WebEye B101 User's Guide

* This manual is for WebEye B101 firmware version 1.2.0. If you have later version of firmware, please download the last updated user's guide from WebGate's homepage (www.webgateinc.com)

System Requirements

- **For WebEye**
  - Network: 10 Base-T LAN
    (Leased line, xDSL, Cable Modem, ISDN) or PSTN
- **For a PC to access WebEye**
  - Processor: Pentium II and above
  - RAM: 64MB and More
  - OS: Windows 98/ME/NT/2000
  - Screen Resolution: 1024 X 768 pixels and above
  - Network: 10 Base-T LAN or PSTN

WebGate Inc.

FCC Compliance Statement

Caution : Any changes or modifications in construction of this device which are not expressly approved the party responsible for compliance could void the user's authority to operate the equipment.

NOTE : This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications, However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Important Notice

1. WebEye B101 is not weatherproof. Therefore you should be well aware of environmental specifications that are included in the manual. In case of outdoor use, where it needs additional weather criteria, you should equip weatherproof case to protect WebEye B101 from water, moisture, or temperature (higher or lower than specification). For WebEye cleaning, gently wipe with clean dry cloth.

2. Be sure to use a 12V DC or 24V AC adaptor to supply power to WebEye B101. Connecting WebEye B101 to an adaptor other than 12V DC or 24V AC, may cause electric damage to WebEye B101.

3. Be caution in handling WebEye B101 for physical shocks may harm the product.

4. WebEye B101 is made of aluminum. Therefore you can hurt human beings if you throw it to them or hit on them. When installing WebEye B101, be sure it is attached tight and stable to avoid any human injures. Be cautious to locate on safe places where children are unreachable.

5. If WebEye B101 does not operate properly, please contact the closest local WebGate distributor for after sales service. In all cases, you are prohibited to disassemble the product. If so, WebGate is not responsible for any malfunction nor service warranty.

6. Camera surveillance laws may differ for each country. Therefore, please contact the local region first to avoid any surveillance law violations and to apply for authorized purposes only.

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I. Introduction

- **What is WebEye B101?**

The WebEye B101 is a network dome camera server solution with an integrated Internet server, image compression device, flash memory, and many other features. No other hardware is necessary for use. The WebEye relay video source from a dome camera to network and provides real time images over networks and the Internet. Simply provide power and connect LAN cable and video cable to the WebEye. WebEye utilizes Wavelet image compression and Linux operating system. Wavelet and Linux enable WebEye to transfer high quality images faster and with a greater degree of reliability than standard JPEG systems.

- **Features and Benefits**

Ease of Use – WebEye requires either Netscape Navigator 4.7 (or higher) or Microsoft Internet Explorer 5.0 (or higher) for use. Windows 2000 is recommended for best results. Connect WebEye to the Internet and it is ready for use.

Compatible with most Systems and Protocols – WebEye supports TCP/IP networking, SMTP, HTTP and other Internet-related protocols. In addition, the WebEye can be used in mixed operating system environments, such as Windows, UNIX, Macintosh and OS/2. WebEye also integrates easily into other Internet/Intranet applications and CGI scripts.

Simple Administration - WebEye can be configured and managed directly from its own web page. Moreover, as new upgrades become available, it is easy to upgrade all WebEye camera products remotely over the network.

Wavelet Image Format - Unlike many other products that need to fracture image files prior to broadcast, the WebEye delivers complete, highly compressed pictures in Wavelet format. Wavelet has image compression rates 30-300% higher than standard JPEG. By utilizing Wavelet, image file sizes are much smaller than conventional camera servers and Wavelet's image quality is superior to other camera servers as well. Wavelet can transmit up to 123 frames per second.

External Device Connection - External devices such as IR-sensors, switches and external video input can be connected to WebEye via the auxiliary Input/Output port.

User's Programmable Space – WebEye contains 4.5MB of configurable Flash Memory for user-programmable and user-configurable space. Because WebEye also acts as a server, this space can be used to create a personal web page.

Embedded Linux Operating System – WebEye uses an embedded Linux operating system within its 32bit RISC CPU. Linux is based on UNIX and is one of the most stable operating systems available. There is very little chance of the operating system crashing.

II. Product Description

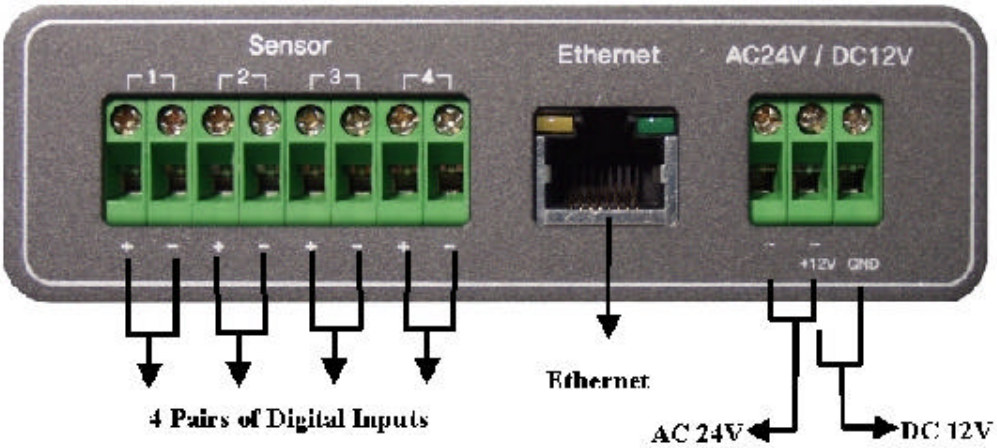
1. Contents

Unpack and check all the items as below.

Item	Description	Remarks
WebEye B101	Network server for dome camera	
Manual	WebEye User's Guide Quick reference guide	Provided on CD Printed material
Crossover Cable	1 meter crossover cable	Red-colored
Direct Cable	2 meter direct cable	White-colored
DB-9 Connector and wire	DB-9 connector wired with 2meter communication cable to connect with an external Modem	
Screw & anchor	4 sets of screws and plastic anchors	
CD ROM title	Setup program and manual	

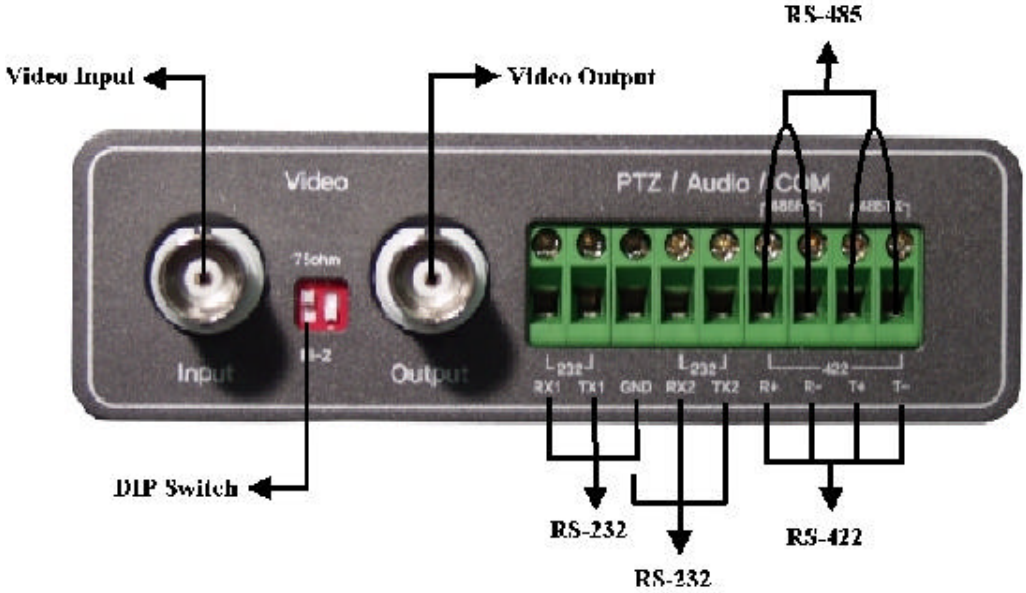
2. WebEye B101 view and description

1) Front view and description



Connector Name	Description	Remark
Digital Inputs	To input digital signal. There are 4 pairs of digital inputs.	
Ethernet	To connect 10 Base-T Ethernet cable.	Article 3)
DC 12V	To connect a power supply unit of 12V DC.	
AC 24V	To connect a power supply unit of 24V AC.	

