

LILIN Temperature Measuring Camera User Manual

1.0	Before Using This Temperature Measuring Camera.....	2
1.1	Scenarios Where the Temperature Measuring Camera May not Work	2
1.2	The System Diagram of Temperature Measuring Camera	2
1.3	Installation.....	3
1.4	Detection Object of Camera FOV	3
1.5	Other Limitations.....	3
2.0	Temperature Measuring Camera	3
2.1	Temperature Measuring Configuration.....	4
2.2	Enable Face Detection for Avoiding False Alarm	4
2.3	Temperature Measuring Configuration.....	4
2.3.1	Temperature Calibration	5
3.0	SmartEvent.....	6
3.1	SmartEvent Events and Conditions	6
3.2	Temperature Detection Triggering Alarm	6
3.3	HTTP Post via IFTTT	7
4.0	Temperature Measuring Camera with NVR, NVR51T4E	8
4.1	Configure Temperature Measuring Camera with NVR51T4E	9
4.1.1	P3T6522E2/P3T6522E2-F Temperature Measuring Setting.....	9
4.1.2	Activate META DATA	10
4.1.3	Alarm Output Setting	10
5.0	Temperature Measuring Camera with Navigator AI Mask Detection.....	12
5.1	Configure Temperature Measuring Camera with Navigator AI Mask Detection ...	12
5.1.1	Temperature Detection Setting	13
5.1.2	Open Event List Setting	13
5.1.3	Human Detection Setting	14
5.2	Temperature and Mask Event Search	15
5.2.1	Live Video Event List.....	15
5.2.2	Database Manager Search	15
5.2.3	Playback Event Search.....	16
	Appendix	17
	SmartEvent	17

1.0 Before Using This Temperature Measuring Camera

Visit LILIN IP camera user manual for IP camera feature. This user manual only focuses on the temperature measuring feature of the camera. There are few advantages for using the camera:

- Camera browser access with alarm audio output if temperature reaches threshold temperature.
- P3T6522E2-F supports face detection to avoid false alarm by carrying a coffee.
- P3T6522E2 can work with LILIN Navigator recorder via Aida mask detection and face detection.
- P3T6522E2-F can work with LILIN NVR for multiple entrances application.

Temperature Reading vs Traditional Analogue Thermal Camera

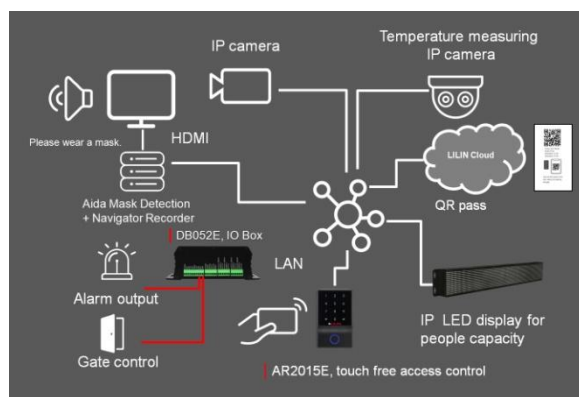
	Temperature Measuring Camera	Analogue Thermal
Price	Cost-effective	High
Live video	Yes	
False alarm by coffee	No	Yes
Technology	IP camera, work standalone	Analogue
Photo snapshot	Yes	No
Alarm & automation	Digital alarm	DVR needed
Remote access	HTML	
Privacy concern		Physiological characteristics



1.1 Scenarios Where the Temperature Measuring Camera May not Work

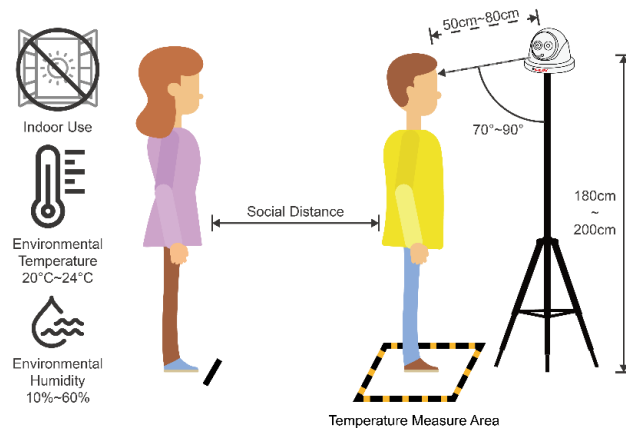
- Do not install the camera outdoors.
- Do not install the camera under direct sunlight.
- Do not point the camera to a heat source such as light, fire, or the sun.
- Do not point the camera to reflective backgrounds such as mirror, glass door, and metallic surfaces to minimize reflected infrared radiation.
- Do not install the camera under the flow of an air conditioner.
- Do not use the camera at strong lighting (incandescent, halogen, and quartz tungsten halogen light bulbs).
- Do not have any face obstructions before measurement such as mask, hat, headband, or scarf.

1.2 The System Diagram of Temperature Measuring Camera



1.3 Installation

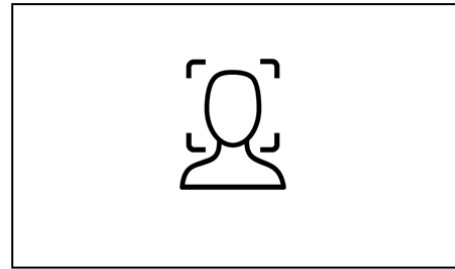
Please install the camera at 6.0 feet / 180 cm high. Point the camera at 60 degree on the face of a person. The working distance is at 20 inches ~ 30 inches / 50 cm ~ 80 cm away from the camera.



1.4 Detection Object of Camera FOV

Make sure that the face of a person is about 1/3 of the camera's field-of-view.

Camera FOV



1.5 Other Limitations

- Room temperature should be 68-76°F (20-24°C) for operating the camera.
 - Measure one person at a time.
 - If a high temperature is detected, use a secondary method (tool) to confirm the person's high temperature.
 - Allow the camera to warm up 20 minutes for its working temperature before operating.
 - Stay 3 seconds in front of the camera at 20 ~ 30 inches / 50 ~ 80 cm in distance for accurate measurement.
- Note:** Please confirm everyone can be detected in the position within the range 50~80cm distance, and then use this distance to calibrate the temperature and use it as the measuring position.
- Calibrate the camera with a temperature measuring tool at least once a day.

