Full HD Extreme WDR

Box Network Camera

NBF232P

User Manual

Version 1.3

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1. Overview

The Full HD Multiple Streams Ultra-WDR Box IP Camera supports H.264 and MJPEG standard. The performance of the H.264 encoder is up to 1080P 60fps. Also, the camera supports Dual Full HD 1080P real-time streaming. With more computing power, the camera can provide more flexibility for users and system managers. In addition, the camera is equipped with Shutter WDR function, which can provide better image quality under extreme light contrast scenarios or changing lighting environments.

1.1 Features

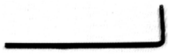
- Sony Progressive Scan CCD/CMOS Sensor
- 720P / 1.3M / 2M Resolution*
- C/CS Mount Lens
- Quad Streams support
- Dual Streams, Full HD 1080P Real-time + Full HD 1080P Real-time
- Quad Stream Compression- H.264 Baseline / Main / High Profile + MJPEG
- Multi-language Support
- Tampering Alarm
- Ultra Dynamic Range
- Motion Detection
- Privacy Masks
- 3D Noise Reduction / 2D Noise Reduction
- Network Failure Detection
- Day / Night (ICR)
- Digital Image Stabilization (DIS)
- Auto Iris Lens Support
- Micro SD Support
- BNC Analog Output
- RS-485 Support*
- ONVIF Support

(*) Optional

1.2 Package Contents

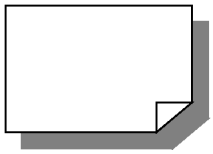
Please check the package contains the following items listed below.

Full HD Multiple Streams Ultra-WDR Box IP Camera



Back focus adjuster

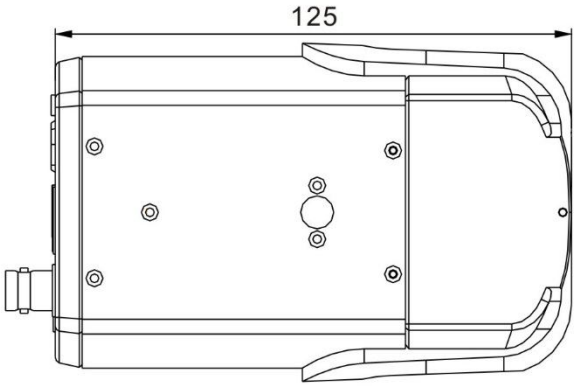
CD
(bundled software and documentation)

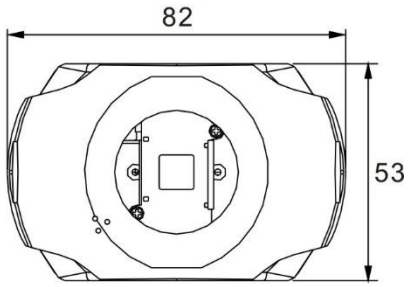


Quick Guide

1.3 Dimensions

The IP camera's dimensions are shown below.



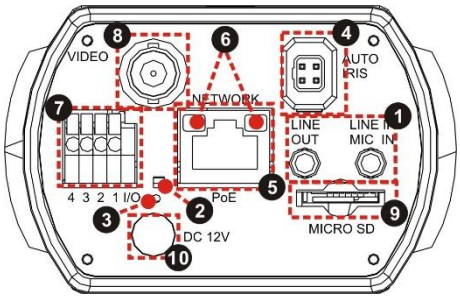


Unit:[mm]

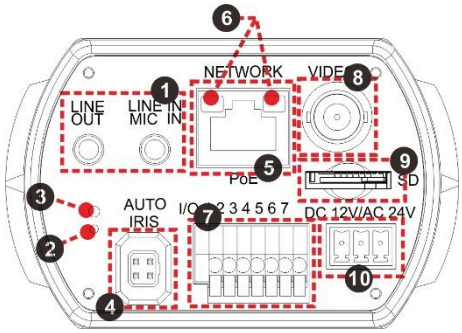
1.4 Connectors

The diagram below shows the IP Camera's reset button and various connectors. Definition for each connector will be given as follows.

