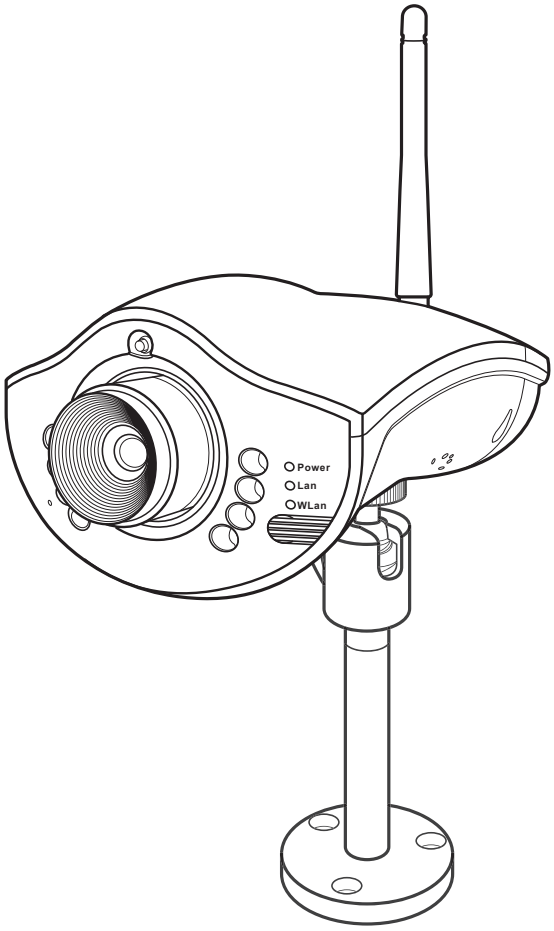
Network / IP Camera



User Manual

Preface

Congratulations on your purchase of this product. Read this manual carefully and keep it in a safe place for future reference.

About this Manual

This user manual has been designed to help you make the most of your IP camera and its many features and functions. Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice.

Copyright

Table of Contents

Introduction

This section covers unpacking your new IP camera, its key features, and basic technical information about the product. Refer to later chapters for information on setting up and configuring the product in more detail.

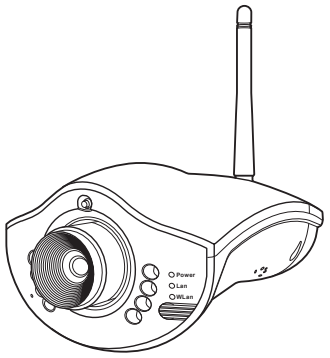
Key Features

- 640x480 (VGA), 320x240 (QVGA), 160x120 (QQVGA) resolutions
- 307,200 effective pixels
- Max. frame rate 25fps at VGA resolution
- 3.6 mm, F2.0 lens
- Configuration and viewing via standard internet browser
- Built-in microphone
- Motion detection feature
- Email and ftp alert feature
- Automatic infrared night vision function
- External GPIO sensor input

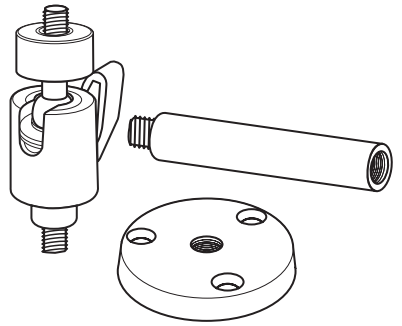
Package Contents

The package should contain all the following. If anything is missing or appears damaged, contact your dealer immediately.

