

## Thermal camera:

A camera designed to measure temperatures and to **alert** based on:

- Fire Detection – Trigger when a fire is detected
- Temperature Detection – Trigger when temperature anomalies occur.

## Set up:

### Fire Detection:

Fire is a “Yes” and “No” situation in most cases, so other than enabling the feature, and setting up the triggers you would like to get, there aren’t any more settings to be made. Of course the schedule can be adjusted as well. (Default is 24X7)

The screenshot displays the 'Fire Detection Setting' configuration page in the Provision ISR web interface. The page is divided into a left sidebar and a main content area. The sidebar contains navigation links for 'System', 'Image', 'Alarm', and 'Analytics'. The main content area is titled 'Fire Detection Setting' and includes the following settings:

- Enable:** A checkbox that is checked, with an annotation pointing to it that says 'Enable fire detection'.
- Fire Detection Sensitivity:** A slider set to 50, with an annotation pointing to it that says 'Higher – alarm triggers on lower temperatures' and 'Lower – alarm triggers on higher temperatures'.
- Alarm Holding Time:** A dropdown menu set to '3 Seconds'.
- Trigger Alarm Out:** A section with a checkbox for 'Alarm Out'.
- Triggers:** A list of checkboxes for 'Trigger Audio Alarm', 'Trigger Light Alarm', 'Trigger SD Snap', 'Trigger SD Recording', 'Trigger Email', and 'Trigger FTP'. An annotation points to this section that says 'Select triggers'.

The 'Trigger Audio Alarm' is currently set to 'Fire detected, please check'.

## Temperature Detection:

Temperature detection allows to set an alarm based on temperature anomalies. You can set up to 10 different areas that will work simultaneously

**For example:** The camera is placed in front of an engine room, the engine room normal temperature is 60°.

We can set to get an alarm when it raises above a dangerous temperature, for example 70°

### 1. Set the “Detection Config”:

Enable Temperature detection

Choose measuring method

Visual overaly of the minimum and maximum temperatures

Visual side bar to show the temperature spectrum in the entire scene

Pressing an area on the image will show the temperature of that area

Choose the Emissivity of the chosen area (Emissivity table in the bottom of the page)

Distance from the camera to the measured object

If an object has higher emissivity , adjust the reflective temperature to the temperature of that object to balance the ambient temperature (optional)

Select triggers

## 2. Set the “Area”:

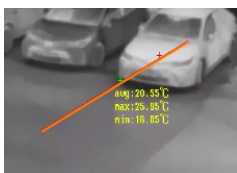
Here You can set up to 10 different areas that will work simultaneously, and you can set a **specific rule** for each of the 10 areas (Check alarm rules in the next subjects).

The screenshot shows the 'Area' configuration screen. It features a live thermal camera feed with several colored lines and areas drawn over it. Each line/area is associated with temperature data: avg, max, and min. Below the feed is a table with columns: Index, Enable, Name, Type, Emissivity, Distance(m), Reflective, and Alarm Rule. Callouts point to various elements: 'Choose measure type: Point, Line, Area' points to the 'Type' column; 'Choose the Emissivity of the chosen area (Emissivity table in the bottom of the page)' points to the 'Emissivity' column; 'Distance from the camera to the measured object' points to the 'Distance(m)' column; 'If an object has higher emissivity, adjust the reflective temperature to the temperature of that object to balance the ambient temperature (optional)' points to the 'Reflective' column; and 'Alarm rule -- see next page' points to the 'Alarm Rule' column.

Index	Enable	Name	Type	Emissivity	Distance(m)	Reflective	Alarm Rule
1	<input checked="" type="checkbox"/>	Fence	Point	0.96	25	25	Set up
2	<input checked="" type="checkbox"/>	Parking1	Line	0.96	15	25	Set up
3	<input checked="" type="checkbox"/>	Electric	Point	0.96	5	25	Set up
4	<input checked="" type="checkbox"/>	Car park	Area	0.96	5	25	Set up

Every area provides information:

**Line:** Min + Max + Avg:



The + shows where the maximum temperature is and the - shows the minimum temperature is

**Area:** Min + Max + Avg:

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The + shows where the maximum temperature is and the - shows where the minimum temperature is

**Point:** Avg:



## Alarm Rules:

Each of the 10 Areas can be set with it's own rule:

Config Home - Fire Detection - Temperature Measurement

Detection Config Area Schedule

Area	Shape	Rule	Temp	Delay	Set up	
1	Fence	Point	0.96			
2	Parking1	Line	0.96			
3	Electric	Point	0.96	5	25	Set up
4	Car park	Area	0.96	5	25	Set up
5	Pipeline	Line	0.96	10	25	Set up

Stop Draw Clear

Alarm Rule

Alarm Rule: Above (Max. Temperature)