DC 12V / PoE



DC 12V / AC 24V / PoE



No.	Connectors	Definition			
1	**Audio I/O**	Two-way audio transmission			
2	**Power LED**	For power connection indication (green light)			
3	**Default Button**	Press the button with a proper tool for at least 20 seconds to restore the system.			
4	**Auto Iris**	For auto iris lens connection			
5	**RJ-45**	For network and PoE connections			
6	**Network LEDs**	For network connection and activity indication			
7	**Alarm I/O**	1	Output+	5	GND
		2	Output-	6	D-
		3	Input+	7	D+
		4	Input-		
8	**BNC**	For analogue video output			
9	**microSD Card Slot**	Insert the microSD card into the card slot to store videos and snapshots. Do not remove the microSD card when the camera is powered on.			
10	**Power (DC12V / AC 24V) (AC 24V Model)**	+	DC 12V	AC 24V 1	
		⏚	DC 12V Reserved	AC 24V GND	
		–	DC 12V GND	AC 24V 2	

NOTE: It is not recommended to record with the microSD card for 24/7 continuously, as it may not be able to support long term continuous data read/write. Please contact the manufacturer of the microSD card for information regarding the reliability and the life expectancy.

2. Camera Cabling

Please follow the instructions below to complete IP camera installation.

2.1 Power Connection

Please refer to section Connectors. Alternatively, users can power up the camera by PoE if a Power Sourcing Equipment (PSE) switch is available. Refer to the section below for Ethernet cable connection.

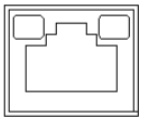
NOTE: If PoE is used, make sure PSE is in used in the network.

2.2 Ethernet Cable Connection

To have best transmission quality, cable length shall not exceed 100 meters. Connect one end of the Ethernet cable to the RJ-45 connector of the camera, and the other end of the cable to the network switch or PC. The RJ-45 port networks without routing to the outside plant.

NOTE: In some cases Ethernet crossover cable might be needed when connecting the camera directly to the PC.

Check the status of the link indicator and the activity indicator LEDs. If the LEDs are unlit, please check the LAN connection.



Green Link Light indicates good network connection.
Orange Activity Light flashes for network activity indication.

2.3 Lens Mounting

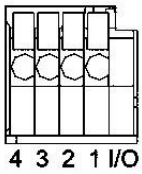
If use C-Mount lens, after removing the camera's plastic cover, users need to mount the C/CS Mount adapter to the camera. Then attach the lens onto the C/CS Mount adapter, as the illustrations shown below.

	
C/CS Mount Adapter	**Completion**

2.4 Alarm I/O Connection

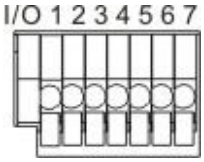
The camera equips one alarm input and one relay output for alarm application. Refer to alarm pin definition below to connect alarm devices to the IP camera if needed.

DC 12V / PoE



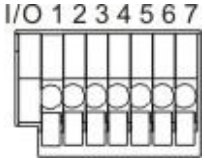
PIN 1: Output+
PIN 2: Output-
PIN 3: Input+
PIN 4: Input-

DC 12V / AC 24V / PoE



2.5 RS485 Connection (for DC12V/AC24V/PoE Model)

The RS-485 connector is the interface for connecting with the pan & tilt positioning system.



PIN 6: D-

PIN 7: D+

3. System Requirements

To perform the IP Camera via web browser, please ensure the PC is in good network connection, and meet system requirements as described below.

Items	System Requirement
Personal Computer	1. Intel® Pentium® M, 2.16 GHz or Intel® Core™2 Duo, 2.0 GHz 2. 2 GB RAM or more
Operating System	Windows VISTA / Windows XP / Windows 7
Web Browser	Microsoft Internet Explorer 6.0 or later Firefox Chrome Safari
Network Card	10Base-T (10 Mbps) or 100Base-TX (100 Mbps) operation
Viewer	ActiveX control plug-in for Microsoft IE

4. Access Camera

For initial access to the IP camera, users can search the camera through the installer program: DeviceSearch.exe, which can be found in “DeviceSearch” folder in the supplied CD.

