XTRALIS VIS-IR™ THERMOGRAPHY DETECTOR PRODUCT GUIDE

VIS-IR THERMOGRAPHY DETECTOR

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Convention	Description
Bold	Used to denote: emphasis Used for names of menus, menu options, toolbar buttons
Italics	Used to denote: references to other parts of this document or other documents. Used for the result of an action

The following icons conventions are used in this document.

Convention	Description
	Caution: This icon is used to indicate that there is a danger to equipment. The danger could be loss of data, physical damage, or permanent corruption of configuration details.
	Warning: This icon is used to indicate that there is a danger of electric shock. This may lead to death or permanent injury.
	Warning: This icon is used to indicate that there is a danger of inhaling dangerous substances. This may lead to death or permanent injury.

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Contents

1 Introduction

This document is a reference guideline for the installation, configuration, maintenance and servicing of the VIS-IR Thermography detector. Please read carefully prior to implementing the final design or installation of the detectors.

1.1 Features

VIS-IR contains the following features:

- Bi-spectral – IR & visual
- On-board pre- alarm, alarm and fail-safe fault relay outputs
- Sensor resolution 384 x 288 pixels
- Minimum area size detected 3x3 pixels
- Detection temperature range -5°C to 450°C
- Fixed temperature and Rate of Rise Pre-Alarms and Alarms
- 3 different lenses/FOV
- 2 inputs (Reset and Air Purge Fault)
- Tri-color front LED for status signaling
- Remote LED output
- Simple and user-friendly connection
- IP66
- Operation on 24 VDC
- Pluggable connection and terminals

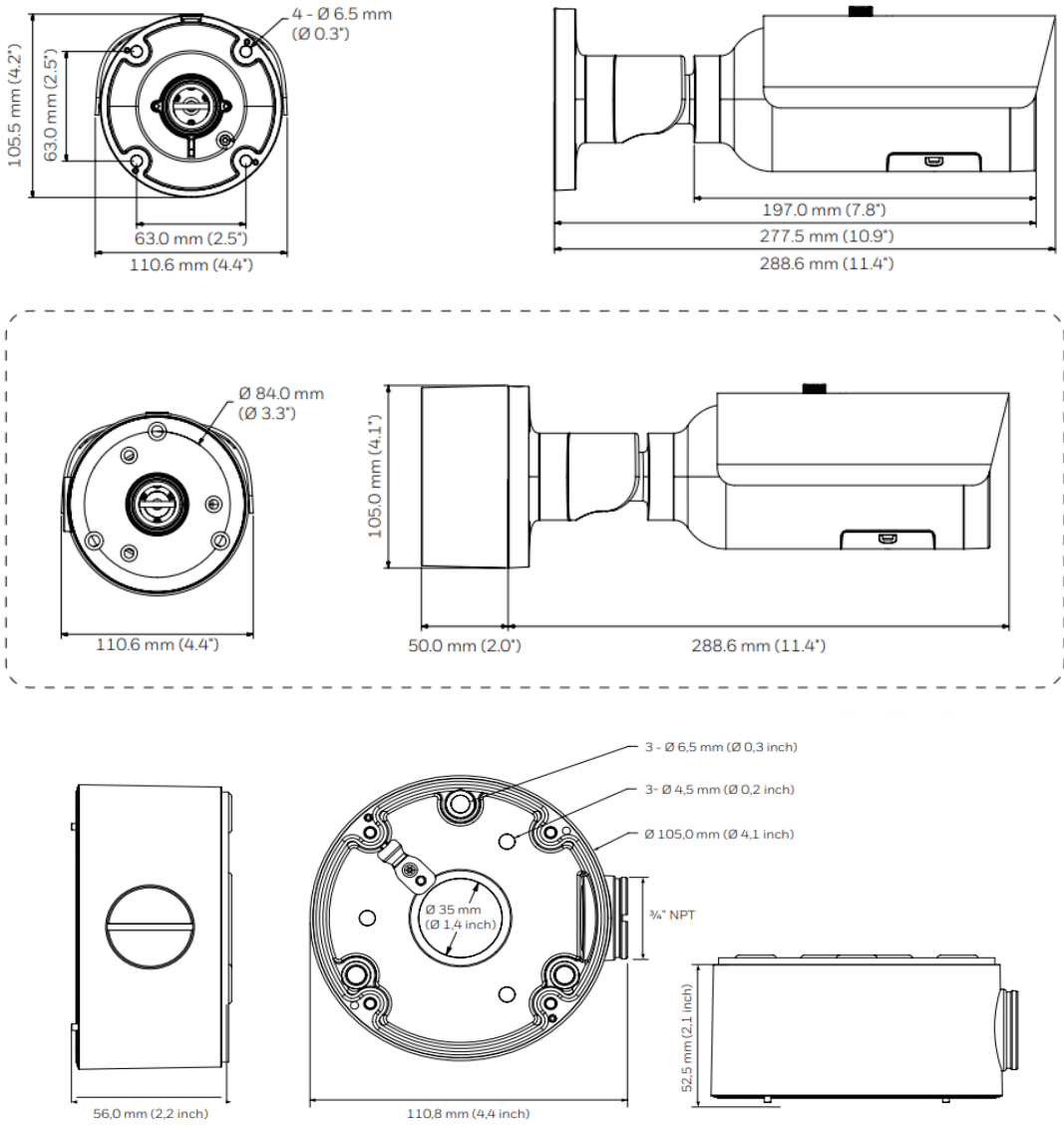
2 Technical Data

IR Camera	**Resolution**	384x288
	Accuracy	+/-2°C up to 100°C, +/-2% (100°C to 450°C)
	Detection Temperature Range	-5°C to 450°C
	NETD	<50 mK
	Pixel Pitch	17 µm
	Frame Rate	30 fps
	F Number	F# 1.2
	FOV & Lenses	22ºx16º/17mm, 42x31º /8.9mm, 88ºx65º /4.3mm
Visual Camera	**Hardware Resolution**	2592x1944 1920X1080 (H.264)
	Image Sensor	1/4" color CMOS QSXGA (5 megapixel)
	Light Sensitivity in Lux	0.1 Lux
Microprocessor		IMX8M Plus
Signaling	**Output Relays**	1 x Pre-Alarm, 1 x Alarm, 1 x Fault (Failsafe)
	LEDs	Front status LED, Remote LED output
	Inputs	1 x Remote Reset, 1 x External Fault for air blade failure (for future use)
Video Compression		H.264
Settings	**Regions of Interest**	4
	Detection Area Settings	Point, line, rectangle, circle, polygon
	Temperature Alarms/ ROI	Minimum/ maximum/ average temperature/ Rate of Rise (°/minute - freely programmable)
	Detection	• Hotspot & cold spot • Pre-alarm, alarm • Alarm delays
	Color Palettes	Iron (yellow=hot, blue=cold), Iron hi (yellow=hot, dark red=cold), Rainbow, Gray (black=cold), Gray (white=cold), Alarm red, Alarm blue, Alarm green, etc.
Analytics		Vehicle Discrimination, Camera Covered Fault
Supply Voltage	**Supply Voltage**	24 VDC nominal
	Power	24W
	Power over Ethernet	IEE 802.3at / 802.3af Type 2
Environmental	**IP Rating**	IP66
	Operating Temperature	-30°C to 60°C (-22°F to 140 °F)
	Relative Humidity	< 90% non-condensing
	Weight	1.75 kg
Communication	**Micro SD Card Slot**	Up to 256 GB (not included)
	Ethernet to Computer Management Software	
Security		Signed firmware, digest authentication, password protection, secure boot, TLS encryption
Approvals		• EMC EN61000-6-1 (2017) • EMC EN61000-6-3 (2007) / A1 (2001) /AC (2012)

	• EMC EN 50130-4 (2011) / A1 (2014) • UNE-EN 62368-1:2014 + AC1:2015 + AC2:2015 • EN 62368-1:2014+AC:2015+AC:2017 +A11:2017 • IEC 62368-1:2014+COR1:2015+COR2015 • POSE000_18 • FCC Rules and Regulations CFR 47, Part 15

3 Dimensions

3.1 Standard Detector



4 System Configuration

The following diagram shows the overall configuration of VIS-IR that can be connected to the laptop and Fire Alarm Control Panel (FACP) for simultaneous configuration and monitoring.

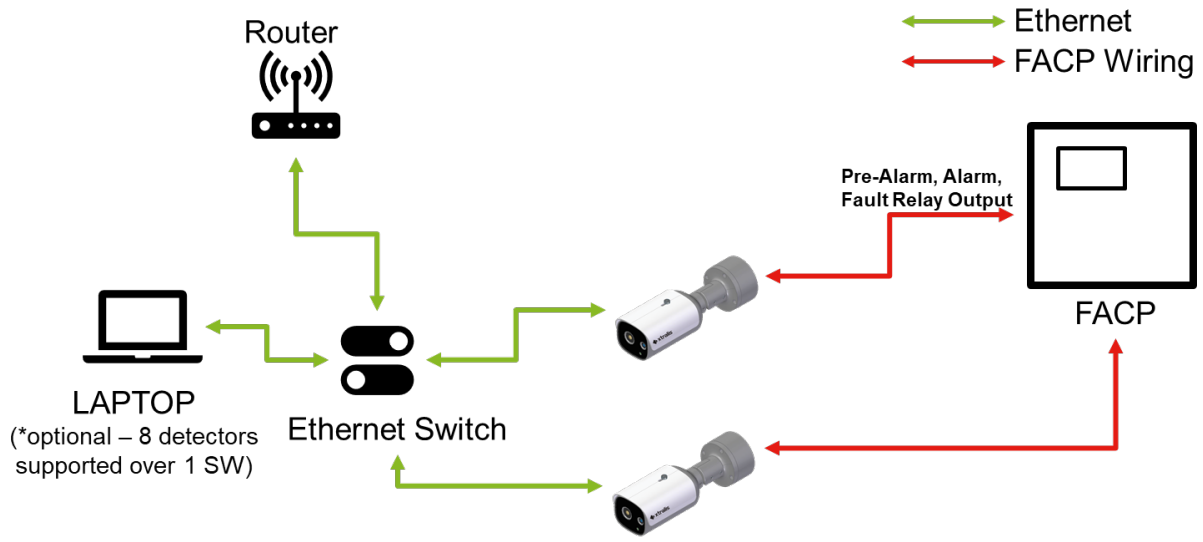


Figure 1: Basic System Configuration

5 Detector Location

5.1 Points of Consideration

For choosing the best position to install the detector, take the following points into consideration:

- The detector must be located and installed so that its Field of View (FOV), the distance to the target, is per the 'theoretical spot size ratio' calculation. Use the user-friendly spreadsheet *"36224 – Xtralis VIS-IR Theoretical Spot Size Ratio Calculator"* for quick calculations and results.
- Install the detector in a position that it looks at the monitoring area as clear as possible. Avoid the maximum obstacles to get a good image for the detector.
- Install the detector high enough to ensure that there are no shadows in the Region of Interest (ROI).
- The FOV of the detector must be oriented to the central point of the area to monitor.
- Avoid reflections and direct sunlight on the target.
- Avoid direct sunlight on the detector lens (saturation) of the visual detector.
- Shield nuisance heat sources from the target where possible.
- In indoor installations, the most common is to install the detectors in the corners. In this way, the best perspective in vision is achieved.
- The required number of detectors for the system will depend on the area shape, the used lenses and the required pixel size. If two or more detectors are needed, the optimal solution is to normally install the detectors facing each other. The monitoring in opposite direction avoids having shadow areas. See the following figure:

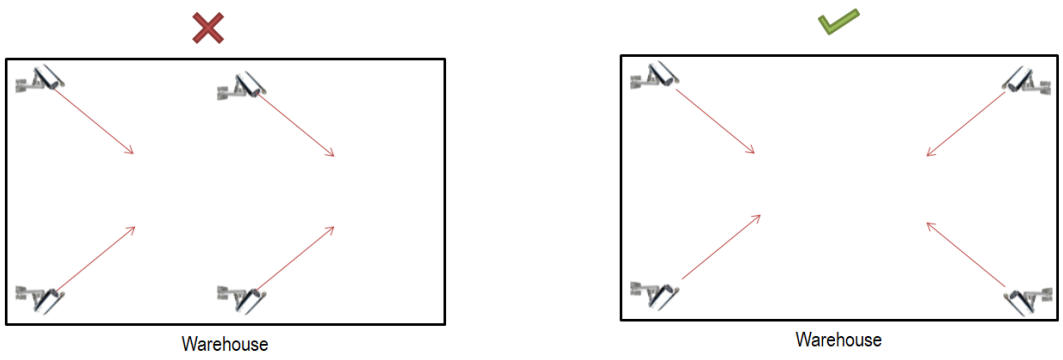


Figure 2: Detectors Installation in Warehouse

- For monitoring inside of tunnels, the recommended installation for the detectors is as following:

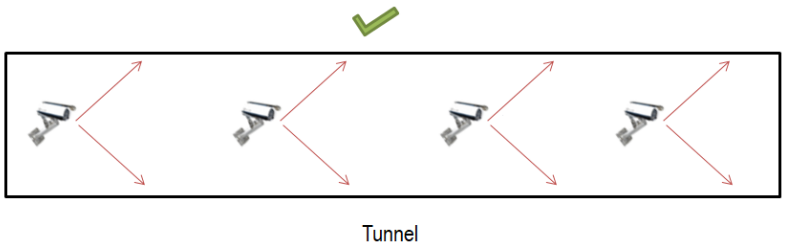


Figure 3: Detectors Installation in Tunnel

5.2 FOV and Theoretical Spot Size Calculation

The Spreadsheet *"36224 – Xtralis VIS-IR Theoretical Spot Size Ratio Calculator"* is a user-friendly tool to determine lens, distance and minimum detection size at a given distance.

