

**Table of Content**

**Chapter 1: Introduction**

- 1.1 Main Features-----1-1
- 1.2 System Requirements -----1-2

**Chapter 2: Getting Start**

- 2.1 Use VPON through Intranet-----2-1
- 2.2 Use VPON through Internet-----2-2
- 2.3 Use VPON through PSTN -----2-3
- 2.4 Power On VPON-----2-6

**Chapter 3: Installation through LAN**

- 3.1 Configuration-----3-1
- 3.2 Camera Setting-----3-7
- 3.3 Set Date and Time -----3-10
- 3.4 Alarm and Remote Control -----3-10
- 3.5 Set Name of Server and Camera -----3-11
- 3.6 Set User’s Authority -----3-12
- 3.7 Upload Resources -----3-13

**Chapter 4: Connecting through Com Port**

- 4.1 OYO Viewer Installation-----4-2
- 4.2 Hardware Installation -----4-2
- 4.3 Connecting -----4-3
- 4.4 Configuration -----4-5

**Chapter 5: Use VPON in Internet/Intranet-----5-1**

**Chapter 6: Use VPON through PSTN**

- 6.1 VPON Installation-----6-1
- 6.2 OYO Viewer Installation-----6-2
- 6.3 Dial up to VPON-----6-2
- 6.4 Screen Splitting -----6-3
- 6.5 Camera Setting-----6-4
- 6.6 Set Account Name and Password-----6-5
- 6.7 Record the Video -----6-5
- 6.8 Play back -----6-6
- 6.9 Snapshot/Print -----6-7
- 6.10 Disconnect from VPON-----6-8

**Chapter 7: GPI/O and Callback Setting -----7-1**

**Chapter 8: Remote Camera Control**

- 8.1 Remote Camera Control using built in RS232 Interface Camera  
-----8-1
- 8.2 Operation-----8-2
- 8.3 Remote Camera Control using VP-201 and VP-202 -----8-2

**Appendix A: Specifications -----A-1**

**Appendix B: LED Status -----B-1**

**Appendix C: Modem Compatibility -----C-1**

**Appendix D: Trouble Shooting -----D-1**

## Chapter 1 : Introduction

VPON is a high performance camera server built-in as a mini web server with real-time video capturing capability. The video is grabbed and compressed for faster transmission to your PC through Internet, Intranet or PSTN/ISDN.

The installation is easy: All you have to do is to plug the power and assign VPON an IP address for Internet connection. Then, you can view the video through your browser, Navigator or Internet Explorer, at any time, anywhere in the world.

It is perfect for factory/office monitoring, ATM surveillance, children care, security system, tourism, sales presentation and more...

VPON is the new era of the network video transmission. It makes you see whatever you want easily!

### **1.1 Main Features**

- /// Cost effective
- /// Wide applications
- /// Simple interface for plug-and-play
- /// Use web browser as the client application
- /// Real time video capturing
- /// Digital Input/ Output for surveillance
- /// Support video source selection, zoom-in
- /// Video adjustable for hue, contrast, saturation, brightness and quality
- /// Built-in web server for Internet browsing
- /// Hardware self-diagnosing when power on
- /// Easy system configuration(via HTTP Home Page/ RS232 Com Port)

## **1.2 System Requirements**

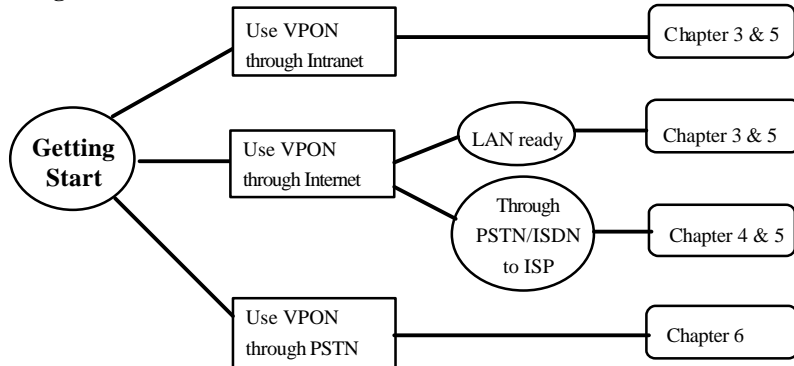
- /// Composite CCD camera, V8 or camcorder... (NTSC or PAL standard)
- /// The equipment for connecting to Internet
  1. Dial up: telephone line, modem, a static Internet IP
  2. Ethernet: Ethernet network connected to Internet and a static Internet IP
  3. PSTN: telephone line, modem
- /// PC for the configuration
  1. Pentium233 PC or higher, desktop or notebook
  2. 32MRAM or higher
  3. PCI VGA Card
  4. Microsoft Windows 95
  5. An empty COM port
- /// PC for the browsing
  1. Pentium233 PC or higher, desktop or notebook
  2. 32MRAM or higher
  3. PCI VGA Card
  4. Microsoft Windows 95
  5. Internet Browser (such as Netscape Navigator 3.0 or higher)

- End of this chapter -

## Chapter 2 : Getting Start

As VPON can transmit videos through Internet, Intranet, PSTN/ISDN, to get the best performance, we suggest you reading the following instructions and choosing the correct way to install VPON. (Figure 2.0)

Figure 2.0

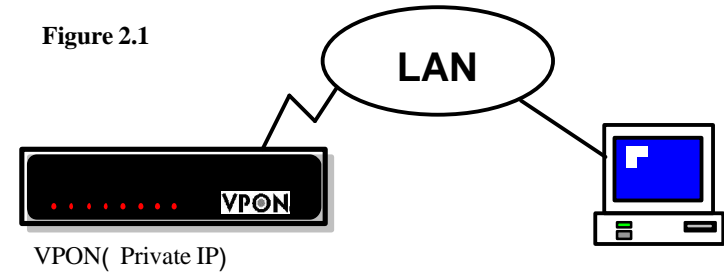


Starting from VPON firmware 1.4, you can set VPON operating mode from client PC. Default mode is Modem/Null Modem connection when shipping out from factory. The status3 LED light (rightmost one) comes on when power up if there is modem or null modem cable connected to VPON. You can change the operating mode by setting the corresponding parameters through the System Configuration function. Please refer to chapter 4 for details.

### 2.1 Use VPON through Intranet

First, make sure that you can assign a private IP to VPON. Then, read Chapter 3 for the installation and Chapter 5 for the usage of VPON.(Figure 2.1)

Figure 2.1



### 2.2 Use VPON through Internet

First, make sure that you can assign a static Internet IP to VPON.

- If your environment is LAN ready and it is connected to Internet directly. Please read Chapter 3 for the installation and Chapter 5 for the usage of VPON. (Figure 2.2a)
- If you want to connect VPON directly to Internet through PSTN/ISDN to ISP (Internet Service Provider). Please read Chapter 4 for the installation and Chapter 5 for the usage of VPON. (Figure 2.2b)

Figure 2.2a

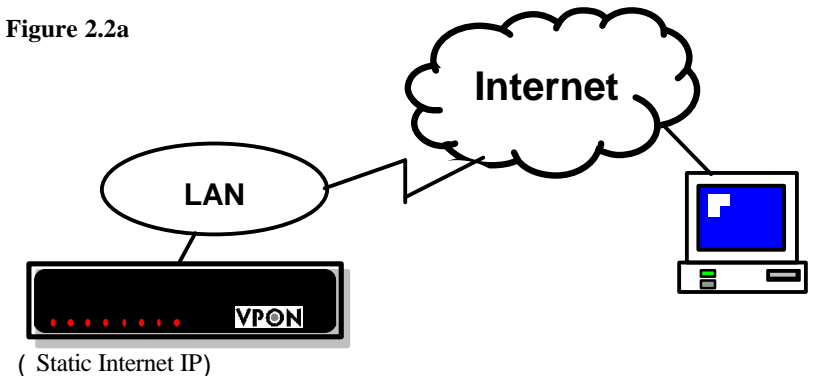
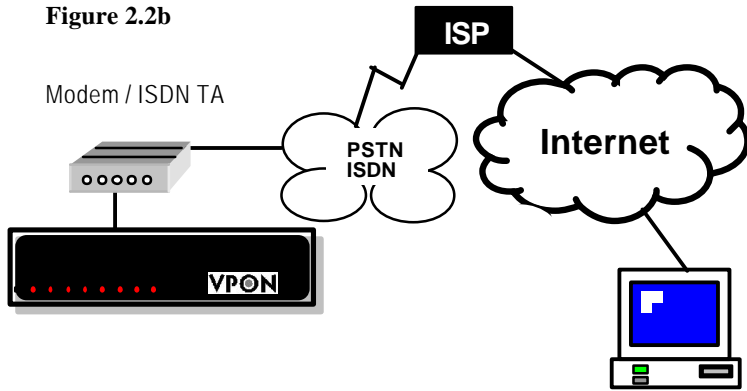


Figure 2.2b



## 2.3 Use VPON through PSTN

If there is no Internet connection, VPON can transmit videos through PSTN. Under this situation, you can still monitor the remote site. Please refer to Chapter 6 for the installation and the usage of VPON. (Figure 2.3)