2.0 Temperature Measuring Camera

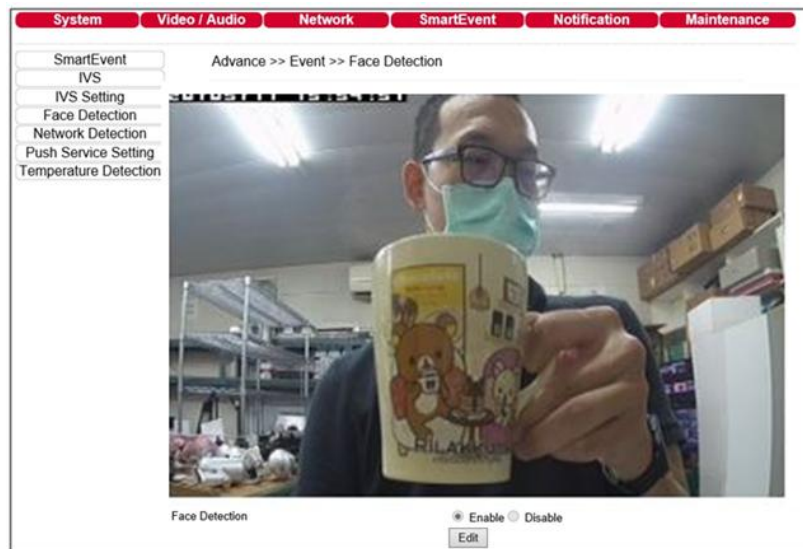
The temperature measuring camera can be operated by Internet Explorer. If the temperature of a person is measured as normal temperature, the video shows a green frame on the face with temperature measured. If the temperature of a person is measured over the set temperature, the video shows a red frame on the face and makes an alarm audio via the ActiveX control. There is no need to monitor the video all the time.



2.1 Temperature Measuring Configuration

2.2 Enable Face Detection for Avoiding False Alarm

For using the camera as standalone or with LILIN NVR, make sure that face detection is enabled for the camera to detect a face. Once a face is detected, the camera can measure the temperature for the face. This can effectively avoid false alarm by a person carrying a coffee.



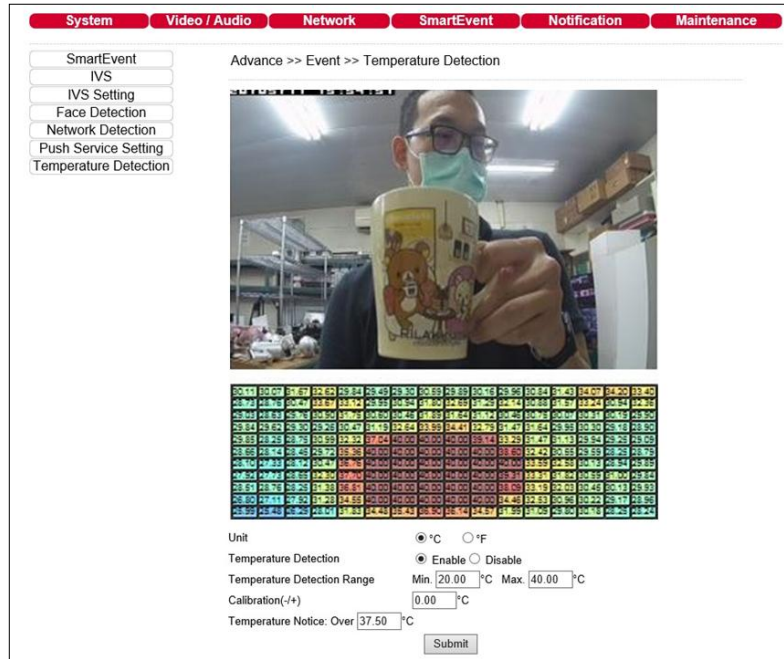
- **Face Detection:** Enable or disable face detection feature.

Note: The feature is only available for the face detection model.

2.3 Temperature Measuring Configuration

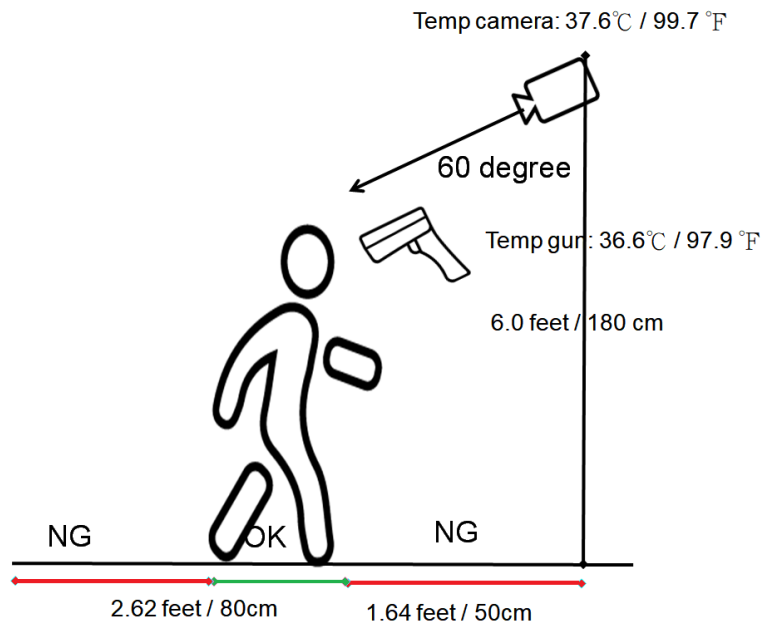
Visit Advance->Event->Temperature Detection for configuring the camera: (1) temperature unit, (2) temperature detection, (3) temperature range, and (4) calibration. The details are described below:

- (1) Temperature readings: There are 16 x 12 temperature readings for a user to calibrate.
- (2) Temperature unit: Celsius or Fahrenheit
- (3) Temperature detection: Enable temperature reading feature.
- (4) Temperature range: The temperature range of a measured target.
- (5) Calibration: A user is able to increase or to decrease the temperature for distance compensation.
- (6) Temperature notice over: The temperature threshold for triggering an alarm if a person's temperature is too high.



2.3.1 Temperature Calibration

Please calibrate the temperature measuring camera with a gun thermometer at least once a day. For example, the camera scans the temperature of a person at 37.6°C and the gun thermometer reading of the same person is 36.6°C (actual temperature). Visit Advance->Event->Temperature Detection->Calibration of the camera setup page to add -1°C for matching the temperature reading with the gun thermometer.

