Communicate via Micro network

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Making Communication Easier

User's Manual

Speed Dome IP Camera Full HD, In/Outdoor Ready, 18x Optical Zoom

Model No.: SP5923

Ver1.3

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1. Overview

The Full HD Speed Dome IP Camera transmits digital video and audio data using wire connection. Live video can be monitored and recorded from window-based computer via network.

The video encoder supports real-time Main Profile H.264 Full HD resolution. Simultaneous dual streams, H.264/H.264 and H.264/MJPEG, are available for various network applications via speeding or limited bandwidth. Better image quality and high resolution are delivered by IP support. It eliminates the “combing” effect due to scene change and performs more stabilized image.

With IP solution, multiple and authorized users can view the immediate image from any location through network even using a standard web-browser. It enables users to access and remote the camera without at specific locations.

1.1 Features

- 18x Optical Zoom
- 8x Digital Zoom
- Simultaneous Dual Streams: H.264 and MJPEG
- Full HD Real-time Resolution
- Two-way Audio Support
- Removable IR Cut (ICR) Filter
- Motion Detection
- Wide Dynamic Range (WDR)
- Digital Noise Reduction

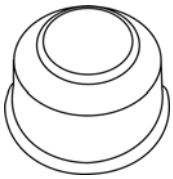
1.2 Package Contents

Please check the box contains the items listed here. If any item is missing or has defects, DO NOT install or operate the product and contact your dealer for assistance.

Outdoor Dome Camera Package

Dome Camera with Outdoor Mount Kit

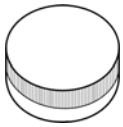
M3 Standard Screw (x1)
M3 Security Screw (x1)*
M5 Standard Screw (x1)
M5 Security Screw (x1)*



Waterproof Rubber

Quick Guide

CD: Operation Manuals

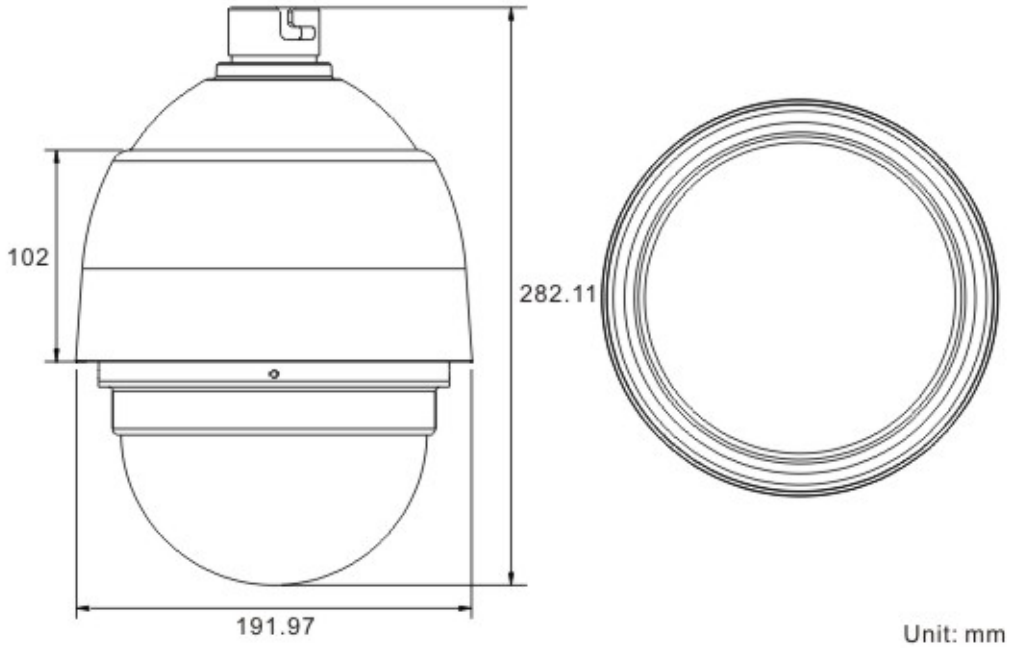


Lubricant

Security Torx*

1.3 Dimensions

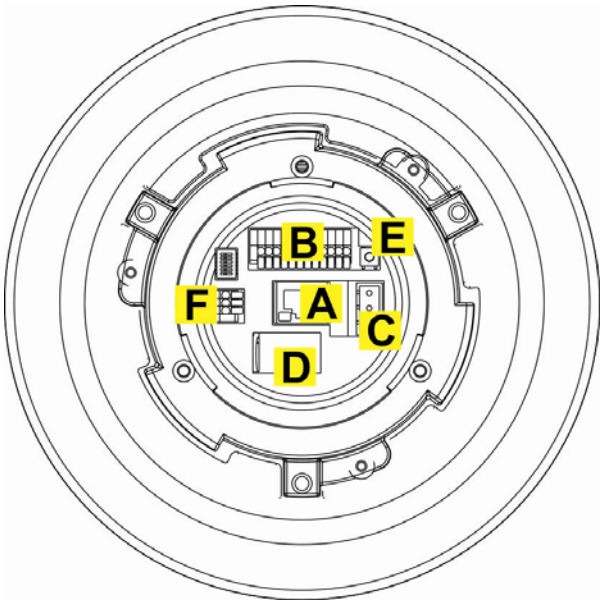
Outdoor



1.4 Switch/Connector Definition

There are various connectors located on the Dome Camera's back plate as shown in the figures below.

Please refer to the diagrams and tables accompanied with for use of each switch/connector.



Outdoor

A	RJ-45 Connector
B	ALARM I/O
C	Power
D	Micro SD Card Slot
E	Factory Reset Button
F	Audio I/O

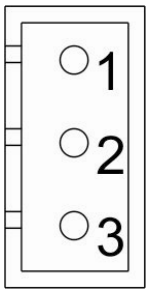
NOTE: DO NOT change the network Speed Dome Camera's Communication Switch factory default settings.

1.5 Camera Cabling

Please follow the instructions below to complete network Speed Dome Camera connection.

Step1: Connect Power

Please refer to the illustrations below to connect power core through the supplied power adaptor.



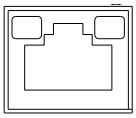
Pin	Definition
1	AC 24_1
2	FG
3	AC 24_2

Step 2: Connect Ethernet Cable

Use of Category 5 Ethernet cable is recommended for network connection; to have best transmission quality, cable length shall not exceed 100 meters. Connect one end of the Ethernet cable to the RJ-45 connector of the network Speed Dome Camera, and the other end of the cable to the network switch or PC.

NOTE: In some cases, you may need use an Ethernet crossover cable when connecting the network Speed Dome Camera directly to the PC.

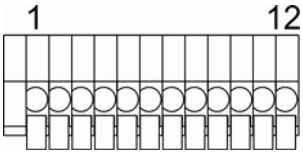
Check the status of the link indicator and activity indicator LEDs; if the LEDs are unlit, please check LAN connection.



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

1.6 Apply Alarm I/O

The network Speed Dome Camera supports 4 digital alarm inputs and 2 digital alarm outputs. Please make sure the alarm connections are properly wired before starting to configure alarm related settings on this “Application” page. Please refer to the pin definition table below for alarm system wiring.

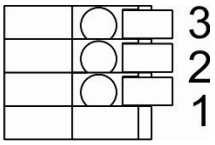


Pin	Definition
1	ALARM_OUT_NO_1
2	ALARM_OUT_NC_1
3	ALARM_OUT_COM_1
4	GND
5	ALARM_OUT_NO_2
6	ALARM_OUT_NC_2

Pin	Definition
7	ALARM_OUT_COM_2
8	GND
9	ALARM_IN_1
10	ALARM_IN_2
11	ALARM_IN_3
12	ALARM_IN_4

1.7 Apply Audio

Please refer to the illustrations below to set up the audio according to the Audio pin definition.



Pin	Definition
1	LINE_OUT
2	GND
3	LINE_IN

1.8 System Requirements

To perform the network Speed Dome Camera via web browser, please ensure your PC is in good network connection, and meet system requirement as described below.

Items	Minimum Requirement
Personal Computer	1. Intel® Pentium® 4 3 GHz or higher, Intel® Core2 Duo, 2 GHz or higher 2. 1 GB RAM or more 3. AGP graphics card 64 MB RAM, DirectDraw
Operating System	Windows VISTA/ Windows XP/ Windows 7
Web Browser	Internet Explorer 6.0 or later, Firefox, Chrome, Safari
Network Card	10Base-T (10 Mbps) or 100Base-TX (100 Mbps) operation
Viewer	ActiveX control plug-in for Microsoft IE

1.9 Access Camera

For initial access to the network Speed Dome Camera, users can search the camera through the installer program: DeviceSearch.exe, which can be found in “IP Scan Utility“ folder in the supplied CD.

IP Scan Utility Setup

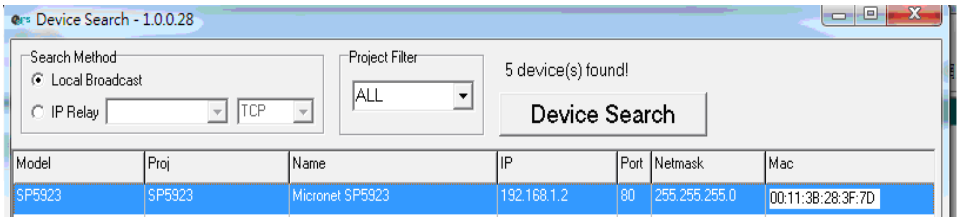
Step 1: Double click on the program IPScanUtility.exe. After its window will appear, click on the <Device Search> button on the top side.

Step 2: The security alert window will pop up. Click on <Unblock> to continue.

Device Search

Step 3: Click on <Device Search> again, and all the finding IP devices will be listed in the page. The network Speed Dome Camera’s default IP address is: **192.168.1.2**.

Step 4: Double click or right click and select <Browse> to access the camera directly via web browser.



Step 5: Then the prompt window of request for entering default username and password will appear for logging in to the network Speed Dome Camera.

The default login ID and password for the Administrator are:

Login ID	Password
root	pass

NOTE: ID and password are case sensitive.

Additionally, users can change the network Speed Dome Camera’s network property, either DHCP or Static IP directly in the device finding list. Refer to the

following section for changing the network Speed Dome Camera's network property.

Example of Changing IP Camera's Network Property

Users can directly change a Network Speed Dome Camera's network property, ex. from static IP to DHCP, in the finding device list. The way to change the camera's network property is specified below:

Step 1: In the finding device list, click on the network Speed Dome Camera that you would like to change its network property. On the selected item, right click and select <Network Setup>. Meanwhile, record the network Speed Dome Camera's MAC address, for future identification.

Step 2: The <Network Setup> page will come out. Select <DHCP>, and click on <Apply> button down the page.

Step 3: Click on <OK> on the Note of setting change. Wait for one minute to re-search the network Speed Dome Camera.

Step 4: Click on the <Device Search> button to re-search all the devices. Then select the network Speed Dome Camera with the correct MAC address. Double click on the IP Camera, and the login window will come out.

