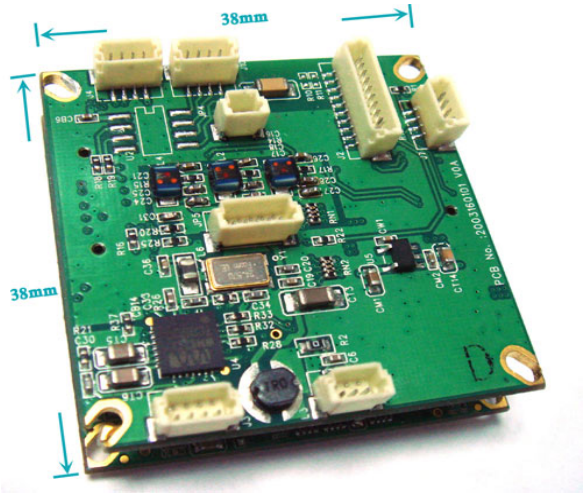
Video Server Module

Model : VS316m

User Manual



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For firmware version v020205

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1. Introduction

The VS316m video server module is designed with the “user-friendly” idea deep in mind. It translates the analog video to digital video and sends the video to internet. Because of the tiny-size(38mmx38mm) of the VS316m, it can be easily integrated into a CCTV camera to become an VS316m product or integrated with a box to become a video server. Free firmware and software for this video server module are provided.

The user can install the VS316m product easily on his/her network and then access the video anywhere in the world through the accompanied video management software-CamView without setting some complicated DNS name or changing the router’s settings. It’s just a plug & play action and trouble-free installation.

With 3GPP/ISMA support, users can see the video of the video server on any 3G mobile phone anywhere, anytime. The big difference is that there is software for downloading to the mobile phone so that the fixed IP address is not needed for the video server product. The video settings including frame rate, resolution and bandwidth could be different for PC monitoring and mobile viewing. Major 3G mobile brands including Nokia, Motorola, Sony-erricson, LG, Samsung and HTC have been tested.

For indoor/oudoor surveillance and remote monitoring, the VS316m product provides the best image quality in its class, and excellent performance. The VS316m product also provides the best bandwidth efficiency, it offers full D1(720x480 for NTSC, 720x576 for PAL) resolution, 30 fps frame rate, real MPEG4 image compression ability. The microphone interface enables remote users to not only see, but also listen for additional monitoring requirements.

The NAS storage function can easily turn any NAS device to a NVR device. The schedule function provides full scheduling of email/ftp sending, motion detection and NAS recording event. With the built-in Web server, the VS316m product can also be managed from a standard web browser on a Windows computer. With the ActiveX support, users can also see the video display on the Windows IE browser.

The VS316m product provides motion detection function. Users can easily setup this function and receive the notification with the snapshot images through email and/or ftp when some motion events are detected. Users can also record the motion-detected video through the CamView software.

The VS316m product is ideal for securing buildings, offices, factories, and residences over a local area network and/or the Internet.

The differences

It’s very easy to see the video of the VS316m product, you only need to key in the ID/Password of the VS316m any where in the world, you do not need to remember the IP address or domain name or DDNS name or port number. And you do not need to modify the settings(like port mapping, fixed IP, DDNS, virtual server) of the NAT/router devices, it’s just a plug & play usage.

So, the differences are the followings:

- **Public IP address needed ?** **No**
- **Dynamic DNS needed ?** **No**
- **Port mapping in router?** **No**
- **Virtual server in router ?** **No**
- **UPnP support in router ?** **No**
- **What’s needed ?** **ID and Password**

2. Hardware description and quick installation/usage

The VS316m product is designed to be very easy to install and use. First, let's see the major components of the VS316m products.

2.1. Major hardware connectors.

The major connectors on the **front panel** of the VS316m product are shown on fig.2-1. All the pin pitches are 1.0 mm. The position pointed to by the arrow is the pin#1.

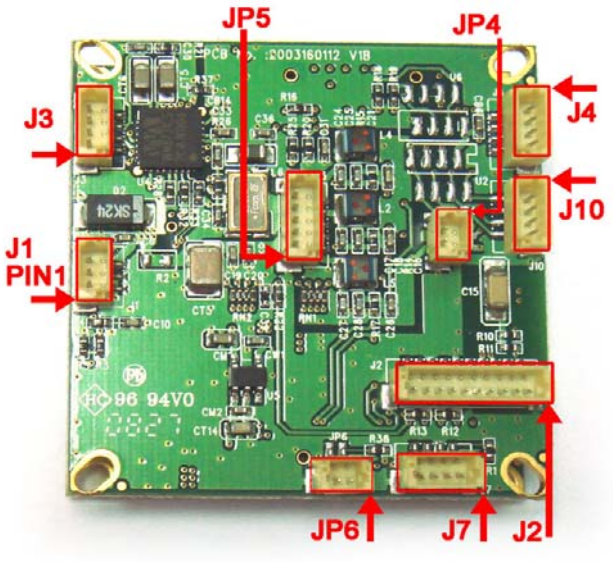

Figure 2-1: Major connectors in the front panel

Table 2-1. lists the pin assignment of all the connectors in Fig.2-1.

Connector no.	Pins	Name	Pin#	Description	Remark
J1	3	DC in	1	GND	Power input
			2	GND	
			3	DC 12V	

J2	10	Ethernet interface	1	TX-	Connect pin#1~4 to RJ-45 line#3~6
			2	TX+	
			3	RX+	
			4	RX-	
			5	Act-Led	
			6	GND	
			7	Link-Led	
			8	GND	
			9	Not used	
			10	Not used	
J3	4	Audio interface	1	Audio in	Audio out is for future usage, not implemented yet.
			2	GND	
			3	Audio out	
			4	GND	
J4	4	RS-232	1	Tx	Firmware debug usage only
			2	Rx	
			3	GND	
			4	3.3V output	
J7	4	Power-led, reset button	1	Power-Led	For reset the VS316m product to default factory settings
			2	GND	
			3	Reset	
			4	GND	
J10	4	RS-485	1	Tx+	For PTZ control
			2	Tx-	
			3	Not used	
			4	Not used	
JP4	2	Video output	1	Video output	CVBS video signal
			2	GND	
JP5	5	Video input	1	Video in	CVBS video signal
			2	GND	
			3	DC12V out	
			4	Not used	
			5	Not used	
JP6	2	Status Led	1	Led+	Indication of internet connection
			2	Led-	

Table 2-1. Pin assignment of the connectors in VS316m module.

2.2. Quick installation and usage

There are only three things that you need to do to see the video from the VS316m product.

1. Connect the VS316m product to the home/office network.
2. Install the CamView software on the notebook/PC.
3. Key in the ID/password of the VS316m product (from the ID/Password card) on the CamView, and then you can see the video.

First, Connect the VS316m product to the home/office network

Please connect the VS316m product to the home network or office network through an Ethernet cable. Usually, this Ethernet cable is plugged into a home NAT/router device or an Ethernet switch if in the office, as shown in Figure 2-2. Since the default settings of the VS316m product use DHCP function and very often there is a DHCP server on most of the Home/office network, the VS316m product should be connected to the Internet immediately. The Internet status LED is constant red light to indicate this good connection status. If the LED is blinking, please refer to section 3.3~3.4 to try other network settings.

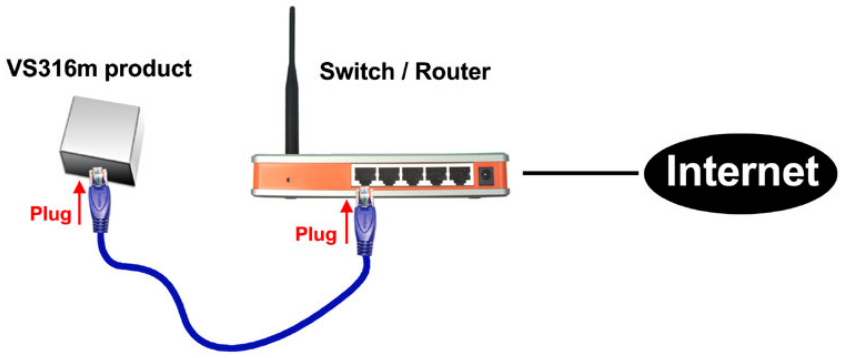

Figure 2-2: Connect Ethernet cable to a switch/router.

Second, Install the CamView software on the notebook/PC

Please insert the installation CD into the CD-ROM drive in your notebook or personal computer (must be running Microsoft Windows OS). Execute the program CamViewInstaller-xxx.exe on the disk. The program will pop-up some windows about the installation options, please press the “next” button to proceed with the installation. After the installation is complete, there will be a CamView icon on the desktop of your computer screen, please execute this icon. The CamView program will run

immediately.

Figure 2-3: The installation CD disk

Third, Use CamView program to see the video

Figure 2-5 is the running window of the CamView program. If the computer and VS316m product is connected to the same network, the VS316m product ID will be displayed in the “Auto Search” list. You can double click the “Auto Search” to search all the connected VS316m products any time. The only thing left right now for seeing the video is to double click the VS316m product ID item in the “Auto Search” list. For example, if the VS316m product ID is 001-001-029, you can then double click the 001001029 item in the “Auto Search” list to view the video. A window asking for password input will pop up. Please key-in the password in your ID/Password card into this field and click “ok”. The video will then be displayed on the window.

Figure 2-4: The ID/Password card

Notice :

1. You can modify this play-video password by entering into the web configuration pages. Please refer to section 3.5 for more information.
2. You can also add the VS316m product into the CameraList in the CamView software to have more convenient video display, please refer to the user manual of the CamView software for more functions.

Seeing the video in a remote location

After the VS316m product is installed and you can see the video from the

CamView software in the local network, it's very easy to see the video in a remote location. All you need to do is add a camera item in the "CameraList" folder of the CamView software, key in the VS316m product ID and Password(from the ID/Password card). And then double click this camera item. You will then see the Camera video immediately. No further NAT/router setting modifications are needed.