2) Rear view and description



Connector Name	Description	Remark
DIP switch	To designate video signal termination of 'Video Input' BNC connector. (Only the left switch is used)	Article 4)
Video Input	To input video signal through a coaxial cable.	
Video Output	To output video signal through a coaxial cable. (Roof-through from 'Video Input' BNC connector)	
RS-232	To communicate between WebEye and external devices such a dome camera, WebEye A10 (An audio transmission kit), or an external modem. These pins are for devices that satisfy RS-232C protocol, and they are consisted in RX1, TX1, and GND.	GND pin is co-used.
RS-232	To communicate between WebEye and external devices such a dome camera, WebEye A10 (An audio transmission kit), or an external modem. These pins are for devices that satisfy RS-232C protocol, and they are consisted in RX2, TX2, and GND.	
RS-422	To communicate between WebEye and a dome camera that satisfies RS-422 protocol. They are half-duflex. It is consisted in R+, R-, T+, and T-.	
RS-485	To communicate between WebEye and a dome camera that satisfies RS-485 protocol. They are consisted in 485+ and 485-. Short R+ and R- with a wire to get RS422+ and short T+ and T- to get RS422-.	

3) LED of Ethernet port

Yellow LED: This LED indicates the status of data transmission. After power is supplied, it is on for the first 4-5 seconds and then it goes off. And it blinks continuously when a user access WebEye and WebEye transmits data.

Green LED: This LED indicates the status of networking. After power is supplied, it is on for the first 1-2 seconds, and then it blinks once at every one second as long as the network is connected.

4) Descriptions on DIP Switches

This is to designate video signal termination. If you want to monitor real time image through a CCTV monitor as well as WebEye, you may connect a dome camera to 'Video Input' connector and a CCTV monitor to 'Video Output' connector. In this case, you should decide which one is terminal of video signal. WebEye is not affected if a CCTV monitor is designated as terminal. If you connect a dome camera to 'Video Input' and monitor real time video only through a PC, place the first DIP switch (marked with No. 1) at upper position 'ON'. If you monitor real time video through a CCTV monitor as well as a PC, connect a dome camera to 'Video Input' and a monitor to 'Video Output'. And place the first DIP switch (marked with No. 1) at lower position 'OFF'. If the CCTV monitor has a DIP switch and it is configurable the termination, you may change the termination from the CCTV monitor to WebEye such as the DIP switch in WebEye 'ON' and the DIP switch in a CCTV monitor 'OFF'. However a CCTV monitor is generally set as termination of the video signal.

III. WebEye Installation Summary, Connection & Placing

1. Installation Summary

- Connect Ethernet and Power to WebEye on local network for configuration
- Install a setup program of WebEye to a PC on local network
- Assign an IP address to WebEye and configure administrator's condition
- Configure user's condition
- Place WebEye for your purpose, and re-connect power and Ethernet
- Adjust the Focus

2. Connecting

- Connect Ethernet line to the Ethernet port in the rear.
- Connect the power supply to a power supply port in the rear.
- Confirm that the LED of the Ethernet port blinks

3. Placing

- Place WebEye appropriately for your purpose

IV. Installing WebEye Setup Program

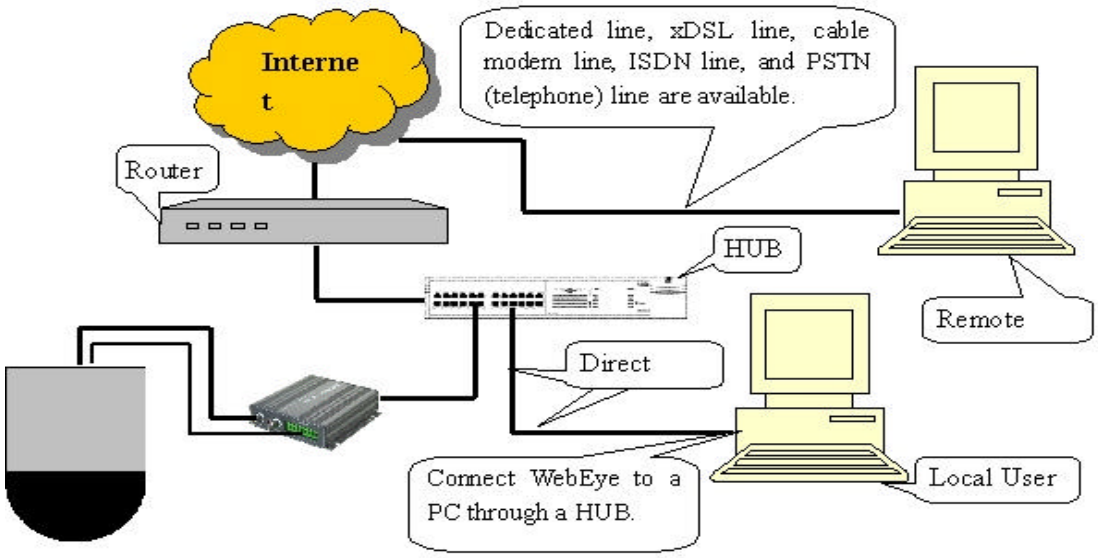
- Copy WebEyeSetup.exe file from the enclosed CD (or Diskette).
- Paste the file into your PC
- Click the file on your PC to activate Setup program.

V. Assigning IP Address and Configuring Administrator's Condition.

1. Connecting WebEye to a PC

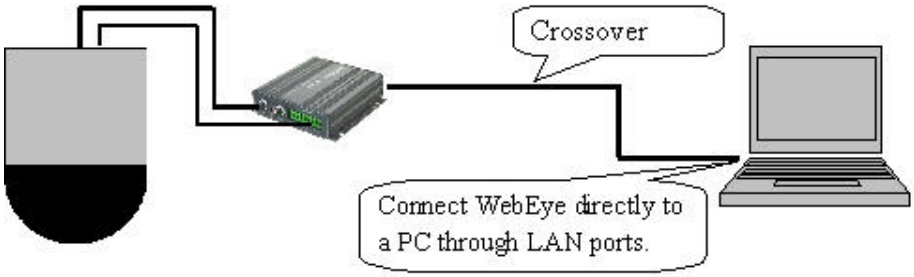
1) Connecting WebEye on Internet or LAN.

You may use direct cable (white colored one) to connect WebEye on Internet or LAN. Though you connect WebEye as follows, a remote user may not access WebEye before you configure its network setting properly.



2) Connecting WebEye to a PC.

You may use crossover cable (red colored one) to directly connect WebEye to a PC. This connection is just to configure WebEye.



2. Assigning IP address and Configuring administrator's condition with Setup program

1) Starting Setup Program for WebEye

Click the "WebEyeSetup.exe " file on your PC. When the Setup Program is executed, the setup program detects and shows every WebEye connected on the local network.

From the WebEyes listed, select one to assign a new IP address. (Default is 211.53.133.92). To choose a WebEye, click on its MAC Address or IP addres

The "Reboot" button will reboot the WebEye. This process takes 10-20 seconds.

2) Configuring Administrator's Conditions

To access the WebEye's Administrator's Page from the Setup Menu, enter the admin.'s password and click the "Start Configuration" button.

To configure several WebEyes simultaneously, follow the Steps below. However, some information such as "Date and Time at System," "Serial Number," and "IP Configuration at Network," will not change. "Date and Time at System" and "IP Configuration at Network" can be changed in the Setup program. The"Serial Number"never changes.

- After configuring all of the conditions, close WebEye homepage.
- Click "Save" button.
- Save the information to a directory.
- Select another WebEye on the local network and type in the administrator's password.
- Click "Start Configuration" and "Load"buttons in turns.
- A "Loading Completed" message will appear on the window when the procedure is completed.