Accessing the Camera by Device Search Software

Step 1: Double click on the program Device Search.exe.

Step 2: After its window appears, click on the <Device Search> button on the top. All the finding IP devices will be listed in the page.

Step 3: Find the camera in the list by its IP address and click on it. The default IP address of the camera is: **192.168.0.250**.

Step 4: The default IP address of the camera may not be in the same LAN as the IP address of the PC. If so, the IP address of the camera needs to be changed. Right click on the camera and click <Network Setup>. Meanwhile, record the MAC address of the camera, for future identification.

Step 5: The <Network Setup> page will come out. Select <DHCP> and click <Apply> down the page. The camera will be assigned with a new IP address.

Step 6: Click <OK> on the Note of setting change. Wait for one minute to re-search the camera.

Step 7: Click on the <Device Search> button to re-search all the devices. Find the camera in the list by its MAC address. Then double click or right click and select <Browse> to access the camera directly via a web browser.

Step 8: A prompt window requesting for default username and password will appear. Enter the default username and password shown below to login to the camera.

Login ID	Password
Admin	1234

NOTE: ID and password are case sensitive.

NOTE: It is strongly advised that administrator's password be altered for the security concerns. Refer to the Full HD Multiple Streams Ultra-WDR IP Camera Menu Tree in the supplied CD for further details.

Installing DC Viewer Software Online

For the initial access to the IP Camera, a client program, DC Viewer, will be automatically installed to your PC when connecting to the IP Camera.

If the web browser doesn't allow DC Viewer installation, please check the Internet security settings or ActiveX controls and plug-ins settings (refer to Appendix C: Setup Internet Security) to continue the process.

The Information Bar (just below the URL bar) may come out and ask for permission to install the ActiveX Control for displaying video in browser. Right click on the Information Bar and select <Install ActiveX Control…> to allow the installation.