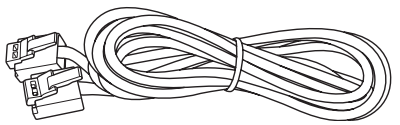
IP camera module



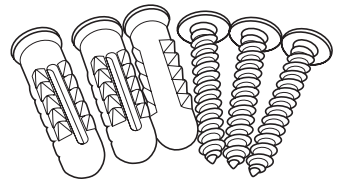
Mounting bracket



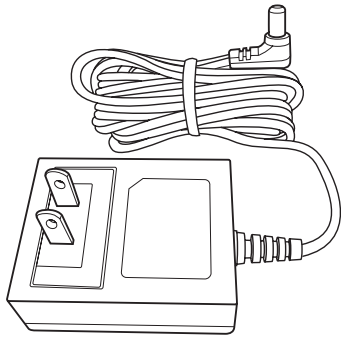
RJ-45 cable



Mounting screws

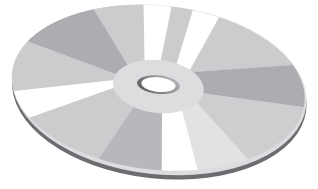


AC power adaptor



Quick start guide

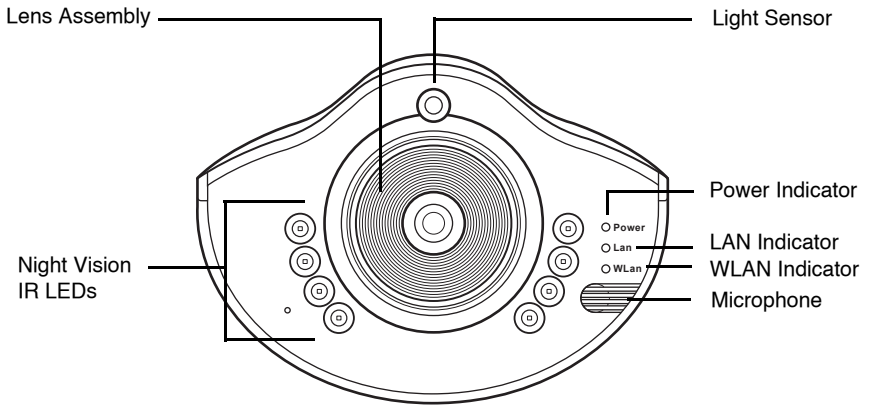
CD-ROM with manual and software



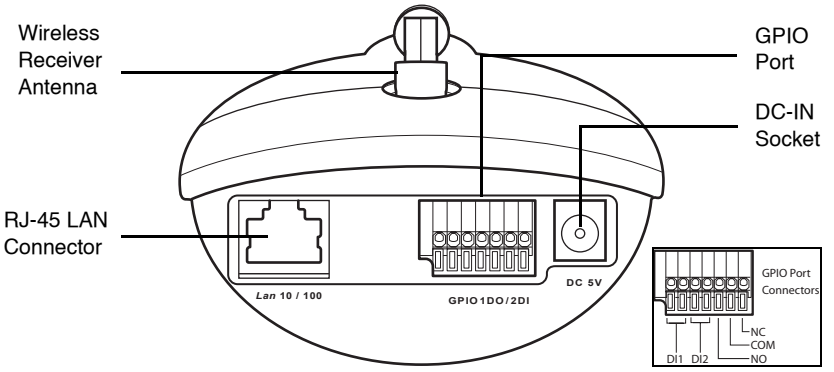
Product Views

Use the following illustrations to familiarize yourself with the camera and identify each of the parts.

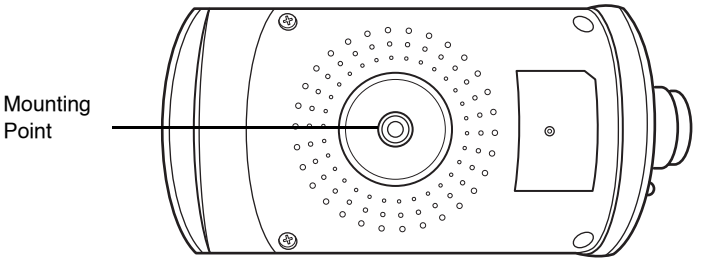
Front View



Back View



Bottom View



Indicators

The following table shows what each of the LED indicators means.

LED	Color	Description
LAN	Green	Network activity indicator
Power	Green	Power indicator

System Requirements

The system requires an ethernet port/wireless connection and an IP address.

To view the IP camera images, your computer must have:

- Microsoft Windows 98, ME, NT4.0, 2000, or XP operating system. A Mac or Linux based machine is also compatible.
- Microsoft Internet Explorer 5.x, or later.

Getting Started

Read this section of the manual to learn how to set up your IP camera and use its basic functions.

Software Installation

You do not need to install any software for simply viewing images from the IP camera, but you will need to use the supplied auto scan software to set the camera up for the first time and find it on the network.

To install the auto scan software:

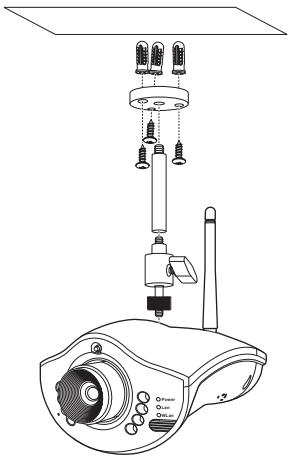
1. Insert the supplied CD-ROM into your CD-ROM drive.
2. If the installation does not start automatically, use a file explorer application to execute setup.exe in the root folder on the CD-ROM.
3. Follow the on-screen instructions.
4. Install IPCam Master to use IPCam Master.

Hardware Installation

Read this section to learn how to install the camera and connect it to a network.

Assembling the Stand

The camera can be assembled in two different ways; either from the top of the unit or the bottom.



Assemble the stand and fix it to the camera as shown.

Use the three screws and plugs provided to fix the stand bracket to a wall, ceiling or other convenient fixing point.

The stand can be adjusted to allow the camera a full 360° of rotation and a pan and tilt action.

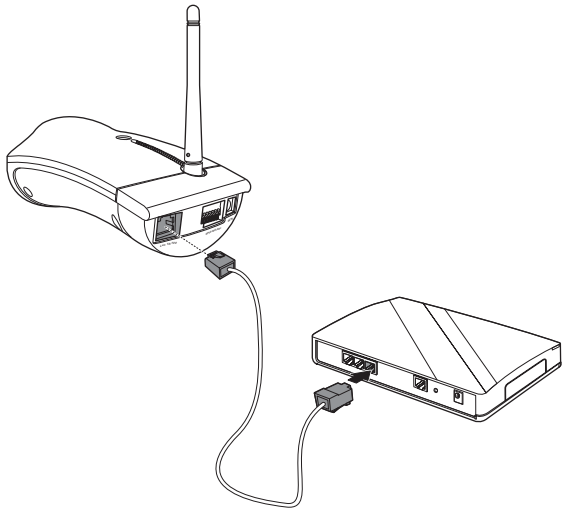
Follow the above steps to mount from the base of the unit, attaching the stand bracket to the mounting point on the base of the unit.

Warnings

- **Ensure the camera is fixed securely otherwise it may fall and cause injury.**
- **The camera is not waterproof and should not be mounted outside or in a position where it could become wet.**

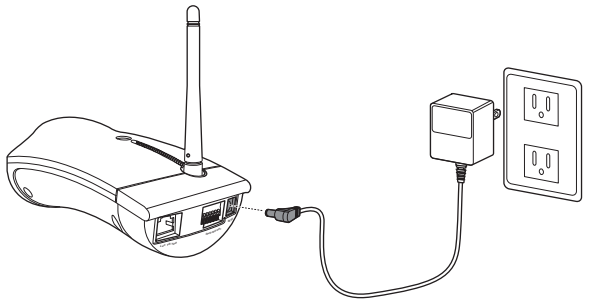
Connecting to a Network

The IP camera can be connected to an Ethernet network using the RJ-45 port as shown. Connect the camera to an Ethernet hub or switch using a standard cable. You can also connect the camera directly to a computer using the supplied cable.



Connecting Power

Connect the power adapter to the DC-IN socket on the camera as shown.