The sheet allows to calculate according to the 5x5 pixel rule (CNPP approved installations) or the 3x3 pixel rule per the Manufacturer's guidance.

Single-pixel measurement or 'theoretical spot size ratio'

ONLY CHANGE GREEN FIELDS !

INPUT			RESULTS			
Detector resolution			IFOV		Spot size ratio (SSR)	
Hor	384			# Pixels square	0.004	
Vert	288			4		Set # pixels: 3 pixels minimum, CNPP 5 pixels minimum
FOV			mrad			
HFOV (°)	88		4.00	15.99		
VFOV (°)	65		mm			
Distance			400	159.9		Minimum spot size in cm that that camera can measure at set 'Distance '
in m	100		Theorethical max. distance (m)			
			31			Theorethical max. distance (m) of a 50 x 50 cm square. Max distance for CNPP approved use
			D max	"n" cm		
			100	160.0		Theorethical max. distance (m) of a n x n cm square.
	Horizontal FOV (m)		194.9			Horizontal FOV (m) based on horizontal ° FOV of the selected lens
	Vertical FOV (m)		128.4			Vertical FOV (m) based on vertical ° FOV of the selected lens

				m/ft: 3.28	
	Hor. FOV	Max. distance (m)		Max. distance (ft)	
		5x5 pixels	3x3 pixels	5x5 pixels	3x3 pixels
FTD-2216-S	22°	100	167	328.1	547.9
FTD-4231-S	42°	52	87	170.6	285.4
FTD-8865-S	88°	25	42	82.0	137.8

	@5x5 max D.	HOR FOV Meter	VERT FOV Meter	HOR FOV Feet	VERT FOV Feet
FTD-2216-S	22°	39.1	28.3	128.3	92.8
FTD-4231-S	42°	77.3	55.8	253.6	183.1
FTD-8865-S	88°	194.5	128.4	638.1	421.3

Figure 4: Xtralis VIS-IR Theoretical Spot Size Ratio Calculator

6 Installation

The detector comes with a pre-fitted junction box. It would be preferable to mount the junction box prior to installing the detector.

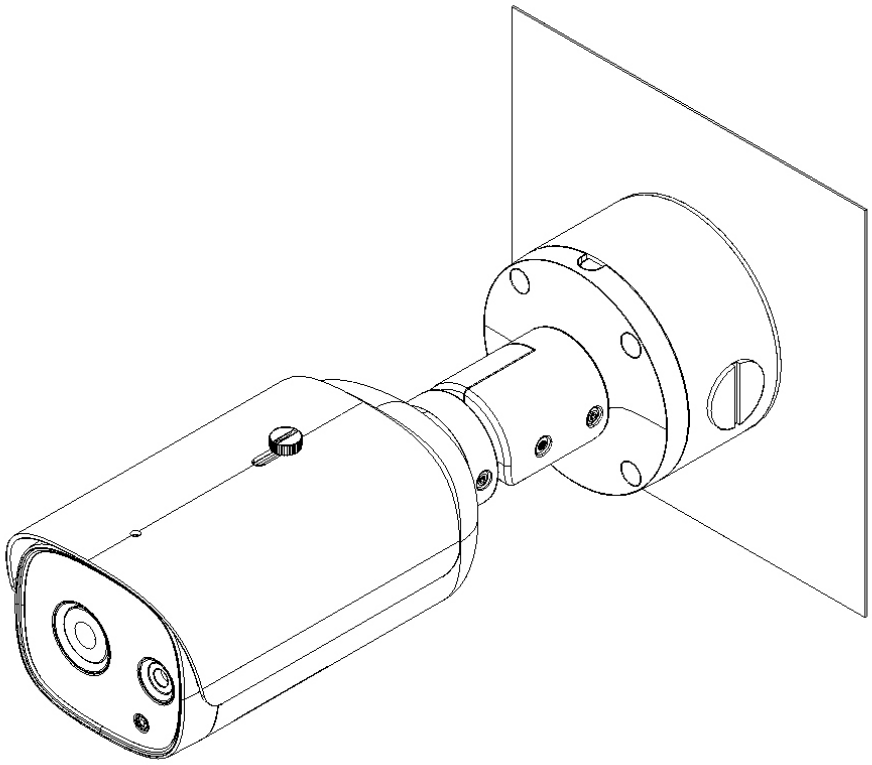


Figure 5: Wall Mounted FTD

The detector can be wall mounted as explained below:

1. Prepare the detector,
2. Unscrew the junction box,
3. Remove the wiring from the detector,
4. Screw the junction box onto the wall,

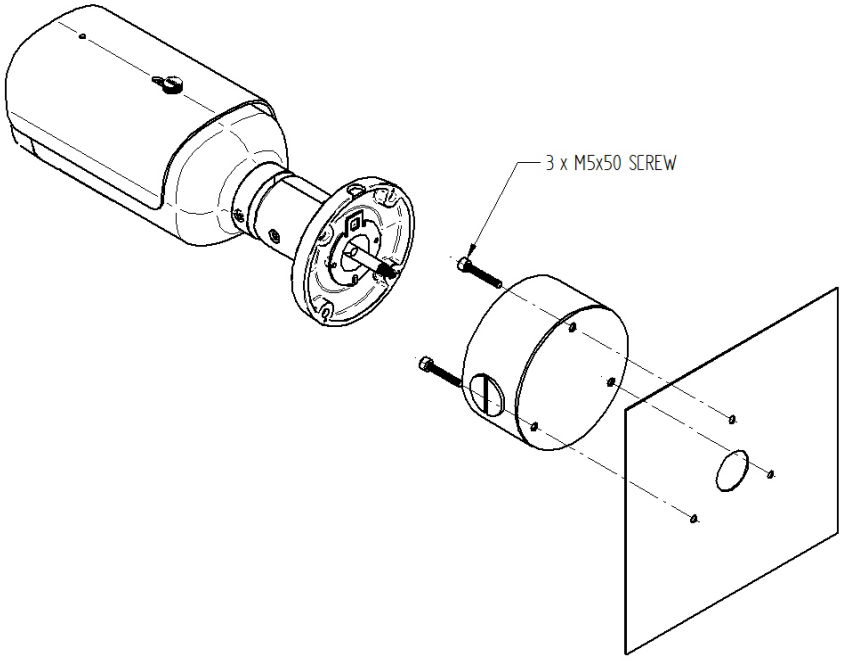


Figure 6: Screw the Junction Box

5. Perform field wiring as per section 5.2,
6. Bring in the detector and connect the wires and then screw the detector housing to the junction box,

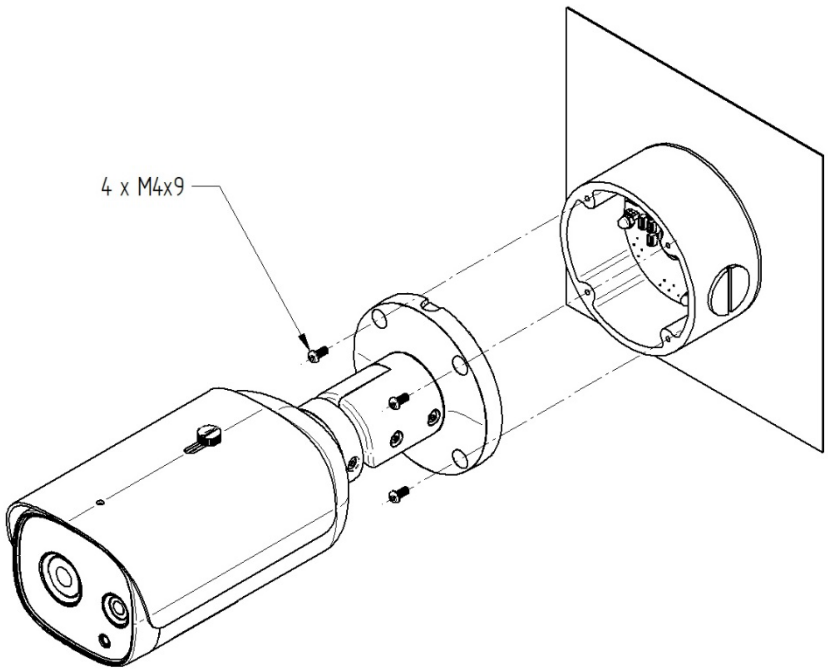


Figure 7: Screw the Detector Housing to the Junction Box

7. Power up the device after the connection to the router is complete, and ensure the router is powered up for camera to acquire IP.

6.1 Adjusting Camera Position

If any adjustments are required for the camera positioning, loosen the screws, adjust the position and then tighten the screws using Torx T10.

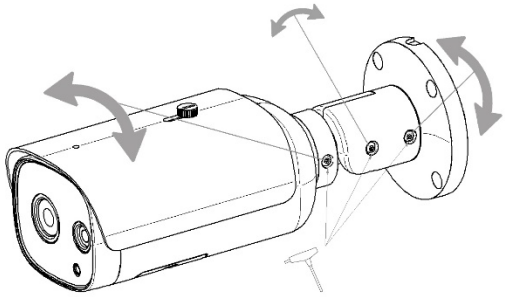


Figure 8: Adjust Camera Position

6.2 Wiring

The junction box can be pre-mounted and field wiring can be done by an electrical contractor prior to the detector installation and commissioning. The connectors for the field wiring are push-in type connections, fitting 0.2~0.75 mm 2/24~20 AWG wires. The cables coming from the detector are fitted with connectors that simply plug into the termination board.

The Ethernet cable is fitted with a female RJ connector.

