American Dynamics

From Tyco Security Products

Illustra 210 Indoor IR Mini-dome

Installation & Operation Guide

8200-0943-02 D0

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Notice of Use

- This manual is designed for administrators and users of the network camera. Please read it carefully before use. All requirements should be followed before using this camera.
- We are not responsible for any technical or typographical errors and reserve the right to change the product and manuals without notice.
- Keep this document for future reference.
- The camera is for indoor use only.
- It is intended that this camera utilizes a 12V DC, 24V AC or PoE power source that complies with LPS requirements.
- The camera must be installed on a solid mounting surface.
- Keep the camera and other accessories dry.
- We are not responsible for any damage caused by inappropriate use.

FCC Notice

The equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. The limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Modifications not expressly authorized by American Dynamics could void the user's authority to operate the unit.

ICES statement

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

CE Statement

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

Safety Notice

The recessed indoor camera models are rated as suitable for use in environmental air handling spaces, other than inside air ducts or furnace plenums.

ESD Precautions: With the covers removed during installation and alignment this product is sensitive to electrostatic discharge. The installer should take appropriate ESD control measures such as the use of a ESD wrist strap connected to the chassis of the camera.

Table of Contents

1. Product Overview 1

Features 1

Dimensions 2

Name of Parts 2

Controls/Connectors 3

2. Camera Installation 8

Accessory List 8

Mounting the Camera 8

Preparation – Remove the dome cover and back case. 8

Use the template to mark-out and prepare the mounting area 9

Connect the wiring and mount the dome enclosure 11

3. Network Connection and Configuration 17

Network Connection Types 17

Accessing the Camera for the First Time 19

Using the Illustra Connect Tool to Manage Cameras 21

4. Using Illustra Utility 22

Overview 22

Main Screen 22

PTZ Function 23

Setup Menu 23

Applying Settings 24

Image 25

Codec 26

Mirror Settings 28

Gaming Mode 28

Exposure 30

White Balance 33

Basic Settings 34

Focus 34

Privacy Zone 36

Network 37

IP & Ethernet 38

HTTP/HTTPS 39

802.1X 41

FTP 43

SMTP 44

NTP 44

RTSP 45

ONVIF 47

SNMP 48

System 49

Date & Time 50
Firmware 51
User Management 53
Language 54
Log File 54
Audio 55
Event 56
Motion Detection 58
External Alarms 59
Blur Detection 60
Audio Detection 60
Ethernet Detection 61
Event Configuration 62
Recording 62
Settings – AVI 62
Settings – JPEG Settings 63
Settings – FTP 63
Settings – SMTP 64
Settings – SD Card 64
Settings – Schedule 65
Appendix A. Factory Defaults 66
Image Settings 66
Network Settings 67
System Settings 68
Event Settings 68
Recording Settings 69
Appendix B. Firmware Updates 70
Appendix C. Using VLC Player to View RTSP Streaming 71

1. Product Overview

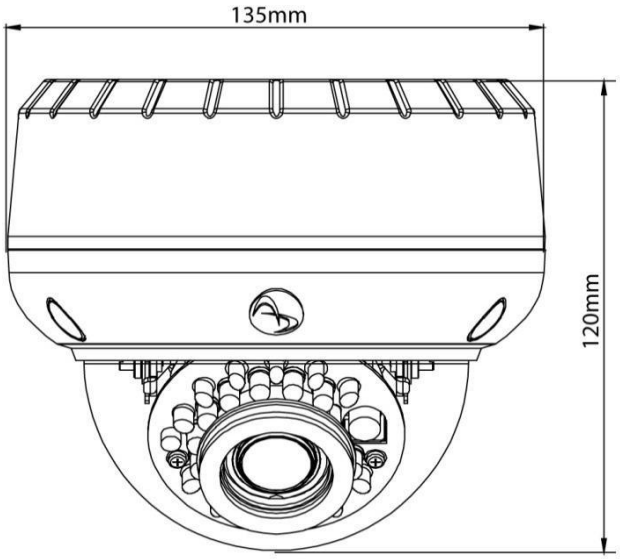
This Installation & Operation Guide covers the following product codes:

Illustra 210 Series
ADCi210-D111
ADCi210-D011
ADCi210-D113
ADCi210-D013

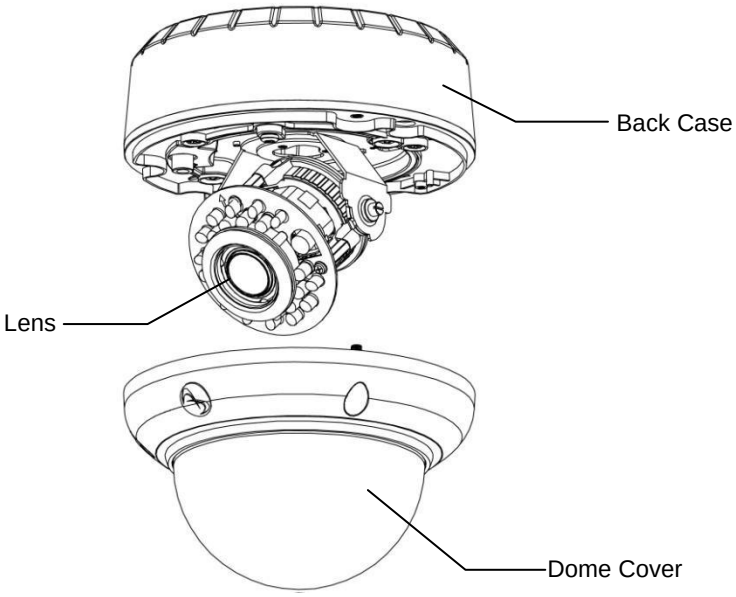
Features

- Motion detection
- Blur detection
- Remote focus adjustment (drive the motorized lens)
- Maximum resolution 720x480 (NTSC) / 720x576 (PAL) provides superior image quality
- Supports simultaneous streaming of H.264 and MJPEG encoded video
- PoE support eliminates the need for a power cable, providing more freedom in placement
- Two-way audio support, G.711 codec
- Support for spot auto-exposure
- Automatic exposure compensation
- Configurable backlight compensation
- Wide dynamic range
- ONVIF 1.02 compliant
- Digital zoom
- Auto focus

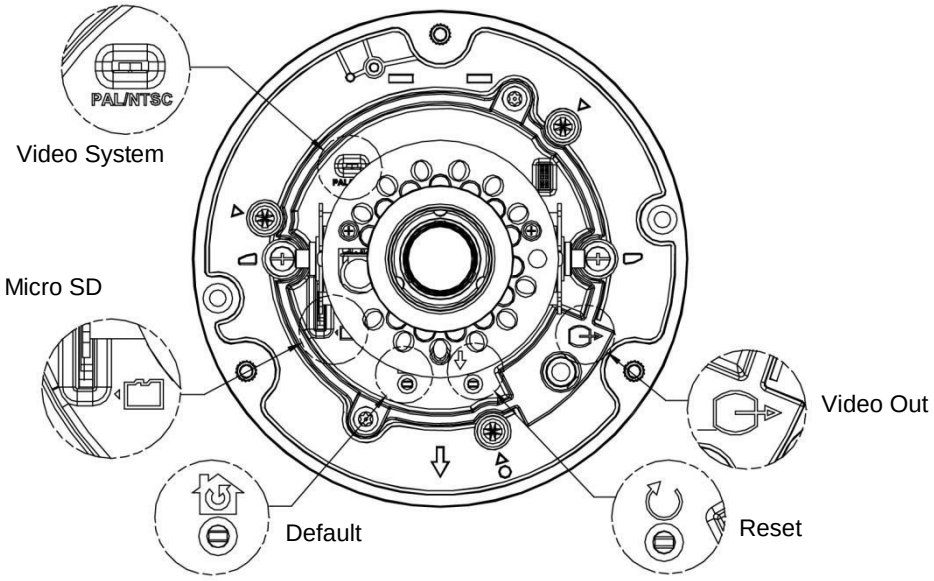
Dimensions



Name of Parts



Controls/Connectors



- **Video System:** NTSC / PAL system switch. Default is NTSC. Use a suitable small tool to operate the switch.

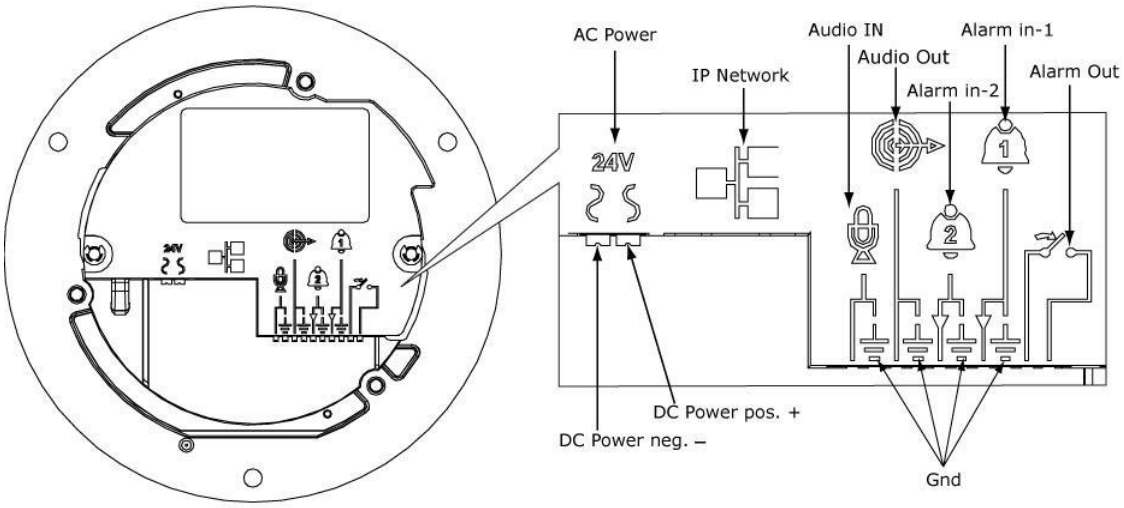
  Note:

  After switching the video system mode from NTSC to PAL or vice versa, you have to restore defaults to apply the changes. You can do this by either of these methods:

  1. Press the **Default** button on the camera and release within 4 seconds to restart the camera.

  2. Enter the web-based **Illustra** utility > **System** > **Firmware** and press the **Factory Default** button.

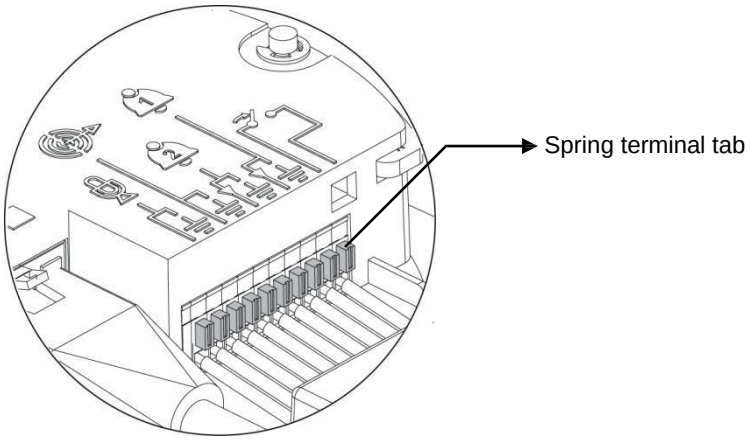
- **Micro SD:** Micro SDHC card slot.
- **Default**:
  - **Factory Default:** Press and release within 4 seconds to restart the camera and restore factory defaults, excluding IP settings*.
  - **Hardware Factory Default:** Press for more than 5 seconds and then release to restart the camera and restore factory defaults, including IP settings*.
  - *The IP settings include DHCP, IP address, subnet mask, default gateway, DNS and HTTP port, which are configured under **Network** > **IP & Ethernet** in the **Illustra** utility .
- **Reset:** Using a paper clip or thin object, press the button for at least one second and release to restart the camera.
- **Video Out:** Analog video out RCA jack. Connects to video in connector of a monitor.



- **AC Power:** Connects to DC 12V / AC 24V power supply. If you are to use power from Ethernet connection, this connector is not used when the power is provided by PoE.
- **IP Network Connector:** Connects to the LAN port of a standard 10Base/100Base-TX device, e.g., hub, switch or router.
- **Audio In:** Connects to an external microphone.
- **Audio Out:** Connects to speaker.
- **Alarm In 1 & 2:** Connects to devices that trigger alarm signals. Up to two input devices can be connected.
- **Alarm Out:** Connects to device that responds to alarm signals, such as buzzers or lights.
- **GND:** Ground (electricity) in electrical circuits.

Note

To connect the Audio In/Out, Alarm In/Out or GND wires, press the relevant spring terminal tab inward using an appropriate small tool and insert the wire into the opening. Then release the tab to secure the wire.



Specifications

Model List		Illustra 210 Series
		ADCi210-D111
		ADCi210-D011
		ADCi210-D113
		ADCi210-D013
Image Sensor	Max. Resolution (NTSC)	720x480
	Max. Resolution (PAL)	720x576
	Pixel size	3x3 um
	Type	CMOS
	Active Image Area	5.856H x 3.276V mm
Lens	Type	Built-in IR corrected Lens
	Focal Length	3~9mm
	F No.	Wide F1.2, Tele F2.1
	IRIS	DC IRIS
	Motorized	Yes
	Format	1/3"
	Transmittance	Clear Bubble : 90% (f/0.2) [D111, D011] Smoked Bubble: 45% (f/1.2) [D113, D013]
Angle of View	Horizontal	93° (wide), 31.7° (tele)
	Vertical	68.4° (wide), 23.8° (tele)
Automatic Electronic Shutter Range	NTSC	1/10,000 s to 8/30 s (max and min selectable)
	PAL	1/10,000 s to 8/25 s (max and min selectable)
Mechanical ICR		True Day/Night capability with IR cut filter removal
IR Illuminator	IR Distance	60 ft
	Min. Illumination	Color: 0.3 Lux @ 30IRE B/W: 0 Lux @ 30IRE (IR ON)
	Min. Safety IR distance	4 feet (<1000sec)
	IR Wave Length	850nm
Processor	SoC	DM368
Video Codec	Dual simultaneous streams	H.264, MJPEG
	Max Frame Rate	H.264: 30fps @ 720x480(NTSC)/720x576(PAL),

		30fps @ 2CIF/CIF
		MJPEG: 30fps @ 720x480(NTSC)/720x576(PAL), 30fps @ 2CIF/CIF
	Codec Quality Options	H.264: CBR(500~8Mbps), VBR, CVBR MJPEG: Adjustable by value
Audio	Codec	G.711 Bi-directional
	Audio Frequency	20Hz~8K Hz
	Audio Input	Single ended 2 k ohm equivalent impedance, 3.1 V open circuit, and max. input single signal level is 0.5 V rms (-6 dBV). Active type microphone (w/ external power supply) is recommended.
	Audio Output	Single ended 10k ohm impedance and 0.9 V rms max line single signal level
Interface	SD Card	Micro SDHC
	Alarm In	Two with selectable activation, internal (value) pull up to high state, and ground connection for external open collector or dry contact device to cause low state.
	Alarm Out	One relay output, 1A at 30VDC or 0.5A at 125VAC, selectable normal open or normal closed
	Analog Video Output	1.0 V p-p, 75 ohm, NTSC/PAL, RCA
	RJ45	10Base/100Base-TX
	Audio In / Out	1/1
Power	DC 12V	-10% ~ +10% / 9W (Max.)
	AC24V	-20%~ + 30% 47 to 63 Hz / 9W (Max.)
	PoE	9W (Max.)
Special Features	Spot Auto Exposure	Selectable
	Motion Detection	Yes
	Automatic Exposure Compensation	Adjustable
	Back Light Compensation	Selectable
	Wide Dynamic Range	Selectable level
	Blur Detection	Yes
	ONVIF 1.02 Compliant	Yes
	Auto Focus	Selectable automatic or manual remote adjustment of lens motor

	Remote Focus Adjustment (Drive the motorized lens)	Yes
Protocols Support	TCP/IP, HTTP, RTP/RTSP, NTP, DHCP, FTP, SMTP, UPnP	
Mechanical	Dimensions	ϕ 135 x H 120mm
	Weight	870g
	Shipping Weight	1540g
Environment	Operating Temperature.	-10°C ~50°C
	Operating Humidity	10~90% RH
	Storage Temperature.	-40°C ~60°C
Regulatory	Safety	UL 60950-1 2nd Edition
	EMC	FCC ICES-003/NMB-003 class A AS/NZS CISPR 22 class A EN50130-4 EN55022 class A
	Other	RoHS compliant WEEE applicable Reach compliant
	Markings	CE, UL, C-Tick

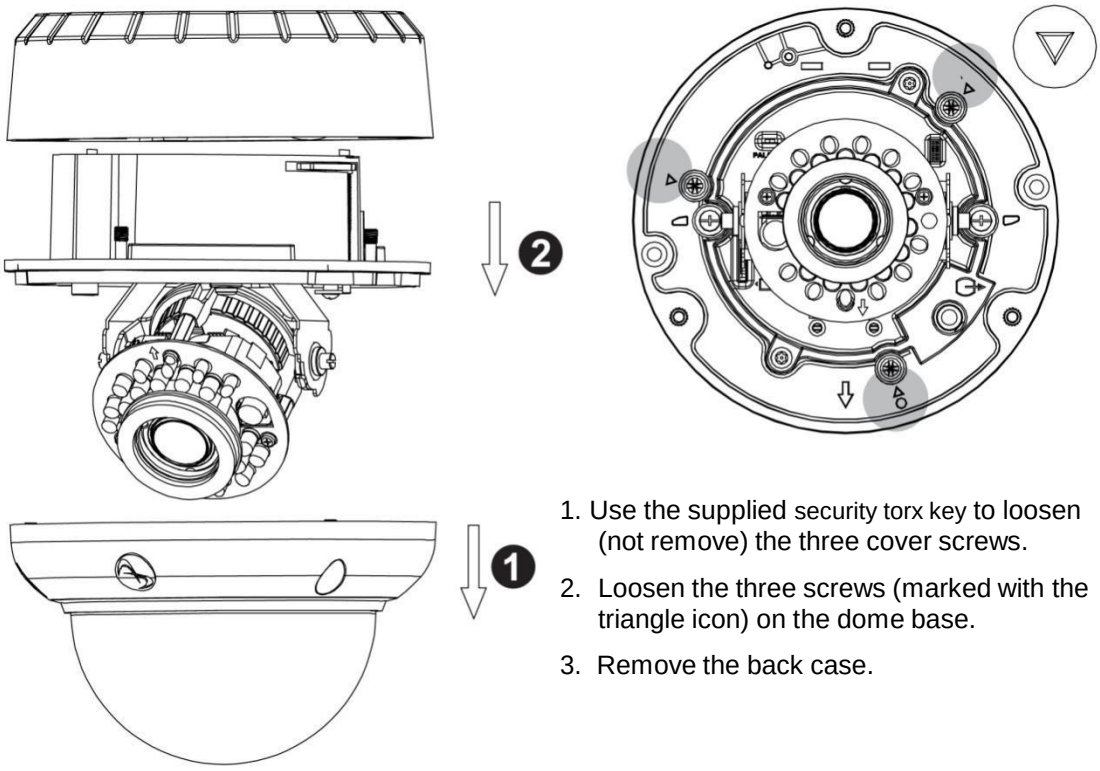
2. Camera Installation

Accessory List

- Security Torx Key x 1
- Screw hole plug x 4
- Screw x 4
- Anchor x 4
- Guide Pattern Template x 2
- CD-ROM x 1
- Fire Protection Cover x 1
- Quick Start Guide x 1

Mounting the Camera

Preparation – Remove the dome cover and back case.



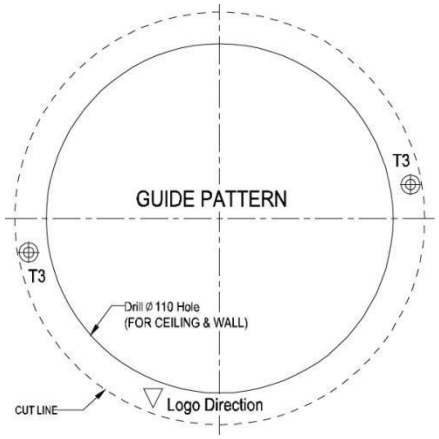
1. Use the supplied security torx key to loosen (not remove) the three cover screws.
2. Loosen the three screws (marked with the triangle icon) on the dome base.
3. Remove the back case.

Use the template to mark-out and prepare the mounting area

Method 1: To flush mount using screws

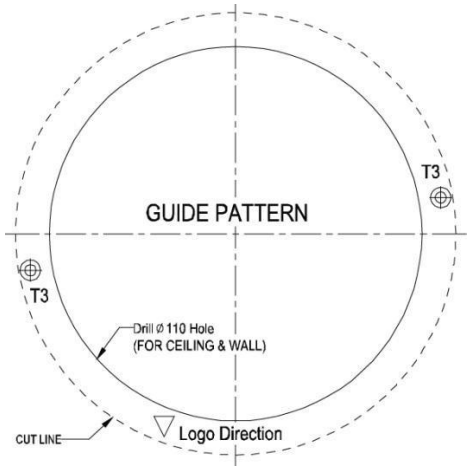
1. Create a circular opening in the mounting surface with a diameter of 110 mm (4.3”) with tolerances of -0/+5 mm (-0/.0.2”).

