LILIN

iMEGAPRO

Outdoor 2MP 18X/20X/30X PoE D/N HD Fast Dome IP Camera
Indoor 2MP 18X/20X/30X D/N HD Fast Dome IP Camera
Outdoor/Indoor 1.3MP 22X PoE D/N HD Fast Dome IP Camera
2MP 10X PoE D/N HD Fast Dome (IR) IP Camera

IPS4184E/4188E, IPS4204E/4208E, IPS4304E/4308E
IPS5184/5188/5180E, IPS5204/5208/5200E, IPS5304/5308/5300E
IPS6224E/6228E, IPS7224/7228/7220E
IPS2102E, IPS3102E

Instruction Manual

Executive Summary

This H.264 video server or HD fast dome IP PTZ camera uses the latest compression technologies providing Quadruple Streaming of H.264 and JPEG in different resolutions. It's Quadruple Streaming technologies allow transmitting digital video at various bitrate and frame rate to fit both high and low bandwidth network environment.

Built-in intelligent video analytics engine enables 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 (video server), smartphone live access, email snapshot, and continuous sending JPEG snapshots to an FTP server.

This H.264 Video Server and HD fast dome IP camera have the latest technologies video de-interlace, built-in video analytics, and ONVIF conformant with all these features integrated within one camera. CMX Software system solution with H.264 video server or HD fast dome IP PTZ camera series can provide integrated system solution in migrating to IP Video application.

Key Features

- Up to 2mega-pixel 30 FPS encoding capacity
- Support dual encoding format H.264 and JPEG
- Quadruple Streaming technology, 4 concurrent streaming available
- Smartphone live monitoring
- Built-in intelligent video analytics (IVA) engine for audio and motion detection
- IVA alarm notification via Email or FTP
- Two-way audio (for audio models only)
- Bit rate and frame rate adjustable on-the-fly
- Support Android, iPad, and iPhone mobile live monitoring
- DDNS and UPnP supported
- Network time protocol (NTP) supported
- Support PCM/G.711 audio streaming
- Support ONVIF protocol
- Support CMX Software HD 3.6

Trademark Acknowledgments

Other References

Smartphone

For smartphone live monitoring, please visit appendix for the details.

LILIN Universal ActiveX Control

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

LILIN HTTP API

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

The ITE is to be connected only to PoE networks without routing to the outside plant.
L'ITE ne doit être connecté que sur un réseau PoE sans routage vers l'alimentation extérieure.

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Chapter 1 System Overview

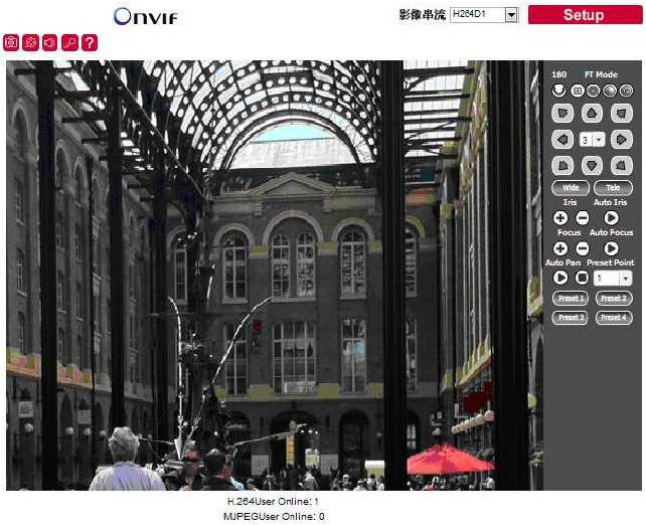
Chapter 1-1 System Requirements

The IP Camera's 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 the H.264 IP Camera:

Chapter 1-2 Software Requirements

Merit LILIN Universal ActiveX software components are required for web interface for displaying JPEG or H.264 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.

Flash player is also required for controlling the PTZ device. Please visit http://www.adobe.com/products/flashplayer to download the software component.



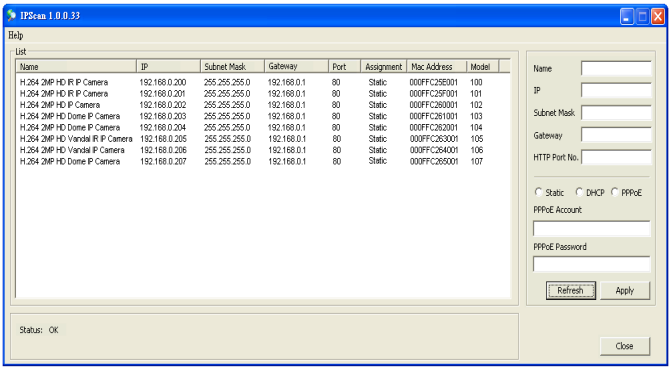
Chapter 2 Before Accessing IP Camera

Before accessing to 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 website. 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 1.0.0.52 or above .

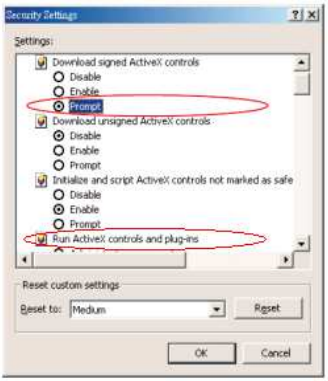
Chapter 2-2 Configure IP Address Using HTML Page

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 HD video server or IP PTZ 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 IP camera's live video by default IP address of IP camera using Internet Explorer will prompt a Security Warning dialog box. Click on OK button to download the ActiveX directly from H.264 HD video server or IP PTZ camera.

Chapter 2-4 Login

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

The default usernames and passwords are as follows:

	Administrator
Username	admin
Password	pass

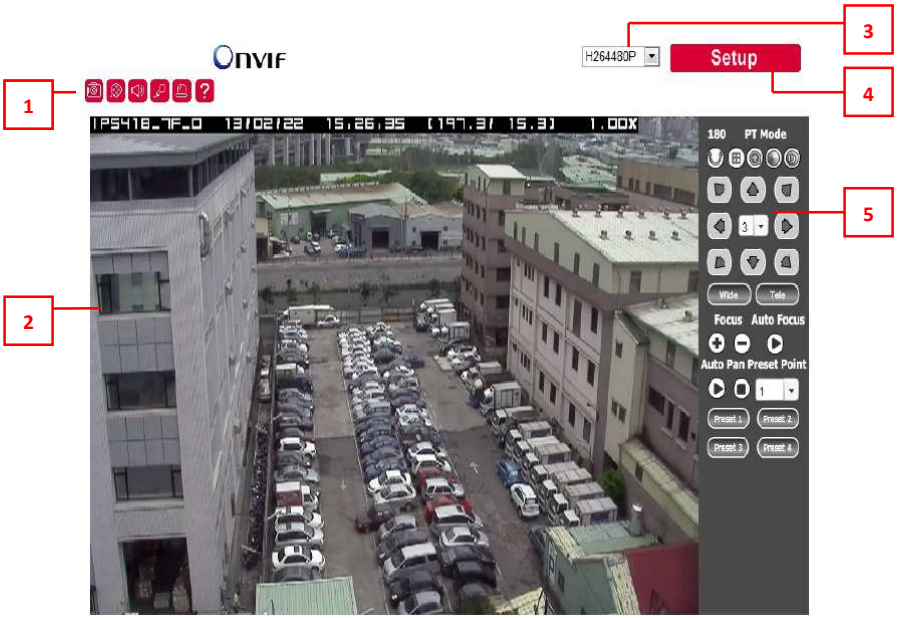
To logon the H.264 FULL HD IP camera, please type username and password in logon HTML page and click on Submit button to enter the system.

Chapter 3 Start Using the Camera

After login H.264 HD video server or IP PTZ 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

Operational HTML page layout



1. **Camera 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
5. **PTZ control panel**

Chapter 3-2 PTZ Control Panel

All the PTZ features are described as follows:

Wide: Lens zoom out

Tele: Lens zoom in

Preset: Preset points recall

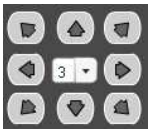
Focus+: Focus far
Focus-: Focus near

Auto Focus: Set the device to auto focus mode

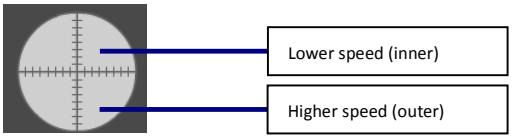
Chapter 3-2-1 PT Mode

There are four Pan and Tilt Modes (PT) for users to operate the PTZ device. To select one of the PT modes, please click on the icon under PT Mode panel.

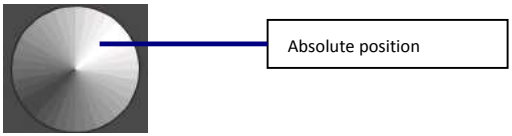
PT mode



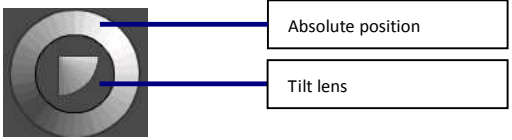
PT mode with speed



Pan mode at absolute position

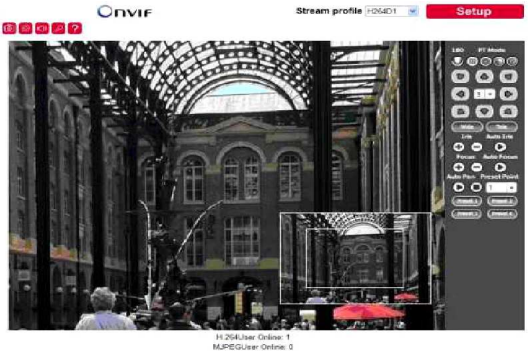


Pan and tilt modes at absolute position



Chapter 3-2-2 ePTZ

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 3-2-3 Camera Control Panel

Control panel buttons are described as below:

	Snapshot: Take a snapshot of the video.
	Recording at PC
	Speak on: Speak to remote site (for audio model only).
	Audio on: Set audio on (for audio model only).

Chapter 3-2-4 Two-way Audio

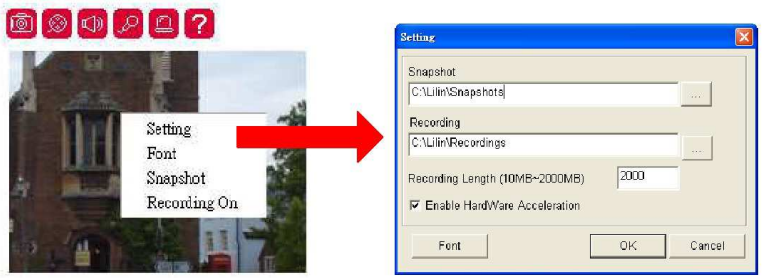
For two-way audio, please click on Microphone icon for speaking to the remote site. To stop speaking to the remote site, please click on Microphone icon again.

To listen to the remote site, please click on 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 the 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.



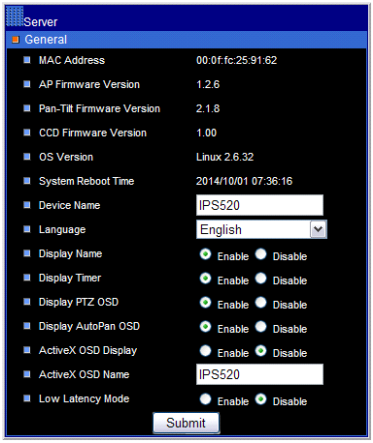
To playback the AVI video, simply click on Windows Media Player.

