

# VK2



## **VK2-4KX30IR-PM**

*Please read this guide thoroughly before use and keep it handy for future reference.*

## Before You Begin

Read these instructions before installing or operating this product.

**Note:** This installation should be made by a qualified service person and should conform to local codes. This manual provides installation and operation information. To use this document, you must have the following minimum qualifications:

- A basic knowledge of CCTV systems and components
- A basic knowledge of electrical wiring, low-voltage electrical connections and IP networking/infrastructure

## Intended use

Only use this product for its designated purpose; refer to the product specification and user documentation. Using the camera in continuous motion applications e.g. Auto Scan, Tour, or Pattern functions with Auto Focus (Auto (AF) will reduce the warranty to 6 months. Refer to the Warranty section in the main manual.

## Customer Support

For assistance in installing, operating, maintaining and troubleshooting this product refer to this document and any other documentation provided. If you still have questions, please contact Norbain Technical Support and Sales:

**Norbain SD, Inspired, Easthampstead Road, Bracknell, RG12 1YQ.**

**UK +44 (0) 118 912 5000 / Vista Technical Support +44 (0) 118 912 5125**

**Note:** You should be at the equipment and ready with details before calling Technical Support.

## Conventions Used in this Manual

**Boldface** or button icons highlight command entries. The following **WARNING**, **CAUTION** and **Note** statements identify potential hazards that can occur if the equipment is not handled properly:



**\* WARNING:**

Improper use of this equipment can cause severe bodily injury or equipment damage.

---



**\* CAUTION:**

Improper use of this equipment can cause equipment damage.

---

**Note:** Notes contain important information about a product or procedure.



This apparatus is manufactured to comply with the radio interference.

A Declaration of Conformity in accordance with the following EU standards has been made. The manufacturer declares that the product supplied with this document is compliant the provisions of the EMC Directive 2004/108/EC, the CE Marking Directive 93/68 EEC and all associated amendments.

**RoHS  
COMPLIANT**

All lead-free products offered by the company comply with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive: 2011/65/EU, which means our manufacture processes and products are strictly "lead-free" and without the hazardous substances cited in the directive.



The crossed-out wheeled bin mark symbolizes that within the European Union the product must be collected separately at the product end-of-life. This applies to your product and any peripherals marked with this symbol. Do not dispose of these products as unsorted municipal waste.

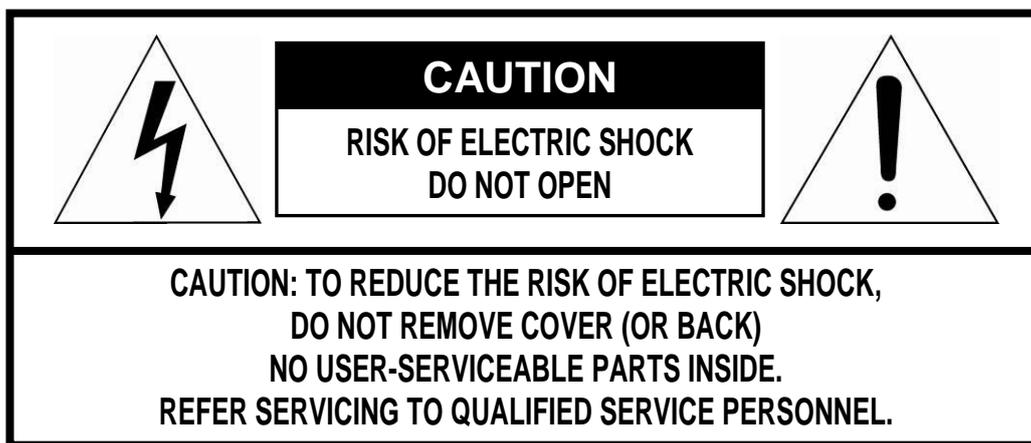
\* This symbol indicates electrical warnings and cautions.

\*\* This symbol indicates general warnings and cautions.

NORBAIN SD reserves the right to make changes to the product and specification of the product from time to time without prior notice.

## WARNINGS AND CAUTIONS:

To reduce the risk of fire or electric shock, do not insert any metallic objects through the ventilation grills or other openings on the equipment.



## IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Clean only with dry cloth.
6. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use attachments/accessories specified by the manufacturer.
11. Unplug this apparatus during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. **CAUTION – THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.**
14. **Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.**
15. ITE is to be connected only to PoE networks without routing to the outside plant.

## CE COMPLIANCE STATEMENT

### WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.  
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

# 1 Introduction

The VK2-4KX30IR-PM is a 4K 30:1 optical PTZ pendant mount camera, which utilises a highly sensitive 1/1.7" Sony Starvis CMOS chipset to produce stunning quality colour images even in extremely low light situations. For instances where there is no ambient lighting, the VK2-4KX30IR-PM includes integral IR illumination, which tracks with the zoom function of the camera to provide optimum illumination over the zoom range for balanced images at distances of up to 300m. With H.265, H.264 and MJPEG encoding formats.