Figure 2.3

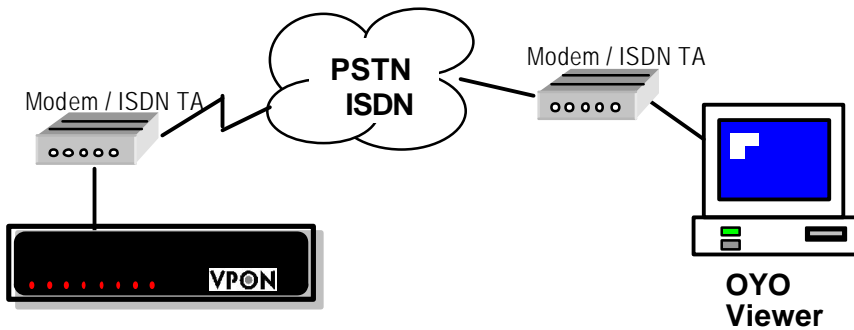


Figure 2.4. VPON front panel

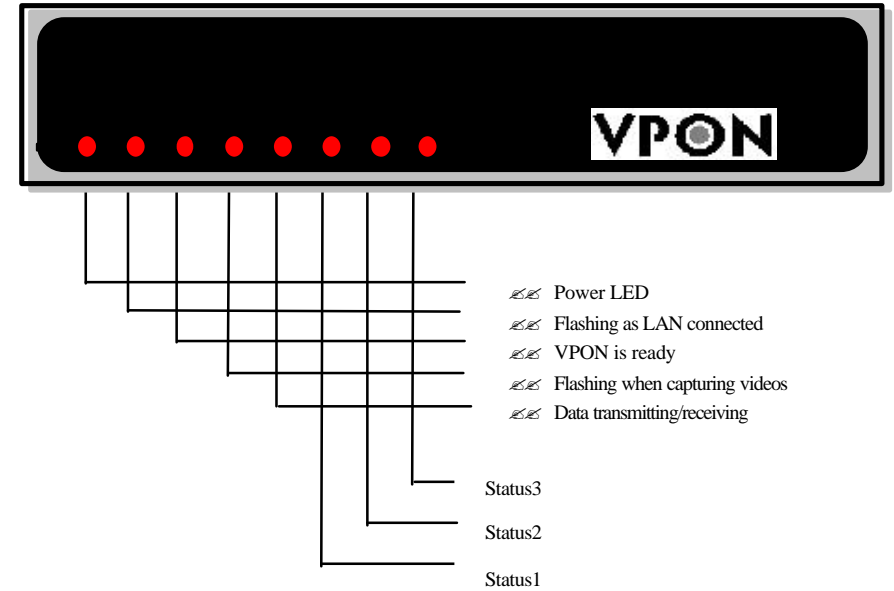
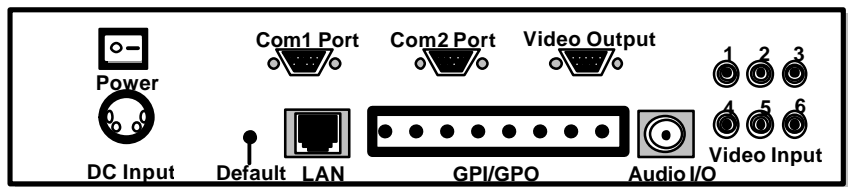


Figure 2.5 VPON back panel



<b>Power</b>	Press “ I ” to turn on the unit, press “ O ” to shut down the unit
<b>DC Input</b>	Connect the DC power cord to external power supply
<b>COM1 Port</b>	RS-232 serial port for configuration or for modem/ISDN TA
<b>COM2 Port</b>	RS-232 serial port
<b>Video Output</b>	A DB-9 connector for composite video output to TV set or monitor
<b>Default</b>	Reset to default values
<b>LAN</b>	RJ-45 connector for 10BaseT
<b>Audio I/O</b>	Audio inputs and outputs (through one 8-pins mini-din connector)
<b>GPI</b>	General purpose input
<b>GPO</b>	General purpose output
<b>Video Input</b>	Six RCA video connectors

## 2.4 Power On VPON

Before power on VPON, you should check the followings:

- 2.4.1 Apply correct AC voltage to the external power supply. The AC power input range is 100-240 volts, 50-60 Hz.
- 2.4.2 Connect the appropriate video inputs to the unite. Depends on the composite video standard used at your local area, VPON automatically detects NTSC/PAL video when power up. If you did not apply video signals when power up, it will set to default value which is NTSC standard. That will cause Horizontal Sync problem if your cameras are PAL standard.
- 2.4.3 If your VPON firmware is version 1.4 or later, VPON is set to Modem/Null Modem connection after power up by default. You should hook it up with the RS232 cable provided with the unite to do further configurations. Please refer to the LED lights for correct machine status. (Appendix B)
- 2.4.4 After power up successfully and get correct LED status, you can refer to Chapter 4 for further operations.

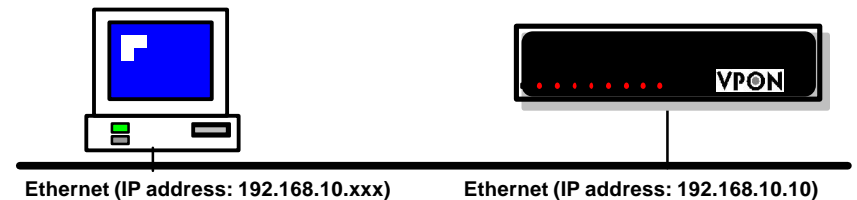
- End of this chapter -

## Chapter 3 : Connecting through LAN (Local Area Network)

### 3.1 Configuration

1. Plug one end of external power supply to **DC Input** on the back panel of VPON and the other end to an AC wall outlet (100V – 240V).
2. Connect the network cable (10BaseT) to the network socket marked **10BaseT** on the back panel of VPON. (Figure 3.1.1)
3. Make sure that VPON is set at LAN mode if your firmware is version 1.4 up. For first time start up please refer to section 2.4.3 of Power On VPON at Chapter 2.

**Figure 3.1.1**

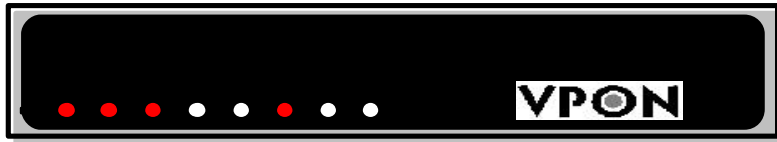


4. Connect video sources to “**Video Input**” by RCA cables. You can choose to connect up to 6 video sources.

**Note:** VPON can auto-sense the standard of video sources (NTSC or PAL). But be sure that all video sources are the same standard.

5. Power on VPON and you will see “**POWER**” LED is lighted. After hearing two “bi” sounds from VPON, VPON will start to diagnose H/W automatically. During this period (around one minute), LEDs (except POWER and LAN) will be lighted one by one from left to right and then all are off. When you hear a long “bi” sound and “**READY**” and “**STATUS1**” LED (see Figure 3.1.2) are lighted, it means the VPON is ready at LAN mode. You can go on to operate VPON now.

Figure 3.1.2



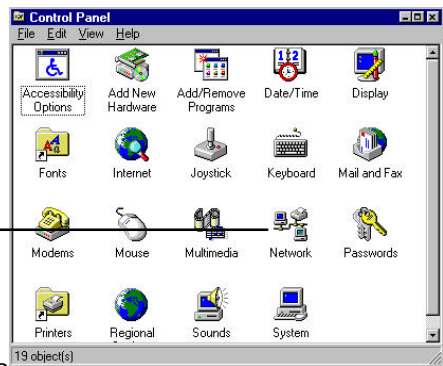
6. The default settings of VPON at LAN mode were as follows.

**The default configuration of VPON:**

User's Name	WEBMONITOR
User's Password	OYO
Administrator's Name	WEBMONITOR
Administrator's Password	OYO
Camera source	1 (1,2,3,4,5,6)
Brightness	50
Contrast	70
Saturation	95
Hue	50
Quality	70
IP address	192.168.10.10
DNS IP address	0.0.0.0
Gateway IP address	0.0.0.0
Sub net mask	255.255.255.0

7. Go to ? Network? on ? Control Panel? of the host PC. (Figure 3.1.3)

Figure 3.1.3



8. Choose "TCP/IP" and go to ? Properties? (Figure 3.1.4)

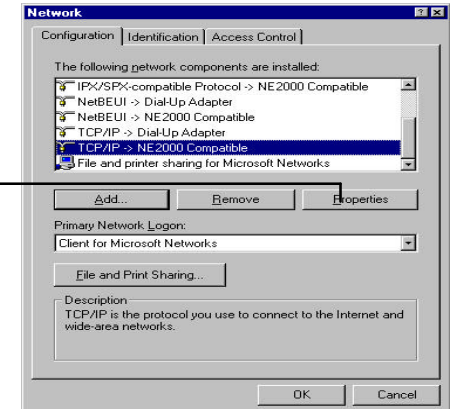


Figure 3.1.4

9. Change IP address of the host PC to : **192.168.10.20**  
 10. Change Subnet Mask of the host PC to :

**255.255.255.0**  
 (figure 3.1.5)

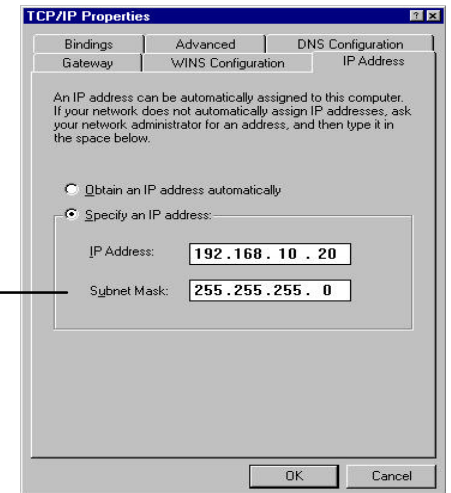


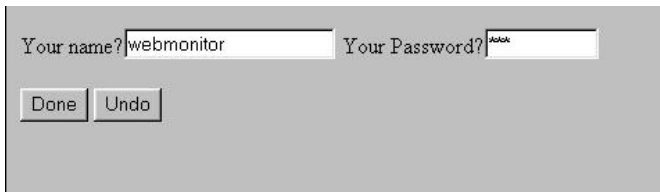
Figure 3.1.5

# VPON

**Note:** Remember the original IP address and Subnet Mask. When the configuration of VPON is finished, you need to reset the host PC to these original values.