Chapter 3-3 Configurations

H.264 HD video server or IP PTZ camera's administrator can configure the device via standard HTML web pages. This chapter explains the detail of each configuration setting.

Chapter 3-3-1 Server Settings

Server settings contain H.264 HD video server or IP PTZ 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.



MAC Address

Network MAC address of the camera

AP Firmware Version

Firmware update allows a user to upgrade IP PTZ camera's firmware remotely.

Pan-Tilt Firmware Version

A user can use firmware version to verify if the device has the latest version.

CCD Firmware Version

A user can use firmware version to verify if the device has the latest version.

OS Version

A user can use firmware version to verify if the device has the latest version.

System Reboot Time

System last boot time

Device Name

The device name can be used by IPScan utility to identify the IP PTZ camera to change the device name, enter the name for IP PTZ camera and click on Submit button.

Language

Language setting can be changed dynamically.

Display Name

Display camera name.

Display Timer

Display camera timer.

Display PTZ OSD

Display PTZ internal OSD (PTZ only).

Display AutoPan OSD

Display PTZ Auto-Pan or Self-Run running or not.

ActiveX OSD Name

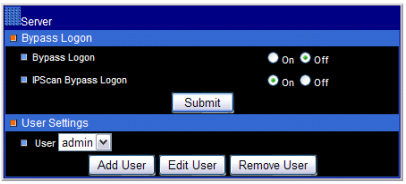
Display camera OSD name on only ActiveX.

Low Latency Mode

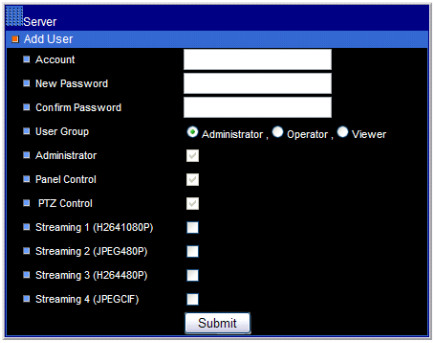
Enable: ActiveX will cache 15 frames for smooth video.

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 HD video server or IP PTZ camera without authentication, set Bypass Logon radio button to ON.



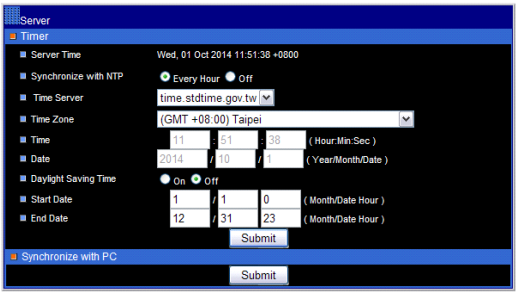
To change account name, please type the new account name in Account edit box. To change new password, please type the new password in the New Password edit box. Click on Submit button to update the user settings. To delete a user, please click on “Remove User” button.



User Group: Different setup mode for a user.
Camera Control Panel: Enable or disable Control Panel for a user.
PTZ: Enable or disable PTZ feature for a user.
Streaming: Enable or disable a streaming for a user.

Chapter 3-3-3 Timer

H.264 HD video server or IP PTZ camera allows a user to change system timer via standard HTML web page. To change H.264 HD video server or IP PTZ 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 HD video server or IP PTZ camera synchronizes its system timer with a time server every hour.

> **Note:** Network Time Protocol feature requires Internet connection.

Synchronize with a PC

A user can synchronize the PC system timer to the IP camera's system timer.

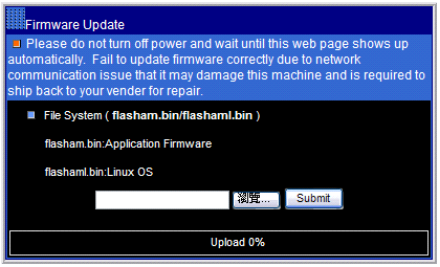
Chapter 3-3-4 System Setting

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 HD video server or IP PTZ camera, click on Reboot System hyper link.

To update firmware of H.264 HD video server or IP PTZ camera, please click on Firmware

> **Note:** In case of forgetting the 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 HD video server or IP PTZ camera during firmware upgrade.



Chapter 3-4 Network

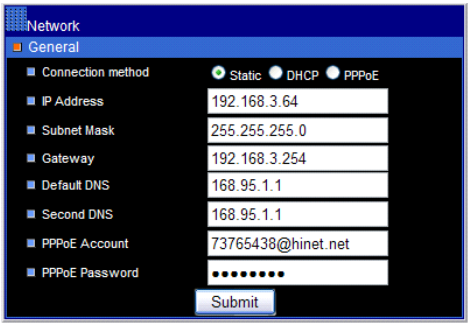
H.264 HD video server or IP PTZ camera provides Internet protocols including IP, DHCP, and DDNS. A user can configure these Internet protocol settings. To setup above, please read the following sections:

Chapter 3-4-1 General Settings

Network general settings are the basic settings connecting H.264 HD video server or IP PTZ camera to the network. The default IP Address of H.264 HD video server or IP PTZ 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 HD video server or IP PTZ camera using Web 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**—Primary Domain Name Server, the IP address of the domain name server
- **Second DNS IP Address**—Secondary 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

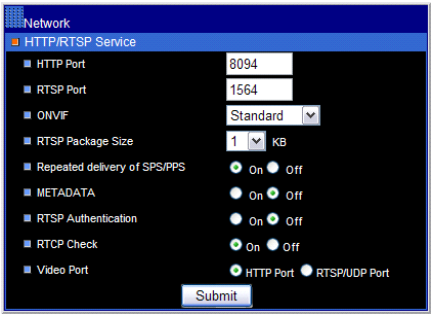
Chapter 3-4-2 DHCP Setting

Router, gateway, or other software DHCP servers can dynamically assign an IP address to the H.264 HD video server or IP PTZ 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 HD video server or IP PTZ camera after power off, a user can use IPScan utility to launch Web Browser for searching H.264 HD video server or IP PTZ camera. To enable DHCP, click on DHCP option and click on Submit button.

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

Chapter 3-4-3 HTTP & RTSP Service

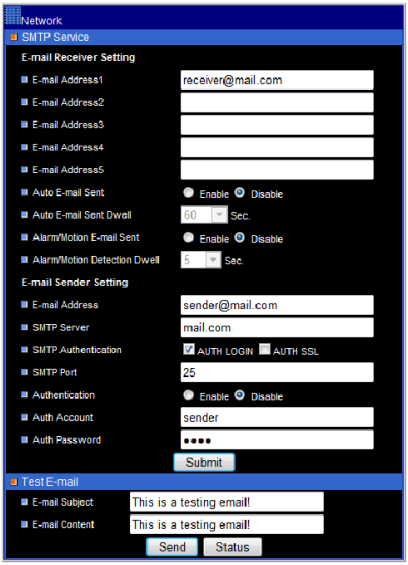
HTTP protocol is a reliable protocol for sending video streaming. Port forwarding technology can be used for sending video over Internet. The detail is described in the appendix. For changing HTTP service's port number, please consult available port number from your network administrator.
Change the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



Note: For low latency application, please select RTSP/UDP streaming option.

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.

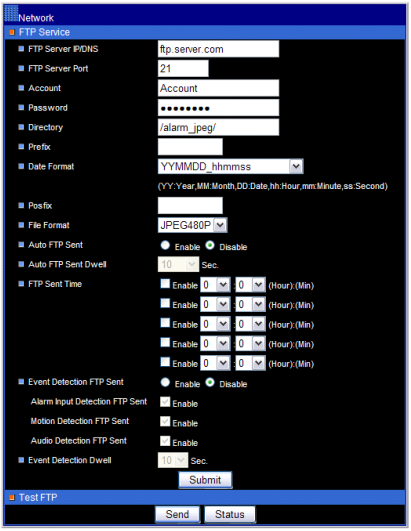


- E-mail receiver setting
  E-mail address— E-mail address of the recipient
- E-mail sender setting
  E-mail address— E-mail address of the sender
- Auto E-mail sent snapshots—constantly send JPEG snapshots within E-mail dwell time.
- SMTP server— Sender's SMTP server
  Authorization— SMTP server's authorization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

To send a test 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

Send email to Yahoo or Gmail account. Please follow:

- E-mail Address: Please fill in the SMTP for Yahoo or Gmail account.
- SMTP Server:
  For Gmail, please fill in "smtp.gmail.com".
  For Yahoo E-mail, please fill in "smtp.mail.yahoo.com".
- SMTP Authentication: Please check "AUTH SSL".
- SMTP Port:
  For Gmail, please fill in "465".
  For Yahoo E-mail, please fill in "465".
- Authentication: Select "Enable".
- Auth Account and Password: Please fill in the E-mail address and password and select "Submit".

Chapter 3-4-6 DDNS Settings

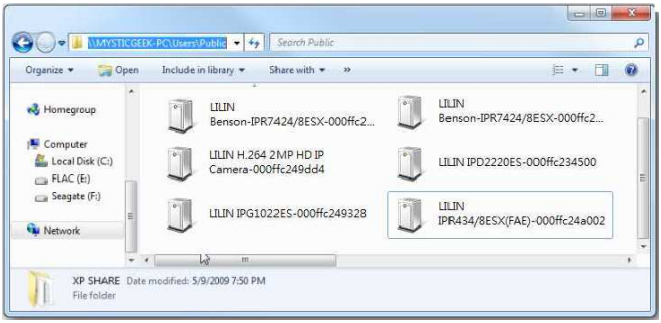
DNS stands for domain name server, it provides domain name translation service for a device's IP. Basically, domain name is easier to remember than numeric values (IP). DNS service requires service registration and subscription. DynDNS (DDNS) provides domain name service without subscription.

Note: DDNS feature requires Internet connection.

To use www.ddnsipcam.com, you can use the last 6 digits of the MAC address for the host name and default account. The default password is "pass". If the IP camera is on Internet with global IP address, you can access it directly the IP camera by using DDNS host name.
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 3-4-7 UPnP Settings

UPnP service is a plug-n-play protocol. By clicking on network node of Windows File Explorer, you can find cameras that are discovered by Windows via UPnP protocol.



Chapter 3-5 Video Settings

This section describes the details in setting the H.264 video’s attributes. The settings of video resolution, bit rate control and streaming can be configured.

Chapter 3-5-1 Video General Settings

For transmitting H.264 AVC over low bandwidth network such as Internet, please set the bit rate close to network upload bandwidth to meet the bandwidth requirements. H.264 AVC can encode video frames based on these bit rate settings.