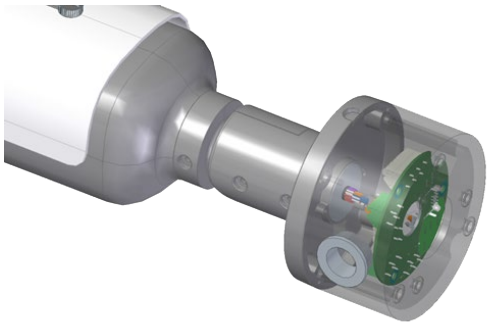
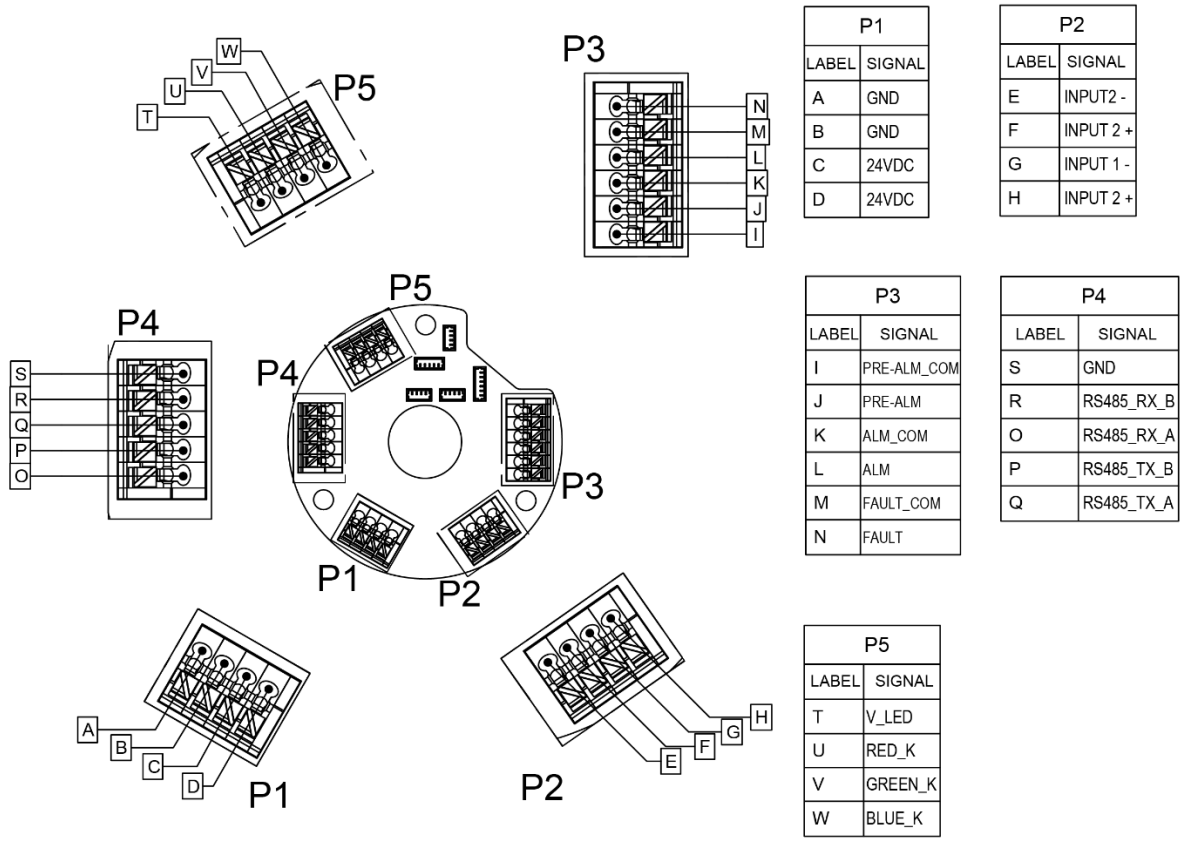


Figure 9: Female RJ Connector



P1	
LABEL	SIGNAL
A	GND
B	GND
C	24VDC
D	24VDC

P2	
LABEL	SIGNAL
E	INPUT2 -
F	INPUT 2 +
G	INPUT 1 -
H	INPUT 2 +

P3	
LABEL	SIGNAL
I	PRE-ALM_COM
J	PRE-ALM
K	ALM_COM
L	ALM
M	FAULT_COM
N	FAULT

P4	
LABEL	SIGNAL
S	GND
R	RS485_RX_B
O	RS485_RX_A
P	RS485_TX_B
Q	RS485_TX_A

P5	
LABEL	SIGNAL
T	V_LED
U	RED_K
V	GREEN_K
W	BLUE_K

Figure 10: Wiring Diagram

6.3 Power

There are two sets of power terminals on the junction box. Connect a 24 VDC power supply which is compliant with local fire protection codes and standards to the PWR IN socket, and if required loop out to another detector via the PWR OUT socket. The detector will not operate if the power supply polarity is reversed.

When powering multiple detectors, the installer should ensure that the total power consumption should be less than 120W, so it is possible to connect 5X detectors.

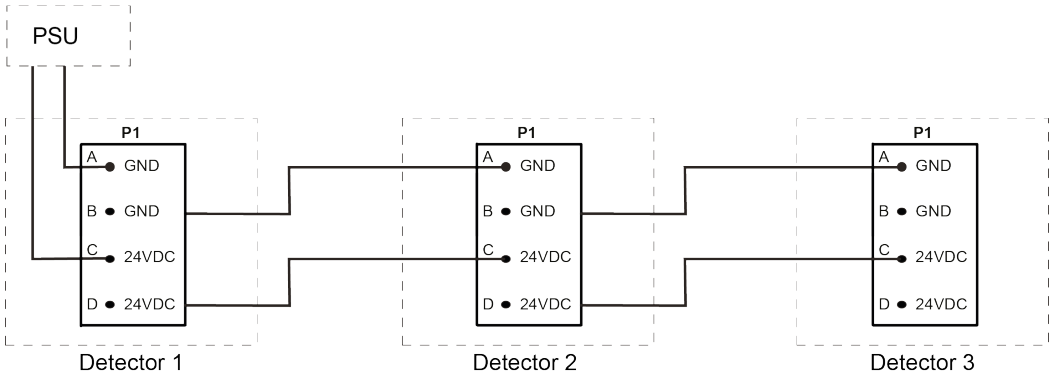
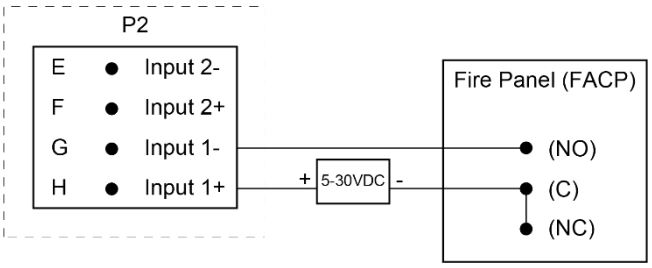


Figure 11: Multiple Detectors Powered by a Single Power Supply

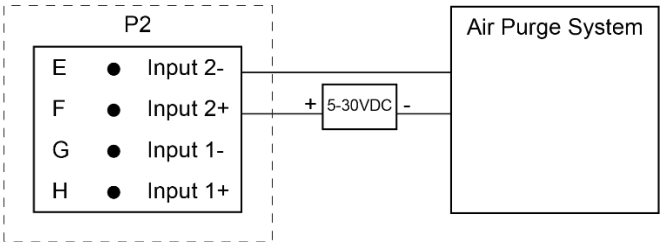
6.4 Inputs

There are two inputs into the detector that can be used to reset and trigger a fault due to air purge fault. A voltage input between 5V and 30V signals RESET ON/Air Purge Fault ON. Less than 2V signals RESET OFF/Air Purge Fault OFF. The input is isolated from the system by an opto-coupler device.

RESET:



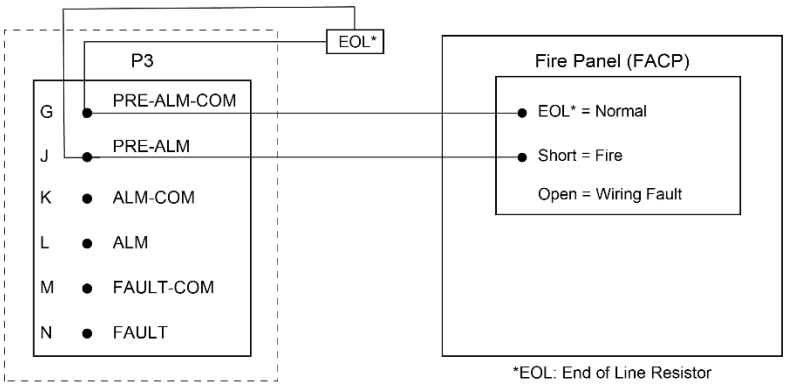
Air Purge Fault:



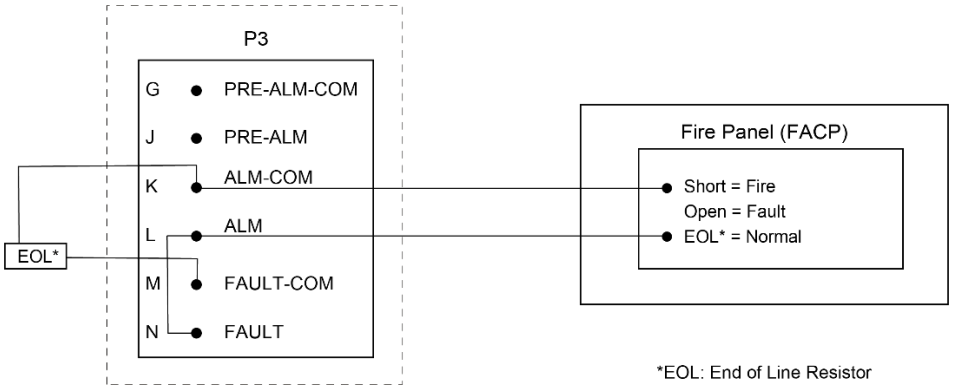
6.5 Relays

Relays on junction box are used to communicate Pre-Alarm, Alarm and Fault to the FACP. Fault relays are energised during normal operation while Pre-Alarm and Alarm relay are energised only when Pre-Alarm and Alarm conditions are met.

Pre-Alarm:



Alarm and Fault:



6.6 Remote LEDs

There is a provision to connect remote LEDs (if available) to the detector using the socket in junction box. The wiring diagram is shown below:

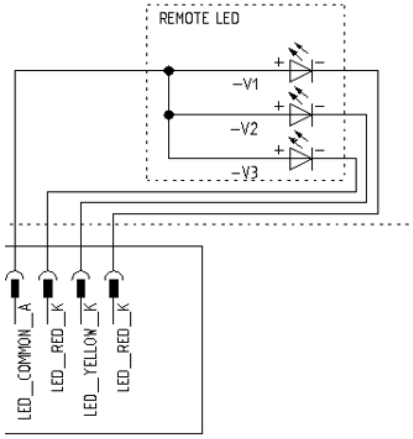


Figure 12: Remote LEDs Connection to Detector Using Socket in Junction Box

6.7 SD Card Installation

The detector can use an optional micro-SD card to save alarm information. The maximum capacity supported is 256 GB. Use only class A micro-SD cards (SanDisc, Samsung, etc.) and make sure the card is FAT 32 formatted. The data is stored first in-first out (FIFO). The card can save video-clips, pictures and an alarm log. In the bottom part of the detector, there is a cover that provides access to the SD card slot.

When the cover is removed, you will notice the slot.

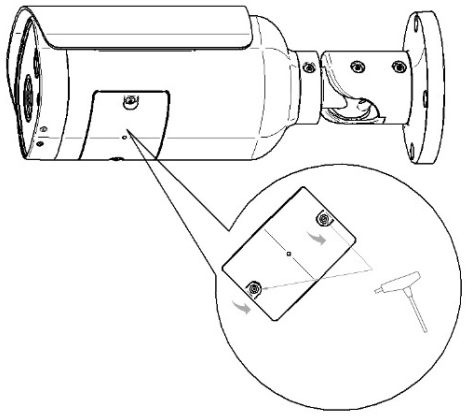


Figure 13: Remove Cover to Access SD Card Slot

To mount the Micro-SD Card, follow these steps:

1. Download Windows MiniTool Partition Wizard and install it on the PC,
2. Insert micro-SD card into the PC,
3. Open the MiniTool Partition Wizard,
4. Select **Disk2**,
5. Go to **Partition** and click **Delete**,