2. Create two 6 mm (0.2”) holes at the **T3** template positions. Then insert the screw anchors into the holes.



Method 2: To flush mount using locking arms

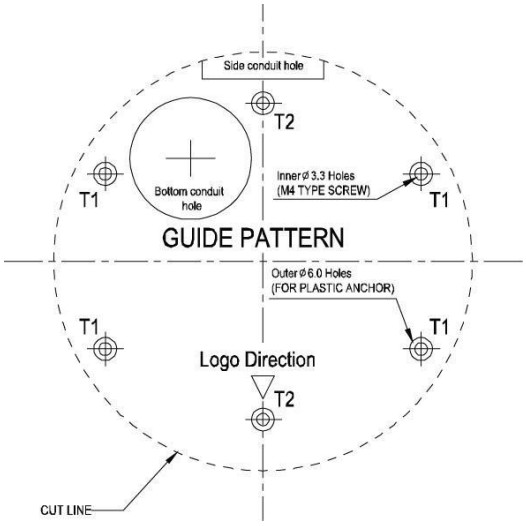
Create a circular opening in the mounting surface with a diameter of 110 mm (4.3”) with tolerances of -0/+5 mm (-0”/.0.2”).



Method 3: To surface mount

1. According to your needs, create 6mm (0.2”) holes at the **T1/T2** template positions. Then insert the screw anchors into the holes.

2. If you want to feed wiring from the hole on the top of the back case, create a circular opening (bottom conduit hole) in the mounting surface.



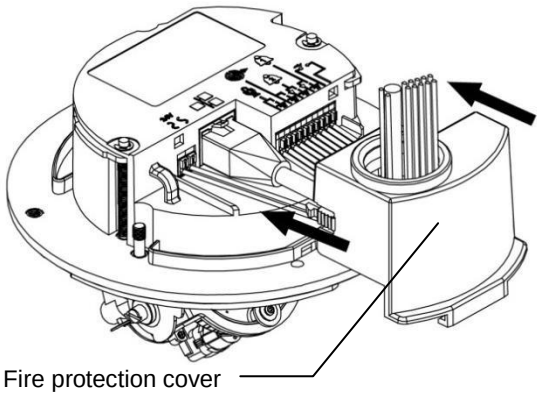
Method 4: To surface mount using junction box

No need to mark-out and prepare the mounting areas. Skip to next section for mounting instructions.

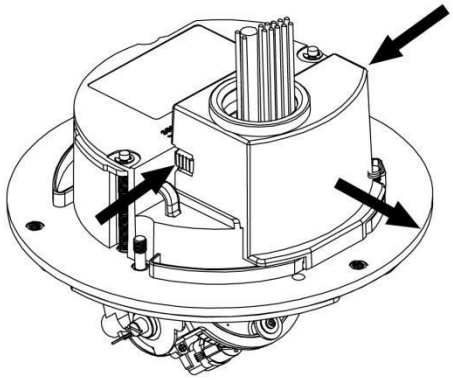
Connect the wiring and mount the dome enclosure

Method 1: To Flush Mount the Dome using screws

1. Firstly, feed the leads through the fire protection cover, then connect the wiring and assemble the fire protection cover.

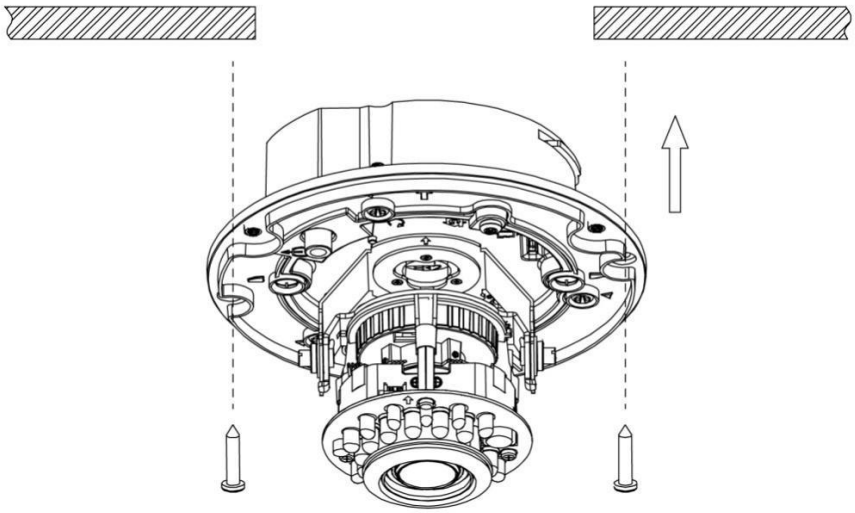


Fire protection cover

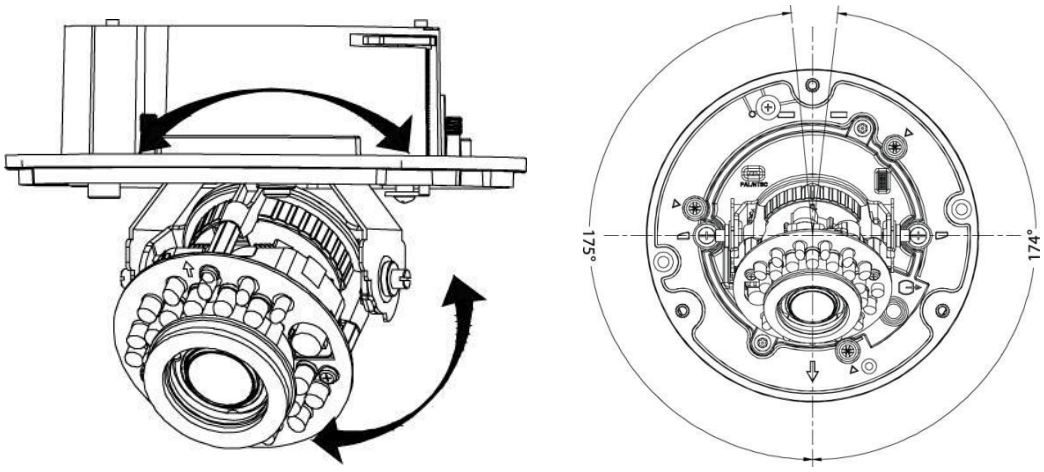


If you need to disassemble the fire protection cover, press both buttons on each side and then pull out.

2. Fasten the two TP4 screws to the inserted anchors to secure the dome enclosure in place.



3. Adjust the focusing position by rotating and panning the camera base. When rotating the camera base, do not rotate it past the stop point.



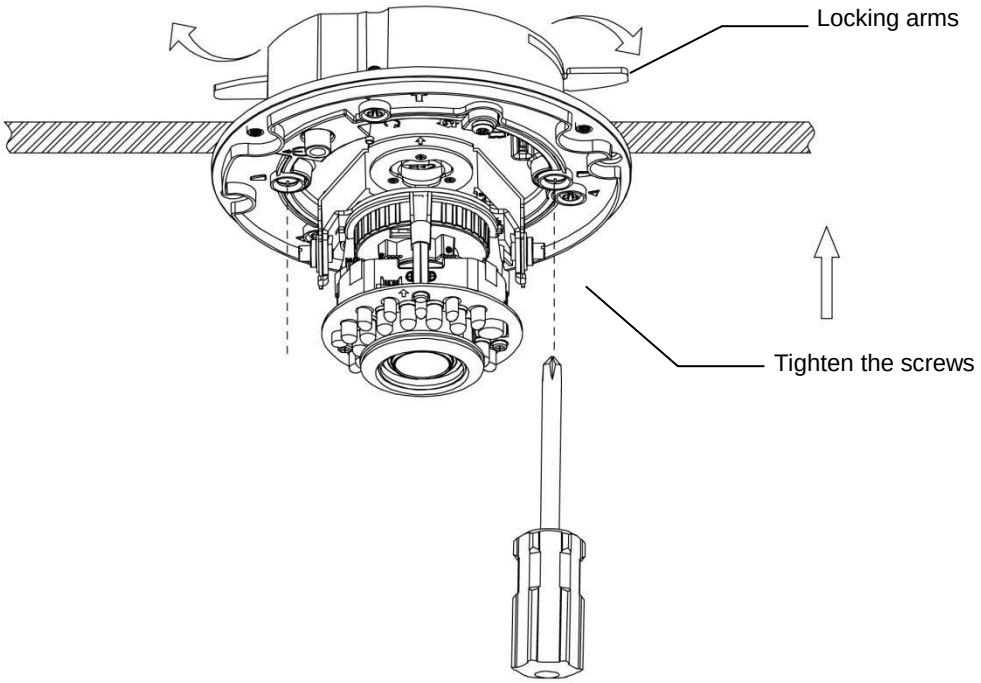
4. Use the supplied security torx key to tighten the three cover screws to replace the dome cover.

5. Finally, insert the screw hole plugs to the three cover screws.

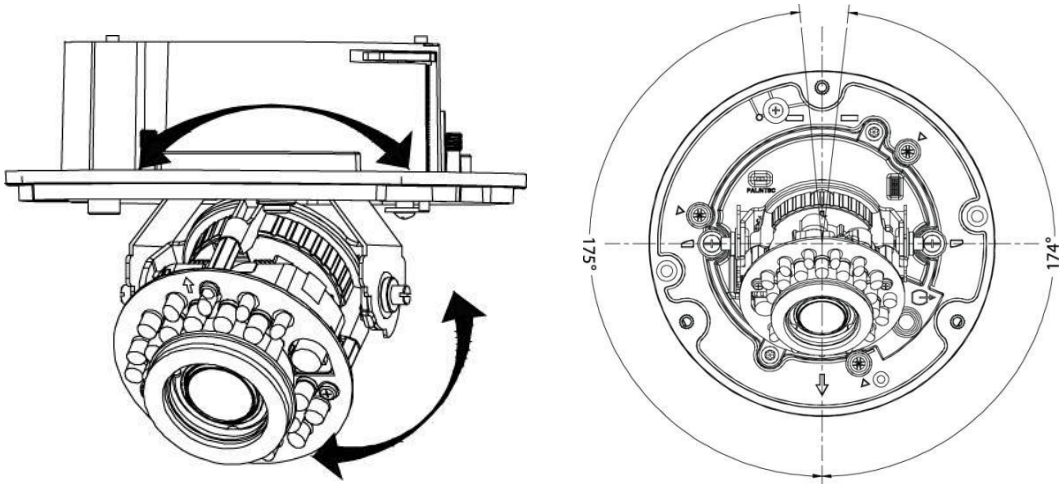
Method 2: Flush mount using locking arms

1. Turn the silver-colored screws clockwise to extend the locking arms.

2. Tighten the screws sufficiently to compress the arms to adjust to the mounting surface.



3. Adjust the focusing position by rotating and panning the camera base. When rotating the camera base, do not rotate it past the stop point.



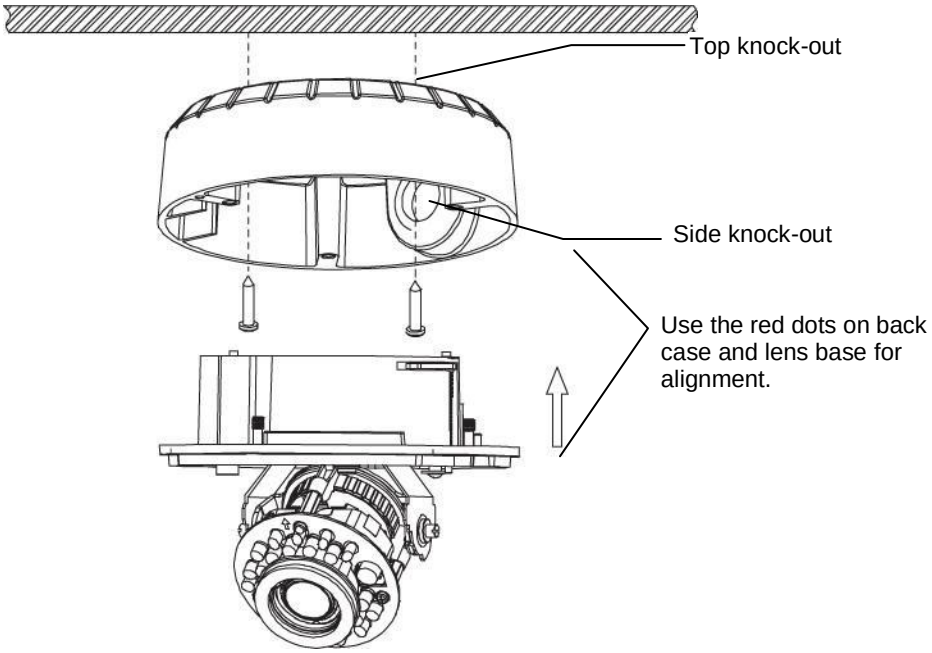
4. Use the supplied security torx key to tighten the three cover screws to replace the dome cover.

5. Finally, insert the screw hole plugs to the three cover screws.

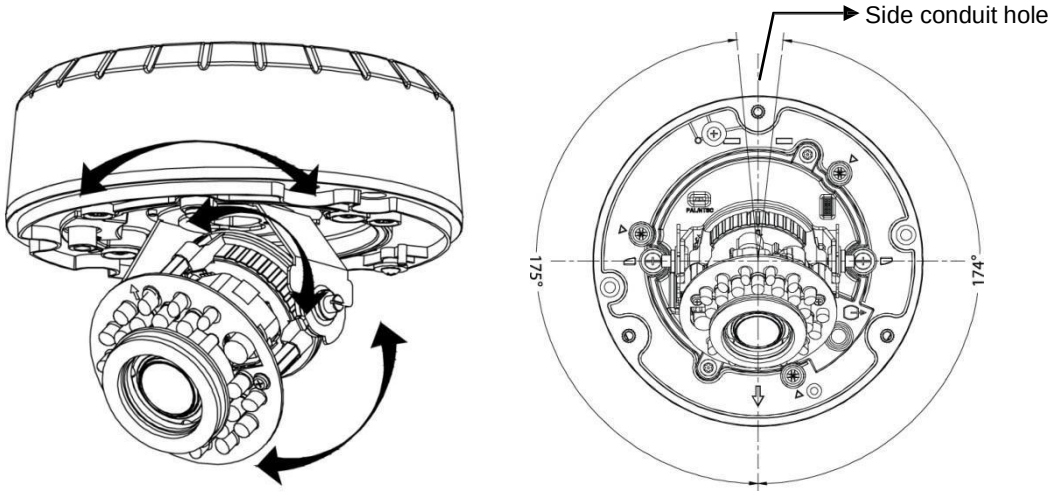
Method 3: To surface mount

1. According to your needs, use the top or side knock-out on the back case for cable entry and connect the wiring. Mount the back case on a surface with screws.

2. Align the back case and the lens base, and then fasten the TP4 screws into the inserted anchors. There is a red dot on the back case and the lens base respectively. Use the dots to align the case and the base.



3. Adjust the focusing position by rotating and panning the camera base. Note that the back case side conduit hole is the point where the camera will not rotate past.



4. Use the supplied security torx key to tighten the three cover screws to replace the dome cover.

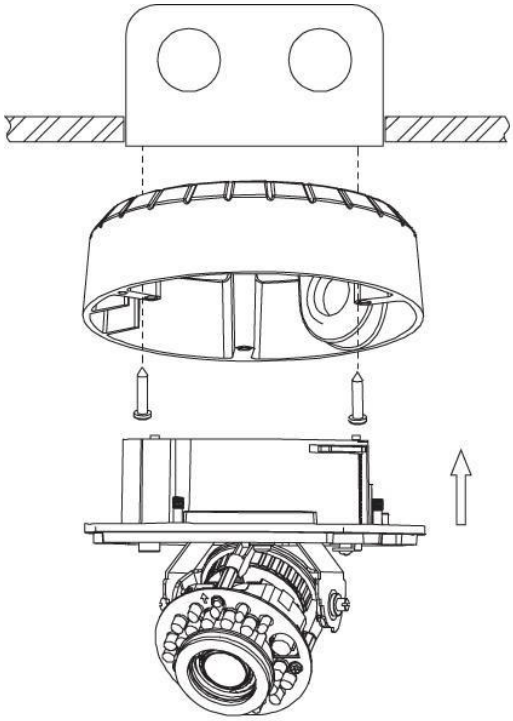
5. Finally, insert the screw hole plugs to the three cover screws.

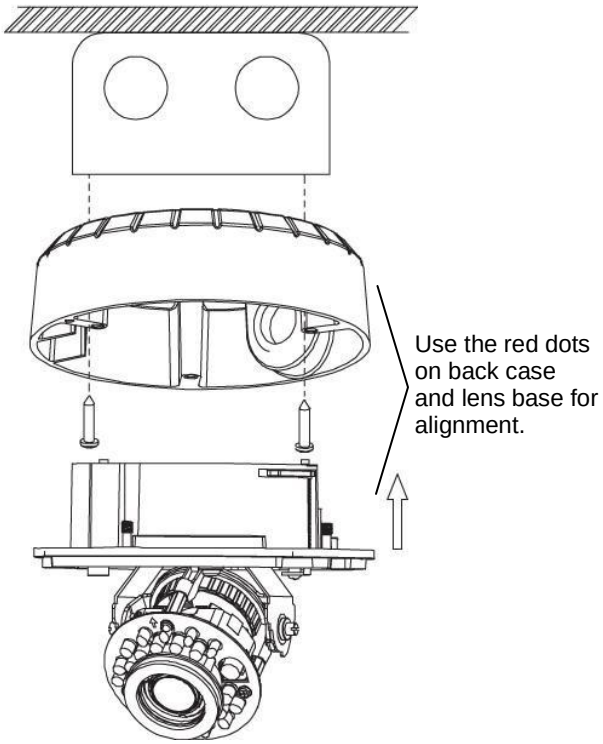
Method 4: To surface mount using junction box

1. Tie your wiring into a junction box and feed the leads through the top knock-out on the back case.

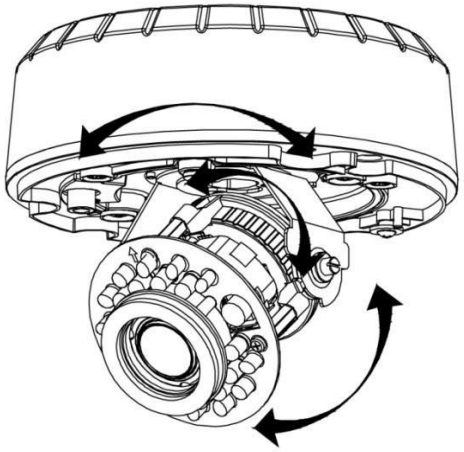
2. Tighten the electrical screws to secure the back case to the junction box. Then connect the wiring.

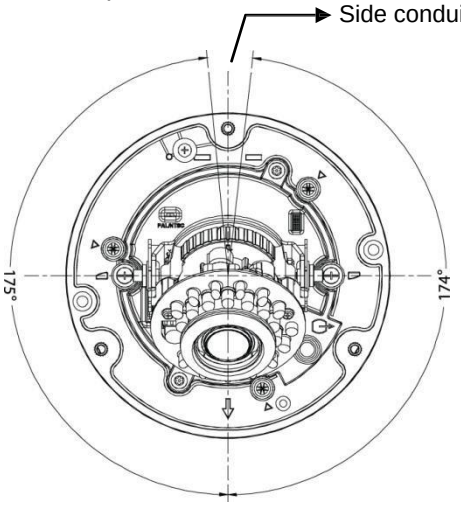
3. Align the back case and the lens, and then fasten the three screws. There is a red dot on the base case and the lens base respectively. Use the dots to align the case and the base.





4. Adjust the focusing position by rotating and panning the camera base. Note that the back case side conduit hole is the point where the camera will not rotate past.





5. Use the supplied security torx key to tighten the three cover screws to replace the dome cover.

6. Finally, insert the screw hole plugs to the three cover screws.

3. Network Connection and Configuration

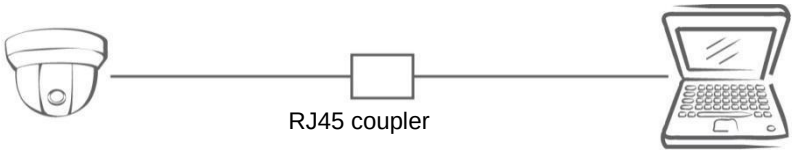
Network Connection Types

There are many different ways that you can connect the camera to your network, depending on your applications requirements. You should always set the camera's network settings according to your network configurations. The following diagrams depict some typical applications with guidelines on network settings. For more information on network settings, always consult with your network administrator or ISP as required.

Type 1— Direct Connection to a PC

Directly connect the camera to a PC using a standard Ethernet cable.

To extend the connection length, you should use a RJ45 female/female coupler to connect two Ethernet cables together.



Note

The LAN port of the camera supports auto MDI/MDIX (Medium dependent interface crossover), so there is no need to use cross-over cable.

To access the camera, the PC must be on the same network as the camera. The default IP address of the camera is static (192.168.1.168). Configure your PC's IP address as 192.168.1.X (where X is a number between 2 and 254, excluding 168, and subnet mask as 255.255.255.0, and then your PC should be able to access the camera.

Type 2: Connecting Camera(s) to a Local Area Network (LAN)

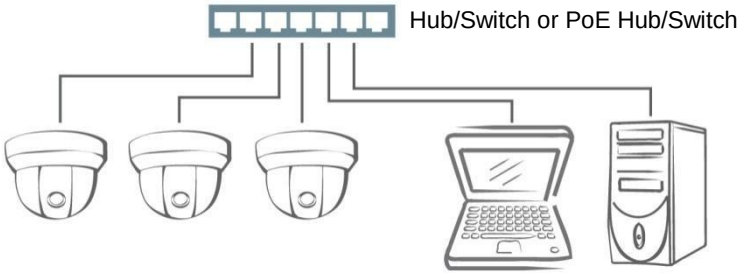
To add the camera(s) to an existing LAN, just connect the camera(s) to the hub or switch on your network. If you want to provide the camera power via the Ethernet connection, a PoE-enabled hub/switch is required.

Note

The LAN port of the camera supports auto MDI/MDIX (Medium dependent interface crossover), so there is no need for an uplink port or the use of a cross-over cable.

Assign an IP address to your camera following your network IP allocation policy. You can manually specify the IP address or allocate the IP address automatically using a DHCP server, if available on your network.