3. Assigning IP Address with ARP command

1) Using ARP in Windows 98 and NT

When using WebEye with Windows 98 and Windows NT, follow the steps below.

- Open a DOS window and type the following commands.

```
arp   -s   <WebEye IP address>   <WebEye Ethernet address>
ping   -t   <WebEye IP address>
```

- Example

```
arp   -s   192.168.1.3   00-40-8c-10-00-86
ping   -t   192.168.1.3
```

2) Using ARP in Windows 95

When using WebEye with Windows 95, follow the steps below.

- Open a DOS window and type the following commands.

```
arp   -s   <WebEye IP add.>   <WebEye Ethernet add.>   <my PC IP add.>
ping   <WebEye IP address>
```

- Example

```
arp   -s   192.168.1.3   00-40-8c-10-00-86   192.168.1.2
ping   192.168.1.3
```

3) Verifying Installation

After successfully completing the above procedures, the following message (or similar) will appear on the screen:

```
Request timed out
:
Request timed out
Reply from 200.243.232.178: bytes=32 time=2ms TTL=255
Reply from 200.243.232.178: bytes=32 time=2ms TTL=255

Ping statistics for 200.243.232.178:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milliseconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

If the above "ping" reply does not appear, press 'F3' and 'Enter' keys. Normally "Request timed out" messages appear 7 times before reply ing properly.

Once the above "ping" reply appears press <Ctrl>+<C> keys to make it stop.

When the "ping" reply stops, data loss may range from 0% to 99%. This is normal. If the statistic shows '100% loss', check the following criterions: (a) network line and connection status are stable; (b) IP address assigned to WebEye is available; (c) PC and WebEye have the same local network IP address. Same local IP address of C grade network means that first 3 sets of numbers are the same but the fourth set is different. For example 192.168.1.2 and 192.168.1.3 are in the same local network. (If there is a 'Network Mask' on the network, this can be a n exception. For detailed information on IP, refer to appendix 3)

VI. Accessing WebEye Homepage & Monitoring Real-time Image

After assigning WebEye an IP address, you may access WebEye B101 and monitor real-time image on Internet. However you may not access its Homepage on remote network until assigning other addressees like gateway address, subnet mask, broadcast address properly.

1. Starting Web browser

Start your web browser and enter your WebEye IP address. Then you can see a build-in homepage of WebEye. WebEye supports up to 100 users simultaneously. If a person tries to access WebEye as the 101st user, one cannot receive any image but will see a message of user counter on upper right side of homepage as 'Connected Client#: 100'

2. Login page

1) ID and password

To verify registered WebEye users, there is a Login page. If you are to connect to WebEye, you should follow login procedures.

If you key in user's ID and password, you may access to a viewer to monitor real-time images. With administrator's ID and password, you may also access to a real-time image viewer with administrator's authority.

The default value of both user's ID and password are '**guest**', and administrator may change it at Admin page. But, each ID and password must be composed within 9 bytes. (e.g. 9 English letters)

2) Behind Firewall

If your PC is connected on a network where firewall is. In the case, you may not view real time image properly because video TCP port of WebEye is blocked. Common video TCP port (A default video TCP port of WebEye is 8080th port.) is blocked under firewall. If you areunder firewa ll, you may view real time image through WebEye's Server Push Viewer that transmits video through Web TCP port instead of video TCP port.

By clicking on 'Behind Firewall' menu, you may directly connect Server Push Viewer when you access WebEye homepage.

3) WebEye Plug-in for Netscape user

To monitor real-time image through Netscape Navigator, user should install WebEye Plug-in program first by clicking WebEye Plug-in menu. When you connect WebEye for the first time or you have Plug-in program of lower version, you have to download it clicking 'Download WebEye Plug In Now!' button. Then you click 'Grant' and 'Install' buttons respectively.

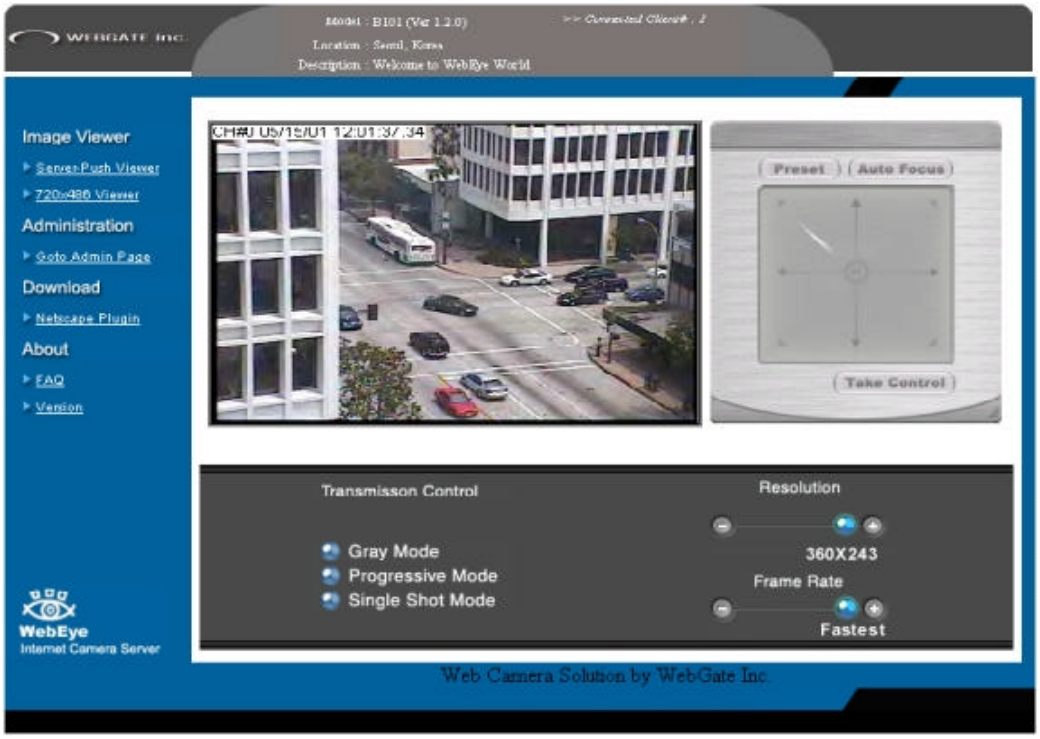
4) WebEye Active -X for MS Explorer User

For a Microsoft Explorer User, Active-X Control program is required. The program will be installed automatically when a user accesses to WebEye. For Active-X installation on your PC, just click 'Yes' to the question if you want to install the program on pop-up window. If you cannot see images after installation, you should check if Active-X Control program (a file named Web Camera Server Control) is installed or not. You may check Web Camera Server Control file (Active-X Control program) in the fold of C:\Windows\Download Program Files. If the Web Camera Server Control file is not installed at all in the directory, try it again to download and install it. If the file is already installed but image is not seen, remove the file and re-install it.

5) FAQ

A lot of questions and answers are provided here for troubleshooting. If user has another question that is not answered here, please contact WebGate through its Internet homepage.

3. Real time monitoring through Default Viewer



At default viewer, a user may configure image transmission method and control integrated PTZ mechanism of a dome camera. The PTZ control panel is activated in some seconds depending on network speed.

On the left side panel, there are menus for changing real time image viewer, accessing administration page, downloading Plug-in program and viewing information on version and Q&A.

- **720x486 Viewer**: By selecting this viewer, a user monitor images of 720 by 486 resolutions. This viewer has the identically same functions of default viewer but the image panel is bigger by 4 times than that of default viewer.

- **Server Push Viewer**: If WebEye B101 or user's PC is behind firewall on network, a user may monitor real time image through 'Server Push Viewer'. Some functions such as 'Progressive Mode' image transmission, 'Image Quality' control, and 'Quality Box' creation menus out of image control and 'Preset', 'Auto Focus', and 'Focus Sensitivity' control out of PTZ control are not supported in this viewer.

1) Image control

There are five menus for controlling image transmission method. These menus are not to be activated non-PC platform such as Macintosh and Unix system.

(1) Gray Mode

If you choose this mode, the images are displayed in black and white. And, you can view the images transmitted faster than in color image. By click again the button, the function is released.