Step 5: Enter User name and Password to access the network Speed Dome Camera.

Installing DC Viewer Software Online

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

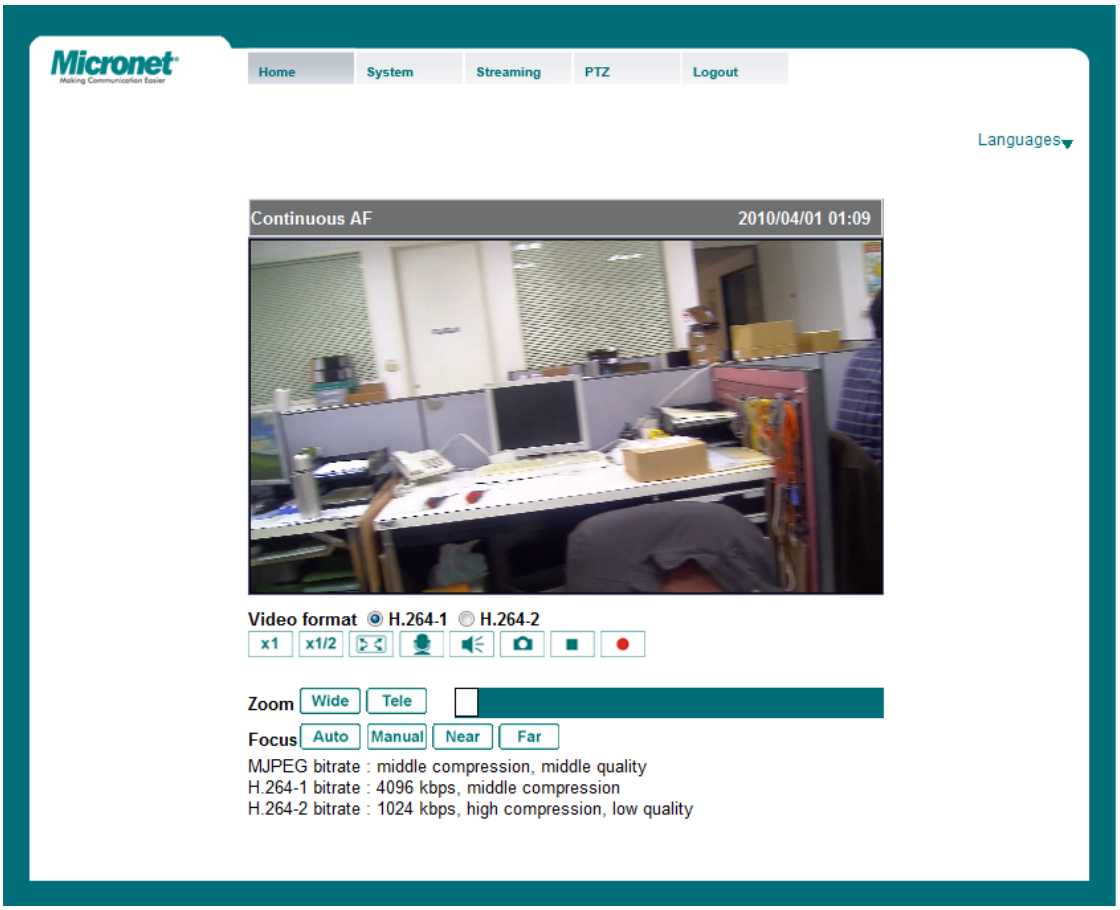
If the Web browser doesn't allow DC Viewer installation, please check the Internet security settings or ActiveX controls and plug-ins settings to continue the process.

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

installation. Then the security warning window will pop up. Click on <Install> to carry on software installation.

Click on <Finish> to close the DC Viewer window when download is finished.

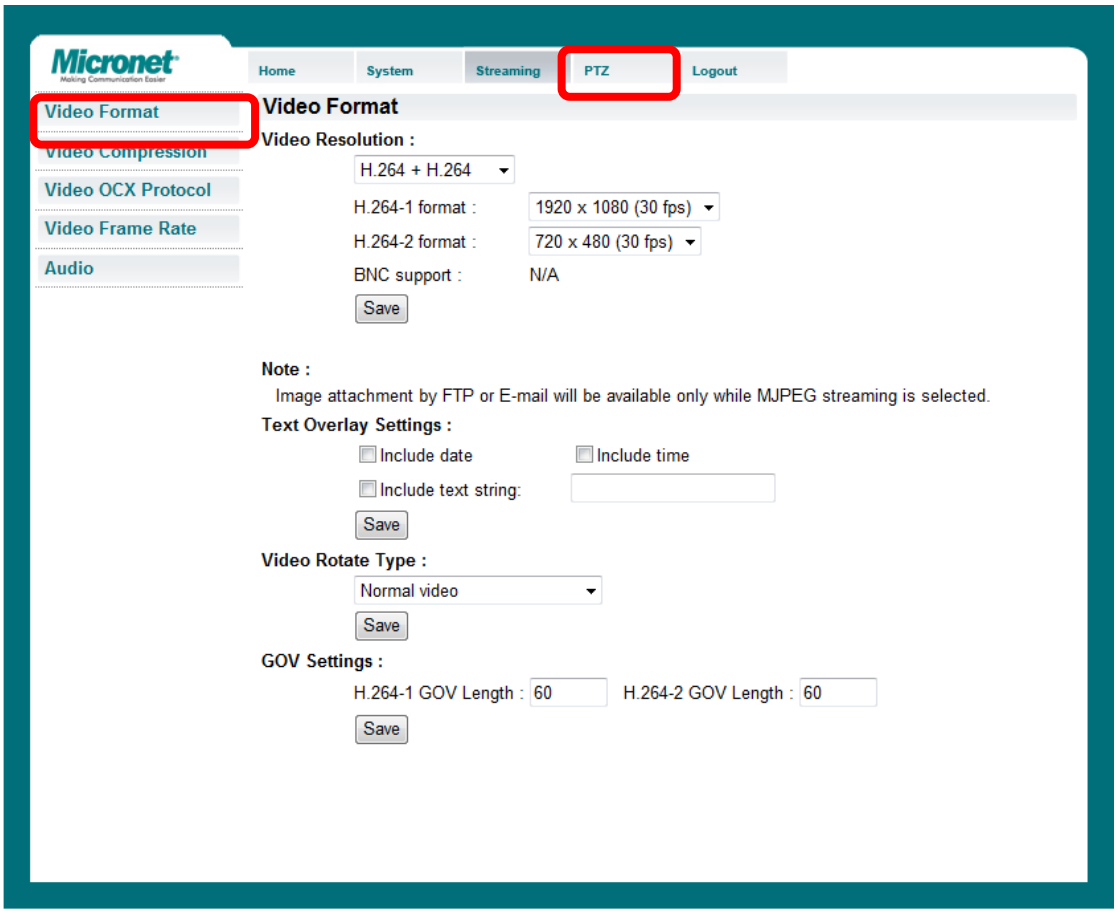
Once login to the network Speed Dome Camera, users will see the Home page as shown below:



1.10. Setup Video Resolution

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

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


Micronet
Home
System
Streaming
PTZ
Logout
Video Format
Video Compression
Video OCX Protocol
Video Frame Rate
Audio
Video Format
Video Resolution :
H.264 + H.264
H.264-1 format :
1920 x 1080 (30 fps)
H.264-2 format :
720 x 480 (30 fps)
BNC support :
N/A
Save
Note :
Image attachment by FTP or E-mail will be available only while MJPEG streaming is selected.
Text Overlay Settings :
Include date
Include time
Include text string:
Save
Video Rotate Type :
Normal video
Save
GOV Settings :
H.264-1 GOV Length :
60
H.264-2 GOV Length :
60
Save

- **Video Format**

  Under Video Resolution section, select a preferred resolution setting. The available Video Resolution for MJPEG & H.264 format includes:

MJPEG+ H.264	
MJPEG	**H.264**
1920 x 1080 (30fps)	720 x 480 (30fps)*
	640 x 480 (30fps)
	352 x 240 (30fps)
1920 x 1080 (15fps)	1920 x 1080 (15fps)
	1280 x 1024 (30fps)
	1280 x 720 (30fps)
	1024 x 768 (30fps)
	800 x 600 (30fps)
1280 x 1024 (30fps)	1280 x 1024 (15fps)
	1280 x 720 (30fps)
	1024 x 768 (30fps)
	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
1280 x 720 (30fps)	1280 x 720 (30fps)
	1024 x 768 (30fps)
	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
1024 x 768 (30fps)	1024 x 768 (30fps)
	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
800 x 600 (30fps)	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
720 x 480 (30fps)	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)

640 x 480 (30fps)	640 x 480 (30fps)
	352 x 240 (30fps)
H.264 + H.264	
H.264-1	**H.264-2**
1920 x 1080 (30fps)	720 x 480 (30fps)*
	640 x 480 (30fps)
	352 x 240 (30fps)
1920 x 1080 (15fps)	1920 x 1080 (15fps)
	1280 x 1024 (30fps)
	1280 x 720 (30fps)
	1024 x 768 (30fps)
	800 x 600 (30fps)
1280 x 1024 (30fps)	1280 x 1024 (15fps)
	1280 x 720 (30fps)
	1024 x 768 (30fps)
	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
1280 x 720 (30fps)	1280 x 720 (30fps)
	1024 x 768 (30fps)
	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
1024 x 768 (30fps)	1024 x 768 (30fps)
	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
800 x 600 (30fps)	800 x 600 (30fps)
	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)
720 x 480 (30fps)	720 x 480 (30fps)
	640 x 480 (30fps)
	352 x 240 (30fps)

640 x 480 (30fps)	640 x 480 (30fps)
	352 x 240 (30fps)
MJPEG ONLY	
MJPEG	
1920 x 1080 (30fps)	
1280 x 1024 (30fps)	
1280 x 720 (30fps)	
1024 x 768 (30fps)	
800 x 600 (30fps)	
720 x 480 (30fps)	
640 x 480 (30fps)	
H.264 ONLY	
H.264	
1920 x 1080 (30fps)	
1280 x 1024 (30fps)	
1280 x 720 (30fps)	
1024 x 768 (30fps)	
800 x 600 (30fps)	
720 x 480 (30fps)	
640 x 480 (30fps)	

(*) Default

Click on <Save> to confirm the setting.

2. Menu Tree

There are five setting tabs including <Home>, <System>, <Streaming>, <PTZ> and <Logout>.

Home

Users can monitor live video of the targeted area.

System setting

The Administrator can set host name, system time, root password, network related settings, etc. Further details will be interpreted in the section System.

Streaming setting

The Administrator can modify video resolution and rotate type and select video compression mode in this page.

PTZ setting

Users are allowed to program Preset Point(s), Cruise Line(s), Auto Pan Path(s) and Sequence Line(s) via PTZ controls, and adjust various camera parameters including Auto Exposure (AE), White Balance (WB), Back Light Compensation (BLC), Sharpness, Exposure Compensation, Digital Zoom, etc.

Logout

Click on the tab to re-login the IP Camera with another username and password.

