Full HD H.264 IP Cameras

INSTRUCTION MANUAL

Executive Summary

Full HD IP Cameras, iMEGAPRO II, III, and V, adopts the latest compression technologies providing Quadruple Streaming of H.264 and JPEG in different resolutions. Quadruple Streaming technologies allow transmitting digital video at various bitrate and frame rate to fit both high and low bandwidth network environment.

Full HD IP Camera series are equipped with 2, 3, or 5 progressive mega-pixel CMOS providing superior video quality. The DSP technologies of the IP cameras provide wide dynamic range (WDR), 3D noise reduction, backlight compensation (BLC), ePTZ, region of interest (ROI), adjustable shutter speed, and privacy mask features enabling the camera be installed at most environments.

Built-in intelligent video analytics engine enables face, tampering, audio, and motion detection for extra protection. These features can be easily interfaced by other applications. Other useful features include two-way audio, SD card recording, mobile phone live access, email snapshot, and continuous JPEG FTP.

iMEGAPRO II, III, and V series have the latest technologies providing 2, 3, or 5 mega pixel H.264 video, outstanding DSP capacities, built-in video analytics, ONVIF conformant, and PoE built-in with all these features integrated within one camera. CMX Software HD and Full HD IP Camera series can maximize entire system performance providing integrated system solution in migrating to IP Video application.

Key Features

- Full HD IP camera at 30 FPS
- Support dual encoding format H.264 and JPEG
- Quadruple Streaming technology, 4 concurrent streaming available
- Sense-Up Plus for difficult light condition
- Day or night video quality scheduling
- Built-in intelligent video analytics (IVA) engine for face, tampering, audio, and motion detection
- IVA alarm notification via Email or FTP
- Support 3D DNR, WDR, BLC, ePTZ, ROI, Shutter Speed, and privacy mask.
- Two-way audio (for audio models only)
- Bit rate and frame rate adjustable on-the-fly

- Support Android, iPad, and iPhone mobile live monitoring
- Dynamic DNS (DDNS) supported
  Network time protocol (NTP) supported
- Support PCM/G.711
- Support ONVIF protocol
  Support CMX Software HD 3.6

Trademark Acknowledgments

Other References

Mobile phone

For free mobile surveillance, please refer to eMobile document in the product CD or download the document from our company web site.

LILIN Universal ActiveX Control

Sample code and document are included in product CD and can be downloaded from our company web site.

LILIN HTTP API

For non-ONVIF integration, please see LILIN HTTP API document. We adopt HTTP API document for all Full HD IP cameras.

Caution

- Do not drop or strike this equipment
- Do not install the equipment near any naked flames or heat sources
- Do not expose this unit to rain, moisture, smoke or dust environment
- Do not cover the opening of the cabinet with cloth and plastic or to install this unit in poor ventilated places. Allow 10cm between this unit and its surroundings
- Do not continue to operate the unit under abnormal conditions such as detection of smoke, strange smell or no display on screen while power is turned on
- Do not touch the power connection with wet hands
- Do not damage the power cord or leave it under pressure
- Do not operate this unit near magnet, speaker system, etc., to avoid unnecessary magnetic interference
- Connection cables should be grounded properly

Table of Content

Chapter 1 System Overview

Chapter 1-1 System Requirements

The IP Camera's Full HD H.264 video compression technology can provide high compression rate and superior video quality. However, the performance highly depends on both CPU computational power of a client PC and the network bandwidth for transmitting video streaming. The following sections specify system requirement for running Full HD H.264 IP Camera:

Chapter 1-2 Software Requirements

Merit LILIN Universal ActiveX software components are required for web interface displaying JPEG or H.264 FULL HD video. When you first time login the IP camera using Internet Explorer, it prompts for a security warning dialog box for downloading LILIN Universal ActiveX. Please click on Install button to download.

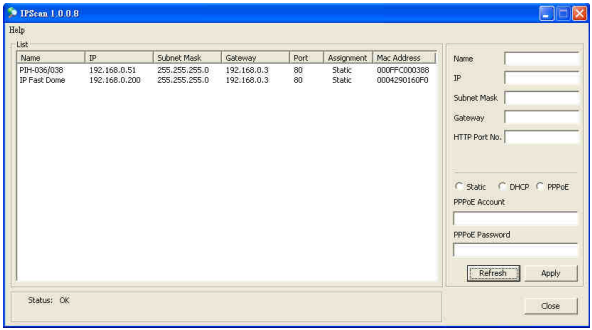
Chapter 2 Before Accessing IP Camera

Before accessing the IP camera, make sure that the camera's RJ-45 network cable, audio cable, and IP camera's power cable are properly installed. For setup IP address, please consult your network administrator for available IP addresses. The default IP address of IP camera is 192.168.0.200. User can also use default IP address to verify IP camera's network connection.

Chapter 2-1 Configure IP Address Using IPScan Utility

To configure IP address using IPScan utility, copy IPScan application from installation CD to your local PC or execute IPScan software from installation CD directly. IPScan utility can also be downloaded from our company web site. To change IP address, subnet mask, gateway, or HTTP port, please follow steps below:

- Run IPScan utility.
- Click on Refresh button. All available devices get listed in Device list box.
- Select the device item in Device list box.
- Edit or modify addresses in IP, Subnet Mask, Gateway, or HTTP Port edit box.
- Click on Apply button to configure the settings.
- Click on Refresh button to verify the settings.