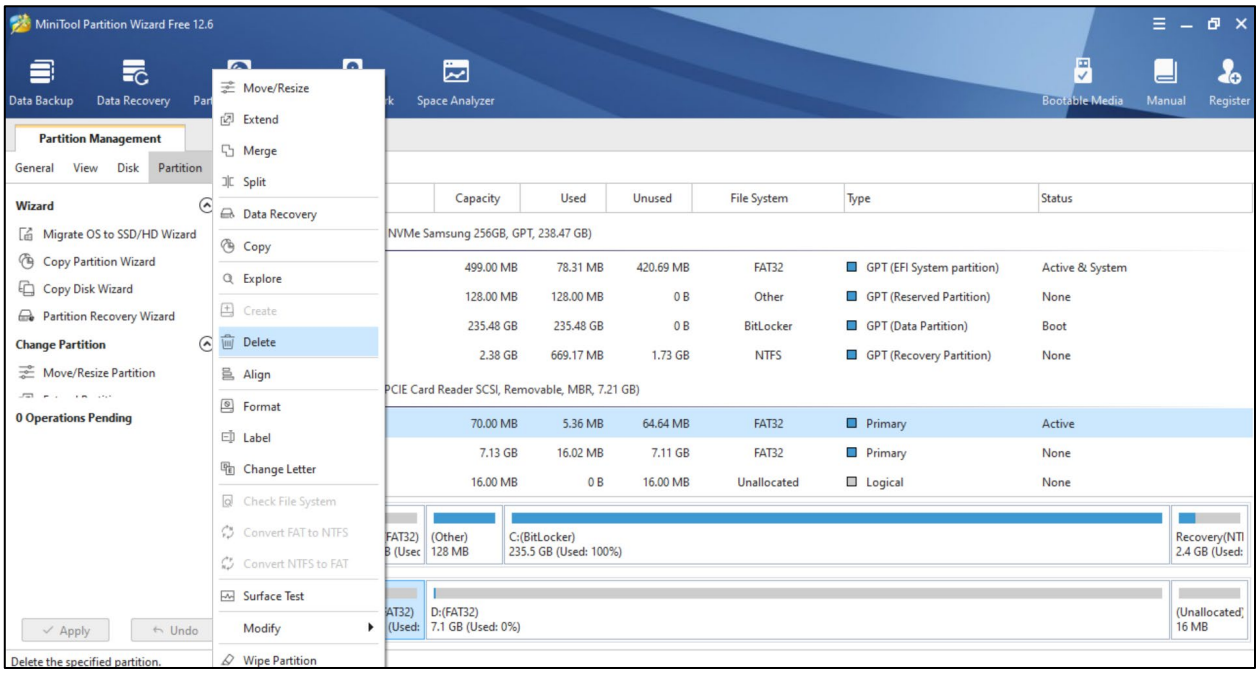


Figure 14: Delete Partition

6. Go to **Partition** again and select **Create**,

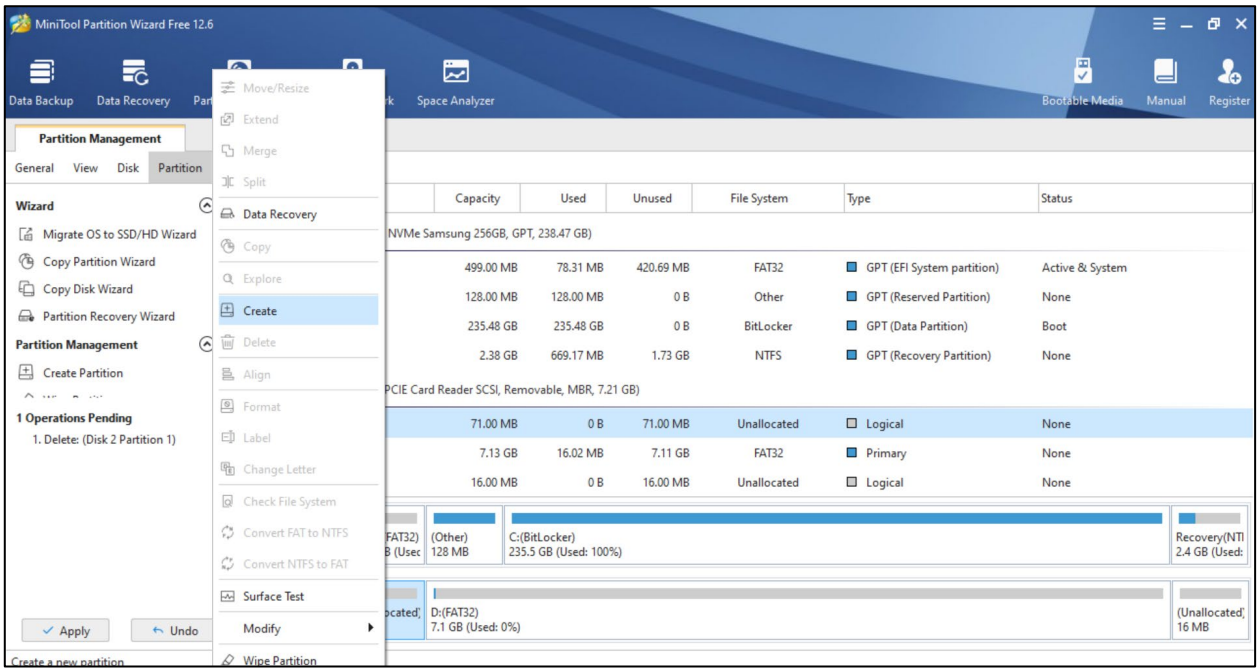


Figure 15: Create New Partition

A warning dialogue box appears as shown below:

7. Click **Yes**, **Create New Partition** window appears as shown below:

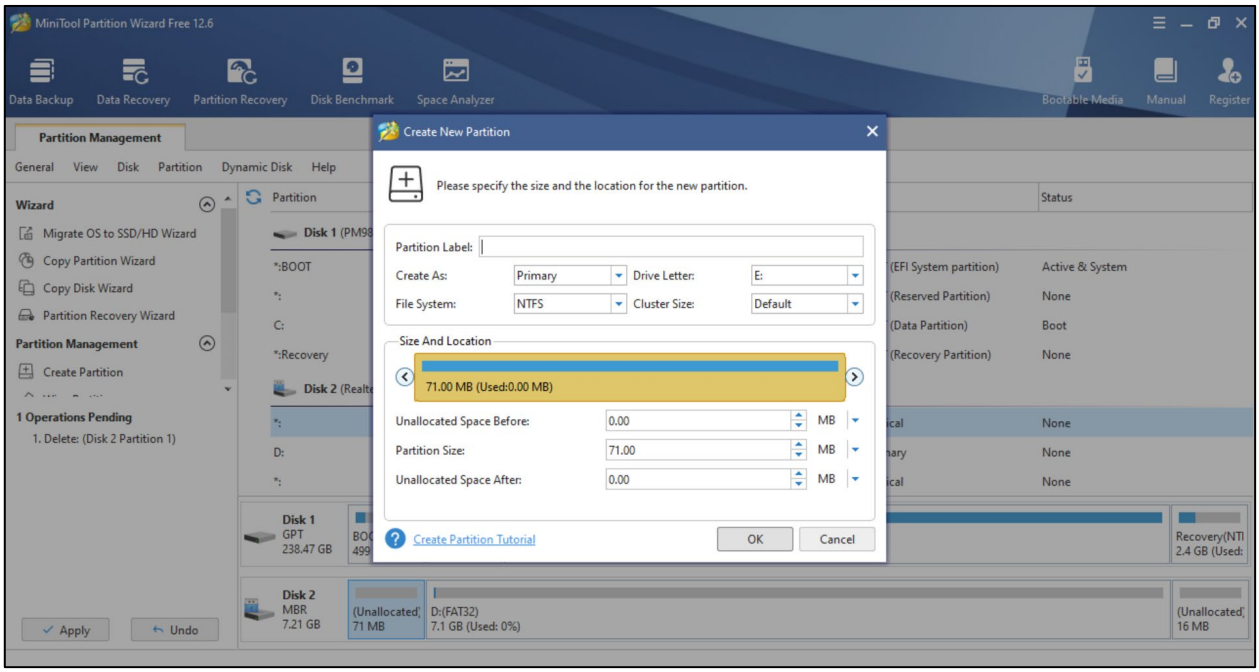


Figure 16: New Partition Details

8. Enter the partition label,
9. Select “EX4” as a file system,
10. Click **Ok**,
11. Click **Apply** at the left side bottom of the window, it takes a few minutes to complete the process, Once the partition is created safely, remove the SD card from the PC and keep it in a safe place.
12. Use Torx T10 tool to open the bottom cover of the camera, once it is opened, the SD card slot is seen,
13. Insert the SD card in the camera slot as shown below:

Figure 17: Insert SD Card in Camera Slot

To check the proper insertion of the SD Card, follow the below steps:

1. Download Putty which is a free and open-source terminal emulator from the internet and install it on the same PC where the VIS-IR Software Management (ViSM) tool is installed,
2. Open Putty,
3. Enter the Camera IP address and click **Open**,
4. Once Putty is active, insert the **root** command and press **Enter**,

5. Insert another command **df -h** and press **Enter**, it will be displayed as shown below above the Red line:

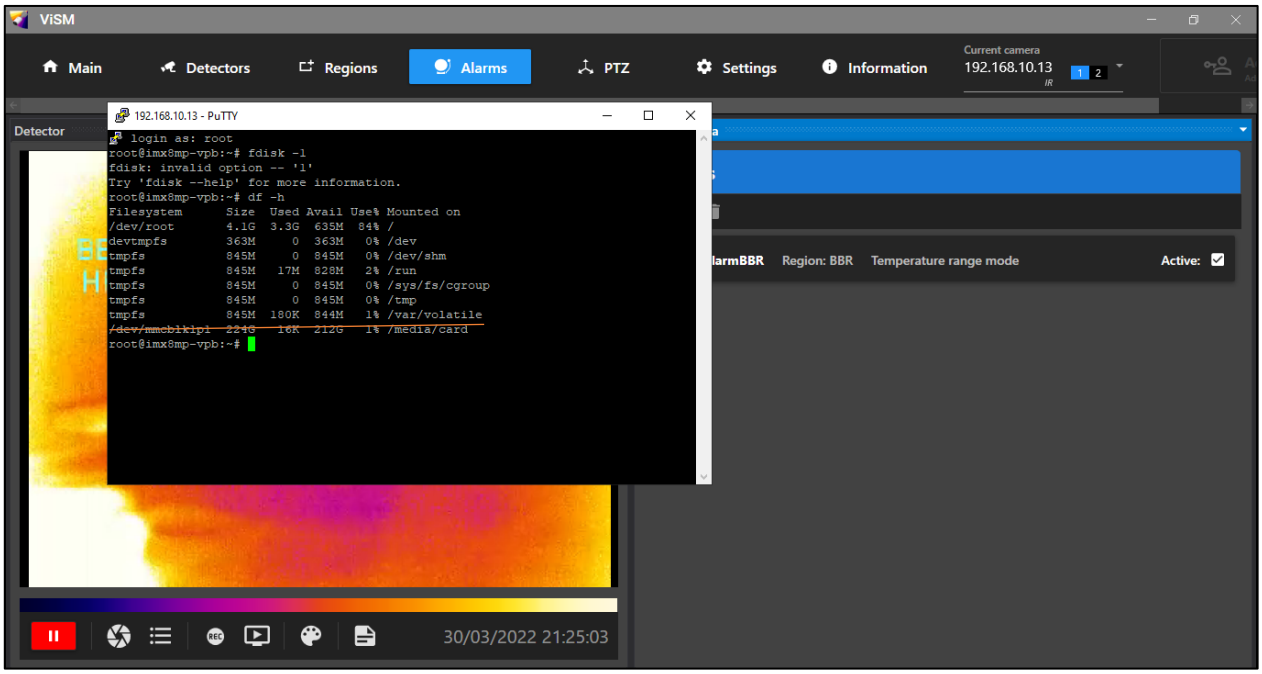


Figure 18: ViSM - Check Proper Insertion of SD Card

The above example shows that the SD Card is properly inserted and activated.

If it is not properly installed check and adjust the SD Card fitment in the slot.

6.8 Connecting to Computer

The FTD detectors require ViSM software for configuration and management of the detectors. Up to 8 detectors can be connected to a single instance of ViSM. Use a female Ethernet port in junction box for connection. A gigabit switch can be used to connect multiple detectors to a single Ethernet port in the computer workstation as shown below:

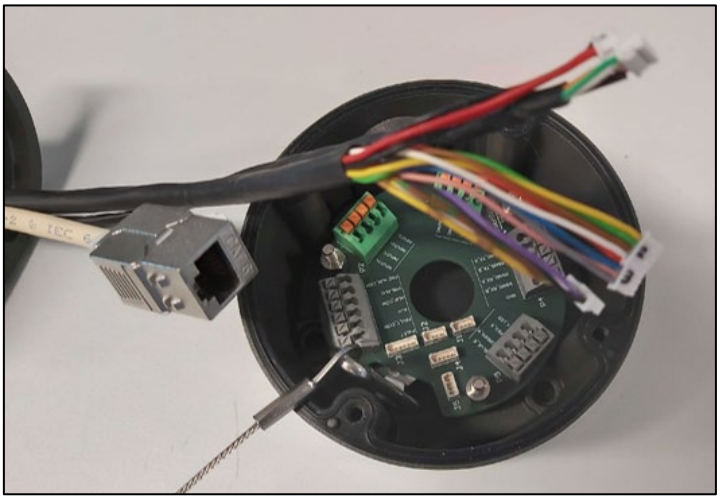


Figure 19: Connect Multiple Detectors to Single Ethernet Port

7 Software Installation

The ViSM software provides real time temperature information of all monitored areas, giving alarms, pre-alarms and fault notifications in every created area in the software. Once an alarm or fault is detected, it will generate a relay output which can activate any fire protection device connected to the FTD system.