2.1 Home Page

Click on the tab <**Home**> to access the Home Page. There are several function buttons on the Home pate. Detailed information of each item is as described in the following chapter.

2.1.1 Function Items on Home Page

Multiple Languages Support

Multiple languages are supported, including German, English, French, Italian, Korean, Simplified Chinese, Russian, etc. for the viewer window interface.

Digital Zoom Control

In the full screen mode, users can implement digital PTZ by rotating the mouse wheel (for zoom in/out), and drag the mouse into any direction.

Screen Size Adjustment

Image display size can be adjusted to x1/2 and full screen.

Talk button (on/off)

Talk function allows the local site talks to the remote site. Click on the button to switch it to on/off. Please refer to Security: Add user >> Talk/Listen for further details.

NOTE: This function is only available for User who has granted this privilege by the Administrator.

Speaker button (on/off)

Click on the <Speaker> button to mute/activate the audio.

NOTE: This function is only available for User who has granted this privilege by the Administrator.

Snapshot button

Click on the button and the JPEG snapshots will automatically be saved in the appointed place. The default place of saving snapshots is: C:\. To change the storage location, please refer to File Location for further details.

NOTE: For users with Windows 7 operating system, it is required to log on as an Administrator to implement the Web Recording function.

Video Streaming Pause /Restart button (pause/restart)

Click on the <Stop> button to disable video streaming, the live video will be displayed as black. Press the <restart> button to show the live video again.

Web Recording button (on/off)

Click on the <Recording> button and the Live View through the web browsing will be directly recorded to the specific location on the local hard drive, which could be configured in the <File Location> page. The default storage location for the web recording is: C:\. Please refer to File Location for further details.

NOTE: For users with Windows 7 operating system, it is required to log on as an Administrator to implement the Web Recording function.

Control Panel Button (close / open)

Click on the <Control Panel> button to open and close the Control Panel on the homepage.

Zoom Adjustment Wide Tele (Wide/ Tele)

Click on the buttons <Wide/Tele> to control zoom in/out. Or move the cursor closely onto the zoom adjustment bar to the desired zoom ratio.

Focus Adjustment

- **Auto Focus (Continuous AF)** Auto

  Click on the <Auto> button to enable AF mode. In this mode, the camera will keep in focus automatically and continuously regardless of zoom changes or any view changes. The Focus status will also be displayed above the live video pane as shown below.

- **Manual button** Manual

  Click on the <Manual> button, and users can adjust focus manually via Near/Far buttons.

- **Near/Far buttons** Near Far

  Click on the <Manual> button, and users can adjust focus manually via <Near> and <Far> buttons. The status will also be displayed above the screen as shown below.

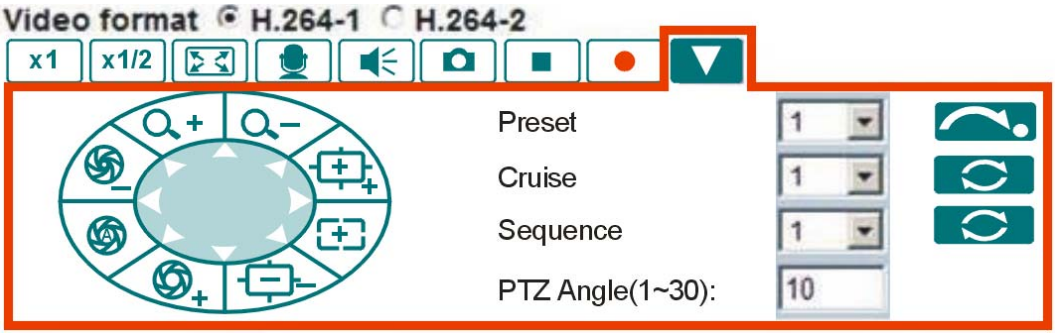
Pan/Tilt Control

Users can implement pan/tilt control by first moving the cursor to the live video pane; then left click and drag the pointer in any direction.

Optical/Digital Zoom Control

In Normal View display mode, users can implement zoom in/out by first moving the cursor to the live video pane and then rotating the mouse wheel. As in Full Screen mode, users can directly rotate the mouse wheel to zoom in/out on the image. Digital zoom is only available when the function is activated and which is set in <Camera-Misc1> page under the <PTZ> tab; refer to the Section Camera—Misc 1 for details. When the camera reaches the limit of its optical range, it will automatically switch to digital zoom.

Furthermore, after clicking the <Control Panel> Button, the Control Panel will be shown as the figure below.



Control Panel

- **Pan & Tilt Direction Control**

The <Pan and Tilt Direction Control> on the Control Panel allows users to control the Camera with browser viewers other than IE.

- **Iris Control** (Auto Iris / Iris+ / Iris-)

Click on the buttons (Auto Iris / Iris+ / Iris-) to adjust the Iris parameters.

- **Zoom** (Zoom In / Zoom Out)

Click on the buttons to zoom in or zoom out.

- **Focus** (Auto Focus / Focus Near / Focus Far)

Click on the buttons to adjust the focus as near, far or automatic.

Run Preset / Cruise / Sequence

After setup the Preset / Cruise / Sequence lines according to PTZ Settings, select a Preset / Cruise / Sequence line and start it by clicking on the <Run> button (/ /).

PT Speed (1~10)

Set a number between 1 and 10 as the PT Speed every time users pan or tilt the Camera via the Pan & Tilt Direction Control Panel. 1 is the slowest, 10 is the fastest.

Set Center Mode

Right click on the Live Video Pane and select <Set Center Mode>. Then users can position the interest area in the center of the Live Video Pane automatically by clicking on the point of interest. In <Set Center Mode>, right click on the Live Video Pane again and select <Set Emulated Joystick Mode> to return to control the Camera direction by left clicking and dragging the pointer on the Live Video Pane.

2.2 System

Under the tab **<System>**, there are categories as the table below:

System	System Security Network DDNS Mail FTP HTTP Application Motion Detection Network Failure Detection Storage Management Recording File Location View Log File View User Information View Parameters Factory Default Software Version Software Upgrade Maintenance

NOTE: The System configuration page is only accessible by the Administrator.

2.2.1 System

The System Setting can be found under the path: **System> System**.

Host Name

The name is for camera identification. If alarm function is enabled and is set to send alarm message by Mail/FTP, the host name entered here will display in the alarm message.

Time Zone

Select the time zone you are in from the drop-down menu.

Enable Daylight Saving Time

To enable DST, please check the item and then specify time offset and DST duration. The format for time offset is [hh:mm:ss]; for instance, if the amount of time offset is one hour, please enter “01:00:00” into the field.

Sync With Computer Time

Select the item and video date and time display will synchronize with the PC's.

Manual

The Administrator can set video date, time and day manually. Entry format should be identical with that shown next to the enter field.

Sync with NTP Server

Network Time Protocol (NTP) is an alternate way to synchronize your camera's clock with a NTP server. Please specify the server you wish to synchronize in the enter field. Then select an update interval from the drop-down menu. For further information about NTP, please see the web site: www.ntp.org.

2.2.2 Security

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

Click the Security category, there will be a drop-down menu with tabs including <User>, <HTTPS>, <IP Filter>, and <IEEE 802.1X>.

2.2.2.1 User

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

Admin Password

Change the administrator's password by inputting the new password in both text boxes. The input characters/numbers will be displayed as dots for security purposes. After clicking on <Save>, the web browser will ask the Administrator for the new password for access. The maximum length of the password is 14 digits.

NOTE: The following characters are valid: A-Z, a-z, 0-9, !#$%&'-.@^_~.

Add user

Type the new user's name and password and click on <Add> to add the new user. Both user name and password can be up to 16 characters. The new user will be displayed in the user name list. There is a maximum of twenty user accounts. Each user can be assigned the privileges of **<Camera control>**, **<Talk>** and **<Listen>**.

- **I/O access**
  This item supports fundamental functions that enable users to view video when accessing to the camera.

- **Camera control**
  This item allows the appointed User to change camera parameters on the Camera Setting page.

- **Talk/Listen**
  Talk and Listen functions allow the appointed user in the local site (PC site) communicating with, for instance, the administrator in the remote site.

Manage User

- **Delete user**
  To delete a user, select the user name you would like to delete from the drop-down user list and then click on <Delete> to remove it.

- **Edit user**
  Select a user name from the drop-down user list and click on <Edit> to edit the user's password and privilege.

NOTE: It is required to enter the User password as well as select the function open to the user. When finished, click on <Save> to modify the account authority.

2.2.2.2 HTTPS

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

<HTTPS> allows secure connections between the IP Camera and web browser using <Secure Socket Layer (SSL)> or <Transport Layer Security (TLS)>, which ensure camera settings or Username/ Password info from snooping. It is required to install a self-signed certificate or a CA-signed certificate for implementing <HTTPS>.

To use HTTPS on the IP Camera, a HTTPS certificate must be installed. The HTTPS certificate can be obtained by either creating and sending a certificate request to a Certificate Authority (CA) or creating a self-signed HTTPS certificate, as described below.

Create Self-signed Certificate

Before a CA-issued certificate is obtained, users can create and install a self-signed certificate first.

Click on <Create> button under “Create self-signed certificate” and provide the requested information to install a self-signed certificate for the IP Camera. Please refer to the last part of this section: Provide the Certificate Information for more details.

NOTE: The self-signed certificate does not provide the same high level of security as when using a CA-issued certificate.

Install Signed Certificate

Click on the <Create Certificate Request> button to create and submit a certificate request in order to obtain a signed certificate from CA.

Provide the request information in the create dialog. Please refer to the following Provide the Certificate Information for more details.

When the request is complete, the subject of the Created Request will be shown in the field. Click on <Properties> below the Subject field, copy the PEM-formatted request and send it to your selected CA.

When the signed certificate is returned, install it by uploading the signed certificate.

Provide the Certificate Information

To create a Self-signed HTTPS Certificate or a Certificate Request to CA, please enter the information as requested:

	Create Self Signed Certificate	Create Certificate Request
Country	√	√
State or Province	√	√
Locality	√	√
Organization	√	√
Organizational Unit	√	√
Common Name	√	√
Valid Day	√	-

- **Country**
  Enter a two-letter combination code to indicate the country the certificate will be used in. For instance, type in “US” to indicate United States.

- **State or province**
  Enter the local administrative region.

- **Locality**
  Enter other geographical information.

- **Organization**
  Enter the name of the organization to which the entity identified in “Common Name” belongs.

- **Organization Unit**
  Enter the name of the organizational unit to which the entity identified in “Common Name” belongs.

- **Common Name**
  Indicate the name of the person or other entity that the certificate identifies (often used to identify the website).

- **Valid days**
  Enter the period in days (1~9999) to indicate the valid period of certificate.

Click on <OK> to save the Certificate Information after complete.

2.2.2.3 IP Filter

The IP Filter setting can be found under this path: **System> Security> IP Filter**.

Using the IP filter, access to the IP Camera can be restricted by denying/allowing specific IP addresses.

- **Enable IP Filter**
  Check the box to enable the IP Filter function. Once enabled, the listed IP addresses (IPv4) will be allowed/ denied access to the IP Camera.

