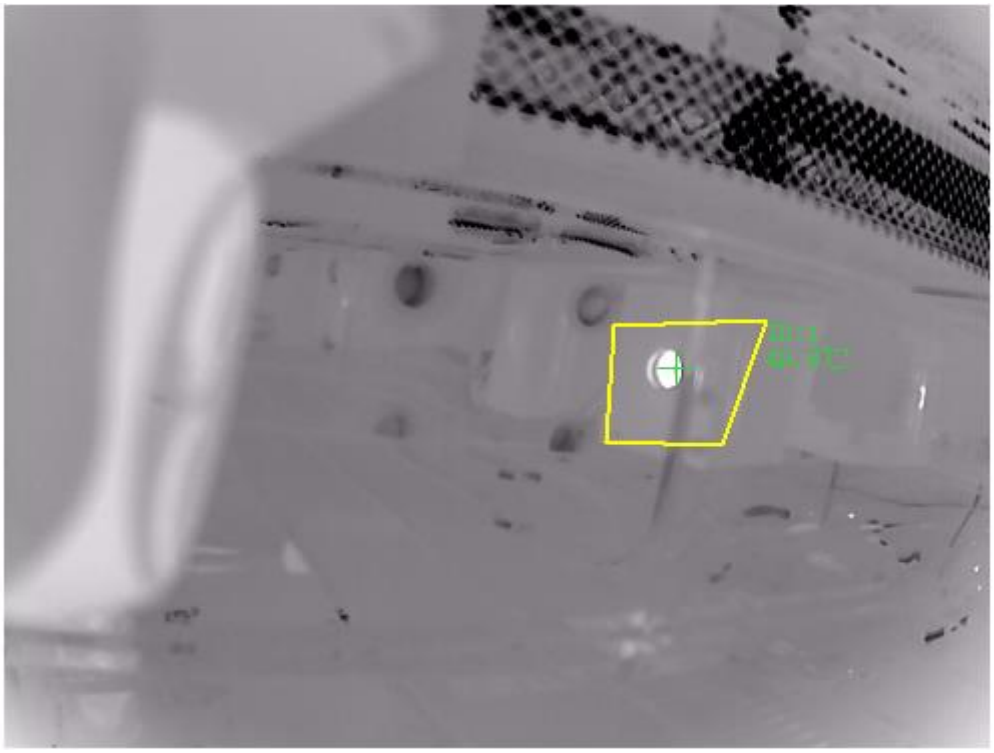

Figure 5

3. Click in the list to show the alarm rule interface.

   - **Alarm Rule:** The alarm rule varies according to different types. The rule is to compare the temperature information of two selected regions. For targets set by frame, the rules include: **Max. Temperature is Higher than**, **Max. Temperature is Lower than**, **Min. Temperature is Higher than**, **Min. Temperature is Lower than**, **Average Temperature is Higher than**, **Average Temperature is Lower than**, **Temperature Difference is Higher than**, and **Temperature Difference is Lower than**. For targets set by line, the rules include Max. Temperature, Min. Temperature, and Average Temperature. For targets set by point, the rules are distinguished by Average Temperature.
   - **Pre-Alarm Temperature and Alarm Temperature:** Set the pre-alarm temperature and alarm temperature, the device sends pre-alarm when its rule temperature exceeds pre-alarm temperature and sends alarm when its rule temperature exceeds alarm temperature.
   - **Tolerance Temperature:** Range [1~5]. Set the tolerance temperature and the device judges whether the triggered alarm stops until the device temperature/temperature difference is lower than rule temperature by tolerance temperature. For example, set tolerance temperature as 3°C, set alarm temperature as 55°C, and set pre-alarm temperature as 50°C. The device sends pre-alarm when its temperature reaches 50°C and it alarms when its temperature reaches 55°C and only when the device temperature is lower than 52°C will the alarm be cancelled.

4. Draw the Target Region: Select the rule and draw the corresponding frame/line/point. Click to draw the point. Click to draw the line. Click to draw the frame.

5. Set Temperature Difference Alarm: Click **Region Temperature Difference Alarm** to enter the temperature difference alarm interface, up to four temperature difference alarms can be set.

It only applies to the targets set by frame.

6. Set Alarm Linkage: Click **Alarm Linkage** to enter the alarm linkage interface and set the linkage methods.
7. Click **Save** to save the settings.

Part 3 Show the Temperature Info on the live view

1. Choose the radio button of **Enable** to show the temperature information on the live view.

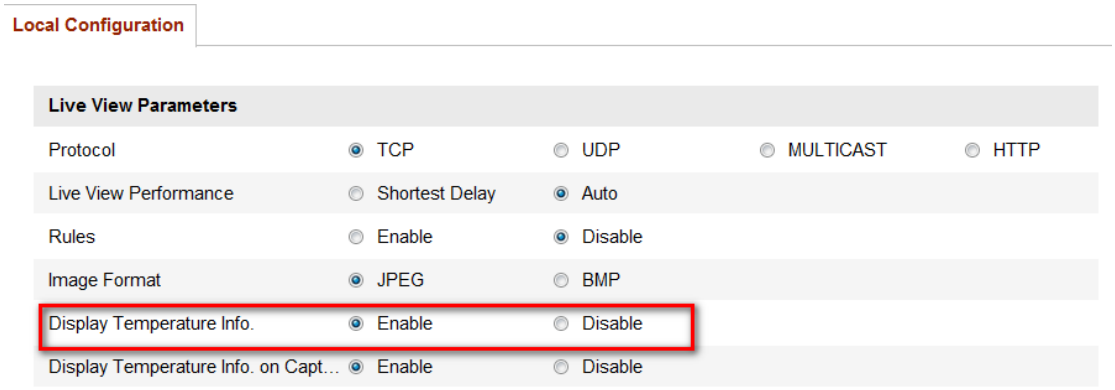

Figure 6

Compatibility

Thermal cameral Version	V5.3.8 build 161101			
Test equipment	iVMS-5200	iVMS-4200	I series NVR	IE explorer
Version	**V3.3**	**V2.6.2 build20170719**	**DS-7616NI-I2 V3.4.9X 170408**	**IE7+**
Temperature Measurement (Configuration Display Receive alarm info)	√	√	1. NVR local interface does not support temperature info display. 2. Thermal+NVR+4200/web component support temperature info display. 3. Support receive alarm info on 4200.	√*

Chart 3

Note:

All series thermal camera support 'Temperature Measurement' function.

NVR supports 'Temperature Measurement' function from V3.4.80 .

√ * means alarm message receiving is not supported.

Application Scenario

Accurate Thermometric

Suitable for Fire protection (Electric/Petroleum/Petrochemical)

Figure 7

Temperature Exception

Suitable for fire disaster prevention (ware house)

Figure 8