Alarm Temperature: 100 °C

Alarm Out:  IO\_0

OK

**Max Temperature** – that is the maximum temperature we can see in Lines and Areas.

**Min Temperature** – That's the minimum temperature we can see in lines and areas

**Average Temperature** – That is the average temperature we can see in lines, areas, and **points**

**Temperature difference** – That is the difference between **maximum** temperature to **minimum** temperature.

**Alarm temperature** – Set the temperature threshold for the given rule

**Alarm out** – Trigger alarm out (**on camera**) when the rule is activated

### Emissivity Table:

Material	Emissivity	Material	Emissivity
Human Skin	0.98	Brick	0.95
Printed Circuit Board	0.91	Sand	0.90
Concrete	0.95	Soil	0.92
Ceramic	0.92	Cloth	0.98
Rubber	0.95	Hard Paperboard	0.90
Paint	0.93	White Paper	0.90
Wood	0.85	Water	0.96
Pitch	0.96	Flame	0.2~0.3

The material emissivity is also affected by the surface of the material.

Material Surface	Emissivity
Rough	0.95
Slightly Rough	0.8
Slightly Smooth	0.6
Smooth	0.3

## Fusion:

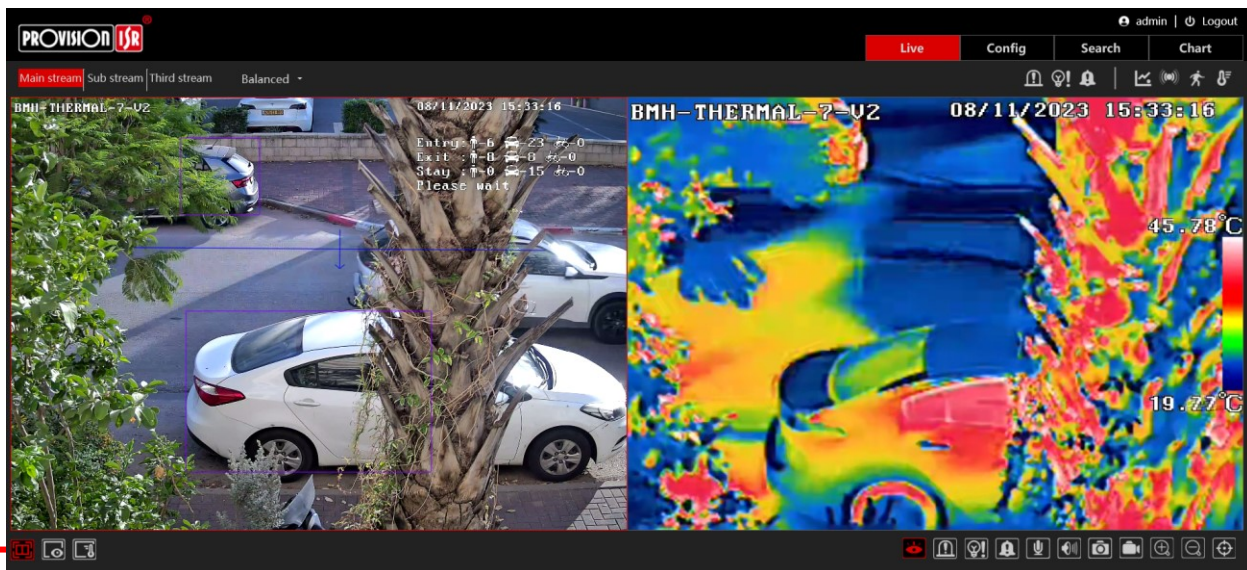
Fusion, is the process of combining multiple types of images or data into one composite image, enhancing the information and insights obtained from each source.

This thermal camera has the capability of providing an optical image with highlighted objects which has higher temperatures

## Set up:

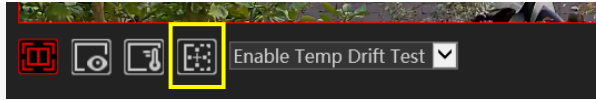
\*For set up process – please make sure that temperature alarm / fire detection alarm are deactivated.

1. Open edge in IE mode ([See how](#)) Go to the live, and use **the left mouse** button to **press** on the “Fusion” button on the bottom left for **6 seconds**.