  Select <Allow> or <Deny> from the drop-down list and click on the <Apply> button to determine the IP Filter behavior.

- **Add/ Delete IP Address**
  Input the IP address and click on the <Add> button to add a new filtered address.

  The Filtered IP Addresses list box shows the currently configured IP addresses. Up to 256 IP address entries may be specified.

  To remove an IP address from the list, please select the IP and then click the <Delete> button.

2.2.2.4 IEEE 802.1X

The IEEE 802.1X setting can be found under this path: **System> Security> IEEE 802.1X**.

The IP Camera is allowed to access a network protected by 802.1X/EAPOL (Extensible Authentication Protocol over LAN).

Users need to contact with the network administrator for gaining certificates, user IDs and passwords

CA Certificate

The CA certificate is created by the Certification Authority for the purpose of validating itself. Upload the certificate for checking the server's identity.

Client Certificate/ Private Key

Upload the Client Certificate and Private Key for authenticating the IP Camera itself.

Settings

- **Identity**
  Enter the user identity associated with the certificate. Up to 16 characters can be used.

- **Private Key Password**
  Enter the password (maximum 16 characters) for your user identity.

Enable IEEE 802.1X

Check the box to enable IEEE 802.1X.

Click on <Save> to save the IEEE 802.1X/ EAP- TLS setting.

2.2.3 Network

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

Click on the <Network> category, there will be a drop-down menu with tabs including <Basic>, <QoS>, <SNMP>, and <UPnP>.

2.2.3.1 Basic

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

Users can choose to connect to the IP Camera with fixed or dynamic (DHCP) IP address. The IP Camera also provides PPPoE support for users who connect to the network via PPP over Ethernet (PPPoE).

General

- **Get IP address automatically (DHCP)**

  The camera's default setting is <Use fixed IP address>. Please refer to User's Manual for login with the default IP address.

  If select <Get IP address automatically>, after the IP Camera restarts, users can search it through the installer program: DeviceSearch.exe, which can be found in "DeviceSearch" folder in the supplied CD.

  NOTE: Please make the record of the IP Camera's MAC address, which can be found in the label of the camera, for identification in the future.

- **Use fixed IP address**

  To setup static IP address, select <Use fixed IP address> and move the cursor to the IP address blank and insert the new IP address, ex. 192.168.7.123; then go to the Default gateway (explained later) blank and change the setting, ex. 192.168.7.254. Press <Save> to confirm the new setting.

  When using static IP address to login to the IP Camera, users can access it either through "DeviceSearch" software (refer to User's Manual) or input the IP address in the URL bar and click on <Enter>.

  - IP address

    This is necessary for network identification.

- Subnet mask
  It is used to determine if the destination is in the same subnet. The default value is “255.255.255.0”.

- Default gateway
  This is the gateway used to forward frames to destinations in different subnet. Invalid gateway setting will fail the transmission to destinations in different subnet.

- Primary DNS
  Primary DNS is the primary domain name server that translates hostnames into IP addresses.

- Secondary DNS
  Secondary DNS is a secondary domain name server that backups the primary DNS.

Use PPPoE

For the PPPoE users, enter the PPPoE Username and Password into the fields, and click on the <Save> button to complete the setting.

Advanced

- **Web Server port**
  The default web server port is 80. Once the port is changed, the user must be notified the change for the connection to be successful. For instance, when the Administrator changes the HTTP port of the IP Camera whose IP address is 192.168.0.100 from 80 to 8080, the user must type in the web browser “http://192.168.0.100:8080” instead of “http://192.168.0.100”.

- **RTSP port**
  The default setting of RTSP Port is 554; the setting range is from 1024 to 65535.

- **MJPEG over HTTP port**
  The default setting of MJPEG over HTTP Port is 8008; the setting range is from 1024 to 65535.

- **HTTPS port**
  The default setting of HTTPS Port is 443; the setting range is from 1024 to 65535.

NOTE: Be aware to choose the different port from the one set for the web server port.

IPv6 Address Configuration

With IPv6 support, users can use the corresponding IPv6 address for browsing. Enable IPv6 by checking the box and click on <Save> to complete the setting.

2.2.3.2 QoS

The QoS (Quality of Service) setting can be found under this path: **System> Network> QoS**.

QoS allows providing differentiated service levels for different types of traffic packets, which guarantees delivery of priority services especially when network congestion occurs. Adapting the Differentiated Services (DiffServ) model, traffic flows are classified and marked with DSCP (DiffServ Codepoint) values, and thus receive the corresponding forwarding treatment from DiffServ capable routers.

DSCP Settings

The DSCP value range is from 0 to 63. The default DSCP value is 0, which means DSCP is disabled. The IP Camera uses the following QoS Classes: Video, Audio and Management.

- **Video DSCP**
  The class consists of applications such as MJPEG over HTTP, RTP/RTSP and RTSP/HTTP.

- **Audio DSCP**
  This setting is only available for the IP Cameras that support audio.

- **Management DSCP**
  The class consists of HTTP traffic: Web browsing.

NOTE: To enable this function, please make sure the switches/ routers in the network support QoS.

2.2.3.3 SNMP

The SNMP (Simple Network Management Protocol) setting can be found under this path: **System> Network> SNMP**.

With Simple Network Management Protocol (SNMP) support, the IP Camera can be monitored and managed remotely by the network management system.

SNMP v1/ v2

- **Enable SNMP v1/ v2**
  Select the version of SNMP to use by checking the box.

- **Read Community**
  Specify the community name that has read-only access to all supported SNMP objects. The default value is “public”.

- **Write Community**
  Specify the community name that has read/write access to all supported SNMP objects (except read-only objects). The default value is “write”.

Traps for SNMP v1/ v2

Traps are used by the IP Camera to send massages to a management system for important events or status changes.

- **Enable Traps**
  Check the box to activate trap reporting.

- **Trap address**
  Enter the IP address of the management server.

- **Trap community**
  Enter the community to use when sending a trap message to the management system.

Trap Option

- **Warm Start**
  A Warm Start SNMP trap signifies that the SNMP device, i.e. IP Camera, performs software reload.

Click on <Save> button when complete.

2.2.3.4 UPnP

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

UPnP Setting

- **Enable UPnP**
  When the UPnP is enabled, whenever the IP Camera is presented to the LAN, the icon of the connected IP Cameras will appear in My Network Places to allow for direct access.

  NOTE: To enable this function, please make sure the UPnP component is installed on your computer. Please refer to Install UPnP components for UPnP component installation procedure.

- **Enable UPnP port forwarding**
  When the UPnP port forwarding is enabled, the IP Camera is allowed to open the web server port on the router automatically.

  NOTE: To enable this function, please make sure that your router supports UPnP and it is activated.

- **Friendly name**
  Set the name for the IP Camera for identity.

2.2.4 DDNS

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

Dynamic Domain Name System (DDNS) allows a host name to be constantly synchronized with a dynamic IP address. In other words, it allows those using a dynamic IP address to be associated to a static domain name so others can connect to it by name.

Enable DDNS

Check the item to enable DDNS.

Provider

Select one DDNS host from the provider list.

Host name

Enter the registered domain name in the field.

Username/E-mail

Enter the username or e-mail required by the DDNS provider for authentication.

Password/Key

Enter the password or key required by the DDNS provider for authentication.

2.2.5 Mail

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

The Administrator can send an e-mail via Simple Mail Transfer Protocol (SMTP) when an alarm is triggered. SMTP is a protocol for sending e-mail messages between servers. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified and the message text is transferred.

Two sets of SMTP can be configured. Each set includes SMTP Server, Account Name, Password and E-mail Address settings. For SMTP server, contact your network service provider for more specific information.

2.2.6 FTP

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

The Administrator can set as sending alarm message to a specific File Transfer Protocol (FTP) site when an alarm is triggered. Users can assign alarm message to up to two FTP sites. Enter the FTP details, which include server, server port, user name, password and remote folder, in the fields.

Click on <Save> when finished.

2.2.7 HTTP

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

A HTTP Notification server can listen for notification messages from IP Cameras by triggered events. Enter the HTTP details, which include server name (for instance, http://192.168.0.1/admin.php), user name, and password in the fields. <Alarm> triggered and <Motion Detection> notifications can be sent to the specified HTTP server.
Click on <Save> when finished.

Please refer to: Application> Send HTTP notification/ Motion Detection for HTTP Notification settings.

2.2.8 Application (Alarm Settings)

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

The Camera equips four alarm inputs and two relay outputs for cooperating with alarm system to catch events' images. Please refer to User's Manual for Alarm Pin Definition to connect the alarm devices.

Alarm Pin Selection

Select an alarm pin which is to be configured from the <Alarm Pin Selection> field. Then click on the button <Edit> below the field to carry on alarm programming.

Alarm Setting

- **Alarm Switch**
  The Administrator can enable or disable the alarm function.

- **Alarm Type**
  Select an alarm type, <Normal close> or <Normal open>, that corresponds with the alarm application.

Triggered Action (Multi-option)

The Administrator can specify alarm actions that will take at an alarm occurrence. All options are listed as follows:

- **Enable Alarm Output 1/2**
  Select these items to enable alarm relay outputs.

- **Send Message by FTP/E-Mail**
  The Administrator can select whether to send an alarm message by FTP and/or E-Mail when an alarm is triggered.

- **Upload Image by FTP**
  Select this item and the Administrator can assign a FTP site and configure various parameters. When the alarm is triggered, event images will be uploaded to the appointed FTP site.

- **Upload Image by E-Mail**
  Select this item and the Administrator can assign an e-mail address and configure various parameters. When the alarm is triggered, event images will be sent to the appointed e-mail address.

  NOTE: Make sure SMTP or FTP configuration has been completed. Please refer to section Mail and FTP for further details.

- **PTZ Function**
  Assign a camera function: Preset, Sequence, Autopan or Cruise, and specify a Preset Point/Sequence Line/Autopan Path/Cruise Line for the camera to perform at an alarm occurrence.

  NOTE: Please refer to the sections through Preset to Sequence for details of Preset Point / Cruise Line / Autopan Path / Sequence Line setups.

  If the selected function is <Preset>, it is required to enter its dwell time (1 ~ 256 sec.) in the corresponding field as shown below. When the alarm is triggered, the camera will go to the selected Preset Point and stay there for a user-defined period of time. As for other function modes, the camera will keep executing the specified function; to stop the performance, simply change the camera's status.

  NOTE: The dwell time is only adjustable when selecting **Preset** as the alarm action. When the dwell time is up, the Camera will go back to its trigger position and recheck alarm pin status.

- **Send HTTP notification**
  Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Alarm> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.

  For instance, if the custom parameter is set as" action=1&group=2", and the HTTP server name is" http://192.168.0.1/admin.php", the notification will be sent to HTTP server as" http://192.168.0.1/admin.php?action=1&group=2" when alarm is triggered.

- **Record Stream to SD Card**
  Select the item and the alarm-triggered recording will be saved into your Micro SD card.

  Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 to 3 seconds.

  Select <Upload for __ sec> to set the recording duration after alarm is triggered. The setting range is from 1 to 99999 seconds.