The application will run when launching the shortcut on the desktop of the PC.

The software installation must be carried out on a computer that meets at least the following specifications:

- Windows 10 OS
- Intel i7 processor
- 8GB RAM
- 5GB HDD
- Gigabit Ethernet network card
- Mouse, keyboard and display monitor

Please install the ViSM software using the supplied set-up files. Administrator rights are required on your PC to install the different executables.

The installation wizards will guide you and create a launch icon for the ViSM on the desktop.

Important Note!

After connecting the detector with the software and initiating the detector, it is necessary to wait approximately 15-20 minutes for the internal detector temperature stabilization; to get a correct temperature measurement.

8 Software Configuration

Xtralis ViSM can be used to configure and monitor an installation (up to 8 FTD) in real time. It is easy-to-use and has been designed to provide operator complete control. The software allows to set the detection ROI, different detection area settings (spot, line, polygons, etc.), pre-alarm and alarm levels, color scheme selection, logging and communication. While the detectors fully operate on their own, very useful diagnostic data can be collected from the detectors for further analysis.

8.1 Software Window

To start the configuration process, enter the relevant username and password to access the system.

Access levels:

- Administrator (visualization + configuration)
- User (visualization)

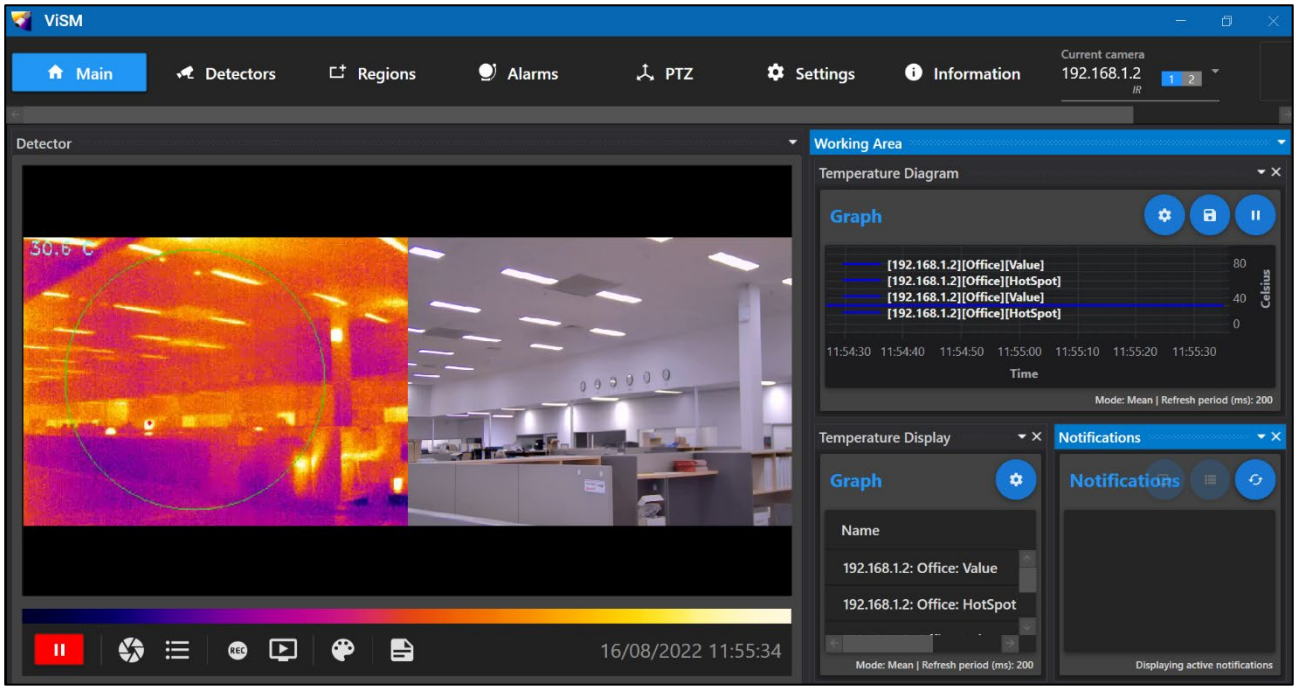


Figure 20: ViSM Main Window

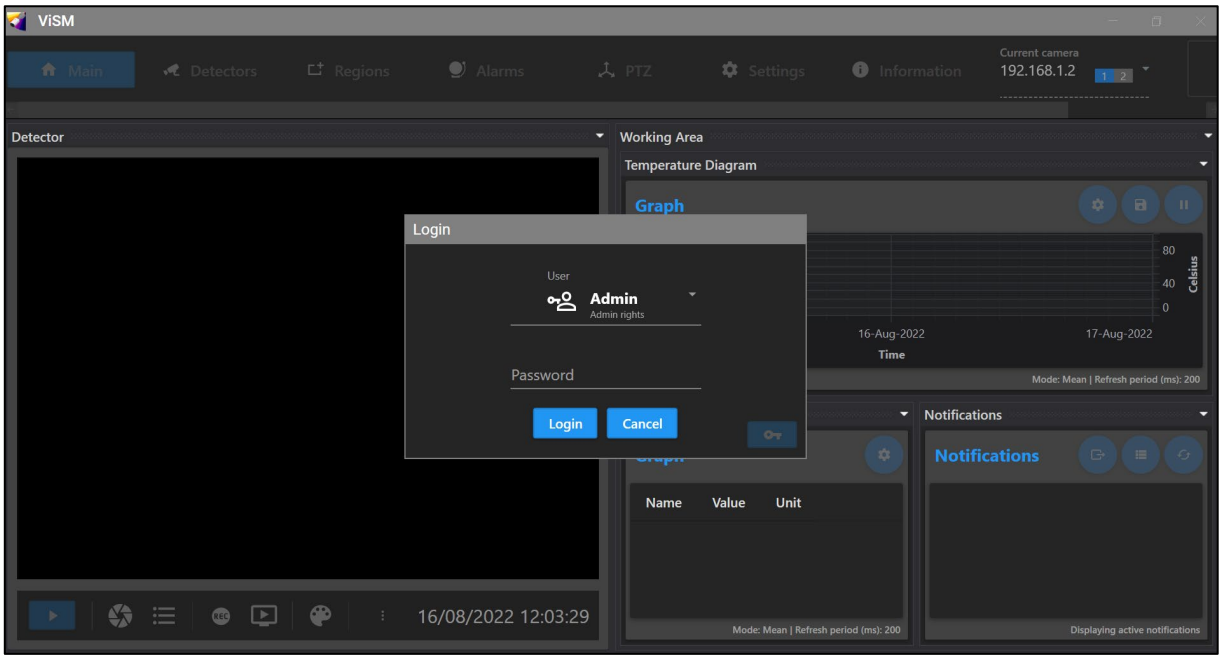


Figure 21: Change Password

Change the password at first use to maintain a safe cyber environment.

The images obtained by the thermal imaging detectors are displayed in real time on the left side, called **Detector** area. It is possible to represent a maximum of 8 thermal detectors in mosaic form. On the left side, called the **Working Area**, it is possible to configure, represent and analyse the information obtained by the detectors through different tabs.

At the top of the **Working Area**, using the menu, several tabs can be selected to define different settings or create displays in the software.

Below the **Detector** window, there is a toolbar that allows to zoom in on the image, take videos or images, as well as open videos or radiometric images for analysis.

8.2 Menu and Toolbar

8.2.1 Menu

At the **Working Area**, there are tabs available for an easy navigation through the software:

- **Main**: allows the visualization of different temperature information windows.
- **Detector**: allows to add, edit or erase a detector (Detector configuration).
- **Regions**: allows to add, edit or erase a detection area (Creating detection area).
- **Alarms**: shows and allows to configure alarms and pre-alarms (Alarms configuration).
- **Settings**: allows to edit and configure the software parameters (General configuration).
- **Information**: makes it possible to see the current software version.

The **Detector** drop-down menu indicates the camera that is selected to show in the graphs. When the selected detector changes, the graphs change accordingly. When an image is clicked or double-clicked, the drop-down menu changes to show the selected detector.

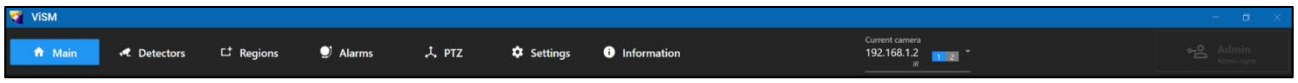


Figure 22: Menu Tabs Navigation

8.2.2 Toolbar

The Toolbar that is located at the bottom of the **Detector** window allows the interaction with the images from thermal detectors by several applications explained in this guide.

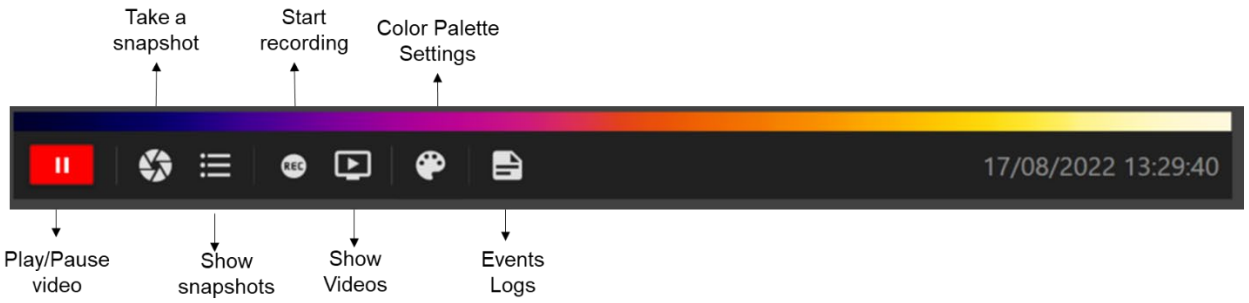


Figure 23: Toolbar

8.3 Detector Configuration

8.3.1 Adding New Detector

To add a new detector, it is important to check the number of detectors shown via **Settings → Application**. Maximum 8 detectors can be viewed at the same time.

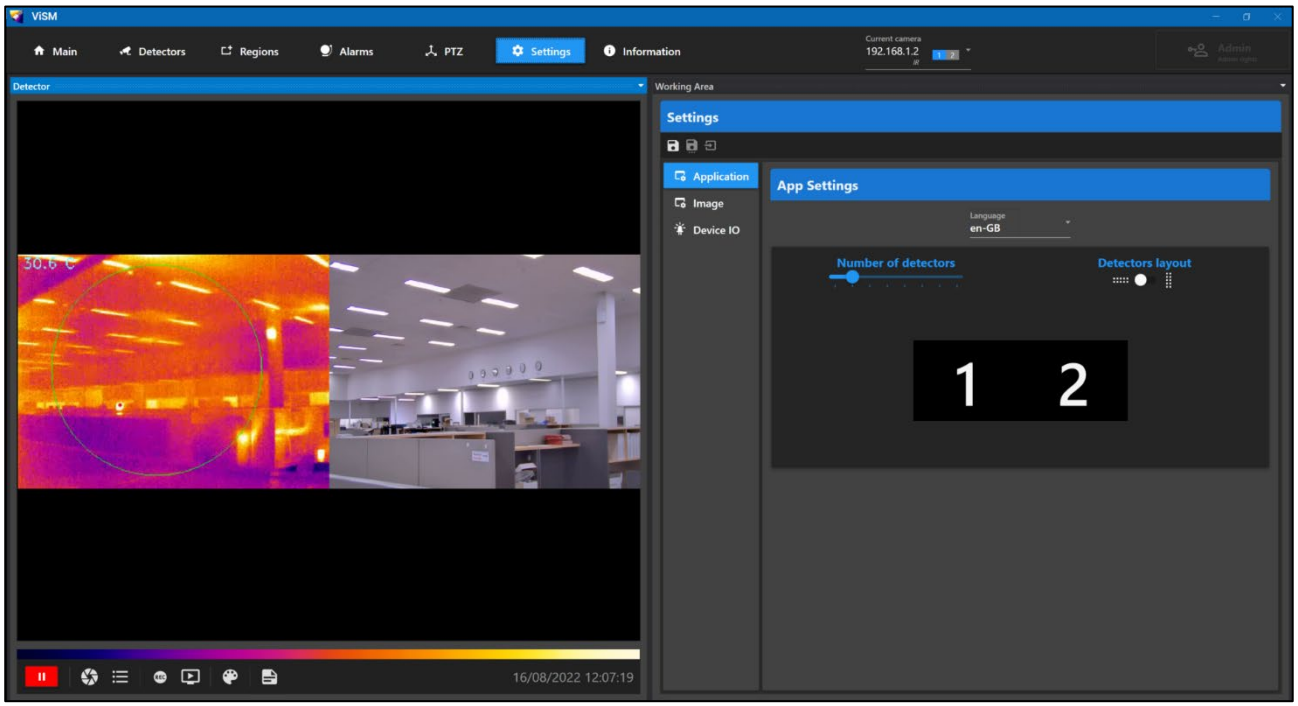


Figure 24: Add Detector

To add a new detector, go to **Detectors** tab and click the icon (**Register new detector**, +), then select a detector from the available detector list and click **Select**. The displayed number is the IP address of the detector.