## 1.1 Components

This camera comes with the following components;

* Dome Camera .....	1
* Installation Guide/CD .....	1
* 2P screw type Connector .....	1
* 5P screw type Connector .....	1
* PoE Injector (mains powered).....	1
* RJ-45 Waterproof Cover .....	1
* Install Adaptor .....	1

## 1.2 Key Features

- **Excellent low light performance**

Utilizing a 1/1.7" Sony Starvis CMOS sensor, the VK2-4KX30IR-PM provides excellent colour images in low light applications and well balanced monochrome images in conjunction with the tracking IR illumination.

- **Built-in Synchronized (tracking) IR LED & Fixed IR LED for upto 300m coverage**

The camera is equipped with two built-in IR LEDs, fixed one for wide view and zoom synchronized adjustable one (tracks with camera zoom) for distant views.

- **HD video**

The network camera offers the highly efficient H.265 video compression, which drastically reduces bandwidth and storage requirements without compromising image quality. Motion JPEG is also supported for increased flexibility.

- **Quad Streams**

The network camera can deliver quad video streams simultaneously at full frame rate in all resolutions up to 4K using H.265, H.264 and Motion JPEG. This means that several video streams can be configured with different compression formats, resolutions and frame rates for different needs.

- **Image setting adjustment**

The network camera also enables users to adjust image settings such as contrast, brightness and saturation to improve images before encoding takes place.

- **Intelligent video capabilities**

The network camera includes intelligent capabilities such as VCA (Video Content Analysis). The network camera's external inputs and outputs can be connected to devices such as sensors and relays, enabling the system to react to alarms and activate lights or open/close doors.

- **Improved Security**

The network camera logs all user access, and lists currently connected users. Also, its full frame rate video can be provided over HTTPS.

- **PoE (Power over Ethernet)**

This network camera can be PoE, which simplifies installation since only one cable is needed for carrying power, as well as video controls – note that the provided PoE injector forms part of the maximum network distance between the switch and the camera (90m) and does not extend the distance between the two.

- **ONVIF Certificate**

This is a global interface standard that makes it easier for end users, integrators, consultants, and manufacturers to take advantage of the possibilities offered by network video technology. ONVIF enables interoperability between different vendor products, increased flexibility, reduced cost, and future-proof systems.

- **Micro-SD Recording support**

The network camera also supports a Micro-SD memory slot for local recording with removable storage.

- **Audio support**

The network camera also supports two-way audio.

## 2 Installation

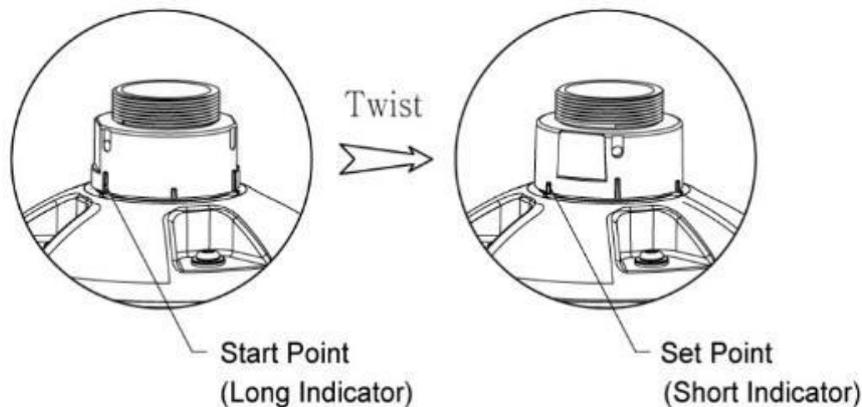
### 2.1 Mounting the Camera

This camera is not supplied with any bracketry, we have a wide range of wall, ceiling, soffit and tower bracketry/mounting options, so please refer to the Vista Solution guide or speak to us for assistance if you are unsure.

**NOTE: Before powering up the camera, remove the bubble and remove any transit tape from the tilt casing. Failure to do so could damage the motors and is not covered by the warranty**

Any fixings provided in the accessory kit, may not be suitable for all mounting applications and as such, it is the installer's responsibility to use alternative fixings suitable for the application. Any wall or ceiling/soffit bracket or mount must be attached to a suitable structural object suitable to support the combined weight of the camera and bracketry (The use of a solid backboard is recommended when attaching to gypsum walls).