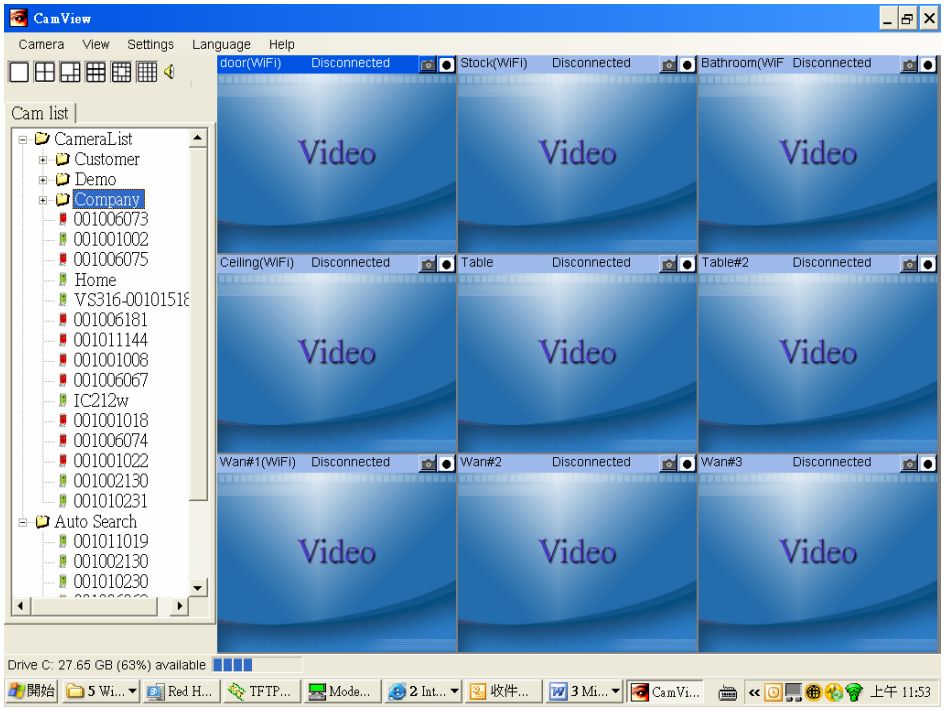

Figure 2-5: Running window of CamView program

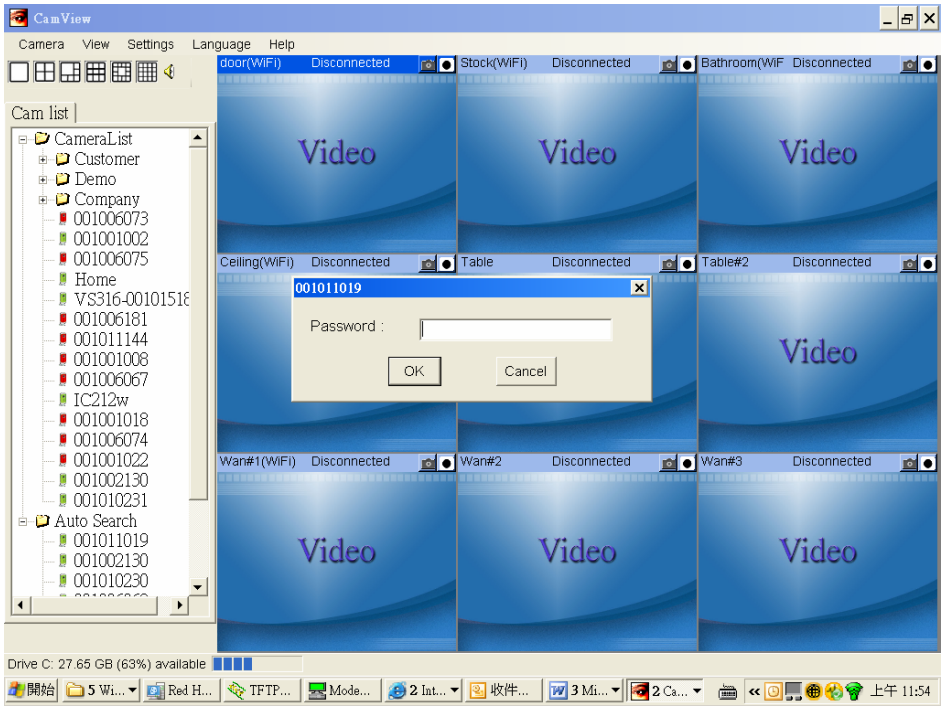

Figure 2-6: Pop-up play-video password window

3. Web configurations

You can login into the web configuration page by directly key-in the IP address of the VS316m product or right-click the searched VS316m product in the “Auto Search” list of the CamView software and click the “Web Configure” to open the login window of the VS316m product.

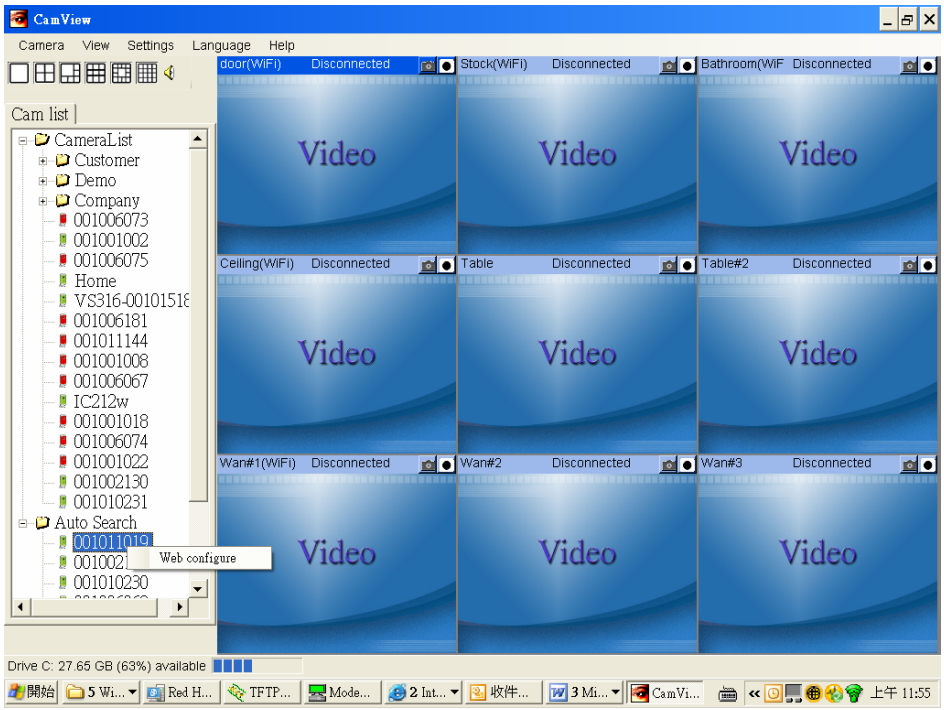

Figure 3-1: Open the web configuration page from CamView software

The default login account is “admin”, leave the Password field empty.

Figure 3-2: VS316m product Web configuration login page

3.1. Information

The first page of the web configuration of the VS316m product is the information page. You can see the model name/firmware version, VS316m product ID, registration status, network type and current video settings(bandwidth, resolution) in this page.

The VS316m product can be viewed remotely by the CamView software only when the VS316m product is registered. If this VS316m product is not registered, please check the Ethernet wiring of your network environment. The “Network type” field displays the network connection and method(DHCP, PPPoE or static ip) the VS316m product is running. The “Video users” field displays the number of connected video viewing users.

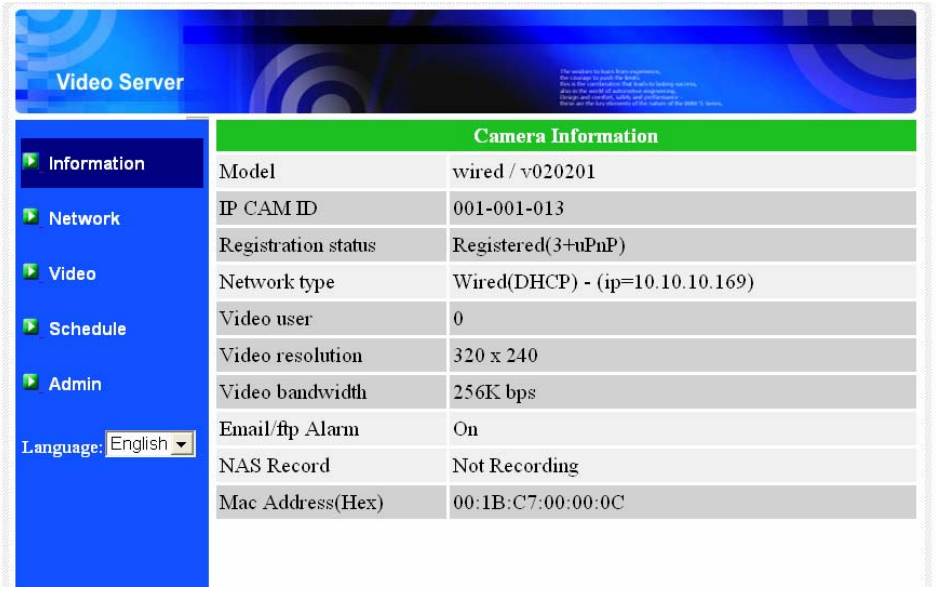

Figure 3-3: VS316m product Information page

3.2. Video Display

This display page allows you to view the video display of the video server product. For the first time use of this display on a computer, an activeX component will be automatically downloaded into the browser. This could take some time, depends on the internet speed. The component is downloaded from a public domain, so that the computer must be connected to the Internet.

If you want to modify the video display screen size, please refer to section 3.5 for more details.

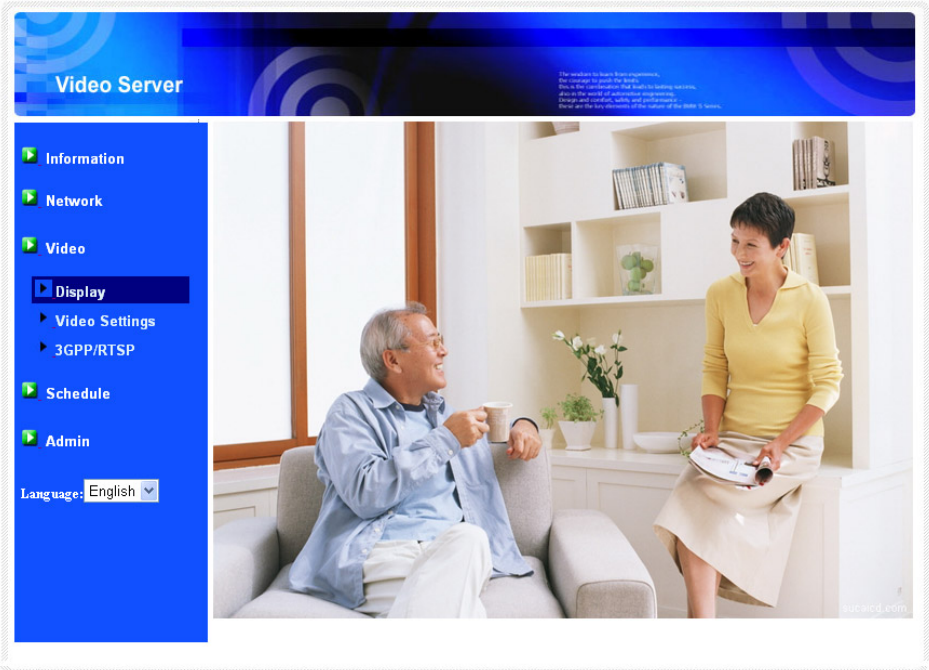

Figure 3-4: Video display page

When the RS485 function is enabled, the display page will show the PTZ control functions, as shown in Figure 3-5. Besides the pan/tilt/zoom/focus buttons, there are some more control functions :

1. Control by CamView – enable/disable the PTZ control function of the video server by CamView software.
2. Moving speed – the is to control the pan/tilt speed. Larger number means higher speed.
3. Go to preset – move to the pre-defined preset position.
4. Add preset – move the speed dome to the desired position, including pan/tilt position and zoom size, giving this position a name, and then press the “add” button to add this position as a preset point. There are totally 48 preset points allowed.
5. Delete preset – delete one of the pre-defined preset points.