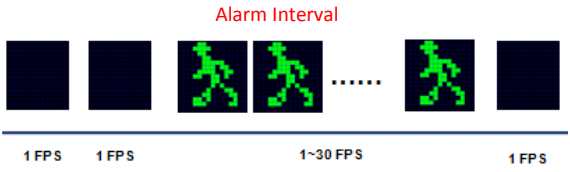
[IPS622x/722x models]

[IPS418x/518x, IPS210x/310x, IPS420x520x, IPS430x/530x models]

- Profiles : Selections of streaming combination.
- Profile Name: Description of the streaming profile
- Compression : Compression type of the streaming profile (JPEG or H.264 format).
- Resolution : The resolution of the streaming profile.
- Bit Rate : Maximum bit rate available for network connection based on actual bandwidth requirements.
- VBR/CBR Mode : Variable bit rate encoding mode/constant bit rate encoding mode.
- Output Frame Rate : the frame rate of the profile.
- Image Quality : JPEG image quality.
- GOP : I-Frame period per second.
- Video Input : sensor input device.
- TV System Output : NTSC(60)/PAL(50) HZ video system.

Chapter 3-5-2 Alarm Weighted Mode

When someone enters the zone and alarm interval is activated, the streaming goes to the maximum speed, for example 30 FPS. If there is no alarm activated, the streaming stays only one frame per second in order to saving bandwidth and storage space.

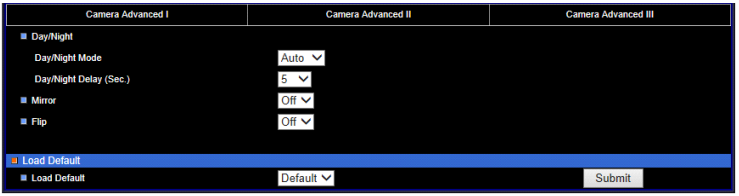


Chapter 3-5-3 Video Quality Setting

3-5-3.1 Camera Advance I Setting

◆ [IPS622x/722x, IPS418x/518x, IPS210x/310x Models]

Camera Advance I Setting menu can be found under this path : Video/Quality/Camera Advanced I
In the Camera Advanced I setup menu, you can set various camera parameters including Day/Night Mode, Mirror and Flip function. Each setting is specified as follows:



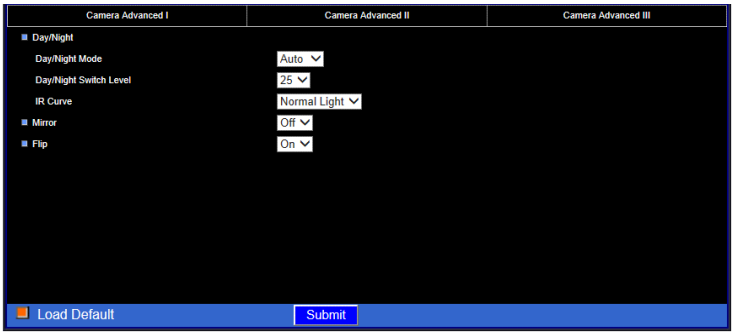
- **Day/Night switch Mode**: IR Cut removable allows to switch IR activation by (1)auto, (2)day, (3)night.

  Auto Mode
  When the setting is set to “Auto”, IR activation is according to the light source signal strength automatically switch day(color) or night(black and white) mode.
  Day Mode
  IR cut feature is forced to be always on.
  Night Mode
  IR cut feature is removed.

- **Mirror**: If select “On”, the image will be rotated horizontally.
- **Flip**: If select “On”, the image will be rotated vertically.

◆ [IPS420x/520x, IPS430x/530x Models]

Camera Advance I Setting menu can be found under this path : Video/Quality/Camera Advanced I
In the Camera Advanced I setup menu, you can set various camera parameters including Day/Night Mode, Mirror and Flip function. Each setting is specified as follows:



- **Day/Night switch Mode**: IR Cut removable allows to switch IR activation by (1)auto, (2)day, (3)night.

Auto Mode

When the setting is set to “Auto”, IR activation is according to the light source signal strength automatically switch day(color) or night(black and white) mode.

Day Mode

IR cut feature is forced to be always on.

Night Mode

IR cut feature is removed.

- **Day/Night Switch Level**: Auto adjust Day/Night switching sensitivity.
- **IR Curve**: There are three different IR Cut filters (Normal Light, IR950nm, IR850nm) to block all visible light.

IR950nm

Suitable for outdoor and strong light use.

IR850nm

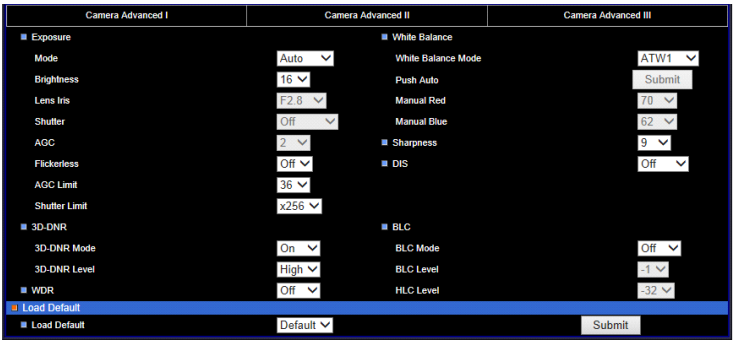
Suitable for in door and weak light use.

- **Mirror**: If select “On”, the image will be rotated horizontally.
- **Flip**: If select “On”, the image will be rotated vertically.

3-5-3.2 Camera Advance II Setting

◆ [IPS622x/722x Models]

Camera Advance II Setting menu can be found under this path : Video/Quality/Camera Advanced II
In the Camera Advanced II setup menu, you can set various camera parameters including Exposure, 3D-DNR, WDR, White Balance, Sharpness, DIS and BLC function. Each setting is specified as follows:



- **Exposure**: In the Exposure setting mode you can select Auto, Iris, Shutter and Fix four modes.

Exposure-Auto Mode

In this mode, Lens Iris, Shutter and AGC are fixed. And you can adjust the parameters of the Brightness, Flickerless, AGC Limit and Shutter Limit in **Advanced Adjust Option**.

Exposure-Iris Mode

In this mode, Lens Iris, AGC and Shutter Limit are fixed. And you can adjust the parameters of the Brightness, Shutter, Flickerless and AGC Limit in **Advanced Adjust Option**.

Exposure-Shutter Mode

In this mode, Shutter, AGC and Flickerless are fixed. And you can adjust the parameters of the Brightness, Lens Iris, AGC Limit and Shutter Limit in **Advanced Adjust Option**.

Exposure-Fix Mode

In this mode, AGC Limit and Shutter Limit are fixed. And you can adjust parameters of the Brightness, Lens Iris, Shutter, AGC and Flickerless in **Advanced Adjust Option**.

Advanced Adjust Option :

Brightness

This parameter is to adjust the brightness of the image. Setting range is 0~32, default value is 16.

Lens Iris

When Exposure mode is in Shutter or Fix mode, you can adjust Lens Iris. Setting range (F1.6, F2.0, F2.8, F4.0, F5.6, F8.0, F11, F16, F22, F32and Off, Default value is F2.8).

Shutter

When Exposure mode is in Iris or Fix mode, you can adjust Shutter. Setting range (x256, x128, x64, x32, x16, x12, x8, x6, x4, x2, Off, FLC, 1/125, 1/250, 1/500, 1/1000, 1/2500, 1/5k, 1/10k, 1/30k and 1/60k, default value is off).

AGC

When Exposure mode is in Fix mode, you can adjust AGC. Setting range (0~42, default value is 0).

Flickerless

When Exposure mode is in Auto, Iris and Fix mode, you can eliminate flicker manually.

AGC Limit

When Exposure mode is in Auto, Iris and Shutter mode, you can set the maximum auto gain control value manually. Setting range (24~42, default value is 36).

Shutter Limit

When Exposure mode is in Auto and Limit mode, you can set the maximum slow shutter speed in low light environments. Setting range (x256, x128, x64, x32, x16, x12, x8, x6, x4, x2 and Off, default value is x256).

- **3D-Digital Noise Reduction (3D-DNR)**: With the 3D noise reduction function, the processor analyzes pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light conditions. 3D-DNR including Off, On and Auto.

On mode

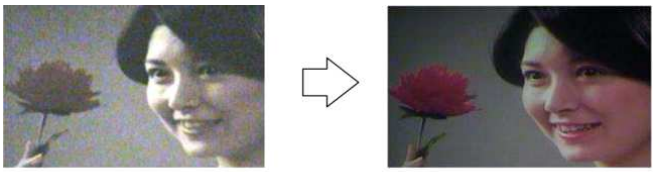
When 3D-DNR mode is on, 3D-DNR reduction level is also turned on.

3D-DNR Level

Setting range Low/Mid/High, default value is High.

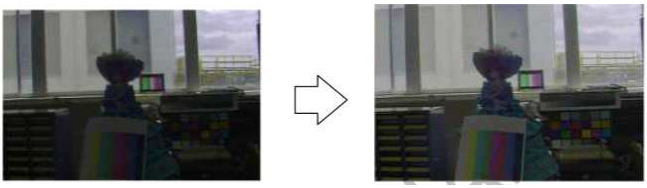
Auto mode

It is controlled by the intensity of light source when it is dark.



DNR OFF : Noisy　　3D-DNR On/Auto Clearly

- **WDR**: When the high luminance part and the low illumination part are detected, the suppression low illumination part is raised, and a high luminance part is adjusted in the contrast.



WDR Function

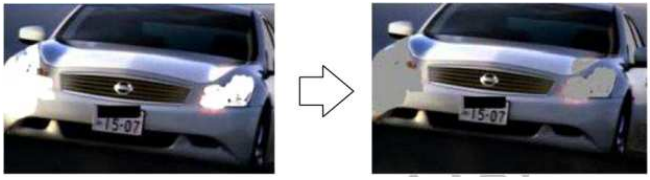
- **White Balance Mode (WBM)**: A camera needs to measure the current color temperature, and use an algorithm to automatically process the image so that the final output image may be close to what the human eye sees. Under some particular situations, however, users can also manually adjust the white balance parameters to achieve what they consider to be the best-balanced pictures. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the White Balance Control modes according to the operating environment. There are five modes which you can specify. Each detail described as follow :

  ATW1 Mode
  Auto tracking White Balance.
  ATW2 Mode
  Auto tracking White Balance.
  One Push WB Mode
  Auto WB control one time via user trigger manually
  Manual Mode
  Allow a user to manually adjust WB parameters.
  Red Gain : Permit manual adjustment of R-gain value for customer white balance. The gain of Red is between 0~255, default value is 73. The greater the number is, the more reddish the picture becomes.
  Blue Gain : Allow manual adjustment of R-gain value for customer white balance. The gain of blue is between 0~255, default value is 64. The greater the number is, the more bluish the picture becomes.
  Indoor Mode
  The indoor color temperature mode setting.
  Outdoor Mode
  The outdoor color temperature mode setting.

- **Sharpness** : Increasing the sharpness level can make the image looked sharper, especially enhancing the object's edge. The Sharpness value is adjustable between 0~14, default value is 8.
- **EIS** : Abbreviation of Electronic Image Stabilization. Three adjustable modes (Off/On/Active)
- **BLC** : User can choose to active or disable the BLC function or HLC function.

  BLC
  Turns backlight compensation on. A sub-menu appears, shown at below, that allows the user to modify the backlight gain.
  BLC Level
  backlight compensation adjustable level (-1~2 default value is 0).
  HLC
  Turn HLC on. A sub-menu appears, shown at below, that allows the user to modify the high light gain (-32~32).