Note: Make sure that IPScan is version 1.0.0.31 or above.

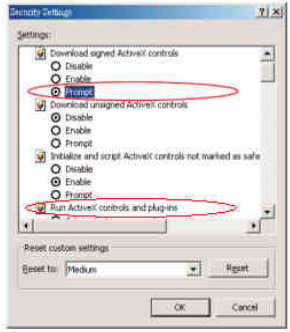
Chapter 2-2 Configure IP Address Using HTML Page

To change IP address using HTML page, please first type the default IP address, 192.168.0.200 in Internet browser and follow steps below:

- Logon H.264 FULL HD IP camera using default username and password—"admin" and "pass".
- Click on "Configure" hyper link.
- Click on "Network->General" hyper link.
- Type or modify edit box for IP address, subnet mask, gateway, or HTTP connection port.
- Click on Submit button.

Chapter 2-3 Internet Browser Setting & Software Component Required

Make sure that your Internet Browser allows signed ActiveX plug-in running on your PC. Set "Download Signed ActiveX plug-in controls" to "Prompt" and "Run ActiveX control and plug-in" to "Enable" at Internet Explorer->Tools->Options->Security Settings.



After finishing above security settings, accessing H.264 FULL HD IP camera's live video by default IP address of H.264 FULL HD IP camera using Internet Explorer will prompt a Security Warning dialog box. Click on OK button to download the ActiveX directly from H.264 FULL HD IP camera.

Chapter 2-4 Login

There are two levels of user authentication including administrator and guest for accessing the H.264 FULL HD IP camera.

The default settings of username and password are described as follows:

	Administrator	Guest
Username	admin	guest
Password	pass	guest

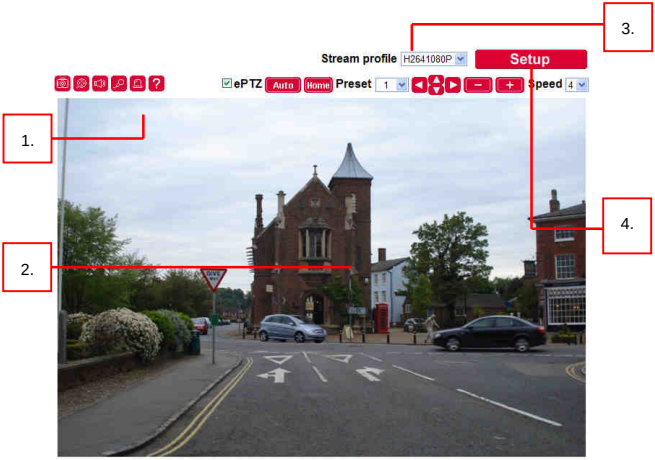
To logon the H.264 FULL HD IP camera, please type username and password in logon HTML page and click on Submit button to enter the system.

Chapter 3 Start Using H.264 FULL HD IP Camera Network Features

After login H.264 FULL HD IP camera as administrator, there are two main features—system operation and configuration. Operation and configuration features are described as follows:

Chapter 3-1 IP Camera Operational HTML Page

H.264 FULL HD Series operational HTML page layout



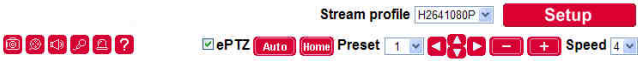
1. **Control panel**—IP camera control panel.
2. **LILIN Universal ActiveX control**—Display RTSP H.264 or JPEG network video.
3. **Profile switching menu—**Switching one profile to another
4. **Setup menu—**IP camera setup menu

Chapter 3-2 IP Camera Main Page Controls

IP Camera control panel contains ePTZ or ROI. These features cannot co-exist together. For ePTZ and ROI, they are described as below:

Chapter 3-2-1 ePTZ

To operate IP Camera DSP's ePTZ, please enable ePTZ feature on the main page. A user can operate up, down, left, right, zoom in, zoom out, and presets on main page.



When ePTZ is off, LILIN Universal ActiveX control also provides ePTZ (electronically pan, tilt, and zoom) feature. To perform ActiveX ePTZ feature, please use a computer mouse to drag on the ActiveX control.

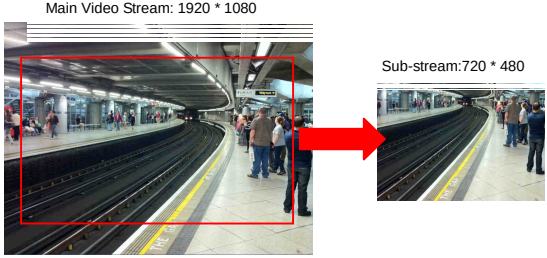
LILIN Universal ActiveX control becomes eZoom mode.

Please use computer mouse pointing to the sub-window of PIP view. Dragging the sub-window can perform ePan and eTilt. Using mouse scroll button can perform zoom in and out features.

Performing right-mouse click on the video can disable ePTZ feature.

Chapter 3-2-2 Region of Interest (ROI)

For D1 and below resolution, ROI feature can apply to the main video stream. Main video stream remains the biggest video resolution such as 1080P. The sub-stream can be cropped and scaled based on the main video stream for saving bandwidth and storage.