6. Patrol settings – press the “patrol” button to edit the patrol tours. There are totally four patrol tours provided, each patrol tour can contain up to 48 preset points. The stay time of each patrol points could also be edited. As shown in Figure 3.6.
7. Start patrol – press the play button to start the patrol.
8. Stop patrol – press the stop button to stop the patrol.

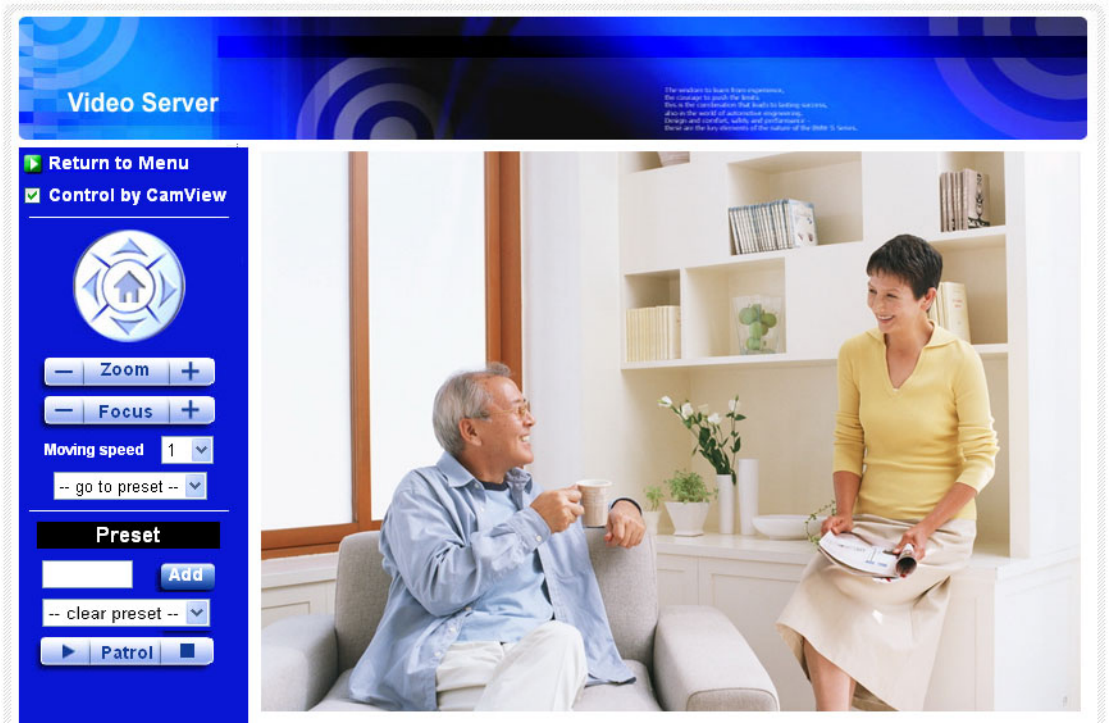

Figure 3-5: Video display page when the RS485 function is enabled.

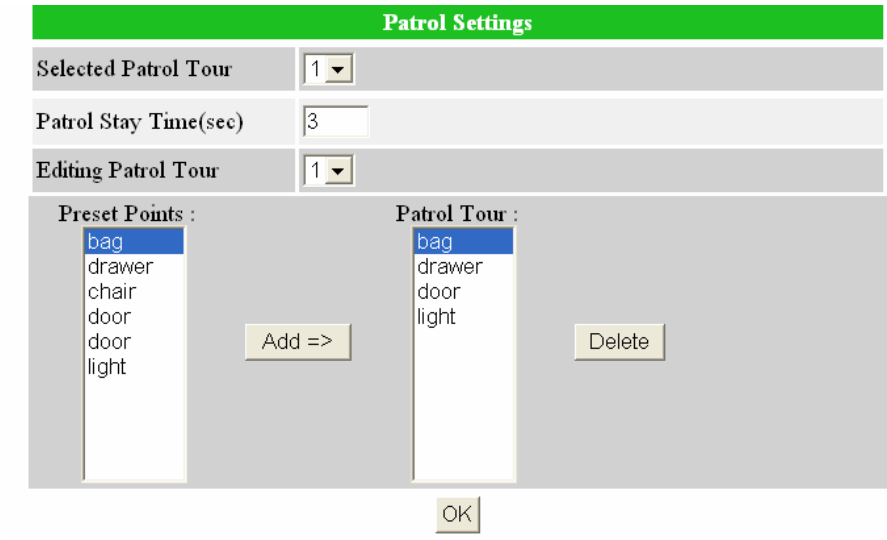

Figure 3-6: Patrol settings page.

3.3. Network

The Network page allows you to modify the network settings of the wired Ethernet. The default settings use DHCP to obtain an IP address automatically. In most of the home and office network environment, there is a DHCP server running. In this situation, by using this default settings, the VS316m product can work immediately in most of the time.

If the Ethernet cable is unplugged, the VS316m product will lose connection. But as soon as the Ethernet cable is plugged in again, the VS316m product will obtain a new IP address immediately.

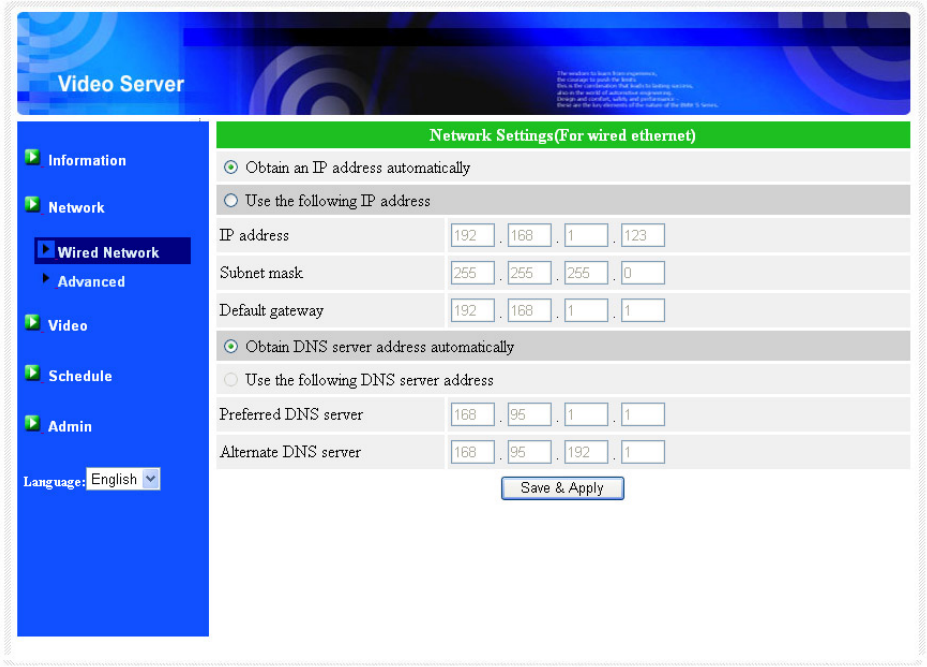

Figure 3-7: Network settings page for DHCP function

If the network environment does not support DHCP function, you will need to set the network settings of the VS316m product manually. Please fill all the fields including “IP address”, “Subnet mask”, “Default gateway” and “DNS server” to let the network work. All these settings must be correct for your network environment, otherwise the VS316m product can not work.

The default setting is “Obtain an IP address automatically”.

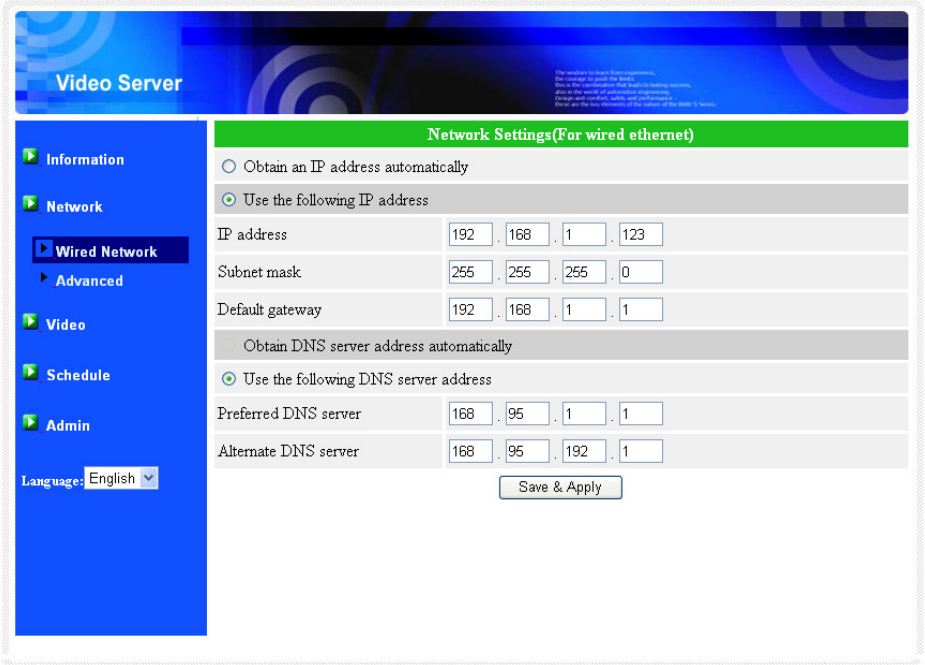

Figure 3-8: Network settings page for fixed IP address

3.4. Advanced Network

In some special situation, your network environment only provides PPPoE connection(ADSL service), there is no NAT/router available. You will then need to set the PPPoE settings in the “Advanced Network” page. Only the PPPoE username and password are needed to let PPPoE work. After the “Save&Apply” button is pressed, the PPPoE function will work immediately. You can check the “Registration status” in the “Information” page to see if the VS316m product is registered using the PPPoE connection.

Please be noticed that the DHCP or static IP settings in the “Network” page can work together with the PPPoE connection. Only that the PPPoE has higher priority, so, if the PPPoE is working, the VS316m product will use PPPoE to connect to the Internet.

The default setting is “Disable PPPoE”.