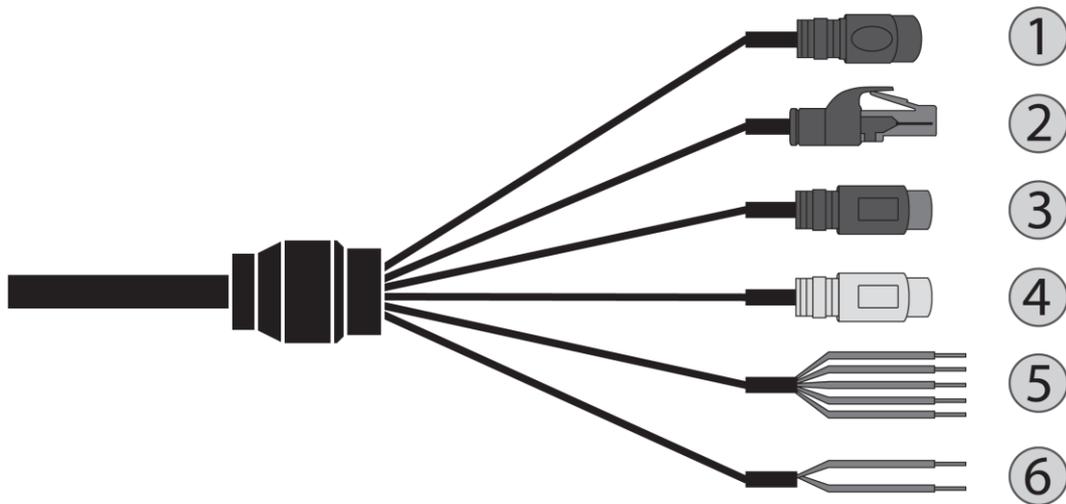
The PM camera comes with a 1.5"NPT install adaptor, which fits to the bracketry being used – you will need to wind Teflon / PTFE tape around the thread before fitting to bracketry. It is recommended to also place a silicone bead around this thread once fitted. The PM camera has a ¼ turn "bayonet" type for fitting to the install adaptor – this makes for easier installation and servicing, along with reducing unnecessary twisting of the cabling which could lead to premature failure.



Once the connections are made and the camera is fitted, the locking screw on the install adaptor must be tightened to secure the camera in place and it is recommended that any security cable or lanyard provided is used.

**NOTE: When the camera is being used in applications colder than -10°C, please reset (power recycle) the camera after 30 ~ 60 minutes.**

## 2.2 Basic Configuration of Camera System



No.	Connector	Wire Color	Description
1	Power jack	BLACK	Camera Power
2	RJ-45	BLACK	Ethernet, RJ-45 port compatible with 10/100Mbps
3	RCA jack	BLACK	Audio Input
4	RCA jack	GRAY	Audio Output
5	5-pin cable	YELLOW	Alarm Input 1
		WHITE	Alarm Input 2
		VIOLET	Alarm Input 3
		BROWN	Alarm Input 4
		GRAY	GND
6	2-pin cable	RED	Alarm Output
		BLACK	GND

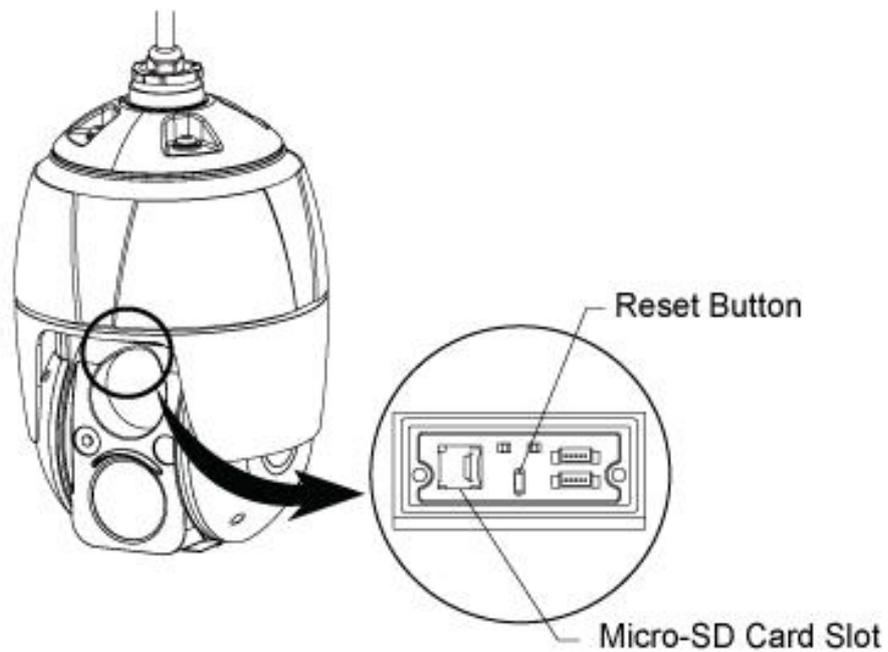
The camera must be installed by qualified service personnel in accordance with all local and federal electrical and building codes.

## 2.3 Micro-SD Card Insertion

User can install and change Micro-SD card as shown in the following picture.

1. Open the Micro-SD card cover.
2. Install or change Micro-SD card.
3. Replace the Micro-SD card cover plate, taking care that it is seated and fitted correctly.