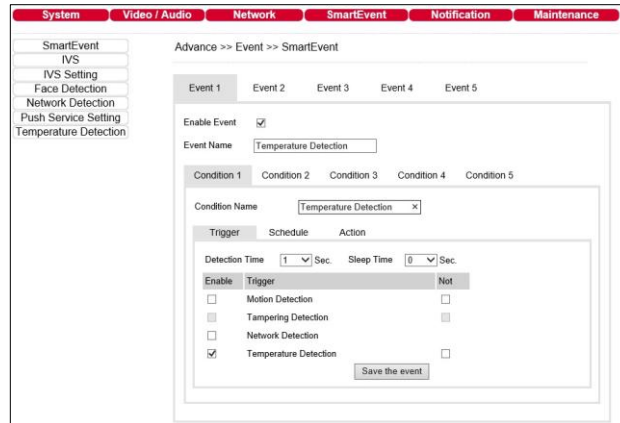


3.0 SmartEvent

SmartEvent is a programmable event management system. A user is able to program triggers, scheduling, and action. If a condition is set to trigger by 2 or more detections simultaneously via AND logic, user may set up independent schedule and trigger an output.

To use SmartEvent, follow below steps:

- Click on “Enable Event” and enter an Event Name
- Click a “Condition” and enter a Condition Name
- Enter Detection Time: Alarm Detection Time
- Enter Sleep Time: Inactive Detection Time
- Click on “Not”: Negative Logic
- Click on “Save the event”



3.1 SmartEvent Events and Conditions

A total of five events triggers are available for smart events. If multi-events are required to trigger, enable the event to trigger an alarm output.

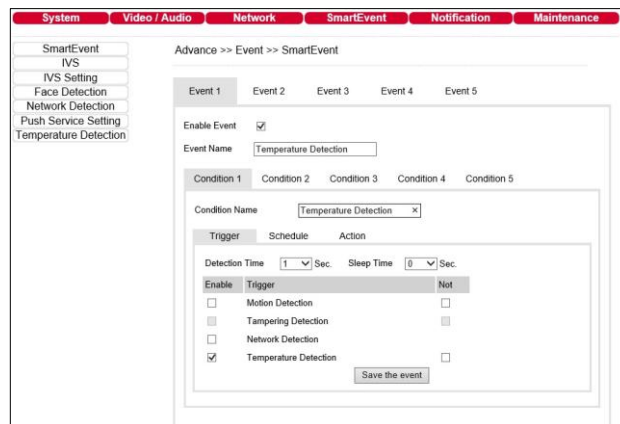
The alarm condition is dependent, and the condition 2 will be entered after the condition 1 is established. Once condition 2 is established, relative condition can be triggered.

Detailed information is in the appendix

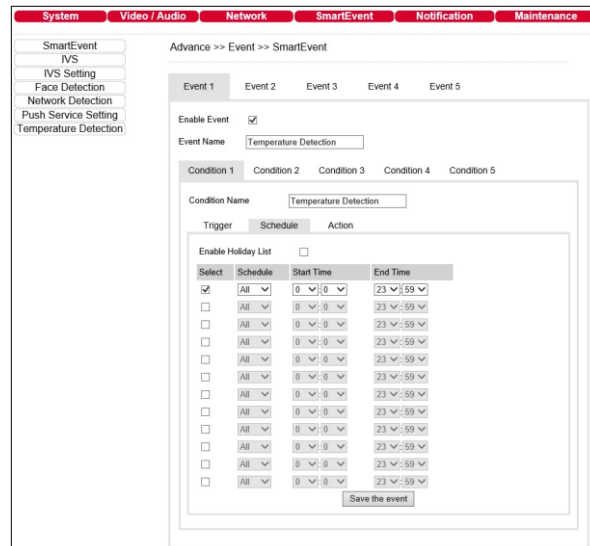
3.2 Temperature Detection Triggering Alarm

After a high temperature is detected, by implementing SmartEvent, it can be programmed to trigger digital output for alarm. To set up, follow the steps below:

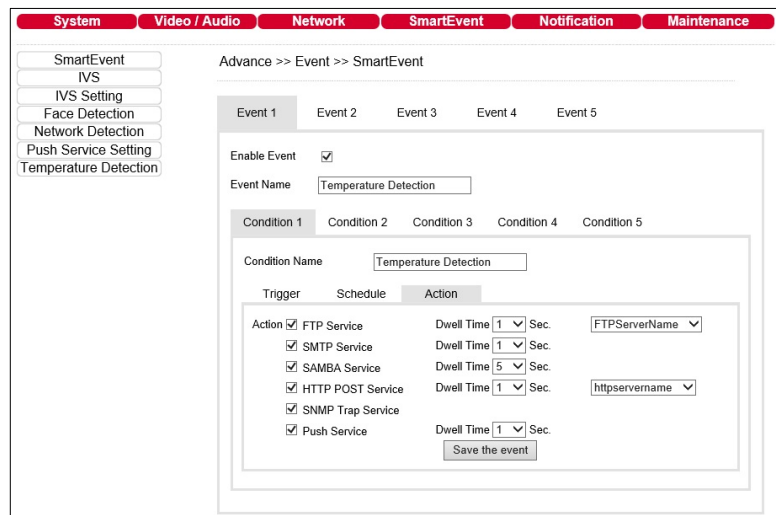
- Click on “Enable Event” and enter an Event Name
- Click on “Condition 1” and enter a Condition Name
- Click on “Temperature Measuring Allowed Detection” under “Trigger”



- Click on “Schedule ” and fill in the schedule table



- Click on "Action" and select "Alarm Output" to trigger DO alarm.
- Click on "Save the event" .



3.3 HTTP Post via IFTTT

For other application integration such as Line, the camera supports HTTP Post for notification purpose. Select the 'Setup' → 'Advance Mode' → 'Notification' → 'HTTP POST Service'. Enter the information below:

HTTP POST Server Name: line
 HTTP POST Server IP/DNS: maker.ifttt.com
 HTTP POST Server Port: 80
 HTTP POST URL: key

For more detail, visit application A00211, How to set up IFTTT with P3T6522E2.