(2) Progressive Mode

In the case of 'Progressive Mode' on, every image is regenerated from low to high resolution. In other words,

an image is reproduced from vague to clear for user to see what is happening and later one may detect exact things. This function is useful when you use a low speed network, because it reduces waiting time.

(3) Single Shot Mode

When this button is clicked, one frame of image is reproduced. Therefore, it is stopped transmitting further image. To resume transmitting real-time images, click the button again.

(4) Resolution

You may select a level of resolution among 3 levels (360x243, 180x121, 90x60). High-resolution image is big, and its transmission speed is slow. You may monitor 720x486 resolution images through '720x486 Viewer'.

(5) Frame rate

You may choose image transmission speed. If you choose 'Fastest', you can get images at the fastest speed under your network environment.

2) Integrated PTZ mechanism control

This is to control integrated PTZ mechanism of a dome camera. The control panel is deactivated at first. And it is to be activated when a user click on 'Take Control' button.

(1) Take Control / Give Control

This is to get power of controlling PTZ mechanism of the connected dome camera. A user who is permitted to control PTZ mechanism may get the power by clicking 'Take Control' button.

When the user gets the power, the button is toggled into 'Give Control'. During the assigned time, a user may abandon the control power.

(2) Pan/Tilt

In the center of the control panel, there is a plotted space with 4 arrows of up, down, left and right directions. This is to control pan and tilt mechanism of a dome camera with the mouse. By placing the mouse cursor on the panel and clicking the left button of a mouse at a certain point of the panel, a dome camera pans and tilts.

(3) Zoom (W/T)

You may zoom in (W: Wide) and zoom out (T: Tele).

(4) Auto Focus

Basically, a dome camera has auto-focus function and it focuses an object automatically. A new object in the view, however, may not be focused. In the case 'Auto Focus' button is used to send commands to focus automatically to all objects that appear in the view newly.

(5) Manual Focus (N/F)

You may control zoom mechanism with near (N) and far (F) buttons. This is to optimize image's focus. Focusing sensitivity is set with 'Focus Sensitivity' in pop-up menu as well as in administration page.

3) Convenient pop-up menu

A small window of 5 menus appears when you click the right button of the mouse. However only a certain users who are permitted can utilize the functions such as 'Image Info', 'Quality Box', 'Focus Sensitivity', and 'Image Quality'. And the results of the four functions are to be affected in every image that is transmitted to all users. 'Save File As' menu is permitted to any user.

(1) Image Info

You may decide the color (black or white) of the information that is shown on the left top of the image. And you may leave out the information. A user who has 'Video control' right may utilize this menu.

(2) Quality Box

This is to set a certain area clear and remained area dull. You can overcome insufficient network bandwidth with this function, because the file size is reduced with unfocused area. Quality Box is to be set like under written description.

- Choose 'New QBOX' button.
- Place mouse cursor on a certain point of real time image where to start QBOX.
- Click and drag the mouse point.

You can also re-use previous QBOX area to focus again by clicking 'Enable QBOX'. 'Disable QBOX' is to finish. The image activated Focusing Area function is seen in the right. The image quality of outer area of QBOX is to be set with 'Ambient Level' menu. The level is from 1 to 5. If you select 'Level 1', the quality is similar to focused area. And if you select 'Level 5', the unfocused area is shown dark.

(3) Focus sensitivity

You may configure movement degree of zoom mechanism. The sensitivity is from Level 0 to Level 9. By selecting 'Level 9', user zooms in or out at the largest degree. A user who has 'PTZ control' right may utilize this menu.

(4) Image quality

It is to set image quality. The image quality is from Level 0 to 9. If user chooses the 'Level 9', WebEye sends the finest image. However, transmission frame rate will be reduced because of large sized data. If user chooses 'Level 0', WebEye sends dullest image but fast. A user who has 'Video control' right may utilize this menu.

(5) Save File As

It is to save a frame of still image as an electric file. A still image can be saved as bitmap (*.bmp) file or Wavelet format file (*.eye). Wavelet formatted image file is to be reproduced on Internet browsers such as Netscape Navigator or Internet Explorer as long as the PC is installed Active-X or Plug-in program.

4) Administrator's page access

Clicking 'Goto Administrator's Page' menu, you go to a login page of administration page. However only the user who has authority as an administrator can access the page with administrator's ID and password.

5) Program download

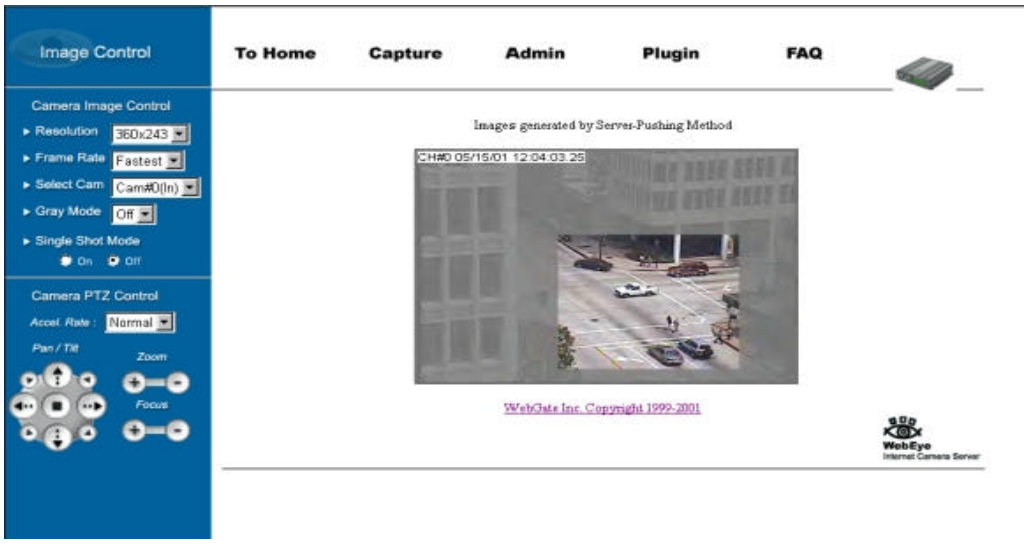
As WebEye compresses image with Wavelet algorithm, user needs to install Plug-in program to see transmitted image through Netscape Navigator on one's PC. Clicking 'Netscape Plugin' menu, a user accesses a page where to download Plug-in program.

6) About

User may look up information on software versions clicking 'Version' and on trouble shooting clicking 'FAQ' regarding to installation or running WebEye.

4. Real time monitoring through Server Push Viewer

If WebEye is installed on a network where firewall is, you may access WebEye through server-push viewer to monitor real-time images.



1) Image Control

'Progressive Mode' image transmission menu is not supported.

(1) Resolution

You may select a resolution level among five. (90x60, 180x121, 360x243, 720x243, 720x486)

(2) Frame Rate

You may choose image transmission speed. (1fps, 3fps, 5fps, 10fps, fastest)

(3) Play Control

If you choose this mode, the images are displayed in black and white. And, you can view the images transmitted faster than in color image. By click again the button, the function is released.

(4) Single Shot Mode

When this button is clicked, one frame of image is reproduced. Therefore, it is stopped transmitting further image. To resume transmitting real-time images, click the button again.

2) PTZ mechanism control

'Preset' and 'Auto Focus' are not supported.

(1) Pan and Tilt

If you click the buttons, you can move the direction of WebEye to where you want to see.

(2) Zoom