Chapter 3-2-3 Control Panel

Control panel buttons are described as below:

	Snapshot: Take a snapshot of the video.
	Audio on: Set audio on (for audio model only).
	Speak on: Speak to remote site (for audio model only).
	Recording at PC
	Activate alarm output (for alarm model only).
	Auto Pan for presets at ePTZ or ROI mode
	Home position for ePTZ or ROI mode
Presets	Presets recall for ePTZ or ROI
	Perform left, right, up, and down operations.

− +	Perform zoom in and out operations for ePTZ or ROI.
Speed	The PTZ speed of above operations.

Chapter 3-2-4 Two-way Audio

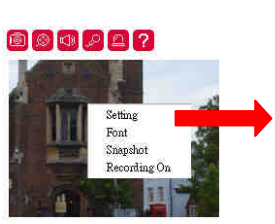
For two-way audio, please click on Microphone icon for speaking to the remote site. To stop speaking to the remote site, please click on Microphone icon again.

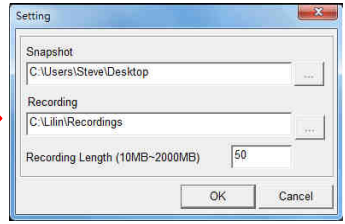
To listen to the remote site, please click Speaker icon for listening to the remote site. To stop listening to the remote site, please click on Speaker icon again.

Note: Only IP camera models with audio can support this feature.

Chapter 3-2-5 Record in a Local PC

To record into a local PC, please first right-click on LILIN Universal ActiveX control. It shows up in the setting dialog box. A user can specify recording path and recording size. Please make sure that the ePTZ or ROI feature is unchecked for displaying recording setting dialog box by right-mouse-click.





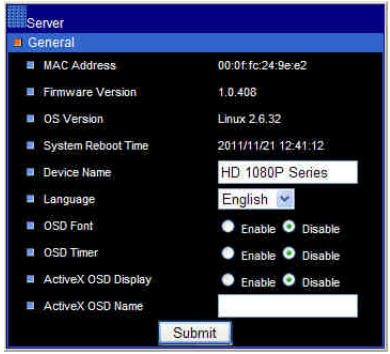
To playback the AVI video, simply click on Windows Media Player.

Chapter 3-3 Configuration

H.264 FULL HD IP camera's administrator can configure H.264 FULL HD IP camera via standard HTML web page. This chapter explains the detail of each configuration setting.

Chapter 3-3-1 Server Settings

Server settings contain H.264 FULL HD IP camera server's system information such as MAC address, firmware version, users, system timer, and other system settings. To change or to use these options, please follow the instructions at this section.



Firmware Version

Firmware update allows a user to upgrade H.264 FULL HD IP camera's firmware remotely. A user can use firmware version to verify if the device has the latest version.

Device Name

The device name can be used by IPScan utility to identify the H.264 FULL HD IP camera—To change the device name, enter the name for H.264 FULL HD IP camera and click on Submit button.

Language

Language setting can be changed dynamically.

OSD Name

Camera OSD name

OSD Time

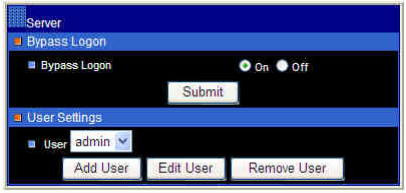
Camera OSD time

ActiveX OSD Name

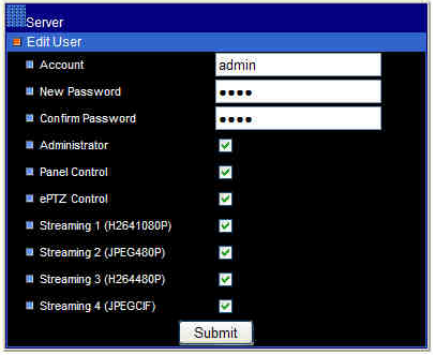
Camera OSD name on only ActiveX

Chapter 3-3-2 User Settings

There are ten user accounts allowed for the system. Each account can be configured for its access rights. To add/edit a user, please click on Add/Edit User button. To access H.264 FULL HD IP camera without authentication, set Bypass Logon radio button to ON.



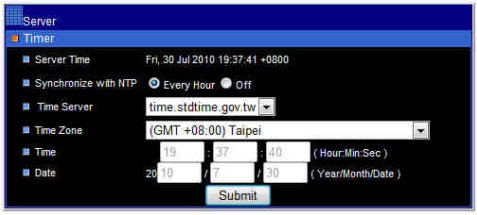
To change account name, please type new account name in Account edit box. To change new password, please type the new password in the New Password edit box. Click on Submit button to update the user settings. To delete a user, please click on “Remove User” button.



Administrator: Enable or disable setup mode for a user.
Panel Control: Enable or disable Control Panel for a user.
ePTZ: Enable or disable ePTZ feature for a user.
Streaming: Enable or disable a streaming for a user.

Chapter 3-3-3 Timer

H.264 FULL HD IP camera allows a user to change system timer via standard HTML web page. To change H.264 FULL HD IP camera's system timer, please enter the date and time in the edit boxes. Click on Submit button to apply this operation.



Synchronize with NTP

To synchronize Internet time system, check Auto Synchronize option to "Every Hour". H.264 FULL HD IP camera synchronizes its system timer with a time server every hour.