**NOTE: The Micro-SD card cover is a primary seal, so failure to fit or refit it correctly will remove the IP66 protection and damage will occur to the camera not covered by the warranty.**



## 2.4 Connections

- **Connecting the Network**

Connect a standard RJ-45 cable to the network port of the camera. Generally a crossover cable is used for directly connection to PC, while a direct cable is used for connection to a hub.

- **Connecting Audio**

Connect speaker to audio output line and external mic to audio input line.

- **Connecting Alarms**

- **A1, A2, A3, A4 (Alarm Input 1, 2, 3, 4)**

You can use external devices to signal the camera to react on events. Mechanical or electrical switches can be wired to the A1, A2, A3, A4 (Alarm Input 1, 2, 3, 4) and G (Ground) connectors.

- **G (Ground)**

**NOTE: All the connectors marked G or GND are common.**

Connect the ground side of the alarm input and/or alarm output to the G (Ground) connector.

- **AO (Alarm Output)**

The camera can activate external devices such as buzzers or lights. Connect the device to the AO (Alarm Output) and G (Ground) connectors.

- **Connecting the Power**

Connect power of 12VDC for the camera.

When using a 12VDC adapter, connect the positive (+) pole to the '+' position and the negative (-) pole to the '-' position.

Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.

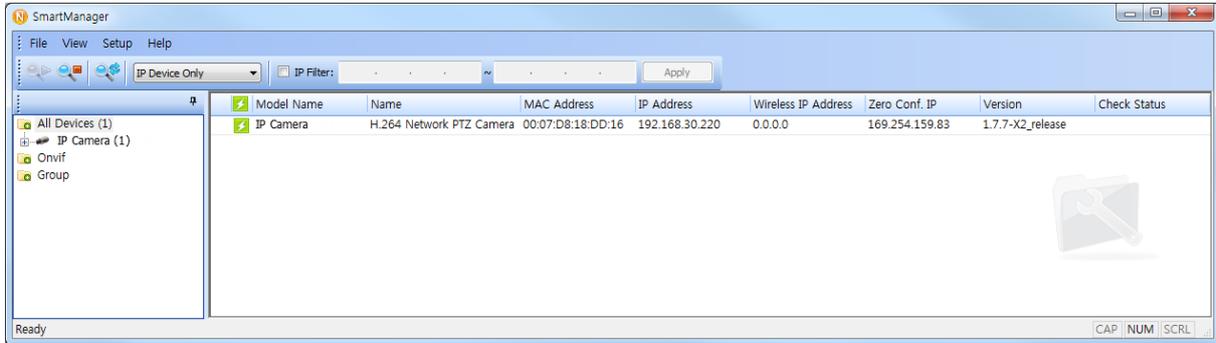
- Be careful not to reverse the polarity when you connect the power cable.

- If you use PoE to supply power to the camera, this must be from a PoE+ switch or use the mains powered PoE injector provided with the camera. Note that this is an injector, not a midspan – so standard network distances apply (90m).

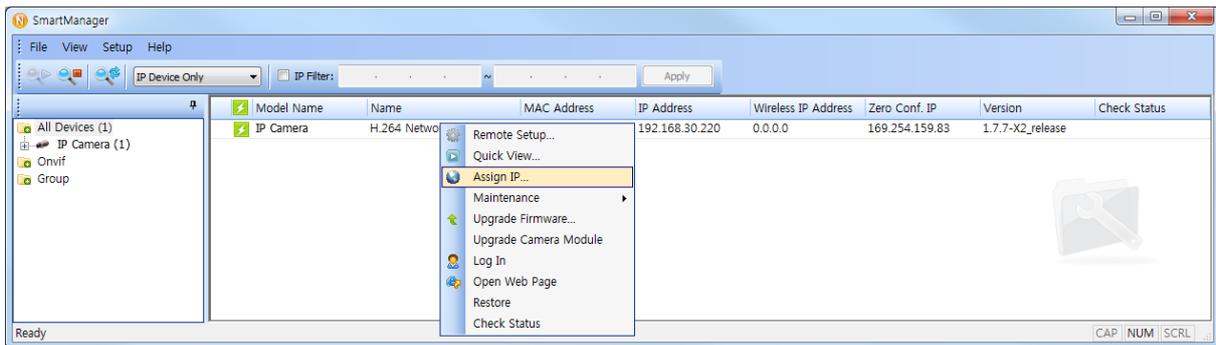
## 2.4.1 Network Connection & IP Assignment

The camera supports the operation through the network. When a camera is first connected to the network, it is necessary to allocate an IP address to the device with the SmartManager utility on the CD. (Default IP 192.168.30.220)