  Select <Upload during the trigger active> to record the triggered video until the trigger is off.

  NOTE: Please make sure the local recording (with Micro SD/ SDHC card) is activated so that this function can be implemented. Refer to Recording for further details.

File Name

Enter a file name in the File name field, ex. image.jpg. The uploaded image's file name format can be set in this section. Please select the one that meets your requirements.

- **Add date/time suffix**
  File name: imageYYMMDD_HHNNSS_XX.jpg
  Y: Year, M: Month, D: Day
  H: Hour, N: Minute, S: Second
  X: Sequence Number

- **Add sequence number suffix (no maximum value)**
  File name: imageXXXXXXX.jpg
  X: Sequence Number

- **Add sequence number suffix (limited value)**
  File Name: imageXX.jpg
  X: Sequence Number

  The file name suffix will end at the number being set. For example, if the setting is up to "10," the file name will start from 00, end at 10, and then start all over again.

- **Overwrite**
  The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

Save

After complete all the settings mentions above, please click on the <Save> button to save all the settings on this page.

2.2.9 Motion Detection

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

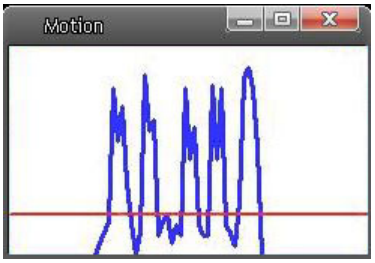
Motion Detection function allows detecting suspicious motion and triggering alarms when motion volume in the detected area reaches/exceeds the determined sensitivity threshold value.

In the Motion Detection setting page, there is a frame (**Motion Detection Window**) displayed on the Live Video Pane. The Motion Detection Window is for defining the motion detection area. To change the size of the Motion Detection Window, move the mouse cursor to the edge of the frame and draw it outward/inward. Moving the mouse to the center of the frame can shift the frame to the intended location.

Up 10 Motion Detection Windows can be set. Click on the <add> button under the Live Video Pane to add a Motion Detection Window. To cancel a Motion Detection Window, move the mouse cursor to the selected Window, and click on the <delete> button.

If Motion Detection function is activated, the pop-out window (Motion) with indication of motion will be shown.

When motion is detected, the signals will be displayed on the Motion window as shown below.



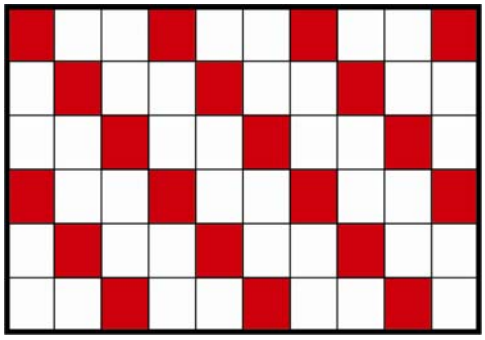
Motion Detection

In each set of Motion Detection Setting, the default setting for the Motion Detection function is <Off>. Enable the function by selecting <On>. Users can also activate the function according to the schedule previously set in the <Schedule> setting page. Select <By schedule> and click <Please select…> to choose the desired schedule from the drop-down menu.

Motion Detection Setting

Users could adjust various parameters of Motion Detection in this section.

- **Sampling pixel interval [1-10]:**
  The default value is 1. If the value is set as 3, it means within the detection region, system will take one sampling pixel for every 3 pixels by each row and each column (refer to the figure below).



- **Detection level [1-100]:**
  The default level is 10. The item is to set detection level for each sampling pixel; the smaller the value, the more sensitive it is.

- **Sensitivity level [1-100]:**
  The default level is 80, which means if 20% or more sampling pixels are detected differently, system will detect motion. The bigger the value, the more sensitive it is. Meanwhile, when the value is bigger, the red horizontal line in the motion indication window will be lower accordingly.

- **Time interval (sec) [0-7200]:**
  The default interval is 10. The value is the interval between each detected motion.

<u>Triggered Action</u> (Multi-option)

The Administrator can specify alarm actions that will take when motion is detected. All options are listed as follows:

- **Enable Alarm Output 1/2**
  Check the item and select the predefined type of alarm output to enable alarm relay output when motion is detected.

- **Send Alarm Message by FTP/E-Mail**
  The Administrator can select whether to send an alarm message by FTP and/or E-Mail when motion is detected.

- **Upload Image by FTP**
  Select this item and the Administrator can assign a FTP site and configure various parameters. When motion is detected, event images will be uploaded to the appointed FTP site.

  <Pre-trigger buffer> function allows users to check what happened to

cause the trigger. The <Pre-trigger buffer> frame rate could be pre-determined.

On the other hand, <Post-trigger buffer> is for users to upload certain amount of images after motion event occurs.

Check the box <Continue image upload> to upload the triggered images during certain time or keep uploading until the trigger is off. Select <Upload for __sec> and enter the duration in the blank. The images of the duration will be uploaded to FTP when the motion event occurs. The setting range is from 1 to 9999 seconds. Select <Upload during the trigger active> to make the images keep being uploaded to FTP during the trigger active until the event stops. Set the Image frequency as the upload frame rate. The setting range is from 1 frame to 15 frames.

NOTE: Make sure SMTP or FTP configuration has been completed. Refer to Mail and FTP for further details.

- **Send HTTP notification**
  Check this item, select the destination HTTP address, and specify the parameters for event notifications by <Motion Detection> triggered. When an alarm is triggered, the notification can be sent to the specified HTTP server.
  For instance, if the custom parameter is set as" action=1&group=2", and the HTTP server name is" http://192.168.0.1/admin.php", the notification will be sent to HTTP server as" http://192.168.0.1/admin.php?action=1&group=2" when alarm is triggered.

- **Record stream to SD Card**
  Select this item and the Motion Detection recording will be stored in Micro SD/ SDHC card when motion is detected.

  Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 to 3 seconds. Select <Upload for __ sec> to set the recording duration after motion is triggered. The setting range is from 1 to 99999 seconds. Select <Upload during the trigger active> to record the triggered video until the trigger is off.

NOTE: Please make sure the local recording (with Micro SD/ SDHC card) is activated so that this function can be implemented. Refer to Recording for further details.

File Name

The uploaded image's filename format can be set in this section. Please select the one that meets your requirements.

Save

Click on the <Save> button to save all the Motion Detection settings mentioned above.

2.2.10 Network Failure Detection

The Network Failure Detection setting can be found under this path: System> Network Failure Detection.

Network Failure Detection allows the IP Camera to ping another IP device (e.g. NVR, VSS, Video Server, etc.) within the network periodically and generates some actions in case of network failure occurs, for instance, a Video Server is somehow disconnected.

Being capable of implementing local recording (through Micro SD card) when network failure happens, the IP Camera could be a backup recording device for the surveillance system.

Detection Switch

The default setting for the Detection Switch function is <Off>. Enable the function by selecting <On>. Users can also activate the function according to the schedule time that is previously set in the <Schedule> setting page. Select <By schedule> and click <Please select…> to choose the desired schedule from the drop-down menu.

Detection Type

Input the IP device address and the period of ping time to ping. The ping time setting range is from 1 to 99 minutes.

Triggered Action (Multi-option)

The Administrator can specify alarm actions that will take when network failure is detected. All options are listed as follows:

- **Enable Alarm Output 1 /2**
  Select the item to enable alarm relay output.

- **Record Stream to SD Card**
  Select the item and the alarm-triggered recording will be saved into your Micro SD card.

  Pre-trigger buffer recording function allows users to check what happened to cause the trigger. The pre-trigger buffer time range is from 1 to 3 seconds. Select <Upload for __ sec> to set the recording duration after alarm is triggered. The setting range is from 1 to 99999 seconds. Select <Upload during the trigger active> to record the triggered video until the trigger is off.

  NOTE: Please make sure the local recording (with Micro SD / SDHC card) is activated so that this function can be implemented. Refer to Recording for further details.

- **Send Alarm Message by FTP/E-Mail**
  The Administrator can select whether to send an alarm message by FTP and/or E-Mail when an alarm is triggered.

Save

Click on the <Save> button to save all the settings mentioned above.

2.2.11 Storage Management (Local Recording)

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

Users can implement local recording to the Micro SD/SDHC card up to 32GB. This page shows the capacity information of the Micro SD card and a recording list with all the recording files saved on the memory card. Users can also format

the SD card and implement automatic recording cleanup through the setting page.

To implement Micro SD card recording, please go to the <Recording> page (refer to the section Recording) for activation.

NOTE: Please format the Micro SD/SDHC card when using for the first time. Formatting will also be required when a memory card already being used on one camera and later transferred to another camera with different software platform.

Device information

When users insert the Micro SD/SDHC card, the card information such as the memory capacity and status will be shown at Device Information section.

When the memory card is successfully installed, the memory card status shall be shown at <Device information> section in the Storage Management page.

Device setting

Click on the <Format> button to format the memory card.

Disk cleanup setting

Users can enable automatic recordings cleanup by specifying the time and storage limits.

Recording List

Each video file on the Micro SD/SDHC card will be listed in the Recording list. The maximum file size is 60 MB/per file.

When the recording mode is set as <Always> (consecutive recording) and the Micro SD/ SDHC card recording is also allowed to be enabled by events triggered, once events occur, the system will immediately implement events recording to the memory card. Then the IP Camera will return to the regular recording mode after events recording.

- **Remove**
  To remove a file, select the file first, and then click on the <Remove> button.

- **Sort**

Click on the <Sort> button, and the files in the Recording list will be listed in name and date order.

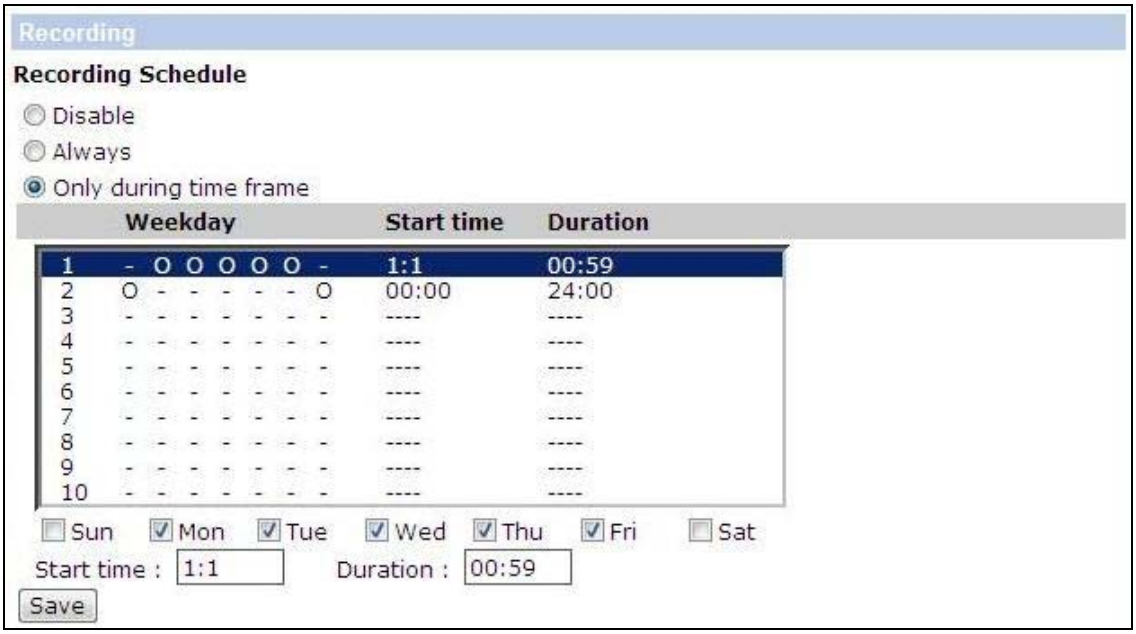
NOTE: The capital letter A/M/R appears in the very beginning of name denotes the sort of the recording: A stands for Alarm; M stands for Motion; R stands for regular recording.