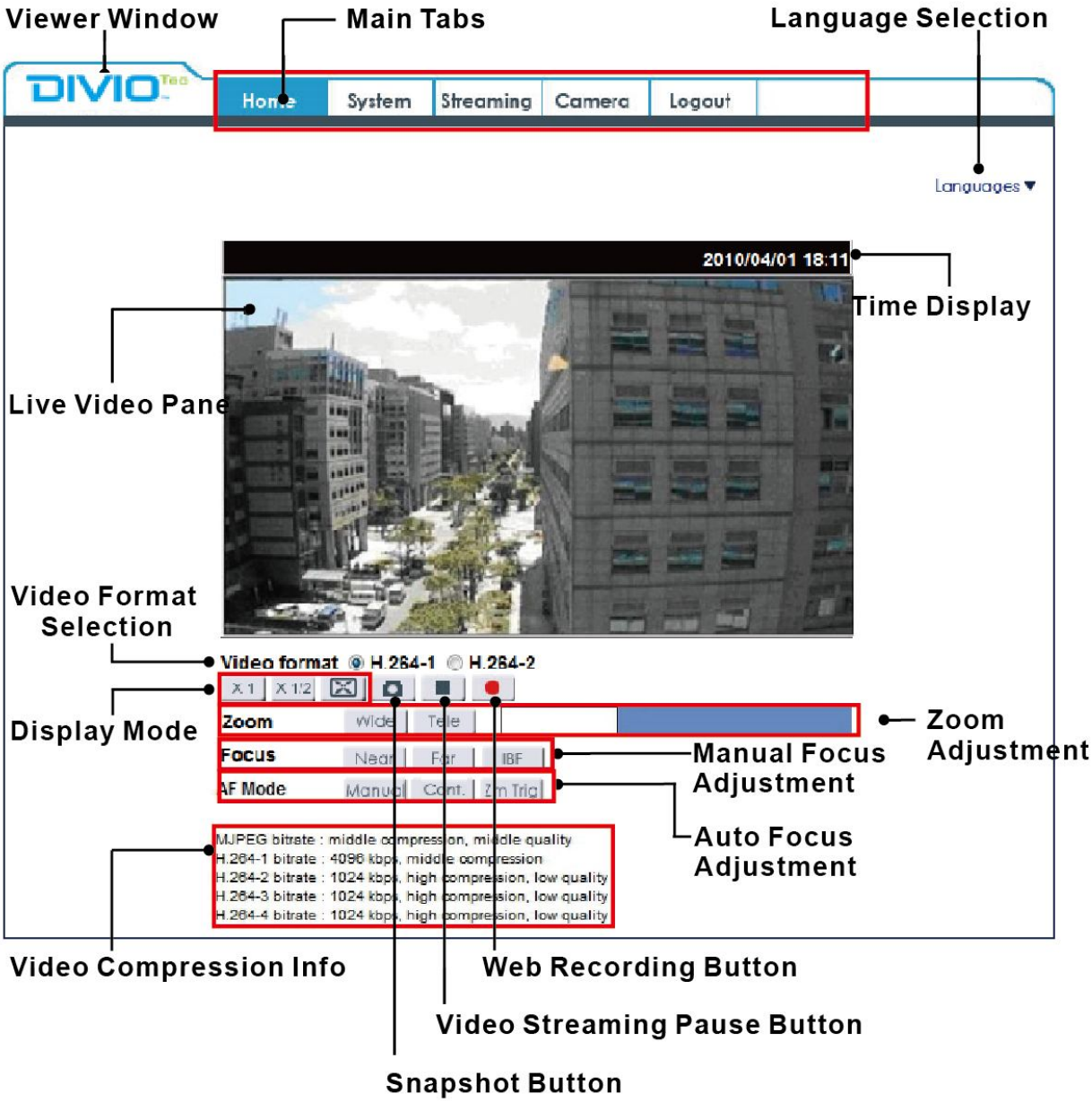
The download procedure of DC Viewer software is specified as follows.

Step 1: In the DC Viewer installation window, click on <Next> to start installation.

Step 2: The status bar will show the installation progress. After the installation is completed, click on <Finish> to exit the installation process.

Step 3: Click on <Finish> to close the DC Viewer installation page.

Once the DC Viewer is successfully installed, the IP camera's Home page will be able to correctly display as the figure below.