You may zoom in and zoom out.

(3) Focus

You may control manually to optimize the image's focus.

(4) Acceleration Rate

You may choose moving speed of Pan/Tilt/Zoom mechanismamong three steps of fast, normal and slow.

3) Pop-up Menu

'Image Quality' control, 'Quality Box' creation, and 'Focus Sensitivity' control are not supported.

(1) Image Info

You may decide the color (black or white) of the information that is shown on the left top of the image. And you may leave out the information. A user who has 'Video control' right may utilize this menu.

(2) Save File As

It is to save a frame of still image as an electric file. A still image can be saved as bitmap (*.bmp) file or Wavelet format file (*.eye). Wavelet formatted image file is to be reproduced on Internet browsers such as Netscape Navigator or Internet Explorer as long as the PC is installed Active-X or Plug-in program.

4) To Home

This is to go to main viewer. The main viewer is set in administrator's page.

5) Capture

This is to capture image and save as a file. This menu is the same function as 'Save File As' menu.

6) Admin

Clicking 'Admin' menu, you go to a login page of administration page. However only the user who has authority as an administrator can access the page with administrator's ID and password.

7) Plug-in

As WebEye compresses image with Wavelet algorithm, user needs to install Plug-in program to see transmitted image through Netscape Navigator on one's PC. Clicking 'Netscape Plugin' menu, a user accesses a page where to download Plug-in program.

8) FAQ

User may look up information on trouble shooting clicking 'FAQ' regarding to installation or running WebEye.

VII. Configuring Administrator's Condition at 'Admin' page

This page is for administrator. Administrator may control operating status remotely. This page can be accessed through Setup program by clicking 'Start Configuration' button.

1. Administrator Login

1) Accessing through setup program

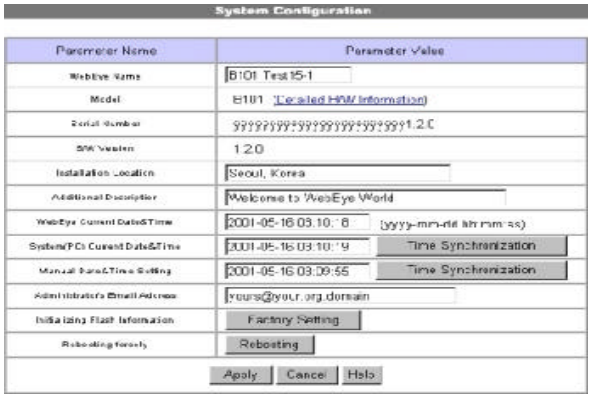
First you click on MAC address or IP address of WebEye to select a certain one. Then you key in the administrator's ID and password (Default ID and password are 'admin'), and click 'Start Configuration' button in turns. When you click 'Start Configuration' button, the setup program automatically connects you to Admin page of WebEye Homepage.

2) Accessing through Web browser

On Web browser, a user may access WebEye login page with its IP address. In the login page, a user may key in administrator's ID and password or a normal user's ID and password. With any of ID and password, the user may access real time image viewer page.

2. Configuring Administrator's Condition at Homepage

1) System Configuration



This page is to set name, date & time, location, and description of one's WebEye. Model, serial number and software version appear automatically.

(1) WebEye Name

The name is to be used to register the WebEye on a certain server, if you use dynamic IP address.

(2) Model

By clicking 'Detailed H/W Information', you may view detailed hardware information such as maximum numbers of channel, serial port, digital input, digital output, etc. The model name is marked automatically.

(3) Installation Location & Additional Description

The information is shown in the real time image viewer page as well as in a dynamic IP registration list.

(4) Date & Time

There are three date & time menus. In 'WebEye Current Date & Time ' panel, the date and time, which is set in WebEye, appears. In 'System (PC) Current Date & Time' panel, the same date and time as is set in user's PC appears.

(5) Administrator's E-mail Address

In this panel, administrator records one's e-mail address. If administrator put a 'contact' menu of e-mail communication on real time image viewer page, the linked e-mail address to the 'contact' menu is to be synchronized with this. So administrator can keep up e-mail address easily.

(6) Initialize Flash Info

Administrator initializes almost all the information saved on flash memory. However 'Date & Time', 'Model', 'Serial Number', IP configuration, passwords, and all items in 'Video' menu are not initialized.

(7) Rebooting

If WebEye has any problem, administrator can reboot it without adjusting power supply. This button works as on/off switch.

2) User Configuration

This page is to configure IDs and passwords of an administrator and 5 users.

(1) User Account

There are one administrator's account and 5 users' accounts. Account name can be changed.

(2) Password

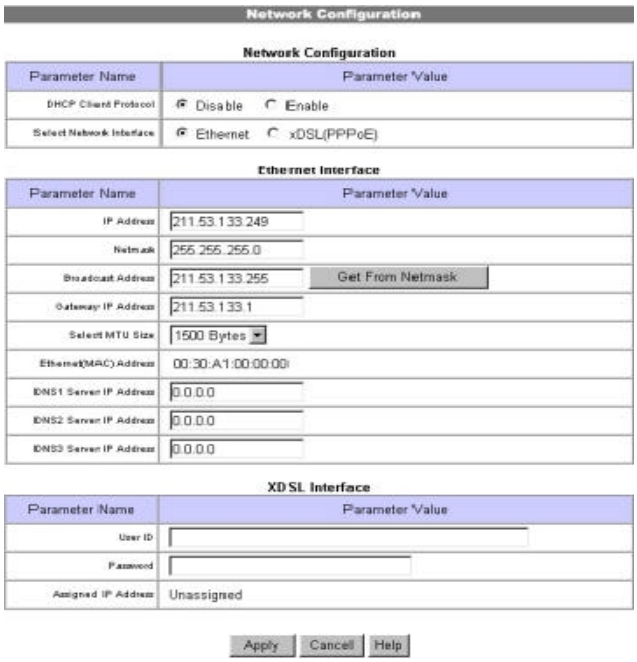
If you want to open your WebEye to everyone, you may not change default user's ID and password. However you should change administrator's ID and password with unique ones of yours.

(3) Access Rights

Administrator may give or forfeit users' right of PTZ control and video control. With default setting, administrator has both right of PTZ control and video control and normal user doesn't have any right.

3) Network Configuration

This page is to define network type and set network addresses of WebEye.



(1) DHCP Client Protocol

If administrator activates 'DHCP Client Protocol' menu, all the addresses are going to set automatically by WebEye detecting them from DHCP server of your ISP. The detected addresses are not seen on the screen.

(2) Select Network Interface

If WebEye is connected on xDSL line that needs PPPoE process, administrator should select 'xDSL (PPPoE)'. However the xDSL line doesn't need PPPoE process, administrator should select 'Ethernet' though WebEye is connected on xDSL line.

(3) Ethernet Interface

Administrator may configure IP address, subnet mask, broadcast address, gateway address, and DNS addresses of WebEye. For broadcast address, administrator may set it automatically by dicking 'Get From Netmask' button after assigning IP address and subnet mask.

MTU Size: Depending on network type, administrator may set data packet size with this menu to utilize the network at most effectively.

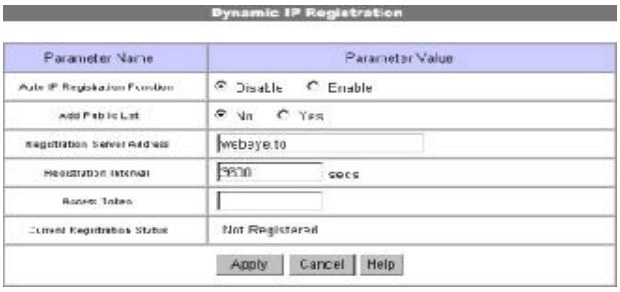
DNS Server IP Address: This is used when you register your WebEye B101 on dynamic IP registration list of WRS (WebEye Registration Server). WRS has its domain name of 'webeye.to' and the domain name is registered on DNS servers on the world.

(4) xDSL Interface

If WebEye is connected on xDSL line and needs PPPoE process, administrator should select 'xDSL (PPPoE)' and configure ID and password for PPPoE. ID and password may be acquired from the ISP that installed the line. And WebEye may get IP address when it is connected on xDSL line.

4) Dynamic IP registration service for ISDN and xDSL users