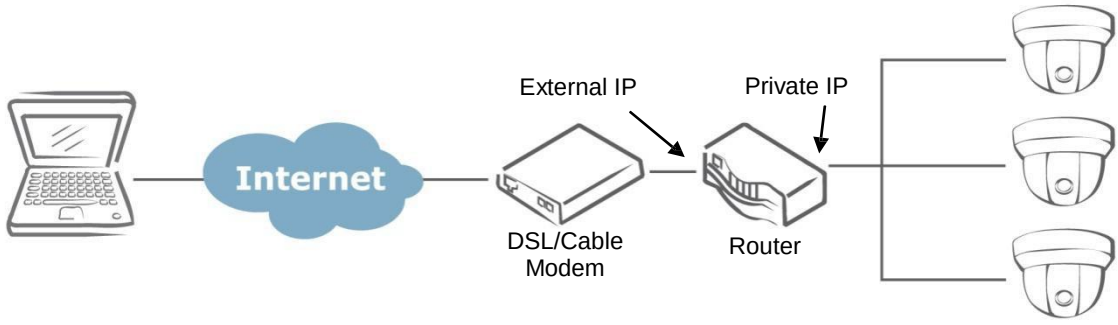
Then, you can monitor and manage the camera via a web browser from a local PC.



Type 3: Remote Connection via the Internet

If the network where the camera resides is connected to the Internet, you can also provide remote access to your camera over the Internet.

Typically a broadband router has a built-in DHCP function to assign a local IP address to your camera. You can alternatively assign a fixed IP address to the camera to prevent it from frequently changing.



To access the camera from a local PC, simply use the local IP address of the camera.

To enable remote access, you must configure your router/firewall to forward an incoming request to that fixed local IP address of the camera. Therefore, when an external host sends a request to access your

camera, the request will first reach the router's external IP address and then be forwarded to the local IP address of the camera.

Port forwarding is based on the service you want to provide. For example, forward HTTP port to enable remote web access to your camera, or RTSP port to enable access to video/audio streams from the camera.

If your camera is configured to use a non-standard HTTP port, then you have to forward that port accordingly.

Accessing the Camera for the First Time

The camera comes with a web-based setup utility, allowing you to view the video of the camera and configure the camera for optimal use in your environment.

To access the camera's web-based control utility, you need a PC that meets the following requirements:

- **Operating System:** Windows Vista or Windows 7
- **Browser:** Internet Explorer Version 8.0 or later
- **CPU:** Intel Core 2 duo P8400 or higher
- **RAM:** DDR3 4GB or more

Then take the following steps to connect your PC to the camera.

Step 1: Make the connection

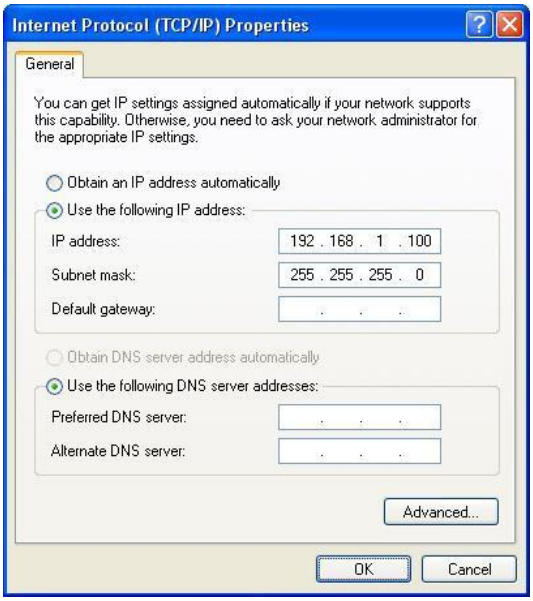
For initial setup purposes, connect one end of an Ethernet cable to the RJ45 connector of the camera and the other end to the LAN port on your PC.

Step 2: Configure your PC's IP address

The camera uses a default IP address of 192.168.1.168 and subnet mask of 255.255.255.0. To have your PC on the same network with the camera, configure your PC's IP settings as below:

- **IP address:** 192.168.1. X, where X is a number between 2 to 254, excluding 168.
- **Subnet mask:** 255.255.255.0.

Ignore all other settings and click **OK**.

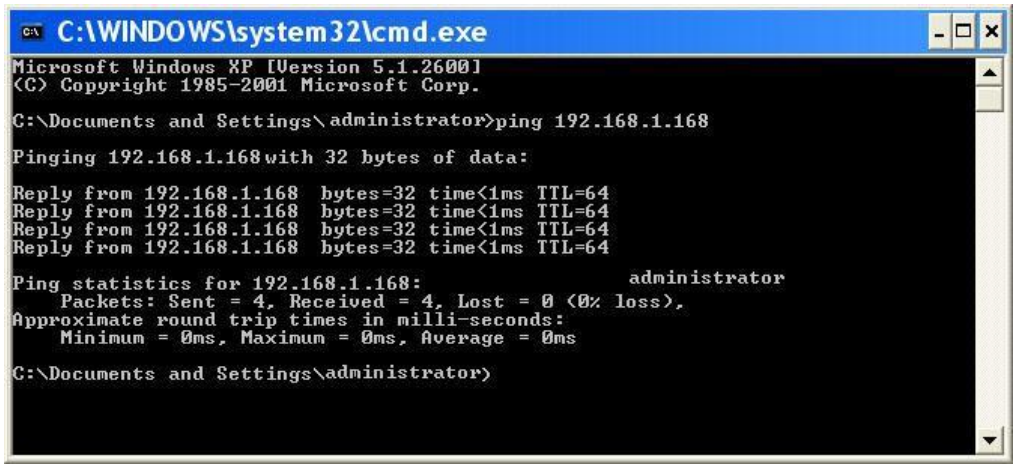


Step 3: Verify the connection between the PC and the IP Cam

1. Launch the Command Prompt by clicking the **Start** menu, **Programs**, **Accessories** and then **Command Prompt**.

2. At the prompt window, type **`ping x.x.x.x`**, where x.x.x.x is the IP address of the camera (the default is 192.168.1.168).

If the message of **—Reply from…ll** appears, it means the connection is established.

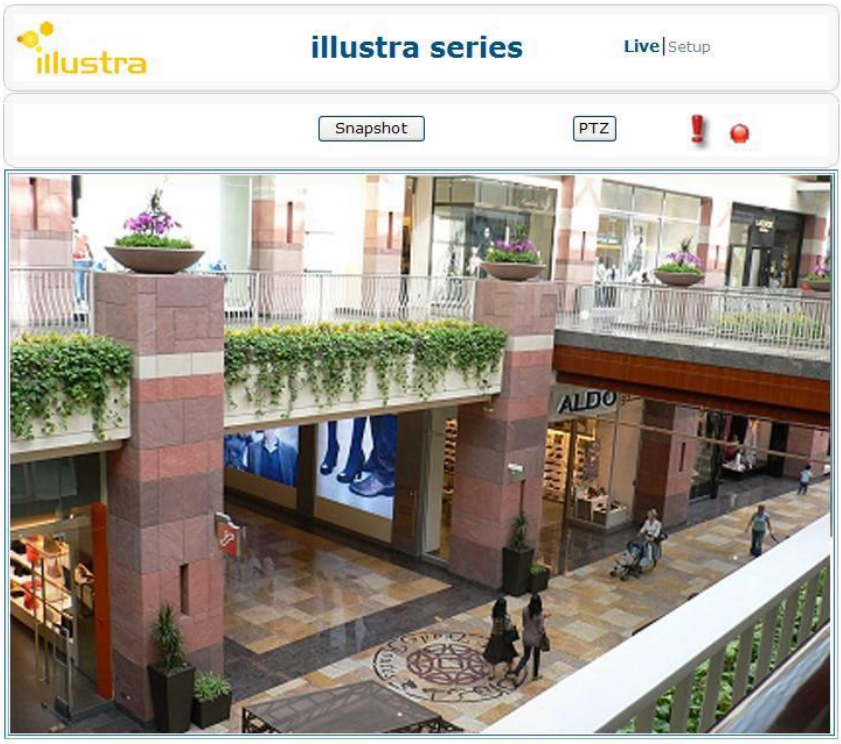


Step 4: Access the camera from IE browser

Open the IE browser and enter the IP address of the camera in the URL field. The default is 192.168.1.168.

When prompted to login, enter the user name and the password. (The defaults: admin, admin). Note that the password is case-sensitive.

Upon successful login, you will see the live view screen shown as the example below:



Using the Illustra Connect Tool to Manage Cameras

In addition to using the IE browser to access your camera, you can alternatively use the provided tool, Illustra Connect.

Illustra Connect is a management tool designed to manage your network cameras on the LAN. It can:

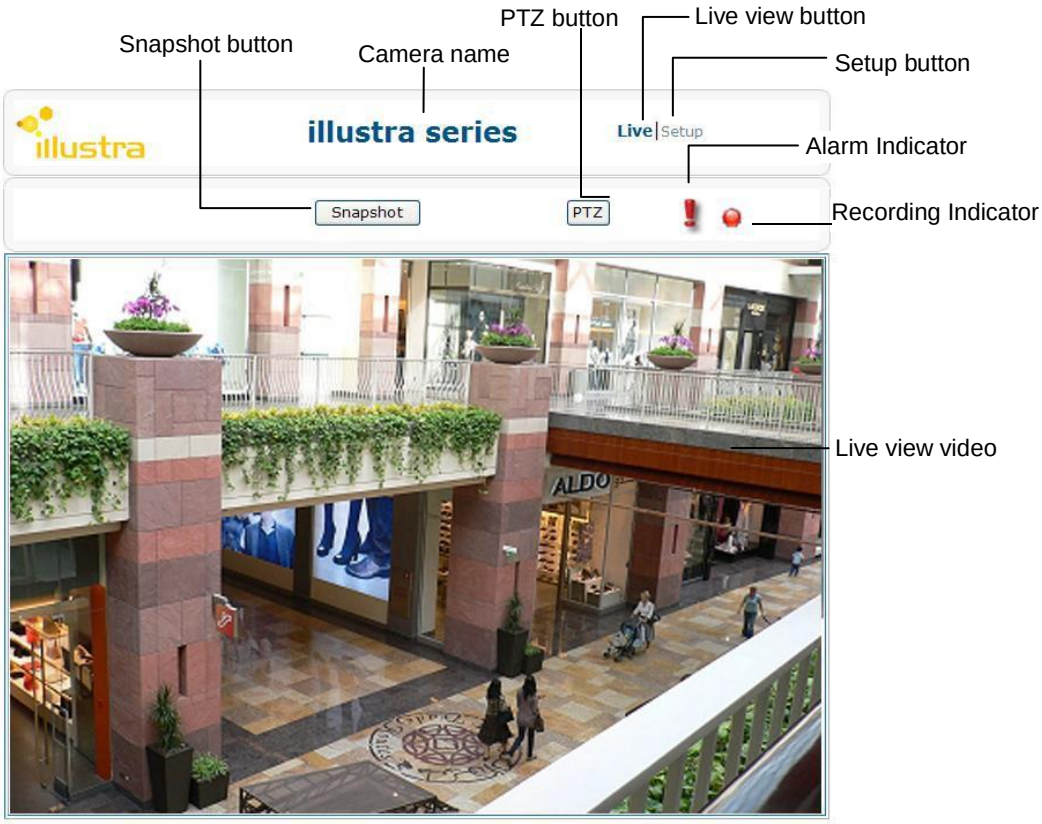
- help you find multiple network cameras
- set IP addresses
- show connection status
- manage firmware upgrades

4. Using Illustra Utility

Overview

Main Screen

After you log on to the camera's web-based utility, you will first see the live view screen of the camera. An example is displayed below:



The live view screen of the utility provides these options:

- **Snapshot:** Pressing this button takes a snapshot of the image currently being displayed.
- **Live view button:** Pressing this button displays the live view of the camera.
- **Setup:** Pressing this button allows you to access the setup page.
- **Camera name:** Displays the name of the camera.
- **Recording Indicator:** Turns red when the recording is proceeding.
- **Alarm Indicator:** Appears when an alarm is triggered.
- **Live view video:** Shows the live view of the camera.
- **PTZ:** Provides Pan, Tile and Zoom (PTZ) controls to digitally steer the camera to a desired position, without moving the camera physically.

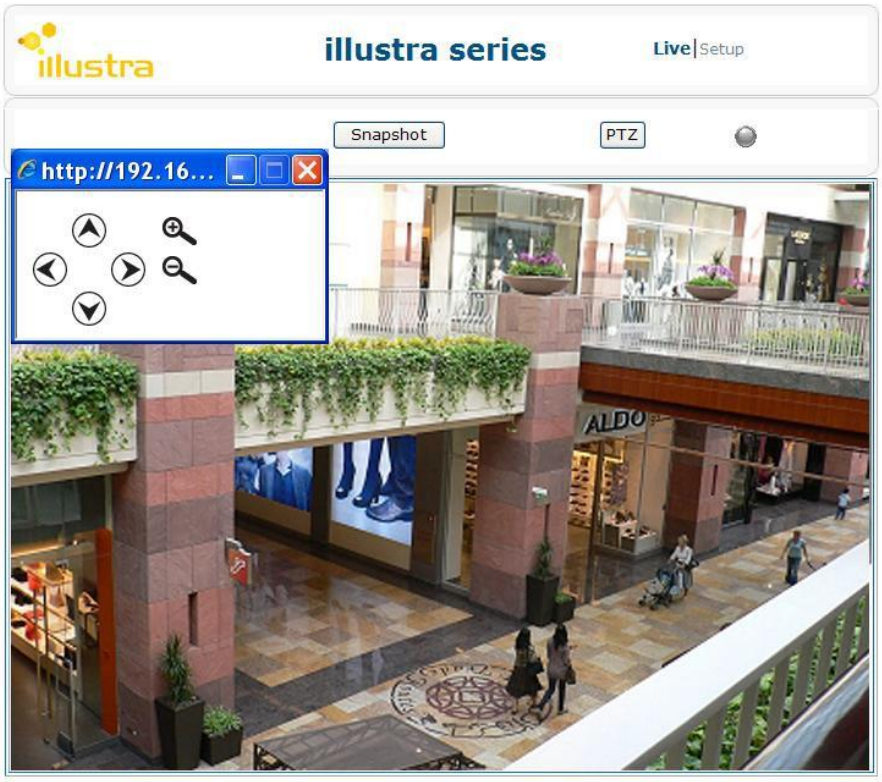
Note that the camera provides two types of accounts and the accessibility to the utility varies according to the account.

- **Guest:** Allowed to view only the live view screen and take snapshot. Access to setup is restricted.
- **Administrator:** Allowed to access all the functions and make configurations via the **Setup** pages.

PTZ Function

Using the PTZ function, you can use the pan, tilt and zoom controls to steer the camera to a desired position and focus on desired close-up areas, without moving the camera physically. After you click the **PTZ** button on the main screen, a PTZ control panel will appear where you can click the corresponding indicators to perform desired operations:

- **To zoom in/out:** Click the +/- indicator repeatedly to zoom in/out the live view image.
- **To pan left/right:** Click the left/right indicator to pan the viewing area. The pan function does not work if the video is not zoomed-in (no zoom status).
- **To tilt up/down:** Click the up/down indicator to tilt the viewing area. The tilt function does not work if the video is not zoomed-in (no zoom status).



Setup Menu

The **Setup** options are categorized into five groups: **Image**, **Network**, **System**, **Event** and **Recording**. Clicking the plus sign next to the group name will expand its sub-menu. See the ensuing sections for further information on each setup item.

Applying Settings

Each configuration page provides a **Save** button. Settings are applied immediately once the **Save** button has been pressed. And the browser will refresh to load the latest setting or otherwise pop up the **—Save OKll** message to indicate that settings have been applied.

Image

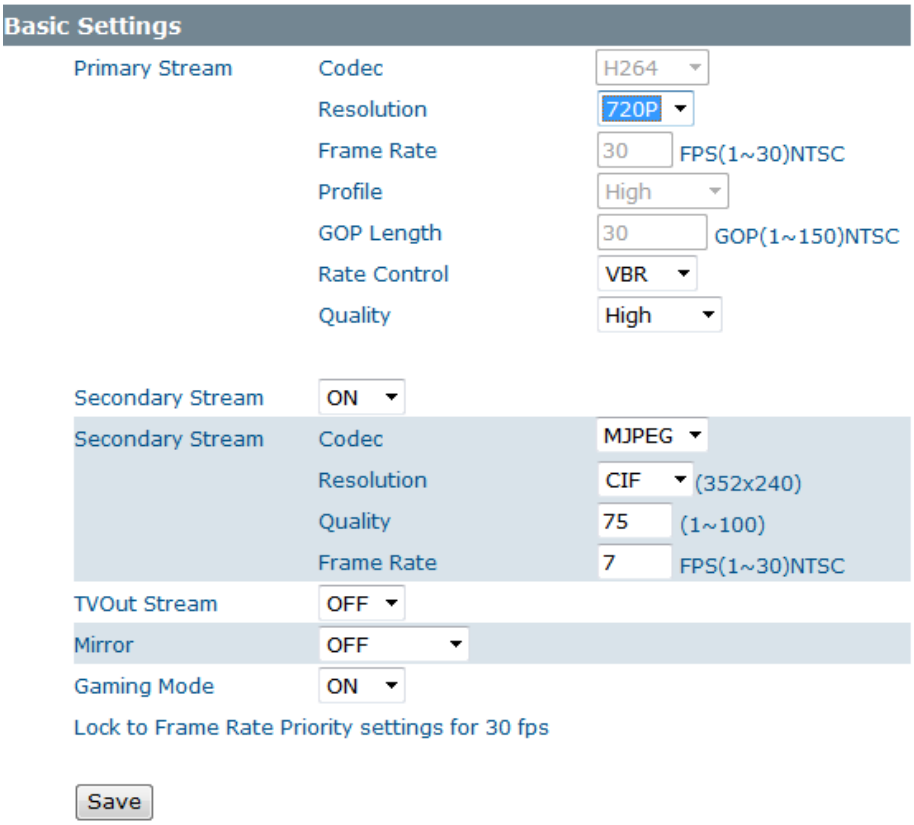
The Image settings allow you to configure codec and a variety of image-related settings. The defaults are listed in the table below:

Codec	Primary Stream	Codec	H264
		Resolution	720x480 (NTSC), 720x576 (PAL)
		Frame Rate	30 fps (NTSC) / 25 fps (PAL)
		Profile	High
		GOP Length	30 fps (NTSC) / 25 fps (PAL)
		Rate Control	VBR
		Quality	High
	Secondary Stream	Secondary Stream	ON
		Codec	MJPEG
		Resolution	CIF
		Quality	75
		Frame Rate	7
	TVOut Stream	OFF	
	Mirror	OFF	
	Gaming Mode	OFF	
Exposure	Auto Exposure	Method	Center Weighted
		Exposure Compensation	0
		Max Exposure	1/3.75 (sec)
		Min. Exposure	Unlimited (sec)
		Sensitivity	10
		Max Gain	Default
	IR Filter Control	Mode	Auto
		Level	Auto Mid
		Day to Night Threshold	2
		Night to Day Threshold	7
	IR Illuminator Control	Disabled	
	Backlight Compensation	Disabled	
	Wide Dynamic Range	Off	
White Balance	Auto White Balance	Sensitivity	10
Basic Settings	Adjustments	Frequency	60 Hz
		Video Standard	NTSC
		Brightness	0
		Contrast	0

		Saturation	0
		Sharpness	0
Focus	Focus Window Size	Level3	
	Focus Window Position	Top left corner	
		Speed	1
Privacy Zone	Privacy Zone	Disabled	

Codec

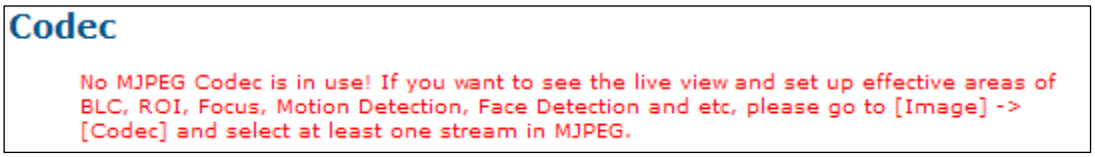
The **Codec** page allows you to configure the encoding of the video streams. You can optionally configure a secondary stream as required by your third-party device or software.



The camera supports two video stream types: **H264** and **MJPEG**. H264 is a coding standard that highly compresses the video to efficiently use the bandwidth, but still provides considerably good video quality. MJPEG uses JPEG still images in the video to give excellent image quality, but it consumes considerable amounts of bandwidth. MJPEG also consumes more storage space than H264. You should configure the codec settings according to your needs, the bandwidth of your network and available storage space.

Notes

- Web browser live view uses the MJPEG codec only. If both streams are set for H.264 during set up with the web browser user will be unable to view video. The following message will be displayed



- If MJPEG is selected for both primary and secondary streaming, live view will use the one with lower resolution.
- Changing codec, resolution and specific settings (e.g, H264 profile) will cause the web page to reload the codec settings, the camera should take around 25 seconds to restart.
- For those functions that require effective areas setup, users must enable at least one stream in MJPEG.

Each codec comes with different parameters as described below:

H.264 Codec Settings

- **Resolution:** Choose a video resolution as required. Note that changing resolution will cause the codec to restart.

  i210 series codec and resolution combination:

Primary Stream		Secondary Stream	
Codec	**Resolution**	**Codec**	**Resolution**
H264	D1 2CIF CIF	H264	D1 2CIF CIF
MJPEG	D1 2CIF CIF	MJPEG	D1 2CIF CIF

- **Frame Rate:** Choose the intended frame rate, i.e., the video frame to transmit per second. The higher the frame rate, the higher the quality of the video.
- **Profile:** The H.264 standard defines various sets of capabilities, which are referred to as profiles, targeting specific applications. The camera supports **High**, **Main** and **Baseline** profiles. Select a profile according to your application. Changing profile will cause the codec to restart.
- **GOP Length:** Group of pictures (GOP) length refers to the distance between two full frames (Intra frames). The shorter the length, the more I-frames within a video stream. This achieves higher image quality but also increases the stream size and consumes bandwidth. To save bandwidth and storage space, larger GOP length should be selected.
- **Rate Control:** Choose a bit rate control to manage your bandwidth usage.
  - **Variable Bit Rate (VBR):** VBR keeps the video stream quality as constant as possible by varying bit rate. This mode ensures high quality image for motion scene and is often selected when image quality demands priority. However, this mode requires more bandwidth in order to vary the bit rate.
  - **Constant Bit Rate (CBR):** CBR maintains a specific and constant bit rate by varying the steam quality. With CBR, streaming is smooth and network throughput is stable for any scene. This mode is typically used with a limited bandwidth environment.
  - **Constrained Variable Bit Rate (CVBR):** CVBR allows bit rate to change in a given time

interval based on the complexity of the scene. Use this mode if you need a better quality image when there is increase in scene complexity.