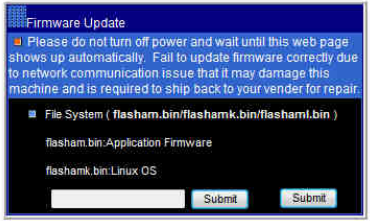
Note: Network Time Protocol feature requires Internet connection.

Chapter 3-3-4 System Setting

Load Default feature allows to load manufacturing default. There are certain critical settings such as IP addresses and video system which are not affected by this operation. To reboot H.264 FULL HD IP camera, click on Reboot System hyper link.

Note: In case of forgetting password, the device is required to send back to our company for a manufacturing default or read appendix for emergency default.

Update hyper link. Locate “flasham.bin” in your computer by clicking the Browse button. Click Submit button to finish firmware upgrade. To ensure the quality of transmission, please make sure that there is no user accessing H.264 FULL HD IP camera during firmware upgrade.



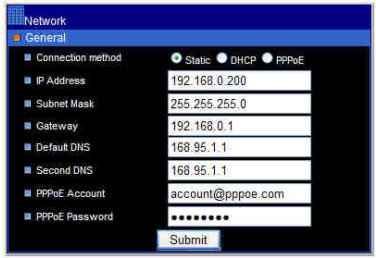
Chapter 3-4 Network

H.264 FULL HD IP camera provides Internet protocols including IP, DHCP, and DDNS. A user can configure these Internet protocol settings. To setup above, please read the following sections:

Chapter 3-4-1 General Settings

Network general settings are the basic settings connecting H.264 FULL HD IP camera to the network. The default IP Address of H.264 FULL HD IP camera is 192.168.0.200. A user can use this IP address to verify the network connection between a local PC and H.264 FULL HD IP camera using Internet Browser.

For local area network configuration, please enter, at least, IP address, Subnet Mask, and Gateway IP. Click Submit button to update these settings.



For Internet access configuration, please contact your local ISP for global IP address. Once the physical Internet connection gets installed, enter IP address (global), Subnet Mask, and Gateway IP from the ISP.

- **Default DNS IP Address**—First Domain Name Server, the IP address of the domain name server
- **Second DNS IP Address**—Second Domain Name Server, the IP address of the domain name server, a backup DNS server for default DNS
- **PPPoE Account**—Account name of PPPoE service
- **PPPoE Password—**Password of PPPoE service

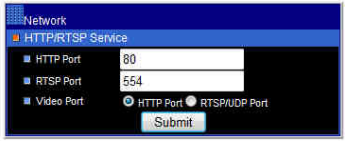
Chapter 3-4-2 DHCP Setting

Router, gateway, or other software DHCP servers can dynamically assign an IP address to the H.264 FULL HD IP camera. There is no need to configure IP address, subnet mask, and gateway. Since the DHCP may assign a different IP address to the H.264 FULL HD IP camera after power off, a user can use IPScan utility to launch Internet browser for searching H.264 FULL HD IP camera. To enable DHCP, click on DHCP option and click on Submit button.

Note: Once the DHCP option gets enable, IP camera of the IP address assigned by DHCP server. This feature allows only in LAN environment.

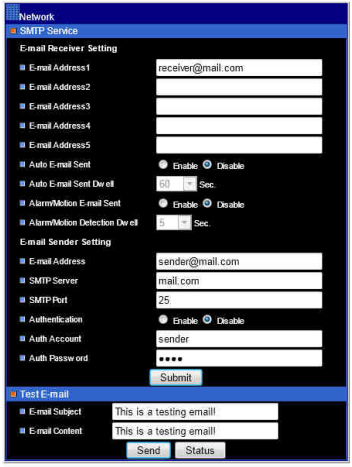
Chapter 3-4-3 HTTP & RTSP Service

HTTP protocol is a reliable protocol for sending video streaming. Port forwarding technology can be used for sending video over Internet. The detail is described in the appendix. For changing HTTP service's port number, please consult available port number from your network administrator. Change the port number at the port field and click on "Submit" button.



Chapter 3-4-4 SMTP Service

Alarm or motion notification feature can send an alarm or motion detection snapshot to an E-mail account. To enable alarm or motion sending E-mail feature, please setup the following email accounts.

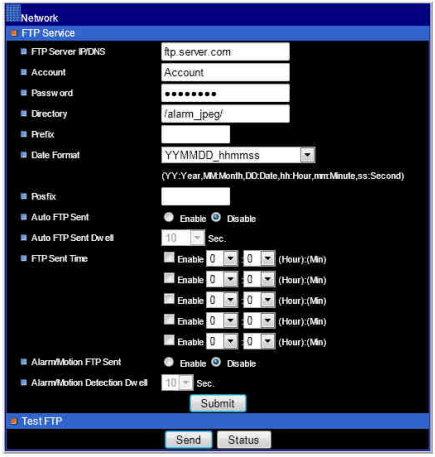


- E-mail receiver setting
  E-mail address— E-mail address of the recipient
- E-mail sender setting
  E-mail address— E-mail address of the sender
- Auto E-mail sent with snapshot—constantly send JPEG snapshot within E-mail dwell time.
- SMTP server— Sender's SMTP server
  Authorization— SMTP server's authorization option if applicable
  Authorization account— Account of the SMTP server
  Authorization password— Password of the account

To send a testing snapshot to a SMTP server, please click "Send" button to test and to verify the connection of the SMTP server.