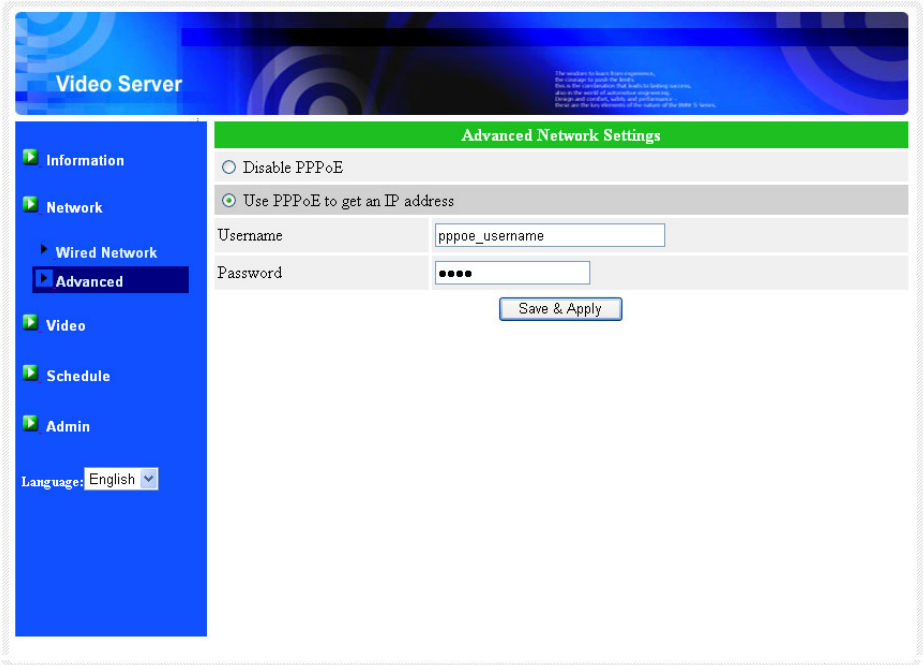

Figure 3-9: Advanced network settings page

3.5. Video Settings

The VS316m product is designed to provide high quality video for viewing from CamView software. In this page, you cam modify some settings related to the video viewing:

1. Password(play video) – this is the password needed for viewing the video from the CamView software. Together with the VS316m product ID, you can view the video of this VS316m product anywhere in the world through the Internet.
2. Internet speed – this is the Internet bandwidth of your network environment. Higher value will generate higher video quality. But if your internet connection can not provide more bandwidth than the specified value, the video quality could degrade. So, please key in a value that is lower than your internet bandwidth.
3. Select resolution & frame rate automatically – you can let the system select the suitable video resolution and frame rate automatically for you. The selection is based on the “Internet speed” value. This is the recommended default setting.
4. Resolution – there are three choices : 160x120, 320x240 and 640x480. If you decide to choose the value manually, you can choose one of the three values. But, please be noticed that if the Internet speed is slow(low value), high resolution(640x480) or frame rate could cause very bad video quality.
5. Frame rate – the video frame display rate. Higher value means faster movement and continuity in the video display.
6. Favor/Preference – choose between “Video motion” and “Image quality”. When the real bandwidth is not enough for the selected “Internet speed”, the system will need to degrade the video motion or image quality. This selection will decide if the user want to maintain the “video motion” or “image quality” when the internet speed is not good enough.
7. Brightness – the brightness of the video, lower value means darker display.
8. NTSC(60 Hz)/PAL(50 Hz) – depends on the different video signal input, users can choose the NTSC or PAL video system. The resolution will be changed according to the selected video system.
9. Enable/disable audio microphone – you can enable or disable the audio microphone on the VS316m product. If disable, there will be no voice on the CamView video viewing.
10. Enable/disable time display on video – the current system date/time could be displayed on the left corner of the video if this selection is enabled.

When this modification is “Save&Apply”ed, it works immediately, but all the connected video viewing users will be disconnected.

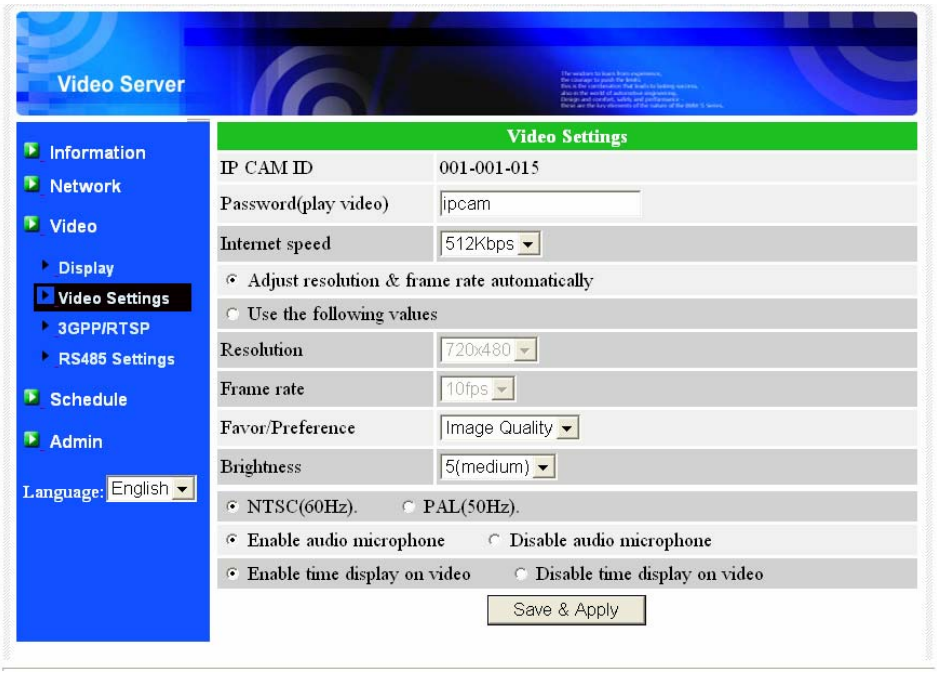

Figure 3-10: Video settings page

3.6. 3GPP/RTSP settings

The VS316m product is able to be viewed from a 3G mobile phone, for detailed settings on the 3G mobile phone, please refer to Appendix E.

Users can disable the 3G mobile access ability in this page. After the 3GPP/RTSP feature is disabled, no 3G mobile phone is allowed to access the video of the VS316m product. When this is disabled, the rtsp stream with MPEG2 audio is still working, please refer to Appendix F for more details about rtsp stream with MPEG2 audio.

When the 3GPP is enabled, the video frame rate, resolution and bandwidth for 3G mobile access could be set independently from the video settings for CamView(PC) access. The maximum allowed resolution is 352x255 and maximum allowed bandwidth is 256 kbps. When the audio is enabled for both 3GPP and CamView(PC) and the video/audio is displayed in CamView, the audio will be disabled in 3G mobile display.

The “Access URL” line is the url address for 3G mobile phone to input for seeing the video of the VS316m product. Different 3G mobile may need to input this url in different way, detailed information could be found in the user manual of different 3G mobiles. Please be noticed that usually public IP address is needed for the VS316m product, so that the 3G mobile could access the VS316m product’s video.

The default setting is “Enable 3GPP/RTSP”.

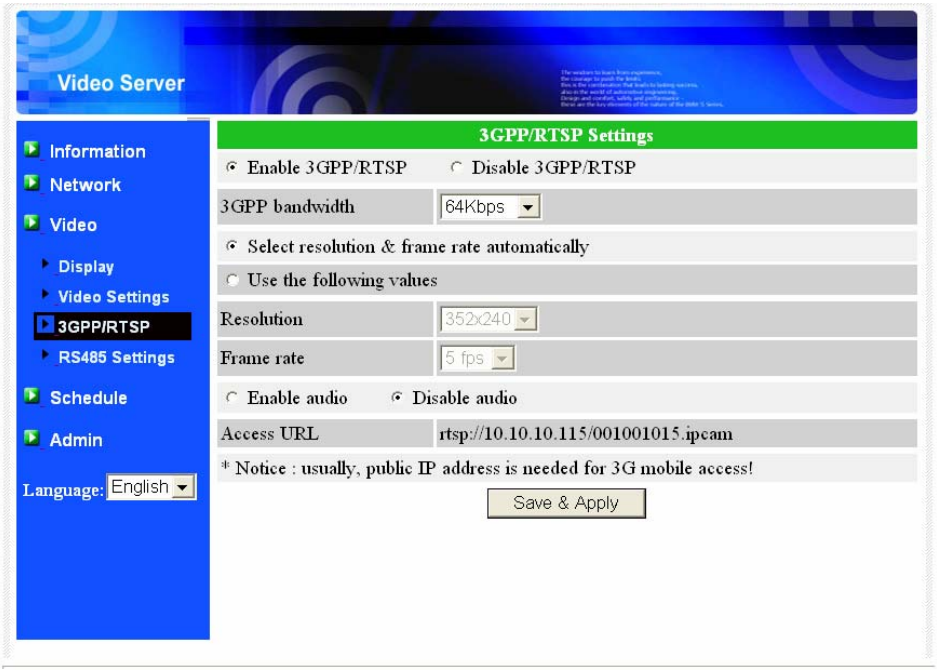

Figure 3-11: 3GPP/RTSP enabled page

3.7. RS485 settings

The video server product provides the RS485 interface for speed dome control. The supported protocols are Pelco-P and Pelco-D. When connecting the video server to the speed dome, better using the twisted-pair cable and the polarity of the connection must be correct.

1. Enable/disable RS485 control – this is to enable the RS485 control. When this is enabled, the PTZ control function will be enabled.
2. RS485 protocol – select the Pelco-P or Pelco-D protocol.
3. Camera Address – the camera address of the controlled speed dome.
4. Baud rate – the data rate of the control signals for controlling the speed dome.

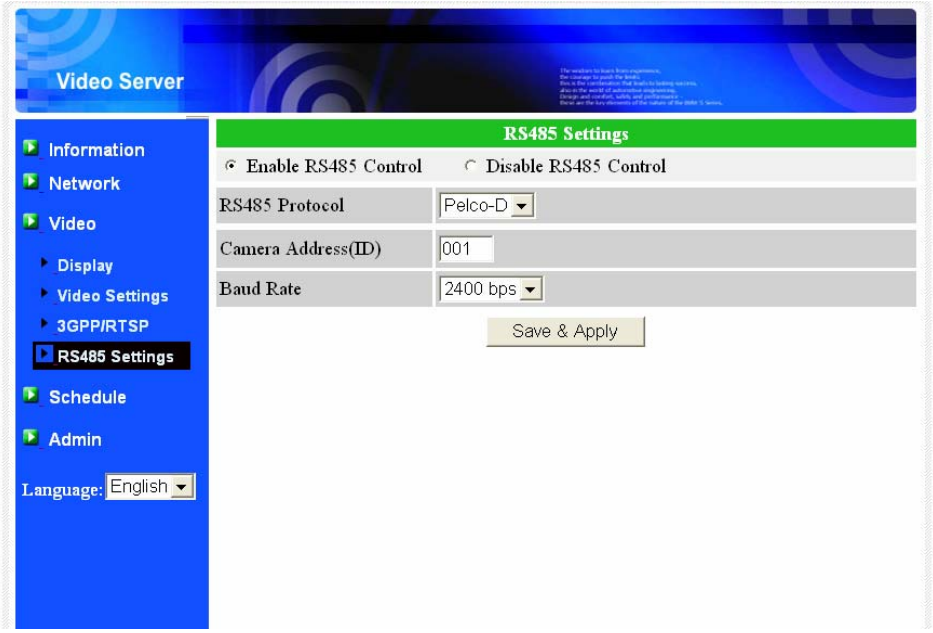

Figure 3-12: RS485 settings page

3.8. Email/ftp Alarm

The VS316m product provides the Email/ftp function, you can enable or schedule the Email/ftp ability in this page, the VS316m product will then send out an email with a jpeg picture attached in the email and/or send out the jpeg picture file to a ftp server. The related settings are explained below:

1. Email/FTP trigger – choose between “motion”, “D/I”, “schedule” and “disable”
   A. If “motion” is selected, it means that when there is a motion detected, the system will send out the email and/or ftp with the captured video snapshot.
   B. If “D/I” is selected, it means that when there is a Digital input alarm detected, the system will send out the email and/or ftp with the captured video snapshot. If the D/I alarm is constantly on, the IP camera will keep sending out email/ftp message every second for up to 30 seconds.
   C. If “schedule” is selected, it means that the email/ftp alarm detection and triggering will be scheduled by the “scheduling” in section 3.9.
   D. “disable” will disable the email/ftp alarm.