- **Bit Rate:** For CBR and CVBR mode only. According to your bandwidth, specify a value for data transmission rate (kbps). Higher value gets higher video quality but consumes more bandwidth.
- **Max Bit Rate:** For CVBR mode only. Select the maximum bit rate to be used.
- **Quality:** For CVBR and VBR mode only. Specify the quality of the image. The options include **Highest**, **High**, **Medium**, **Low** and **Lowest**.

  For the secondary stream, only **Medium**, **Low** and **Lowest** options are provided.

MJPEG Codec Settings

- **Resolution:** Choose a video resolution as required. Change resolution will cause the codec to restart.
- **Quality:** Enter a value from 1 to 100 to set the quality of the image. The higher the number, the better the image quality.
- **Frame Rate:** Choose an intended frame rate, i.e., the video frame to transmit per second. For example, 30 fps means 30 frame transmissions per second.

TV Output Stream

Turn on this option if you connect an analogue monitor to the camera's **Video Out** connector for video output.

Mirror Settings

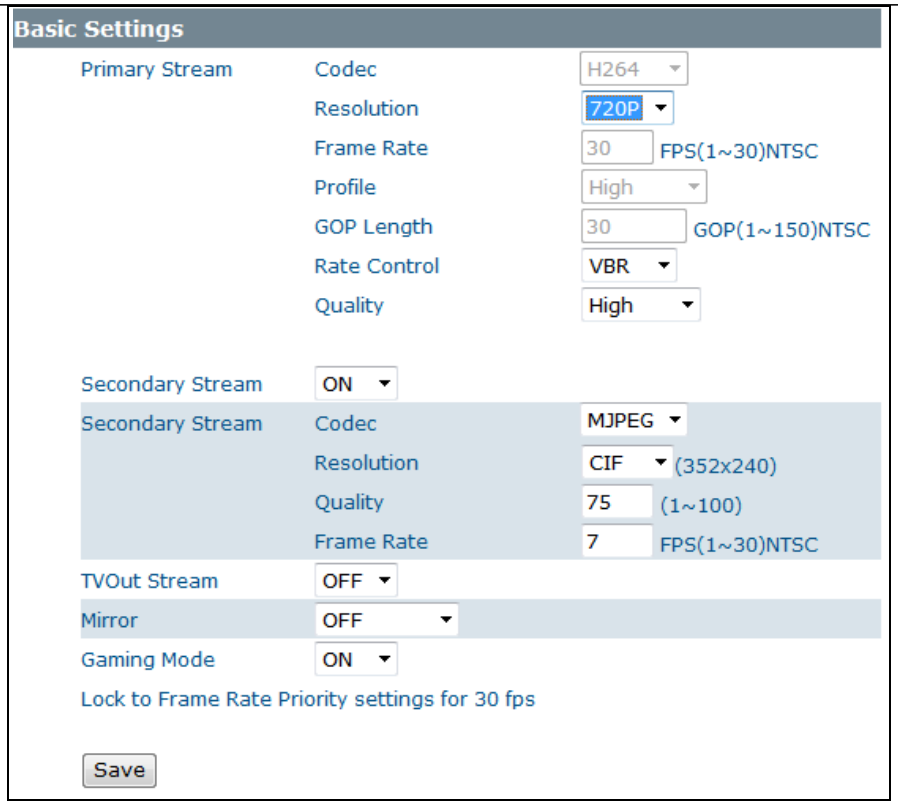
This option allows you to flip the video image if required.

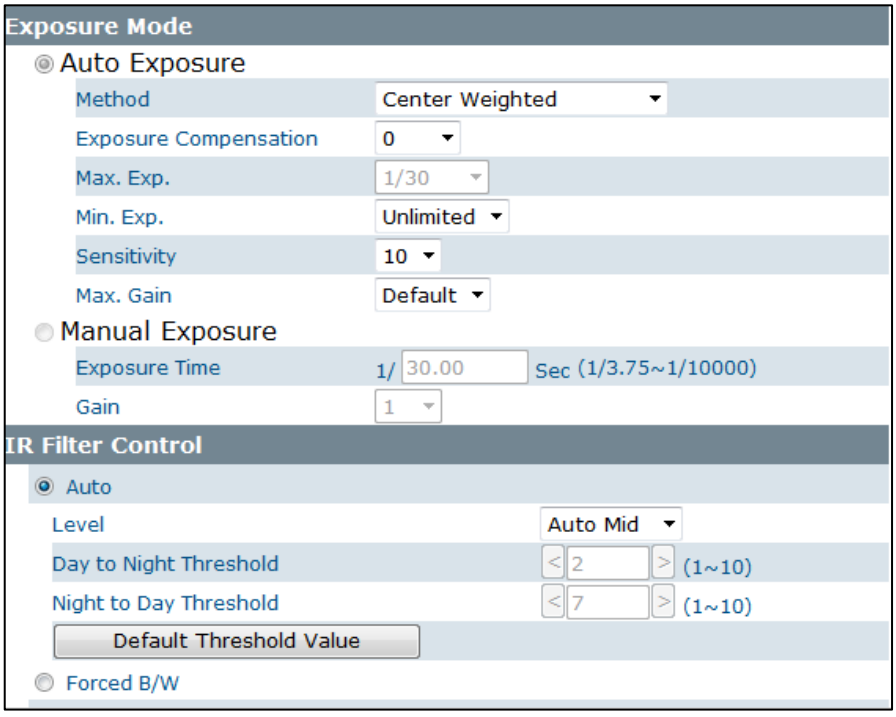
- **OFF:** Turn off this function.
- **HORIZONTAL:** Flips the image horizontally.
- **VERTICAL:** Flips the image vertically.
- **BOTH:** Flips the images vertically and horizontally.

Gaming Mode

Specifically designed for multiple gaming industries, e.g., casino, Gaming Mode is a combined setting with several fixed parameters including Codec, Frame Rate, Profile, GOP, and Max Exposure to meet the demanding requirements of gaming environments. The default setting is OFF. Please refer to the table with screenshots below for the detailed info:

Fixed Item	Fixed Value
Codec	Fixed to H.264
Frame Rate	Fixed to 30/NTSC, 25/PAL FPS
Profile	Fixed to High
GOP	Fixed to 30/NTSC, 25/PAL
Max. Exp.	Fixed to 1/30 – NTSC, 1/25 – PAL



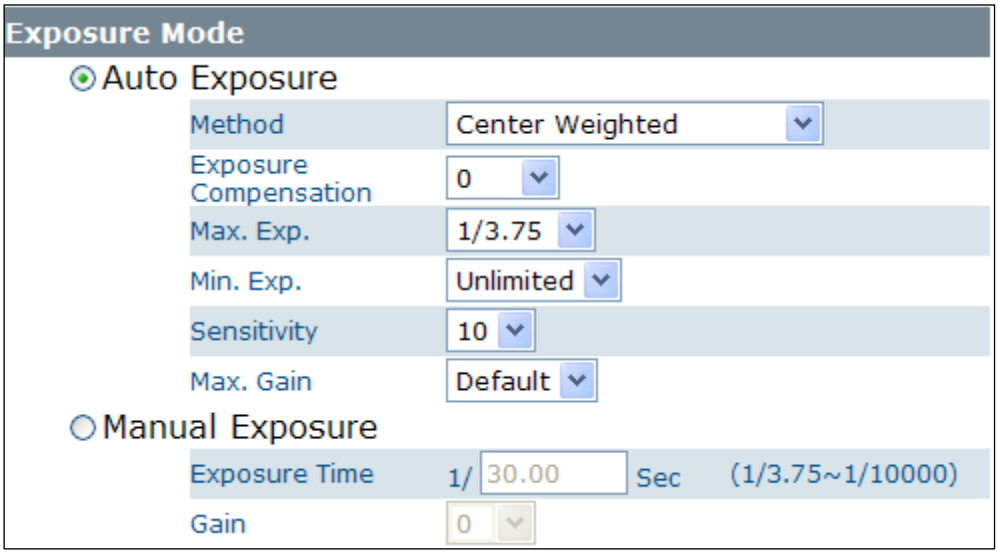


Note

1. When turning on Gaming Mode, all the fixed items with values are grayed out and thus locked to prevent any modification by user.
2. If user changes the frequency to 50Hz for NTSC, the Max. Exp. will be fixed on 1/50 instead of 1/30. And if user switches to 60HZ for PAL, the Max. Exp. will be fixed on 1/30 rather than 1/25.

Exposure

The **Exposure** page allows you to configure the **Exposure Mode**, **IR Filter Control**, **IR Illuminator Control**, **Backlight Compensation** and **Wide Dynamic Range** settings according to the light conditions of the camera.



Auto Exposure Settings

- **Method:** Select which area of the image will be used to measure the amount of light to achieve best exposure.
  - **Center Weighted:** Exposure metering is averaged over the entire frame but emphasis is placed on the central area.
  - **Target Exposure Control:** This option meters the exposure based on the targets you specify. When this option is selected, define your target by clicking squares displayed on the image and then press **Save Spot Window** to save the setting.
- **Exposure Compensation:** In a scene with predominantly light or dark areas, the image will be underexposed or overexposed, causing an image to be too dark or bright. In such situations, you can adjust a compensation value to optimize the exposure. Decrease the value if images appear too light (overexposed). Increase the value if images are too dark (underexposed).
- **Max/Min. Exp:** Select the maximum / minimum exposure time in seconds according to the light source.
- **Sensitivity:** Select how quickly the camera reacts to the light. A higher value enables the camera to adjust exposure in a shorter time.
- **Max Gain:** Specify the maximum amount of amplification applied to the image. A high level of gain allows images to be viewable in very low light, but will increase image noise.

Manual Exposure Settings

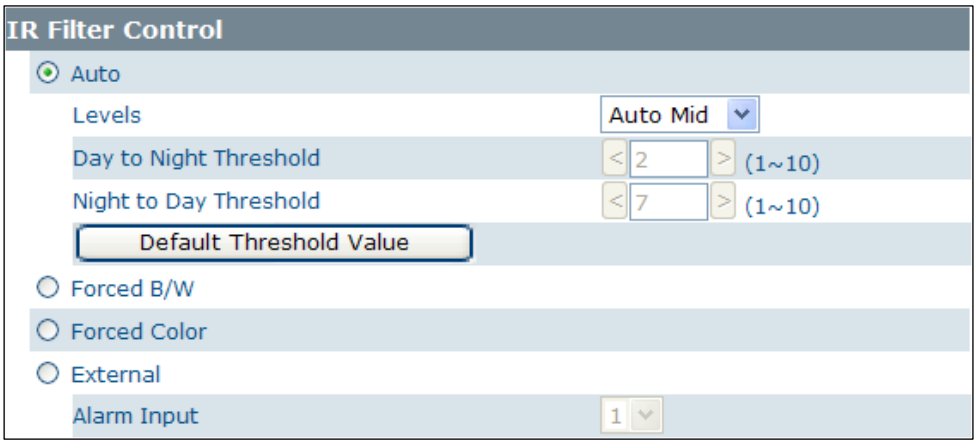
- **Exposure Time:** Enter a desired exposure time.
- **Gain:** Select a gain value from 0 to 16. A high level of gain allows images to be viewable in very low light, but will increase image noise.

About Frame Rate and Exposure Time

In low light conditions, when exposure time is set to a longer interval, the camera's actual frame rate might drop.

For example, if exposure time is 1/10 and frame rate is set to 30 fps, then under the poorest light conditions actual frame rate might drop to 10 fps. If exposure time is 1/3.75 and frame rate is set to 7 fps, actual frame rate might drop to 3.75 fps.

IR Filter Control



The camera incorporates an IR filter. On the **IR Filter Control** page you can specify how the camera switches between color and black/white modes.

- **Auto:** Allows the camera to automatically switch between color and black/white modes.
  - **Levels:** Choose a level that best meets the illumination in your environment. The camera will automatically switch between B/W and color modes according the system pre-defined **Day to Night** and **Night to Day** thresholds:

Threshold / Levels	Day to Night	Night to Day	Applications
Auto High	3	8	To switch at higher light
Auto Mid	2	7	To switch at intermediate light
Auto Low	1	6	T switch at lower light

  - If you need to customize the thresholds, chose **Manual** and adjust the thresholds:
    - **Day to Night:** When the ambient light drops below a user-defined threshold, the IR cut filter is removed and the camera switches from color to B/W mode.
    - **Night to Day:** When ambient light increases above a user-defined threshold, the IR cut filter is utilized and the camera switches from B/W to color mode.
  - **Default Threshold Value:** Choose if you want use the default **Auto Mid** level.

Application Examples

Example 1: If you want the camera to switch to night mode quicker (at higher illumination), set the **Day to Night** threshold to a higher level.

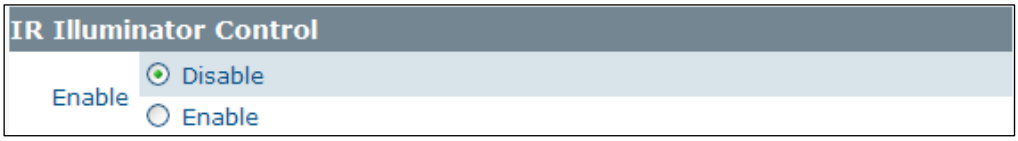
Example 2: If you want the camera to switch to day mode quicker (at lower illumination), for example, in an office using fluorescent light, set the **Night to Day** to a level lower than the light of fluorescent light.

Example 3: If your camera comes with IR LED or your environment has an IR light source (e.g, halogen light), set the **Night to Day** threshold to a higher level to prevent the camera from misjudging the bright light as day and then oscillating between day and night modes.

- **Forced B/W:** Forces the camera stay in black/white mode at all times.
- **Forced Color:** Forces the camera stay in color mode at all times.
- **External:** Enable this option if an external alarm input device is connected to control the IR filter.
  - **Alarm:** Set alarm input as 1 or 2 according your actual connection.

IR Illuminator Control

You can use the **IR Illuminator Control** to turn on/off the IR illuminator. Select **Disable**/**Enable** to turn off/on the IR illuminator.



Backlight Compensation

The **Backlight Compensation** function is to provide optimal exposure of subjects under back light circumstances.

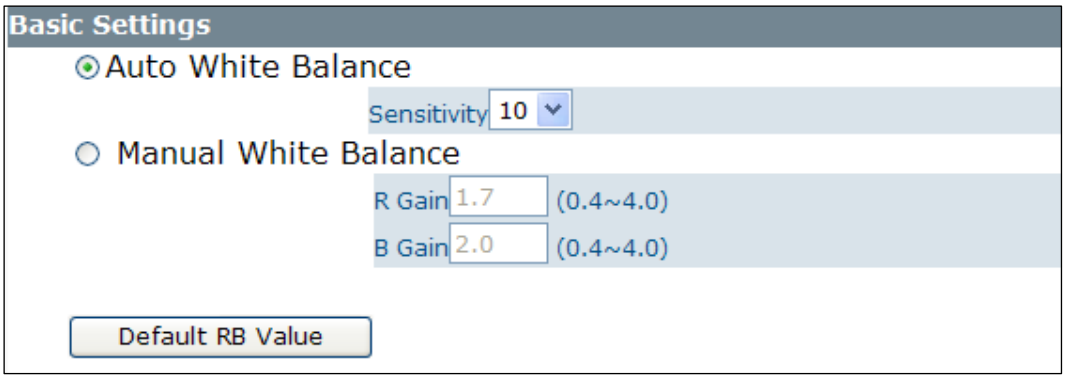
- **Enable/Disable:** Choose to enable or disable the BLC function.
- **BLC area setting:** BLC area is the dark area where more details are expected. Define your BLC area by clicking squares displayed on the screen and then press **Save BLC Window** to save the setting.

Wide Dynamic Range

When there are both very bright and very dark areas simultaneously in the field of view, you can enable Wide Dynamic Range (WDR) function. It optimizes an image to ensure that dark areas are more visible while retaining details in bright areas.

- **Level:** Depending on the contrast/dynamic range of a scene, you can select different level of WDR. Higher level of WDR suits for higher contrast/dynamic scene. If you select **Auto** mode, the camera will automatically adjust the WDR level by itself depending on the scene.

White Balance

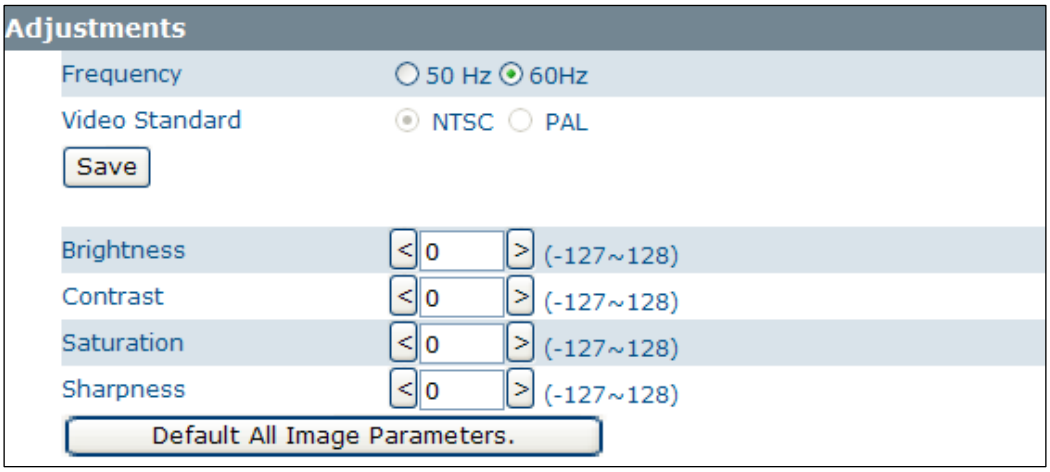


Select a white balance mode according to your light condition.

- **Auto White Balance:** Use this option when there is no special lighting in the environment. The camera will automatically adjust the color temperature according to the light conditions and the sensitivity you specify. The higher the sensitivity, the faster the adjustment. If the lighting conditions change frequently, select a lower sensitivity to prevent the camera from frequently changing white balance.
- **Manual White Balance:** With special light in the environment, you can use this option to manually adjust the red and blue channels, which are mostly affected by special light. For example, if red color is too bright, then you should lower the R Gain value. Click the Default RB Value if you want to retrieve the defaults.

Basic Settings

This page allows you to specify a frequency and adjust the basic image settings to optimize your video image.



- **Frequency:** Select an appropriate frequency to reduce the flicker on the image.
- **Video Standard:** Displays current video standard: NTSC or PAL. This setting cannot be changed via web interface. You can only switch the video standard using the hardware switch.
- **Brightness:** Adjust the image brightness level.
- **Contrast:** Adjust the image contrast level.
- **Saturation:** Adjust the image saturation level.
- **Sharpness:** Adjust the image sharpness level.
- **Default All Image parameters:** Pressing this button will restore all the image settings to the defaults.

Focus

Basic Settings

To focus on the desired subject, configure the basic settings first and then use the focal length and focus controls to optimize the focus.

- **Focus Window Size:** To use this setting to adjust the size of your focus area, click on the desired subject to focus on. When selecting the focus window size, please select an appropriate size so that there is enough contrast in the area for the camera to perform focus function.

Focal Length Control

Click **Zoom In** / **Zoom Out** to adjust the focus length of the lens. You can also select a suitable zoom in/out speed.

Focus Control

Click the corresponding button to control the focus:

- **Focus Far:** To focus on objects which are farthest away from the camera.
- **Focus Near:** To focus on objects which are closest to the camera.
- **Auto Focus:** To use the camera's focus motor to focus automatically.

Overall Procedures to Reach a Focus

1. Click **Zoom In** / **Zoom Out** until you are happy with your field of view.
2. Select an appropriate **Focus Window Size** and click on the desired subject to focus on.

a. Make sure the windows size is large enough to cover the subject you want to focus.

Poor Window Size

Good Window Size

b. About the contents inside the focus window: Using the camera's the Auto Focus method, the area used for focusing must have a reasonable contrast. A higher percentage of contrast inside the focus window will make it easier for the camera to auto focus.

Poor focus window position

Good focus window position

3. Click **Focus Near** / **Focus Far** to manually adjust the focus until the subject is again clear. (The subject may be slightly blurry at this point, but the camera has obtained enough information to process the focus.)

4. Click **Auto Focus** to activate the auto focus motor for focusing.

5. If you zoom in or zoom out at this point, the lens will be out of focus. You must repeat steps 1 to 3 until the subject is accurately in focus.