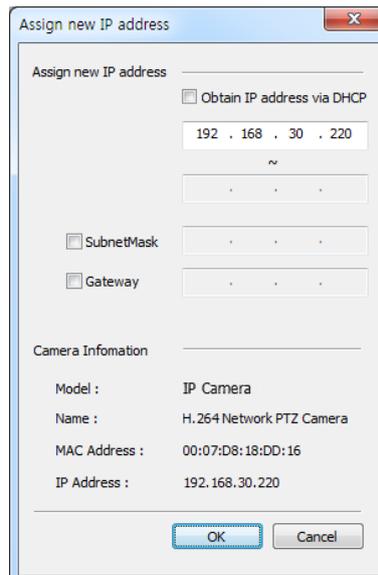
- 1) Connect the network camera/device to the network and power up.
- 2) Start SmartManager utility (Start > All programs > SmartManager > SmartManager). The main window will display, and after a short while any network devices connected to the network will be displayed in the list.



- 3) Select the camera on the list and click right button of the mouse. You can see the pop-up menu as below.



- 4) Select Assign IP Address. The Assign IP window will display. Enter the required IP address.



**NOTE:** For more information, refer to the SmartManager User's Manual.

### 3 Operation

The network camera can be used with Windows operating system and browsers. The recommended browsers are Internet Explorer, Safari, Firefox, Opera and Google Chrome with Windows.

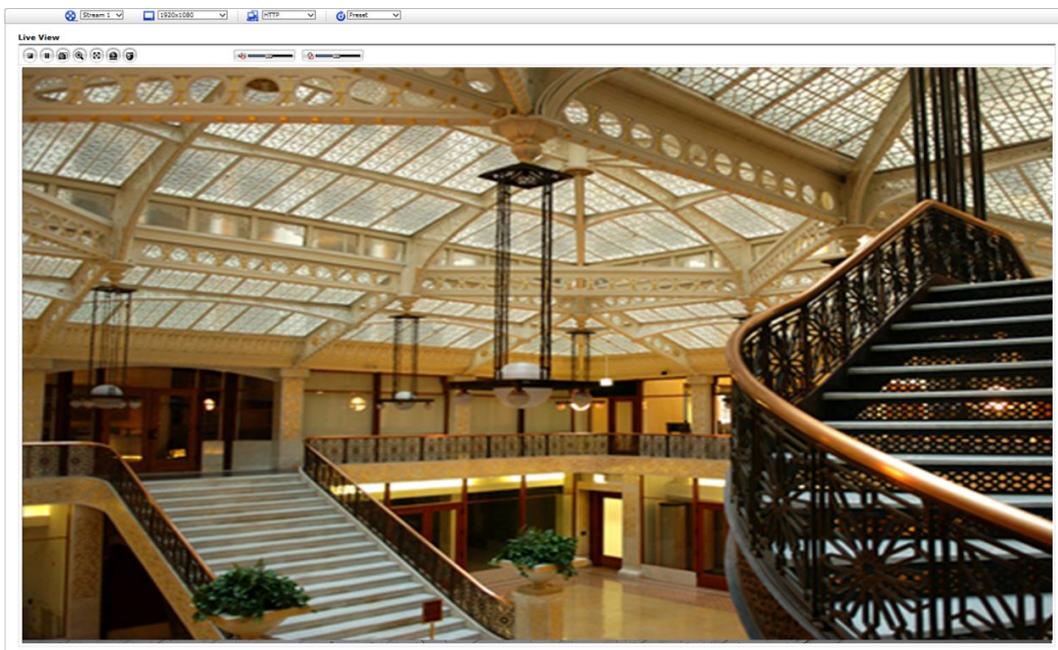
**NOTE:** To view streaming video in Microsoft Internet Explorer, set your browser to allow ActiveX controls.

#### 3.1 Access from a browser

1. Start a browser (Internet Explorer).
2. Enter the IP address or host name of the network camera in the Location/Address field of your browser.
3. You can see a starting page. Click **Live View**, **Playback**, or **Setup** to enter web page.



4. The network cameras Live View page appears in your browser.



### 3.2 Access from the internet

Once connected, the network camera is accessible on your local network (LAN). To access the network camera from the Internet you must configure your broadband router to allow incoming data traffic to the network camera. To do this, enable the NAT traversal feature, which will attempt to automatically configure the router to allow access to the network camera. This is enabled from Setup > System > Network > NAT. For more information, please see “System > Network > NAT” of User’s Manual.

### 3.3 Setting the admin password over a secure connection

To gain access to the product, the password for the default administrator user must be set. This is done in the Admin Password dialog, which is displayed when the network camera is accessed for the setup at the first time. Enter your admin name and password, set by the administrator.