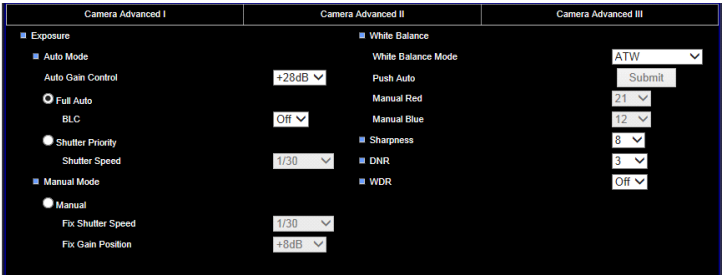
  Function description : When HLC is active it will mask the source of the bright light whit a gray shape, thus allowing the area to the side of the light source to be viewed and recorded. For example, the headlight of the vehicle was suppressed and masked with gray shapes.



HLC Function

◆ **[IPS418x/518x Models]**

Camera Advance II Setting menu can be found under this path : Video/Quality/Camera Advanced II
In the Camera Advanced II setup menu, you can set various camera parameters including Exposure, White Balance, Sharpness, DNR and WDR function. Each setting is specified as follows:



- **Exposure**: In the Exposure setting mode you can select Auto and Manual mode.
- **Exposure-Auto Mode**: Auto control exposure level by measuring the brightness of the object. In this mode you can adjust AGC, Full Auto and Shutter Priority function.

Auto Gain Control(AGC)

This parameter is to set the maximum auto gain control, setting range (6dB, 8dB, 10dB, 12dB, 14dB, 16dB, 18dB, 20dB, 22dB, 24dB, 26dB and 28dB，default value is 28dB).

Full Auto

In this mode, iris and shutter speed automatic control according to the light source changes.

Backlight Compensation : Under darkness circumstances, the BLC function can be used to achieve a suitable exposure level so as to get a clear view of the subject.

Shutter Priority

Once a shutter speed is set, the camera will automatically select an aperture value to match the brightness. Faster shutter speeds allow the camera to capture instantaneous streak-free image of a moving subject, while slow speeds improve light sensitivity in poorly illuminated areas.

Shutter Speed is as follows: 1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/k, 1/1500, 1/2k, 1/3k, 1/4k, 1/6k and 1/10k, default value is 1/30

- **Exposure-Manual Mode** : Fix Shutter Speed and Gain Position manually

Fix Shutter Speed(FSS)

Manual Fix Shutter Speed (1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/k, 1/1500, 1/2k, 1/3k, 1/4k, 1/6k and 1/10k, default value is 1/30).

Fix Gain Position(FGP)

Manual Fix Gain Position (6dB, 8dB, 10dB, 12dB, 14dB, 16dB, 18dB, 20dB, 22dB, 24dB, 26dB and 28dB, default value is 8dB).

- **White Balance Mode (WBM)** : A camera needs to measure the current color temperature, and use an algorithm to automatically process the image so that the final output image may be close to what the human eye sees. Under some particular situations, however, users can also manually adjust the white balance parameters to achieve what they consider to be the best-balanced pictures. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the White Balance Control modes according to the operating environment. There are seven modes which you can specify. Each detail described as follow :

  Auto Mode

  Enable the camera to automatically make white balance.

  Indoor Mode

  Fix color temperature in 3200K.

  Outdoor Mode

  Fix color temperature in 5800K.

  One Push WB Mode

  Auto WB control one time via user trigger manually.

  ATW

  Abbreviation of Auto Tracking WB (color temperature range is between 2000K~10000K).

  Manual Mode

  Allow a user to manually adjust WB parameters.

  Red Gain : Permit manual adjustment of R-gain value for customer white balance. The gain of Red is between 0~255, default value is 73. The greater the number is, the more reddish the picture becomes.

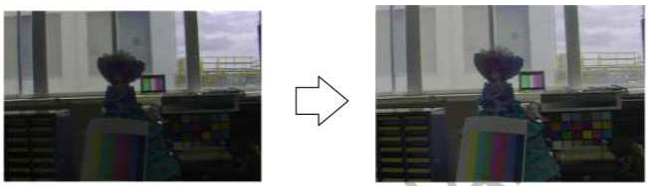
  Blue Gain : Allow manual adjustment of R-gain value for customer white balance. The gain of blue is between 0~255, default value is 64. The greater the number is, the more bluish the picture becomes.

  Outdoor Auto

  Enable the camera to automatically make white balance for outdoor.

- **Sharpness** : Increasing the sharpness level can make the image looked sharper, especially enhancing the object's edge. The Sharpness value is adjustable between 0~15, default value is 8.
- **Digital Noise Reduction** : With the 3D noise reduction function, the processor analyzes pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light or slow speed shutter conditions. Setting range is off~5, default value is 3.
- **WDR Mode** : Off/On.

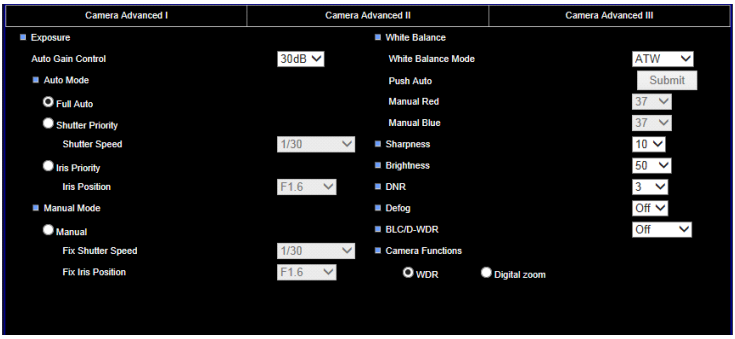
  When the high luminance part and the low illumination part are detected, the suppression low illumination part is raised, and a high luminance part is adjusted in the contrast.



WDR Function

◆ **[IPS210x/310x Models]**

Camera Advance II Setting menu can be found under this path : Video/Quality/Camera Advanced II
In the Camera Advanced II setup menu, you can set various camera parameters including Exposure, White Balance, Sharpness, Brightness, DNR, Defog, BLC/D-WDR and Digital zoom function. Each setting is specified as follows:



- **Exposure Mode** : In the Exposure setting mode you can select AGC, Auto and Manual mode.
- **Auto Gain Control(AGC)** : This parameter is to set the maximum auto gain control, setting range (off, 2dB, 5dB, 8dB, 11dB, 14dB, 16dB, 19dB, 22dB, 25dB, 28dB, 30dB, 33dB, 36dB, 39dB and 42dB, default value is 30dB).
- **Exposure-Auto Mode** : Auto control exposure level by measuring the brightness of the object. In this mode you can adjust Full Auto, Shutter Priority and Iris priority.

  Full Auto

  In this mode, Iris and shutter speed automatic control according to the light source changes.

  Shutter Priority

  Once a shutter speed is set, the camera will automatically select an aperture value to match the brightness. Faster shutter speeds allow the camera to capture instantaneous streak-free image of a moving subject, while slow speeds improve light sensitivity in poorly illuminated areas.

  Shutter Speed is as follows：1/30, 1/60, 1/100, 1/240, 1/480, 1/k, 1/2k, 1/5k and 1/10k, default value is 1/30.

  Iris Priority

  In addition to controlling the intensity of the light entering the lens, the size of the iris also determines your depth of field.

  Iris Position is as follows : CLOSE, F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2 and F1.6, default value is F1.6.

- **Exposure-Manual Mode**: Fix shutter speed and iris position manually

  Fix Shutter Speed(FSS)

  Manual fix shutter speed(1/30, 1/60, 1/100, 1/240, 1/480, 1/k, 1/2k, 1/5k and 1/10k, default value is 1/30).

  Fix Iris Position

  Manual fix iris position(CLOSE, F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2 and F1.6, default value is F1.6).

- **White Balance Mode (WBM)**: A camera needs to measure the current color temperature, and use an algorithm to automatically process the image so that the final output image may be close to what the human eye sees. Under some particular situations, however, users can also

manually adjust the white balance parameters to achieve what they consider to be the best-balanced pictures. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the White Balance Control modes according to the operating environment. There are five modes which you can specify. Each detail described as follow :

Indoor Mode

Fix color temperature in 3200K.

Outdoor

Fix color temperature in 5800K.

AWC Mode

Auto WB control one time via user trigger manually.

ATW

Abbreviation of Auto Tracking WB (color temperature range is between 2000K~10000K).

Manual Mode

Allow a user to manually adjust WB parameters.

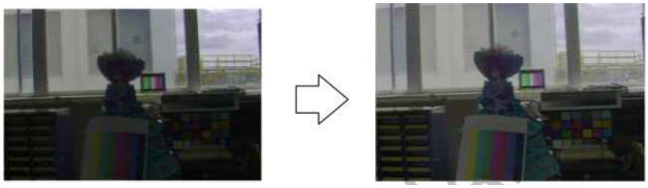
Red Gain : Permit manual adjustment of R-gain value for customer white balance. The gain of Red is between 0~100, default value is 37. The greater the number is, the more reddish the picture becomes.

Blue Gain : Allow manual adjustment of B-gain value for customer white balance. The gain of blue is between 0~100, default value is 37. The greater the number is, the more bluish the picture becomes.

- **Sharpness**: Increasing the sharpness level can make the image looked sharper, especially enhancing the object's edge. The Sharpness value is adjustable from 0~15, default value is 10.
- **Brightness**: Adjust the brightness, setting range(1~100, default value is 50).
- **Digital Noise Reduction(DNR)**: With the 3D noise reduction function, the processor analyzes pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light or slow speed shutter conditions. Setting range is off~5, default value is 3.
- **Defog**: Images taken in abnormal climate conditions such as fog or rain or unusual environment like strong luminance have lower DR (dynamic range) compared to ordinary images. Defog function is available in order to overcome this shortcoming.

  Backlight Compensation (BLC): Under darkness circumstances, the BLC function can be used to achieve a suitable exposure level so as to get a clear view of the subject. BLC, WDR and DZoom are exclusive functions.

- **Wide Dynamic Range (WDR)**: Off/On. When the high luminance part and the low illumination part are detected, the suppression low illumination part is raised, and a high luminance part is adjusted in the contrast.

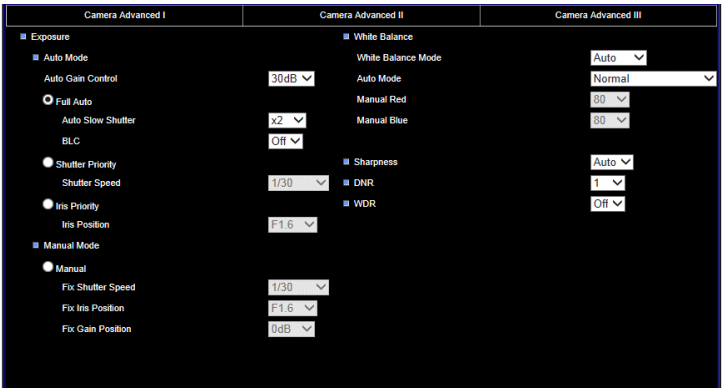


WDR Function

- **Digital Zoom (DZoom)**: Digital zoom is a function of a camera used to make the image seem more close-up. DZoom on a digital camera works the same as cropping and enlarging a photo in a graphics program. This type of zoom will result in a loss of quality and image resolution because the image is simply being enlarged without any extra details or pixels being added.