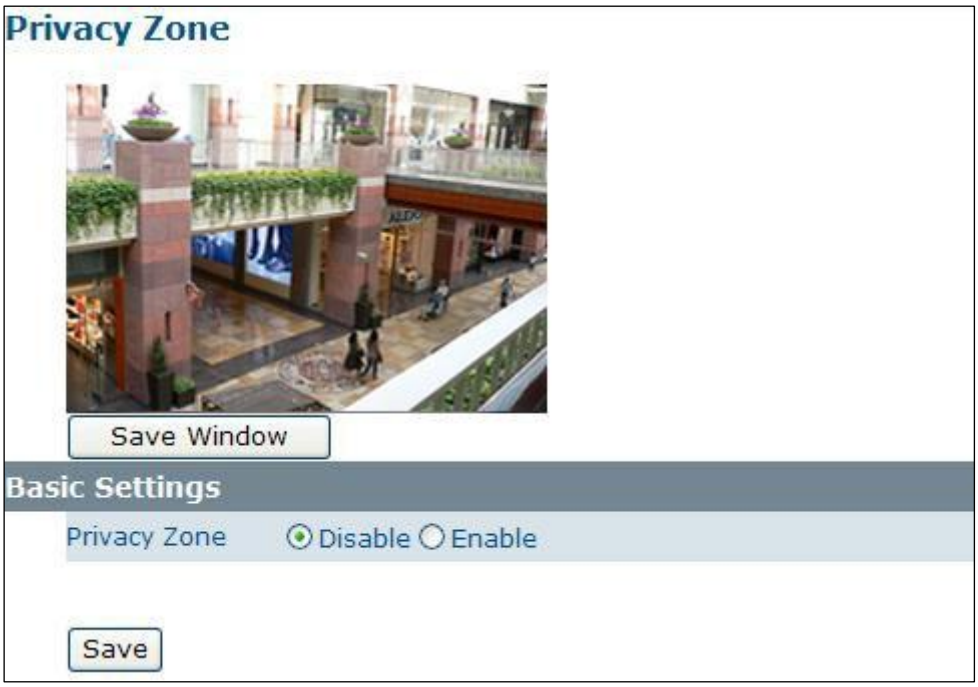
Note

Steady illumination is required to perform the Auto Focus function. Avoid flickering light or environments where passing people and cars will affect the illumination.

Privacy Zone

Privacy Zone feature allows you to mask sensitive areas of the image for privacy protection. To turn on the privacy zone function, enable the option, click and drag your mouse on the image to define the region to be masked and then click **Save Window** to save the settings. To clear an existing region, just click it again.

To disable the privacy zone, select **Disable**.



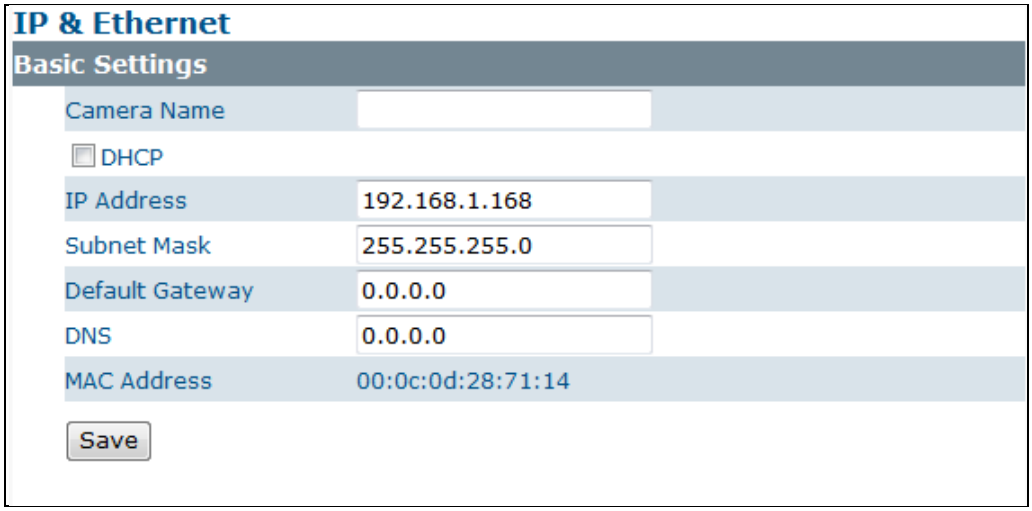
Network

The **Network** settings allow you to configure a variety of network settings. The defaults are listed in the table below:

IP & Ethernet	Camera Name	Illustra 210
	DHCP	Disabled
	IP address	192.168.1.168
	Subnet Mask	255.255.255.0
	Default Gateway	0.0.0.0
	DNS	0.0.0.0
HTTP/HTTPS	Protocol	HTTP
	HTTP Port	80
	HTTPS Port	443
802.1X	IEEE 802.1X	OFF
	EAPOL version	1
FTP	FTP Server IP Address	0.0.0.0
	FTP Server Port	21
	Username	Null
	Password	Null
	File Upload Path	default_folder
SMTP	SMTP Server Requires Authorization	Disabled
	SMTP Server IP Address	0.0.0.0
	User Name	Null
	Password	Null
	Sender	Null
	Receiver	Null
NTP	NTP Server IP Address	us.pool.ntp.org
	Time Zone	GMT-5:00 Eastern Time (US & Canada)
	DST (Daylight Savings Time)	Disabled
	DST START	March, 2nd week, Sunday, 2:00 AM
	DST END	November, 1st week, Sunday, 2:00 AM
RTSP	Primary A/V Stream Port	7778
	Primary Video Stream Port	7779
	Secondary A/V Stream Port	7780
	Secondary Video Stream Port	7781
	Audio Stream Port	7777
ONVIF	Discovery via ONVIF	Enabled
	Accept command/functionality outside of Discovery capability	Enabled
	User Authentication	Disabled
SNMP	Version	Disable
	SNMP Community	NA
	Trap	Off
	Heartbeat	Off

IP & Ethernet

On the **IP & Ethernet** screen you can configure the network settings and view the MAC address of the camera.



- **Camera Name:** Enter a descriptive name of the camera.
- **DHCP:** If there is a DHCP server on the network and you enable this option, the server will automatically assign an IP address and related information to the camera.

  If there is no DHCP server on your network or you prefer to manually assign an IP address to your camera, then leave this checkbox blank.

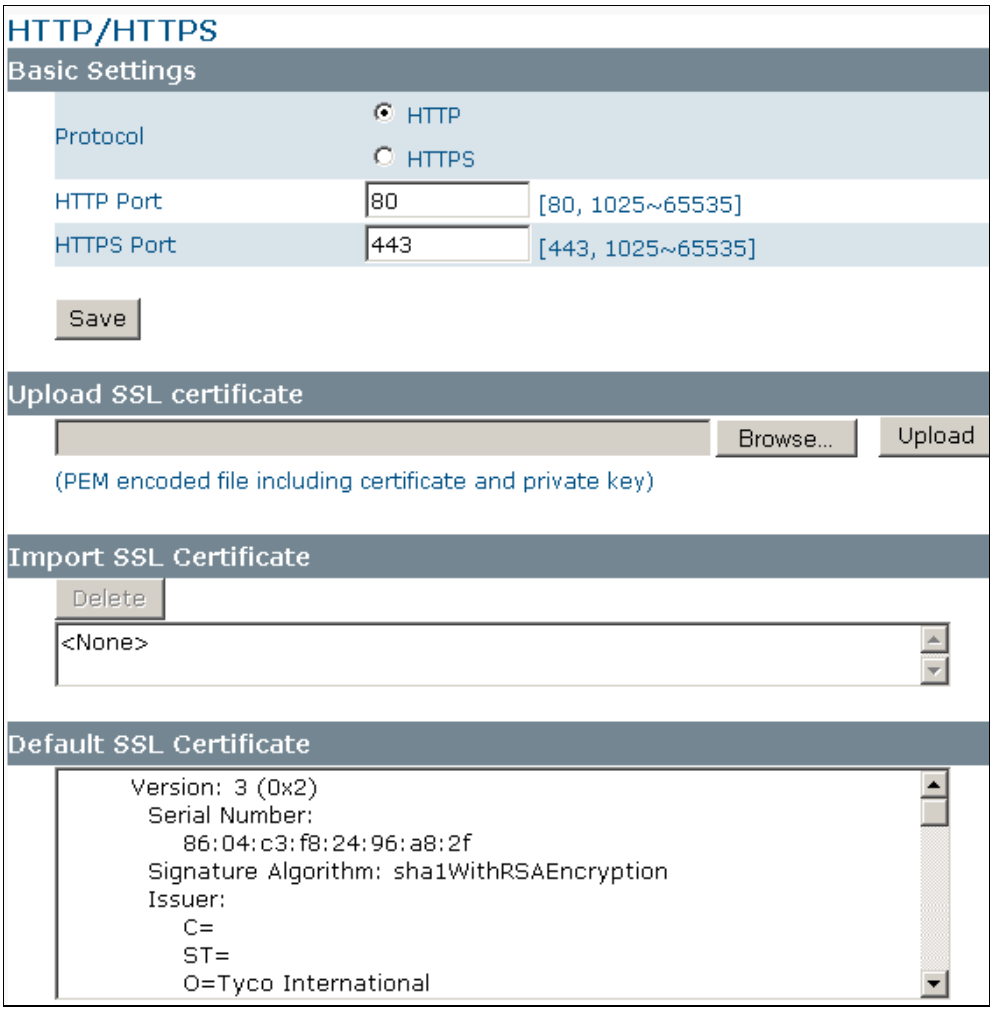
  Notes

  1. After ticking the DHCP checkbox, a pop-up will appear asking for confirmation. Click **OK**. Be sure to click the **Save** button on the web page to enable the DHCP function.

  2. Once DHCP is successfully enabled, the camera will use an IP address assigned by the DHCP server. You will need to know the newly obtained IP address in order to access the camera's web page. To see the IP address information, use the **Illustra Connect** tool and use the MAC address to identify the camera and find its IP address information.

  3. If your PC loses connection to the camera after you change the IP address settings, it's suggested that you restore **Hardware Factory Defaults** by using the **Default** button on the camera. Then use the default IP address to re-establish the connection.
- **IP Address & Subnet Mask:** If DHCP function is not enabled, you have to assign an IP address with the subnet mask to the camera.
- **Default Gateway:** Enter the IP address of the gateway if required. Please contact your network administrator whether you need to set up the gateway.
- **DNS:** Enter the IP address of a DNS server.
- **MAC Address:** Display the MAC address of the camera. Each camera comes with a unique MAC address, which is indicated on the product label. It helps you to identify which camera is currently accessed, particularly when multiple cameras are connected on your network.

HTTP/HTTPS



- **Protocol:** Select one of the following modes:
  - **HTTP:** Enables unauthenticated and unencrypted access to the camera web client. Data will not be encrypted during transmission.

    Notes

    If the Protocol is set to HTTP, access to the camera must use a URL that begins with “http:”. The web browser displays an error message if the camera URL is not entered correctly.
  - **HTTPS:** Enables authenticated and encrypted access to the camera web client through SSL. Data will be encrypted during transmission.

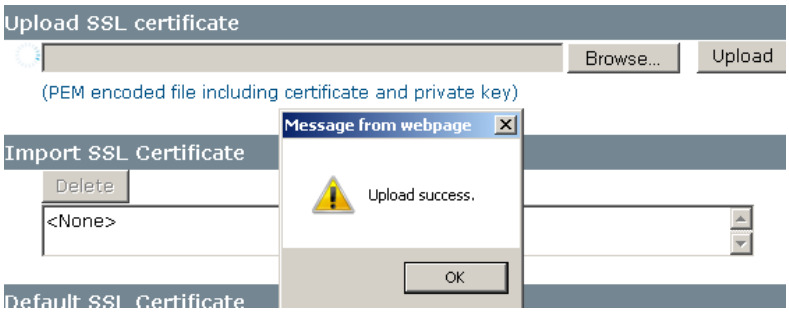
    Notes

    If the Protocol is set to HTTPS, access to the camera must use a URL that begins with “https:”. The web browser displays an error message if the camera URL is not entered correctly.
- **HTTP Port:** Type the port number in the HTTP Port field. The default port for HTTP communications is **80**. The port number can be 80, or any number between 1025 and 65535.
- **HTTPS Port:** Type the port number in the HTTPS Port field. The default port for HTTP communications is **443**. The port number can be 443, or any number between 1025 and 65535.
- **Browse… (SSL Certificate):** Click Browse… button to navigate to and select a certificate file. The certificate file must be a PEM encoded file (.pem) containing a signed certificate and unencrypted private key.

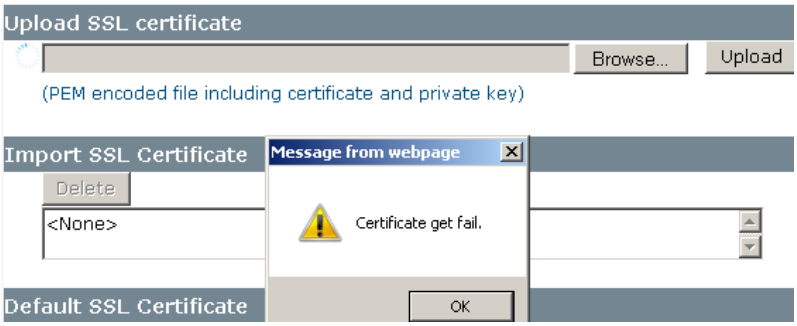
- **Upload (SSL Certificate):** Click Upload button to import the selected certificate file selected using the “Browse…” button.

  Notes

  When uploading process is successful, the dialogue box will respond as the figure below.



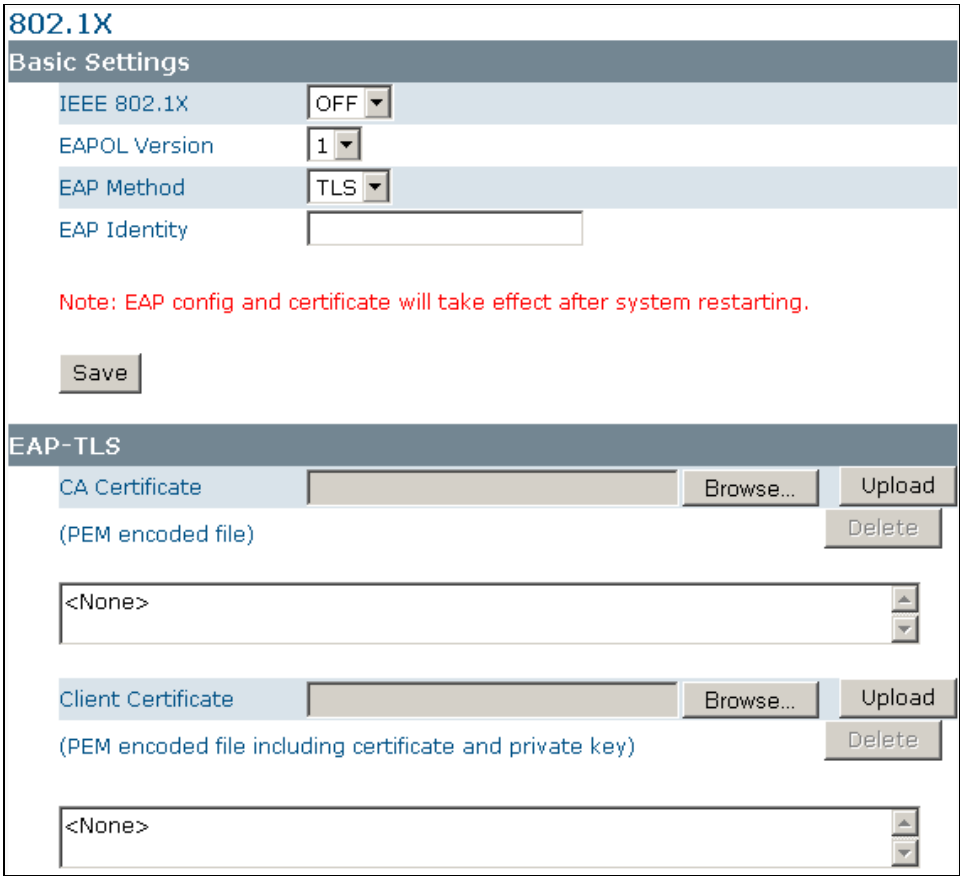
  However, if uploading process fails, the dialogue box, instead, will respond as the following figure.



- If the Protocol is set to HTTP, access to the camera must use a URL that begins with “http:”. The web browser displays an error message if the camera URL is not entered correctly.
- **Import SSL Certificate:** Click Delete button to delete an imported certificate and private key. The text that follows this heading in the window displays the information from the imported SSL Certificate.
- **Default SSL Certificate:** The text that follows this heading in the window displays the information from the default SSL Certificate.

802.1X

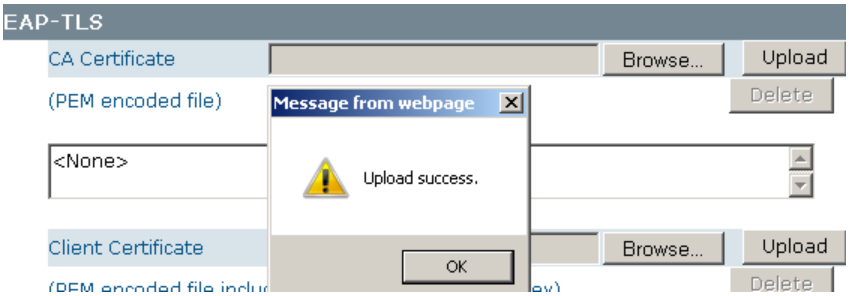
802.1X is an IEEE standard for Port-based Network Access Control (PNAC) that authenticates devices that want to establish a point-to-point access through a wired or wireless LAN or WLAN port using Extensible Authentication Protocol (EAP). This port-based authentication method prevents unauthorized access to a Local Area Network (LAN) through a physical port. For example, when a camera is connected to a network port, the network switch will ask the camera for authentication.
If the credential is accepted when the camera sends its credential to the authentication server (via the network switch), the network switch will open the port for normal use. If the credential is rejected, the camera will be prevented from gaining access to the network.



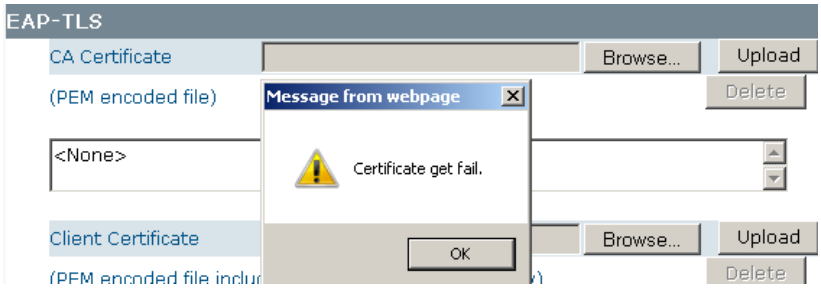
- **IEEE 802.1X:** Enable or disable the IEEE 802.1X protocol.
- **EAPOL version:** Select the EAPOL version (1 or 2) as used in the network switch.
- **EAP Method:** Supported EAP methods (currently only EAP-TLS).
- **EAP identity:** Enter the user identity (maximum 16 characters) associated with your certificate. **Note:** Do not leave this entry blank.
- **CA Certificate:** The CA certificate is used by the camera to validate the identity of the authentication server. Navigate to and select the CA certificate file using the “Browse…” button. Then click Upload. To remove a certificate, click Delete. The CA certificate file is a PEM (.pem) file.

Notes

When uploading process is successful, the dialogue box will respond as the figure below.



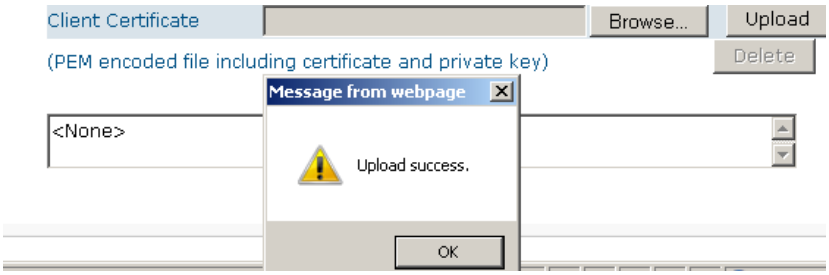
However, if uploading process fails, the dialogue box, instead, will respond as the following figure.



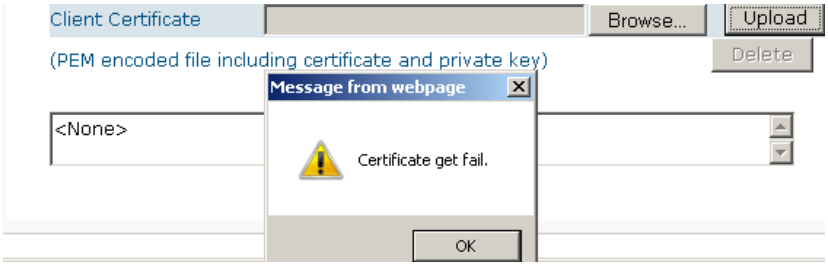
- **Client Certificate:** The client certificate and private key are used by the authentication server to authenticate the camera. The client certificate file must be uploaded in one combined PEM encoded file (e.g. a .pem file). Navigate to and select the client certificate file using the “Browse…” button. Then click Upload. To remove the file, click Delete.

Notes

When uploading process is successful, the dialogue box will respond as the figure below.



However, if uploading process fails, the dialogue box, instead, will respond as the following figure.



FTP

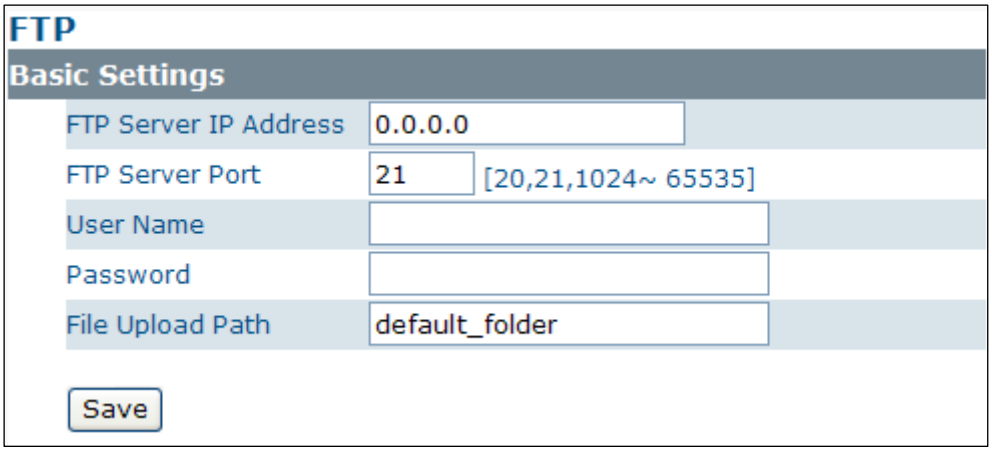
To allow the camera to upload recorded video clips to an FTP server, you have to specify an FTP server and configure the related settings.