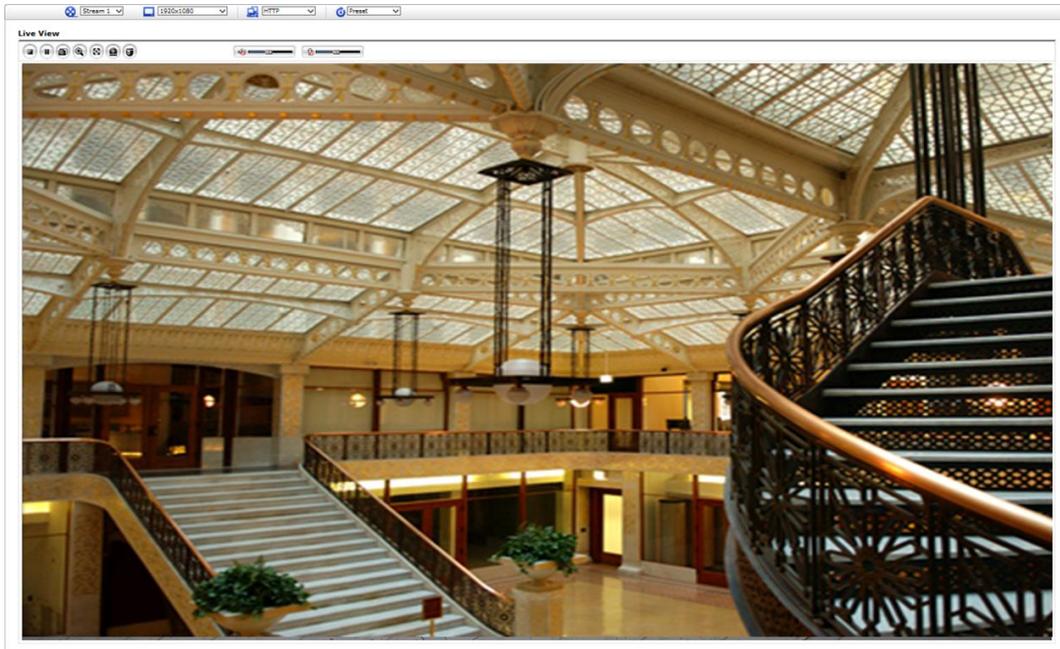
**NOTE:** The default administrator user name and password is admin. If the password is lost, the network camera must be reset to the factory default settings. Please see “Resetting to the factory default settings”.

To prevent network eavesdropping when setting the admin password, this can be done via an encrypted HTTPS connection, which requires an HTTPS certificate (see NOTE below). To set the password via a standard HTTP connection, enter it directly in the first dialog shown above. To set the password via an encrypted HTTPS connection, please see “System > Security > HTTPS” of User’s Manual.

**NOTE:** HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt the traffic between web browsers and servers. The HTTPS certificate controls the encrypted exchange of information.

### 3.4 Live View Page

The Live View page comes in several screen modes: 1920x1080, 1280x1024, 1280x720(960), 1024x768, 704x480(576), 640x480(360) and 320x240. Users are allowed to select the most suitable one out of those modes. Adjust the mode in accordance with your PC specifications and monitoring purposes.



#### 1) General controls



Live View Page



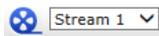
Playback Page



Setup Page



Help Page



The video drop-down list allows you to select a customized or preprogrammed video stream on the Live View page. Stream profiles are configured under Setup > Basic Configuration > Video & Image. For more information, please see “Basic Configuration > Video & Image” of User’s Manual.



The resolution drop-down list allows you to select the most suitable one out of video resolutions to be displayed on Live View page.



The protocol drop-down list allows you to select which combination of protocols and methods to use depending on your viewing requirements, and on the properties of your network.



The preset drop-down list allows you to select the preset number for the PTZ camera being used. This icon is inactivated if the PTZ settings are not set.

## 2) Control toolbar

The live viewer toolbar is available in the web browser page only. It displays the following buttons:

-  The **Stop** button stops the video stream being played. Pressing the key again toggles the play and stop.
-  The **Play** button connects to the network camera or starts playing a video stream.
-  The **Pause** button pauses the video stream being played.
-  The **Snapshot** button takes a snapshot of the current image. The location where the image is saved can be specified.
-  The **Digital Zoom** button activates a zoom-in or zoom-out function for video image on the live screen.
-  The **Full Screen** button causes the video image to fill the entire screen area. No other windows will be visible. Press the 'Esc' button on the computer keyboard to cancel full screen view.
-  The **Manual Trigger** button activates a pop-up window to manually start or stop the event.
-  The **PTZ** button activates a pop-up window for Pan, Tilt and Zoom control.
-  The **VCA** button shows/hides VCA rule setting and detected objects.
-  The **Face Detector** button shows/hides detected faces.
-  The **Speaker** button activates/deactivates external speaker.
-  The **Mic** button activates/deactivates microphone input.
-  Use this scale to control the volume of the speakers and microphones.