	Use only the power adapter with the camera. Using another adapter, not recommended by the manufacturer, may damage the camera and invalidate the warranty.

Initial Configuration

Read this section to learn how to configure and begin using the IP camera. A complete description of the features and functions can be found in the next chapter.

To install the camera on a network, you first need to give it an IP address. Ask your network administrator to obtain an IP address suitable for your network, along with a netmask, the gateway address , and http port.

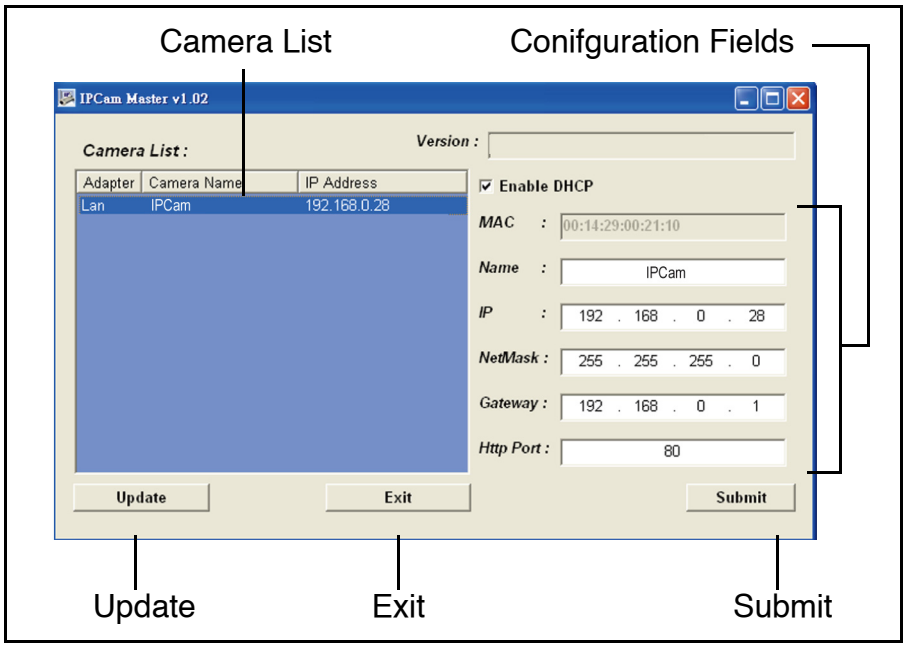
Connect the IP camera to your network or host PC as described in “Connecting to a Network” on page 7.

Note:
Connecting the camera to your network before you have configured an IP address may cause problems such as address conflicts. To avoid these problems, connect the camera to an isolated PC with a hub or cross-over cable to configure the network settings.

Start the IPCam Master software.

Click the **Update** button to scan for your camera. A list of cameras connected to the network will appear in the window.

Enter the IP address, netmask, gateway address and http port provided to you by your network administrator:



If you want to connect using DHCP, check the **Enable DHCP** checkbox.

Click the **Submit** button to update the camera with the new configuration.

When the above steps have been completed, you can double click the name of the camera in the display window to connect to it using your default browser. Alternatvely, you can connect to the camera by entering the IP address in the browser address field.

Using an Internet Browser to Connect to the Camera

Read this section to learn how to use your Internet browser to connect to the IP camera, view images, and hear audio output.

To connect to the IP camera using an Internet browser:

Enter the IP address of the camera in the browser address field.

Using and Configuring

Read this chapter to learn how to operate the IP camera and take advantage of the advanced features such as alerting, and ftp transfers.

Web Page Layout

Use the menu bar on the left side of the screen to perform actions and enter the sub-menus:

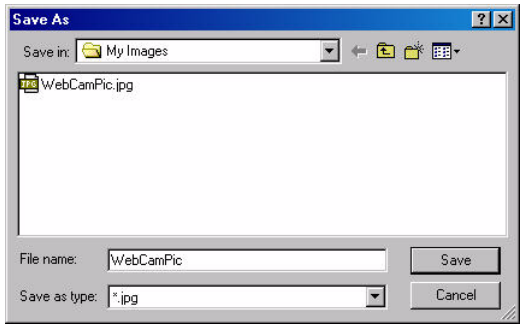
1. **Snap Image**: Click to save the current image.
2. **Record AVI**: Click to record an AVI video clip.
3. **Configuration Setting**: Click to enter the settings sub-menus.
4. **4-port Viewer**: Click to view the output of up to four other IP cameras on the network.
5. **Audio On/Off**: Click to turn audio on or off.
6. **Motion Indicators**: These indicators flash red and blue alternately when motion is detected.

See the following sections for more information on each of these menu items.

Saving an Image

To save the image currently displayed in the main window, do the following:

Click the  tab on the menu sidebar. A save dialog appears:

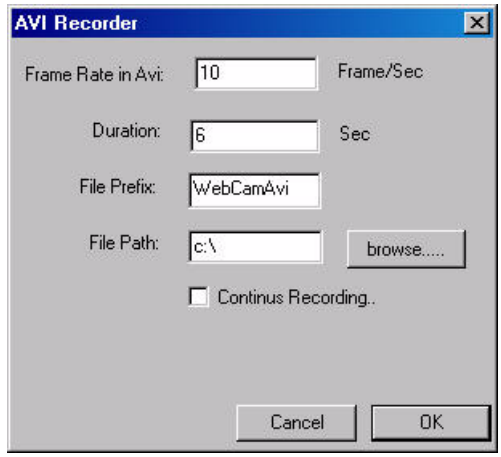


Enter a filename, select a file type from the dropdown menu, and click the  button.

Recording a Video Clip

To record a video clip (AVI file), do the following:

Click the  tab on the menu sidebar. A settings window appears:



Enter the frame rate you want to record at.

Enter the duration of the recording.

Enter the file prefix and the file path you want to save the file to.

If you want to record continuously, check the **Continuous Recording** checkbox.