2. Motion sensitivity – there are three possible choices in this field.
   “High” means high sensitivity, i.e., the detection is triggered by a very small movement in the video image. If “High” is selected and the size of the moving object is larger than about 1% of the whole video area, it is detected. Please be noticed that the real size of the object could be large or small, anyway, the detection is only based on the relative size of the object. Probably a small pencil moving near the VS316m product could be detected, but a moving car far away from the VS316m product could not be detected.
   “Low” means low sensitivity, i.e., the detection is triggered by a very large movement. If the size of the moving object is larger than about 10% of the whole video area, it is detected. “Median” means 3% to trigger the detection.
3. Send email message – if this item is enabled, the VS316m product will send out an email message with the jpeg picture attached to the specified email account.
4. Email recipient – this is the email address to receive the detection notice message. An email message with the jpeg picture file named by the date/time of the triggered moment will reach this address.
5. SMTP server – this is the SMTP server that will help to transfer the email message. This server is irrelevant to the “Email recipient” address.
6. SMTP username/password – this the account to use the SMTP server to transfer the email message. The SMTP server and username/password account are only for transfer the email message to the “Email recipient”, the “Email recipient” could be on another email server or any reachable email address. The username and

password fields could be left empty if no authentication is needed for the SMTP server.

7. Send FTP message – if this item is enabled, the VS316m product will send out a jpeg picture file to the specified ftp account.
8. FTP server – this is the FTP server address to receive the jpeg file.
9. FTP username/password – this is the username/password to login into the FTP server, so, this triggered jpeg file will be allowed to reach this FTP server.
10. Remote folder – the jpeg file will be put under this folder of the FTP server.

When this modification is “Save&Apply”ed, it works immediately, but all the connected video viewing users will be disconnected.

The default setting is “Disable”.

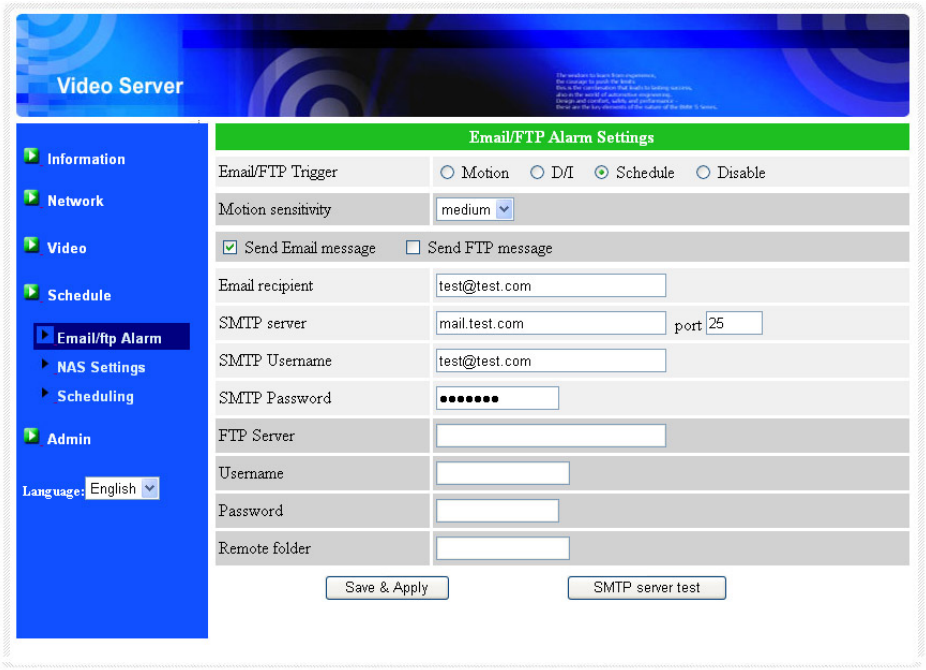

Figure 3-13: Email/FTP Alarm page

3.9. NAS settings

The IP Camera provides the recording of the video files into a standard NAS (Network Access Storage) device. The IP camera connects to the NAS device using the standard LMX_NS/CIFS/SSN protocols that are the same as the Microsoft Windows network neighborhood protocols. This makes the IP camera easily record the video files to all the standard NAS devices in the market. Since there are a lot of different choices, including prices and scales, users can decide by themselves which is best for their needs. By using this function, the standard NAS device is becoming a NVR (Network Video Recorder) device.

Notice : when the IP camera is doing NAS recording, this is counted as one video user. Please refer to appendix B about allowed maximum video users.

1. If the “Always Recording” is selected, the system will start to record to the NAS storage device immediately and keep recording always. If the “Schedule Recording” is selected, the system will do the NAS recording according to the “scheduling” in section 3.10. “Disable Recording” will disable this NAS recording.
2. When doing the NAS recording, the system will check the free disk space of the NAS device. If the free disk space is less than the specified number, the system will do “Circular recording”(overwrite the oldest recorded files of this ip camera in the NAS device) or “Stop recording” as selected. If the “keep recorded video for xx days” is selected, the system will do circular recording and over write the recorded video files older than xx days ago.
3. The IP camera can connect to the NAS device by using the “NAS name” or “NAS IP address”. If the NAS device and the IP camera are in the same local area network, the IP camera can automatically locate and connect to the NAS device by the “NAS name”. If the NAS device uses a fixed IP address(either in the local area network or in the public internet), the IP camera can connect to it by the “NAS IP address”.
4. The “Shared folder name” is the folder in the NAS device that will record the video files of the IP camera.
5. The “NAS access account” and “NAS access password” are the username and password to login into the specified “Shared folder name” of the NAS device.

In the Microsoft Windows environment, you can access to the NAS device by keying the URL address \\”NAS name”\”shared folder name” or \\”NAS IP address”\”shared folder name” in the windows Internet Explorer, and then key in the “NAS access account” and “NAS access password” to the prompted login window. The video files are recorded under the subfolder IPCamRecordFiles/Recording/ID-ID,

where ID is the ID of this IP camera. All the recorded files are with the name of hhmmss.crf format, where hh is the hour, mm is the minute, ss is the second of the starting time of the recording video. The files are segmented every five minutes. Users can use the free bundled CamPlay software to play back the video files.

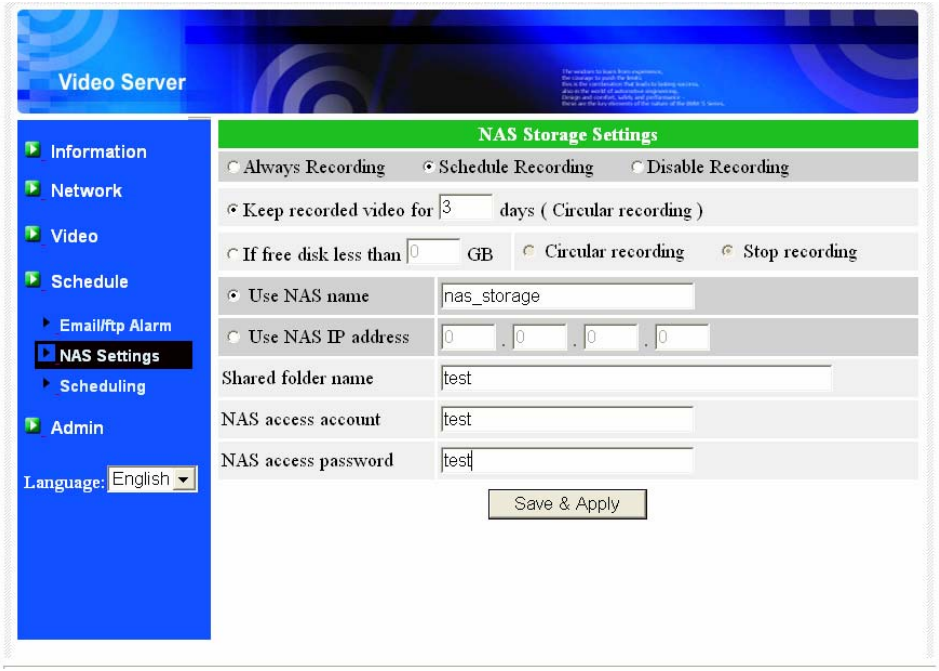

Figure 3-14: NAS Storage Settings page

3.10. Scheduling

The IP Camera provides the scheduling function for the motion detection triggered email/ftp sending and/or the NAS recording with the individual parameters set in the . “Email/ftp alarm” settings and the “NAS settings” page. Totally 12 schedule list items are allowed. There is no conflict check for the scheduling, it means that the scheduling time could be overlapped, and the IP camera will do all the scheduled events during the overlapped time period. For the scheduling of the Email/ftp sending and/or NAS recording, the “Schedule” option must enabled in the “Email/ftp alarm” settings and/or the “NAS settings”.

1. Schedule list – all the scheduling are listed in this area. Each listed item can be modified or deleted by pressing the “Edit” or “Delete” button.
2. Email/ftp Alarm – for each scheduling, if this is selected and the “Motion triggered” and/or “D/I triggered” is enabled, the IP camera will trigger the email/ftp sending in the scheduled time period when the video motion is detected and/or digital input alarm is detected.
3. NAS Record – for each scheduling, if this is selected, either “Continuous” or “Motion triggered” or “D/I triggered” could be enabled. For “Continuous”, it means that the IP camera will do the video recording to the NAS device during the whole scheduled period. For “Motion triggered” and/or “D/I triggered”, it means that the IP camera will do the video recording to the NAS device for 30 seconds during the scheduled period each time when the video motion is detected and/or digital input alarm is detected.
4. For the scheduling period, can choose between “Every week”, “Every day” or “Fixed time” :
    A. For “Every week”, can choose week days of the week and set the time duration of each day.
    B. For “Every day”, can set the time duration of every day for the scheduling.
    C. For “Fixed time”, can set the starting date/time and the end date/time of the scheduling period.