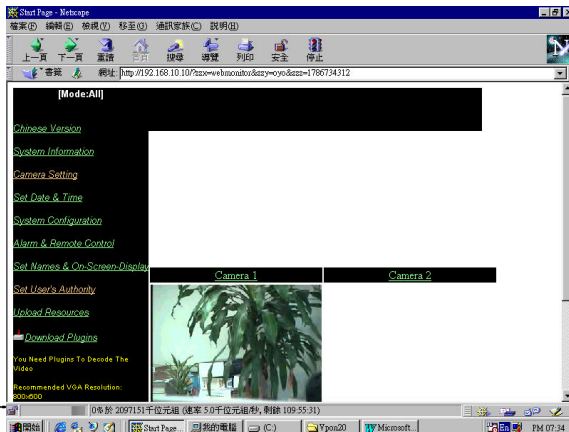
11. Reboot the host PC.
12. Run a web browser and connect to <http://192.168.10.10>. When it is connected, you will see a login homepage. Input the default Administrator's name "webmonitor" and Administrator's password "oyo". Click the "Done" button. (Figure 3.1.6)

Figure 3.1.6



13. Then you will see the home page of VPON. (You can also see live videos when cameras are connected to VPON.) (Figure 3.1.7)

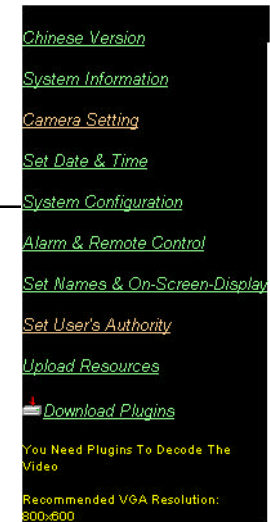
Figure 3.1.7



# VPON

14. On the left side of the home page, choose "System Configuration" (Figure 3.1.8)

Figure 3.1.8



15. Input IP Address, DNS IP Address, Gateway IP Address and Subnet Mask.

**Note:** Do not input any data into ISP information (ISP phone number, login name, password and modem baud rate). If you want to connect VPON directly to ISP through PSTN/ISDN, please read Chapter 4.

16. You may change account name and the password. In "Account Setting", input User Name, User Password, Administrator's Name and Administrator's Password. (Figure 3.1.9)



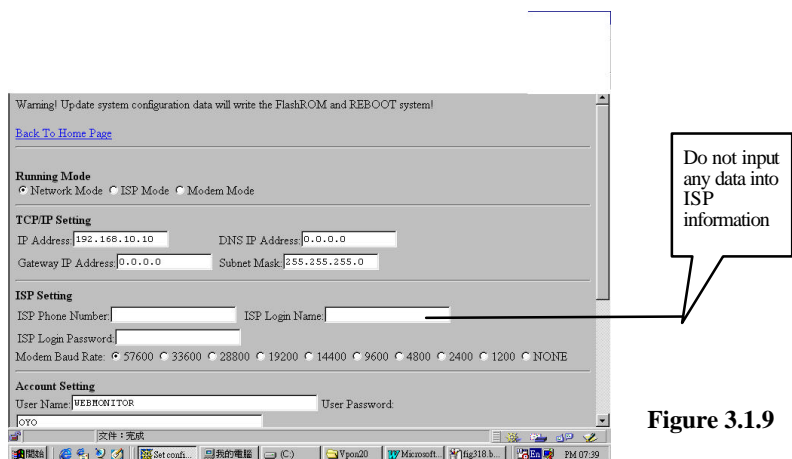


Figure 3.1.9

**Note1:** VPON provides two layers protection. You can limit users with User Name and Password to login VPON. To set the configuration of VPON, you must have Administrator's Name and Administrator's Password.

**Note2:** Keep the password carefully and remember it. When you forget the password, you can reset VPON. The user name and the password will be reset to the default values. It also means you have to set the configuration again.

17. Choose "Video Compression Algorithm". You may choose between JPEG, M-JPEG and H.263. The different compressions mean different video quality and transfer speed.

**Note1:** If the compression algorithm is M-JPEG or H.263, you need a plug-in program when you connect to VPON. You can get this plug-in program from the Setup Disk or from our web site

**Note2:** If the compression algorithm is H.263, you can only view one video on firmware prior to version 1.4.

Compression Format	Video Quality	Data Stream
JPEG	Good	High
M-JPEG	Good	High (Less than JPEG)
H.263	Common	Low

18. Click the "Done" button and go back to the home page of VPON. VPON will save these parameters and reboot. During the period of rebooting, VPON will not transmit any video.
19. Change IP address and Subnet Mask of the host PC to the original ones.
20. When you are connected to Internet, run a web browser and input IP address of VPON at URL. You can login into the home page of VPON.(see chapter 5)

## 3.2 Camera Setting

### 3.2.1 Camera setting via a local monitor or TV set:

1. Connect Video-Out cable (One end is a 9-pin male port and the other end are six RCA female ports) to **Video Output** on the back panel of VPON.
2. Connect monitor(s) or TV set(s) to RCA female port(s). You can view the videos from a certain source by connecting a monitor or TV set to the RCA cable marked the corresponding number. (You can view the videos of video source 1 from the monitor or TV set connected to RCA cable marked 1.)

**Note:** Make sure the standard of this monitor or TV set is the same as cameras'.

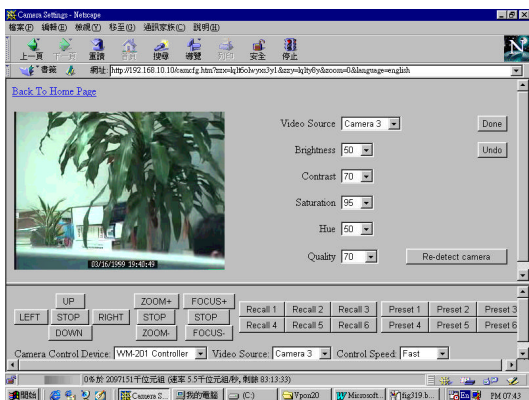
3. Adjust camera's position, camera's focus, iris... to get the best performance.

- When it is finished, disconnect Video-Out cable from VPON.

### 3.2.2 Camera setting via the home page of VPON:

- Run a web browser, connect to VPON and login as the administrator.
- On the left side of home page, click **“Camera Setting”** and you will have prompted out Figure 3.2.1.

Figure 3.2.1



- Choose a certain camera to set the videos

**Note:** You can choose a certain camera to set the video. After the video is set, the parameters are applied to all video sources.

- You can set Brightness, Contrast, Saturation, Hue and Quality.

- ☞ Brightness: Higher value, brighter of the videos
- ☞ Contrast: Higher value, stronger contrast
- ☞ Saturation: Higher value, more color saturation
- ☞ Hue: Higher value, higher hue
- ☞ Quality: Higher value, better video quality

**Note:** With a higher value of quality, it also means a heavier data

transmission.

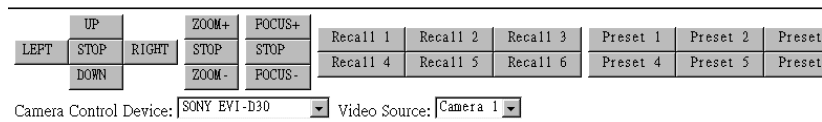
- Click the **“Done”** button to make the new settings take effect.

**Note1:** The video performance is changed by the algorithm. Through this way, we cannot set the camera’s position, focus, iris... We suggest you to set cameras via a local monitor or TV set after a period to make sure of the best performance of videos.

**Note2:** VPON will not save this setting. When you power off VPON, it will reset to the default values.

- If you have equipped a camera control device with VPON, you can use the camera control interface to control a camera(Figure 3.2.2).

Figure 3.2.2



- Select the proper camera control device and the camera it is attached and you can use UP/DOWN/LEFT/RIGHT to make the camera move a little bit toward the direction you clicked. Also you can use ZOOM and FOCUS buttons to zoom or focus in and out. Due to the network transmission delay, the video may not response as soon as you click the button.

- If the device has built in preset function, you can use the buttons described above to move the camera to where you want and use Preset button to make the camera control device to remember the position. After presetting, you can use Recall buttons to make the camera move to a preset position.

### 3.3 Set Date and Time

1. Run a web browser, connect to VPON and login as the administrator.
2. On the left side of home page, choose **“Set Date & Time”**.
3. Follow the format to enter the date and the time.
4. Click the **“Done”** button and go back to the home page of VPON. VPON will save these parameters as the system date and time. (Figure 3.3)

**Figure 3.3**

### 3.4 Alarm and Remote Control

You can choose the item " Alarm and Remote Control " from VPON home page to enter this page as figure 3.4. The Alarm Status Shows the "ON" or "OFF" state of the GPIs. You can also control the outputs of GPOs by selecting the state of each GPO and clicking the output bottom. The output of the GPOs will latch on the state you selected.

**Figure 3. 4**

### 3.5 Set Name of Server and Camera

You can choose the item " Set Name of Server & Camera " from VPON home page to enter this page as figure 3.5.1 You can set the server name if you have multiple VPONs on the LAN. You can also set the camera names to indicate the physical location of the cameras or any identification for easy understanding.