- **FTP Server:** Enter the IP address of your FTP server.
- **FTP Server Port:** Enter the FTP port number. 20 and 21 are standard FTP port numbers but you may also choose a non-standard port number between 1024 and 65535.

  Notes

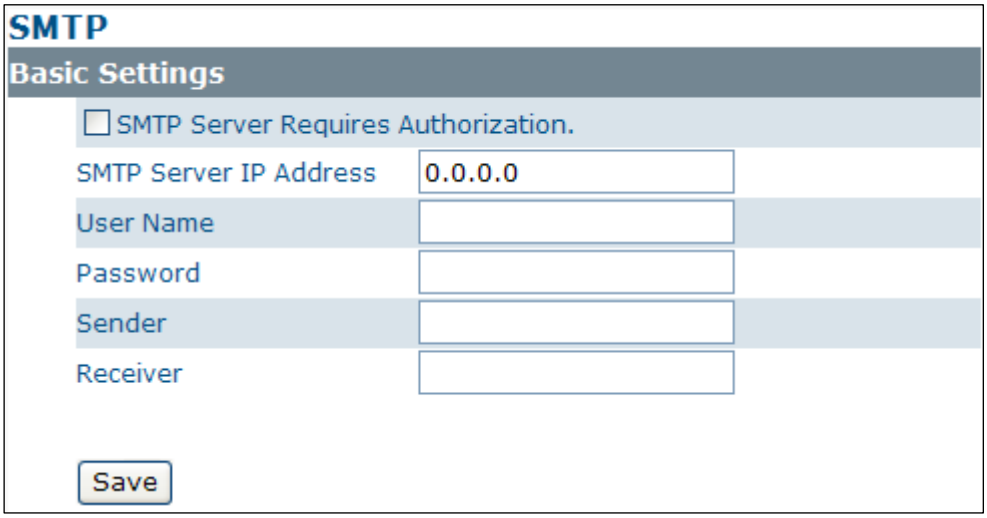
  1. Don't use the port numbers which have been used by the camera, including **8080**, **25001** and **38782**. Also, avoid using RTSP port numbers (default **7777~7781** unless otherwise specified.)

  2. Don't use the port numbers which have been used by other services on your network. Contact your network administrator on which port numbers have been used.
- **User Name:** Enter the user name to log in to the FTP server.
- **Password:** Enter the password to log in to the FTP server.
- **File Upload Path:** Specify the folder path where you'd like to upload files to.



SMTP

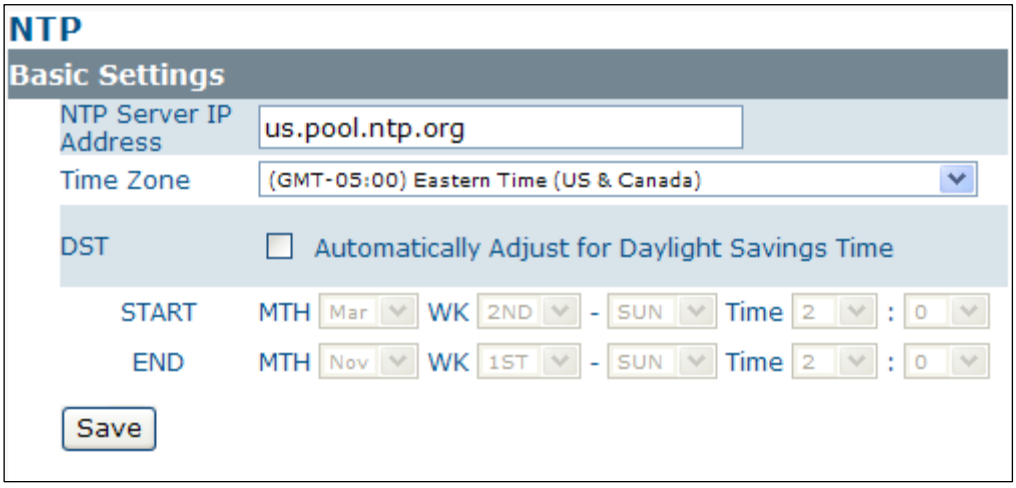
To allow the camera to send you email notification when an event is triggered, you need to specify an SMTP server to send the e-mail.



- **SMTP Server Requires Authorization:** If your SMTP server requires authorization to send e-mail, enable this option.
- **SMTP Server IP Address:** Enter the IP address of your SMTP server.
- **User Name:** Enter the user name to log in to the SMTP server.
- **Password:** Enter the password to log in to the SMTP server.
- **Sender:** Enter the e-mail address to be shown as the sender of the notification e-mail.
- **Receiver:** Enter the e-mail address to which the notification e-mail is sent.

NTP

If you want your camera to synchronize its time clock with a Network Time Protocol (NTP) server, configure the NTP server settings here.

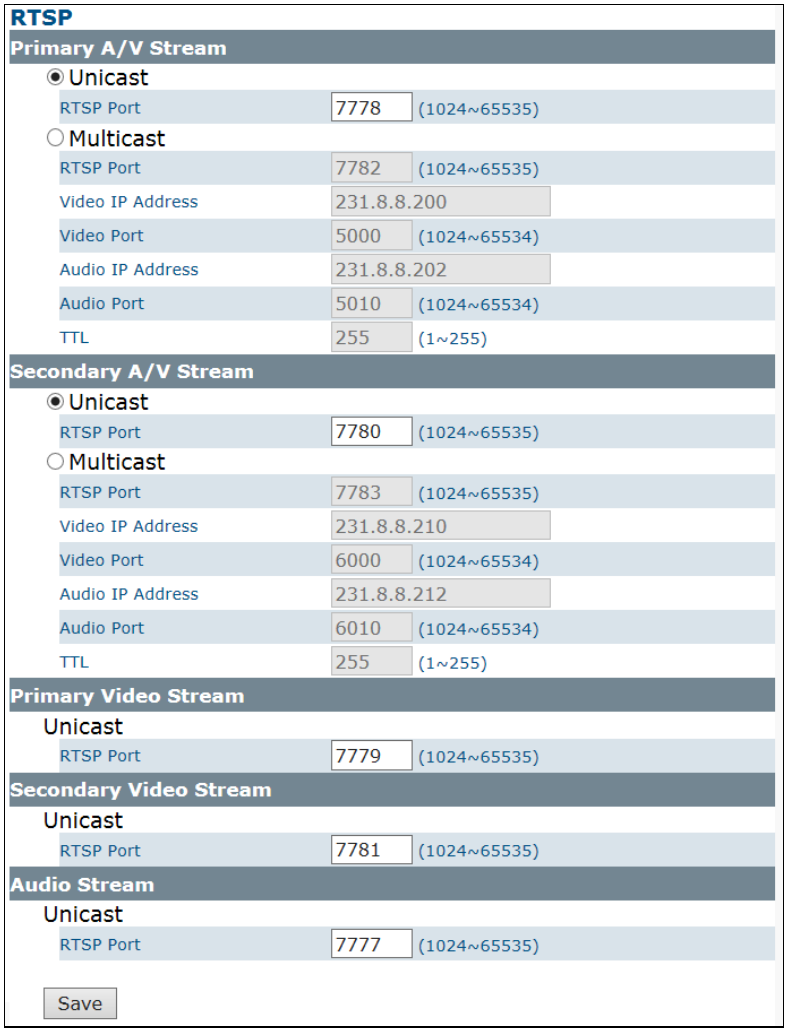


- **NTP Server IP Address:** Enter the IP address or domain name of the NTP server you want to use.
- **Time Zone:** Select a time zone in which the camera is located.
- **DST (Daylight Saving Time) Saving:** Check this check box if you use the camera in an area that is affected by DST. Then specify the month, week, weekday and time from the **START** and **END** drop-down lists. The camera will adjust the clock automatically according to your DST settings.

  Note that if the DST date in your area is different each year, then you need to change the start and end times each year, otherwise you need only change the settings once.

RTSP

RTSP is a standard for connecting a client to establish and control streaming data over the web. If you want to allow third-party devices or software to access video/audio streams from the IP camera over the network, you must configure the RTSP ports. You can provide five streams according to the specific codec mode with different RTSP port. The major difference between Unicast and Multicast is the way how client and server communicate packets with each other. Specifically, unicast transmits packets under 1 to 1 device method and multicast, on the other hand, transmits via the way of 1 to multiple devices. Hence, unicast requires large network bandwidth and occupies more resources of server but is more stable because of its simple structure; by contrast, multicast needs less bandwidth with resources and is more practical for multiple devices broadcast. Please adopt proper method based on your network applications.



To use an RTSP player to access the camera's stream, you have to use the correct RTSP URL to request the streams. Refer to the table below for RTSP URLs:

Stream	Codec Support	RTSP Request Command
Primary A/V stream	Audio and Video	rtsp://<IP Address>:<primary A/V codec port>/primarystream
Primary Video stream	Video	rtsp://<IP Address>:<primary video codec port>/primarystream
Secondary A/V stream	Audio and Video	rtsp://<IP Address>:<secondary A/V code port>/secondarystream
Secondary Video stream	Video	rtsp://<IP Address>:<secondary video codec port>/secondarystream
Audio stream	Audio	rtsp://<IP Address>:<audio codec port>/audio

Note:

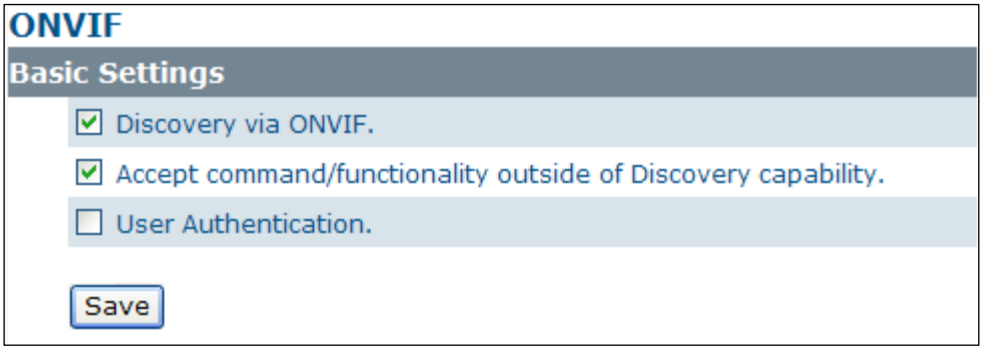
1. When using RTSP to access the camera audio streams, you can only access the one-way audio from the camera to your computer.

2. Port numbers 7777~7781 are reserved by the system. Even if ports 7777~7781 are not used by RTSP, they cannot be used by other services.

3. When opting to multicast protocol, please adopt the default settings. Ask IT personnel for details if any modification for multicast value is required.

ONVIF

ONVIF, Open Network Video Interface Forum, is an industry standard that strives for interoperability between IP-based physical security products regardless of manufacturer. This camera is ONVIF compliant and you can configure whether the camera can be found by other ONVIF compliant products and the related settings.



- **Discovery via ONVIF:** Check this option if you want the camera to be discovered by other ONVIF compliant devices in a network, e.g., an ONVIF compliant NVR.
- **Accept command/functionality outside of Discovery capability:** If checked, the camera is allowed to accept command from ONVIF compliant device thus changing the camera's functionality.
- **User Authentication:** If an ONVIF compliant device needs authentication for communication, then you should enable this option.

Notes:

If you are using the **Illustra Connect** tool to discover the camera, the PC that runs the tool must synchronize its time clock with the camera to ensure a successful authentication.

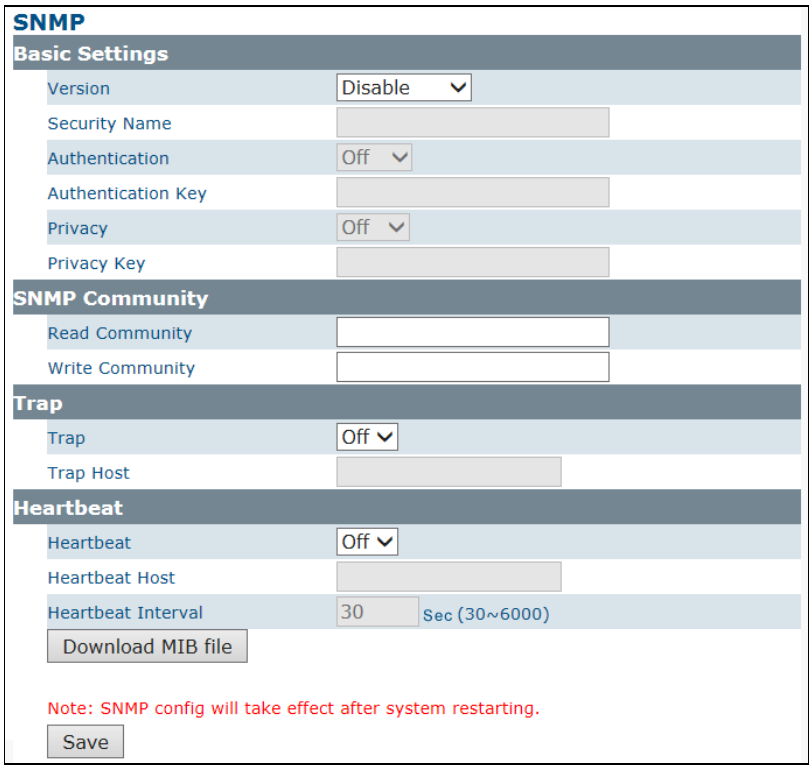
To do so:

1. Go to **Network** > **NTP** and set the **Time Zone** to be the same as the one used by the PC.

2. Go to **System** > **Date & Time** and enable the "**Synchronize with Computer Clock**" option.

SNMP

SNMP (Simple Network Management Protocol) is an Internet standard protocol on top of application layer that restructures the exchange of management information among network-attached nodes, which helps administrators to remotely manage network devices and master network problems with ease.



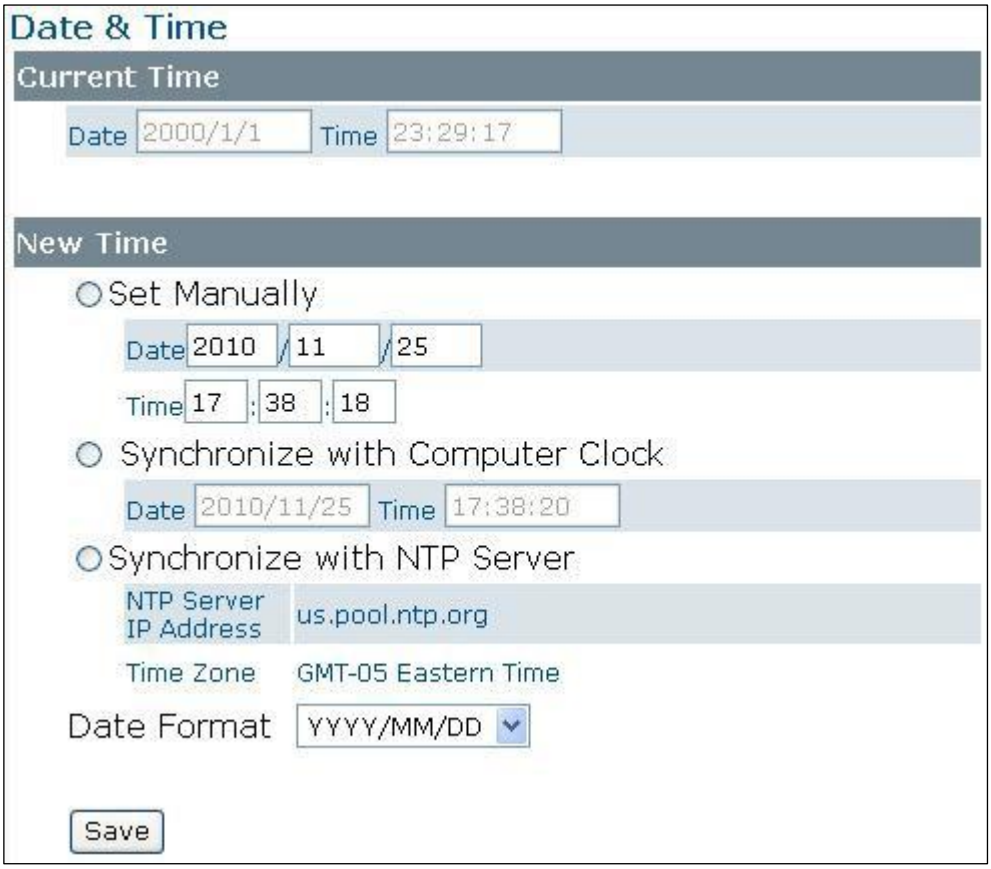
- **SNMPv1/SNMPv2c:** Select SNMPv1 or SNMPv2c for version of SNMP protocol.
- **SNMPv3:** SNMPv3 provides more security features than SNMPv1/SNMPv2. Input Security Name for SNMPv3 first. Then select desired protocols for “Authentication” with “Privacy” and enter keys paired with both protocols individually.
- **SNMP Community:** Enter the names of Read Community String and Write Community String separately.
- **Trap:** Trap under SNMP allows an agent to notify the management station of significant events by way of an unsolicited SNMP message, the asynchronous notification. Select “ON” or “OFF” to enable or disable trap function. Input required IP address of Trap Host. Additionally, the following types of trap are available for IT personnel to configure: “Start SNMPD”, “Kill SNMPD” and “Heartbeat”. Refer to qualified IT personnel for more information.
- **Heartbeat:** To ensure a network free from delayed message, Heartbeat, the communication protocol sends back a message in a given interval to properly confirm message is alive and in fact with a periodic heartbeat. Select “ON” or “OFF” to enable or disable heartbeat function here. Input required IP address of Heartbeat Host & assign Heartbeat Interval ranging from 30 – 6000 seconds.
- **Download MIB:** Click “Download” to get specifics of MIB (Management Information Base). MIBs describe the structure of the management data of a device subsystem; which uses a hierarchical namespace containing object identifiers (OID). Each OID identifies a variable that can be read or set via SNMP. The genres of MIB below are for IT personnel only: “IP-MIB”, TCP-MIB”, “UDP-MIB”, “SNMPv2-MIB” and “RFC1213-MIB”. Please contact qualified IT personnel for details.

System

The **System** settings allow you to configure system settings. The defaults are listed in the table below:

Date & Time	Current Time	Camera clock time
User management	Default account	Authority: administrator
		Username/Password: admin/admin
	Add/Modify User	Username/Password: Null/Null
		Confirm password
		Authority: Viewer
Language	Basic Settings	English
Audio	Audio Playing	Disabled
	Audio Playing Volume	2
	Audio Recording	Disabled
	Audio Recording Volume	2
	Audio Sampling Frequency	8000K Hz

Date & Time



Current Time

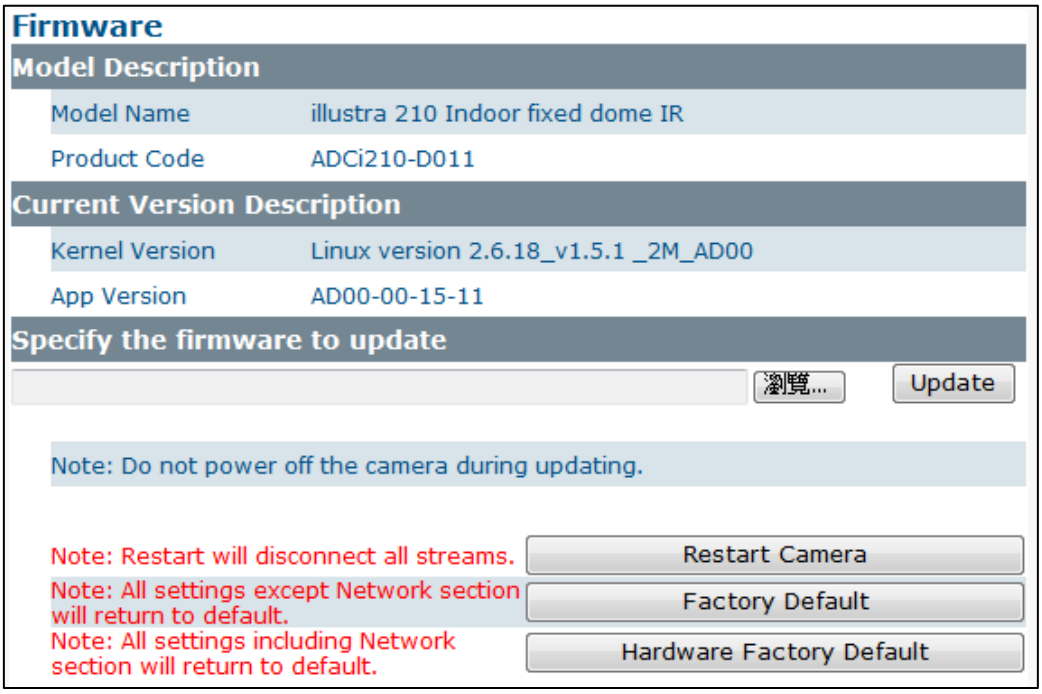
This displays the current date and time of the camera. Date and time will update after you configure new settings in the **New Time** section and click **Save** to apply the settings.

New Time

You can set the camera time by one of the following methods:

- **Set Manually:** Manually enter your camera's date and time settings in the given fields.
- **Synchronize with Computer Timer**: Use this option to synchronize your camera's date and time with the computer timer.
- **Synchronize with NTP Server:** Use this option to synchronize your camera's date and time with an Network Time Protocol (NTP) server.
- **Date format:** Allows you to specify a desired date format.

Firmware



Model Description

Displays model name and product code of the camera.

Current Version Description

Displays current version of the firmware.