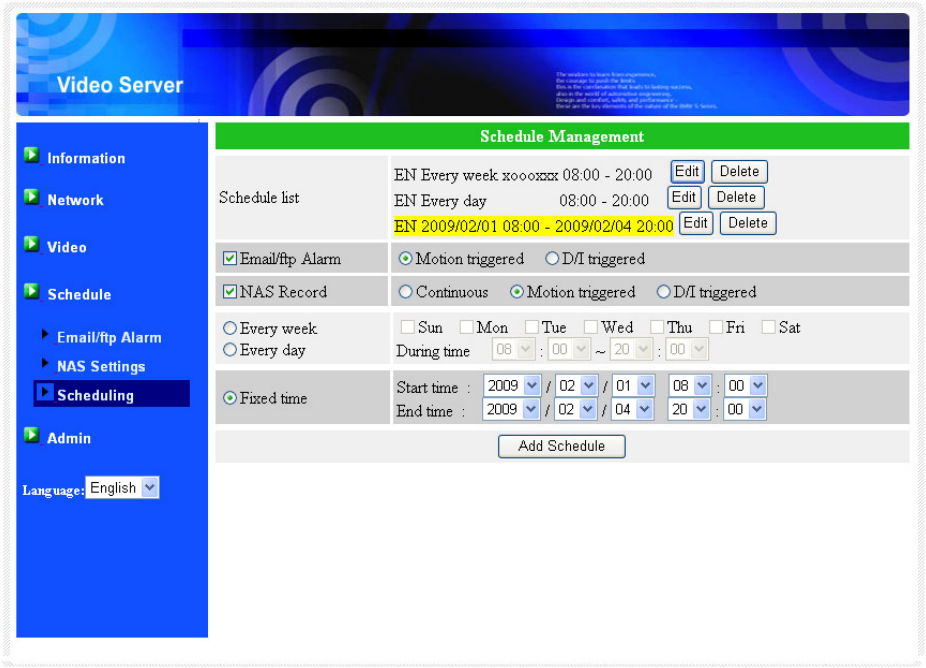

Figure 3-15: Schedule management page

3.11. Led Display Control

The VS316m product provides the Led Display Control function, you can enable or disable the led display/indication of the VS316m product device. The related settings are explained below:

1. Normal led display – select this to enable the status led and ethernet led display.
2. Turn off led display always – select this to disable the status led and ethernet led display.
3. Turn off led display after network connected – select this then the led will display when the Internet connection has some problem, the led display will be off when the Internet connection is successful.

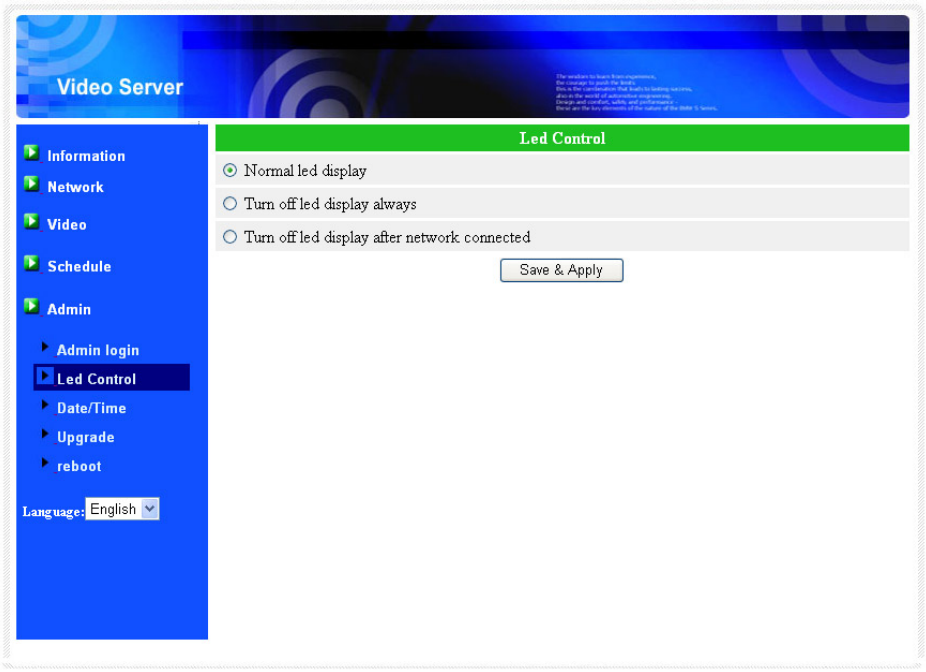

Figure 3-16: Led Control settings page

3.12. Date/Time

The VS316m product can synchronize the date/time with the universally available time server(for example stdtime.gov.tw) through NTP protocol. The date/time will then be corrected with the time server anytime when the Internet is connected.

Users can choose the different TimeZone of their areas to display the correct time. For some TimeZone areas, the “Daylight Saving Time” could be enabled or disabled. When the “Daylight Saving Time” is enabled, the start and stop time of the Daylight Saving Time could be edited.

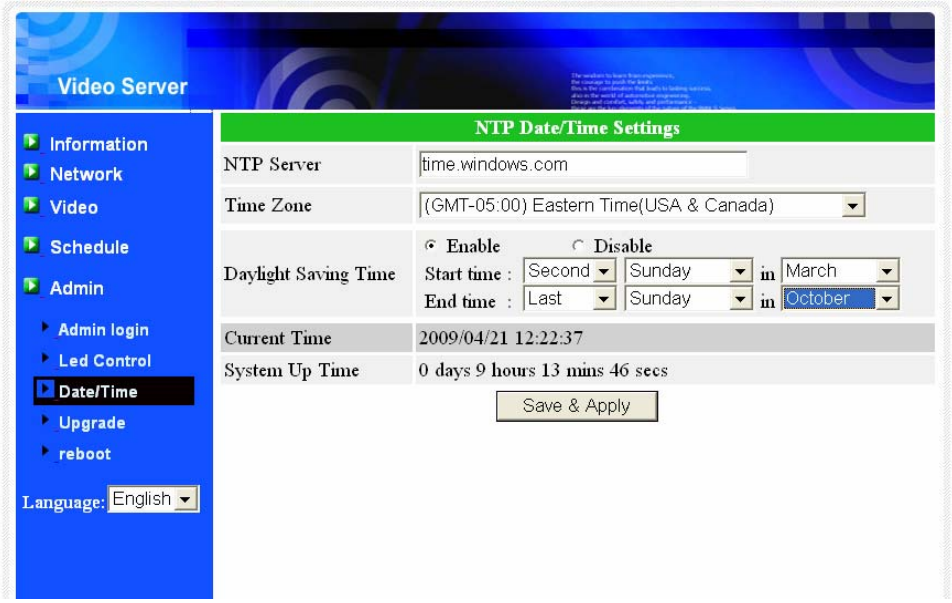

Figure 3-17: System date/time settings page

3.13. Admin

In this page, you can modify the web login account. With this account, you can login to the VS316m product and do any modifications. The default account is “admin” without password. If the login account is forgotten, you can reset the VS316m product to the factory default settings by following the steps in section 3.14 and login with the “admin” account.

Please be noticed that this account is different from the video play password in the “Video settings” page.

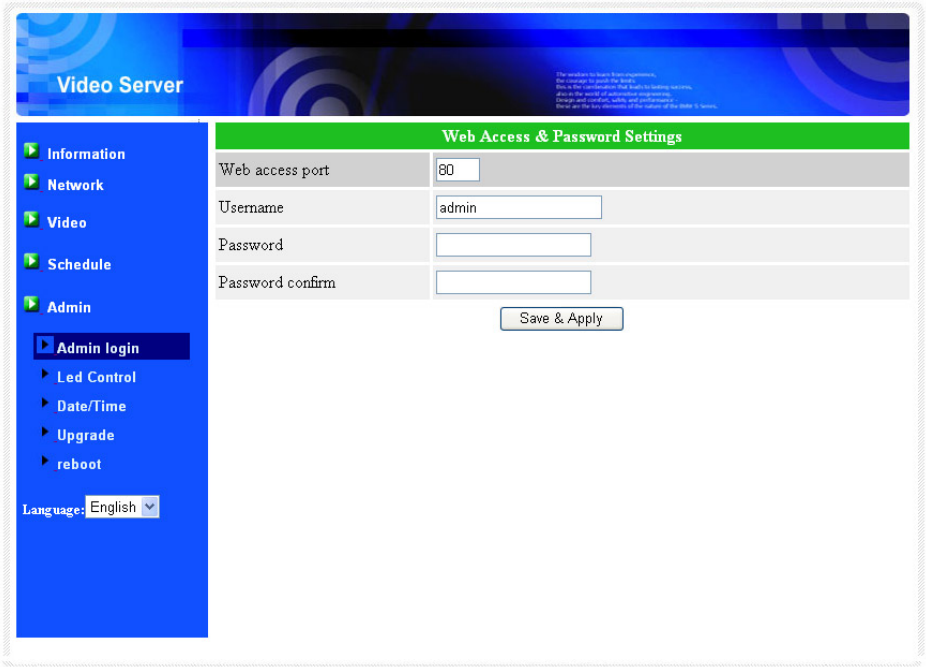

Figure 3-18: Admin settings page

3.14. Upgrade

If there is some new firmware available from the supplier of this VS316m product, you can upgrade the firmware on this page. Please ask for the correct information about FTP server, username/password account and firmware filename from your supplier, and then do this upgrade. A status message about the percentage done in the upgrade procedure is displayed. Please be noticed that during the upgrade procedure, do not power off the VS316m product, otherwise, the VS316m product could probably enter into the safe mode(section 3.13). After the upgrade procedure is finished, the system will restart automatically.

You can upgrade from the ftp server or from the local file in your computer.

During this upgrade procedure, do not try to modify other settings or view the video.