This page is to register WebEye on dynamic IP registration server.



If WebEye is installed on a network of dynamic IP address (floating IP address), administrator should register the WebEye to 'dynamic IP registration server' to give simple connectivity to common users.

To solve the problem WebGate run a server making a list of WebEyes that have dynamic IP addresses. On the server, WebEye registers its information such as name, location, and description, so that common users may detect a certain WebEye. Name, location and description are assigned at 'System Configuration' page. If administrator does not change them, the WebEye will register default information on the list, and it will be very difficult to point out and access a certain WebEye. The list is on an Internet homepage of WebEye, 'www.webeye.to'.

(1) Auto IP Registration Function

Administrator may register one's WebEye by enabling 'Auto IP Registration Function'. Registration process is that WebEye detects IP addresses from DHCP server and informs the detected IP addresses to dynamic IP registration server. And the server updates already registered information with new one. Please keep in mind that user have to enable 'DHCP Client Protocol' at 'Network Configuration' page to have WebEye get dynamic IP addresses automatically, when WebEye is installed on a network of dynamic IP address.

(2) Registration Server Address

This is to configure a server address for registration. The registration server to be used for Dynamic IP registration should be installed proper S/W, developed by WebGate Inc. If you do not run a server for IP registration, keep the server's name as default figure (webeye.to).

(3) Registration Interval

Dynamic IP address is commonly used on xDSL, ISDN or Cable Modem lines. To maintain continuous connectivity, user should reset the 'Registration Interval' shorter than the default value. Because an IP is to be changed from time to time, some user may not access by clicking on a WebEye if actual information on WebEye is changed from the registered IP information on the dynamic IP registration server.

(4) Add Public List

There are two registration systems. One is to register on a public list and another is on a private list. Please refer to Article 3)

- **Public List**: This list is open to anyone who accesses WebEye Internet homepage (www.webeye.to).
- **Private List**: This list is not seen to anyone. Even the owner of a WebEye can get the information on one's WebEye only without viewing information on other's WebEye.

(5) Access Token

Access token is a password and it is used when you register your own WebEye on a list 'User's WebEye' out of all WebEyes on WRS(WebEye Registration Server.)

5) How to find registered WebEye in WebEye Internet homepage

On WebEye Internet homepage (www.webeye.to), there are menus to find WebEye that is registered on WRS (WebEye Registration Server).

(1) Sign up membership

To search your WebEye out of a public list or a private list, you have to sign up membership first. You may sign up on the server through 'Membership' menu.

(2) Finding WebEye from public list

To access WebEye that is registered on public list, you may find it through 'Service' or 'Demo' menus. Once click 'Service' or 'Demo' menu, you may find 'WRS (WebEye Registration Service) WebEye list' on WRS page that is a main page of the 'Service' menu. The sub-menu 'WRS' is on the left side.

(3) Finding WebEye from private list

To access WebEye that is registered on private list, you should make your own WebEye list before. You may make the list through 'User's WebEye' menu. In the list, there are to be registered any WebEye from the 'Public List' or 'Private List'. On 'User's WebEye' page, there two sub-menus, 'Your WebEye List' and 'Search and Append'.

My WebEye List: You may maintain your own WebEye registering it on this list. When you login this homepage, WRS (WebEye Registration Server) detects and shows all the WebEyes that you listed appear on your own list.

Search and Append: This menu is to append a certain WebEye on your own list. You may append WebEye on your own list as follows.

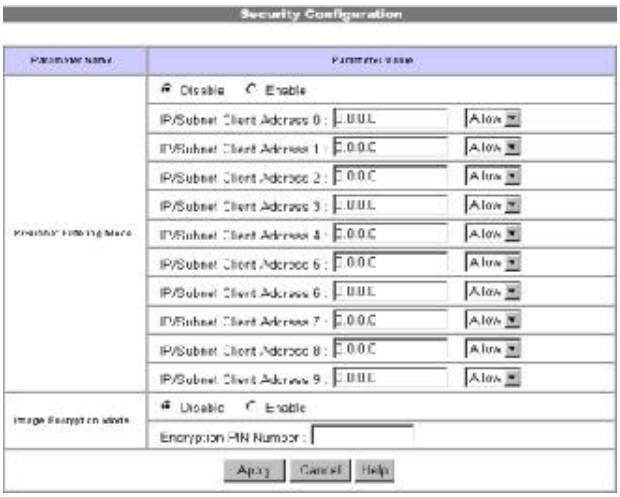
6) Security Configuration

This page is to control accessibility to one's WebEye with IP addresses.

(1) IP/Subnet Filtering Mode

If this function is on, only the user whose PC's IP address is registered on WebEye can access the WebEye. Administrator may temporarily disallow a registered user to access to WebEye with a menu on the right side of each IP address. Any IP addresses are to be listed.

If administrator inactivates 'IP/Subnet Filtering Mode', anyone may access one's WebEye through a Web browser with any PC.



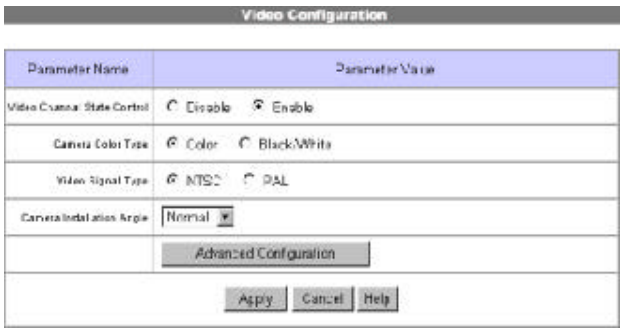
(2) Image Encryption Mode

Administrator may restrict people to receive images from one's WebEye, even though people accessed it. If 'Image Encryption Mode' is enabled and a pin number is assigned, people have to key in the assigned pin number to see image after accessing WebEye image viewers.

'Security Configuration' is a double-checking function to control accessibility, utilizing 'User Account Configuration' at the same time.

7) Video Configuration

This page is to configure every channel with various conditions.



(1) Video Channel State Control

Administrator decides whether to utilize video signal from selected channel in WebEye or not. If user disables a channel with an external camera connecting to WebEye, WebEye does not show any image from the channel.

(2) Camera Color Type

It is to define every camera whether it is color or B/W camera. This is not to change its original character but only to define the character and give information to WebEye.

(3) Camera Signal Type

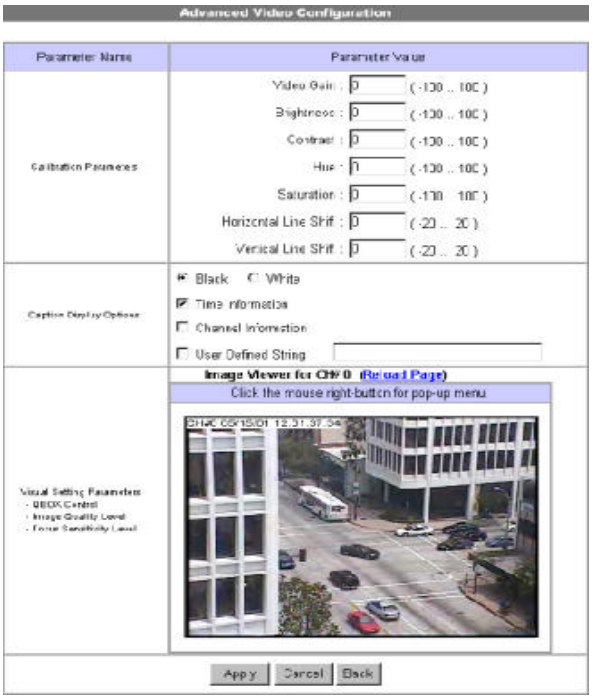
It is to define CCD module of WebEye and external CCD cameras between 'NTSC' and 'PAL'.

(4) Camera Installation Angle

WebEye can always show images in right angle regardless a dome camera's installation position. If a dome camera is located on the floor upside down, user can adjust image angel by selecting '180 deg'.

(5) Advanced Configuration

By Clicking '**Advanced Configuration**', you may access the sub page where to configure detailed conditions.



Calibration Parameters

Administrator manipulates screen settings by adjusting brightness, contrast, hue, saturation, horizontal line shift, and vertical line shift from the menu. With 'Video Gain' menu, you may optimize the image without adjusting each value of other menus.

Caption Display Options