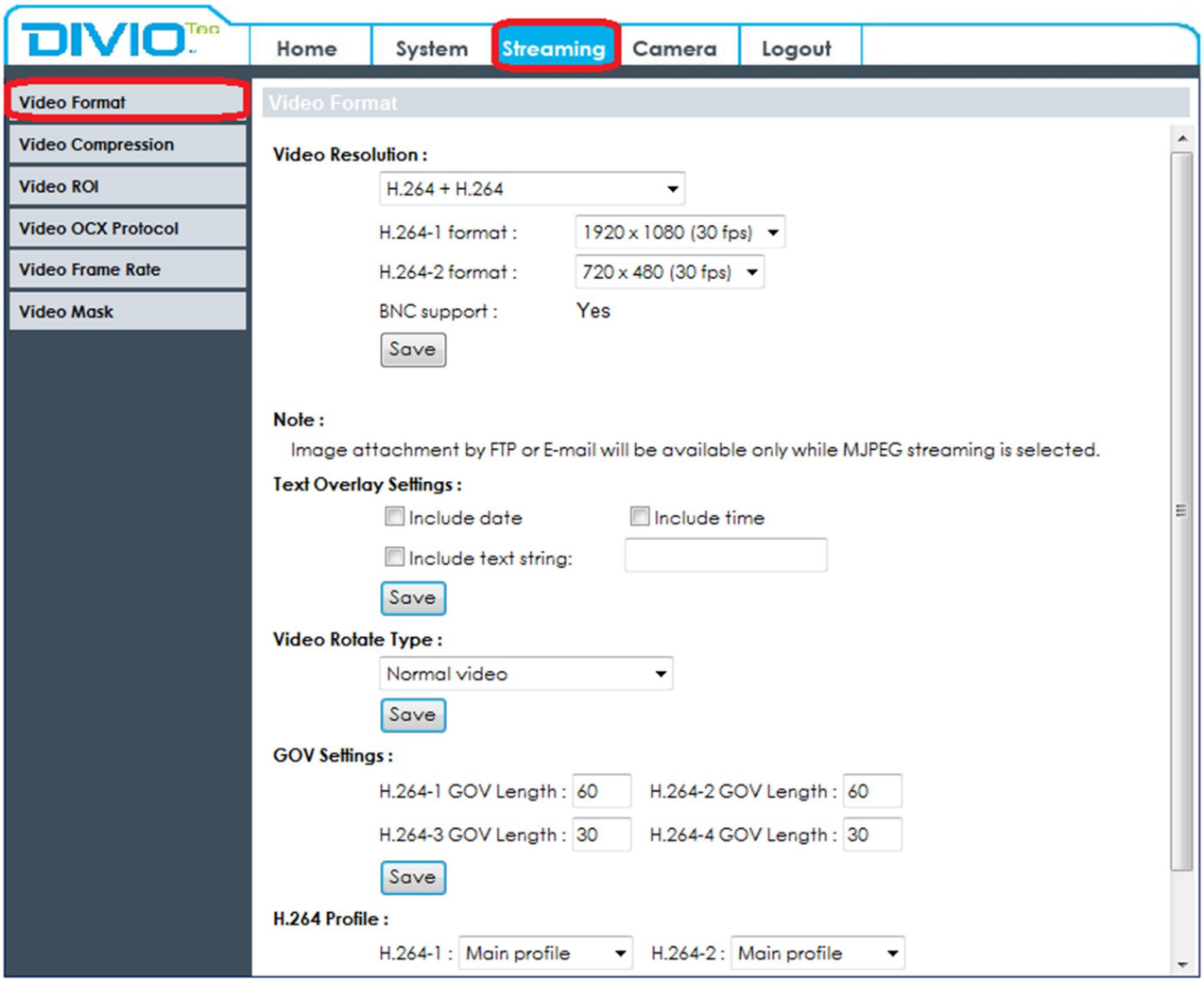


Note: Please refer to the Full HD Multiple Streams Ultra-WDR IP Camera Menu Tree in the supplied CD for more details about the function buttons.

5. Setup Video Resolution

Users can setup video resolution on Video Format page of the user-friendly browser-based configuration interface.

Video Format can be found under this path: **Streaming> Video Format**.



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video resolution are as below.

2M	1920 x 1080 (25 fps) + 720 x 480 (25 fps) 1920 x 1080 (30 fps) + 640 x 480 (30 fps)

For more details about the combinations of video resolution, please refer to the Full HD Multiple Streams Ultra-WDR IP Camera Menu Tree in the supplied CD.

6. Configuration File Export / Import

To export / import configuration files, users can access the Maintenance page on the user-friendly browser-based configuration interface.

The Maintenance setting can be found under this path: **System> Maintenance**.

Users can export configuration files to a specified location and retrieve data by uploading an existing configuration file to the camera. It is especially convenient to make multiple cameras having the same configuration.

Export

Users can save the system settings by exporting the configuration file (.bin) to a specified location for future use. Click on the <Export> button, and the popup File Download window will come out Click on <Save> and specify a desired location for saving the configuration file.

Upload

To copy a configuration file to the camera, click on <Browse> to select the configuration file, and then click on the <Upload> button for uploading.