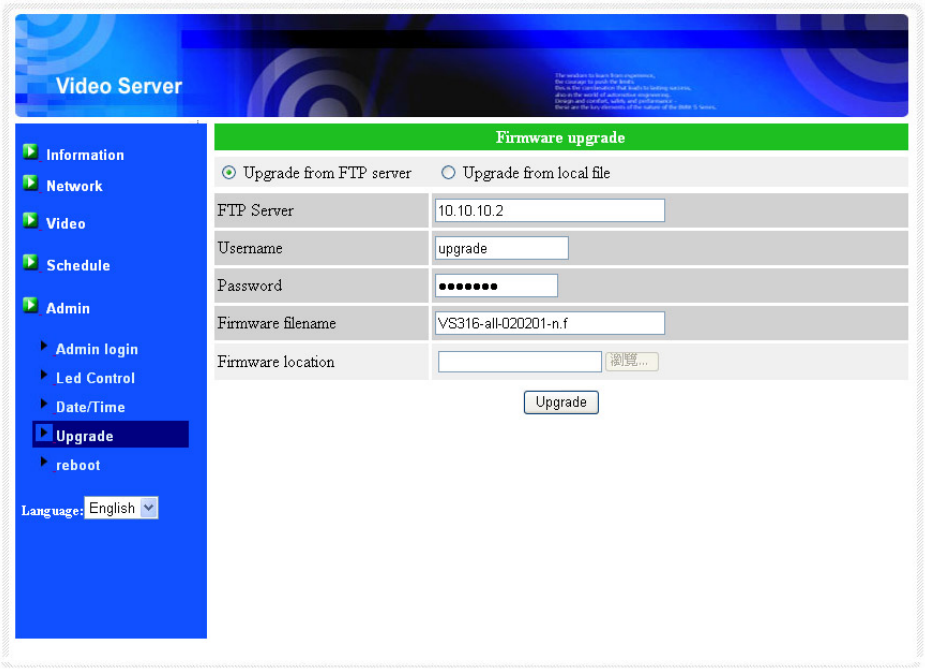

Figure 3-19: Firmware upgrade settings page

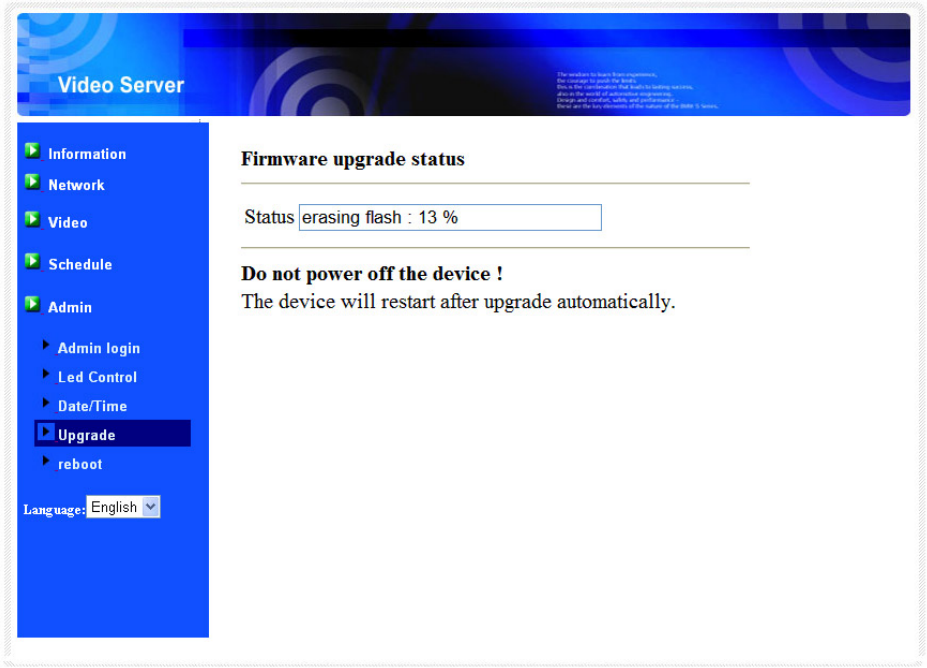

Figure 3-20: Firmware upgrade status page

3.15. Reboot

You can restart the VS316m product manually on this page. All the connected video viewing users will be disconnected.

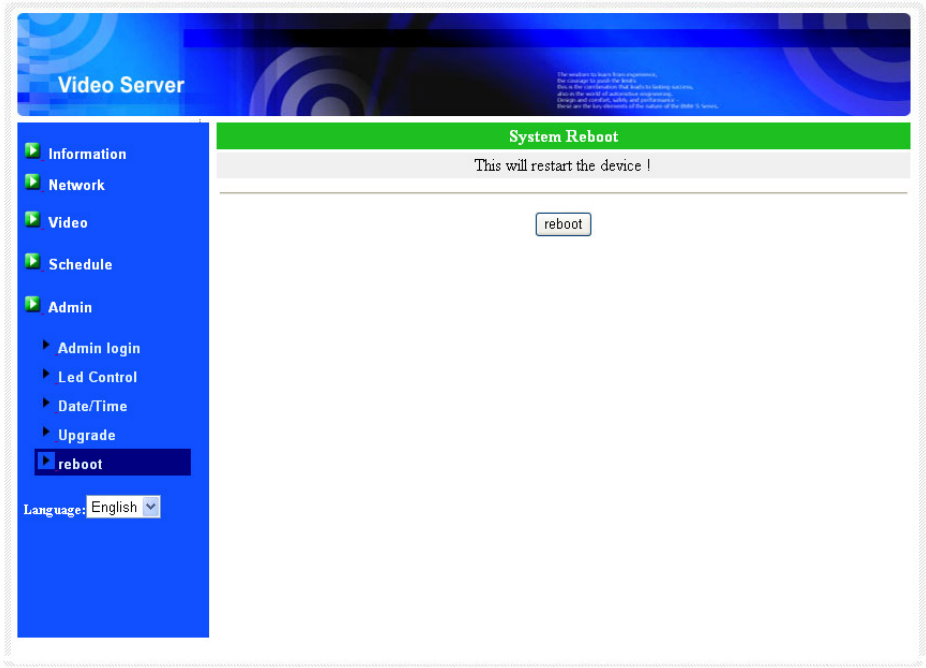

Figure 3-21: System reboot settings page

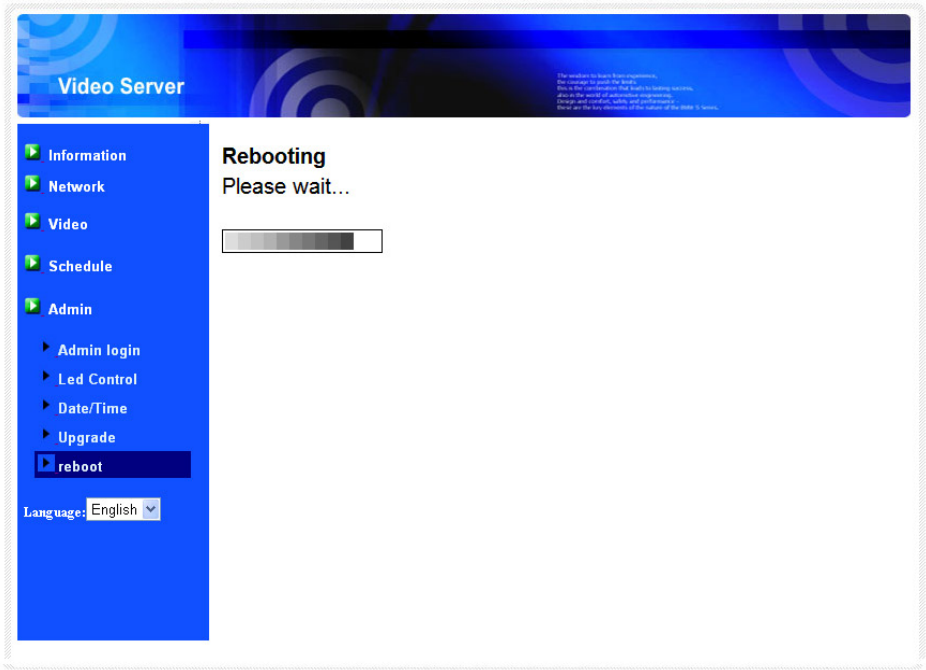

Figure 3-22: System reboot under-going page

3.16. Safe Mode

If by some abnormal operation, for example, powered off during the critical point of the upgrade procedure, the VS316m product will enter into the safe mode. In this mode, you will see the following “Safe mode” page when login into this VS316m product. Please do the upgrade operation immediately to recover the system. On this safe mode, the VS316m product can not display the video on the CamView software, but you can still find this VS316m product on the “Auto search” list.

The steps to recover from “safe mode” are the followings :

1. Use CamView to locate the VS316m product by clicking the “Auto Search” item on the CamView software.
2. Login into the web configuration page of the VS316m product.
3. Upgrade the firmware from the “Upgrade” page.

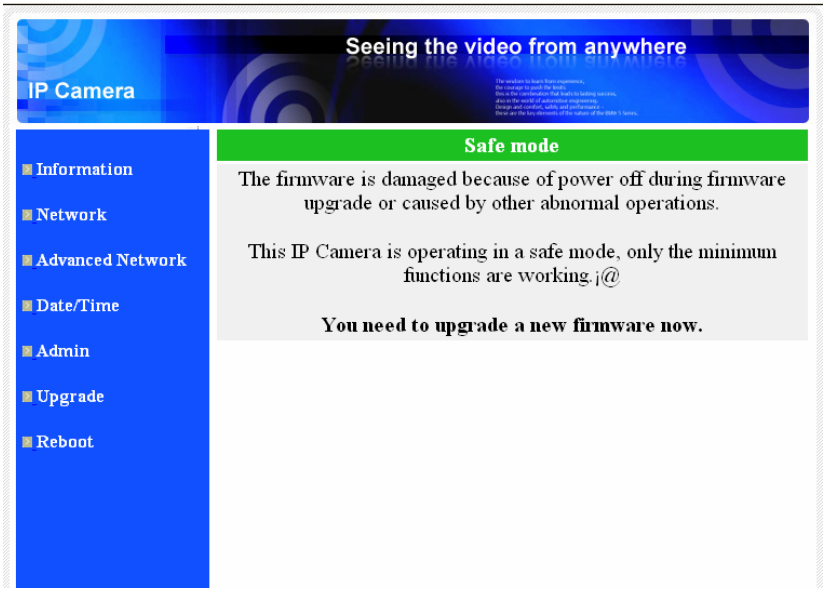

Figure 3-23: Safe mode information page

3.17. Set to factory default

For some reason, for example you forgot the web login password, you may want to set the VS316m product to the factory default settings. The only thing you need to do is pressing the “reset” button of the VS316m product for more than **4 seconds** and release it, do this when the VS316m product is powered on. The VS316m product will reset to the factory default settings and restart automatically.

The web login account will be “admin” (no password), the play-video password will be “ipcam” after reset to factory default.

4. Features and specifications

4.1. Features

- Translate analog video to digital MPEG4 video for internet transmission.
- Easily access the video from anywhere in the world via the ID/password (Through accompanied video management software, no complicated DNS settings needed)
- 3GPP/ISMA support
- Dual video streaming with separate frame rate/resolution/bandwidth settings for PC and mobile.
- Connect up to 20 users simultaneously
- Supports enhanced MPEG-4 compression
- Supports resolution of up to full D1 at 30 fps.
- Supports Pelco-P and Pelco-D through RS-485 for PTZ control.
- Supports NTSC and PAL video input.
- Free video management software CamView accompanied for easy access and multi-videos management.
- View video from your local or internet network
- ActiveX video display in Microsoft IE browser.
- Motion Detection recording and E-mail/FTP snapshot notification
- Synchronize the system time through NTP protocol.
- Built-in Web server for managing via standard web browser.
- Built-in microphone interface for synchronized audio play-out.
- Event scheduling.
- NAS storage access.
- Online Firmware upgrade, will enter safe mode when power is off during critical firmware upgrade point.
- Watchdog function to prevent system failure.