Administrator may configure caption on real time image with display options such as color and contents. Caption is to be made of time information, channel information, and additional explanation (user defined string).

Visual Setting Parameters

Administrator may configure QBOX and image quality level with aid of real time image. By placing the mouse curse on real time image and clicking the left button, you may view pop-up menus.

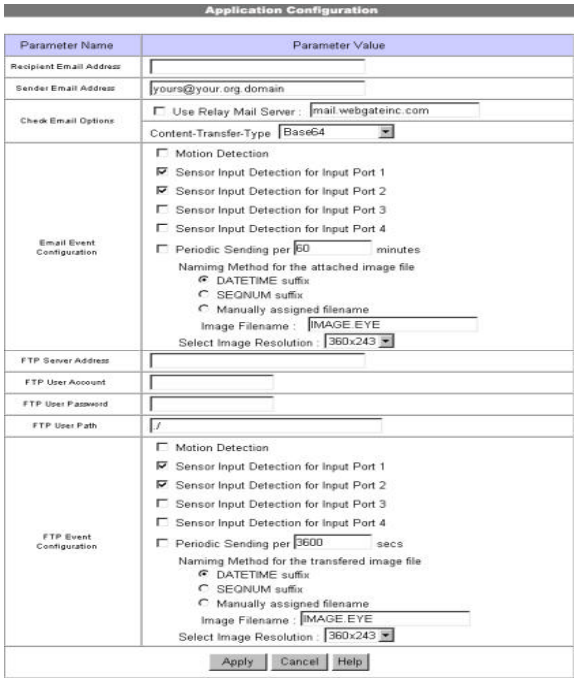
- **QBOX Parameters** : Administrator sets QBOX area with a mouse to 'click and drag'. Selected area shows in 'Left Top Placement' and 'Right Bottom Placement' panels in figures. With 'Ambient Level'

menu, Administrator may set quality level of unfocused area in the image (out of the focused range).

- **Image Quality Level**: Administrator chooses image quality level from 0 to 9. If level 9 is chosen, WebEye sends the finest image. However, transmission speed will be reduced because of larger sized data. The image level inside the 'QBOX' is the same level as is selected in this menu.

8) Application Configuration

This page is to configure e-mail and file sending function.



(1) Recipient E-mail Address

This is to designate a person to receive E-mail.

(2) Sender's E-mail Address

This is to put a person's e-mail address that is considered as the e-mail sender.

The e-mail sender can be a person who should take care of the situation when events occur. E-mail will be delivered to a person who is defined as a recipient in the blank of 'E-Mail Recipient'. The person who received e-mail can send a message of countermove to a person who is defined as an e-mail sender.

(3) Check E-Mail Options

Relay Mail Server: With the same problem of e-mail blocking, WebEye has a function to relay its e-mail through an available e-mail server so that e-mail can have the relay server's domain name. After activating 'User Relay Mail Server' menu, you key in a server's domain name such as '@abcdefg.com'.

Content-Transfer-Type: It is to define e-mail format. E-mail servers support 'Base64' format in common, but some servers not. In the case, you may select the format as 'Quoted Printable'.

(4) E-Mail Event Configuration

Event source: Administrator should define with which event E-mail is to be delivered among MD (motion detection), sensor 1, sensor 2, sensor3, and sensor 4. If administrator clicks on sensor1, e-mail is sent when the sensor1 detects events. (To utilize sensor input detection, a sensor should be connected to WebEye.)

File name: With the images of MD and Sensor event, a file is named combining all options. And with the image of periodic sending event, administrator may decide how to name image files among three methods. Administrator names a file with data & time (DATETIME; E.g IMG-CH00-2001030-223031.eye) or serial number (SEQNUM; E.g. IMG-CH00-SN1.eye). The image file has its extension of 'eye' so that the file is to be reproduced on Internet browser.

Image quality: Administrator may set image's resolution that is delivered by e-mail. Resolution is to be set among 90x60, 180x121, 360x243, 720x243, and 720x486. An image of 90 by 60 is of the lowest resolution and the smallest size.

(5) FTP directory configuration

Administrator assigns FTP server address, FTP user account, FTP user password, and FTP user path to receive files when events occur.

(6) FTP event configuration

Administrator may set sending conditions, image resolution, and filename. Image resolution, filename, and sending conditions setting methods for FTP are same as that of e-mail.

9) Pan/Tilt/Zoom Configuration

This page is to select which serial port to use and to configure PTZ functions such as 'Mode', 'Preset', etc.

(1) Select Serial Port

It is to select a serial port among 'Serial #1', 'Serial #2', and 'Serial #3' with which a pan/tilt/zoom control receiver is connected to WebEye. Serial #1 and Serial #2 are RS232C interfaces and Serial #3 is RS422/RS485 interface.

(2) Serial Port Base Address

This menu is to identify the base addresses between WebEye and a dome camera. Administrator may connect analogue PTZ controller as well as WebEye B101 to a dome camera. And an analogue PTZ controller can be connected with several dome cameras.

(3) Advanced

You may register preset points and configure mode.

When you register preset, you would better stop other user control PTZ mechanism. If not, other users may disturb you in setting preset.

New Preset

You register a new preset point as follows. You may register up to 64 presets.

- Focus on a certain point to register as a preset point controlling PTZ mechanism.
- Click 'New Preset' button, then a dialog box 'New Preset' appears.
- Select a number from 1 to 64
- Set the preset name.
- Click 'Add/Change' button
- In 'Current Preset List' panel, you may view preset points that are registered currently. At the bottom of this window, you may check if the selected number is occupied or not.

New Group

You make a new group with combining registered presets. You may make and list up to 6 groups. Each group is to contain 64 points. The procedure to make a group is as follows.

- Click 'New Group' button, then a dialog box 'New Group' appears.
- Select a number from 1 to 6.
- Set the group name.
- Set interval time. This signifies a duration from time when to move to the next preset point to time when to move to the one after the next preset point.
- List proper preset point among registered ones in 'Current Group Member'. According to the order that

you listed in a group, a dome camera travels.

- Click 'Add/Change' button
- In 'Current Group Member' panel, all registered preset points appear. At the bottom of this window, you may check if the selected number is occupied or not.

Mode

There are three modes like 'Normal Mode', 'Swing Mode', and 'Group Mode'.

- Under normal mode, user may control PTZ mechanism of a dome camera with corresponding buttons in control panel. If you activate 'Give/Take Mode' each user is to be permitted to control the PTZ mechanism for a certain period of time on a first-come-first-served basis.
- If swing mode is selected, the connected dome camera swings between the designated points. Time duration of 'Wait (some) seconds' signifies the same meaning that of group mode.
- If group mode is selected, the dome camera travels among listed preset point according to the listed order.

10) Serial Port Configuration

This page is to select a communication protocol among listed ones.

(1) Serial Port Selection

Administrator selects a serial port to configure. WebEye B101 has three serial ports. 'Serial #1' and 'Serial #2' are RS232C interface ports, and 'Serial #3' is a RS422/RS485 interface port.

(2) Select Attached Device