- **Download**
  To open/download a video clip, select the file first, and then click on the <download> button below the Recording list field. The selected file window will pop up. Click on the AVI file to directly play the video in the player or download it to a specified location.

2.2.12 Recording (Local Recording)

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

In the Recording setting page, users can specify the recording schedule that fits the present surveillance requirement.



<u>Activating Micro SD/SDHC Card Recording</u>

Two types of schedule mode are offered: <Always> and <Only during Time Frame>. Users can select <Always> to activate Micro SD / SDHC Card Recording all the time. Or select a set of schedule from the time frame blank,

check specific weekdays and setup the start time (hour:minute) and time period (hour:minute) to activate Micro SD / SDHC Card Recording at certain time frames. The setting range for time period hour is from 0 to 168. Please click on <Save> to save the setup.

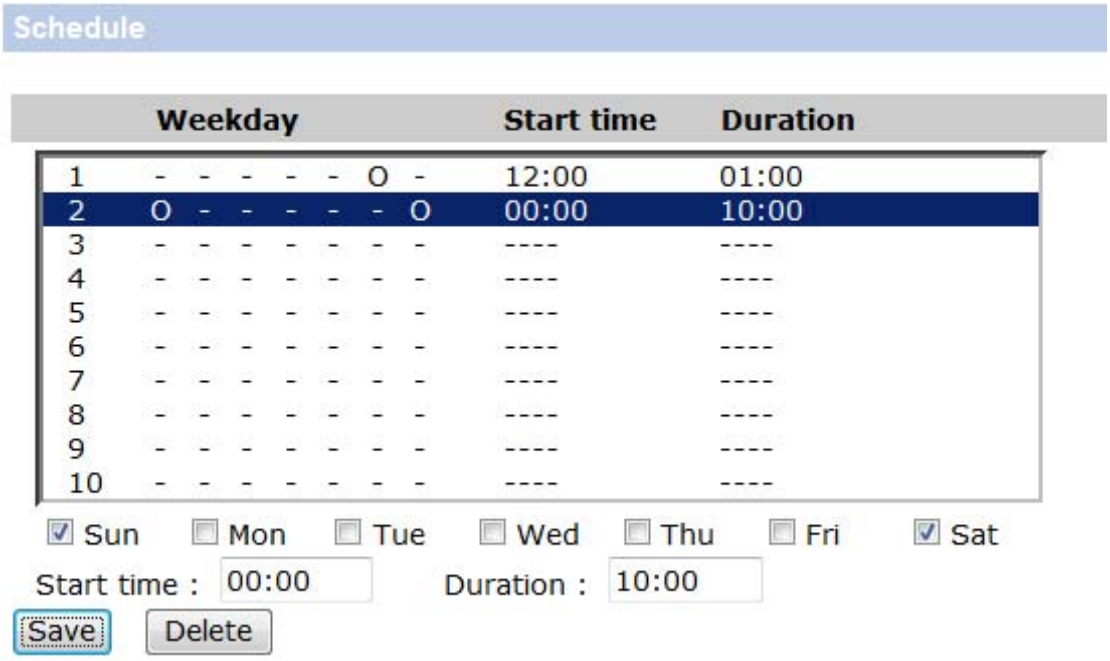
Terminating Micro SD/SDHC Card Recording

Select <Disable> to terminate the recording function.

2.2.13 Schedule

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

This function allows the users to setup schedules for features including: <Alarm Switch>, <Motion Detection> and <Network Failure Detection>. The function supports up to 10 sets of time frames in the time frame list.



Setting Schedules

To set a schedule, please select a time frame from the time frame list first. Then check the boxes from below to choose the specific weekdays. At last, type in the start time (hour:minute) and the duration time (hour:minute) for activation of the schedule triggered features. The setting range for the duration time is from 00:00 to 168:59. Click <Delete> to delete a chosen time frame. Please click on <Save> to save the setup.

NOTE: Users MUST select <By schedule> under each feature setting page to enable the schedule function.

2.2.14 File Location (Snapshots and Web Recording)

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

Users can specify a storage location on the PC or in the hard drive for the snapshots and live video recording. The default setting is: C:\. Once confirm the setting, click on <Save>, and all the snapshots and web recording will be saved in the designate location.

NOTE: Make sure the selected file path contains valid characters such as letters and numbers.

NOTE: For users with Windows 7 operating system, it is required to log on as an Administrator to implement the Snapshot and Web Recording function.

2.2.15 View Information

The View Information function can be found under this path: System> **View Information.**

Click on the category: <View Information>, there will be a drop-down menu with tabs including <Log File>, <User Information>, and <Parameters>.

2.2.15.1 Log File

The Log File function can be found under this path: **System> Log File.**

Click on the tab to view the system log file. The content of the file provides useful information about connections after system boot-up.

2.2.15.2 User Information

The User Information function can be found under this path: System> User Information.

The Administrator can view each added user's login information and privileges (refer to Security).

Get User Information

All the users in the network will be listed in the <User information> zone as shown below:

User: 4321

It indicates that one user's login username is "User", and the password is "4321".

Get User Privacy

Click on <get user privacy> at the bottom of the page, and the Administrator can view each user's privileges as shown below:

User: 1:1:0:1

1:1:0:1= I/O access : Camera control : Talk : Listen (refer to Security)

Therefore, it denotes the user is granted privileges of I/O access, Camera control and Listen.

2.2.15.3 Parameters

The Parameters function can be found under this path: **System> Parameter.**

Click on this item to view the entire system's parameter setting such as Camera Settings, Mask Information and Network Information.

2.2.16 Factory Default

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

Users can follow the instructions on this page to reset the IP Camera to factory default settings if needed.

Full Restore

Click on the <Set Default> button to recall the factory default settings. Then the system will restart in 30 seconds.

NOTE: The IP address will be restored to default.

Partial Restore

Press the <Partial Restore> button to recall partial default setting. Then the system will restart in 30 seconds.

Click on the <Reboot> button, and the system will restart without changing current settings.

NOTE: The IP address will not be restored to default.

Reboot

Click on the <Reboot> button, and the system will restart without changing current settings.

2.2.17 Software Version

The Software Version can be found under this path: **System> Software Version**.

The current software version is displayed in the software version page.

2.2.18 Software Upgrade

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

NOTE: Make sure the upgrade software file is available before carrying out software upgrade.

The procedure of software upgrade is as below:

Step 1: Click on <Browse> and select the binary file to be uploaded, ex. userland.img.

NOTE: Do not change the upgrade file name, or the system will fail to find the file.

Step 2: Pull down the upgrade binary file list and select the file you want to upgrade; in this case, select “userland.img.”

Step 3: Click on the <Upgrade> button. The system will check whether the upgrade file exists or not, and then begin to upload the upgrade file. Subsequently, the upgrade status bar will be displayed on the page. When it runs to 100%, the upgrade process is finished.

After the upgrade process is finished, the viewer will return to Home page.

Step 4: Close the video browser.

Step 5: Go to <Start>, activate <Control Panel>, and then double click on <Add or Remove Programs>. In the <Currently install programs> list, select ,<DCViewer> and click on the button <Remove> to uninstall the existing DC Viewer.

Step 6: Open a new web browser, re-login the IP Camera, and then allow the automatic download of DC Viewer.

2.2.19 Maintenance

The Maintenance setting can be found under this path: **System> Maintenance**. Users can export configuration files to a specified location and retrieve data by uploading an existing configuration file to the IP Camera.

Export

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

Upload

To copy an existing configuration file to the IP Camera, please click on <Browse> to select the configuration file first, and then click on the <Upload> button for uploading.

2.3 Streaming

Under the tab **<Streaming>**, there are categories including: <Video Format>, <Video Compression>, <Video OCX Protocol>, <Video Frame Rate>, and <Audio>.

In Streaming, the Administrator can configure specific video resolution, video compression mode, video protocol, audio transmission mode, etc. Further details of these settings will be specified in the following sections.

2.3.1 Video Format (Video Resolution/ Video Deinterlace)

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

Video Resolution

Under Video Resolution section, the available video resolution formats are including MJPEG and H.264. Please refer to the User's Manual for more combination details.

Click on <Save> to confirm the setting.

Text Overlay Settings

Users can select the items to display data including date/time/text on the live video pane. The maximum length of the string is 20 alphanumeric characters.

Click on <Save> to confirm the Text Overlay setting.

Video Rotate Type

Users can change video display type if necessary. Selectable video rotate types include Normal, Flip, Mirror, 90 degree clockwise, 180 degree rotate and 90 degree counterclockwise. Differences among these types are illustrated as below.

Suppose the displayed image of the IP Camera is shown as the figure below.

To rotate the image, users can select <Flip>, for instance. Then the displayed image will be reversed as shown below.

The following is descriptions for different video rotate type.

- **Flip**
  If select <Flip>, the image will be rotated vertically.

- **Mirror**
  If select <Mirror>, the image will be rotated horizontally.

- **90 Degree Counter-/clockwise**
  Selecting <90 Degree Counter-/clockwise> will make the image 90° counter-/clockwise inversed.

- **180 Degree Rotate**
  Selecting <180 Degree> will make the image 180°inversed.

Click on <Save> to confirm the setting.

GOV Settings

Users can set the GOV length to determine the frame structure (I-frames and P-frames) in a video stream for saving bandwidth. The setting range is from 2 to 64. Default value is 60, which means there are one I-frame every 60 frames. Longer GOV length means lower I-frame frequency. The default value for H.264-1 / H.264-2 / H.264-3 / H.264-4 is 60 / 60 / 30 / 30. Click on <Save> to confirm the GOV setting.

H.264 Profile

Users can set each H.264 Profile to <Baseline Profile>, <Main Profile> or <High Profile> according to its compression needs. With the same bit rate, the higher the compression ratio, the better the image quality is. The default setting is <Main Profile>.

NOTE: Please make sure the higher compression ratio is supported by system before setup.

2.3.2 Video Compression

The Video Compression setting can be found under this path: **Streaming> Video Compression**.

Users can select a proper MJPEG/H.264 compression mode on the video compression page, depending on the application.