**Note:** Please wait at least one minute for VPON rebooting to new system parameters

**Figure 3.5.1**

You can set a text string for each camera and this text will be overlaid directly on the video like time-stamp. You can specify the content and position of this text(Figure 3.5.2).

**Figure 3.5.2**

On this page, you can also set the position of the time stamp of each camera. There are 6 pre-defined positions, just select the position you like (Figure 3.5.3).

**Figure 3.5.3**

**Set Time Stamp**

<b>Camera 1</b>	<input type="radio"/> Disabled <input type="radio"/> Upper Left <input type="radio"/> Upper Center <input type="radio"/> Upper Right <input type="radio"/> Lower Left <input checked="" type="radio"/> Lower Center <input type="radio"/> Lower Right
<b>Camera 2</b>	<input type="radio"/> Disabled <input type="radio"/> Upper Left <input type="radio"/> Upper Center <input type="radio"/> Upper Right <input type="radio"/> Lower Left <input checked="" type="radio"/> Lower Center <input type="radio"/> Lower Right
<b>Camera 3</b>	<input type="radio"/> Disabled <input type="radio"/> Upper Left <input type="radio"/> Upper Center <input type="radio"/> Upper Right <input type="radio"/> Lower Left <input checked="" type="radio"/> Lower Center <input type="radio"/> Lower Right
<b>Camera 4</b>	<input type="radio"/> Disabled <input type="radio"/> Upper Left <input type="radio"/> Upper Center <input type="radio"/> Upper Right <input type="radio"/> Lower Left <input checked="" type="radio"/> Lower Center <input type="radio"/> Lower Right
<b>Camera 5</b>	<input type="radio"/> Disabled <input type="radio"/> Upper Left <input type="radio"/> Upper Center <input type="radio"/> Upper Right <input type="radio"/> Lower Left <input checked="" type="radio"/> Lower Center <input type="radio"/> Lower Right
<b>Camera 6</b>	<input type="radio"/> Disabled <input type="radio"/> Upper Left <input type="radio"/> Upper Center <input type="radio"/> Upper Right <input type="radio"/> Lower Left <input checked="" type="radio"/> Lower Center <input type="radio"/> Lower Right

### 3.6 Set User's Authority

You can choose the item "Set User's Authority" from VPON home page to enter this page as figure 3.6. Besides setting the user's and administrator's name and password, you can set up to 16 user's name and password and their authority. For example, enter "USER" and "1234" as the name and password of User 1 and check camera 1 and 3. Later you can connect to VPON and login in using "USER" and "1234" as user 1. After logging in, only camera 1 and camera 3 will be displayed. If the name and password are left blank, this entry then will be removed. If the name and password are both the word ---"BLANK", user logging without entering password will use this entry.

**Figure 3.6**

### 3.7 Upload Resources

You can choose the item "Upload Resources" from VPON home page to enter this page as Figure 3.7.1. Using this page, you can upload resources such as GIF file for homepage, camera control definition file, etc.

**Figure 3.7.1**

Firstly, select the type of the resource that you want to work with. Then use **Delete** button to remove the resource file that has been uploaded to server. Or use **Upload** button to upload a resource file to server, you can enter directly or browse the path of the file in **File** field. **Write Resources To FlashROM** button will actually write the uploaded resources to FlashROM.

- End of this chapter -


## Chapter 4: Connecting through COM Port

On firmware 1.4 or later, VPON is configured to this mode after power up by default. You can change it to LAN mode or ISP mode by activating the configuration function icon on the screen. OYO Viewer is the software you need for this connection. By OYO Viewer, user can view the videos transmitted from VPON through PSTN/ISDN. Besides viewing the videos, you can also record the videos, play them back, make a snapshot of picture or print it out and more... For the professional version of OYO Viewer, you can set the callback conditions if you connect some devices to VPON. In this way, VPON can automatically callback and transmit the videos to the preset PC when even happens. In this chapter, we will use OYO Viewer to make the configuration of VPON. Using the serial cable provided in the package, you will find it is convenient to set up VPON if you don't have a network environment. (figure 4.0)

Figure 4.0



## 4.1 OYO Viewer Installation

1. Start Windows95 on the host PC.
2. Insert Setup diskette into the diskette drive (3.5") of host PC.
3. From the Windows Program Manager, select FILE, then RUN
4. Type "A:\setup.exe" (replace "A" with the letter of your 3.5" diskette drive), then click OK.
5. Follow installation instructions accordingly.
6. When it is installed successfully, you will find an icon  of **OYO Viewer** on the desktop of Windows. (You can also find it on the startup toolbar.)

## 4.2 Hardware Installation

1. Connect the external power supply to **DC Input** on the back panel of this product.
2. Connect one end of RS-232 null modem cable (included in the package) to **COM1 Port** on the back panel of this product and the other end to one of COM Port (1 - 4) on the host PC.
3. Connect video sources to "**Video Input**" by RCA cable. You can choose to connect up to 6 video sources.

**Note1:** It can auto-sense the standard of video sources (NTSC or PAL). But be sure that all video sources are the same standard.

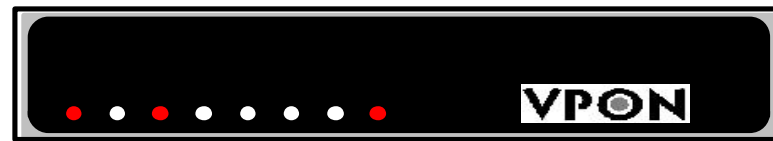
**Note2:** Please makes sure that you have connected video source to this product before you power on it.

4. Power on and you will see "**POWER**" and "**LAN**" LED are lighted. After hearing two "bi" sounds (one low, another high), it will start to boot around one minute. In The end of this period, LEDs (except **POWER** and **LAN**) will be fast lighted one by one from left to right and then all are off. When you hear a long "bi" sound and "**STATUS3**" LED (see below) are

lighted, it


means the this product is ready. You can go on to the configuration now. (Figure 4.2)

**Figure 4.2**

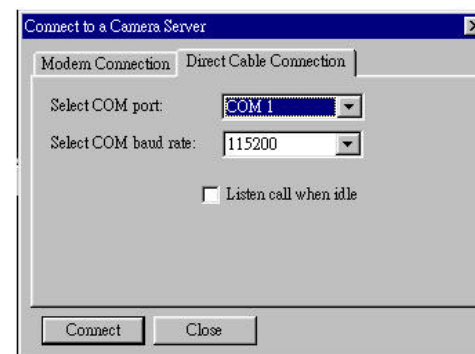


**Note:** The Ready and Right Status3 LED lights indicate VPON is connected At Modem / Null Modem Mode

## 4.3 Connecting

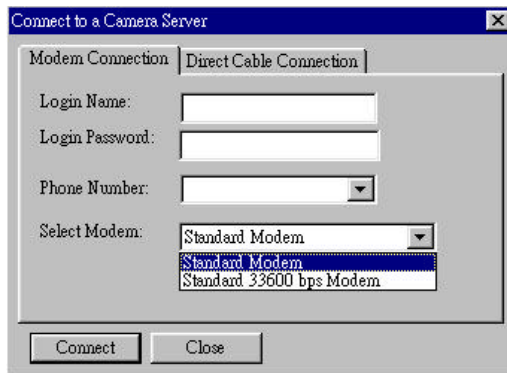
1. Run **OYO Viewer** on the Host PC by clicking the icon of **OYO Viewer** on the desktop of Windows.
2. When the main screen of OYO Viewer shows, click the "**Connect**" icon  on the left task bar. It will show the dialogue box. (Figure 4.3.1)

**Figure 4.3.1**



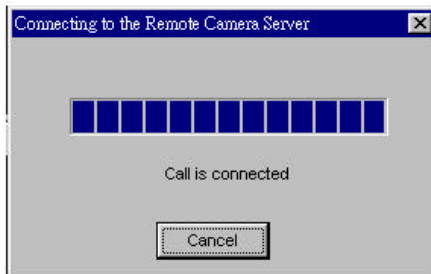
3. You can connect through modem or using the null modem cable came with VPON. Figure 4.3.1 shows connecting through COM1 using direct cable connection. You can select COM port and baud rate you want, then click the "Connect" button to make the connection. If you are using modem, you should click the "Modem Connection" button to bring up figure 4.3.2. You can select the modem type that were installed on your machine and type in the login name, password ,phone number before making the connection. Make sure the modem was installed properly.

Figure 4.3.2



4. After inputting all data, click on **"CONNECT"**. At this moment, you can get the connection window pump up on your OYO Viewer's main screen. As figure 4.3.3

Figure 4.3.3



When the connection (between Client PC and VPON) is done, you can view the videos transmitted from VPON immediately. Also, it shows **"Call is connected"** on the center of the screen.

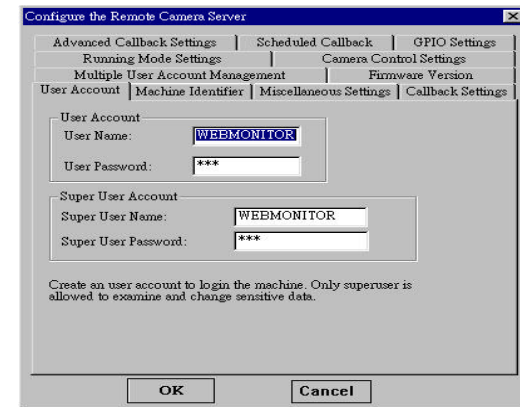
## 4.4 Configuration

Click the **"Configuration"** icon  on the left task bar for configuration.

### 4.4.1 User Account

1. VPON provides two level protections. You can limit users with

Figure 4.4.1



User's Name and User's Password to login into VPON. To set the configuration of VPON, you must have Super user's Name and Password.