◆ **[IPS420x/520x Models]**

Camera Advance II Setting menu can be found under this path : Video/Quality/Camera Advanced II
In the Camera Advanced II setup menu, you can set various camera parameters including Exposure, White Balance, Sharpness, DNR and WDR function. Each setting is specified as follows:



- **Exposure Mode**: In the Exposure setting mode you can select Auto and Manual mode.
- **Exposure-Auto Mode** : Auto control exposure level by measuring the brightness of the object. In this mode you can adjust AGC, Full Auto, Shutter Priority and Iris Priority.

Auto Gain Control(AGC)

This parameter is to set the maximum auto gain control, setting range (Off, 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB, 39dB, 42dB and 45dB, default value is 30dB).

Full Auto

In this mode, Iris and shutter speed automatic control according to the light source changes. You can choose the values of auto slow shutter and BLC, respectively.

Auto Slow Shutter: When the Auto Slow Shutter function is turned on, it helps reduce the amount of video noise that is recorded when shooting in dark areas. Setting range (Off, x2, x4, x8, x16 and x32, default value is x8).

Backlight Compensation (BLC): Under darkness circumstances, the BLC function can be used to achieve a suitable exposure level so as to get a clear view of the subject. BLC and WDR are exclusive functions.

Shutter Priority (SP)

Once a shutter speed is set, the camera will automatically select an aperture value to match the brightness. Faster shutter speeds allow the camera to capture instantaneous streak-free image of a moving subject, while slow speeds improve light sensitivity in poorly illuminated areas.

Shutter Speed is as follows: 1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/100, 1/120, 1/180, 1/250, 1/500, 1/k, 1/2k, 1/4k, 1/10k and 1/30k, default value is 1/30.

Iris Priority (IP)

In addition to controlling the intensity of the light entering the lens, the size of the iris also determines your depth of field.

Iris Position is as follows: F1.6, F2.3, F3.2, F4.5, F6.4, F9.0, F12.8, F18.1, F25.6 and F36.2, default value is F1.6.

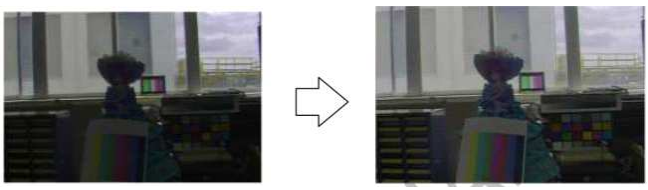
- **Exposure-Manual Mode**: Fix shutter speed, iris position and gain position manually.

  Fix Shutter Speed (FSS)
  Manual fix shutter speed (1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/100, 1/120, 1/180, 1/250, 1/500, 1/k, 1/2k, 1/4k, 1/10k and 1/30k, default value is 1/30).
  Fix Iris Position (FIP)
  Manual fix iris position (F1.6, F2.3, F3.2, F4.5, F6.4, F9.0, F12.8, F18.1, F25.6 and F36.2, default value is F1.6).
  Fix Gain Position (FGP)
  Manual fix gain position (0, 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB, 39dB, 42dB and 45dB, default value is 30dB).

- **White Balance Mode (WBM)** : A camera needs to measure the current color temperature, and use an algorithm to automatically process the image so that the final output image may be close to what the human eye sees. Under some particular situations, however, users can also manually adjust the white balance parameters to achieve what they consider to be the best-balanced pictures. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the White Balance Control modes according to the operating environment. There are two modes which you can specify. Each detail described as follow :

  Auto Mode
  Three switch types (Normal/Sodium Vapor Light/Mercury Vapor Light).
  Manual White Balance
  Set the white balance (R/B gain) tuning values in manual white balance mode.
  Red Gain : Permit manual adjustment of R-gain value for customer white balance. The gain of Red is between 1~160. The greater the number is, the more reddish the picture becomes.
  Blue Gain : Allow manual adjustment of B-gain value for customer white balance. The gain of blue is between 1~160. The greater the number is, the more bluish the picture becomes.

- **Sharpness** : Increasing the sharpness level can make the image looked sharper, especially enhancing the object's edge. The Sharpness value is adjustable from 1~16, default value is Auto.
- **Digital Noise Reduction (DNR)** : With the 3D noise reduction function, the processor analyzes pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light or slow speed shutter conditions. Setting range is off and 1~3, default value is 1.
- **Wide Dynamic Range (WDR)** : Off/On. When the high luminance part and the low illumination part are detected, the suppression low illumination part is raised, and a high luminance part is adjusted in the contrast.



WDR Function

◆ **[IPS430x/530x Models]**

Camera Advance II Setting menu can be found under this path : Video/Quality/Camera Advanced II
In the Camera Advanced II setup menu, you can set various camera parameters including Exposure, White Balance, Sharpness, DNR, WDR, Defog and EIS function. Each setting is specified as follows:

- **Exposure Mode**: In the Exposure setting mode you can select Auto and Manual mode.
- **Exposure-Auto Mode**: Auto control exposure level by measuring the brightness of the object. In this mode you can adjust AGC, Full Auto, Shutter Priority and Iris Priority.

Auto Gain Control(AGC)

This parameter is to set the maximum auto gain control, setting range (Off, 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB, 39dB, 42dB and 45dB, default value is 30dB).

Full Auto

In this mode, Iris and shutter speed automatic control according to the light source changes. You can choose the values of auto slow shutter and BLC, respectively.

Auto Slow Shutter: When the Auto Slow Shutter function is turned on, it helps reduce the amount of video noise that is recorded when shooting in dark areas. Setting range (Off, x2, x4, x8, x16 and x32, default value is x8).

Backlight Compensation (BLC): Under darkness circumstances, the BLC function can be used to achieve a suitable exposure level so as to get a clear view of the subject. BLC and WDR are exclusive functions.

Shutter Priority (SP)

Once a shutter speed is set, the camera will automatically select an aperture value to match the brightness. Faster shutter speeds allow the camera to capture instantaneous streak-free image of a moving subject, while slow speeds improve light sensitivity in poorly illuminated areas.

Shutter Speed is as follows: 1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/100, 1/120, 1/180, 1/250, 1/500, 1/k, 1/2k, 1/4k, 1/10k and 1/30k, default value is 1/30.

Iris Priority (IP)

In addition to controlling the intensity of the light entering the lens, the size of the iris also determines your depth of field.

Iris Position is as follows: F1.6, F2.3, F3.2, F4.5, F6.4, F9.0, F12.8, F18.1, F25.6 and F36.2, default value is F1.6.

- **Exposure-Manual Mode**: Fix shutter speed, iris position and gain position manually.

  Fix Shutter Speed (FSS)

  Manual fix shutter speed (1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/100, 1/120, 1/180, 1/250, 1/500, 1/k, 1/2k, 1/4k, 1/10k and 1/30k，default value is 1/30).

  Fix Iris Position (FIP)

  Manual fix iris position (F1.6, F2.3, F3.2, F4.5, F6.4, F9.0, F12.8, F18.1, F25.6 and F36.2, default value is F1.6).

  Fix Gain Position (FGP)

  Manual fix gain position (0, 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB, 39dB, 42dB and 45dB, default value is 30dB).

- **White Balance Mode (WBM)**: A camera needs to measure the current color temperature, and use an algorithm to automatically process the image so that the final output image may be close to what the human eye sees. Under some particular situations, however, users can also manually adjust the white balance parameters to achieve what they consider to be the best-balanced pictures. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the White Balance Control modes according to the operating environment. There are two modes which you can specify. Each detail described as follow :

  Auto Mode

  three switch types (Normal/Sodium Vapor Light/Mercury Vapor Light)

  Manual White Balance

  Set the white balance (R/B gain) tuning values in manual white balance mode.

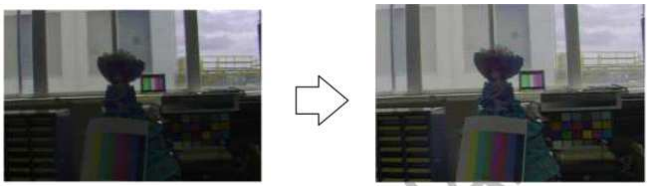
  Red Gain : Permit manual adjustment of R-gain value for customer white balance. The gain of Red is between 1~160. The greater the number is, the more reddish the picture becomes.

  Blue Gain : Allow manual adjustment of B-gain value for customer white balance. The gain of blue is between 1~160. The greater the number is, the more bluish the picture becomes.

- **Sharpness:** Increasing the sharpness level can make the image looked sharper, especially enhancing the object's edge. The Sharpness value is adjustable from 1~16, default value is Auto.

- **Digital Noise Reduction (DNR)**: With the 3D noise reduction function, the processor analyzes pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light or slow speed shutter conditions. Setting range is off and 1~3, default value is 1.

- **Wide Dynamic Range (WDR)**: Off/On. When the high luminance part and the low illumination part are detected, the suppression low illumination part is raised, and a high luminance part is adjusted in the contrast.



WDR Function

- **Defog** : Defog-1 has the weakest effect and defog-3 has the strongest effect. Image noise and luminance level difference stands out when Defog effect is strong. Please select the optimal mode according to the image condition. Defog-Auto mode enables camera to judge fog thickness and automatically determine the strength of the effect depending on the fog thickness.
- **Enhance Intensity (EI)** : Three switch types (Off/On/HLC)
  Select Enhance Intensity mode "On" and a sub-menu "Enhanced Intensity Level (EIL)" also appears. This function can take a clear subject in low intensity environment. It takes photographs as good as possible in color photograph mode in low intensity conditions without switching the black and white photograph mode. Select "HLC" and a sub-menu "High Light Compensative" also appears. This function can suppress the glare of bright light

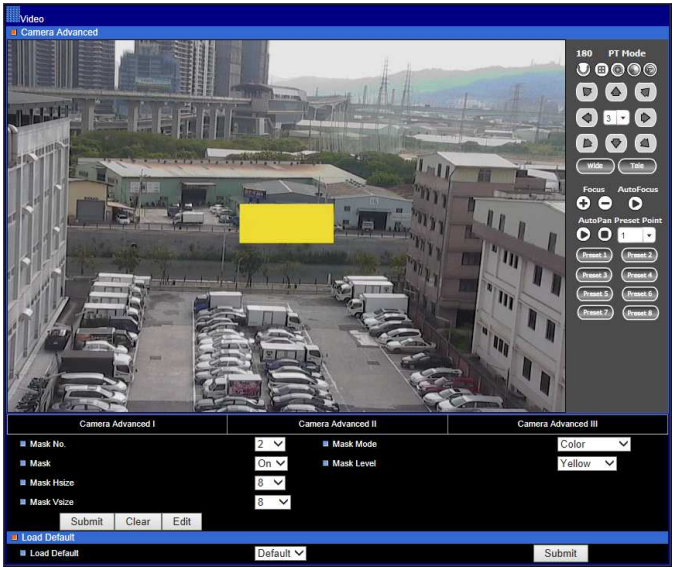
  Enhanced Intensity Level (EIL)
  EIL/Defog/WDR(Contrast Offset) are exclusive functions with executed priority as EIL > Defog > WDR. Setting range (0, 32, 64, 96, 128, 160, 192, 224 and 256, default value is 0).
  High Light Compensative (HLC)
  Setting range (0, 32, 64, 96, 128, 160, 192, 224 and 256, default value is 0).
- **Electronic Image Stabilization (EIS)** : EIS function and performance may be limited by the size and type of vibration. When EIS function is operating, DSS function will be disabled. However, when EIS is then turned OFF, DSS mode will be re-enabled. When EIS is turned ON during Shutter Priority (SP) mode with DSS setting, the DSS SP Speed operation will be disabled. However, the camera will remember the selected DSS SP speed and when EIS is turned OFF the camera will automatically return to the previously selected DSS SP speed. When EIS function is operating, MD function and WDR function will be disabled. WDR will not be automatically reinstated when EIS is turned OFF. You will need to turn WDR back ON manually.