MJPEG Q (Quality) factor

Higher value implies higher bit rates and higher visual quality. The default setting of MJPEG Q factor is 35; the setting range is from 1 to 70.

H.264-1 / H.264-2 / H.264-3 / H.264-4 bit rate

The default setting of H.264-1 is 4096 kbit/s and for H.264-2 / H.264-3 / H.264-4 is 1024 kbit/s; the setting range for H.264-1 is from 64 to 8192 kbps and for H.264-2 / H.264-3 / H.264-4 is from 64 to 2048 kbit/s.

Display Compression Information

Users can also decide whether to display compression information on the Home page.

CBR Mode Setting

The CBR (Constant Bit Rate) mode could be the preferred bit rage mode if the bandwidth available is limited. It is important to take account of image quality while choosing to use CBR mode.

Click on <Save> to confirm the setting.

2.3.3 Video OCX Protocol

The Video OCX Protocol setting can be found under this path: **Streaming> Video OCX Protocol**.

In the Video OCX protocol setting page, users can select RTP over UDP, RTP over TCP, RTSP over HTTP or MJPEG over HTTP, for streaming media over the network. In the case of multicast networking, users can select the Multicast mode.

Video OCX protocol setting options include:

- **RTP over UDP/ RTP over RTSP(TCP)/ RTSP over HTTP/ MJPEG over HTTP**
  Select a mode according to your data delivery requirements.

- **Multicast Mode**
  Enter all required data, including <multicast IP address>, <H.264 video port>, <MJPEG video port>, <Audio Port> and <TTL> into each blank.

Click on <Save> to confirm the setting.

2.3.4 Video Frame Rate

The Video Frame Rate setting can be found under this path: **Streaming> Video Frame Rate**.

Video frame rate is for setting the frames per second (fps) if necessary.

MJPEG/ H.264-1/ H.264-2 Frame Rate

The default setting of MJPEG Frame Rate is 30 fps; the setting range is from 1 to 30.

Click on <Save> to confirm the setting.

NOTE: Lower frame rate will decrease video smoothness.

2.3.5 Audio (Audio Mode and Bit Rate Settings)

The Audio Mode setting can be found under this path: **Streaming> Audio**.

In the Audio page, the Administrator can select one transmission mode and audio bit rate.

Transmission Mode

- **Full-duplex (Talk and Listen simultaneously)**
  In the Full-duplex mode, the local and remote sites can communicate with each other simultaneously, i.e. both sites can speak and be heard at the same time.

- **Half-duplex (Talk or Listen, not at the same time)**
  In the Half-duplex mode, the local/remote site can only talk or listen to the other site at a time.

- **Simplex (Talk only)**
  In the Talk only Simplex mode, the local/remote site can only talk to the other site.

- **Simplex (Listen only)**
  In the Listen only Simplex mode, the local/remote site can only listen to the other site.

- **Disable**
  Select the item to turn off the audio transmission function.

Server Gain Setting

Set the audio input/output gain levels for sound amplification. The audio gain values are adjustable from 1 to 6. The sound will be turned off if the audio gain is set to “Mute”.

Bit Rate

Selectable audio transmission bit rate include 16 kbps (G.726), 24 kbps (G.726), 32 kbps (G.726), 40 kbps (G.726), uLAW (G.711) and ALAW (G.711). Both uLAW and ALAW signify 64 kbps but in different compression formats. Higher bit rate will let higher audio quality and require bigger bandwidth.

Click on <Save> to confirm the setting.

2.4 PTZ

Under the tab **<PTZ>**, there are categories including: <Preset>, <Cruise>, <Auto Pan>, <Sequence>, <Home>, <Tilt Range>, <Camera- Exposure>, <Camera- WB>, <Camera- Misc1>, <Camera- Misc2>, and <Camera- Default>.

2.4.1 Preset

The Preset Programming can be found under this path: **PTZ> Preset**.

Totally 256 Preset Points can be programmed for the IP Camera. Please refer to the instructions below to set a Preset Point.

Preset Setting

To setup a Preset Point, please first move the cursor to the live view pane. Then left click and drag the red pointer with PTZ controls to a desired position and adjust the fine zoom/ focus ratio. Subsequently, assign a number for the current position from the drop-down Number List (click on <PrePage> or <NextPage> button to reach number 1 to 256), and enter its descriptive name. Click on the button <Set> to save the settings mentioned above.

Preset Go

To have the camera move to a specified Preset position, please select the Preset Point from the drop-down Preset list (click on <PrePage> or <NextPage> button to reach preset number 1 to 256). Then the camera shall readily move to the target position.

2.4.2 Cruise

The Cruise Programming can be found under this path: **PTZ> Cruise**.

The IP Camera supports up to eight Cruise Paths. Please follow the instructions below for Cruise Path setup.

Cruise Setting

To setup a Cruise Path, please first select a path number from the drop-down list. Then move the cursor to the live view pane, and move the camera to a desired view (PTZ controls) as the start point of a Cruise Path. Click on the <Set> button of <Record Start> and start programming the Cruise Path via PTZ

controls. When finishing programming, click on the <Set> button of <Record End> to quit. Then this Cruise Path will be automatically recorded.

Cruise Run

Select the specified Cruise Path from the drop-down list, click on the <Run> button, and then the camera will start touring around as recorded.

To view the camera touring around in full screen mode, please move the cursor onto the live view pane, right-click and left-click to select “fullscreen”. Then users can view the camera navigation in full screen.

To stop running a Cruise Path, simply move the cursor to the live view pane and move the camera in any direction.

2.4.3 Auto Pan

The Auto Pan Programming can be found under this path: **PTZ> Auto Pan**.

The IP Camera supports four Auto Pan Paths. Please refer to the instructions below to set an Auto Pan Path.

Auto Pan Setting

To setup an Auto Pan Path, please select a path number from the drop-down list first. Then move the cursor to the live view pane, and move the camera to a desired view as the Start Point of an Auto Pan Path. Click on the <Set> button of the <Start Point> and the current view will be automatically saved as the start point of the Auto Pan Path.

NOTE: The room ratio of an Auto Pan’s Start Point will persist throughout the whole path.

Enter the speed ratio into the Speed field; the speed ratio ranges from 0 (low) to 3 (fast). Then choose to run the Auto Pan Path in right/left direction from the Direction drop-down list.

Move the camera to another desired position as the end point of the Auto Pan Path. Click on the <Set> button of the <End Point> for saving the setting.

Auto Pan Run

Select the specified Auto Pan Path from the drop-down list, click on the <Run> button, and then the camera will start moving horizontally as recorded.

To view the camera panning in full screen mode, please move the cursor onto the live view pane, right-click and left-click to select “fullscreen”. Then users can view the camera navigation in full screen.

To stop running an Auto Pan Path, simply move the cursor to the live view pane and move the camera in any direction.

2.4.4 Sequence

The Sequence Line Programming can be found under this path: **PTZ> Sequence**.

The IP Camera supports totally eight Sequence Lines; each Sequence Line consists of up to 64 Preset Points. Please refer to the instructions below to program a Sequence Line.

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

Sequence Setting

Please click on the <Edit> button in <Sequence Setting> section to enter the Sequence setting menu.

- **Sequence Line**
  Please select the number of Sequence Line to be set from the drop-down list in the top of the Sequence setting menu.

- **Sequential Preset Points Setting**
  Please setup each Preset Point of the programmed Sequence Line in order, assigning a Preset Point from the <Name> list for the specified number of Preset Point (click <Pre Page> or <Next Page> button to reach preset point 1 to 256) and entering both Dwell Time (0~127) and Speed (0~14) into the corresponding fields.

When finishing the sequential Preset Points setting, please click on the button <Save> in the top of the Sequence setting menu.

Sequence Run

Select the specified Sequence Line from the drop-down list, click on the <Go> button, and then the camera will start moving forward each scene sequentially as programmed.

To view the camera executing a Sequence Line in full screen mode, please move the cursor onto the live view pane, right-click and left-click to select “fullscreen”. Then users can view the camera navigation in full screen.

To stop running the Sequence Line, simply move the cursor to the live view pane and move the camera in any direction.

2.4.5 Home

The Home Function can be found under this path: **PTZ> Home**.

Users are able to set an operation mode to ensure constant monitoring. If the IP Camera idles for a period of time, the selected function will be activated automatically; this is the HOME function. The HOME function allows constant and accurate monitoring to avoid the Dome Camera idling or missing events.

Home Setting

- **Activate/Disable Home Function**
  Select <On> or <Off> to activate or disable the Home function. Then click on the <Set> button to save the setting.

- **Time**
  The time here represents the duration of camera idle time previous to running a Preset Point/Cruise Line/Auto Pan Path/Sequence Line. When the Home function is activated, the Dome Camera will start to count down when it idles, and then execute the predefined action as time expires. The time period ranges from 1 to 128 minutes; please specify it in the field.

- **Action Type**
  Please select a Home action type (Preset Point/Cruise Line/Auto Pan Path/Sequence Line) and specify the number of Preset Point/Cruise Line/Auto Pan Path/Sequence Line from the drop-down <Type> and <Line> lists. Click on the button <Set> to save the Home settings.

2.4.6 Tilt Range

The Tilt Range Setting can be found under this path: **PTZ> Tilt Range**.

The IP Camera's tilt angle is adjustable from minimum -10° to maximum 190°. Please enter the desired minimum and maximum tilt angle into the corresponding fields respectively. Click on the <Set> button to save the tilt angle settings.

NOTE: IThe tilt angle range is between -10° to +100° when the Flip function under Misc 1 setting page is set as <Off> or <M.E.>.

NOTE: The tilt angle range is between -10° to +190° when the Flip function under Misc 1 setting page is set as <Image>.

2.4.7 Camera-Privacy Mask

The Privacy Mask setting can be found under this path: **PTZ> Privacy Mask**

The Privacy Mask function aims to avoid any intrusive monitoring. When setting a mask, it is suggested to set it at least twice bigger (height and width) than the masked object. The Dome Camera will assume the center of the selected view as a starting point. Therefore, please keep the target object / region nearly positioned in the center of the scene. Refer to the following descriptions for setting a privacy mask.

NOTE: When the Privacy Mask function is enabled, the Flip function under Misc 1 setting page will be disabled.

Mask Setting

- **Activate / Disable Privacy Mask Function**
  The Privacy Mask function can be activated or disabled. Click on <Set> to save the setting.

- **Activate / Disable Transparency Mask**
  The Privacy Mask can be set as transparency if necessary.

- **Color Setting**
  Select a desired color from the <Color> drop-down list for the specified Privacy Mask. Click on <Set> to save the Privacy Mask's color properties.

- **Mask Number**
  Specify the number of the programmed Privacy Mask in the corresponding field. The numbers of Privacy Masks vary with camera models.

- **Mask Size**
  The size of a Privacy Mask can be customized through specifying its horizontal and vertical size. The value of <Horizontal Size> ranges from 1 to 80, while that of <Vertical Size> ranges from 1 to 60.

  After finishing the setup of a Privacy Mask, click on the button <Add> to save the programmed Privacy Mask.