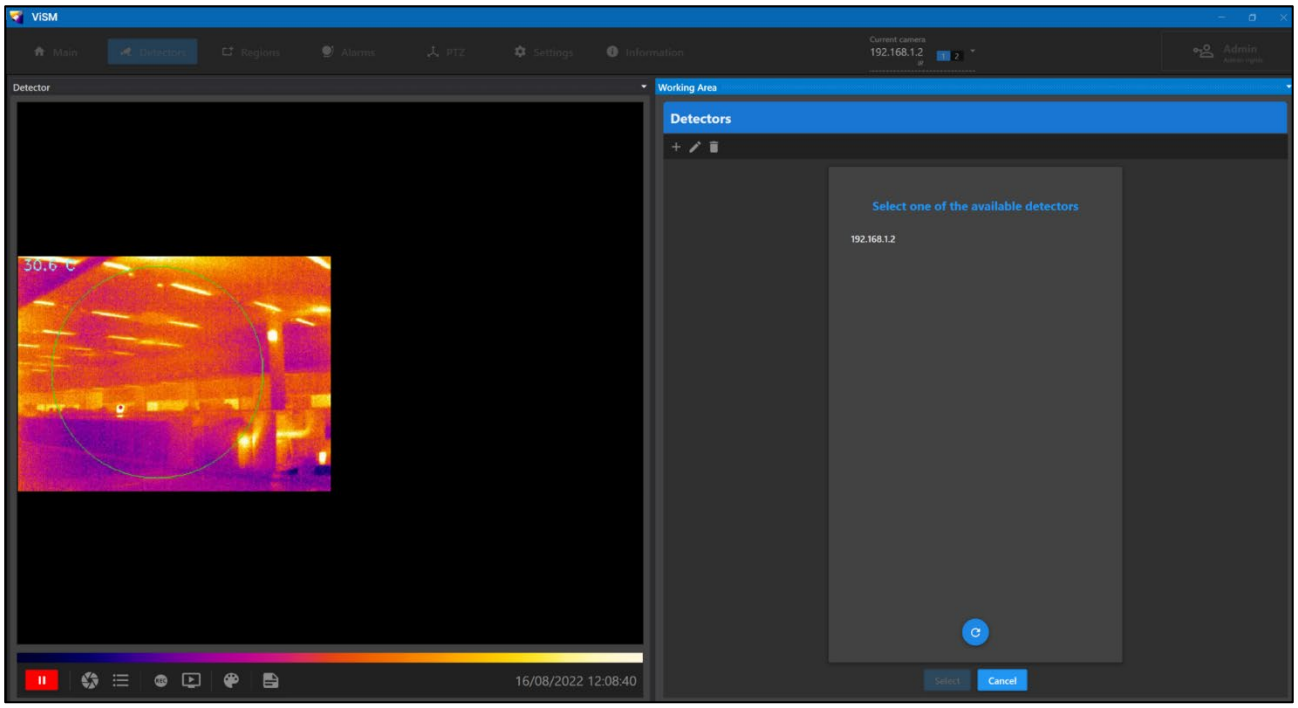


Figure 25: Detector List

Once a detector is selected, its configuration page appears where you can change the device name, which default value is the device's IP address. You can also select whether you need IR or Visual, as shown below:

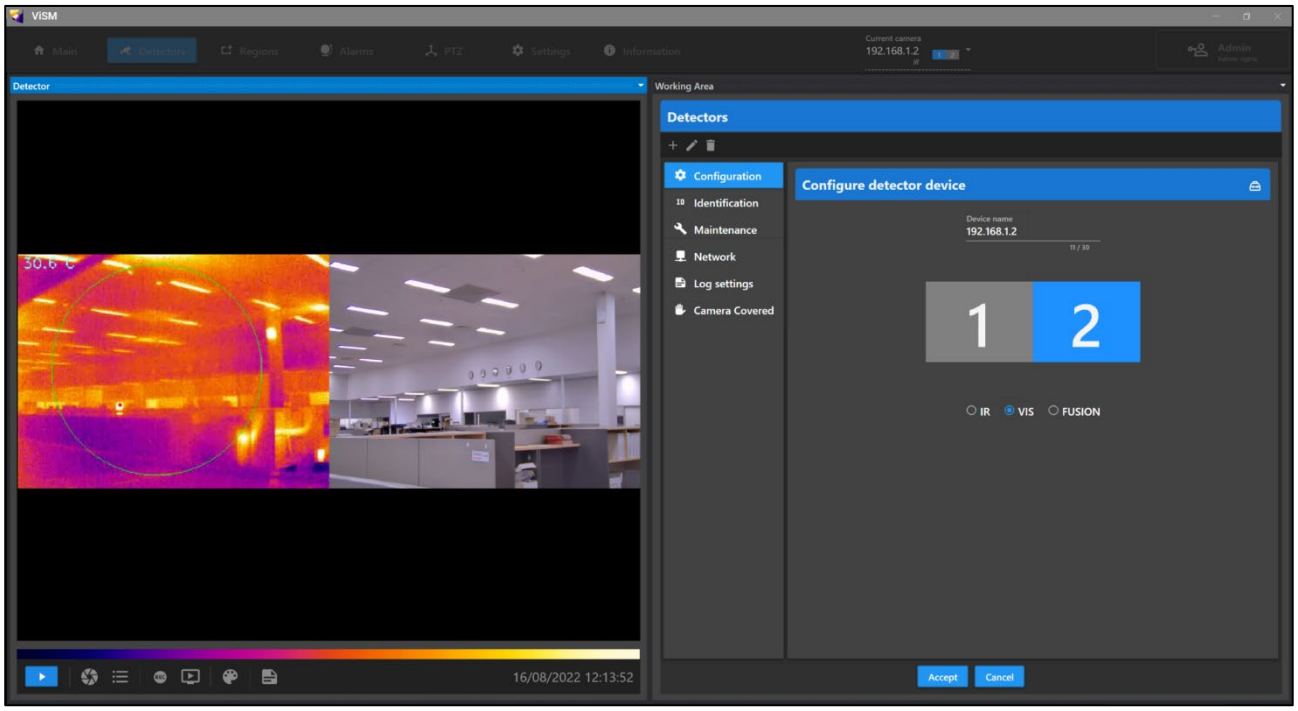


Figure 26: Detector Configuration

You can view the detector's details under the **Identification** tab, without the ability to apply changes.

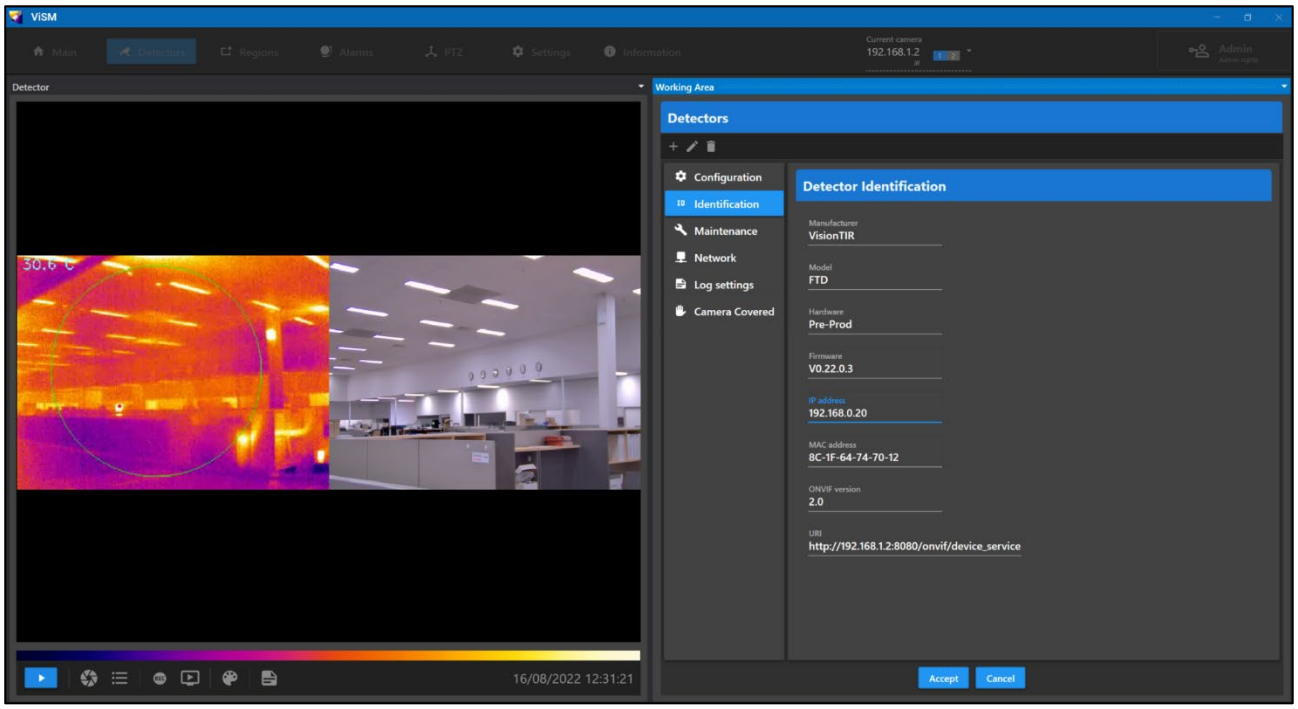


Figure 27: Detector Identification

To see the live IR/visual image, click **Accept** then click the Play button. If you need to see both IR & visual image, you need to add the same detector twice.

8.3.2 Transmissivity - Ambient Parameters

The transmissivity, emissivity and several ambient parameters must be configured according to the system installation through the **Settings** menu.

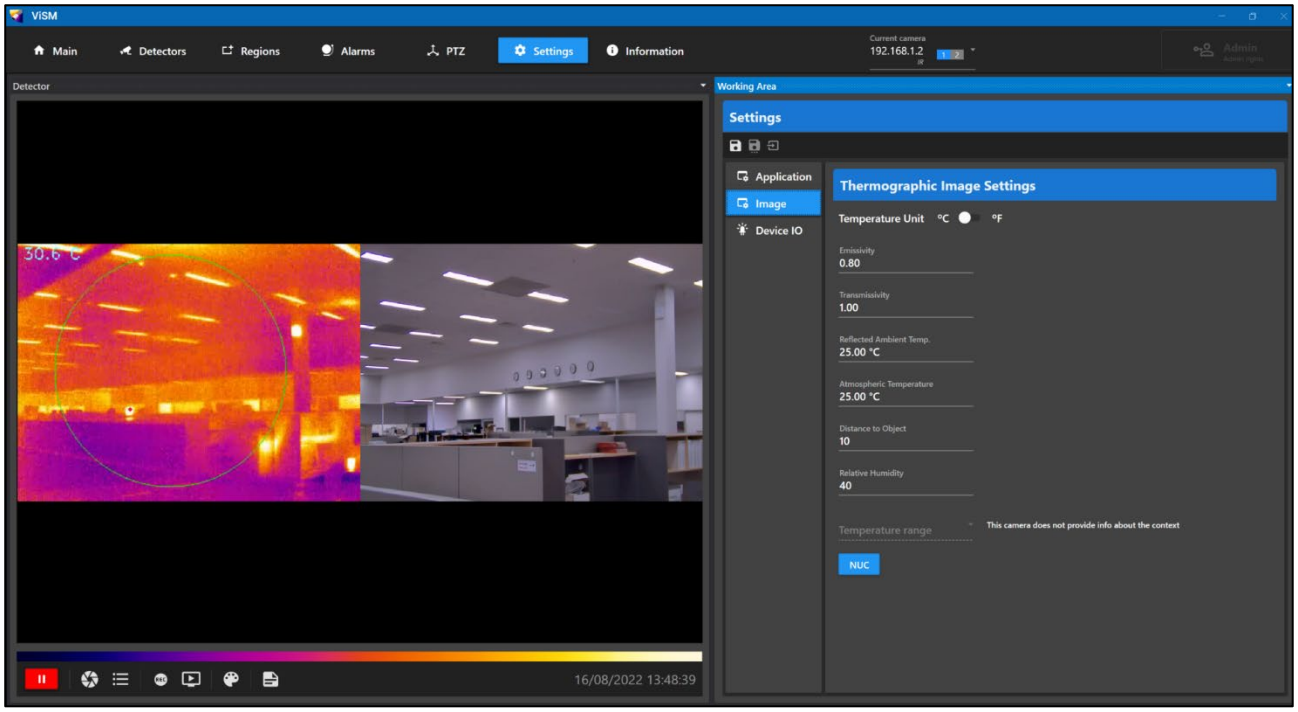


Figure 28: Settings

- **Emissivity**: enter the average emissivity of the FOV.