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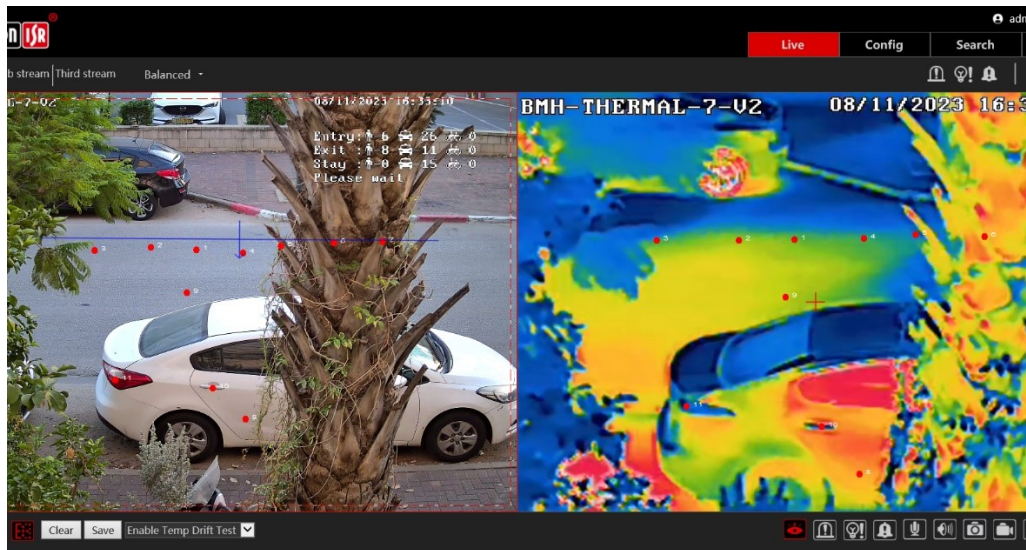
After 6 seconds the menu will expand:



Now we need to press the **calibrate** button the optical and the thermal images

2.Next step is to choose the exact points from both images. It will make our final image sharper.

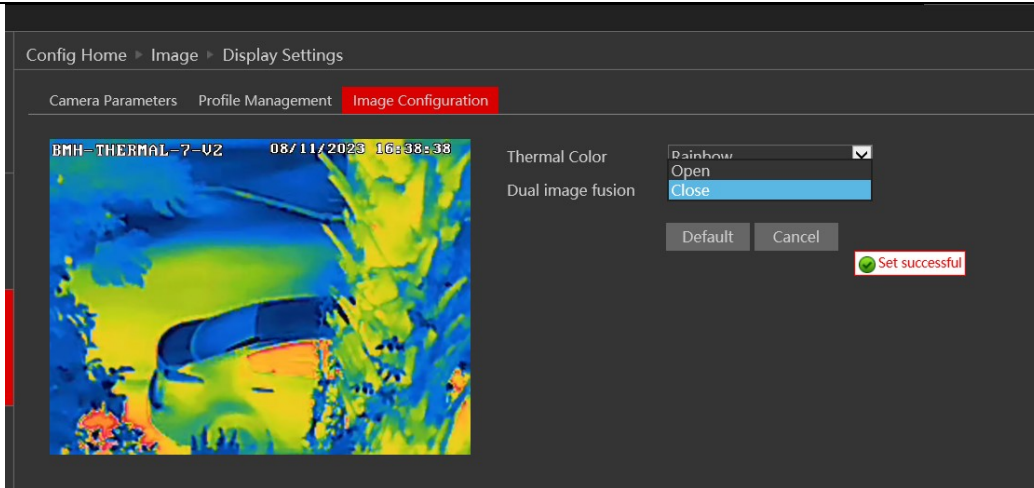
While calibrating;



Then press "Save".

3. NEXT go to Config > Image > Display settings > Image Configuration  
And in "Dual image fusion" set as "Open"

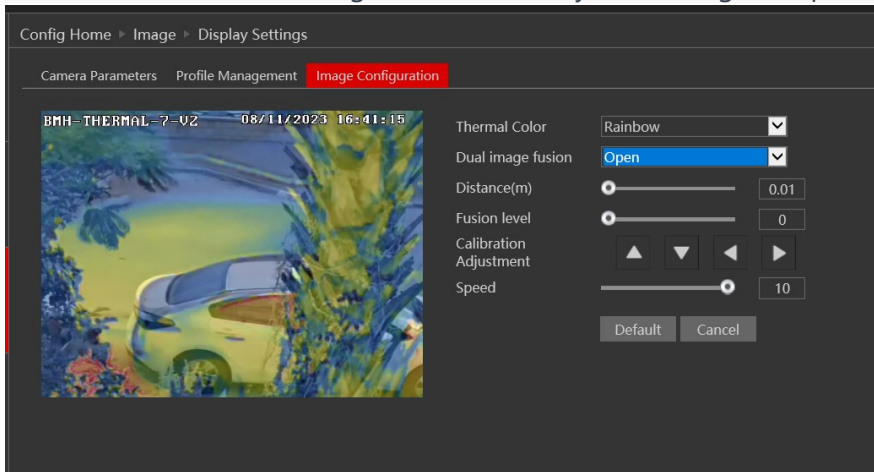
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4. Restart the camera!

5. Go again to Config > Image > Display settings > Image Configuration

You will see the fusion image that is made by combining the optical + thermal image



You can fine tune it using the buttons, and to determine the fusion level.

Please make sure you run the latest possible FW for your camera.



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Download from [here](#)