Click the  button to confirm all settings and begin recording.

The menu icon will turn red  during recording.

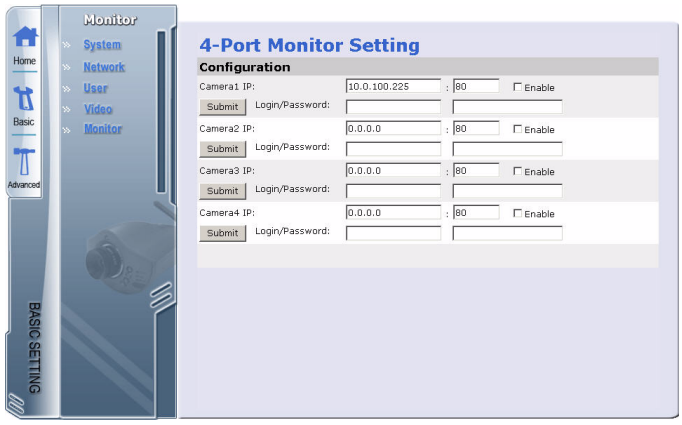
Viewing Multiple Cameras via the 4-Port Function

To view up to four cameras connected to your network at one time, you can use the 4-port camera function.

To view multiple cameras in the display window, do the following:

Click the  tab on the menu sidebar. The settings screen appears.

Click **Basic Setting** on the menu sidebar and then **Monitor** in the submenu. The 4-port monitor setting screen appears:



Enter the IP address, port, login and password of each camera you wish to view and check the **Enable** checkbox.

Click the  button to confirm your settings.

Click the  tab on the menu sidebar to return to the main screen.

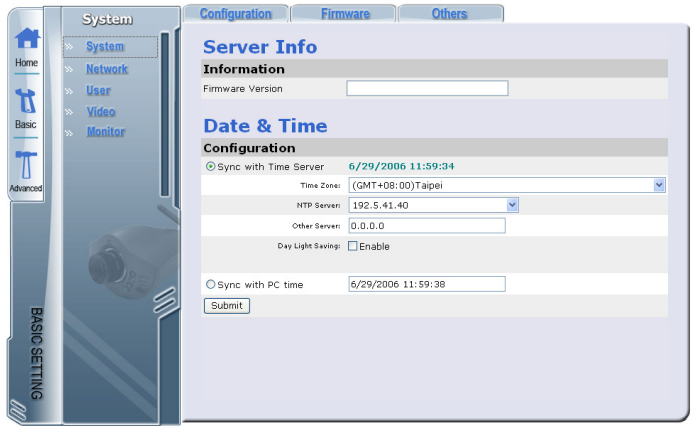
Click the  tab on the menu sidebar to switch to 4-port viewing mode.

Configuring the Camera

Read this section of the manual to learn how to configure the IP Camera using the settings menus.

To access the settings menus, do the following:

Click the  button on the menu sidebar. The main settings screen appears:



There are two sub menus in the menu sidebar: **Basic Setting** and **Advanced Setting**.

Configuring Basic Settings

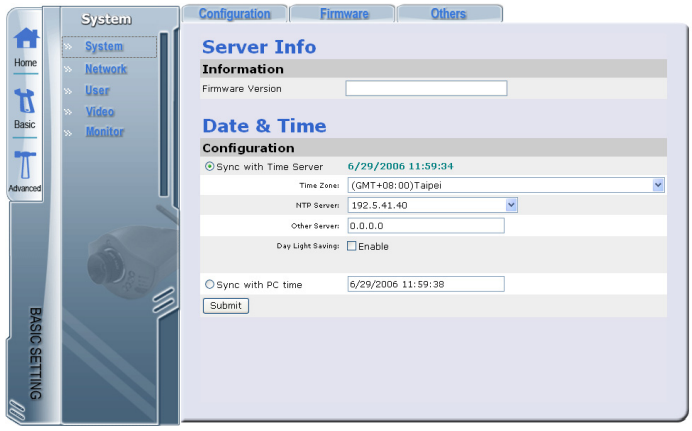
Read this section to learn about all the settings and options under the **Basic Setting** sub menu.

Configuring System Settings

The **System** submenu allows you to configure all system-related settings. There are three main screens, accessed via the tabs at the top of the screen: **Configuration**, **Firmware**, and **Others**.

Configuration Settings

Click the **Configuration** tab to access the system configuration screen:



Here is displayed all system information, including firmware version and device name, and is where you can configure date and time options.

Choose to either **Sync with Time Server** or **Sync with PC Time**. Check the radio button for the setting you wish to use.

If you select **Sync with Time Server**, choose your time zone, enter NTP server details, along with another server if necessary. You can also enable daylight saving time by checking the **Daylight Saving Time** checkbox.

If you select **Sync with PC Time**, the current time displayed by your PC is shown.

Click the Submit button to confirm your settings.

Firmware Upgrade

Click the **Firmware** tab to access the firmware upgrade screen:

Here you can upgrade the system firmware version.

	Warning Do not upgrade the firmware version unless you are certain that it will improve your system performance. Any unnecessary firmware upgrade may result in malfunction.

Click the Browse... button and locate the folder where the firmware update is stored.

Click the Upgrade button to load the file.

Others Settings

Click the **Others** tab to access the others screen:

Here you can restore factory defaults and reboot the system remotely.

Under **Restore Factory Defaults**, click the Restore Factory Default button to restore all factory defaults. A confirmation dialog appears. Click **OK** to confirm.