4.2. Specifications

Models	VS316m
Power	Input DC 12V, 200 mA, provide another output interface for external usage.
Network interface	Ethernet 10BaseT/100BaseTX, Auto-MDIX, RJ-45
Video interface	1 analog video input and 1 analog video output CVBS composite, 1.0Vp-p with 75 ohm loading
Serial interface	1 RS-232 interface for firmware debug usage 1 RS-485 interface for pan/tilt control, support Pelco-P, Pelco-D protocol.
Rest button interface	One reset button interface, to factory default settings
Led Indicator interfaces	1 LED interface for internet connection status indication 1 LED interface for Ethernet connection indication Enable/disable – web configurable
Processors	RISC CPU, hardware video processing and compression.
Video compression	MPEG-4 Part 2 (ISO/IEC 14496-2) with motion detection. profiles: Simple Profile, level 0-3
Frame rate	Up to 30 fps in all resolutions
Video streaming	MPEG-4 Separate frame rate/resolution/bandwidth settings for PC and mobile.
Video settings	Resolution: D1(720x480 for NTSC, 720x576 for PAL), CIF(352x240 for NTSC, 352x288 for PAL), QCIF(176x120 for NTSC, 176x144 for PAL) Bandwidth : 64k, 128k, 256k, 512k, 768k, 1M, 1.2M, 1.5M bps Frame rate : 1~5, 10, 15, 20, 25, 30 fps
Audio	Built-in microphone for audio monitoring Audio compression: MPEG2 audio, AMR-NB for 3GPP/ISMA(RTSP streaming)
Security	Web management username/password protection Video display ID/password protection

Video Server Module VS316m

Installation, management and maintenance	Installation tool on CD and Web-based configuration Automatic configuration backup and restore Video management software-CamView for video access and multi-camera management Firmware upgrades via FTP
Minimum Web browsing and management software requirements	Built-in web server for standard web browser access Pentium 4(or equivalent AMD) CPU 1.0 GHz or higher, 1 GB RAM
Supported protocols	IPv4, HTTP, TCP, ICMP, RTSP, RTP, UDP, RTCP, SMTP, SNTP, FTP, DHCP, ARP, DNS, PPPoE, etc.
Video management software	Surveillance application for viewing and archiving up to 16 cameras
Users	Up to 20 simultaneous unicast users (depends on video settings)
Alarm and event management	Events triggered by video motion detection Notification/upload of JPEG images over FTP and/or email
Dimensions (HxWxD) and weight	15 x 38 x 38 mm, 18 g
Operating conditions	0-50 °C Humidity 20 - 80% RH (non-condensing)

Appendix A. List of Tested NAT/router Devices

The followings are the list of tested NAT/router devices that can work with the VS316m product and CamView software when viewing in a remote location. You do not need to do any modification on the default settings of the NAT/routers. In some office environment, if some strict firewall function is enabled, it's possible that you can not view the VS316m product video through the firewall router. In this situation, please contact your MIS person to solve the problem.

Brand name	**Model name**
Asus	WL-550gE
Belkin	P5D7230-4
Buffalo	WHR-G54S
Buffalo	WHR-HP-G54
Corega	CG-WLBARGO
D-Link	DI-524
LanTech	WL54G-BR
Linksys	WRT54G
Netgear	WNR834B
PCi	BLW-HPMM
SMC	SMCWBR14-G2
ZyXEL	P-334WH

Table A-1: List of tested Wireless AP/router devices

Brand name	**Model name**
AboCom	CAS5047
ASUS	RX3041
Buffalo	BBR-4HG
Corega	CG-BARSD
DLink	DI-604
Edimax	BR-6104K
LanTech	HR-114Pro
Lemel	LM-IS6500
PCi	BRL-04R
ZyXEL	Prestige-334

Table A-2: List of tested Wired NAT/router devices

Appendix B. Maximum Allowed Video Users

The maximum allowed video users for a single VS316m product at the same time is dependent on the video settings including “Internet speed” and resolution. The followings are the summary of the maximum allowed video users:

Notice : when the IP camera is doing NAS recording, this is counted as one video user.

1. **When audio is disabled.**

For video resolution of 176x120 or 176x144 pixels

Frame rate\bandwidth	64k ~ 512k	1M ~ 1.5M
5fps ~ 30 fps	20	4

For video resolution of 352x240 or 352x288 pixels

Frame rate\bandwidth	64k ~ 256k	512k	768k	1M ~ 1.5M
5fps ~ 30 fps	20	18	9	4

For video resolution of 720x480 or 720x576 pixels

Frame rate\bandwidth	512k	768k	1M ~ 1.5M
5fps ~ 30 fps	8	6	4

2. **When audio is enabled.**

For video resolution of 176x120 or 176x144 pixels

Frame rate\bandwidth	64k ~ 256k	512k	1M ~ 1.5M
5fps ~ 30 fps	20	14	4

For video resolution of 352x240 or 352x288 pixels

Frame rate\bandwidth	64k ~ 256k	512k	768k	1M ~ 1.5M
5fps ~ 30 fps	20	12	8	4

For video resolution of 720x480 or 720x576 pixels

Frame rate\bandwidth	512k	768k ~ 1.2M	1.5M
5fps ~ 30 fps	6	4	3

Appendix C. Performance Information

1. Video Performance Information

The video quality is dependent on the video parameter settings and the network quality. If you want to have a better video quality, you will usually set higher resolution and higher frame rate. This is fine when you are viewing the video locally in the same network. But when you want to see the video remotely through the Internet, you need to know the Internet speed (bandwidth) connected to your home network. If the “Internet speed” setting of your VS316m product is very large, but your real Internet speed (bandwidth) is relatively low, the video quality could be very bad. In some worst case, the video display could be disconnected. In order to have the best video quality, you better have broadband service from your ISP and set the “Internet speed” of the VS316m product a little lower than the real Internet speed provided by your ISP.

Also need to notice that when multiple users are displaying the videos from the same VS316m product at the same time, the video bandwidth times number of users will be needed for the Internet speed.

Appendix D. Trouble shooting

1. What's going on when the red led light on the VS316m product is flashing?

A: When the VS316m product is connected to the Internet and working correctly, the red led light will be on constantly. If the red led light is flashing, it's probably because there is some network connecting problem. Please check the network connection again and follow the instructions on the user manual to set it up again.

2. What's the viewing angle of the VS316m product?

A: The viewing angle of the VS316m product is dependent on the connected lens.

3. What's the longest distance using the VS316m product to see the video?

A: When using the VS316m product to see a long-distance object, whether it's clear or not depends on the size of the object. Usually when your eyes can see something clearly in that distance, the VS316m product can also see that object clearly in about the same distance.

4. What should I do if the password is forgotten, and the ID/password card is missing?

A: The easiest way to solve this problem is to reset the VS316m product to the factory default. Please stick on the reset button on the rear panel of the VS316m product for more than 3 seconds and release it. The VS316m product will then restart to the factory default. The default administrator account is "admin", administrator password is empty. The default video-play password is "ipcam". You can adjust these account and passwords by using the browser to login into the VS316m product and do the needed modifications.

5. What should I do if I can not hear the audio sound from the VS316m product?

A: There is an audio input connector inside the VS316m product. If you can see the video from the accompanied CamView software, but can not hear the audio sound, please check the followings:

(1). Check if the speaker of the computer is turned on, you can try to play a audio file on the computer to verify this.

(2). Check if the microphone on the VS316m product is enabled. Please login into the web configuration page of the VS316m product, select the "video" settings, click the "Enable audio microphone" choice.

6. I can see the video in a remote place, but the video quality is not good and sometimes the video will disconnect and then the video will reconnect again by itself.

A: It's probably because the internet bandwidth (internet speed) is not big enough. Please try to apply for a better internet connection from your Internet Service Provider or decrease the bandwidth settings of the VS316m product. You can adjust the bandwidth requirement of the VS316m product either from the CamView software or login into the web configuration page of the VS316m product to do the modification.

7. Does the VS316m product provide the recording function?

A: You can do the recording of the video/audio of the IP Cam from the CamView software with the CamView software. You can also do the video/audio recording to the standard NAS storage device. Another software CamPlay is needed to playback the recorded vide/audio files.

8. Can I connect the VS316m product directly to my PC/notebook with an Ethernet cable?

A: If the VS316m product is directly connected to your PC/notebook computer using an Ethernet cable, the VS316m product will automatically use an IP address called “auto IP” with IP address 169.254.xxx.xxx. If your PC/notebook computer is configured to DHCP, it will also use an “auto IP” address. But this will take about one minute after the VS316m product is connected to the computer and you need to make sure that the WiFi interface on your PC/notebook computer is disabled. After about one minute, you can run the CamView software to access the VS316m product, the CAM ID should be displayed on the “auto-search” list. You can then see the video by double clicking the CAM ID icon. But you need to know that in this situation, other local or remote computer can not see the video.

Appendix E. 3GPP/ISMA operation

3GPP/ISMA is using RTSP protocol for 3G mobile phone to display the video stream from some network devices, including VS316m product. The VS316m support the RTSP protocol and video/audio codec needed by 3GPP/ISMA. Users only need to access the address rtsp://ip_cam_address/CAM_ID.password on the 3G mobile phone to access the video of the VS316m product. No other extra configuration is needed on the VS316m product. Where ip_cam_address is the public IP address of the VS316m product. CAM_ID is the unique Camera ID of the specific VS316m product. Password is the video play password of the specific VS316m product(detailed in section 3.5). Different 3G mobile phone may need different operation to be able to key in the rtsp address, please contact the 3G mobile phone customer service for more details.

The video quality and resolution is the same value as set on the “video settings” page. Since the bandwidth provided by the 3G service is under 256k bps, better to configure the “Internet speed” of the VS316m product to 128k or 64k bps.

Notice 1: when the audio microphone is enabled on the VS316m product, if the “Internet speed” in “video settings” page is bigger than 256k or the resolution is 640x480, the audio will be disabled for 3GPP/ISMA access. In all other cases, the 3G mobile phone will be able to hear the audio from the VS316m product.

Notice 2 : when the audio microphone is enabled on the VS316m product, if there is any 3G mobile access to the VS316m product(the mobile will hear the audio), in this same time, there will be no audio on the CamView playing window for this VS316m product.

For more information about operation on different 3G mobile phones, please contact us for detailed document.

Appendix F. Third party and embedded web page integration

For third party and embedded web page integration, VS316m support the standard RTSP protocol and video/audio codecs needed by most generally used video play software, including Apple QuickTime and VideoLAN. The supported media protocols including TCP and UDP. VS316m will automatically use TCP or UDP media stream depends on the connection request. The video codec supported is MPEG4, the audio codecs supported are AMR-NB and MPEG2-audio.

The access methods are the followings :

rtsp://ip_cam_address/CAM_ID.password.mp2	for MPEG4 video + MPEG2 audio
rtsp://ip_cam_address/CAM_ID.password	for MPEG4 video + AMR-NB audio

Where ip_cam_address is the IP address of the VS316m product. CAM_ID is the unique Camera ID of the specific VS316m product. Password is the video play password of the specific VS316m product(detailed in section 3.5). Users can modify the password of the VS316m product to prevent others to see the video.

For embedded web page integration, add the following codes into the proper position of the desired web page :

```
<object classid="clsid:5C519EC4-2BAE-44CE-B7F5-AD0CCD4BEFBD"
id="mpeg4ax"
codebase="http://www.starvedia.com/ActiveX/axmpeg4.cab#Version=0,0,0,0"
width="320" height="240">
<param name="Src" value=" rtsp://ip_cam_address/CAM_ID.password.mp2">
</object>
```