HTTP POST Server Name	line
HTTP POST Server IP/DNS	maker.ifttt.com
HTTP POST Server Port	80
Account	
Password	
HTTP POST URL	/trigger/line_send/with/key/f8KWTb8sxdY
Attachment Format	☐ JPEG ☒ Text
HTTP POST JSON	

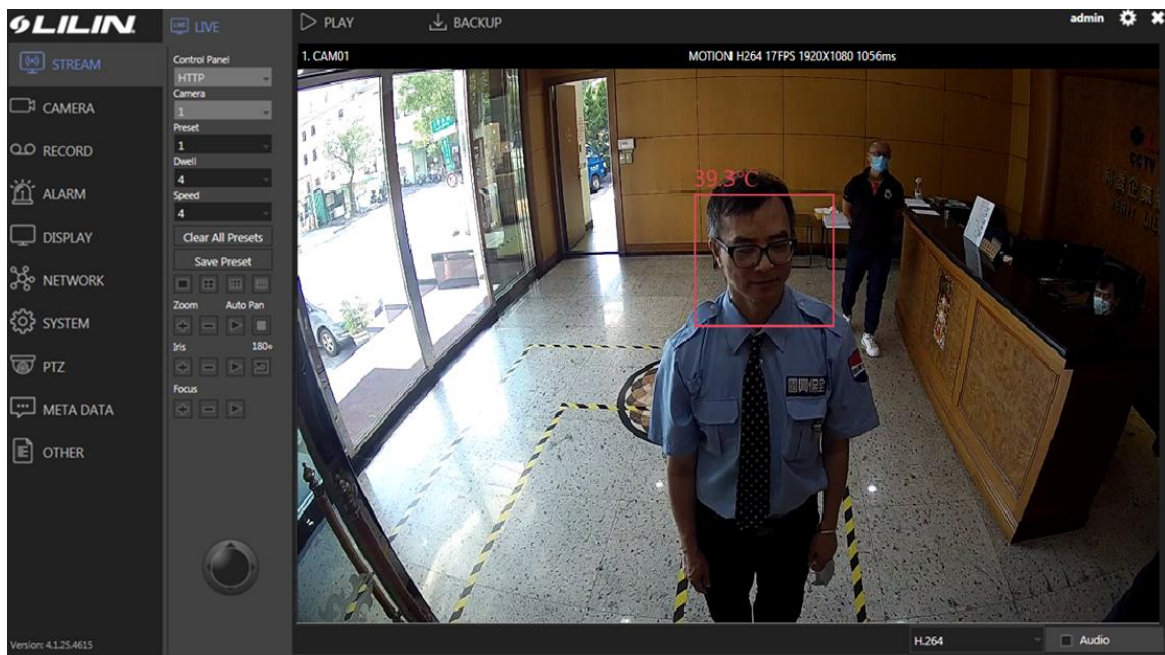
You can customize the message in the tray icon tip.
The message max length is 127 characters including space.
HTTP POST URL & HTTP POST JSON Available symbols:

%CAM_NAME% => IP CAMERA NAME
%mac_addr% => MAC Address
%YYYY% => Year
%MM% => Month
%DD% => Day
%hh% => Hour
%mm% => Minute
%ss% => Sec

HTTP POST URL Example & Message:
/API_EXAMPLE?MAC_Address=%mac_addr%&YEAR=%YYYY%
/API_EXAMPLE?MAC_Address=00:0f:fc:17:17:ac&YEAR=2020
HTTP POST JSON Example & Message:
{MAC_Address:"%mac_addr%",YEAR="%YYYY%"}
{MAC_Address:"00:0f:fc:17:17:ac",YEAR="2020"}

4.0 Temperature Measuring Camera with NVR, NVR51T4E

To measure the temperature of a person or the environment, NVR51T4E can integrate with the temperature measuring camera for alarm notification and automation. The advantages include:



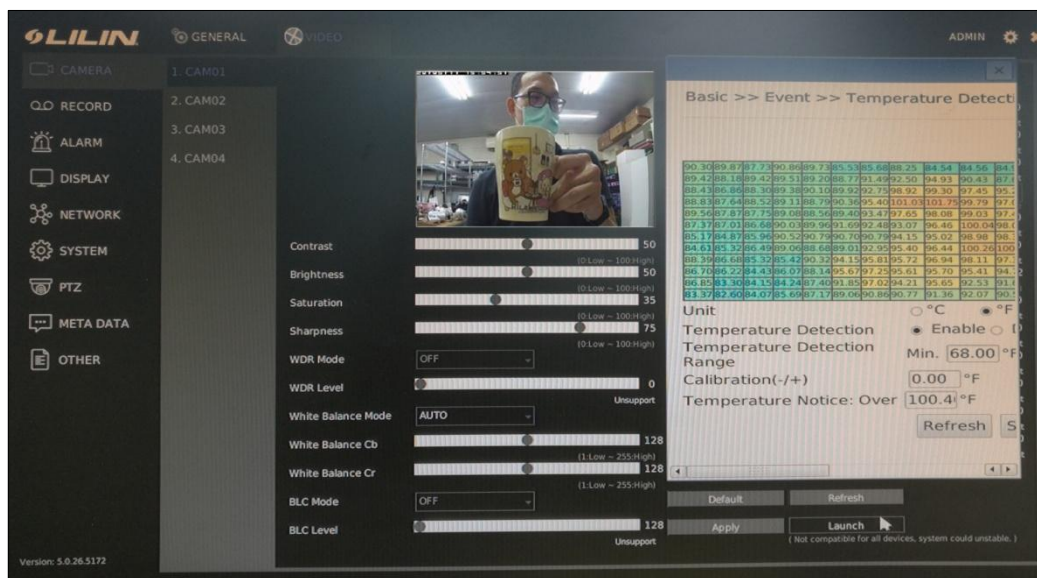
- The NVR51T4E supports PoE, simply connect the camera and use immediately.
- Supports the temperature measuring camera settings page, users can set the related parameters on the host device directly.
- Real-time and playback supports display the measured temperature.
- The NVR can support alarm snapshots reaching the temperature threshold.
- Video playback and event search for high temperature people.
- Small and compact design.



4.1 Configure Temperature Measuring Camera with NVR51T4E

4.1.1 P3T6522E2/P3T6522E2-F Temperature Measuring Setting

Please select 'Camera' → 'Camera Channel' → 'Launch', and refer to chapter 2.3 Temperature Measuring Configuration for the related settings.