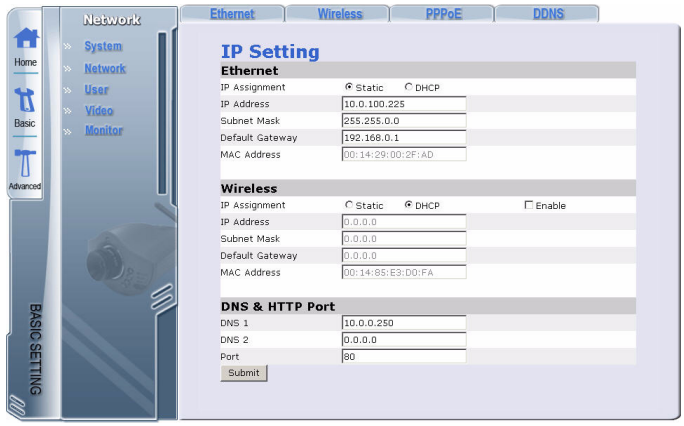
Under **Remote Reboot**, click the Remote Reboot button to reboot the system remotely. A confirmation dialog appears. Click **OK** to confirm.

Configuring Network Settings

The **Network** submenu allows you to configure all network-related settings. There are four main screens, accessed via the tabs at the top of the screen: **Ethernet, Wireless, PPPoE,** and **DDNS**.

Ethernet Settings

Click the **Ethernet** tab to access the ethernet settings screen:



Here you can configure all settings related to your ethernet, wireless, and DNS & HTTP port setup.

Complete all the fields as required. You may not require all the fields. For instance, you will not need to complete the static IP address fields if you are installing the camera on a network that allocates addresses using DHCP.

Click the Submit button to confirm your settings.

Wireless Settings

Click the **Wireless** tab to access the wireless settings screen:

Here you can configure all settings related to camera access to your wireless network.

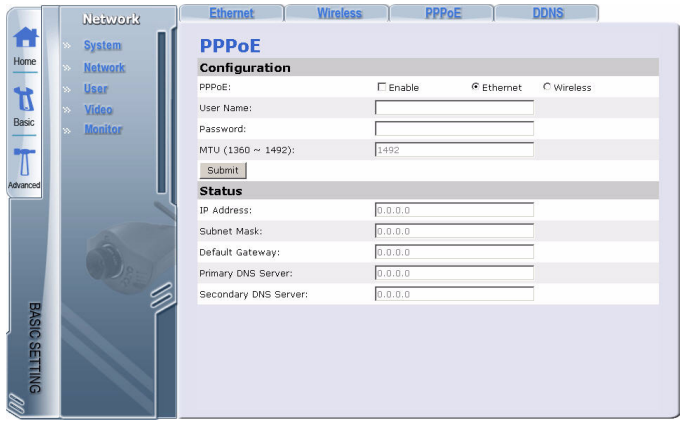
If your network allows for wireless connection, complete all the fields under **Configuration** to connect wirelessly. Ask your network administrator for all relevant information should you need it.

Connection Type	Select the connection type; **Infrastructure** or **Ad-Hoc**.
Auth Type	Select authentication type; **Open System**, **Shared Key**, or **Auto**.
ESSID	Enter the public name of your wireless network.
Region	Select your region; **U.S.**, **Europe** or **Japan**.
Channel	Select from channels **1 - 11** or **Auto**.
Encryption Type	Select to enable WEP encryption or not. If enabled, select the bit rate; **64 Bits** or **128 Bits**.
WEP Key	Select up to four keys to be configured when encryption is enabled. Select the key type; **ASCII** or **HEX**. Then complete the key description fields and choose one of the four keys as the default from the drop down menu.

Click the Submit button to confirm your settings.

PPPoE Settings

Click the **PPPoE** tab to access the PPPoE settings screen:



Here you can configure all PPPoE connection settings.

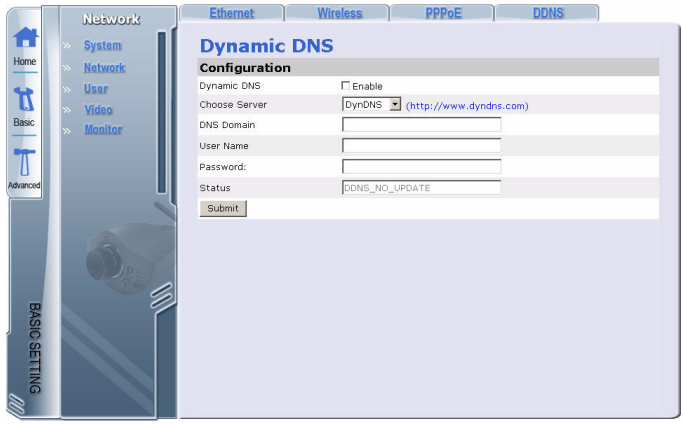
If you connect to your network via PPPoE, check the **Enable** checkbox and choose from either an **Ethernet** or **Wireless** connection. Complete all fields under **Configuration**, including your username, password, and MTU setting.

Click the Submit button to confirm your settings.

Once successfully configured, status details will be displayed under **Status**.

DDNS Settings

Click the **DDNS** tab to access the DDNS settings screen:



Here you can configure all DDNS connection settings.

DDNS allows PPPoE or DHCP dynamic IP users to access the IP camera using a single domain name. The IP camera supports DDNS and meets the Bynamix Network Service, Inc. standard.

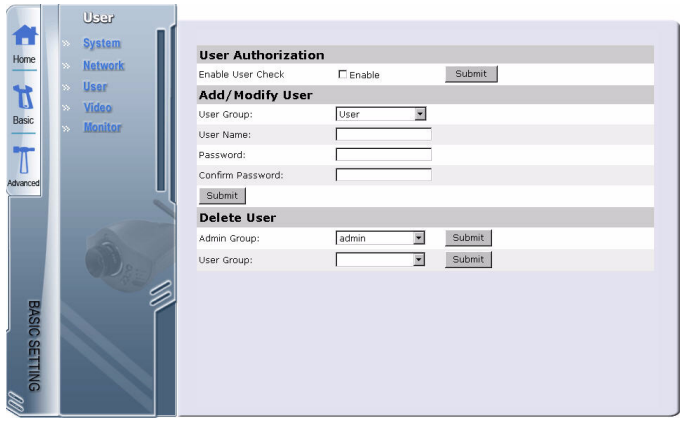
Go to **www.dyndns.org** to register a domain name and obtain a username and password. Enter this domain name, username, and password in the DDNS settings screen.