3-5-3.3 Camera Advance III Setting

◆ [IPS622x/722x Models]

Camera Advance III Setting menu can be found under this path : Video/Quality/Camera Advanced III.

When you set mask functions, the center of the screen will be the position of setting a mask. Mask can be set at the desired position by setting the pan tilt angle and zoom position. When setting parameters (No., Mode, Switch, Level, Hsize and Vsize) are set, you then press the "Submit" key to save the settings. Follow the above process, you can set multiple mask areas. Function descriptions and illustrations are described as below:

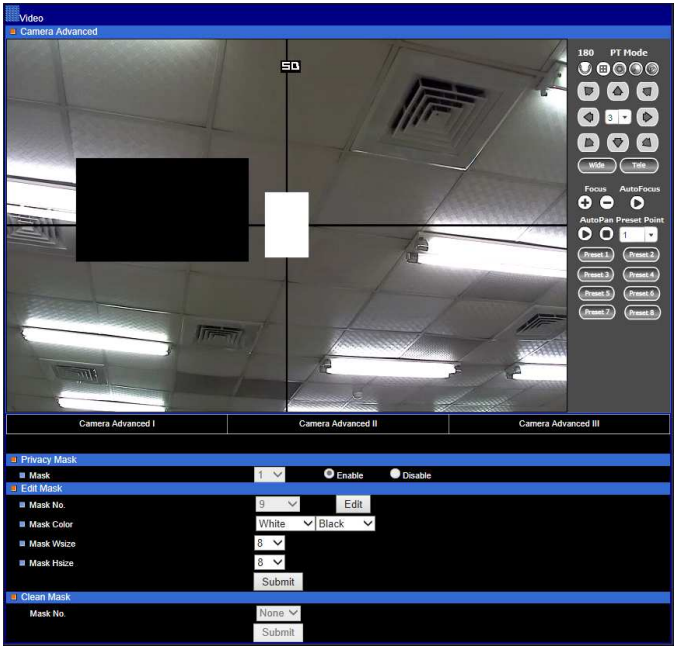


- **Mask No.** : Set up twenty four mask zones. Drop-down options for 1~24. Mask can be displayed on 8 places simultaneously.
- **Mask** : Enable/disable the selected mask zone number.
- **Mask Hsize** : Set the mask area width. Drop-down options 3~80.
- **Mask Vsize** : Set the mask area Height. Drop-down options : 5~127.
- **Mask Mode** : Set the mask area display mode, Drop-down options for Black/White, Mosaic and Color.
- **Mask Level**
  - Black/White by the mask mode, Drop-down options for 0~15.
  - Mosaic by the mask mode, Drop-down options for 0~2.
  - Color by the mask mode, Drop-down option for 0~7.
- **Submit** : When these parameters are set, press the “Submit” button to save setting. When the masks are opened more than eight areas, a warming dialog will pop up.
- **Clear** : Clear the selected mask area.
- **Edit** : Move PTZ to the position previously set mask area for the user to modify.

◆ **[IPS418x/518x Models]**

Camera Advance III Setting menu can be found under this path : Video/Quality/Camera Advanced III.

When you set mask functions, the center of the screen will be the position of setting a mask. Mask can be set at the desired position by setting the pan tilt angle and zoom position. When setting parameters (No., Color, Wsize and Hsize) are set, you then press the “Submit” key to save the settings. Follow the above process, you can set multiple mask areas. Function descriptions and illustrations are described as below:



- **Mask No.** : Set up fourteen mask zones. Drop-down options for 1~14. Mask can be displayed on 8 places simultaneously.
- **Mask** : Enable/disable the selected mask zone number.
- **Mask Color** : The left side of drop-down menu is the color selection (Black, White, Red, Green, Blue, Cyan, Yellow and Magenta) for you to add and edit a mask. The right side choices is the color after you press "Submit" button to be displayed.
- **Mask Wsize** : Set the mask area width. Drop-down options 8~75.
- **Mask Hsize** : Set the mask area Height. Drop-down options : 5~42.
- **Submit** : When these parameters are set, press the "Submit" button to save setting. When the masks are opened more than eight areas, a warming dialog will pop up.
- **Clear** : Clear the selected mask area (None/1/2/3/4/5/6/7/8/9/10/11/12/13/14/All).
- **Edit** : Move PTZ to the position previously set mask area for the user to modify.

◆ [IPS210x/310x Models]

Camera Advance III Setting menu can be found under this path : Video/Quality/Camera Advanced III.

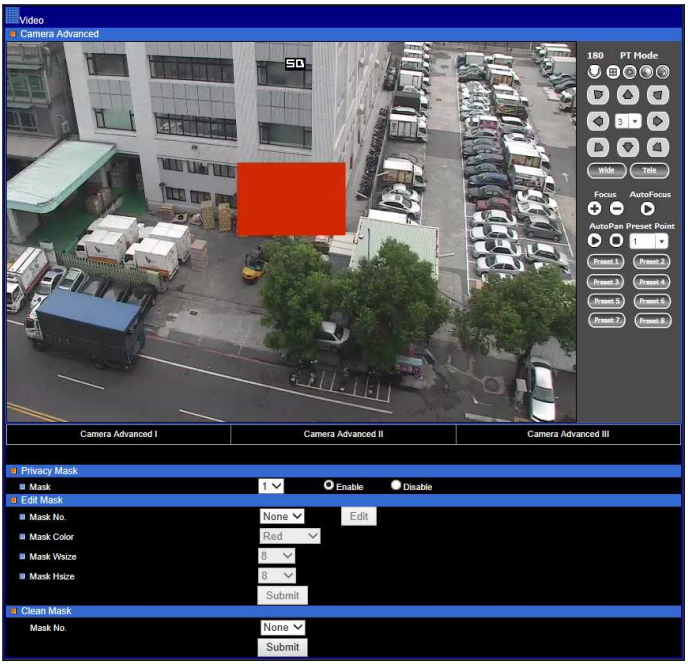
When you set mask functions, the center of the screen will be the position of setting a mask. Mask can be set at the desired position by setting the pan tilt angle and zoom position. When setting parameters (No., Color, Wsize and Hsize) are set, you then press the "Submit" key to save the settings. Follow the above process, you can set multiple mask areas. Function descriptions and illustrations are described as below:

- **Mask No.** : Set up eight mask zones. Drop-down options for 1~8. Mask can be displayed on 8 places simultaneously.
- **Mask Color** : The drop-down menu is the color selection for you to add and edit a mask. There are up to 16 colors and color inversion and mosaic effects for you to choose.
- **Mask Wsize** : Set the mask area width. Drop-down options 8~235.
- **Mask Hsize** : Set the mask area Height. Drop-down options : 6~130.
- **Submit** : When these parameters are set, press the “Submit” button to save setting.
- **Clear** : Clear the selected mask area (None/1/2/3/4/5/6/7/8/All).
- **Edit** : Move PTZ to the position previously set mask area for the user to modify.

◆ **[IPS420x/520x Models]**

Camera Advance III Setting menu can be found under this path : Video/Quality/Camera Advanced III.

When you set mask functions, the center of the screen will be the position of setting a mask. Mask can be set at the desired position by setting the pan tilt angle and zoom position. When setting parameters (No., Color, Wsize and Hsize) are set, you then press the “Submit” key to save the settings. Follow the above process, you can set multiple mask areas. Function descriptions and illustrations are described as below:

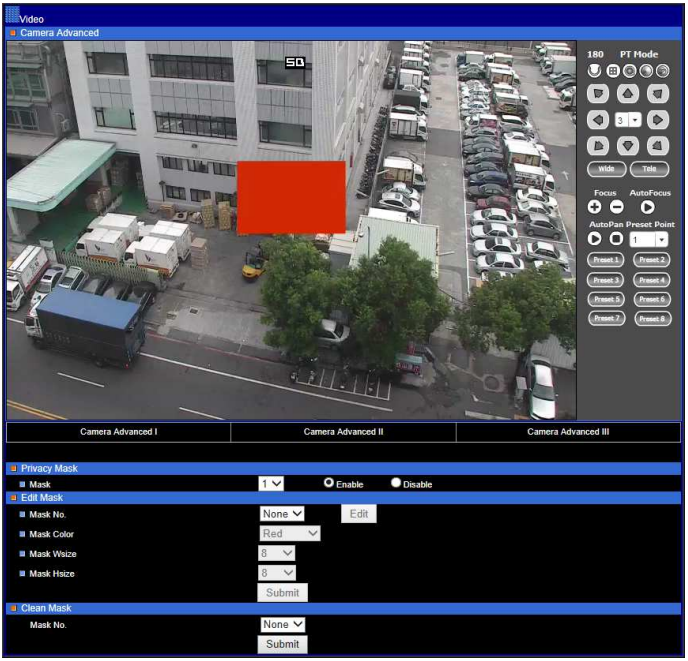


- **Mask No.** : Set up eight mask zones. Drop-down options for 1~8. Mask can be displayed on 8 places simultaneously.
- **Mask Color** : The drop-down menu is the color selection (Black, White, Red, Green, Blue, Cyan, Yellow and Magenta) for you to add and edit a mask. See through picture display setting while mask-zone is setting.
- **Mask Wsize** : Set the mask area width. Drop-down options 8~128.
- **Mask Hsize** : Set the mask area Height. Drop-down options : 8~128.
- **Submit** : When these parameters are set, press the “Submit” button to save setting.
- **Clear** : Clear the selected mask area (None/1/2/3/4/5/6/7/8/All).
- **Edit** : Move PTZ to the position previously set mask area for the user to modify.

◆ **[IPS430x/530x Models]**

Camera Advance III Setting menu can be found under this path : Video/Quality/Camera Advanced III.

When you set mask functions, the center of the screen will be the position of setting a mask. Mask can be set at the desired position by setting the pan tilt angle and zoom position. When setting parameters (No., Color, Wsize and Hsize) are set, you then press the “Submit” key to save the settings. Follow the above process, you can set multiple mask areas. Function descriptions and illustrations are described as below:



- **Mask No.** : Set up eight mask zones. Drop-down options for 1~16. Mask can be displayed on 16 places simultaneously.
- **Mask Color** : The drop-down menu is the color selection (Black, White, Red, Green, Blue, Cyan, Yellow and Magenta) for you to add and edit a mask. See through picture display setting while mask-zone is setting.
- **Mask Wsize** : Set the mask area width. Drop-down options 8~128.
- **Mask Hsize** : Set the mask area Height. Drop-down options : 8~128.
- **Submit** : When these parameters are set, press the "Submit" button to save setting.
- **Clear** : Clear the selected mask area (None/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/All).
- **Edit** : Move PTZ to the position previously set mask area for the user to modify.