Administrator selects a communication protocol that an attached external device satisfies among already listed protocols. WebGate has listed protocols of Philips, Pelco (P and D), Sensormatic, and Video Technical.

Audio Device

This protocol is for WebEye A10, which is an audio transmission device connected to WebEye B101.

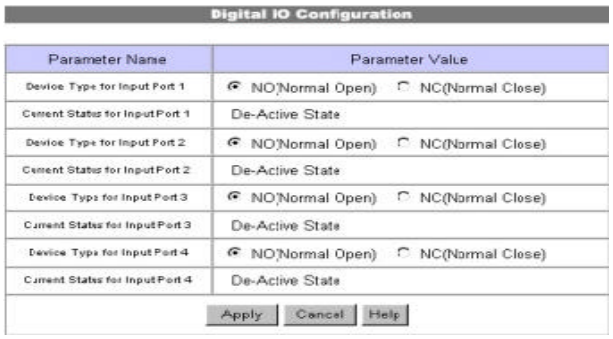
Control Parameters

With listed protocols of Philips, Pelco, Sensormatic and VT, you may also configure its control parameters such as 'Baud Rate', 'Stop Bits', 'Data Bits', and 'Parity Check' according to connected dome camera settings.

Manual Setting

If your mechanism doesn't use any of already listed protocols, you may define the protocol manually by selecting 'Manual Setting' and set parameters through 'Control Parameters' and 'PTZ CMD' menus.

11) Digital I/O Configuration



This page is to configure digital input status. This is related with E-mail and FTP applications and PTZ preset points.

(1) Device Type for Input Ports

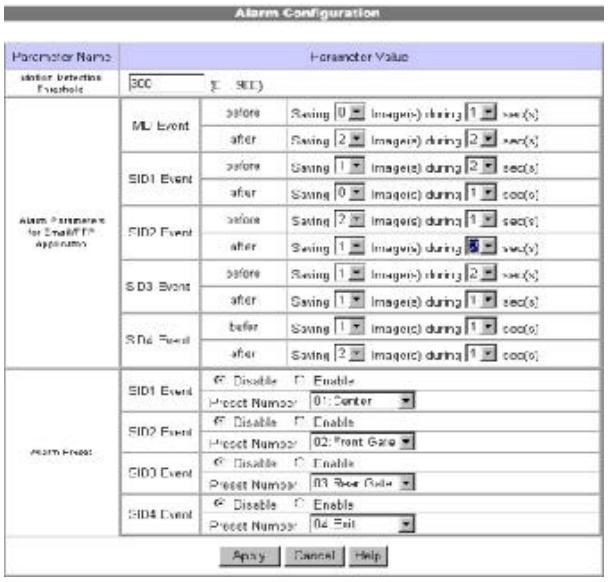
Administrator defines active state of 4 digital input ports. If you connect normal open type

device to input port, you should select 'NO (Normal Open)'. With normal close type device, you should select 'NC (Normal Close)'.

(2) Current State for Input Ports

WebEye shows current states of the 4 digital devices connected to 4 input ports. In the status panel, active state or de-active state message shows. 'De-Active State' means that connected device didn't detect any event when 'Apply button' is clicked.

12) Alarm Configuration



This page is to set conditions for recording images during event situation, so that WebEye sends the images through e-mail or FTP.

(1) Motion Detection Threshold

Administrator sets threshold for motion detection function. Threshold '0' is the most sensitive state and '900' is the dullest state.

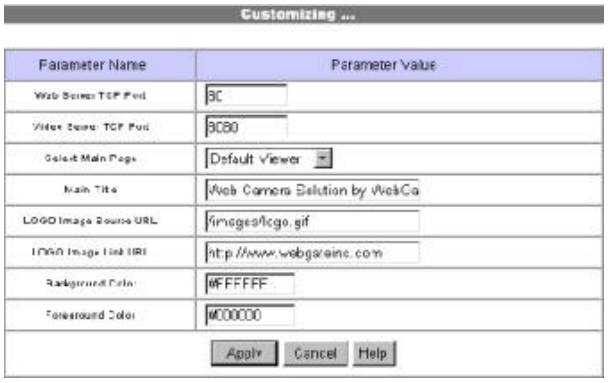
(2) Alarm Parameters for E-mail / FTP Application

Administrator defines conditions for recording image to WebEye, if WebEye detect events through motion detection unction (MD Event) or external devices (SID1, SID2, SID3, and SID4). WebEye can record 2 frames for 2 seconds before the event and 2 frames for 2 seconds after the event as well as 1 frame at the moment of event. Its maximum recording rate is 1 frame per second and the total fames are maximum 5. WebEye records the images and send them through e-mail or FTP according to preset conditions on 'Application Configuration' page and 'Alarm Configuration' page. If event lasts long,

(3) Alarm Preset

This is to match a certain preset point to one of the external devices such as an infrared sensor. You may designate any of registered preset point for each external device. If you enabled this function with matching a certain preset with a external sensor, the connected dome camera pans, tilts and zooms to preset degrees.

13) User Custom Configuration



This page is to customize TCP ports of data transmission and default viewer composition.

(1) Web Server TCP Port

Administrator assigns a web server TCP port through which people can access WebEye and WebEye sends data. 80th port is assigned default value.

(2) Video Server TCP Port

Administrator assigns a video server TCP port through which WebEye transmits images to users. 8080th port is assigned as default value.

(3) Select Main Page

Administrator assigns a viewer as a main page that appears when users access WebEye. Administrator can select between 'Default Viewer' and '720x486 Viewer'. 'Default Viewer' is to show images with maximum resolution of 360 by 243 and '720x486 Viewer' shows images with maximum resolution of 720 by 486

(4) Default Viewer Editing

'Default Viewer' is designed for users to edit easily. Editable parts are as bellows.

- **Main Title**: It is to change the title that is written on the bottom of the real-time image viewer.
- **Logo Image Source URL**: Administrator may assign a path of a certain directory from the inside the WebEye or a URL of a certain Web site where the logo is.
- **Logo Image Link URL**: Administrator may link the logo with a certain web page. User can link the logo with a company homepage or a personal one.
- **Background Color and Foreground Color**: Ground color of login page can be changed. Administrator may set the color with RGB value.

(Appendix 1)

Detailed Specifications of WebEye B101

1. General

Hardware

CPU	32bit RISC Embedded processor
Flash memory	8Mbyte
RAM	16Mbyte
OS	Embedded Linux
Video Channel	NTSC or PAL video format are supported
	1Ch. Video Input
	1Ch. Video Output
Image Resolution Control	720X486, 720X243, 360X243, 180X121, 90X60

Image Compression

Compression Algorithm	Wavelet
Compression Rate	10:1 ~ 200:1

Performance

Transfer Rate	Max up to 120fps (With 3KB image)
Decoding Rate	2 ~ 30fps
Local Compression rate	Max 30fps
Security	Password (Based User Authentication)
	IP-filtering (Secure Mode)
	Image Encryption
Alarms and I/O	Motion detection
	Sending e-mail automatically
	Sending the images files through FTP automatically
	Software -controlled 4 alarms input
MISC. function	High quality image area setting
	Image quality Control (10 Levels)
	Periodical sending the images through E-Mail, FTP
	Gray/Progressive/Single-Shot Mode
	User customized home page publishing supported by FTP
Power Supply	DC 12V, 1.0A or AC 24V via external power supply

2. Network

Browser	MS Internet Explorer Ver 4.0 or later
	Netscape Ver 4.5 or later
	JAVA Applet for non PC User (MAC or Unix)
Connector	10 Based-T Ethernet (RJ-45)
Installation	Assign IP address using setup program or ARP, RARP protocol
Protocols supported	TCP/IP, HTTP, ARP, RARP, ICMP, DHCP, FTP, SMTP and PPPoE
S/W Update	Flash memory allows central remote software updates over the network using FTP or private 'WebyeUpgrade' program.
Management	Configuration is achieved by private setup programAnd Web server built in administration page.

3. Mechanical

Dimension	H x W x L = 35mm x 120mm x 120mm
Weight	350g

4. Environmental

(*) This data is a target specification.

Temperature *	
Operating	-5°C ~ +50°C, Gradient 15°C/Hr max
Non-Operating	-20°C ~ +60°C, Gradient 15°C /Hr max
Humidity *	
Operating	8% ~ 90% R.H. No condensation
Non-Operating	8% ~ 90% R.H. No condensation
Vibration *	
Acceleration	1.2G
Frequency	10Hz ~ 60Hz
Sweep Time	1 OCT/Min
Shock *	10 G (10msec half sine wave Repeated twice maximum/sec)

5. Compatible external devices and software

PTZ control	2 Ch. RS-232 and 1Ch. RS-422/RS-485
Sensor input	4 auxiliary inputs are supported, and is made of 'Opto coupler' Opto coupler stands with 3-5V and 10-20mA