2. Keep the password carefully and remember it. When you forget the password, you can reset VPON by pushing the default button at the back panel. The user name and the password will be reset to the default values. It also means you

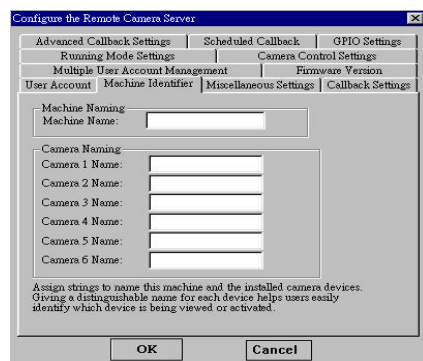


have to set the configuration again.

## 4.4.2 Machine Identifier

1. You can enter the machine name of your VPON for identification if there are multiple VPON in your system. Also you can enter the camera names for easier identification.

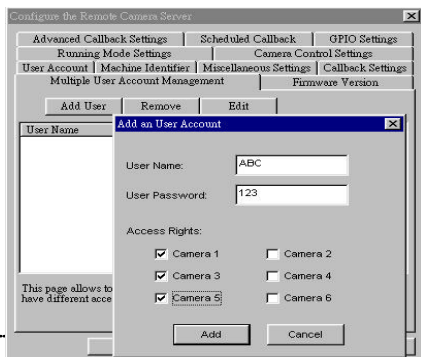
Figure 4.4.2



## 4.4.3 Multiple Account Management

This function enables you to add, remove and edit user accounts for accessing VPON. There is a maximum of 16 accounts you can create with different access rights to the cameras. The check boxes before the camera names that are not checked when adding the user, will have no videos on the screen when the user connects to VPON. This prevents the user from viewing critical videos defined by the super user. You can remove or edit the access rights after users been created.

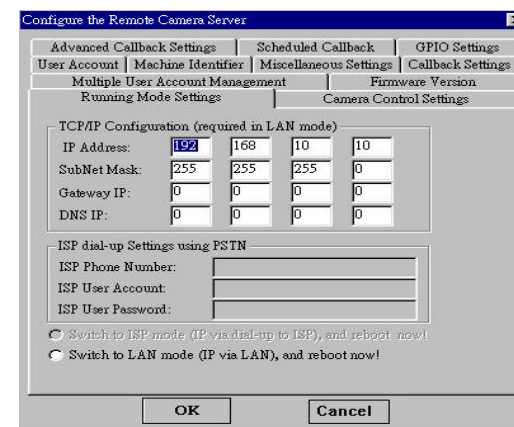
Figure 4.4.3



## 4.4.4 Running Mode

Currently, there are two running modes for your selection, LAN and modem modes. Click on the "Running Mode Setting" block of the configuration window, will bring up figure 4.4.4 ,the running mode setting window. For LAN mode operation, you are requested to fill in the TCP/IP configurations. Check the "Switch to LAN mode" button. VPON will reboot from current modem mode into LAN Mode. **Please wait for at least one minute for the reboot process.** ISP mode is reserved for future release. After finishing the reboot process, VPON will back to ready state, the LEDs on the front panel will have "Ready" and "Status 1" lights on. You can login to VPON through IE or Netscape browsers.

Figure 4.4.4

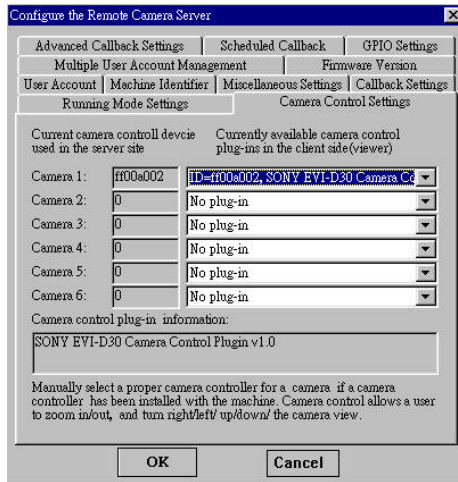


## 4.4.5 Camera Control Settings

In order to control the PAN,TILT, ZOOM functions of the remote cameras, you have to set up the camera control driver before operation. Click on the "Camera Control Setting" block and bring up the window as Figure 4.4.5. If you are using SONY EVI-D30 camera, select the plug -in for it and click OK. For details on camera control, please refer to Chapter 8, "Controlling Remote Cameras".



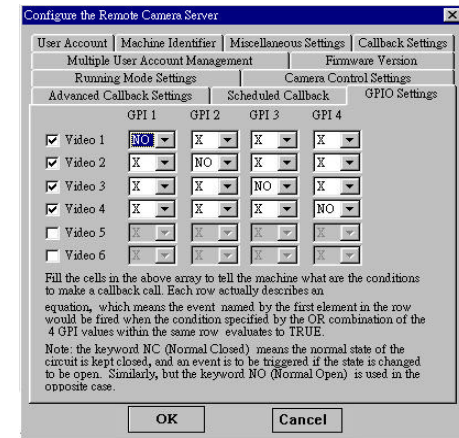
Figure 4.4.5



4.4.6 GPIO Settings

There are 4 general purpose inputs and 4 general purpose outputs on the Back panel of VPON. These are dry contact IO points. That means they can survive only under low voltage and low current. Suggested ratings are maximum 24 volts DC and 200 mA current. You can see the input status change on the OYO viewer window. You also can set the status of the IO points from the OYO windows. Fig 4.4.6 is for setting the relationship between the cameras and input points. An N.O. means "Normally Open", N.C. for "Normally Close" and "X" means don't care. The GPIs follow an OR combination. On Fig 4.4.6 for example, VPON is going to fire a call back when GPI1 detects a "Close" condition. Because GPI1 was set to a normally open condition and other GPIs are ignored on video1 setting. When the link between VPON and client OYO viewer sets up, the video from camera1 will be transmitted back.

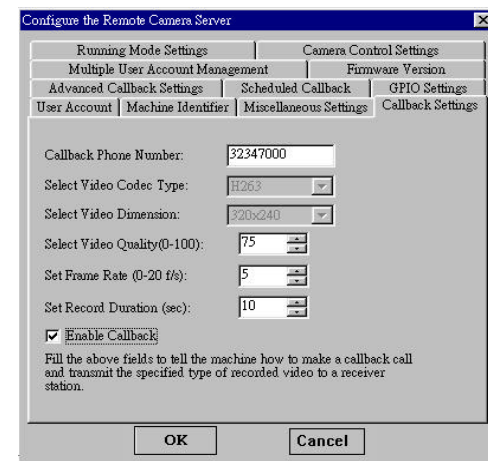
Figure 4.4.6



4.4.7 Call Back Setting

This function enables you to set the call back phone number, video quality, frame rate and record duration of the call. Be remember to enable the call back. The higher the quality setting, the smaller the frame rate and the smaller the frames that can be recorded during the preset record time.

Figure 4.4.7

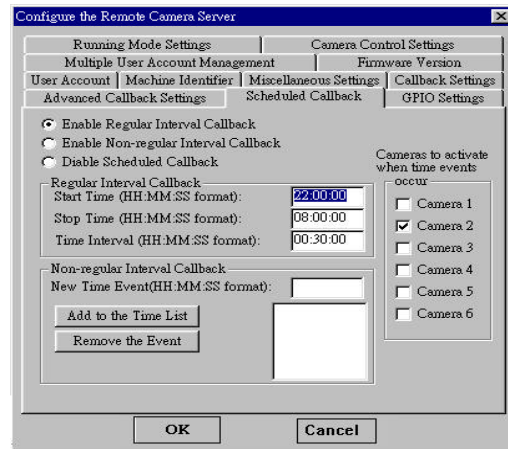


## 4.4.8 Scheduled Call Back

Please make sure the call back parameters at 4.4.7 are setting correctly before working on scheduled call back.

There are three choices on this function. Regular, irregular and disable call back. When regular call back, VPON will try to establish the link to remote client between the preset time period at the preset time interval. This is good for verification of the link and remote site. When non-regular call back, VPON will make call when the preset time is reached. You can add or remove the preset time from the time table. Please refer to fig 4.4.8 for example.

**Figure 4.4.8**

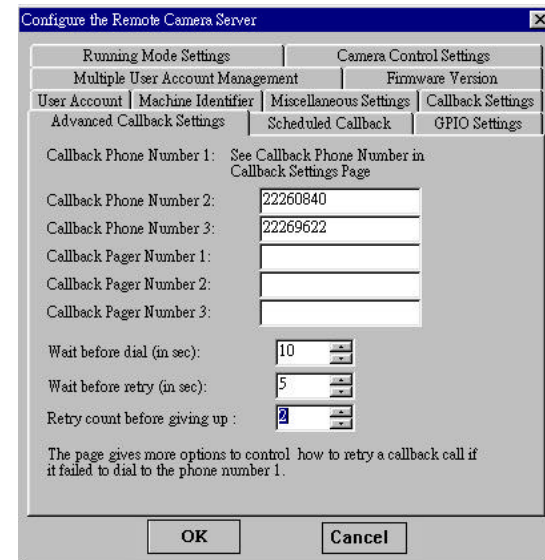


## 4.4.9 Advance Call Back Setting

This function is used mostly for security control. You can set 5 telephone numbers plus the one on call back setting adds up 6 numbers for call back. If VPON fails on the number in call back setting, it will try the number in this setting from call back number 2 until it makes through the call. The "wait before dial" setting enables external alarm panel to use the same telephone line with VPON. You can set this number to give external alarm panel enough time for sending data back to control center and let VPON dial after

alarm panel finishes its job. VPON will record the video inside its memory and sends back after link establishes with OYO client. Please refer to fig.4.4.9 for example.