Appendix A: Technical Specifications

Camera: NBF232P	
Image Sensor	1/2.8" Progressive CMOS
Effective Pixels	1920(H) x 1080(V)
Minimum Illumination	Color: 0.01 Lux @F 1.2 ; B/W: 0.001 Lux @F1.2
Shutter Speed	1/1 ~ 1/100,000 sec.
Lens	
Lens Mount	C / CS Mount
Iris auto adjustment	Yes
Zoom Ratio	16x Digital Zoom
Intelligent Auto Back Focus	Push Auto / Manual : Near / Far /Near Steps / Far Steps : up to 128 Steps
Image Setting	
BacklightCompensation	On/Off
White Balance	Auto /ATW/Indoor /Outdoor /Manual
Noise Reduction	3DNR + 2DNR : Off / 3 Level Sensitivity
Wide Dynamic Range	Multi ShuttersWDR (96dB)
Exposure Mode	Auto/Manual/Flicker less /Shutter Priority /Auto Iris
Shutter Mode	Auto/Manual
Gain Control	Auto / Manual Max Gain 72 dB
Picture Adjustment	Brightness/Sharpness/Contrast/Saturation/Hue
Region of Interest (ROI)	4 zonesConfigurable frame rate and bitrate independent
Privacy Mask	On / Off ; 5 Zones , 5 Colors Selectable
Smart IR Light	On / Off
Day / Night Function	Auto / Day / Night / Smart ICR
Smart Schedule Profile	10 Profiles / 10 Schedule 24 x 7 / Day Night Sensor
Motion Detection	On / Off / By schedule, 10 Zones,Motion Level Display Detection Level 1-100, Sensitivity level 1-100 Sampling pixel interval 1-10
Tampering Alarm	On / Off / By Schedule
Network Failure Detection	On / Off / By Schedule
Periodical event	On / Off
Digital Image Stabilization	On / Off
Camera System	Selectable : 60 fps /Auto Iris 60 fps / WDR Auto Iris 30 fps / WDR 30 fps
Audio	
Compression	G.711 / G.726
Audio Mode	Two-way Audio: Line-in x 1 / Line-out x 1

Video	
Video Compression	H.264: Baseline / Main / High Profile , MJPEG
Multi Steaming	Quad Streams: H.264 + H.264 + H.264 + H.264/MJPEG Configurable frame rate and bitrate Regions of Interest (ROI)
Image Resolution	Full HD 1080P / SXGA / HD 720P / XGA / SVGA / D1 / VGA / CIF / QCIF
Maximum Frame Rate	H.264 / MJPEG Full HD 1080P @60 fps
Network	
Interface	RJ-45,10/100/1000 Mbps Ethernet (Giga Ethernet)
Protocol	IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, ICMP, FTP, SMTP, DHCP, PPPoE, UPnP, IGMP, SNMP, QoS
Security	HTTPS / IP Filter/ IEEE 802.1x; 20 user account / 2 level: user/administrator
Local storage	Micro SDHC 32GB
Bit Rate	64 - 8192 k bit/s
Support Web Browser	Internet Explorer (6.0+) / Chrome / Firefox / Safari
Event Notification	HTTP / FTP / SMTP
Connectivity	ONVIF Profile S
General	
LED Indicator	Power / Link / ACT
Alarm in/out	Yes; 1 Input , 1 Output
TV out	Yes; BNC 1.0 Vp-p / 75 Ω, BNC
Multiple Languages	English / French / German / Italian / Korean / Simplified Chinese / Traditional Chinese / Russian / Spanish / Thai
Operating Temperature	-10°C ~ 50°C (14° ~ 122° F)
Humidity	10% ~ 90%, No Condensation
Dimension	125 x 82 x 52mm
Weight	330g
Power Source	PoE (IEEE 802.3 af) / DC12V
Power Consumption	5.5W
Regulatory	CE / FCC / RoHS

Appendix B: Delete the Existing DC Viewer

For users who have installed the DC Viewer in the PC previously, please first remove the existing DC Viewer from the PC before accessing to the IP camera.

Deleting the DC Viewer

In the Windows <Start Menu>, activate <Control Panel>, and then double click on <Add or Remove Programs>. In the <Currently installed programs> list, select <DCViewer> and click on the button <Remove> to uninstall the existing DC Viewer.

Deleting Temporary Internet Files

To improve browser performance, it is suggested to clean up the all the files in the Temporary Internet Files.