**NOTE1:** VCA and Face Detector buttons appear only when each function is activated.

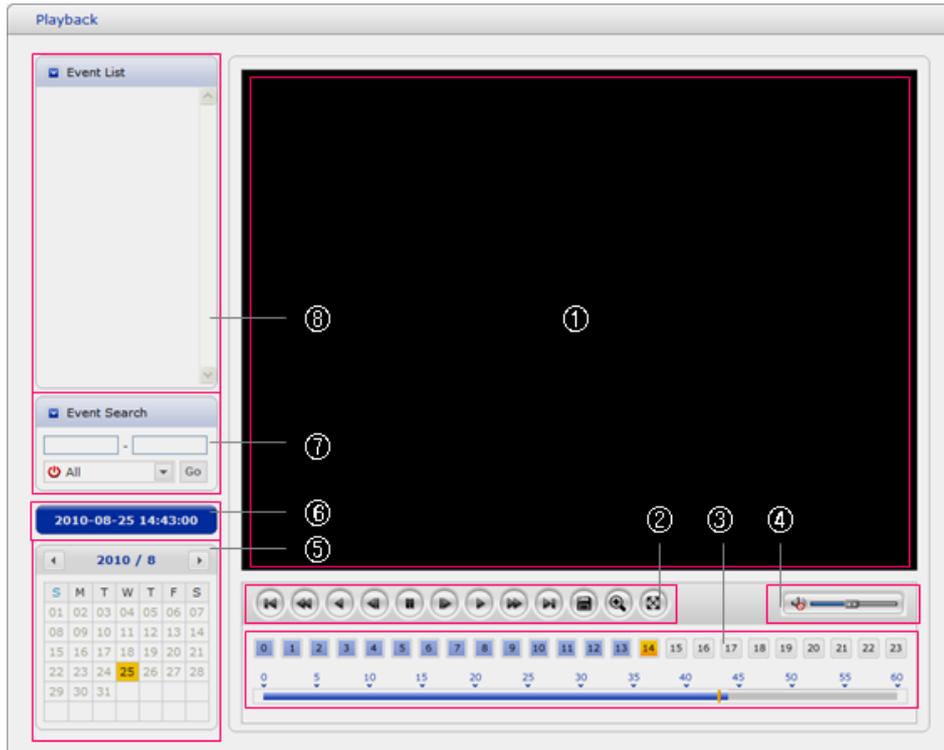
**NOTE2:** VCA and Face Detector works exclusively to each other.

## 3) Video Streams

The network camera provides several images and video stream formats. Your requirements and the properties of your network will determine the type you use.

The Live View page in the network camera provides access to H.264 and Motion JPEG video streams, and to the list of available video streams. Other applications and clients can also access these video streams/images directly, without going via the Live View page.

## 3.5 Playback



The Playback window contains a list of recordings made to the memory card. It shows each recording's start time, length, the event type used to start the recording, calendar and time slice bar indicates if the recording is existed or not.

The description of playback window follows.

### 1) Video Screen

You can see the video screen when playing the video clip in the Micro SD memory.

### 2) Playback Buttons

To view a recording data in the SD local storage, select it from the list and click the Playback buttons.

-  Go to the first: go to the beginning of the video clip.
-  Fast backward play: fast play backward of the video clip.
-  Backward play: play backward of the video clip.
-  Step backward play: go back one frame of the video clip.
-  Pause: pause playback of the video clip.
-  Step forward play: go forward one frame of the video clip.
-  Forward Play: play forward the video clip.
-  Fast forward play: play fast forward of the video clip.
-  Go to the last: go to the end of the video clip.
-  Clip copy: copy the video clip.
-  Zoom In: zoom in the video clip.
-  Full Screen: display full screen of the video.

### 3) Time Chart

Display an hour-based search screen for the chosen date. If there is recording data, a blue section will be displayed on a 24-hour basis. If you select a particular hour in the chart, a yellow square on the hour will be displayed.

### 4) Speaker Control Bar

Use this scale to control the volume of the speakers.

### 5) Search Calendar

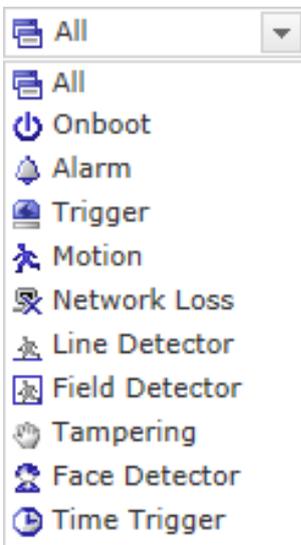
Search results from the SD local storage in the network camera connected are displayed monthly. If there is a recorded data for a particular date, a blue square on the date will be displayed. If you select a particular date in the calendar, a yellow square on the date will be displayed.

### 6) Play Time

Displays time of the video playing.

### 7) Event Search Window

Select a search option in the drop-down list and click GO button. You can also enter the time period for searching. If you click Start Date or End Date zone, displays Search Calendar.



### 8) Event List Window

Event List displays the event(s) that were recorded in the SD local storage. Select a list and click the play button. The video clip will be played.