Chapter 3-4-5 FTP Service

Alarm or motion notification feature can send alarm or motion detection snapshot to an FTP account. To enable alarm or motion sending FTP feature, please setup the following FTP account information.



- FTP server IP/DNS— IP address or domain name of the FTP server
- Account— Account of the FTP server
- Password— Password of the account
- Directory—File path for storing the JPEG snapshots
- Prefix—Prefix of the JPEG filename
- Date format—Date format string for the JPEG filename
- Postfix—Postfix of the JPEG filename
- Auto FTP sent—Constantly send JPEG snapshot within FTP dwell time.
- FTP sent time—Schedule FTP snapshot at specific time

Chapter 3-4-6 DDNS Settings

DNS stands for domain name server, it provides domain name translation service for a device's IP. Basically, domain name is easier to remember than numeric values (IP). DNS service requires service registration and subscription. DynDNS (DDNS) provides domain name service without subscription.

Note: DDNS feature requires Internet connection.

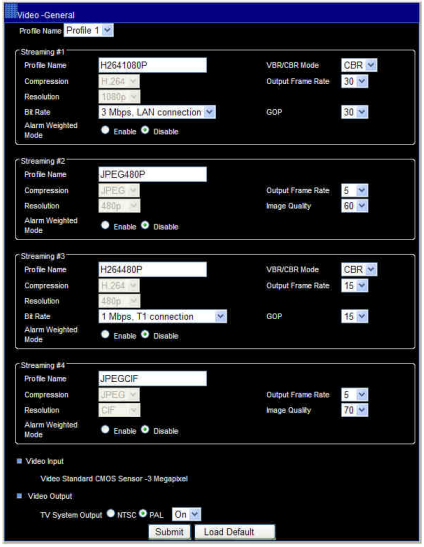
To use www.ddnsipcam.com, you can use the last 6 digits of the MAC address as the host name with default account, the last 6 digits of the MAC address, and the default password, pass, if the IP camera is on Internet with global IP address. The IP camera tries to automatically register to www.ddnsipcam.com without further registering. For example, type "24094f.ddnsipcam.com" in a browser with login name "24094f" and password "pass" for login into the IP camera, if the IP camera is on Internet.

Chapter 3-5 Video Settings

This section describes the details in setting the H.264 FULL HD video's attributes. Bit rate control, video input, and video resolution, settings can be configured.

Chapter 3-5-1 Video General

For transmitting H.264 FULL HD video over low bandwidth network such as Internet, please set the bit rate close to network upload bandwidth. H.264 FULL HD can encode frames based on the bit rate setting.

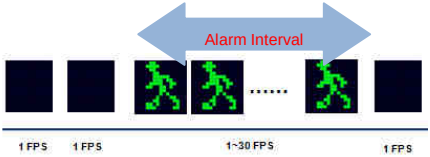


- Profiles: Selections of streaming combination
- Profile Name: Description of the profile
- Compression: compression type of the profile
- Resolution: the resolution of the compression
- VBR/CBR: VBR: Video quality encoding mode/constant bit rate encoding mode.

- Bit Rate: Maximum bit rate available for a network connection
- Output Frame Rate: the frame rate of the profile
- GOP: I frame period per second
- Video Output: NTSC/PAL video system
- Power line frequency: 60Hz/50Hz lighting power frequency

Chapter 3-5-2 Weighted Streaming Mode

Weighted streaming mode is activated when an alarm went off. The streaming goes to the maximum speed, for example 30 FPS. If there is no alarm activity, the streaming stays one frame per second for saving bandwidth and storage.

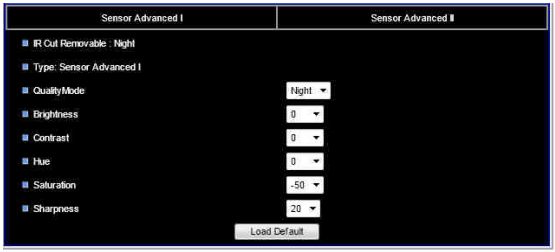


Chapter 3-5-3 Video Quality

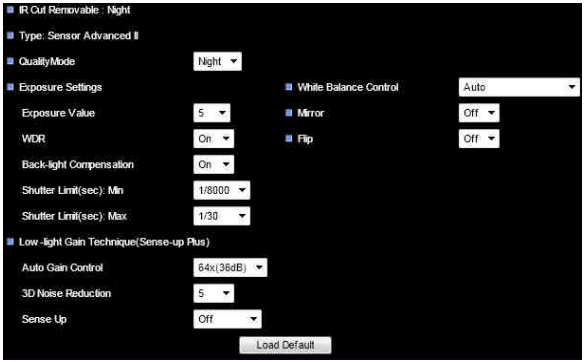
To setup video quality, please adjust brightness, contrast, hue, saturation, and sharpness accordingly. The IP camera can be set for day and/or night video quality for best video quality.

Day or Night Video Quality Mode

Day or night video quality can be fine tuned separately; the quality setting is scheduled based on the IR Cut scheduling table.



To setup Exposure Control, Automatic Gain Control, White Balance Control, please adjust the value accordingly.



To increase, the sensitivity at nights, please adjust Sense Up feature.