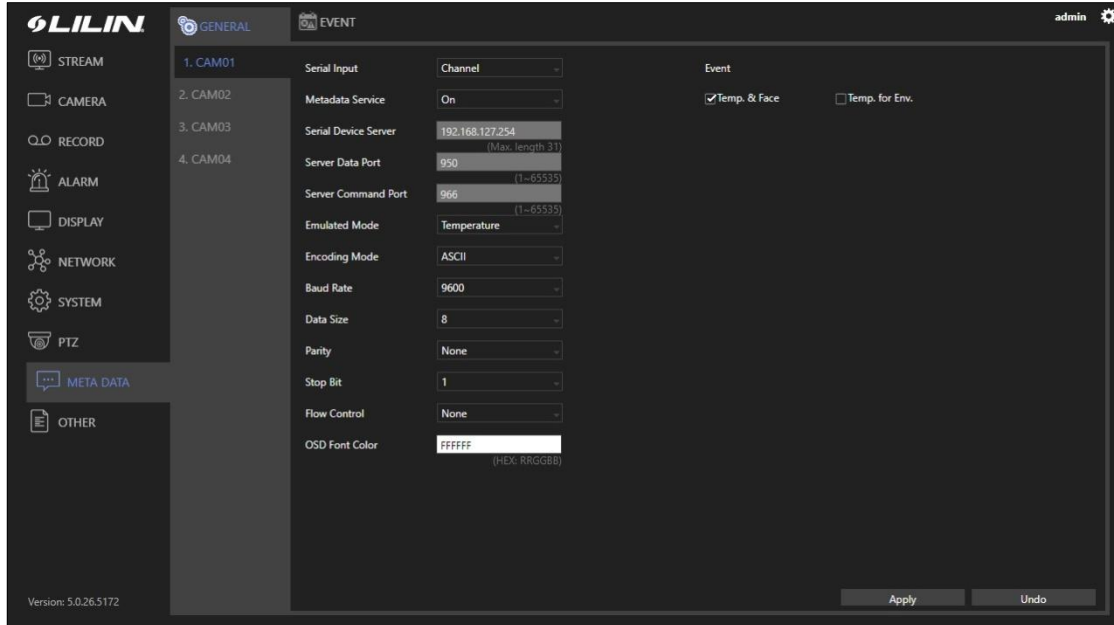
Note: The 'Temperature Measuring Setting' is only available for P3T6522E2 and PT6522E2-F models. This setting can only be set up on local device.

4.1.2 Activate META DATA

Please select 'META DATA' → 'CAMX' and follow the settings below:

Serial Input: Channel
 METADATA Service: On
 Emulated Mode: Temperature
 Event: Tick on Temp. & Face or Temp. for Env.

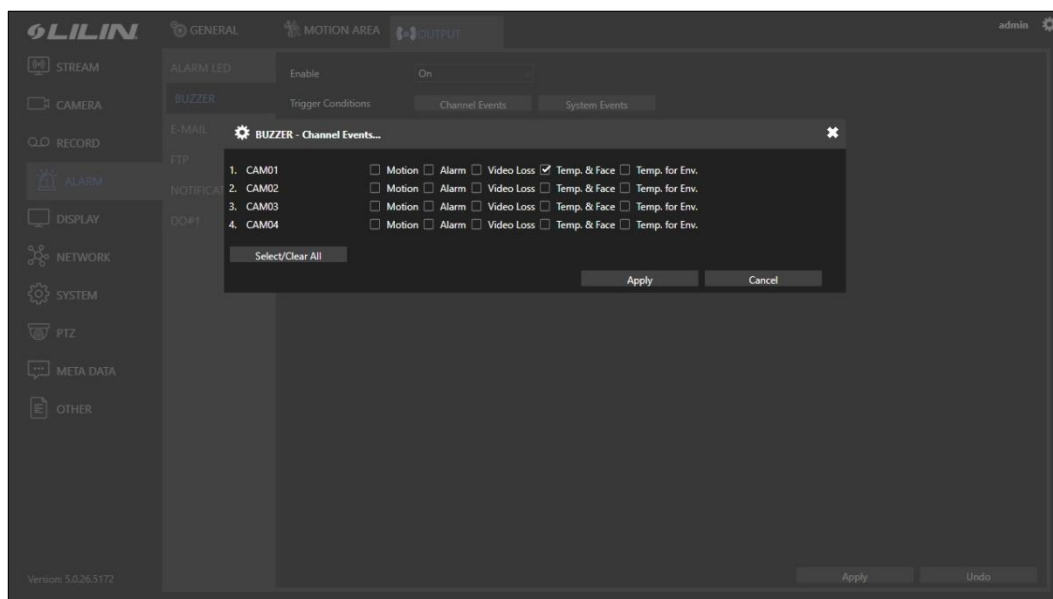
Note: 'Temp. & Face' for 'P3T6522E2-F', the 'Temp. for Env.' for P3T6522E2-F does not activate face detection or P3T6522E2.



4.1.3 Alarm Output Setting

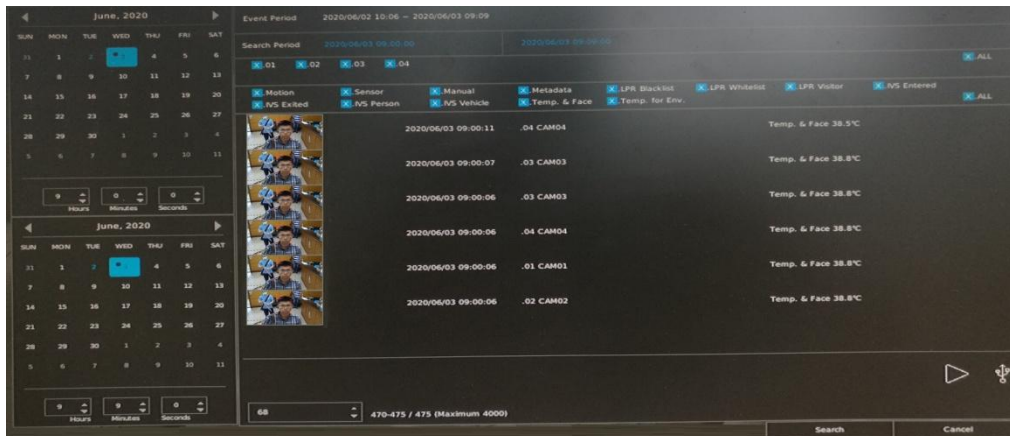
Please select 'Alarm Setting' → 'General', and turn the 'Motion Detection' to On.

Select 'Alarm' → 'Output', and select the desired output, 'BUZZER' as an example, click on the 'Trigger Events' and tick on 'Temp. & Face' or 'Temp. for Env.'.