Chapter 3-6 PTZ Settings

Chapter 3-6-1 General Settings

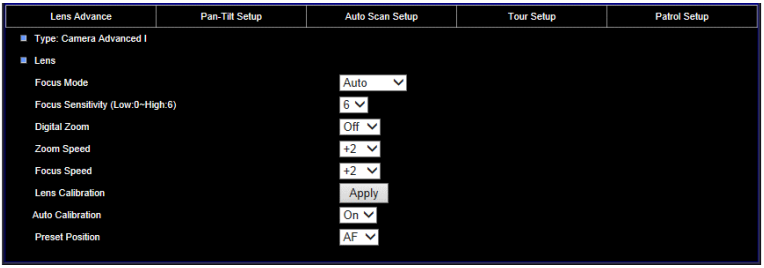
PTZ Setting menu can be found under this path : PTZ/General.
Totally 128 Preset Points can be programmed for the IP Camera. Please refer to the instructions below to set a Preset Point.
To setup a Preset Point, please first move the cursor to the PTZ control panel. Then move to the desired position by using pan, tilt and zoom buttons. Adjust the len's iris and focus by using iris and focus buttons. Subsequently, assign a number for the current position from the drop down Preset Point list. Then assign a Dwell time and active Speed for the current position from the drop down Dwell list and Speed list. Click on the button <Save> to save the settings mentioned above.

Chapter 3-6-2 PTZ Advanced Settings

3-6-2.1 Lens Advance

◆ [IPS622x/722x Models]

Lens Advance setting menu can be found under this path : PTZ/PTZ Advanced/Lens Advance



- **Focus Mode** : Auto Focus and One-Push Auto Focus

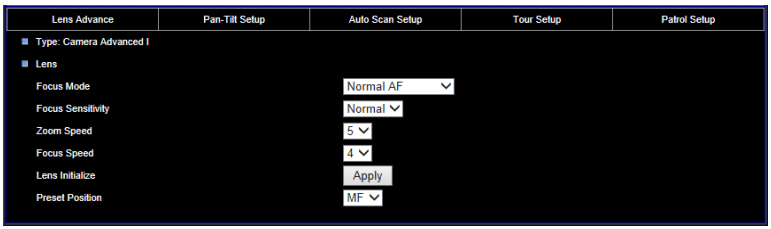
  Auto Focus
  The minimum focus distance is 10cm at the optical wide end and 1m at the optical tele end.
  One-Push Auto Focus
  Focus hold mode that can be automatically readjusted as required by the user (One-Push AF Trigger) assuming that the required subject is within the focusing limits of the camera lens.

- **Focus Sensitivity** : Focus sensitivity (Low:0 ~ High:6).
- **Digital Zoom** : Enable Digital zoom feature after optical zoom. Setting range (Off/x2/x4/x8/x10).
- **Zoom Speed** : Zoom speed adjustment (Min/+1/+2).
- **Focus Speed** : Focus speed adjustment (Min/+1/+2).
- **Lens Calibration** : Manually calibration of camera and lenses at the touch of a button.
- **Auto Calibration** : When you open this function, your camera will automatically AF at 00:00 every night.

- **Preset Position** : AF/Manual AF. When the camera performs preset operations, its focus mode is at Auto-Focus (AF) or Manual-Focus (MF) mode

◆ **[IPS418x/518x Models]**

Lens Advance setting menu can be found under this path : PTZ/PTZ Advanced/Lens Advance



- **Focus Mode** :Normal Auto Focus (AF), Interval AF and Zoom Trigger Mode

  Normal AF Mode

  This is normal mode for AF operations.

  Interval AF Mode

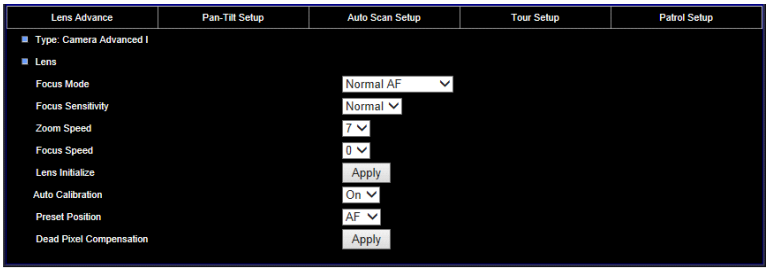
  The mode used for AF movements carried out at particular intervals. The time intervals for AF movements and for the timing of the stops can be set in one second increments using the set time command.

  When the zoom is changed, the pre-set value becomes that for AF Mode.

- **Focus Sensitivity** : Focus sensitivity (Normal/Low).
- **Zoom Speed** : Zoom speed adjustment (between 0~7).
- **Focus Speed** : Focus speed adjustment (between 0~7).
- **Lens Initialize** : It initializes zoom and focus of the Lens manually.
- **Preset Position** : AF/Manual AF. When the camera performs preset operations, its focus mode is at Auto-Focus (AF) or Manual-Focus (MF) mode

◆ **[IPS210x/310x Models]**

Lens Advance setting menu can be found under this path : PTZ/PTZ Advanced/Lens Advance



- **Focus Mode** : Auto Focus and One-Push Auto Focus

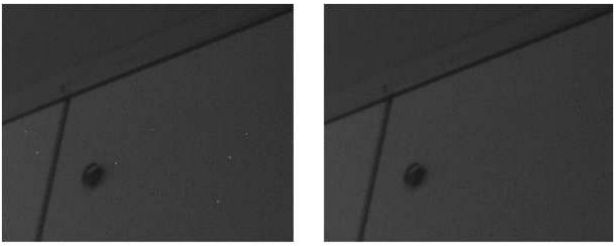
  Auto Focus

  The minimum focus distance is 10cm at the optical wide end and 1m at the optical tele end.

  One-Push Auto Focus

  Focus hold mode that can be automatically readjusted as required by the user (One-Push AF Trigger) assuming that the required subject is within the focusing limits of the camera lens.

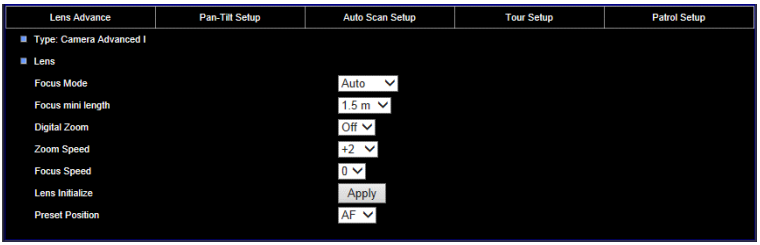
- **Focus Sensitivity** : Focus sensitivity (Normal/Low).
- **Zoom Speed** : Zoom speed adjustment (between 0~7, default value is 0).
- **Focus Speed** : Focus speed adjustment (between 0~7, default value is 0).
- **Lens Initialize** : It initializes zoom and focus of the Lens manually.
- **Auto Calibration** : When you open this function, your camera will automatically perform AF at 00:00 every night.
- **Preset Position** : AF/Manual AF. When the camera performs preset operations, its focus mode is at Auto-Focus (AF) or Manual-Focus (MF) mode
- **Dead Pixel Compensation (DPC)** : A defect can occur in a sensor for any of the reasons of storage or manufacturing process. Such defect is called a dead pixel, which includes a static dead pixel which appears from early manufacturing process and a dynamic dead pixel which occurs while using the sensor.



(a) before (b) after

◆ **[IPS420x/520x, IPS430/530 Models]**

Lens Advance setting menu can be found under this path : PTZ/PTZ Advanced/Lens Advance.



- Focus Mode : switch the auto focus / manual focus
- Focus mini length : Set the minimum focus length tuning value in zoom-wide. Setting value (1cm, 10cm, 30cm, 1m, 1.5m and 3m).
- Digital Zoom : Enable Digital zoom feature after optical zoom.
- Zoom Speed : Zoom speed adjustment (Min/+1/+2, default value is +2).
- Focus Speed : Focus speed adjustment (between 0~7, default value is 5).
- Lens Initialize : It initializes zoom and focus of the Lens manually.
- Preset Position : AF/Manual AF. When the camera performs preset operations, its focus mode is at Auto-Focus (AF) or Manual-Focus (MF) mode.

3-6-2.2 Pan-Tilt Setup

Pan-Tilt Setting Menu can be found under this path: **PTZ> PTZ Advance> Pan-Tilt Setup**
In the Pan-Tilt Setup Menu, users can set various Pan-Tilt parameters including Home Position, Self

Return Time, Self Return Mode and Auto Mode. Each setting is specified as follows:

Home Position

Specify home position for one of the presets.

Self Return Time

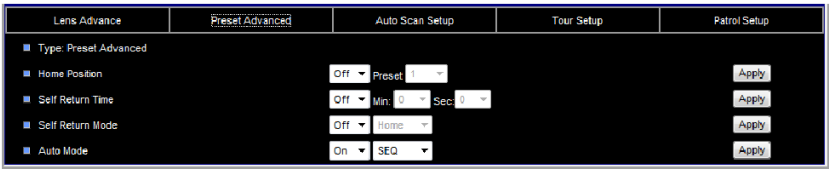
User Define if IP Fast Dome idles for a period of time, the selected function will be activated automatically.

Self Return Mode

Return to home position at home position, auto scan mode, tour mode, or patrol mode. Users are able to set an operation mode to ensure constant monitoring. If the IP Fast Dome Camera idles for a period of time, the selected function will be activated automatically; this is the Return Mode function. The Return Mode function allows constant and accurate monitoring to avoid the Dome Camera idling or missing events.

Auto Mode

Specify auto scan mode, tour or patrol for auto Pan mode.

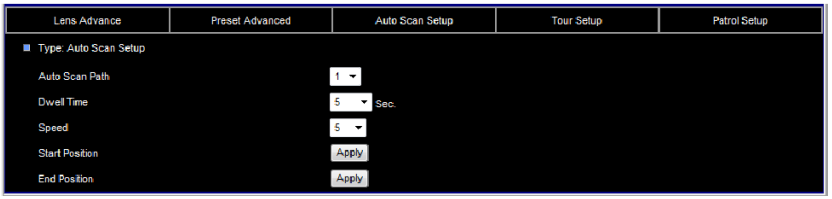


3-6-2.3 Auto Scan Setup

Auto Scan Programming can be found under this path: **PTZ> PTZ Advance> Auto Scan Setup**
The IP Fast Dome Camera supports up to Four Auto Scan Paths. Please follow the instructions below for Auto Scan Path setup.

Auto Scan Setting

To setup a Auto Scan Path, please first select a path number from the drop-down list. Then move the cursor to the PTZ control pane, and move the camera to a desired view (PTZ controls) as the start point of a Auto Scan Path. Click on the <apply> button of < Start Position > and start programming the Auto Scan Path via PTZ controls. When finishing programming, click on the <apply> button of <End Position> to quit. Then this Auto Scan Path will be automatically recorded. Subsequently, assign a Dwell Time and Active Speed for the current position from the drop-down Dwell List and Speed List.