**Figure 4.4.9**



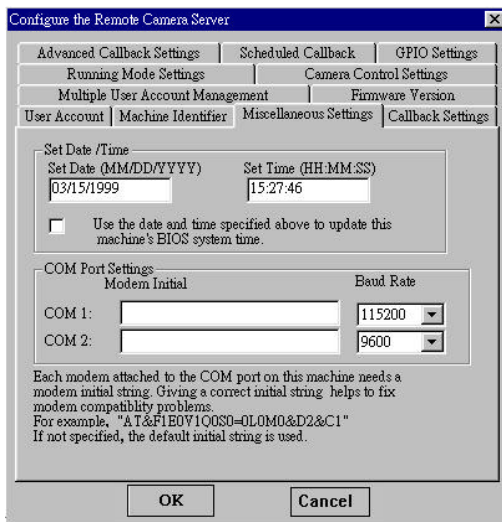
## 4.4.10 Firmware version

Click this block will show on the screen the firmware version currently used on this VPON.

## 4.4.11 Miscellaneous Setting

The function is for the setting of date, time, com port baud rate and modem initialization stream. Some modems may have compatibility problem. Setting the correct initialization stream makes it easier to resolve compatibility problems. Please refer to fig.4.4.11 for example.

Figure 4.4.11



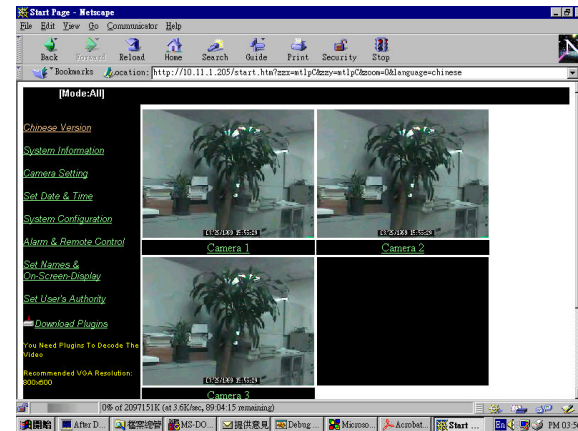
- End of this chapter -

## Chapter 5: Use VPON in Internet/Intranet

When you finish the steps on Chapter 3 or 4, VPON should be connected to Internet or Intranet. Now, VPON can transmit the videos captured from cameras through Internet or Intranet. If you have connected to Internet or Intranet, you can follow the following steps to view the real time videos.

1. Make your PC connected to Internet or Intranet.
2. Run a web browser at your PC.

Figure 5.1



3. Input URL of VPON as below:

**http://<IP address or Domain Name of VPON>**

**For example: http://203.70.228.88 or http://VPON.nfic.com.tw**

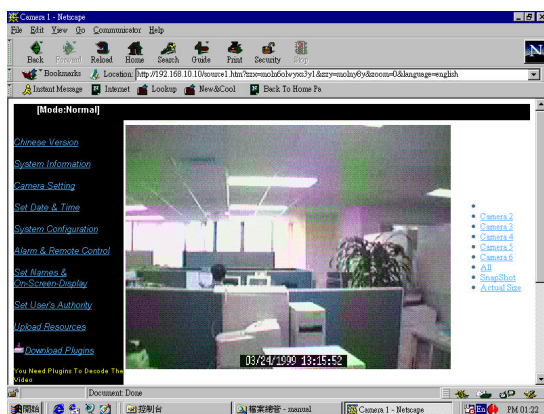
into the entry prompt in the browser. When it is connected to VPON, you will be required to enter the user's name and password. After entering the correct password, the homepage of VPON will be shown..

4. When the homepage is loaded, you can view the four video-windows. Use the scroll bar or the similar method to view the other two video-windows on the lower part. (Figure 5.1)

**Note:** If less than 6 cameras are connected to VPON, you will see a blank block on the correspondent windows. You can click the "NEXT" page icon at bottom left of the screen to view the other cameras.

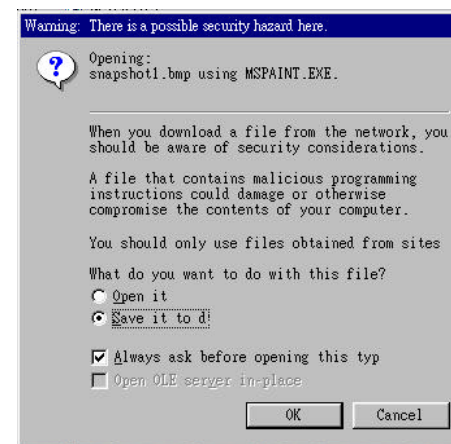
5. View: You can choose to view only one video-window from a specified camera. Click the name of the chosen camera or on the window of that camera. Only one video-window is shown on the screen. You can view the other camera by clicking on the name of camera at the right side. (Figure 5.2)

Figure 5.2



6. Zoom-in: Choose the videos of a certain camera that you want to zoom-in (see above). Click a point on the video-window, the surrounding portion will be zoomed-in. Click anywhere on the window and it is restored to the original size.
7. Snapshot: You can make a snapshot of a certain camera. Choose to view the video of this camera. Click **"Snapshot"** on the right. You can download the image and save it to a **BMP** file. (Figure 5.3)

Figure 5.3



## Advance Setting

1. You must have entered the administrator's password to access these function.
2. On the left side of VPON's home page, click **"System Information"** and you can see the system information of VPON.
3. For **"Camera Setting"**, **"Set Date and Time"** and **"System Configuration"**. Please refer to [Chapter 3](#).

- End of this chapter -

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## **Chapter 6: Use VPON through PSTN**

If you don't have Internet/Intranet connection, you can use VPON to monitor the remote side through PSTN (Public Switching Telephone Network). In install VPON at the remote site, you can view, at the local site, the videos transmitted from VPON through PSTN.

### **6.1 VPON Installation**

1. Plug one end of external power supply to **DC Input** on the back panel of VPON and the other end to an AC wall outlet (100V – 240V).
2. Connect video sources to “**Video Input**” by RCA cable. You can choose to connect up to 6 video sources.


<p><b>Note:</b> VPON can auto-sense the standard of video sources (NTSC or PAL). <u>But be sure that all video sources are the same standard.</u></p>
---

3. Connect the external modem to **COM Port** on the back panel of VPON.
4. Connect the telephone line into LINE jack of external modem.
5. Power on VPON and Power LED is lighted. After hearing two “bi” sounds from VPON, VPON will start to diagnose H/W automatically. During this period (around one minute), LEDs (except POWER and LTR) will be lighted one by one from left to right and then all are off. When you hear a long “bi” sound and “**READY**” and “**STATUS**” LED (see below) are lighted, press the “**Default**” button on the back panel of VPON to reboot VPON. When you see “**READY**” and “**STATUS3**” LED (see below) are lighted again, it means the VPON is ready. You can go on to VPON configuration now.

## 6.2 OYO Viewer Installation

Please refer to section 4.1 to 4.3 for OYO viewer installation.

## 6.3 Dial up to VPON

1. Run **OYO Viewer** on the Host PC by clicking the icon  of **OYO Viewer** on the desktop of Windows.


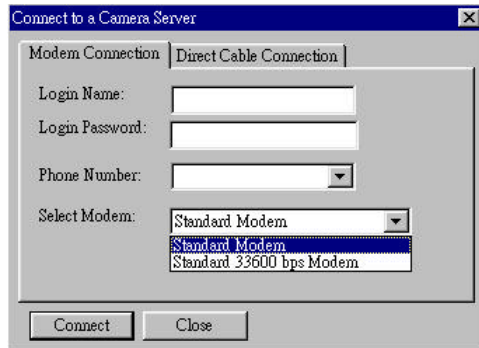
When the main screen of OYO Viewer shows, click the "Connect" icon  on the top left of the screen. It will show the dialogue box as below

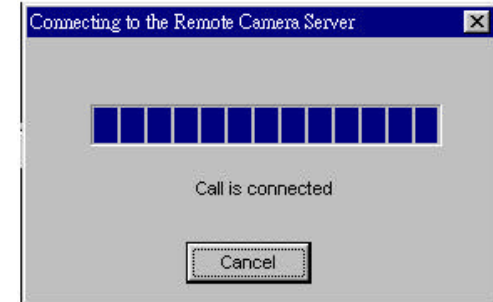
Figure 4.3.2



2. Choose "Modem Connection" and fill in the corresponding blank fields and then click the "Connect" task bar on the bottom left. It will make the connection automatically you can see the connecting dialog box appears. When the connection (between Client PC and VPON) is done, you can view the videos transmitted from VPON immediately.

**Note1:** Make sure to input the phone number completely and correctly. Don't miss prefix, long-distance code (if have), extension number etc...