- Exposure Value: Adjust the value of the image exposure
- WDR: Enable or disable wide dynamic range feature.
- Black-light Compensation: Increase the exposure to the darker object.
- Shutter limited: Min and max shutter range
- White Balance Control: Automatically adjust itself depending on the ambient light including tungsten, indoor, fluorescents, or outdoor.
- Mirror: Video mirroring
- Flip: Video flipping

Sense-Up Plus

- Auto Gain Control, AGC (Sense-Up Plus): Increase the gain of the video signal. If AGC can not still gain enough light, please set the Sense-Up feature. However, Sense-Up feature might cause motion blur at night.
- 3D Noise Reduction: Reduce noise at night.
- Sense-Up: Slow shutter feature for increasing CMOS sensitivity at night.

No Sense-Up

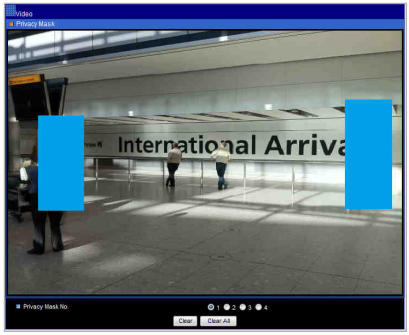
3 Frame Sense-Up

Chapter 3-5-4 Sense-Up Plus

Sense-Up Plus feature is for low-light and high sensitivity DSP control enabling outstanding video quality at difficult environment. Sense-Up Plus technology can be used for both black-n-white and/or color video mode. To do so, please first enable Auto Gain Control (AGC) setting. However, the combinational use of 3D noise reduction (3D DNR) can even reduce noise at low light environment. AGC and 3D DNR do not cause motion blur. If the sensitivity is still not good for the environment, Sense-Up feature can then be used. However, the drawback can cause motion blur at low light condition.

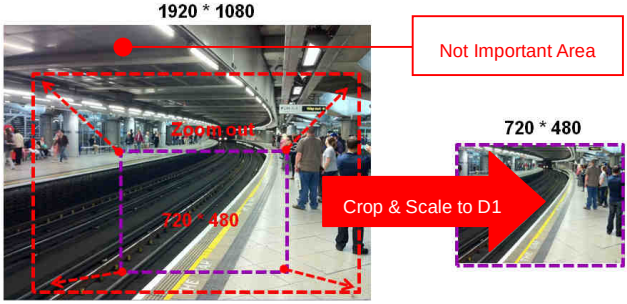
Chapter 3-5-5 Privacy Mask

Each IP camera has four privacy masks. A user can define the privacy mask for security reason. To use it, simply select the mask number and drag the mask on video area.

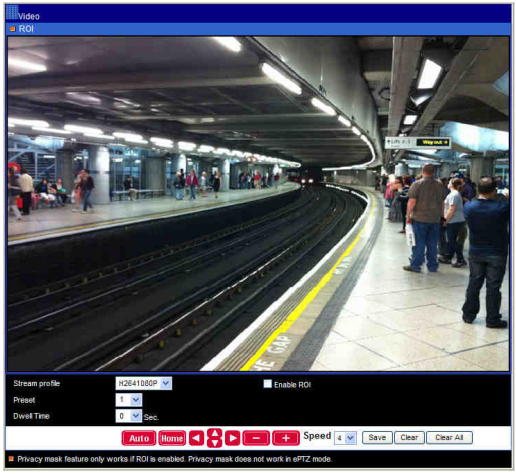


Chapter 3-5-6 Region of Interest (ROI)

Region of interest (ROI) feature is for sub-stream (D1 or CIF) video buffer to scale and to crop on main video buffer (1080P) to meet best-fit video area. The major purpose is to use sub-stream for saving storage or bandwidth.

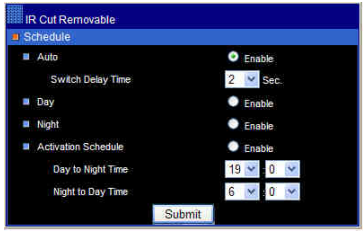


To enable ROI feature, please first select “Enable ROI”. Click on Zoom Out or In button to get best-fit video area.



Chapter 3-6 IR Cut Removable

IR Cut removable allows to schedule IR activation by (1) auto, (2) day, (3) night, or (4) schedule. When the setting is set to "Auto", IR activation is determined by the light sensor. "Night" setting means that the IR cut filter is removed. "Day" setting means that the IR cut filter is forced to be always on. When activation schedule is enabled, IR cut filter can be scheduled based on a specific time frame. For example, a user can set the IR cut activation time starting from 19:00 pm (day to night time) until 6:00 am (night to day time).

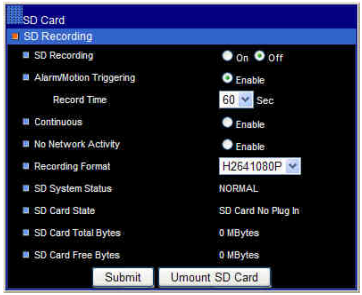


Chapter 3-7 SD Card Recording

To record video on SD Card, please insert SD card into the SD card slot. Enable SD card recording feature. The IP camera can start to record video into the SD card.

Chapter 3-7-1 SD Card Recording Setting

For SD card recording setting, please see the following for detail.