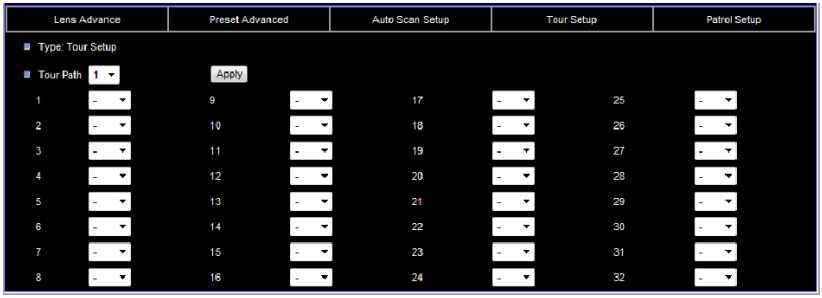
3-6-2.4 Tour Setup

The Tour Path Programming can be found under this path: **PTZ> PTZ Advance> Tour Setup**
The IP Fast Dome Camera supports totally four Tour Path; each Tour Path consists of up to 32 Preset Points. Please refer to the instructions below to program a Tour table.

NOTE: Before setting this function, users must pre-define at least two Preset Points.

Tour Path Setting

- Tour Path
  Please select the number of Tour Path to be set from the drop-down list in the top of the Tour Setup menu.
- Sequential Preset Points Setting
  Please setup each Preset Point of the programmed Tour Path in order, assigning a Preset Point from the <Item> list for the specified number of Preset Point. Finally, Click on the <Apply> button to save the settings mentioned above.

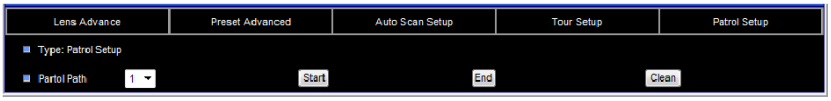


3-6-2.5 Patrol Setup

The Patrol Path Programming can be found under this path: **PTZ> PTZ Advance> Patrol Setup**
The IP Fast Dome Camera supports up to four Patrol Paths. Please follow the instructions below for Patrol Path setup.

Patrol Path Setting

To setup a Patrol Path, please first select a path number from the drop-down list. Then move the cursor to the PTZ control pane, and move the camera to a desired view (PTZ controls) as the start point of a Patrol Path. Click on the <Start> button to start record and start programming the Cruise Path via PTZ control. When finishing programming, click on the <End> button to quit. Then this Cruise Path will be automatically recorded.



Chapter 3-6-3 PTZ Schedule Settings

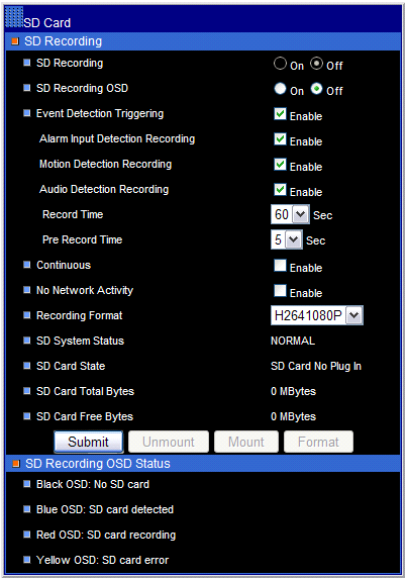
To setup PTZ scheduling, please select PTZ schedule link. Use the mouse select on the radio button of the schedule types, None , Scan, Tour, Patrol, and Preset .
Click on the hour of the calendar control to configure the preset action.

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.

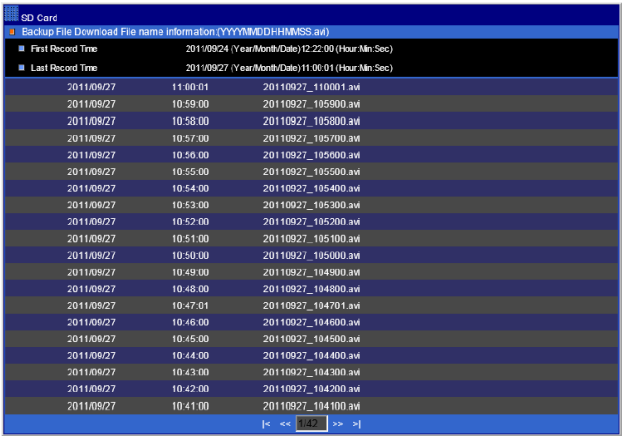
Chapter 3-7-1. SD Card Recording Setting

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



- **SD Recording:** Enable SD card recording.
- **Alarm/Motion Triggering:** Digital input 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
- **Mount:** Manually mount SD card.
- **Un-mount:** Manually un-mount SD card.

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 D1 video server or IP PTZ 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 D1 video server or IP PTZ 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 D1 video server or IP PTZ camera can start to capture one JPEG snapshot on various recording mediums.

Chapter 3-8-2 Alarm (DI) Input Detection

- **Alarm Notification**—Enable alarm notification.
- **Alarm Input Mode**—Normal open/normal close for detecting alarm input.
- **Alarm OSD**—Alarm trigger string display settings.
- **Alarm Output Time**—Trigger alarm output based on the dwell.
- **Alarm Time Set** —Two or more alarm input trigger, Enable alarm time countdown discharge

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

Chapter 3-8-3 Motion Area

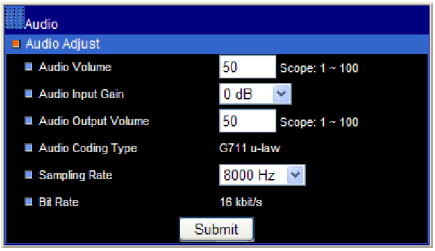
Once above information get set, please configure the motion area of the monitored environment. To configure motion area, perform mouse click on the video area.

Chapter 3-8-4 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 3-9. Audio Setting

Audio setting is based on the following:

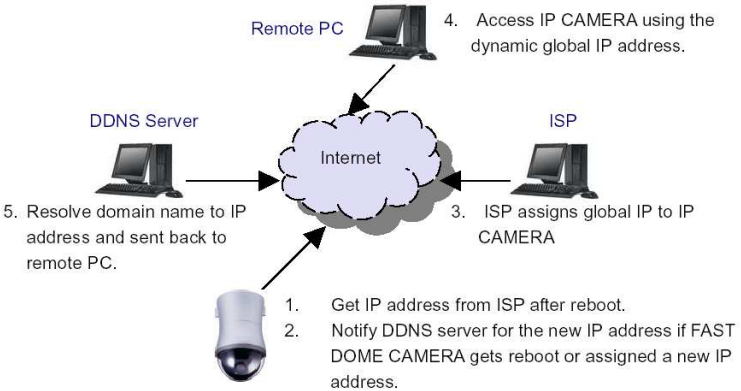


- MIC Volume: MIC or line input volume
- Audio Input Mode: Choose MIC input or Line input.
- Audio Input Gain: Voice input gain magnification
- Audio Output Volume: Line output volume adjustment
- Audio Coding Type: G.711 u-Law
- Sample Rate: Audio sample rate
- Bit Rate: Audio bit rate.

Appendix

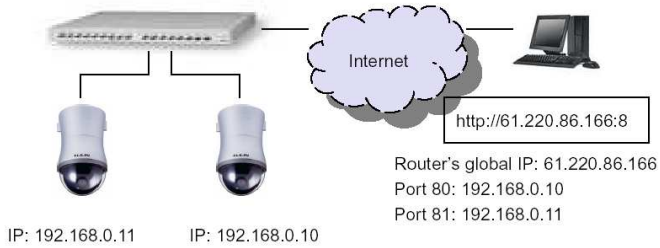
Advance Network DDNS and PPPoE Technologies

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.



iPhone Access

To use Live Cams Pro (Eggman Technologies Inc.) for LILIN IP cameras.
Please use your iPhone and select AppStore for download Live Cams Pro application developed by Eggman Technologies Inc.

Execute Live Cams Pro application. Please click on “Add Camera” button on your phone while using Live Cams Pro. Task bar gets prompted as below:
Please selection one of the following drivers for cameras: Profile 1: H.264 HD or D1 IP camera.

Android Access:

Please use your Android phone and select Android Market for downloading IP Cam Viewer/IP Cam Viewer Lite application developed by Robert Chou.
Execute IP Cam Viewer/IP Cam Viewer Lite application. Please click on Setup button on your phone while using IP Cam Viewer/IP Cam Viewer Lite. Task bar gets prompted as below:

Please click on Manage Cameras button. A list of camera names shows on the screen. Please select one of the cameras and click on Edit button.

“Add/Edit IP Camera” dialog box gets prompted for editing an IP camera or a DVR.

In “Add/Edit IP Camera” dialog box, please enter the following information:

1. Name: Name of the IP camera or DVR’s camera
2. Category: Please select Merit LILIN.
3. Type: Select device type, Merit LILIN D1/Merit LILIN HD/Merit LILIN DVR.
4. IP Address: Please type IP address, for example http://59.124.49.36:60005 where 60005 is
5. the port number.
6. Provide username and password information. For IP camera, the default username and password are “admin” and “pass”. For DVR, the default username and password are “admin” and “1111”.

Once above information is entered, please click “Save” button. You are able to see live video of the IP camera or DVR’s camera.

Emergency Factory Default

To restore the server to factory default settings, 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
Sandisk	32GB	SDHC

Specification

Network Function		
Video compression		H.264 , Motion JPEG
Resolution		1080P(1920 x 1080), 720P(1280 x720), D1(720 x 480), CIF(352 x 240)
Multiple profile	Profile #1	H.264 : up to 30 FPS @ 1920 x 1080, MJPEG : up to 30 FPS @ 720 x 480
	Profile #2	H.264 : up to 30 FPS @ 1280 x 720, MJPEG : up to 30 FPS @ 352 x 240
	Profile #3	H.264 : up to 30 FPS @ 1920 x 1080, MJPEG : up to 30 FPS @ 1280 x 720
	Profile #4	H.264 : up to 30 FPS @ 720 x 480, MJPEG : up to 15 FPS @ 1920 x 1080
Video streaming		RTP/HTTP, RTP/TCP, RTP/UDP, Multicast
Video bitrate		128 Kbps to 5 Mbps
		Frame rate and bitrate controllable on-the-fly
		VBR / CBR / GOP supported
Security		Base64 HTTP encryption
		Multiple user access levels with password protection
		10 user accounts available
Users		8 simultaneous users
OSD		Text overly for date, time and camera name
Alarm Function		Image upload over FTP and E-mail by alarm / motion detection
CPU, memory		Embedded SoC ARM11, 528MHz, 256MB DDR2, 256MB flash memory
Web PTZ control		Pan , tilt , zoom in / out , absolute position, and video-click-n-move
PTZ preset scheduling		Yes, via web interface
Maintenance		Firmware update via HTTP
		Firmware available at web site
Network Interface		10Mbps/100Mbps, RJ-45
Client 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, Independent Display Card
Network protocols		IP, TCP, UDP, HTTP, SMTP, NTP, DDNS, UPnP, FTP, ARP, DHCP, PPPoE, DNS, Telnet, RTSP, RTCP, ONVIF Profile S, ICMP, IGMP
Mobile phone and PDA		iPhone, iPad, and Android support
System integration		ONVIF & LILIN HTTP API
CMX		CMX 3.6 / NAV 1.0 support
Video display		LILIN Universal ActiveX & LILIN Java Applet
OS		Embedded Linux 2.6.32
2-way audio supported		G.711
SD Card Recording		Support Micro SD/SDHC/SDXC card for circular recording (card is not included)

Design and specifications are subject to change without notice.

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