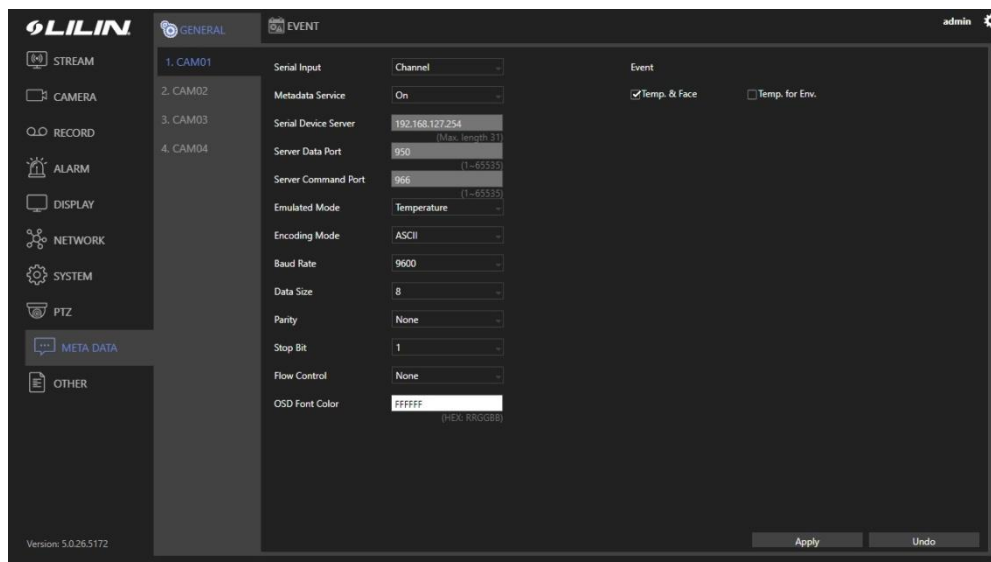


After completing the above settings, the detected temperature is can be viewed on the live/playback video. And when a temperature alarm event occurs, it will trigger the relevant alarm output.

The user may also search from local device for the temperature alarm event. Please click on Alarm Event button on the local device and search for Temperature Alarm Event. Then, click the snapshot for event playback.



Or through the remote connection, please click on 'META DATA'→'Event' and search for temperature alarm events.



5.0 Temperature Measuring Camera with Navigator AI Mask Detection

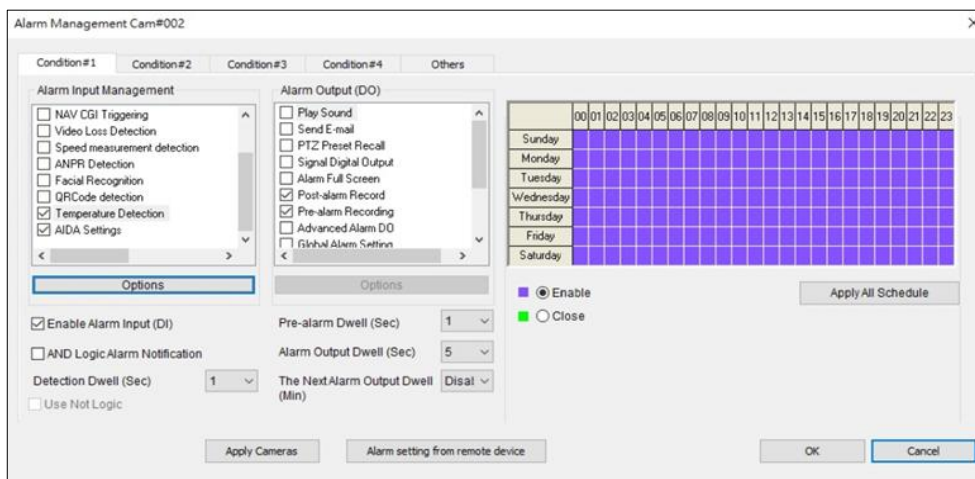
To detect mask wearing behavior and to measure the temperature of a person, Navigator AI mask detection can integrate with the temperature measuring camera for alarm notification and automation. The advantages include

- NAV live video and temperature measurement integrate with AI mask detections.
- Avoid false alarm for people bringing a coffee.
- The NAV recorder can support alarm snapshots reaching the temperature threshold.
- Play pre-record warning message or trigger digital output for automation.
- Video playback and event search for high temperature people.
- Small and compact design for attaching on the back of a monitor.



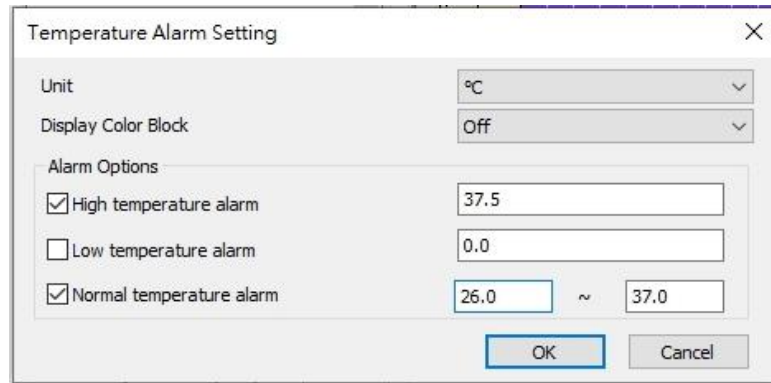
5.1 Configure Temperature Measuring Camera with Navigator AI Mask Detection

Click on Camera Properties button and set up the Alarm. Select Temperature Detection and AIDA Setting for the settings.



5.1.1 Temperature Detection Setting

Select 'Temperature Detection'→ 'Options', and fill the following fields.