- **SD Recording:** Enable SD card recording.
- **Alarm/Motion Triggering:** Digital input, face detection, tampering detection, and motion detection SD card recording.
- **Recording Time:** Post alarm recording time.
- **Continuous:** Continuous recording mode
- **No Network Activity:** If there is no network connection, perform SD recording.
- **Recording Format:** Recording resolution
- **SD System Status:** SD Linux mounting status.
- **SD Card State:** SD card inserting status
- **SD Card Capacity:** SD card total capacity
- **SD Card Free Space:** SD card free space

To un-mount the SD card, please click “un-mount SD Card” button. It might crash the file system of the SD card, if a user does not un-mount the SD card properly.

Chapter 3-8 Alarm Settings

H.264 FULL HD IP camera's hardware alarm system contains motion detection, alarm sensors, and one alarm/relay output. Many alarm features such as motion/alarm email notification and FTP archiving can be found at this section.

Chapter 3-8-1 Motion/Alarm Setup

There are motion detection zones allowed in the H.264 FULL HD IP camera. A user can enable the detection zones with different sensitivities ranging from 1 to 99 (highest to lowest) for motion detection. Once a suspicious motion activity gets triggered, H.264 FULL HD IP camera can start to capture one JPEG snapshot on various recording mediums.

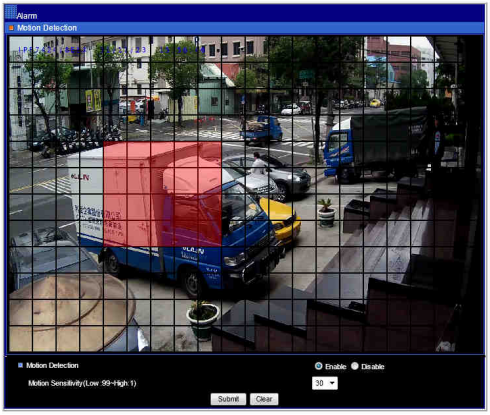
Chapter 3-8-2 Setup for Camera with Alarm Input

- **Alarm Notification—**Enable alarm notification.
- **Alarm Input Mode—**Normal open/normal close for detecting alarm input
- **Alarm Output Time**—Trigger alarm output based on the dwell.

For video encoder model, since there are two alarm outputs, a user can specify alarm output time.

Chapter 3-8-3 Motion Area

Once above information get set, please configure the motion area of the monitored environment. To configure motion area, perform mouse click on the video area.

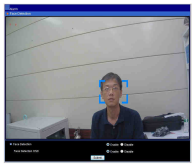


Chapter 3-8-4 Face Detection

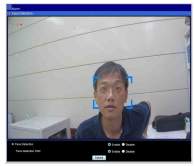
The video analytics contains face detection engine. There are up to 4 faces can be detected. Each face should be at least 1/20 out of the video size for recognition purpose. Once a face is detected, the alarm output, e-Mail with a snapshot, and/or an FTP snapshot can be triggered.

Not detected

1/20 in size

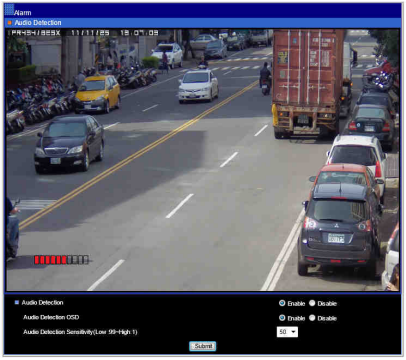


1/10 in size



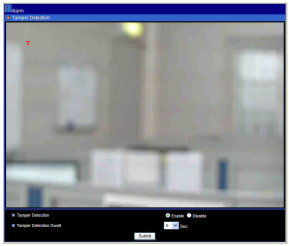
Chapter 3-8-5 Audio Detection

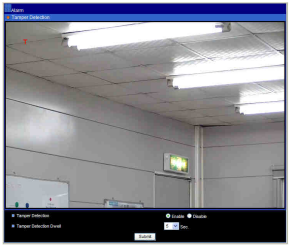
For audio model, the IP camera has audio detector detecting acoustic level. If the volume exceeds the audio sensitivity value, audio detector triggers an alarm for notification.



Chapter 3-8-6 Tampering Detection

The IP camera's video analytics engine is able to detect tampering. Tampering detection works (1) lens spray paint prevention, (2) camera move prevention, and (3) out of focus prevention. To enable this feature, please set Enable option.

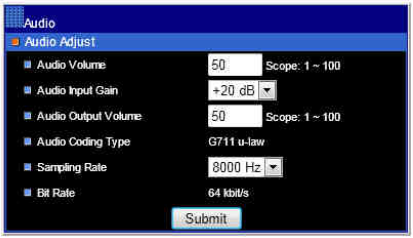




Chapter 3-9 Audio Setting

Audio setting is based on the following:

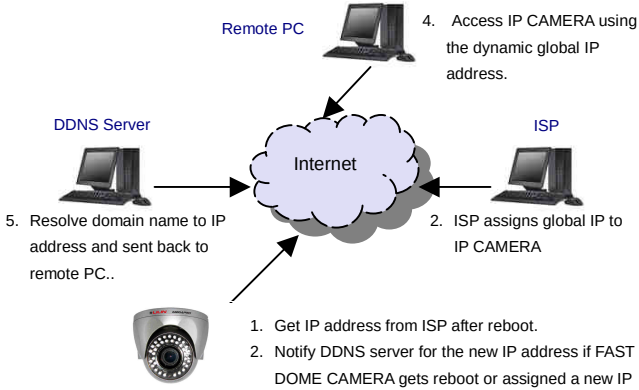
- MIC Volume: MIC or line input volume
- Audio Input Mode: Choose MIC input or Line input.
- Audio Input Gain: Voice input gain magnification
- Audio Output Volume: Line output volume adjustment
- Audio Coding Type: G.711 u-Law
- Sample Rate: Audio sample rate
- Bit Rate: Audio bit rate.