> **Note!**
>
> You can define the emissivity for each ROI in the Region definition.

- **Transmissivity**: typically, it should be left to 1.00.
- **Reflected Ambient Temperature**: enter the average temperature of objects in the FOV.
- **Reflected Atmospheric Temperature**: enter the atmospheric temperature of the surrounding air in the FOV.
- **Distance to Object**: enter the average distance of the FOV. For example, if top of the FOV sees 10m and the bottom FOV sees 1m, the average that should be entered is 5.5m. You can enter the distance for the ROI when you define regions.
- **Relative Humidity**: relative humidity in percentage (%) of the FOV.

Click Save to save the configuration of the detector.

8.3.3 Removing Detector

It is possible to delete a detector from the list of detectors by clicking the **Remove selected detector** ( ) icon via **Working Area → Detectors**.

8.4 Regions

8.4.1 Creating Detection Regions

Detection areas for temperature analysis can be created, edited and deleted through the **Regions** menu. You can create a new detection area by clicking the icon (**Create region,** +).

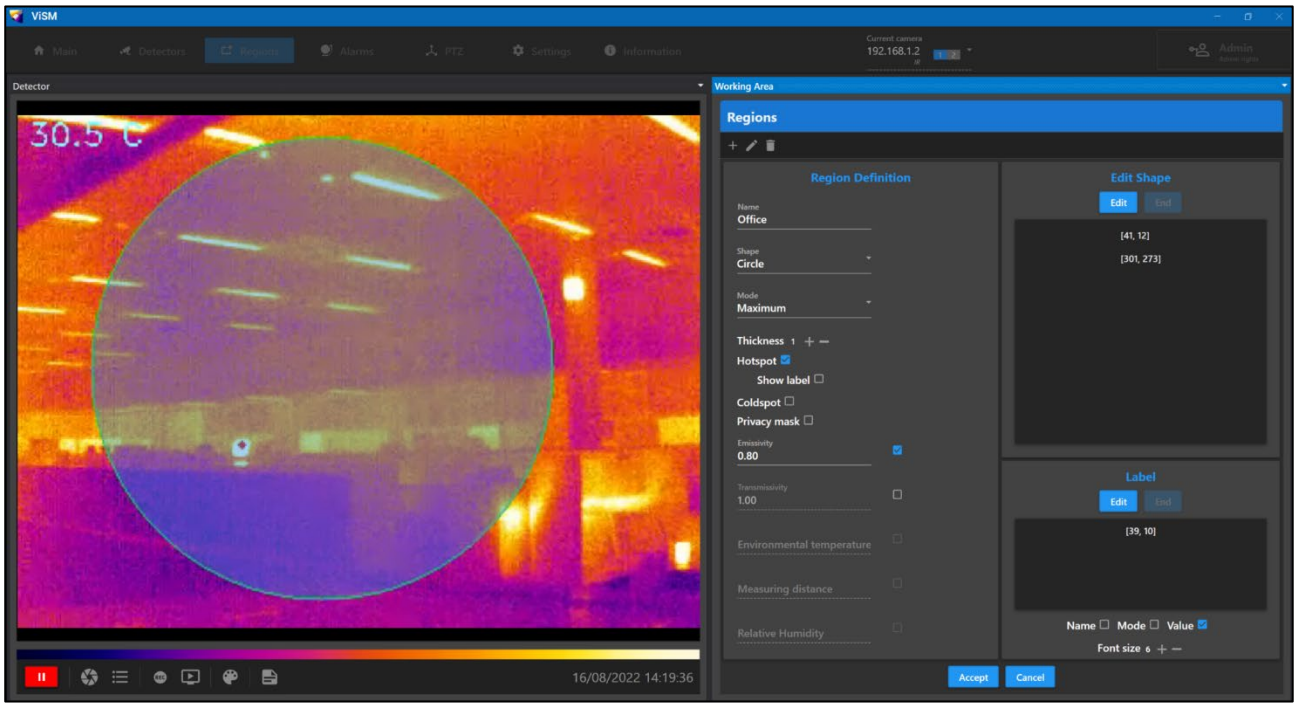


Figure 29: Region Definition

To create a new region, it is necessary to define:

- **Name**: name of the region.
- **Shape**: choose between some options (circle, rectangle, polygon, line and point).
- **Mode**: show the maximum, minimum or a mean value. It is recommended to select the Maximum mode.

To display the name and value measured by the regions, click the **Name** and **Value** checkboxes in the **Label** section.

Once these parameters are selected, the next step is to introduce the region in the **Detector** window using the **Edit Shape** section. Click the **Edit** icon to start the edition, and when it is finished click **End**.

For each region, it is possible to show a calculated value between several frames. To specify the frames that are used in the calculated value, see **Working Area → Settings → Calculated buffer time**. This buffer time is working in FIFO mode. For example, if 20 seconds are configured, the software uses the last frames from the camera during the last 20 seconds.

The possible calculation values/ modes are:

- **Mean**: the temperature value of the area is the average value of all frames inside the buffer time indicated in the software settings.
- **Peak hold maximum**: the temperature value of the area is the maximum value of all frames inside the indicated buffer time in software settings (as explained above).
- **Peak hold minimum**: the temperature value of the area is the minimum value of all frames inside the indicated buffer time in software settings (as explained above).

8.4.2 Hot and Cold Spots

It is possible to show on the detectors an image in real time for the position and value of the hot or cold spot inside each region.

In each region, it is possible to represent the name, mode or temperature value by selecting the appropriate options (**Name**, **Mode**, **Value**) in the **Label** section.

The label can be freely positioned using the **Edit** icon.

8.4.3 Emissivity

The emissivity is configured by region. It is necessary to set the emissivity value for each area.

To determine the emissivity of shiny surfaces in the field, you can use adhesive light absorbing dark foils, to be found from i.e. *Acktar (https://www.acktar.com/product/blackout-material-diffusive-foils)*. Alternatively, you can use an air or contact thermometer.

8.4.4 Distance

For the distance value, use the average distance between the closest and furthest point in the ROI.

8.4.5 Relative Humidity

Enter the relative humidity in percentage (%) for the ROI.

8.5 Alarms Configuration

8.5.1 Adding New Alarm or Pre-Alarm

Alarms or pre-alarms for temperature analysis can be defined, edited and deleted through the **Alarms** menu. To create a new alarm, click the icon (**Register new alarm,** +).

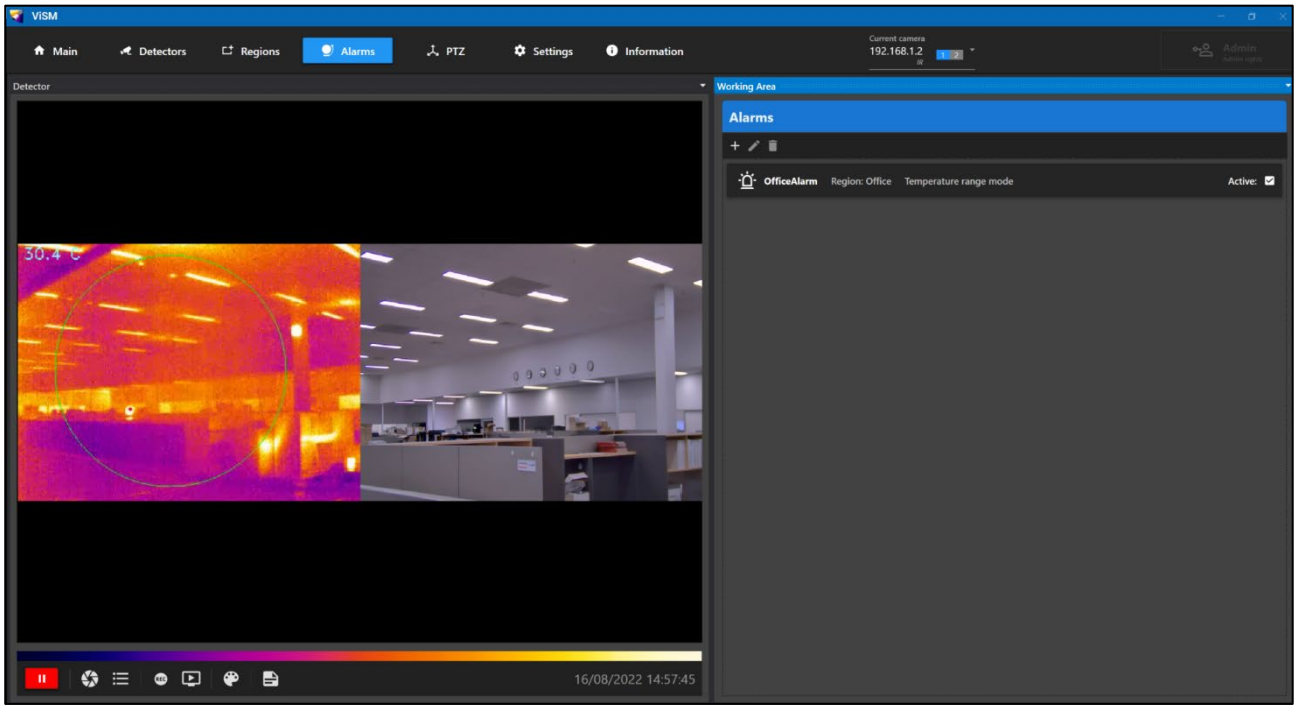


Figure 30: Alarm Tab

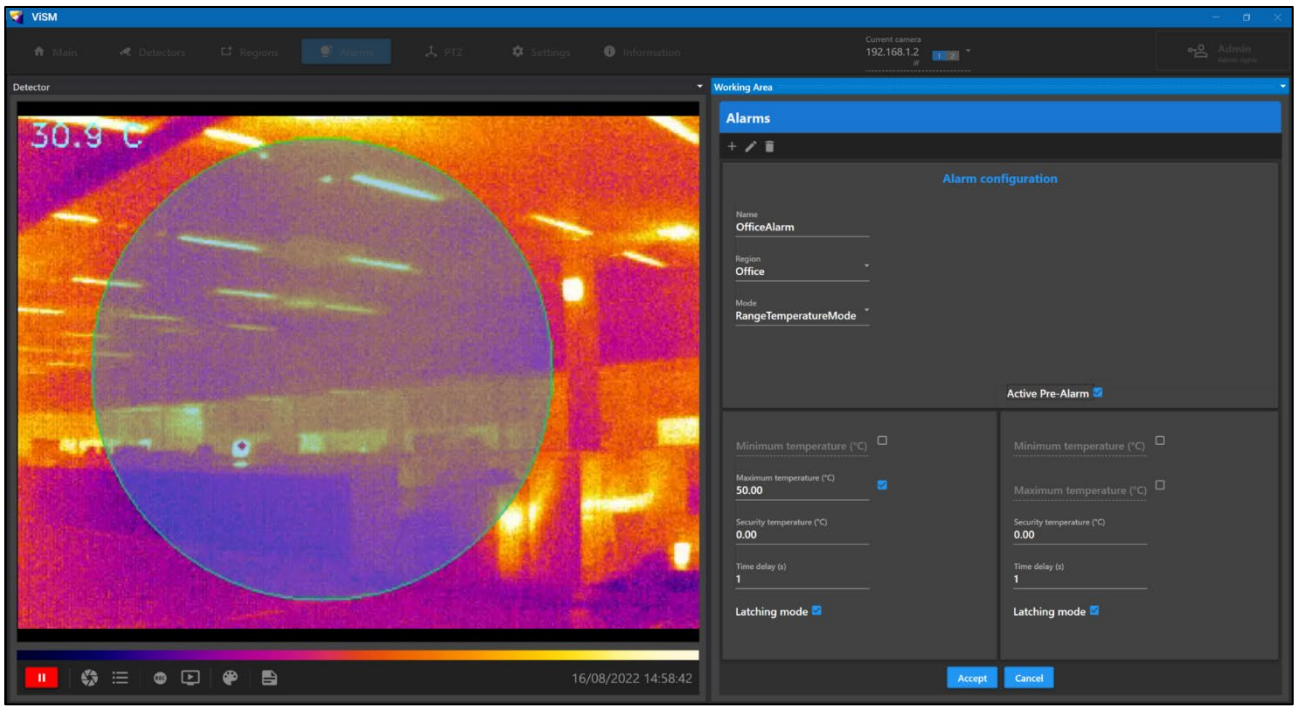


Figure 31: Alarm Configuration

To create a new alarm, it is necessary to define:

- **Detection area**: a previously created ROI in which to define an alarm condition.
- **Mode**: to select between three options.