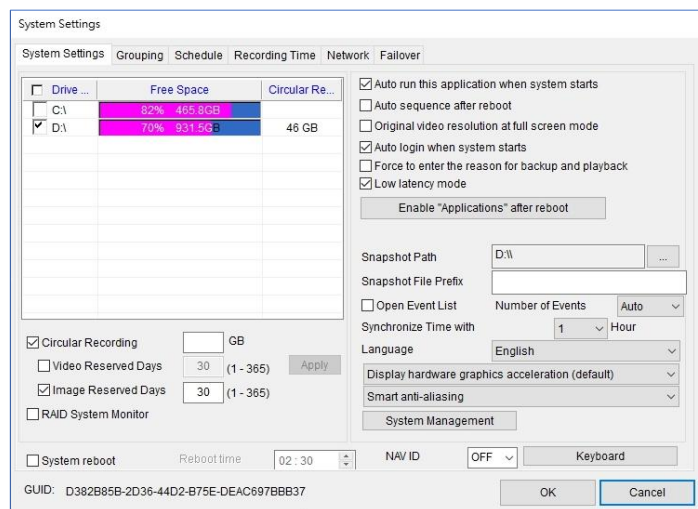
The 'Temperature Alarm Setting' dialog box contains the following fields:

- Unit:** A dropdown menu set to '°C'.
- Display Color Block:** A dropdown menu set to 'Off'.
- Alarm Options:**
 - ☒ **High temperature alarm:** A text input field with the value '37.5'.
 - ☐ **Low temperature alarm:** A text input field with the value '0.0'.
 - ☒ **Normal temperature alarm:** Two text input fields with values '26.0' and '37.0', separated by a tilde '~'.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

- **Unit:** °C and °F
- **Display Color Blocks:** The color temperature blocks displayed on the live video. Off: display area exceeding the threshold value. On: display the numbers mode.
- **High temperature alarm:** When a temperature is higher than the set value is detected, the temperature will be displayed. Then, it will record the event and trigger the alarm output.
- **Low temperature alarm:** When a temperature is lower than the set value is detected, the temperature will be displayed. It will record the event and trigger the alarm output.
- **Normal temperature alarm:** When a temperature between the set value is detected, the temperature will be displayed. It will record the event and trigger the alarm output.

5.1.2 Open Event List Setting

Please click on  'System Settings' and tick on 'Open Event List'



The 'System Settings' dialog box has multiple tabs: 'System Settings', 'Grouping', 'Schedule', 'Recording Time', 'Network', and 'Failover'. The 'System Settings' tab is active.

Left Panel (Drive Information):

Drive	Free Space	Circular Re...
C:\	82% 465.8GB	
D:\	70% 931.5GB	46 GB

Right Panel (System Configuration):

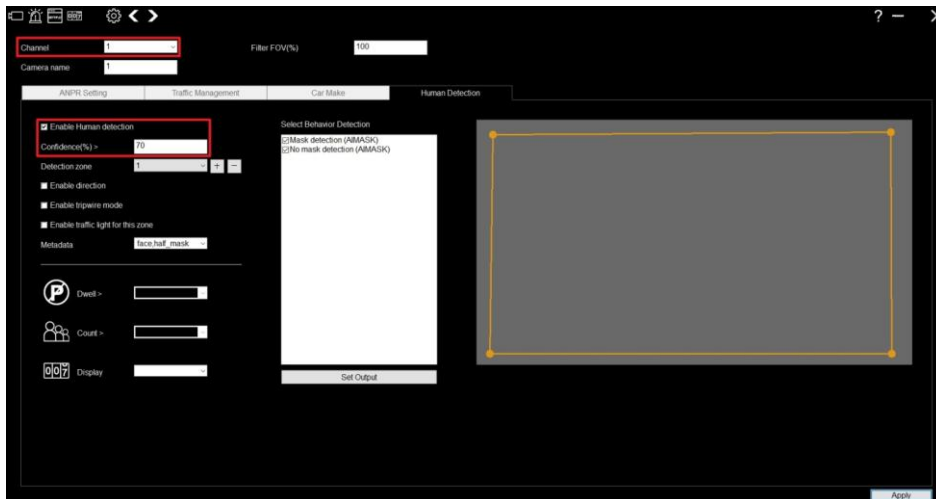
- ☒ Auto run this application when system starts
- ☐ Auto sequence after reboot
- ☐ Original video resolution at full screen mode
- ☒ Auto login when system starts
- ☐ Force to enter the reason for backup and playback
- ☒ Low latency mode
- Enable "Applications" after reboot
- Snapshot Path: D:\
- Snapshot File Prefix:
- ☐ Open Event List
- Number of Events: 1
- Synchronize Time with: Hour
- Language: English
- Display hardware graphics acceleration (default)
- Smart anti-aliasing
- System Management
- System reboot: ☐ Reboot time: 02:30
- NAV ID: OFF
- Keyboard:

GUID: D382B85B-2D36-44D2-B75E-DEAC697BBB37

Buttons: 'OK' and 'Cancel' at the bottom right.

5.1.3 Human Detection Setting

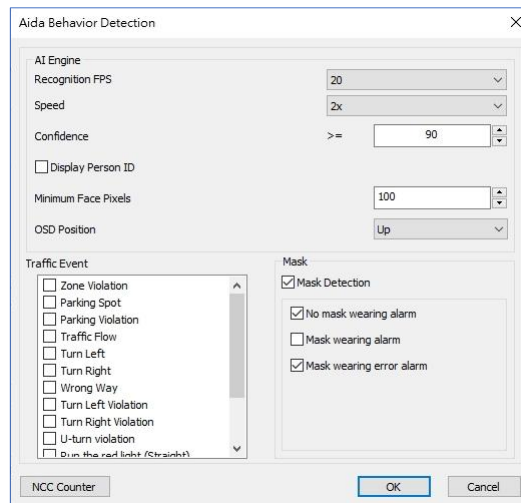
1. After launching AI Engine, click on “Alarm Setting”→ “Human Detection” and fill the following fields.



- Channel: Select the NAV channel corresponding to the camera channel location with mask detection (Channel 1~16).
- Enable Human detection: Enable or disable human detection function.
- Confidence(%)>: Higher value means higher level of accuracy but more stringent judgment

Note: Must purchase ‘Human’ license for AI Engine.

2. Please select ‘Aida Behavior Detection’→’Options’ and refer to below settings.



- Mask Detection: Enable or disable mask detection function.
- No mask wearing alarm: When unmasked person is detected, ‘Mask: NO’ will be displayed. Then, it will record the event and trigger the alarm output.
- Mask wearing alarm: When a masked person is detected, ‘Mask: OK’ will be displayed. Then, it will record the event and trigger the alarm output.
- Mask wearing error alarm: When an error in wearing a mask is detected, "Mask: NG" will be displayed. Then, it will record the event and trigger the alarm output.

5.2 Temperature and Mask Event Search

5.2.1 Live Video Event List

After the event list function is enabled, a real-time temperature and mask event list will be displayed on the bottom screen.