Appendix

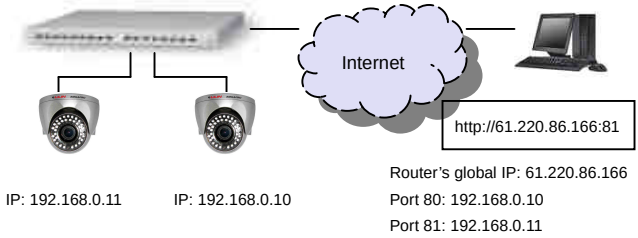
Advance Network DDNS and PPPoE Technologies

The advantage of using DDNS and PPPoE is to save the cost of IP address. H.264 AVC IP camera's PPPoE service gets a dynamic global IP address after system reboot. This IP address may get changed periodically. This is the address needed to access the video server over Internet. When ISP re-assigns a new IP address to H.264 AVC IP camera, H.264 AVC IP camera notifies DDNS service. A remote PC can access H.264 AVC IP camera by typing domain name in a browser. The domain name gets resolved by DDNS service and gets translated to its dynamic global IP address. The dynamic global IP address can now be accessed by the remote PC.



Advance Network Port Forwarding Technology

Port forwarding technology is an advanced network technology which is widely used for using one global IP shared by many network devices. The network architecture is illustrated as below. Port 80 of the router (61.220.86.166) is assigned to the device IP address, 192.168.0.10. Port 81 of the router is assigned to the device IP address, 192.168.0.11. When Remote PC accesses the router's port 81 (61.220.86.166:81), it eventually accesses the video server at 192.168.0.11.



Emergency Factory Default

To restore the server to factory default setting, please:

1. Hold Load Default Button or short Reset Cable for 10 seconds, then release the button or Reset Cable.
2. After about 40 seconds, the network LED light is off, and then it becomes lit again.
3. This camera has completed the factory default setting, and it reboots.
4. Use IPScan scanning for the IP address of the IP device.
5. Launch Internet browser for the IP address of the IP device.
6. Type default username "admin" and password "pass" for enter web interface of the IP device.

SD Card Compatibility List

Manufacturer	Size	SDHC/SDSC
Sandisk	16GB	SDHC
Sandisk	8GB	SDHC
Transcend	8GB	SDHC
Transcend	4GB	SDHC

Specification

Video compression	H.264 and Motion JPEG, dual codec
Resolution	QXGA(2048 x 1536), 1080P(1920 x 1080), 720P(1280 x 720), D1(720 x 480), CIF(352 x 240)
Multiple profile	Up to H.264 2048x1536 15 FPS (Only 3MP IP camera provide)
	Up to H.264 1920x1080 30 FPS, H.264 720x480 30 FPS, JPEG 720x480 25 FPS, JPEG 352x240 25 FPS
	Up to H.264 1280x720 30 FPS, H.264 720x480 30 FPS, JPEG 352x240 25 FPS
	Up to H.264 1920x1080 30 FPS, H.264 720x480 30 FPS, JPEG 1280x720 25 FPS
	Up toH.264 1920x1080 30 FPS, H.264 720x480 30 FPS, JPEG 720x480 25 FPS
Streaming	Quadruple Streaming
Video streaming	RTSP: RTP/HTTP, RTP/TCP, RTP/UDP
Video bitrate	5Mbps to 128Kbps Change frame rate and bitrate on-the-fly CBR/VBR/GOP supported
Security	Base64 HTTP encryption Multiple user access levels with password protection 10 user accounts available
Users	8 simultaneous users
ePTZ & ROI	Yes
OSD	Overlay for date and time
Alarm/motion	Face detection Tampering detection Audio detection Motion detection External digital input alarm Image upload over FTP and e-mail by above alarm signals
CPU, memory	Embedded SoC CPU at 528Mhz, 256 MB DDR, 256 MB flash memory
IR cut removable	Auto, day , night, scheduling, day & night models only
Alarm input	TTL input +3VDC to +5VDC, alarm input models only
Alarm output	DC 24 1A, dry-contact (N.O.), alarm output models only
Maintenance	Firmware update via HTTP, Firmware available at web site
Network interface	10Mbps/100Mbps, RJ-45
Two-way audio	G.711 64Kbits u-Law, audio model only
PC requirement	OS: Windows 2000, Windows XP, Windows Vista, Windows 7 Browser: Windows Internet Explorer 6.0 or above CPU: Intel Pentium 4 1.8GHz or above RAM: 1GB or above
Network protocols	IP, TCP, UDP, HTTP, SMTP, NTP, DDNS, UPnP, FTP, ARP, DHCP, PPPoE, DNS, RTSP, RTCP, Telnet, Onvif
Mobile phone & PDA	Support iPhone, iPad, and Android
System integration	ONVIF and HTTPAPI
CMX	CMX HD 3.6 support
OS	Embedded Linux 2.6.32

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