The options below can be all active at the same time for each of the ROI.

- Range Temperature: in this option the alarm notification is triggered when the indicated value is reached at the range (upper or lower alarm) during the indicated time. Both alarms, maximum and minimum, can be set. The parameters for setting this alarm mode are:
  - Maximum temperature: maximum temperature value above which an alarm situation is considered.
  - Minimum temperature: minimum temperature value below which an alarm situation is considered.
- Rate of Rise: this option allows selecting a temperature value and a time in seconds. The notification alarm is triggered if the relative value between maximum and minimum occurs in the indicated time.
  - Increase temperature: the relative temperature value between the maximum and minimum temperature value.
  - Time: size of the time buffer in which the relative temperature difference is calculated.

- **Security temperature**: the setting of the security temperature is associated with the time delay. This temperature difference corresponds to the negative variation from which the timer stops. For example, for a temperature threshold of detection set at 70 ºC and a delay time of 10s, if the security temperature is 5 ºC, then the detection delay will only be stopped until the measured temperature drops below 65 ºC. On the other hand, if the measured temperature falls below 65 ºC before 10s, then no alarm condition should be generated.
- **Delay**: it is possible to set a delay time to activate the alarm when the temperature value reaches the indicated value. The delay can be selected between 5-30 seconds.
- **Latching mode**: you may latch or unlatch the alarms.
- **Pre-Alarm**: note that the Pre-Alarm can only be activated when an Alarm is set/active.

Once you're done configuring the alarm or pre-alarm, it is necessary to save the changes in the **Settings** tab.

8.5.2 Alarms Pop-up Notification

Once an alarm is active, a pop-up appears on the screen indicating the name of the region in alarm, the temperature that triggered the alarm and the active alarm time.

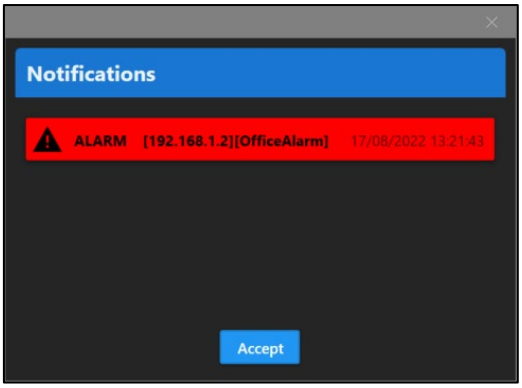


Figure 32: Alarms Pop-up Notification

The pop-up will keep displaying until the user accepts it, after which the alarm can be viewed in the **Notifications** window, as shown in the next page:

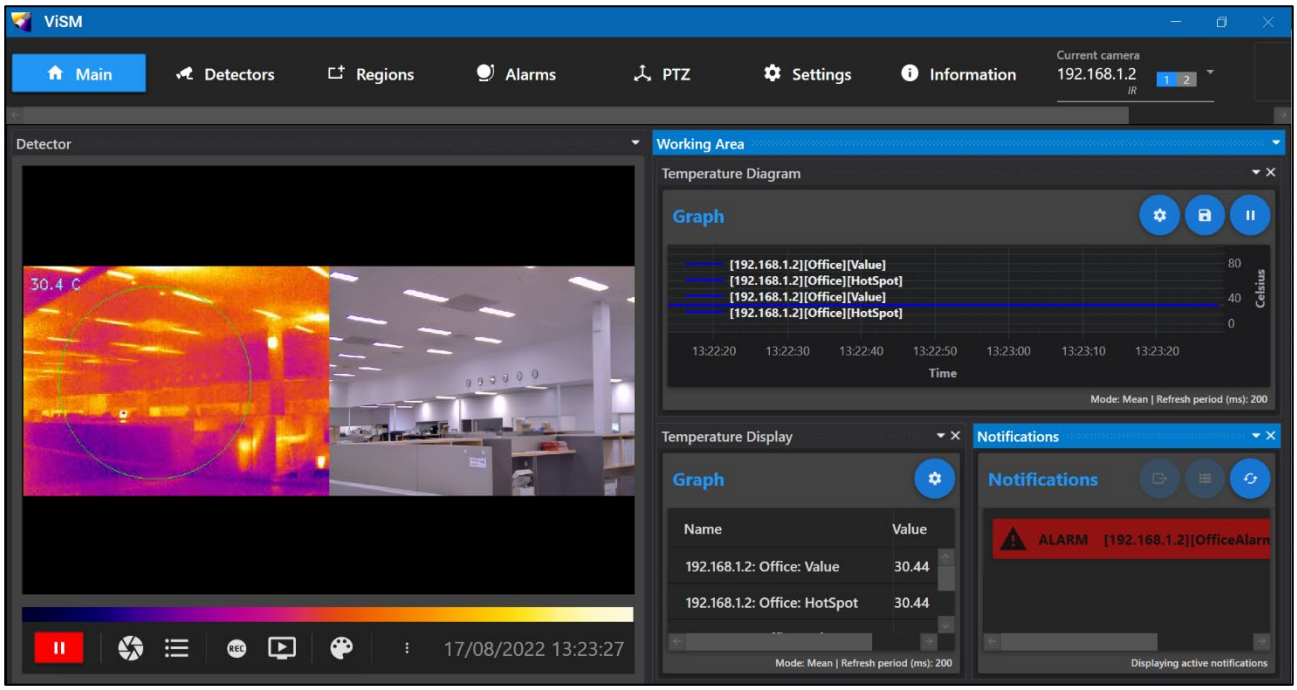


Figure 33: Notifications Window

If Alarm is latched, you can unlatch it by unchecking the Alarm's Active checkbox, as shown below:

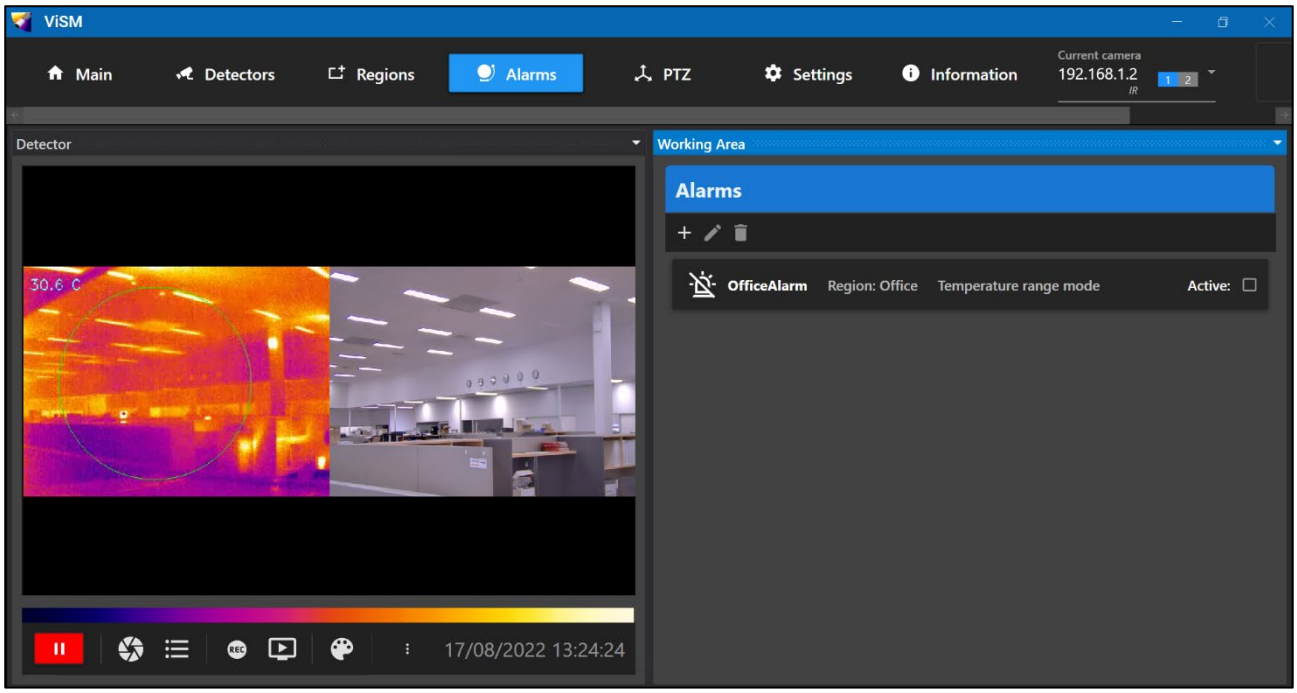


Figure 34: Unlatch Alarm

9 Maintenance

The following tasks must be performed to ensure a correct operation:

Interval	Task
3 months	Check germanium lens and visible lens to look for any dust and any potential damage or breakage on the lens. Use soft no lint cloth to keep the Germanium lens scratch free.
6 months	Check the junction box and ensure that all wires are properly connected.
1 year	Temperature readings verification and alarm reporting using a Black Body. Compare to the detector readings. See Blackbody Application Note (Doc. No. 36572).
1 year	Mechanical supports inspection. Ensure that the position and orientation of the detector is still fitting the area to monitor.
1 year	Save data from the ViSM software. In the computer, ensure there is a free recording space on the hard disk. Make sure to save the logs regularly.

10 Troubleshooting

The table below lists the typical problems, the possible causes and the solutions. Please check this troubleshooting table if there is any issue with the system.

Problem	Cause	Actions
Problems during installation or first launch of the ViSM software	No administrative rights in the computer	Use a computer with administrative rights.
	Software update was installed over an on older version	Uninstall earlier software version before installing a new one.
	Minimum requirements of the computer are not met	Use a PC that meets the minimum requirements.
No connection between the detector and the ViSM software	Power supply	Check that 24VDC power supply is correctly connected and supplies the required current.
	Communications	Check the communication cables and be sure that you are using a 1000Mbps network.
	Detector hardware connection process	Disconnect the power and communications cables to the detector. Connect the communications cable then the power supply cable.
	Incorrect Ethernet adaptor configuration in the PC using a local network without DHCP	Configure a fixed IP address to the computer in the same IP address range of the detector.
	Different IP address range between camera and the PC	Verify that the Ethernet card is configured according to the camera's IP address.
Images with delay in the software	Communications	Check that the Ethernet line is established in 1000Mbps.
Blurred image from detector	Dirty lens	Softly clean the detector lens. If an air purge system is used, make sure it is working correctly.
There is connection with the detector, but the software shows a black image	Insufficient bandwidth in Ethernet local network	Check that a Gigabit local network is used and PC has a Gigabit Ethernet adaptor.
	An antivirus software, firewall protection, VPN connection or similar is blocking the communication with the camera	Add the system software as exception to the antivirus and firewall or try to disable the security software, VPN or similar.
Measured temperatures by the detector are different than the expected	The detector needs to get the thermal stabilization	Wait 10 minutes to have a stable internal temperature in the detector.
	Automatic operation of the NUC mechanism	Try to do an NUC from the software using the NUC button in the Cameras tab.
Camera covered fault	Camera lens is covered	If camera is covered, remove the object covering the camera lens, go to the detector settings and under camera covered tab, click reset to clear the fault.

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