### 3.6 Network Camera Setup

This section describes how to configure the network camera.

Administrator has unrestricted access to all the Setup tools, whereas Operators have access to the settings of Basic Configuration, which are Live View, Video & Image, Audio, Event, Dome Configuration, and System.

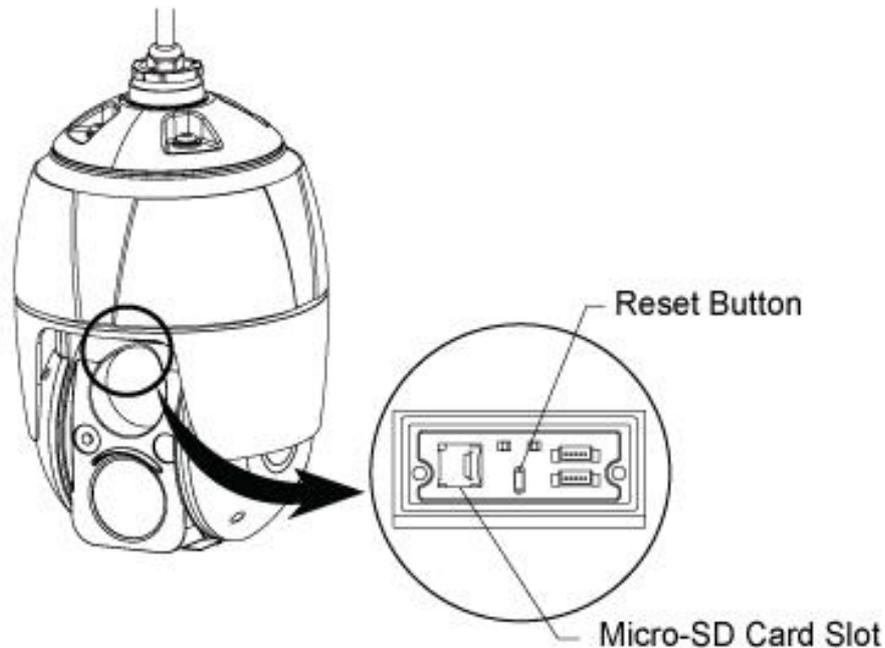
You can configure the network camera by clicking Setup either in the first connection page or the top second-right button of the Live View page. Accessing the network camera from a computer for the first time opens the Admin Password dialog box. Enter your administrator or operator id and password to get into setup page.



**NOTE:** If the password is lost, the network camera must be reset to the factory default settings. Please see "Resetting to the factory default setting".

## Resetting to the factory default settings

To reset the network camera to the original factory settings, go to the Setup > System > Maintenance web page (described in “System > Maintenance” of User’s Manual) or use the **Reset** button on the network camera, as described below:



### • Using the Reset button:

Follow the instructions below to reset the network camera to the factory default settings using the Reset button.

1. Switch off the network camera by disconnecting the power adapter.
2. Open the Micro-SD card cover.
3. Press and hold the Reset button (SW1) on the board with your finger while reconnecting the power.
4. Keep the Reset button (SW1) pressed for about 2 seconds.
5. Release the Reset button (SW1).
6. The network camera resets to factory defaults and restarts after completing the factory reset.
7. Replace the Micro-SD card cover plate, taking care that it is seated and fitted correctly.

**NOTE:** The Micro-SD card cover is a primary seal, so failure to fit or refit it correctly will remove the IP66 protection and damage will occur to the camera not covered by the warranty.

**CAUTION:** When performing a Factory Reset, you will lose any settings that have been saved. (Default IP 192.168.30.220)

## **System Requirement for Web Browser**

- **Operating System:** Microsoft Windows OS Series
- **CPU:** Intel Core 2 Duo 2GHz or higher, 1GB RAM or more, 10GB free disk or higher
- **VGA:** AGP, Video RAM 32MB or higher (1024x768, 24bpp or higher)

## **General Performance Considerations**

When setting up your system, it is important to consider how various settings and situations will affect performance. Some factors affect the amount of bandwidth (the bit rate) required, others can affect the frame rate, and some affect both. If the load on the CPU reaches its maximum, this will also affect the frame rate.

The following factors are among the most important to consider:

- High image resolutions and/or lower compression levels (or high bitrates) result in larger images. Frame rate and Bandwidth affected.
- Accessing both Motion JPEG and H.264 video streams simultaneously. Frame rate and bandwidth affected.
- Heavy network utilization due to poor infrastructure. Frame rate and Bandwidth affected.
- Heavy network utilization via wireless router due to poor infrastructure. Frame rate and bandwidth affected.
- Viewing on poorly performing client PCs lowers perceived performance. Frame rate affected.

## **More Information**

For more information, please see the network camera User's Manual, which is available on the CD included in this package.



Vista  
Inspired  
Easthampstead Road  
Bracknell.  
RG12 1YQ

(Subject to change without notice)

Version 1.1