The procedure is as follows:

Step 1: Click on the <Tools> tab on the menu bar and select <Internet Options>.

Step 2: Click on the <Delete> button under <Browsing history> section. Then click on the <Delete Files> button under the <Temporary Internet files> section.

Step 3: A confirmation window will pop up. Click on <Yes> to start deleting the files.

Appendix C: Setup Internet Security

If ActiveX control installation is blocked, please either set Internet security level to default or change ActiveX controls and plug-ins settings.

Internet Security Level: Default

Step 1: Start the Internet Explorer (IE).

Step 2: Click on the <Tools> tab on the menu bar and select <Internet Options>.

Step 3: Click on the <Security> tab, and select <Internet> zone.

Step 4: Down the page, click on the <Default Level> button and click on <OK> to confirm the setting. Close the browser window, and restart a new one later to access the camera.

ActiveX Controls and Plug-ins Settings

Step 1: Repeat **Step 1 to Step 3** of the previous section above.

Step 2: Down the page, click on the <Custom Level> button to change ActiveX controls and plug-ins settings. The Security Settings window will pop up.

Step 3: Under <ActiveX controls and plug-ins>, set **ALL** items (as listed below) to <Enable> or <Prompt>. Please note that the items vary by IE version.

ActiveX controls and plug-ins settings:

1. Binary and script behaviors.
2. Download signed ActiveX controls.
3. Download unsigned ActiveX controls.
4. Allow previously unused ActiveX controls to run without prompt.
5. Allow Scriptlets.
6. Automatic prompting for ActiveX controls.
7. Initialize and script ActiveX controls not marked as safe for scripting.
8. Run ActiveX controls and plug-ins.
9. Only allow approved domains to use ActiveX without prompt.
10. Script ActiveX controls marked safe for scripting*.
11. Display video and animation on a webpage that does not use external media player.

Step 4: Click on <OK> to accept the settings. A prompt window will appear for confirming the setting changes, click <Yes(Y)> to close the Security Setting window.

Step 5: Click on <OK> to close the Internet Options screen.

Step 6: Close the browser window, and restart a new one later to access the IP camera.

Appendix D: Back Focus Adjustment (Non-ABF)

This section is for **Non-ABF** models only. Follow the instructions below to adjust the back focus of the camera.

When to adjust back focus

Back Focus refers to the distance from the rear lens element to the camera focal plane. In most cases, it is required to adjust back focus only when the camera's lens cannot hold focus throughout its zoom range.

Tools Required

Tools required when carrying out back focus adjustment include:

1. Back focus adjuster (in the IP Camera's package)
2. Test chart / contrasting object

How to adjust back focus

Step 1: Set the camera on a stable mount, with the test chart or the contrasting object at least 75 feet (23 meters) away (or as far as possible).

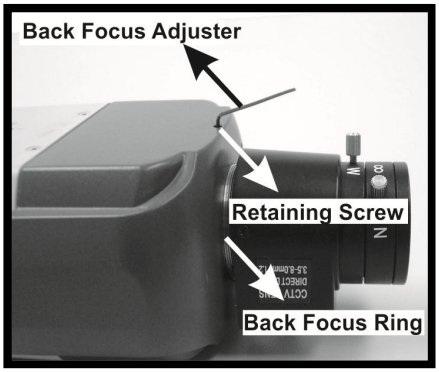
Step 2: Make sure the iris is wide open. Therefore, it is suggested to keep the environment in low light condition.

Step 3: Adjust the focus to infinite far (∞).

Step 4: Turn the zoom ring to the extreme telephoto position, and then focus on the test chart or the contrasting object.

Step 5: Set the zoom ring to wide-angle position.

Step 6: Loosen the back focus ring's retaining screw with the supplied adjuster, and adjust the back focus ring for sharp picture.



Step 7: Repeat **Step 3 to Step 5** and adjust the back focus ring until focus can be held throughout the zoom range.

Step 8: Tighten the retaining screw to fasten the back focus ring.