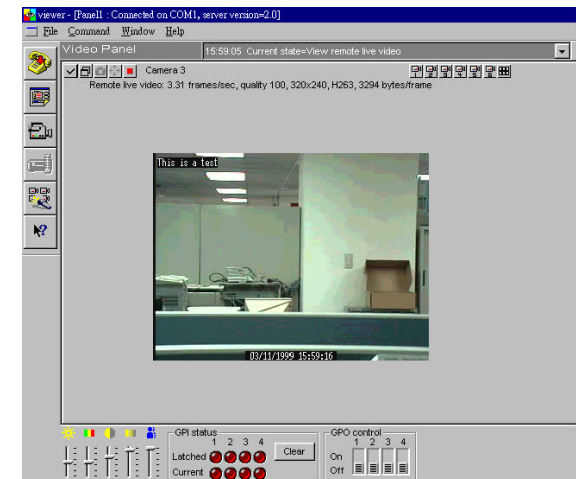
Fig 4.3.3



## 6.4 Screen Splitting:

Viewer has 6 video windows, you can view all of the videos at the same time as shown at figure 4.0. Or you can view only one single video by clicking the window you want. The result is as figure 6.4

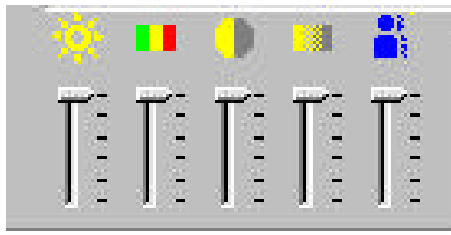
Figure 6.4



## 6.5 Camera Setting:

1. You can set Brightness, Contrast, Saturation, Hue and Quality on the video Window by tilting up and down of the control bars at the left bottom of OYO window as shown on figure 6.5.

Figure 6.5



2. Click the arrow to increase or decrease each value




A B C D E

- Icon A : Brightness: Higher value, brighter videos
- Icon B Contrast: Higher value, stronger contrast
- Icon C Saturation: Higher value, more color saturation
- Icon D Hue: Higher value, higher hue
- Icon E Quality: Higher value, better video quality

3. It takes a few seconds for the new settings to take effect.

**Note:** The video performance is changed by the algorithm. If you find these settings don't work well, we suggest you set cameras via a local monitor or TV.

## 6.6 Set Account Name and Password

1. Click the Configuration icon  on the top left of OYO window bring up "Configure the Remote camera server" dialog box and select "user account" block such as figure 4.4.1
2. Input User's Name, User's Password, Super User Name and Super User Password. And click OK button.(Figure 6.6)


**Note1:** VPON provides two layers protection. You can limit users with User's Name and Password to login VPON. To set the configuration of VPON, you must have Administrator's Name and Administrator's Password.


**Note2:** Keep the password carefully and remember it. When you forget the password, you can reset VPON. The user name and the password will be reset to the default values. It also means you have to set the configuration again.

3. Other configuration function , please refer to Chapter 4.4 for details.

## 6.7 Record the video


OYO Viewer can record the videos appearing on the screen and save as a file to the hard disk of Client PC.

Start to record: 

Click the Capture icon  the top left of OYO window to record the videos. OYO Viewer will record all the videos appearing on the screen.



## Stop recording:


Click the Stop icon  on to stop recording. OYO Viewer will generate the file name of recorded videos automatically and save to the "VideoDir" directory of **OYO Viewer**. If you did not change anything when setup OYO Viewer, the directory should be under window's "Program File".

The file name format is as below:


LV\_YYYY\_MM\_DD\_hh\_mm\_ss.vid

## 6.8 Play Back

Before running this function, make sure to disconnect from VPON.

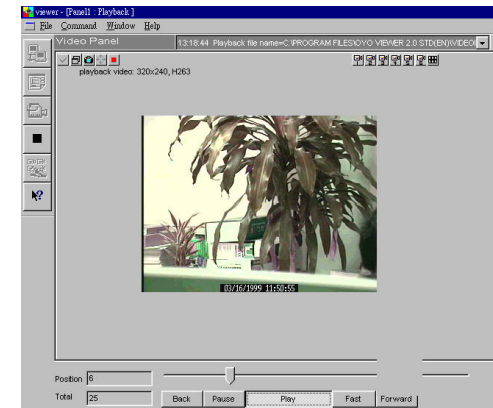
1. Click the Playback icon  on the left top of OYO window. Go to your OYO "VideoDir" directory and choose the file you want to play.
2. Open the file. It will show the first image of recorded video on the screen.
3. The default playing speed is **NORMAL**. Click the "Fast" button to switch the playing speed between **FAST** and **NORMAL**.
4. You can play the recorded videos automatically or manually.
 

**Automatically:** Click the "PLAY" button, OYO Viewer will play the entire recorded videos.

**Manually:** Click the "Forward" button to browse the videos one picture by one.
5. To stop playing back, click the "Pause" button.
6. To play another recorded videos, click the "Stop"  button on the left

task bar. Then execute Step 1 to 5 again. Please refer to figure 6.8 for example.

Figure 6.9



## 6.9 Snapshot


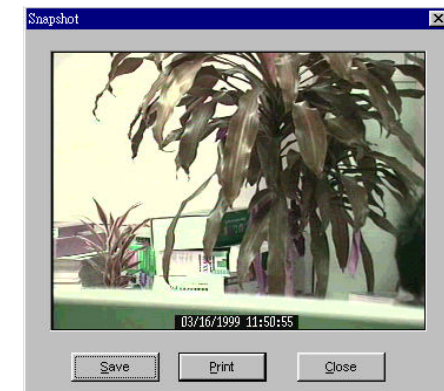
1. Play the recorded videos manually.
2. Choose the picture(s) on the screen that you want to make a snapshot by clicking "Pause" button.
3. Click the Snapshot icon  on the top left of the screen.
4. It pops up a dialogue box showing the picture on the screen (figure 6.9).

Figure 6.9






5. Click “**Save**” to save this picture on the screen to a **BMP** file. The file name is automatically generated by the system in a “YYYY\_MM\_DD\_hh\_mm\_ss.BMP” format. If you click “**Close**” before save, it means you give up to make a snapshot of this picture.

6. If you want to print out the picture, click “**Print**” button to do it.

## 6.10 Disconnect from VPON

Click the icon  on the top left of OYO window to cut the connection.

- End of this chapter -

## Chapter 7 : GPI/O & Callback Setting

VPON can call back automatically to a preset PC when some event happens. It is perfect for the security purpose.

1. Follow the procedures on Chapter 6 to install VPON at the remote site.
2. Connect **GPI** or **GPO** port on the back panel of VPON to external devices such as alarm, sensor for input to GPI or relay for output of GPO.

**Note1:** **GPI** means General Purpose Input. For this kind of device, like a sensor, it can make an open or short circuit of two points connected to VPON.

**Note2:** **GPO** means General Purpose Output. For this kind of device, like an alarm, VPON can make a short circuit of its two points connected to VPON.

**Note3:** The GPI/GPO points on VPON are **dry contact points** only.

**That means it can not survive with too heavy current or too high voltage. The suggested values are Max. 24 volts DC and Max. 200mA**

**Note4:** VPON has 4 sets of GPI/GPO, so you can connect 4 GPI equipment and 4 GPO equipment.

3. Run **OYO Viewer** to make a connection from your PC to VPON. When it is connected, configure the call back environment as stated in **section 4.4.7**.
4. Configure the **GPI/O Settings** as stated in **section 4.4.6**
5. Disconnect from VPON.

### Setup at the callback center

1. Connect PC to a modem (external or internal).

**Note:** Make sure that you have installed this modem successfully.

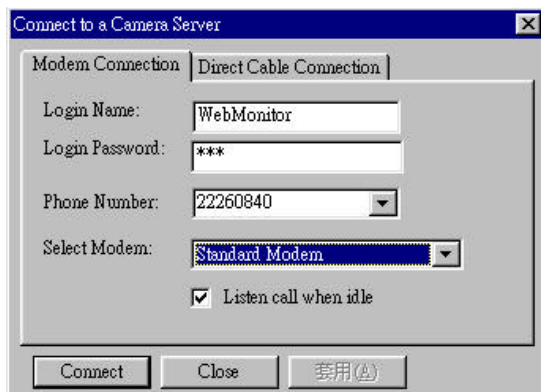
2. Connect the telephone line into LINE jack of modem

**Note:** This telephone number should be the same as you input at the callback telephone number of the VPON.

3. Run **OYO Viewer** on this PC.

**Note:** When you want to use the callback function, you have to run **OYO Viewer** permanently. You can minimize the window, but **DO NOT** exit **OYO Viewer**. Make sure to check the "Listen Call when idle" box before clicking the "Close" button. This process makes OYO viewer listen to incoming call when not communicating with remote VPON server.

Fig 7.1



When the condition you have set happens, VPON will callback automatically to this PC. When the connection is done, you will see the recorded videos first and the recorded videos will be saved to a file. After the transmission is finished, you can see the real time videos.

**Note:** It takes time to transmit the recorded videos. We suggest you to set Record Duration around 20 seconds and Frame Rate equals 5.

**Note1:** The phone number is for VPON to callback. to the PC client  
**Note2:** Please refer to your modem manual to input the correct format of phone number. Pay attention to prefix number, area number and extension number.

4. The physical installation procedure for "scheduled call back" and "advance call back" are the same as above. For the corresponding parameter settings, please refer to **section 4.4.8 and 4.4.9**

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## Chapter 8 : Remote Camera Control

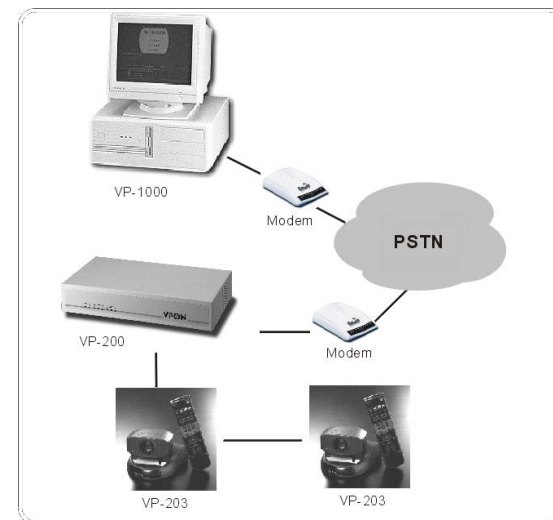
There are two kinds of remote camera control configurations. One is using PTZ cameras with built-in RS232 interface, the other is using VP-201 and VP-202 camera control interfaces to accomplish the job. VPON hardware box , OYO viewer and Internet browsers are transparent to both configurations. VP-201 and VP-202 are considered as external devices to VPON.