Specify the firmware to update

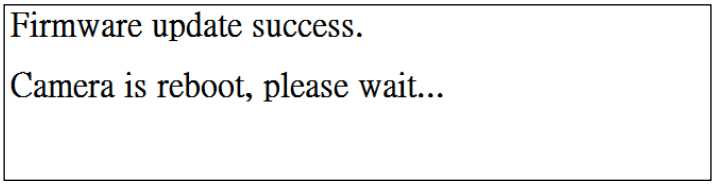
This function is designed to update the firmware of the camera. To perform the firmware upgrade, note that:

- Keep the network connected during the update process.
- DO NOT turn off or restart the camera during the firmware update process.

To upgrade the firmware:

1. Click the **Browse** button to locate the firmware file.
2. Click the "**Update**" button to start upgrade.
3. When prompted, click **OK** to proceed.

4. Wait about 20~60 seconds until the file is successfully updated. Once update is completed, the browser will show a message that reads “Firmware update success”. Then it will take 60 seconds to restart the camera.



5. The utility will automatically go back to live view screen after firmware has been updated successfully.

You can also perfume these tasks on the **Firmware** screen:

- **Restart camera:** Restart your camera. This will cause all streams to disconnect.
- **Factory Default:** Reset all of the camera settings to the defaults, except network settings and date & time settings.
- **Hardware Factory Default:** Reset the camera settings to the defaults, including the network settings, but the Date & Time settings will be retained.

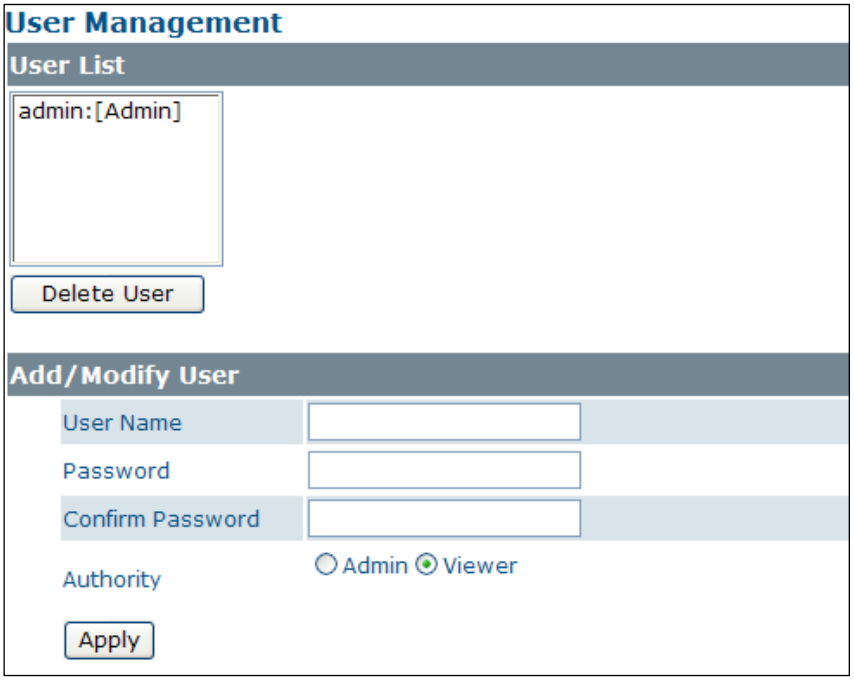
Notes:

1. All the settings will be retained after firmware update.

2. If power is lost during the update process, the system will restart in about two minutes and use the previous firmware.

User Management

The **User Management** page allows you to manage user accounts and access privileges.



User List

This displays the list of current user accounts belonging to the camera. To delete a user account, select it from the list and then click the **Delete User** button.

Add/Modify User

You can add a new user or modify current user's account or authority.

- To add a new user, enter the user name and password and specify the authority. Then click **Apply** to add a user.
- To modify the password of an existing user, enter the user name and modify the password.
- Two roles can be specified:
  a. **Admin (Administrator):** Can access all camera functions, screens and change configurations.
  b. **Viewer (Guest):** Can only access the live view screen and take snapshots.

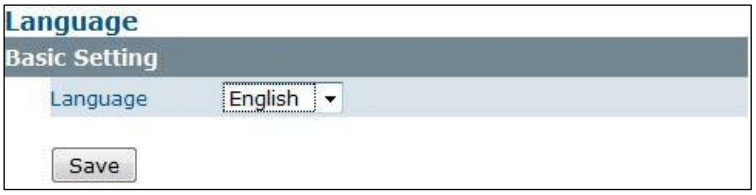
Notes:

1. The system supports up to ten user accounts (user and admin together), including the default admin account.

2. The default administrator account cannot be deleted.

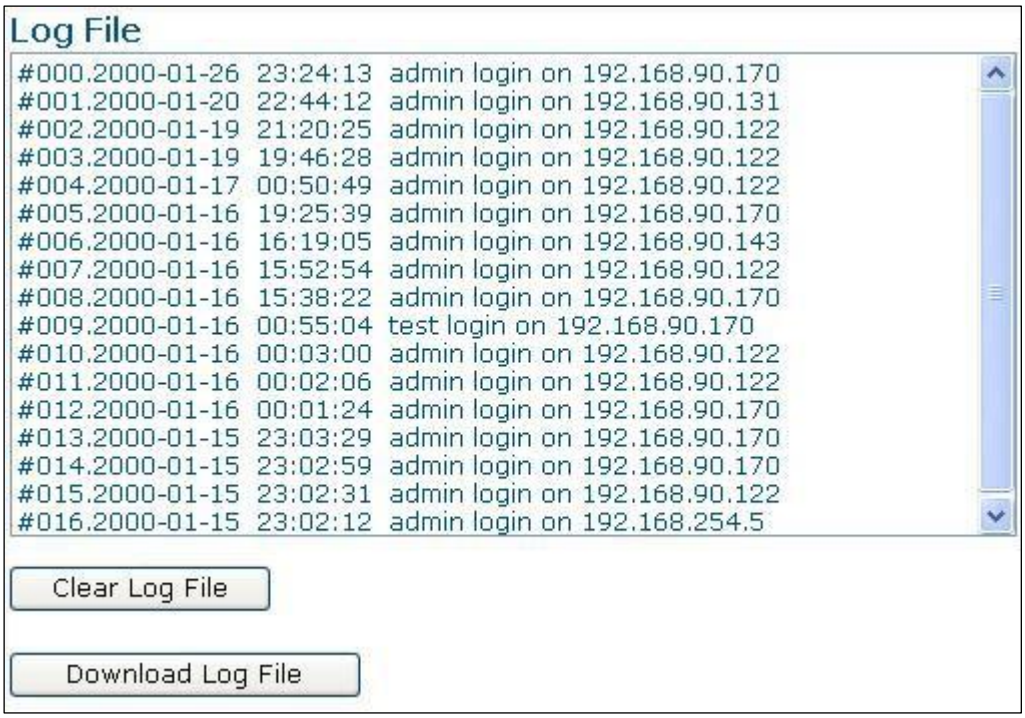
Language

The **Language** drop-menu allows you to change the language of the web interface. Supported languages include English, French, German, Spanish, Russian, Italian, Dutch, Simplified Chinese and Portuguese. After you click **Save**, the settings is applied and the browser will refresh to reflect the change.



Log File

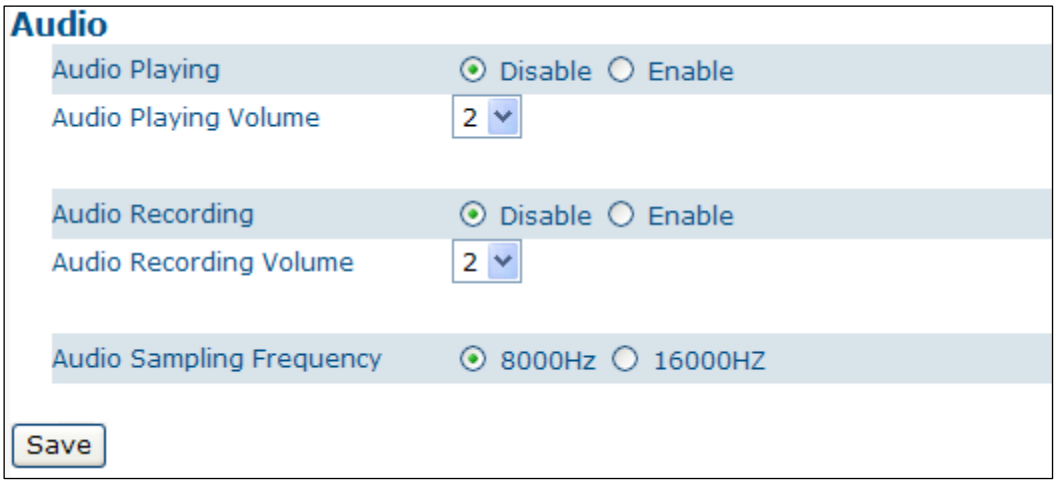
This page displays information about the camera's operations and activities, including all the login and alarm records. The log can hold up to 100 records. When the log files become full, the oldest log entry will automatically be deleted.



You can perform these tasks on the **Log File** page:

- Clear Log File: Clicking this button allows you to clear the log records.
- Download Log File: Clicking this button allows you to open or save the log in txt format.

Audio



- **Audio Playing:** If a speaker is connected to the camera, you can select **Enable** to enable the playing function. This enables you to speak to the people around the camera. Adjust the **Audio Playing Volume** as required.
- **Audio Recording:** If a microphone is connected to the camera, you can select **Enable** to enable the recording function. When enabled, event-triggered and schedule recording (in AVI format) will also record the audio coming from the camera. Adjust the **Audio Recording Volume** as required.
- **Audio Sampling Frequency:** Select a desired audio sampling frequency. A higher audio sampling frequency captures more samples per second and thus provides higher quality audio.

Using the two-way audio function

Note that the two-way audio function is only active in the live view page using the web browser. To use the two-way audio function:

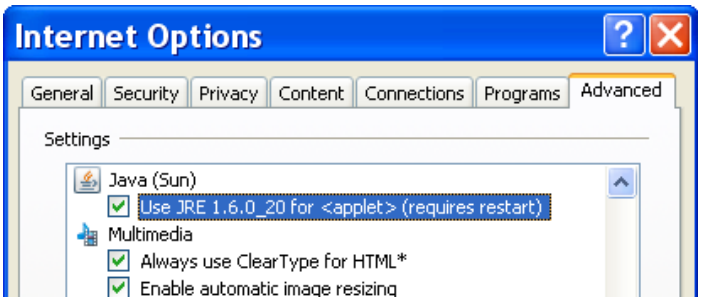
1. Make sure a speaker is connected to the **Audio Out** and a microphone is connected **Audio In** connectors on the camera.
2. Enter **Illustra** > **System** > **Audio** and enable the **Audio Recording** and **Audio Playing** functions. Then adjust the audio volume.

To access the two-way audio streams from your computer:

1. Make sure your computer is connected to a microphone and speaker.
2. Enter the **live view page** of the web-based **Illustra** utility.

   If prompted to install the **JRE** (**Java Runtime Environment)**, follow the prompts to install the component.

For Windows XP users, within your browser, go to **Tools > Internet Options** > **Advanced** and make sure the **Use JRE X.X.X for <Applet> (requires restart)** checkbox under **Java (Sun)** heading is checked.



3. Speak into your computer's microphone and the people around the camera should hear your sound. If an event alarm is triggered at this moment, the computer-to-camera audio transmission will be interrupted. Then people around the camera will hear the alarm instead. After the event alarm is terminated, the computer-to-camera audio transmission is resumed.
4. When people around the camera are talking to you, you should hear them from your computer's speaker.

One-way audio function

If you are using RTSP to access the camera streams, note that the RTSP supports only one-way audio from the camera to your computer. For more information, please refer to the "**4.3.5 RTSP**" section.

Event

When an event occurs, it triggers an alarm and the camera will take a pre-defined action, e.g., sending a recorded video clip to a designated server. With this camera, an event can be triggered by external alarm devices or the camera's detection mechanism, including motion, blur, audio and Ethernet detection. The actions you can specify include:

Alarms Only	No action will be taken (but an alarm is logged).
FTP	The camera will record AVI/JPEG files to a specified FTP server when the alarm is triggered. If the FTP server is not available, the camera will automatically save the recorded files to the SD card (if there is one) and write the event to the log.

SMTP	The camera will send a notification e-mail attached with the recorded JPEG files to a specified SMTP server. If the SMTP server is not available, the camera will automatically save the recorded files to the SD card (if there is one) and write the event to the log.
SD Card	The camera will record AVI/JPEG files to the SD card when the alarm is triggered. We do not recommend that the SD card be used as the primary medium for continuous recording due to the finite lifetime of Flash memory.

Notes:

1. For the actions regarding recording, scheduled recording takes top priority, Ethernet triggered recording takes second, then other event triggered recording.

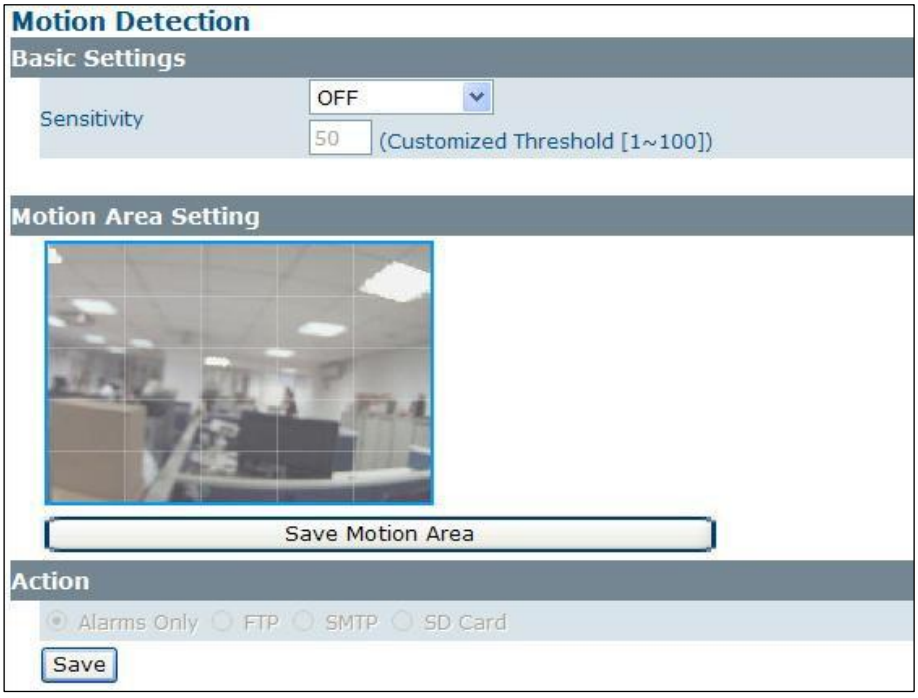
2. Only one event will be handled at a time. If an event is already triggered, other event will be logged to the system but no action will be taken.

The Event defaults are listed in the table below:

Motion Detection	Sensitivity	Off
	Motion Area Window	No Mask
	Customized Threshold [1~100]	50
	Action	Alarms Only
External Alarms	External Alarm Input 1	Disabled
	External Alarm Input 2	Disabled
	External Alarm Output	Disabled, Active state: Normal Close
	Action: External Alarm Input 1	Alarms Only
	Action: External Alarm Input 2	Alarms Only
Blur Detection	Sensitivity	Off
	Customized Threshold [1~100]	50
	Action	Off
Audio Detection	Sensitivity	Off
	Customized Threshold [1~100]	50
	Action	Alarms Only
Ethernet Detection	Trigger an Alarm When Ethernet is Disconnected	Off
	Action	Alarms Only
Event Setting	Alarm Duration	10 seconds

Motion Detection

With motion detection enabled, when the camera detects motion under a pre-specified condition within a pre-designated area, the camera will generate an alarm and then take an action that you specify.



Basic Settings

- **Sensitivity:** Specify the sensitivity to moving objects before the camera triggers an alarm. The higher the sensitivity, the slighter the movement is required to generate an alarm. You can alternatively select **Custom** and enter a value from 1 to 100 in the **Customized Threshold** field. The higher the value, the higher the sensitivity.

  When set to **OFF**, motion detection is disabled.

Note:

To use the Motion Detection function, you must enable one stream in MJPEG to define the area and the other in H.264 to set up the sensitivity.

Motion Area Setting

- **Motion area setting:** Click target squares displayed on the screen to define detection areas. To deselect an area, just click it again. Once configured, click **—Save Motion Windowll** to save settings.

Action

Specify the action to be taken when an alarm is triggered upon motion detection:

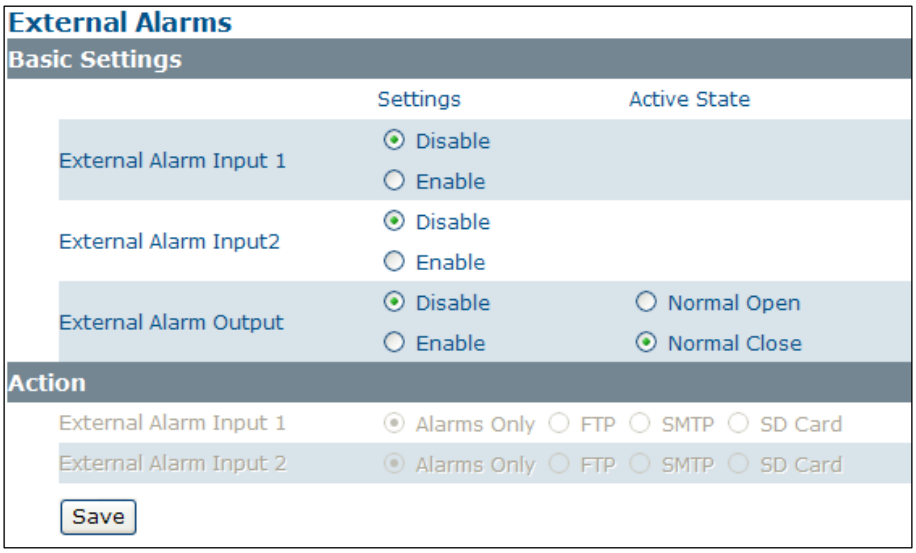
- **Alarms Only:** No action will be taken (but an alarm is logged).
- **FTP:** Recorded AVI/JPEG files will be uploaded to an FTP server when the alarm is triggered.

- **SMTP:** Notification e-mail attached with the recorded JPEG files will be sent to a SMTP server.
- **SD Card:** Recorded AVI/JPEG files will be saved to the SD card when the alarm is triggered.

External Alarms

Following events can trigger external alarm output: Motion Detection, External Alarms (External alarm input 1/2), Blur Detection, Audio Detection and Ethernet Detection.

If external alarm devices, e.g., sensors and alarms, are connected to the camera's alarm input/output, then you must use the following settings.



Basic Settings

- **Settings:** Enable the I/O that is connected with external alarm devices.
- **Active State:** For external alarm output, set the alarm contact type as **Normal Close** or **Normal Open**. For external alarm input, the active state is always **Normal Open**.

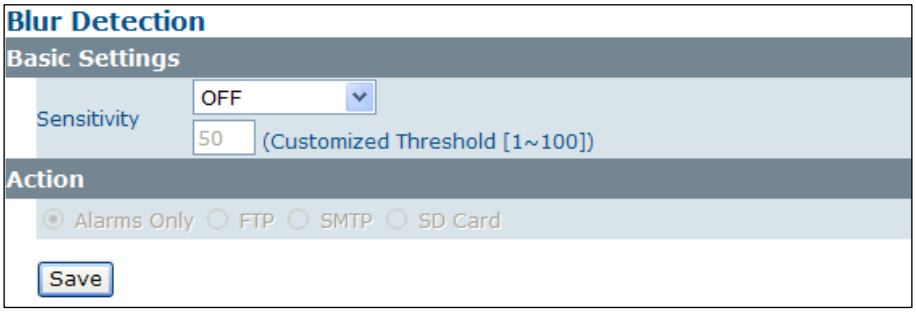
Action

Specify the action to be taken when external alarm is triggered:

- **Alarms Only :** No action will be taken (but an alarm is logged).
- **FTP:** Recorded AVI/JPEG files will be uploaded to a FTP server when the alarm is triggered.
- **SMTP:** Notification e-mail attached with the recorded JPEG files will be sent to a SMTP server.
- **SD Card:** Recorded AVI/JPEG files will be saved to the SD card when the alarm is triggered.

Blur Detection

With blur detection function enabled, when the camera detects incidents that make video image blur, e.g. redirection, blocking or defocusing, the camera will generate an alarm and then take an action you specify.



Basic Settings

- **Blur Detection:** Specify the level of blur in the video image before the camera triggers an alarm. The higher the value, the slighter a blur is required to generate an alarm.

  When set to **OFF**, blur detection is disabled.

- **Sensitivity:** You can alternatively custom the camera's sensitivity to a blur. The camera will judge if the camera has been tampered based on the sensitivity threshold you specify.

Action

Specify the action to be taken when an alarm is triggered upon blur detection:

- **Alarms Only:** No action will be taken (but an alarm is logged).
- **FTP:** Recorded AVI/JPEG files will be uploaded to a FTP server when the alarm is triggered.
- **SMTP:** Notification e-mail attached with the recorded JPEG files will be sent to a SMTP server.
- **SD Card:** Recorded AVI/JPEG files will be saved to the SD card when the alarm is triggered.

Audio Detection

With audio detection function enabled, when the camera detects sound, the camera will generate an alarm and then take an action you specify.

Basic Settings

- **Audio Detection:** Specify the camera's sensitivity to the audio signal. The higher the sensitivity, the lower the volume is required to generate an alarm.