Click the Submit button to confirm your settings.

When the IP address of the camera changes, it will update its new address to DDNS automatically and the camera can be contacted using a domain name instead of an IP address.

Configuring User Settings

The **User** submenu enables you to set up users and administrators for the system:



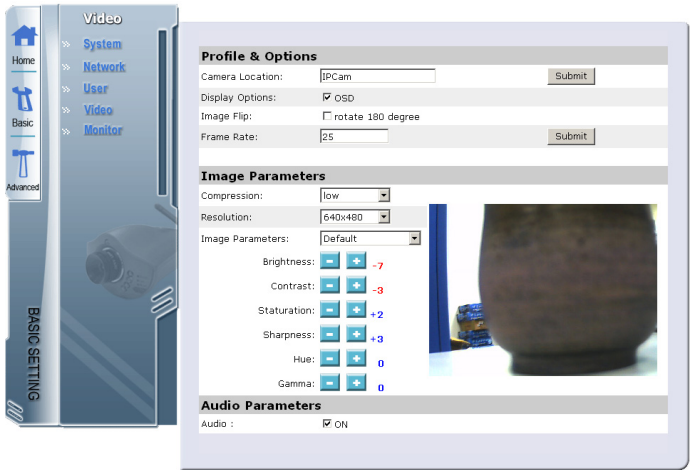
Under **User Authorization**, check **Enable User Check** if you wish to run a login process every time you access the system. Click the Submit button to confirm this setting.

Under **Add/ Modify User**, enter a new username and password in the required fields to create new user names. Assign each user to either the admin or user groups. Click the Submit button to confirm the new setting.

Under **Delete User**, select a username from either an admin or user group you want to delete. Click the Submit button to delete the user.

Configuring Video Settings

The **Video** submenu enables you to configure all video settings:



Under **Profile & Options**, you can alter various options:

Camera Location: Enter the camera location. Click the Submit button to confirm this setting.

Display Options: Check the checkbox to show the date, time, and camera location on the display screen.

Image Flip: Check to rotate the display image 180 degrees.

Frame Rate: Enter the required frame rate. Click the Submit button to confirm this setting.

Under **Image Parameters**, you can alter image output options. Select the image compression rate, and resolution you require from the dropdown boxes.

Make any adjustments for brightness, contrast, saturation, sharpness, hue and gamma of the image using the + or − buttons. Click the R button to reset to the parameter to its default value.

Under **Audio Parameters**, check the checkbox to turn audio on or off.

4-Port Monitor Setting

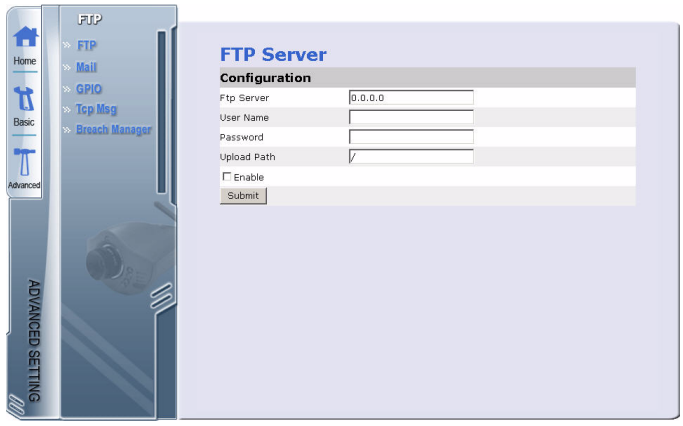
See “Viewing Multiple Cameras via the 4-Port Function” on page 16 for more details on settings covered under this menu.

Configuring Advanced Settings

Read this section to learn about all the settings and options under the **Advanced Setting** submenu.

Configuring FTP Settings

The **FTP** submenu enables you to configure all FTP (File Transfer Protocol) settings:



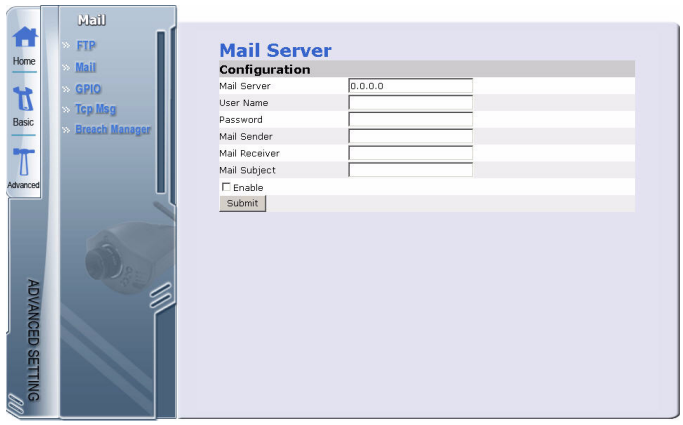
When FTP alerting is enabled, the camera sends a still image to the ftp server every time the alert is triggered (see “Configuring Breach Manager Settings” on page 31 for details on how to activate this option).

Enter your FTP address, along with username, password and folder to which the images will be uploaded.

Check the **Enable** checkbox and click the Submit button to confirm all settings.