### 8.1 Remote Camera Control using built in RS232 Interface

#### Cameras

Currently, VPON support those cameras with built-in RS232 control interface that follow SONY standard. The typical camera model is SONY EVI-D30.The VP-203 camera supplied by Formosa Industrial Computing is functionally compatible with SONY EVI-D30. The configuration diagram is as figure 8.1  
Maximum 6 cameras can be daisy chained by the above configuration.

Figure 8.1



## 8.2 Operation

In order to operate the camera control, you have to install the camera control Plug-in .

### 8.2.1 OYO Viewer


Connect the PC client to VPON using OYO viewer. If you are not familiar with it, please refer to Chapter 4. Select the configuration icon and click the "camera control setting" button. The dialog box as figure 4.4.5 will prompt out. Follow the procedure of section 4.4.5 to select the proper plug-in of your camera. Back to your OYO window and select the video that you want to control. The screen will enter into single video mode. Click the camera control icon  at the left top of the screen, the camera control dialog box will prompt out as figure 8.2

Figure 8.2



Click on the buttons on the Pan/Tilt, Zoom blocks will force the camera to operate follow the corresponding commands. But please be patient to allow enough time for the video to transmit back from the remote side. Don't click the buttons too fast or you will never get the right view you want ! Remember "click and wait" is the most efficient operation.

The 6 preset buttons allow you to tell the camera to remember 6 positions that you prefer. When the camera is located at some position and you click the preset button, this position will be kept inside the camera's memory. After a while, if you move the camera to another position and you want it to move back to the previous preset position, just click the corresponding recall button and it will move back to that position automatically. This function is handy when it is difficult to adjust the camera to the right position. You can preset it locally and then recall it remotely. But one thing bad is that after power off the camera, previous preset values will be lost !

In this case you have to do the presetting from the beginning.

## 8.3 Remote camera control using VP-201 and VP-202

**This configuration is waiting for release**

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**Appendix A: Specifications**

Video Input/ Output	<ul style="list-style-type: none"> <li>. Support NTSC/PAL standard (auto-sensing)</li> <li>. One video output to Six Video outputs</li> <li>. Six video inputs with auto detection of video standards</li> </ul>
Compression	<ul style="list-style-type: none"> <li>. Support H.263, M-JPEG, JPEG video compression format</li> </ul>
Resolution	<ul style="list-style-type: none"> <li>. Image size: 320x240 (JPEG), 176x144 (H.263)</li> <li>. 24 bits true color</li> </ul>
Performance	<ul style="list-style-type: none"> <li>. Up to 10 frame/sec (JPEG), 10 frame/sec (H.263)</li> </ul>
Typical Bandwidth	<ul style="list-style-type: none"> <li>. 100K Byte/second (JPEG)</li> <li>. 5K Byte/second(H.263)</li> </ul>
Hardware	<ul style="list-style-type: none"> <li>. 32bits CPU, 16MB DRAM</li> <li>. 2MB Flash-ROM for firmware</li> <li>. Two RS-232 serial ports</li> <li>. 8 GPIO ports</li> <li>. LEDs showing the status on the front panel</li> <li>. Built-in a mini web server</li> </ul>
Audio Input/ Output (Optional)	<ul style="list-style-type: none"> <li>. One Mini-Din Audio I/O</li> </ul>
System Compatibility	<ul style="list-style-type: none"> <li>. All PCs running Windows95 with a web browser</li> </ul>
Protocol	<ul style="list-style-type: none"> <li>. TCP/IP, PPP, HTTP</li> </ul>
Connectors	<ul style="list-style-type: none"> <li>. One 10 BaseT Ethernet port</li> <li>. Six RCA connectors for video input</li> <li>. One DB-9 port for video output</li> <li>. One 8 pin GPI/O terminal block</li> </ul>
Power	<ul style="list-style-type: none"> <li>. 25watt, 90-264VAC, 47-63HZ</li> </ul>
Size	<ul style="list-style-type: none"> <li>. 304mm(L) x 165mm(W) x 55mm(H)</li> <li>. 11.97inch(L)x6.50inch(W)x2.17inch(H)</li> </ul>

- End of this chapter -

## Appendix B: LED Status

VPON can diagnosis H/W and show the status by LEDs on the front panel of VPON by a sound. Please check the tables below to know the meaning.

### **1. LED Status**

Ready	Video	Network	Status1	Status2	Status3	
1	--	--	1	0	0	LAN mode: Connected to LAN
1	--	--	0	1	0	ISP mode : Connected to ISP
1	--	--	0	0	1	Modem/Null mode connected
0	0	0	0	0	1	Modem/Null mode unconnected
0	1	1	0	0	0	System Error
0	0	1	1	0	0	LAN mode: wrong TCP/IP parameter
0	1	0	1	0	0	LAN mode: System startup error
0	0	0	0	1	0	ISP mode: Connecting to ISP
0	0	1	0	1	0	ISP mode: wrong ISP parameter
0	1	0	0	1	0	ISP mode: System Startup Error

- End of this chapter -

## Appendix C: Modem Compatibility

Here is a list of certified modems/ISDN TA that we have tested and compatible with this product

### **ISDN TA:**

Zyxel 2864I

### **MODEM:**

CinaAction V33600

CinaAction FM56JT

LEMEL 56K External (V1456VQE)

SmartLink 33.6K (3334AV)

USRobotics Sportster Voice 33.6 FaxModem

GVC 33.6K (SF-1133V/R16)

ADI 56K (SVD-56KIM)

- End of this chapter -

## Appendix D: Trouble Shooting

**Q: READY LED is not lighted.**

**A:** Check STATUS LEDs and refer to Appendix B to find out the problem. If VPON still can not work after you solved this problem. Contact your local distributor for the further examination.

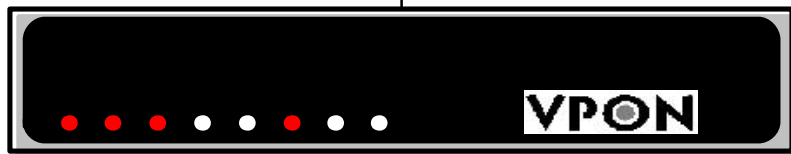
**Q: VPON cannot be installed through COM Port.**

**A:**

1. Ensure that you use the cable provided in the package.
2. One end of this cable is connected to **COM Port** on the back panel of VPON.
3. The other end of this cable is connected to one of COM Ports on the host PC. Be sure that this COM Port is not disabled by BIOS.
4. Set the correct parameters of this COM Port of host PC from SYSTEM in CONTROL PANEL

**Q: VPON cannot be accessed from a web browser in Internet.**

**A:** 1. If STATUS1 LEDs are not lighted as below, check Appendix B to find the problem.



2. Ensure that LAN works well and is connected to Internet.
3. Confirm that you input the correct IP address or Domain Name as the one you assigned to VPON.
4. Check that you assigned correctly IP address, DNS, Gateway and Subnet mask of VPON.

5. Network may be busy. Try later.

6. Reboot VPON.

**Q: VPON is connected directly to Internet through PSTN/ISDN to ISP.**

**A:**

1. If STATUS LEDs are not lighted as below, check Appendix B to find the problem.
2. Ensure that you have connected an external modem or ISDN TA to **COM Port** on the back panel of VPON.
3. Check if you input the correct phone number of ISP when installing. Pay attention to the format, prefix, area code and extension.
4. Modem is switched on.
5. Ensure that the telephone works well and is connected correctly. (Connect the telephone line to LINE jack on modem or ISDN/TA.)
6. ISP is busy.

**Q: You cannot view videos after connecting to VPON.**

**A:**

1. Reload this page.
2. Make sure you use Netscape 2.0 or above.
3. If you choose CODE as MJPEG or H.263 when you installed VPON, please copy Plug-ins to the prope directory on your PC. (~\Communications\Programs\Plugins or ~\Internet Explorer\Plugins)
4. If the video block is black, check the connection between VPON and cameras. Make sure that you have powered on cameras or cameras work well.
5. When you see black block, try to use CAMERA SETTING to adjust Brightness or adjust the iris of cameras, and select "**Redetect the installed cameras**".

**Q: Video quality is not good.**

**A:** 1. Use CAMERA SETTING to set Brightness, Contrast, Saturation, Hue and

Quality.

2. Adjust the focus of cameras. (Use a local monitor or TV set to do this.)
3. Change COMPRESSION.
4. Make sure that the light at scene of cameras is enough.
5. Check to see if the video cable is good and is well connected.

**Q: RELOAD is failed. You cannot view the real-time videos.**

- A:**
1. Disable “CACHE” function of web browser.
  2. VPON is rebooting now as you just changed the configuration.
  3. Network is busy.

**Q: Videos are not clear.**

- A:**
1. Change the settings of cameras.
  2. Make sure that your VGA card supports 16-bit hi-color or above.

**Q: The stamped time is not correct.**

- A:** As the stamped time on videos is the system time of VPON, use “**SET DATE & TIME**” to adjust.

**Q: When you alter VPON’s home page to Chinese Version, you can see nothing but random codes.**

- A:** Your system does not support Chinese characters.

**Q: How can I know if I have downloaded the newest firmware successfully?**

- A:** Login VPON as administrator and access “**System Information**” page. You can find the version and date of the firmware.

- End of this chapter -