Mask Clearing

In this section, users can delete an existing Privacy Mask. Please select the Privacy Mask to be removed from the drop-down list, and click on the button <Clear>. Then the selected Privacy Mask will readily disappear.

Steps (1~30)

Users can setup the location of every privacy mask by the control panel on the Privacy Mask page. Set a number from 1 to 30 as the PT Step when users adjust the privacy mask via the control panel. Every step indicates 0.225°.

2.4.8 Camera— Exposure

The Exposure Setting can be found under this path: **PTZ> Camera- Exposure**.

In the Exposure Mode setting page, users can select either the <Full Auto> mode or adjust the parameter of the Shutter/Iris/Bright Priority mode for optimized video output in accordance with the operating environment.

Shutter Priority Mode

In this mode, it is shutter speed that takes main control of exposure. The range of shutter speed is from 1/10000 to 1.

P-Iris Mode

In this mode, the minimum iris opening is limited to affect the exposure. The minimum iris opening can be adjusted from F4.8 to F8.6.

Iris Priority Mode

In this mode, it is the iris that has premier priority in control of the exposure. The value of iris is adjustable from F1.6 to F28.

Manual Mode

In this mode, users can change the Shutter speed (1/10000 to 1), Iris (F1.6 to F28), and Gain (1 to 15) manually.

2.4.9 Camera—WB (White Balance)

The White Balance Setting can be found under this path: **PTZ> Camera- WB**.

A camera needs to find reference color temperature, which is a way of measuring the quality of a light source, for calculating all the other colors. 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. The following table shows the color temperature of some light sources for reference.

Light Sources	Color Temperature in K
Cloudy Sky	6,000 to 8,000
Noon Sun and Clear Sky	6,500
Household Lighting	2,500 to 3,000
75-watt Bulb	2,820
Candle Flame	1,200 to 1,500

Auto Mode

The Auto Balance White mode is suitable for environment with light source having color temperature in the range roughly from 2700 to 7500K.

Indoor/outdoor Mode

Select for indoor or outdoor mode.

ATW Mode (Auto Tracing White Balance)

The Dome Camera takes out the signals in a screen in the range from 2500 K to 10000 K.

Manual Mode

In this mode, users can change the White Balance value manually via specifying R gain and B gain; the range of R/B gain is from 0 to 255.

2.4.10 Camera—Misc 1 (Miscellaneous Setups Menu 1)

The Miscellaneous Setting Menu 1 can be found under this path: **PTZ> Camera- Misc 1**.

In the Camera—Misc (Miscellaneous) Setups Menu 1, users can set various camera parameters including Backlight Compensation (BLC), Sharpness, Exposures Compensation (ExpComp), Image Flip, Speed by Zoom and ICR function. Each setting is specified as follows:

BLC

Users can choose to activate or disable the BLC function. Click on the button <Set> to save the setting.

Sharpness

Increasing the sharpness level can make the image looked sharper; especially enhancing the object's edge. The Sharpness value is adjustable from 1 to 15. Click on the button <Set> to confirm the setting.

ExpComp

Users can define the value of Exposure Compensation; the value ranges from 1 to 15.

Flip

Users can track an object continuously when it passes through under the Dome Camera with setting Flip to Mechanical (M.E.) mode.

NOTE: Flip setting is manual-controlled only. If a Preset Position or a point for other function (ex. Sequence) is set in the position that can only be reached through FLIP motion, when Flip function is turned off, the position cannot be reached anymore.

NOTE: To make the Dome Camera tilt between a specific range, such as -10° to +100° or -10° ~ +190°, please go to the **Tilt Range setting page** to set the tilt angle range. Otherwise, the Dome Camera will tilt 90° as the default setting.

- **M.E. Mode**
  M.E. is a standard mechanical operation. As the Dome Camera tilts to the maximum angle, it will pan 180°, and then continue tilting to keep tracking objects.

- **Image Mode**
  IMAGE represents digital IMAGE FLIP, which enables users to keep tracking objects seamlessly; under the mode, almost no delay occurs in comparing with that under the M.E. mode.

Speed by Zoom

Enable this function to adjust the pan/tilt speed automatically by internal algorithm when zooming. The larger zoom ratio leads to the lower rotating speed. Click on <Set> button to save the setting.

ICR Function

With the IR cut filter, the camera can still catch clear image at night time or in low light conditions.

- **Auto**
  In the Auto mode, the internal circuit will automatically decide the occasion to remove the IR cut filter according to the image brightness level.

- **On**
  Select the item to remove the IR cut filter.

- **Off**
  Select the item to disable IR function.

2.4.11 Camera—Misc 2 (Miscellaneous Setups Menu 2)

The Miscellaneous Setting Menu 2 can be found under this path: **PTZ> Camera- Misc 2**.

In the Camera—Misc (Miscellaneous) Setups Menu 2, users can setup various functions such Wide Dynamic Range (WDR), Auto Calibration, 2D Noise Reduction (2DNR), and TV System.

WDR

The WDR function is especially effective in environment with extreme contrast. Click on <Set> button to save the setting.

Auto Calibration

With the Auto Calibration function, the IP Camera calibrates when the deviation of dome pivot is detected. Click on <Set> button to save the setting.

2DNR

With the 2D 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. Click on <Set> button to save the setting.

OSD

Select <ON> on OSD Setting to turn on the OSD display on the live video. The OSD display shows the pan/tilt degree and the shooting position of the Dome Camera, such as NE 050/00, which “NE” indicates the shooting position of the Dome Camera, “050” indicates the pan degree, “00” indicates the tilt degree. Click on <Set> button to save the setting.

Set Pan Zero

Click on <Set> to set the Dome Camera’s currently shooting position as the original spot Dome Camera would start to pan (0 degree).

TV System

Select the video format that matches the present TV system. Click on <Set> button to save the setting.

2.4.12 Camera- Default

The Default Setting can be found under this path: **PTZ> Camera- Default**.

In the Camera Default page, users can set the camera back to factory default settings simply by clicking on the <Set Default> button.

2.5 Logout

Click on the tab <Logout> on the top of the page, and the login window will pop up. This enables login with another user name.

Appendix A: Install UPnP Components

Please follow the instructions below to install UPnP components.

Step 1: Go to <Start>, click on <Control Panel>, and then double click on <Add or Remove Programs>.

Step 2: Click on <Add/Remove Windows Components> in the Add or Remove Programs page.

Step 3: Select <Networking Services> from the Components list in Components Wizard window of the Windows, and then click <Details>.

Step 4: Select <UPnP User Interface> in the Networking Services' subcomponents list and then click on <OK>.

Step 5: Click on <Next> in the Windows Components Wizard page.

Step 6: Click on <Finish> to complete installation.

Appendix B: Autotracking (Selected Models Only)

The Autotracking function is only for some selected models. This function will only become available after authentication is done. For more information about authenticating the function, please see the **Inset Key** section from below.

The Autotracking function will automatically detect a moving object in the preset area and follow it according to the defined settings. Please find the function setting in the following path: **System> Autotracking**.

Click on the category <Autotracking>, the <Autotracking> and <Insert Key> tabs will be shown in the drop-down menu. Enter the setting menu by clicking the <Autotracking> tab.

Autotracking

Autotracking

The default setting of the Autotracking function is <Off>. Select <On> to enable the function.

NOTE: Setting items will be available after <On> is selected.

MAX Limit Setting

This setting menu allows the users to define a tracking area for the detection and tracking movement of the camera.

- **Turn Off**

To avoid the setting process being disturbed by the camera's tracking movement, please click on the <Turn Off> button to switch off the tracking function.

NOTE: The Autotracking function needs to be reactivated to take effect after saving all the necessary settings. Please follow the steps below.

- Select <Off> under <Autotracking> at the top.
- Click the <Save> button for confirmation.
- Select <On> under <Autotracking> at the top.
- Click the <Save> button to confirm the settings.

- **Enable tilt limit**

Tick the box to enable the tilt limit setting.

• **Get U Tilt / D Tilt**

Please click and drag the PTZ pointer in the view window to the desired up or down tilt position. Then click on the <Get U Tilt> / <Get D Tilt> button to get the boundary values.

• **Enable pan limit**

Tick the box to enable the pan limit setting.

• **Get L Pan / R Pan**

Please click and drag the PTZ pointer in the view window to the desired left or right pan position. Then click on the <Get L Pan> / <Get R Pan> button to get the boundary values.

Detection Range

Detection range can be set to detect motions around the centre of the view window. Please choose a value to define the detection area (in percentage) around the centre point. The available options are <L(60%)>, <M(50%)> and <S(40%)>.

Preset Setting

In this setting menu, the Autotracking function and its related functions can be activated for the first 10 preset points of each sequence line.

NOTE: When <Preset Setting> is activated, the <Home Setting> and the <Guard Timer Setting> will be unavailable.

• **Off / On**

The default setting of the Preset Setting is <Off>. Select <On> to enable the function.

• **Sequence line**

Select a desired sequence line from the drop-down menu to set its Autotracking function.

• **Preset**

Select a desired preset point from the drop-down menu to set its Autotracking function. Please use the <Autotacking> drop-down menu underneath to turn on / off the tracking function for each chosen preset point.

• **Ratio**

Zoom ratio can be set for the camera to automatically zoom in / out when it is tracking a moving object. Please type in the ratio number in the blank space.

• **Guard Time**

Guard time is for defining the maximum tracking time of the camera for each chosen preset point. Please enter the time in seconds (range from 0~999) in the blank space. Click the <Set> button on the right to finish setting up a preset point.

NOTE: Repeat the steps from <Sequence line> to <Guard Time> for setting other preset points.

Home Setting

This function allows users to set the main monitoring area as the home position for the camera. In addition, maximum time can also be set for defining the time for the camera to keep watching a stopped tracking object. The camera will return to the home position according to the defined time setting.

NOTE: <Preset Setting> must be <Off> in order to configure the <Home Setting> function.

• **Off / On**

The default setting of Home Setting is <Off>. Select <On> to enable the function.

• **Home Position**

To set the home position, please click and drag the PTZ pointer in the view window to the desired position. Click on <Set> to confirm the position.

• **Time**

Please type in the time that the camera should keep watching a stopped tracking object. The camera will return to the home position after the defined time period.

• **Go**

Click on <Go> to move the camera to the home position.

Guard Timer Setting

This function allows users to set the main monitoring area as the guard position, and set the duration of time for the camera to track an object.

NOTE: <Preset Setting> must be <Off> in order to configure the <Guard Timer Setting> function.

- **Off / On**

The default setting of the Guard Timer Setting is <Off>. Select <On> to enable the function.

- **Guard Position**

To set the guard position, please click and drag the PTZ pointer in the view window to the desired position. Click on <Set> to confirm the position.

- **Time**

Please type in the duration of time that the camera should track a moving object.

- **Go**

Click on <Go> to move the camera to the guard position.

Save

Click on <Save> to confirm the settings.

Insert Key

If the Autotracking function is already available, users do not need to type in any product key in this page. However, if it is not, please contact the system installers or the sales representatives for the product key. Authentication can be done by type in the product key in the blank space provided in the Inset Key page and click <OK> to enable the function.