Configuring Mail Server Settings

The **Mail** submenu enables you to configure all mail server settings:



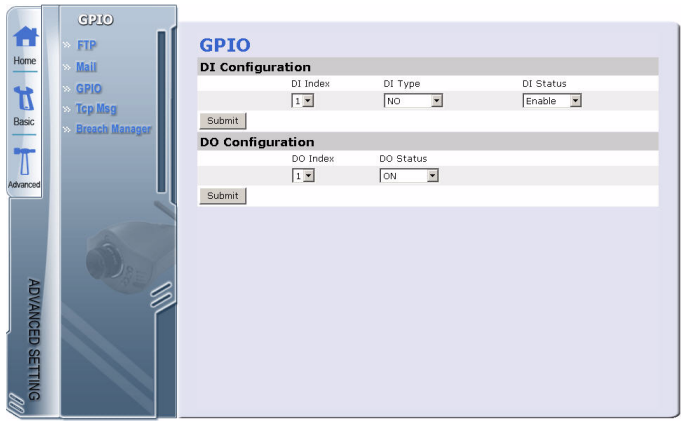
When mail alerting is enabled, the camera sends a still image to a specified email address every time the alert is triggered (see “Configuring Breach Manager Settings” on page 31 for details on how to activate this option).

Enter your mail server address, along with username, password, mail sender address, mail receiver address, and mail subject.

Check the **Enable** checkbox and click the Submit button to confirm all settings.

Configuring GPIO Settings

The **GPIO** submenu enables you to configure all DI sensor and DO settings:



External DI sensors can be attached via the GPIO port at the rear of the camera. The external sensor can be normally open (NO), or normally closed (NC). A normally open sensor is like an open switch that closes when triggered. A normally closed sensor is like a closed switch that opens when triggered. This must be set correctly for an external sensor to function properly. You can connect up to two DI sensors to the camera.

An external DO alarm can also be attached to the camera via the GPIO port at the rear of the camera.

Under **DI Configuration**, select a DI Index, whether you want it to be **NO** or **NC**, and **Enable**/**Disable** from the dropdown menus.

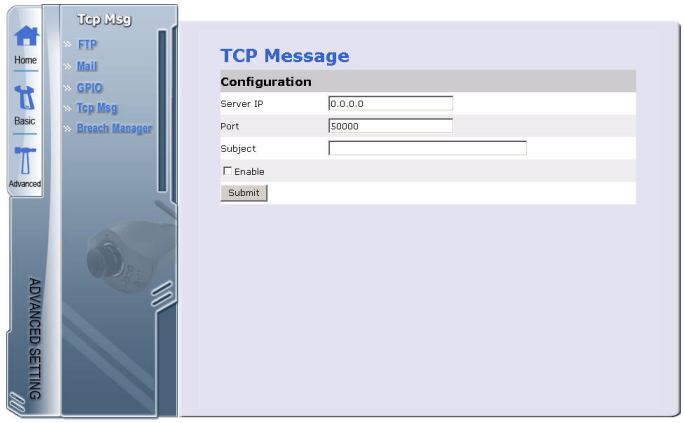
Click the Submit button to confirm all settings.

Under **DO Configuration**, select a DO index and **ON**/**OFF** from the dropdown menu.

Click the Submit button to confirm all settings.

Configuring Tcp Message Settings

The **Tcp Message** submenu enables you to configure all tcp message settings:

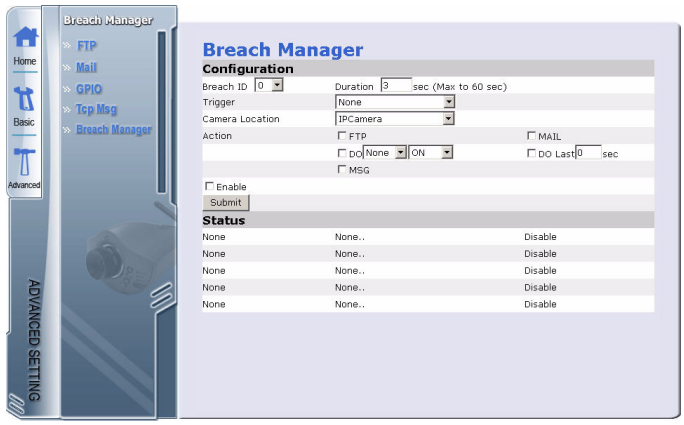


Enter the Server IP address, port and message subject.

Check the **Enable** checkbox and click the Submit button to confirm all settings.

Configuring Breach Manager Settings

The **Breach Manager** submenu enables you to configure all breach alert and motion detection settings:



You can configure the system to capture images when either the motion sensors, DI1 or DI2 sensors are activated.

To set a breach alert, do the following:

Select a breach ID from the dropdown menu and enter the duration of the alert. You can configure up to five separate alerts at any one time.

Select the alert trigger device and camera location from the dropdown menus.

Check the radio buttons to select whether to be alerted by ftp upload, email, tcp message or external DO alarm.

If external DO alarm is selected, choose the alarm type from the dropdown menu, select **ON** to activate the alarm, and enter the alarm length time in the DO Last field.

Check the **Enable** checkbox and click the Submit button to confirm all settings.

The **Status** window lists all configured alert details; the first column lists the alarm trigger type, the second lists the action type, and the third displays whether the alert is enabled or disabled.

Appendix

Specifications

MODEL	L10 (Ethernet/ LAN)	W10 (Ethernet/ LAN)
CMOS Sensor		
Number of effective pixels	307,200 pixels (VGA)	307,200 pixels (VGA)
Lens		
Type	C3 Mount Lens	C3 Mount Lens
Focal length	f = 6.0mm	f = 6.0mm
F-number	F1.8	F1.8
System / Network		
CPU / Encode Chip	MIPS / JPEG encode chip (VGA)	MIPS / JPEG encode chip (VGA)
Video Compression	M-JPEG	M-JPEG
Audio Compression	PCM 64kbit	PCM 64kbit
Image size (HxV) (Resolution)	640x480 (VGA), 320x240 (QVGA), 160x120 (QQVGA)	640x480 (VGA), 320x240 (QVGA), 160x120 (QQVGA)
Image quality	5 Level (Highest, High, Medium, Low, Lowest)	5 Level (Highest, High, Medium, Low, Lowest)
Frame rate	Up to 15fps@VGA, Up to 25fps@QVGA	Up to 15fps@VGA, Up to 25fps@QVGA