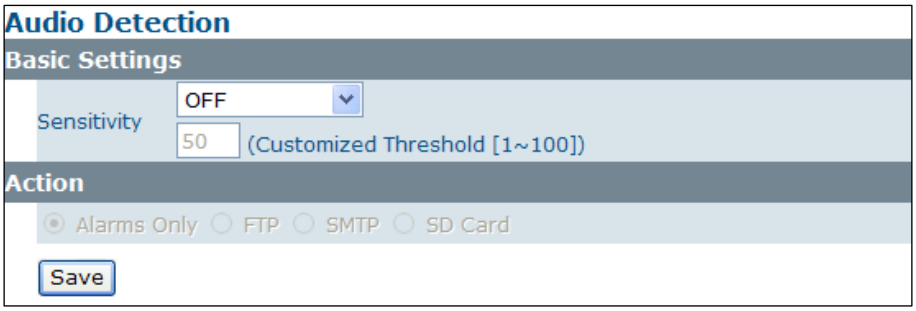
  When set to **OFF**, audio detection is disabled.

- **Sensitivity:** If **Custom** is selected in the field above, then you can alternatively custom the camera's sensitivity to the audio signal.

Action

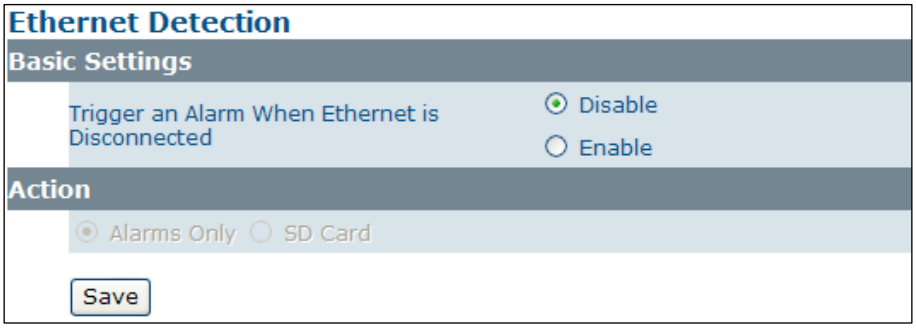
Specify the action to be taken when an alarm is triggered upon audio detection:

- **Alarms Only:** No action will be taken (but an alarm is logged).
- **FTP:** Recorded AVI/JPEG files will be uploaded to a FTP server when the alarm is triggered.
- **SMTP:** Notification e-mail attached with the recorded JPEG files will be sent to a SMTP server.
- **SD Card:** Recorded AVI/JPEG files will be saved to the SD card when the alarm is triggered.



Ethernet Detection

With Ethernet detection function enabled, when the camera detects an Ethernet disconnection, the camera will generate an alarm and then take an action you specify.



Basic Settings

- **Trigger an Alarm When Ethernet is Disconnected:** Specify whether to disable/enable this function.

Action

Specify the action to be taken when an alarm is triggered upon Ethernet detection:

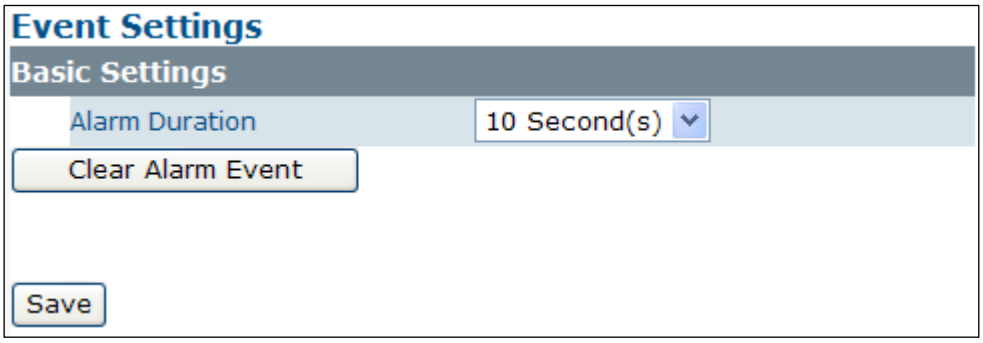
- **Alarms Only:** No action will be taken (but an alarm is logged).
- **SD Card:** Recorded video clip will be saved to the SD card in AVI format when the alarm is triggered, providing that H.264 is selected as either primary or secondary stream.

  Note:

  Regardless of your settings in **Recording** > **SD card**, for Ethernet disconnection triggered recording, the video clip will always be saved in AVI format, providing that H.264 is selected as either primary or secondary stream.

Event Configuration

On this screen you can configure the alarm duration and reset the alarm.



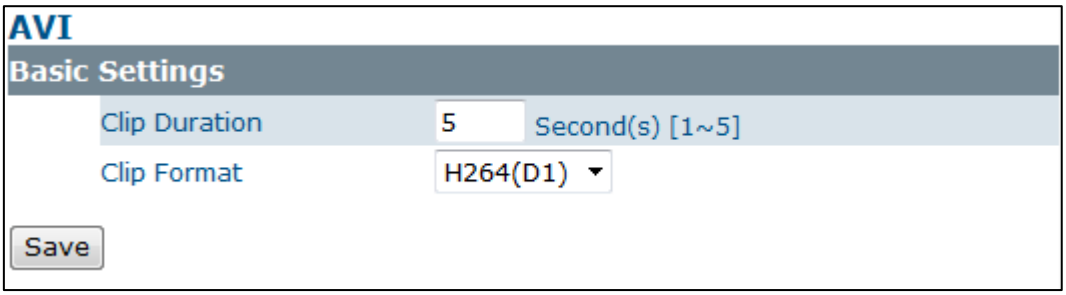
- **Alarm Duration:** Specify the duration of the alarm when an event is triggered.
- **Clear Alarm Event:** When you click this button, the camera will clear the alarm and re-detect if the alarm cause has been removed.

Recording

The Recoding settings allow you to configure recording-related settings and schedule recording. The defaults are listed in the table below:

Settings	AVI Settings	Clip Duration	5 seconds
		Clip Format	i210 series: H264 (720x480, NTSC ; 720x576, PAL)
	JPEG Settings	Number of JPEG	5
	FTP	File Format	AVI
	SD Card	File Format	JPEG
		Cyclically Overwrite	Disabled
Schedule	Recording Type	Enable Record - Save to SD card	Disabled
	Period	Disabled, Monday, from 00:00 to 00:00	

Settings – AVI



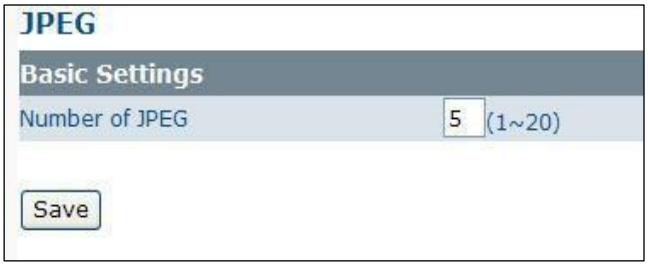
Configure the duration and format of video to be recorded when an alarm is triggered.

- **Clip Duration:** Enter the duration for the video to be recorded.
  - If SD card is inserted, the recording length will be from 1 to 20 seconds
  - If SD card is not inserted, the recording length will be from 1 to 5 seconds.
- **Clip Format:** Select a desired video format.

Note

If **Settings** > **SD Card** > **Cyclically Overwrite** is disabled, once the SD card has reached maximum capacity, recording will cease.

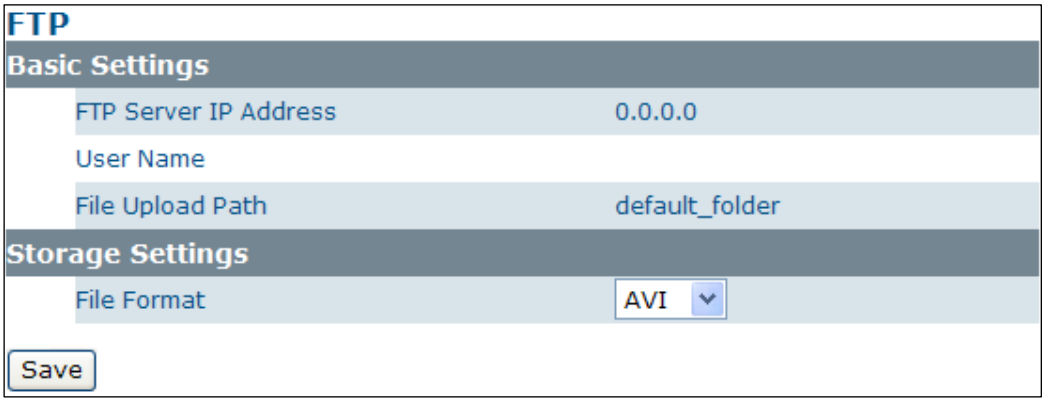
Settings – JPEG Settings



Basic Settings

- **Number of JPEG files:** Specify the number of JPEG files to be recorded when an alarm is triggered. This setting determines how many JPEG files will be uploaded to the FTP server, SD card (if configure to use JPEG as file format) and how many JPEG files to be attached to the notification e-mail. Use a lower number if the storage medium has a limited size.

Settings – FTP



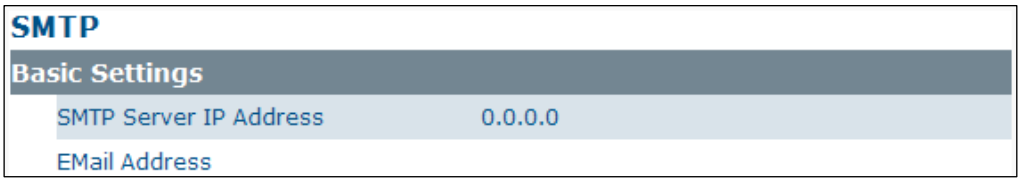
Basic Settings

Displays current FTP settings, which are specified via **Network** > **FTP**.

Storage Settings

- **File Format:** Select a format in which to upload the video file to the FTP server when an event has been triggered.

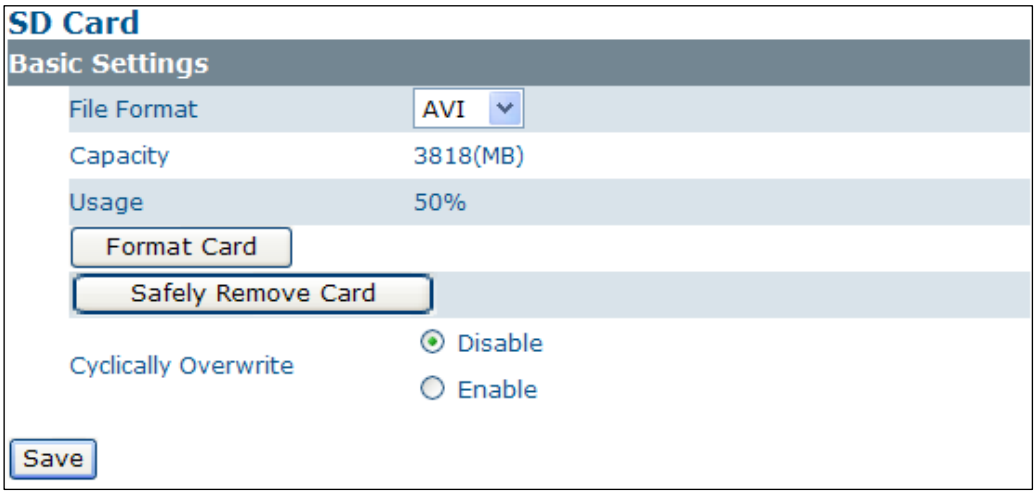
Settings – SMTP



Basic Settings

Displays current SMTP settings, which are specified via **Network** > **SMTP.**

Settings – SD Card



Basic Settings

- **File Format:** Specify the format of the video clip to be saved to the SD card when an event is triggered. For scheduled and Ethernet disconnection triggered recording, the video clip will be saved in AVI format only, providing that H.264 is selected as either primary or secondary stream.
- **Capacity/Usage:** Shows the card capacity and the space usage percentage.
- **Format Card:** Use this button to format the SD card. This option is not available if an SD card has not been inserted in the camera.
- **Safely Remove Card:** Use this button to un-mount the SD card. If recording is in process, this function is inactive. This option is not available if an SD card has not been inserted in the camera.
- **Cyclically Overwrite:** If you want the SD card to recycle its space, please enable this option.

Note

The **Format Card**, **Safely Remove Card** and **Cyclical Overwrite** functions are not available when recording to the SD card is in process. Schedule – Settings

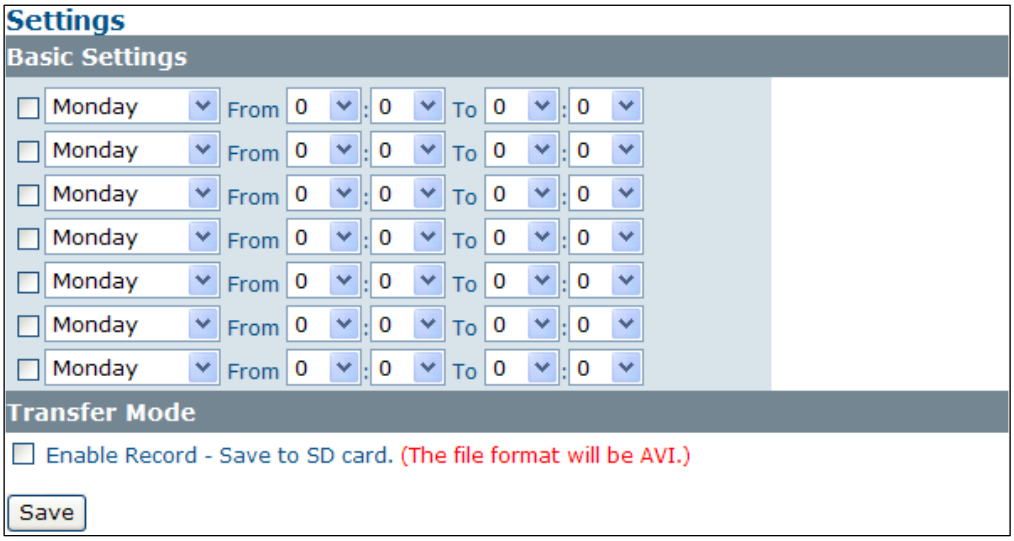
Settings – Schedule

Basic Settings

This screen allows you to schedule recordings to automatically start and end at specified time. After you set the schedule, click **Save** to save the settings.

Transfer Mode

If you enable the **Enable Record – Save to SD card** option, within designated schedules video clips will be recorded and saved to the SD card in AVI format.



Note

Scheduled recording will always have a higher priority than alarm-based recording. When scheduled recording is happening, alarm-based recording will be disabled.

Appendix A. Factory Defaults

Image Settings

Codec	Primary Stream	Codec	H264
		Resolution	i210 series: D1 (720x480, NTSC ; 720x576, PAL)
		Frame Rate	30 fps (NTSC) / 25 fps (PAL)
		Profile	High
		GOP Length	30 fps (NTSC) / 25 fps (PAL)
		Rate Control	VBR
		Quality	High
	Secondary Stream	Secondary Stream	ON
		Codec	MJPEG
		Resolution	CIF
		Quality	75
		Frame Rate	7
	TV Out Stream	OFF	
	Mirror	OFF	
Exposure	Auto Exposure	Method	Center Weighted
		Exposure Compensation	0
		Max Exposure	1/3.75 (sec)
		Min. Exposure	Unlimited (sec)
		Sensitivity	10
		Max Gain	Default
	IR Filter Control	Mode	Auto
		Level	Auto Mid
		Day to Night Threshold	2
		Night to Day Threshold	4
	IR Illuminator Control	Disabled	
	Backlight Compensation	Disabled	
	Wide Dynamic Range	Off	
White Balance	Auto White Balance	Sensitivity	10
Basic Settings	Adjustments	Frequency	60 Hz
		Video Standard	NTSC

		Brightness	0
		Contrast	0
		Saturation	0
		Sharpness	0
Focus	Focus Window Size	Level3	
	Focus Window Position	Top left corner	
		Speed	1
Privacy Zone	Privacy Zone	Disabled	

Network Settings

IP & Ethernet	Camera Name	Illustra 210
	DHCP	Disabled
	IP address	192.168.1.168
	Subnet Mask	255.255.255.0
	Default Gateway	0.0.0.0
	DNS	0.0.0.0
	HTTP Port	80
FTP	FTP Server IP Address	0.0.0.0
	FTP Server Port	21
	Username	Null
	Password	Null
	File Upload Path	default_folder
SMTP	SMTP Server Requires Authorization	Disabled
	SMTP Server IP Address	0.0.0.0
	User Name	Null
	Password	Null
	Sender	Null
	Receiver	Null
NTP	NTP Server IP Address	us.pool.ntp.org
	Time Zone	GMT-5:00 Eastern Time (US & Canada)
	DST (Daylight Savings Time)	Disabled
	DST START	March, 2nd week, Sunday, 2:00 AM
	DST END	November, 2nd week, Sunday, 2:00 AM
RTSP	Primary A/V Stream Port	7778
	Primary Video Stream Port	7779

	Secondary A/V Stream Port	7780
	Secondary Video Stream Port	7781
	Audio Stream Port	7777
ONVIF	Discovery via ONVIF	Enabled
	Accept command/functionality outside of Discovery capability	Enabled
	User Authentication	Disabled

System Settings

Date & Time	Current Time	Camera clock time
User management	Default account	Authority: administrator
		Username/Password: admin/admin
	Add/Modify User	Username/Password: Null/Null
		Confirm password
		Authority: Viewer
Language	Basic Settings	English
Audio	Audio Playing	Disabled
	Audio Playing Volume	2
	Audio Recording	Disabled
	Audio Recording Volume	2
	Audio Sampling Frequency	8000K Hz

Event Settings

Motion Detection	Sensitivity	Off
	Motion Area Window	No Mask
	Customized Threshold [1~100]	50
	Action	Alarms Only
External Alarms	External Alarm Input 1	Disabled
	External Alarm Input 2	Disabled
	External Alarm Output	Disabled, Active state: Normal Open
	Action: External Alarm Input 1	Alarms Only
	Action: External Alarm Input 2	Alarms Only
Blur Detection	Sensitivity	Off
	Customized Threshold [1~100]	50

	Action	Off
Audio Detection	Sensitivity	Off
	Customized Threshold [1~100]	50
	Action	Alarms Only
Ethernet Detection	Trigger an Alarm When Ethernet is Disconnected	Alarms Only
	Action	Alarms Only
Event Setting	Alarm Recording Duration	10 seconds

Recording Settings

Settings	Video Clip	Clip Duration	5 seconds
		Clip Format	i210 series: H264 (720x480, NTSC ; 720x576, PAL)
	FTP Storage	Storage File Format	JPEG
	SMTP Attachment	Number of JPEG files	5
		File Format (source stream)	JPEG
	SD Card	File Format	JPEG
		Cyclically Overwrite	Disabled
Schedule	Recording Type	Enable Record - Save to SD card	Disabled
	Period	Disabled, Monday, from 00:00 to 00:00	

Appendix B. Firmware Updates

In order to ensure the functionality of your camera is current and up to date, it is recommended that you periodically check the download section of the www.americandynamics.net website for the latest firmware update available.

You can use the Illustra Connect tool to view the current firmware version and if necessary, perform a firmware update. For additional information about using the Illustra Connect tool, please refer to the „'Help' tab within the tool.

Appendix C.
Using VLC Player to View RTSP Streaming

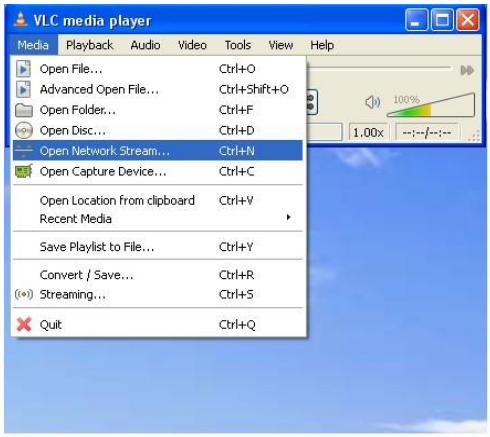
Note: This appendix is provided for user instruction only. We will not support or be responsible for any error caused during the use of VLC software.

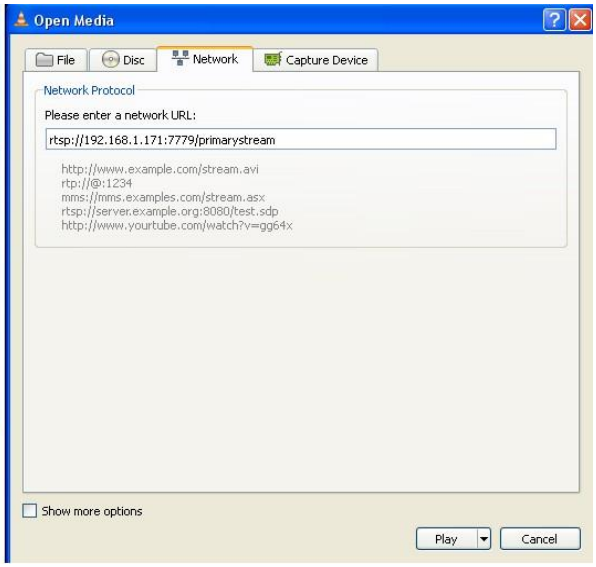
Please follow the procedures below:

1. Download and install VLC Player (version 1.1.11) from http://www.videolan.org/vlc/.

2. Launch VLC Player.

3. Click **Media** > **Open Network Stream**.





4. On the „**Network'** tab, choose **RTSP** under the „**Protocol'** menu.

5. Enter the IP address of the stream that you want to view in the „**Address'** field.

Default URL & port is as below:

Stream	Port	Codec Support	RTSP Request Command
Primary A/V stream	7778	Audio and Video	rtsp://<IP Address>:<primary A/V codec port>/primarystream
Primary Video stream	7779	Video	rtsp://<IP Address>:<primary video codec port>/primarystream
Secondary A/V stream	7780	Audio and Video	rtsp://<IP Address>:<secondary A/V codec port>/secondarystream

Secondary Video stream	7781	Video	rtsp://<IP Address>:< secondary video codec port>/secondarystream
Audio stream	7777	Audio	rtsp://<IP Address>:<audio codec port>/audio

6. Click **Play** and you will see the image streaming.