- **Temperature:** The measured temperature.
- **No:** NO (No mask wearing) and NG (Mask wearing error).
- **02:42:40:** The time temperature was measured.
- **#000 Main Entrance:** The channel and camera name.

Note: Maximum number of displays is 20 events.

5.2.2 Database Manager Search

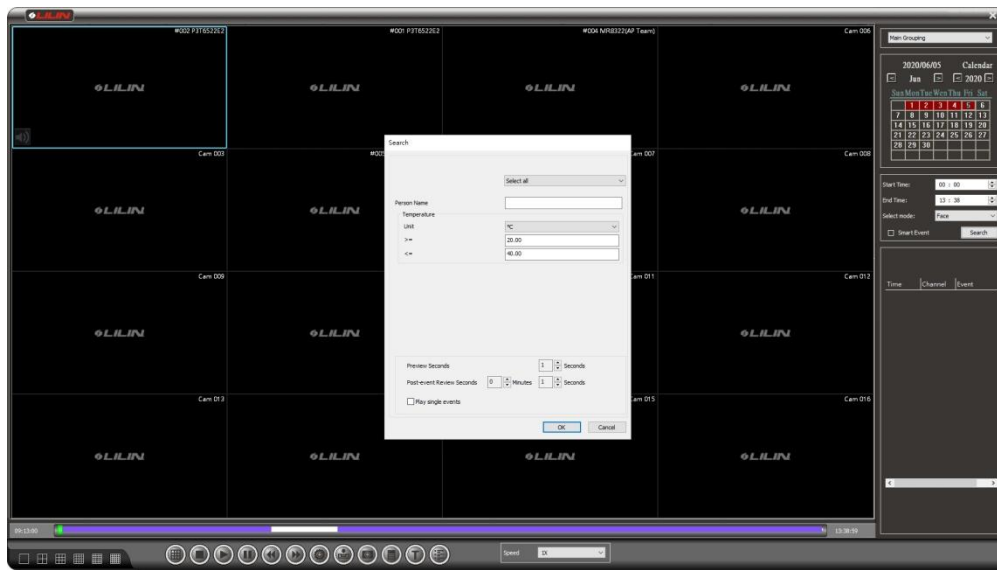
Click on  'Applications' →  "Database Manager" →  'Face Detection Report', click on the event and right-mouse click, the related event will be playback.

#	Date/Time	Device Name	Person Name	Group Name
1	2020/06/05 11:28:51	Cam 003	Mask OK	
2	2020/06/05 11:28:51	Cam 003	Temp: 38.47°C, Mask: OK	
3	2020/06/05 11:28:23	Cam 003	Temp: 38.44°C, Mask: OK	
4	2020/06/05 11:28:21	Cam 003	Mask: OK	
5	2020/06/05 11:28:20	Cam 003	Temp: 40.0°C, Mask: OK	
6	2020/06/05 11:27:32	Cam 003	Temp: 40.0°C	
7	2020/06/05 11:25:32	Cam 003	Temp: 40.0°C	
8	2020/06/05 11:24:19	Cam 003	Temp: 40.0°C	
9	2020/06/05 11:24:19	Cam 003	Temp: 40.0°C, Mask: OK	
10	2020/06/05 11:23:14	Cam 003	Temp: 38.83°C, Mask: OK	
11	2020/06/05 11:23:14	Cam 003	Temp: 38.83°C, Mask: OK	
12	2020/06/05 11:23:13	Cam 003	Mask: OK	
13	2020/06/05 11:22:13	Cam 003	Mask: OK	
14	2020/06/05 11:22:25	Cam 003	Temp: 38.60°C, Mask: OK	
15	2020/06/05 11:22:25	Cam 003	Temp: 38.60°C, Mask: OK	
16	2020/06/05 11:22:24	Cam 003	Mask: OK	
17	2020/06/05 11:22:24	Cam 003	Mask: OK	
18	2020/06/05 11:22:16	Cam 003	Temp: 38.72°C, Mask: OK	
19	2020/06/05 11:22:16	Cam 003	Temp: 38.72°C, Mask: OK	
20	2020/06/05 11:22:16	Cam 003	Mask: OK	
21	2020/06/05 11:22:16	Cam 003	Mask: OK	
22	2020/06/05 11:22:15	Cam 003	Temp: 38.46°C, Mask: OK	
23	2020/06/05 11:22:15	Cam 003	Temp: 38.46°C, Mask: OK	
24	2020/06/05 11:22:19	Cam 003	Mask: OK	
25	2020/06/05 11:22:12	Cam 003	Mask: OK	
26	2020/06/05 11:22:10	Cam 003	Temp: 38.26°C, Mask: OK	
27	2020/06/05 11:22:08	Cam 003	Mask: OK	
28	2020/06/05 11:22:04	Cam 003	Mask: OK	
29	2020/06/05 11:22:03	Cam 003	Temp: 39.36°C, Mask: OK	
30	2020/06/05 11:22:03	Cam 003	Mask: OK	
31	2020/06/05 11:22:03	Cam 003	Temp: 39.36°C, Mask: OK	
32	2020/06/05 11:22:03	Cam 003	Mask: OK	
33	2020/06/05 11:22:00	Cam 003	Mask: OK	
34	2020/06/05 11:22:00	Cam 003	Temp: 38.29°C, Mask: OK	
35	2020/06/05 11:21:59	Cam 003	Temp: 38.84°C, Mask: OK	
36	2020/06/05 11:21:58	Cam 003	Mask: OK	
37	2020/06/05 11:21:58	Cam 003	Temp: 38.15°C, Mask: OK	
38	2020/06/05 11:21:57	Cam 003	Mask: OK	
39	2020/06/05 11:21:55	Cam 003	Mask: OK	
40	2020/06/05 11:21:54	Cam 003	Mask: OK	
41	2020/06/05 11:21:54	Cam 003	Temp: 39.21°C, Mask: OK	
42	2020/06/05 11:21:54	Cam 003	Temp: 39.21°C, Mask: OK	
43	2020/06/05 11:21:53	Cam 003	Mask: OK	

Note: For environment temperature event, please click on  'Event Report'.

5.2.3 Playback Event Search

Please click on  'Playback', then select 'Face' in 'Select Mode' drop-down list and specify the temperature range condition for an event search'.



Note : For environment temperature event, please select 'Alarm' in the 'select mode' drop-down list, tick on 'Search for specific events' and check 'Temperature too high', 'Temperature too low' or 'Normal temperature'.