Protocol	TCP/IP, ARP, ICMP, HTTP, SMTP, FTP, DHCP, DNS, NTP, PPPoE, DDI TCP/IP, DDNS	TCP/IP, ARP, ICMP, HTTP, SMTP, FTP, DHCP, DNS, NTP, PPPoE, DDI TCP/IP, DDNS
Interface		
Ethernet	100Base-TX / 10Base-T (RJ-45x1)	100Base-TX / 10Base (RJ-45x1)
Wireless (Wi-Fi)	N/A	IEEE 802.11 b/g
GPIO	Sensor in x 2 / Alarm out x 1	Sensor in x 2 / Alarm out x 1
Status LED	Power, LAN, WAN	Power, LAN, WAN
Night vision	IR LEDs x 8 (auto/ manual)	IR LEDs x 8 (auto/manual)
Button	Reboot/Restore factory default	Reboot/Restore factory default
Power supply	DC Jack (5V)	DC Jack (5V)
Software functions		
User management	Two layers (Administrator/Guest)	Two layers (Administrator/Guest)
Network settings	IP & Domain name (Fixed, DHCP, PPPoE, DDNS) HTTP Port Number	IP & Domain name (Fixed, DHCP, PPPoE, DDNS) HTTP Port Number Wireless (SSID MODE (Ad-HOC, Infrastructure), Wep 64/128 bit))

Image settings	Resolution, frame rate Parameters (Brightness, Contrast, Saturation, Sharpness, Hue)	Resolution, frame rate Parameters (Brightness, Contrast, Saturation, Sharpness, Hue)
Camera settings	Camera name, date / time (NTP, manual), frequency (60 / 50Hz)	Camera name, date / time (NTP, manual), frequency (60 / 50Hz)
Email / FTP	Email, FTP settings / action (trigger manually)	Email, FTP settings / action (trigger manually)
GPIO	Sensor in (enable/disable), Alarm out (enable/disable, auto/ manual)	Sensor in (enable/disable), Alarm out (enable/disable, auto/ manual)
Motion detection	Enable/disable	Enable/disable
Snapshot	Manual	Manual
Record	Manual (AVI *Microsoft DirectX 8.1, VGA Card 32bit true color)	Manual (AVI *Microsoft DirectX 8.1, VGA Card 32bit true color)
Number of clients	20	20
Other		
Power requirements	DC 5V	DC 5V
Operating temperature	0°C - 30°C	0°C - 30°C
Operating humidity	20% - 80%	20% - 80%
Supplied accessories	CD-ROM, Quick Installation Guide, Network Cable, Bracket, AC Adapter	

Maintenance

This product has no user servicable parts inside and removal of the case should be not be attempted except by qualified service personnel.

Only use a clean cloth, slightly dampened with water to clean this camera. Do not use spirit cleaners or solvents as this may damage the plastic case and lens parts. Use a soft, dry cloth to clean the lens when required.

Do not install this camera in an environment where it is likely to be exposed to dust, high humidity, high temperatures, or rain.

Do not install this equipment in an enclosed space with no ventilation. The camera is likely to become warm during normal use and ventilation is required to maintain a sufficiently low operating temperature. If the camera is mounted in an enclosed space, it may overheat and may be permanently damaged.

If the camera begins to function badly or stops working, and routine maintenance procedures described above do not solve the problem, contact your dealer and arrange for a service engineer to inspect the camera.

Troubleshooting

Problem	Solution
My camera doesn't work - what should I do?	You should turn off your PC and disconnect the network cable. Try rebooting in safe mode and reconnect the network cable.
The image is upside down.	Turn the image the right way round using the rotate function.
My camera won't connect to my network.	Check the IP adress allocated to your camera is correct - if in doubt, consult your network administrator.

Glossary

Alert	An alert can be in the form of an e-mail, a ftp upload or DO of an image that occurs when a sensor is triggered, or motion is detected.
AVI	Audio Video Interleaved. A Windows multimedia video format from Microsoft.
CIF	Common Interface Format. A standard video resolution format used in video conferencing. CIF resolution is 352x288 and but rate is 36.5 Mbps (at 30 fps).
DHCP	Dynamic Host Configuration Protocol. A system by which each piece of equipment is allocated an IP address automatically.
DI sensor	The DI sensor input allows you to connect an external sensor or switch to the camera that may be used to trigger an alert. The DI sensor input can be set to normally open (NO - switch closing causes an alert) or normally closed (NC - switch opening causes an alert).
Ethernet	The most widely used local area network (LAN) access method, defined by the IEEE as the 802.3 standard.
FTP	File Transfer Protocol. A standard protocol designed for transferring files over a TCP/ IP network.
IP	Internet Protocol. The network layer protocol in the TCP/ IP communications protocol suite (the ‘IP’ in TCP/ IP). IP contains a network address and allows messages to be routed to a different network or subnet.
LED	Light Emitting Diode. A semiconductor device that emits light when voltage is applied.
Motion detection	Camera function that cases an alert to be triggered when movement is detected in the field of view.
PPPoE	Point to Point Protocol over Ethernet: A standard that incorporates PPP protocol, widely used for dial-up Internet connections, into a cable modem connection that uses Ethernet as its transport to the carrier’s facilities.
Protocol	Standards governing the transmission and reception of data.
QCIF	Quarter CIF, 176x144 resolution, 9.1 Mbps (at 30 fps).

Resolution	Screen resolution is expressed as a matrix of dots. For example, the VGA resolution of 640x480 means 640 dots (pixels) across each of the 480 lines.
RJ-45	Registered Jack 45. RJ-45 type connections are used in Ethernet devices.
SNTP	Simple Network Time Protocol. A protocol that allows devices to update internal clocks using a standard source available on a network.
Static IP address	A static IP address that is assigned manually and never changes.
TCP/ IP	Transmission Control Protocol/ Internet Protocol. A communications protocol developed under contract from the US.
VGA	Video Graphic Array. The video display standard for the PC.