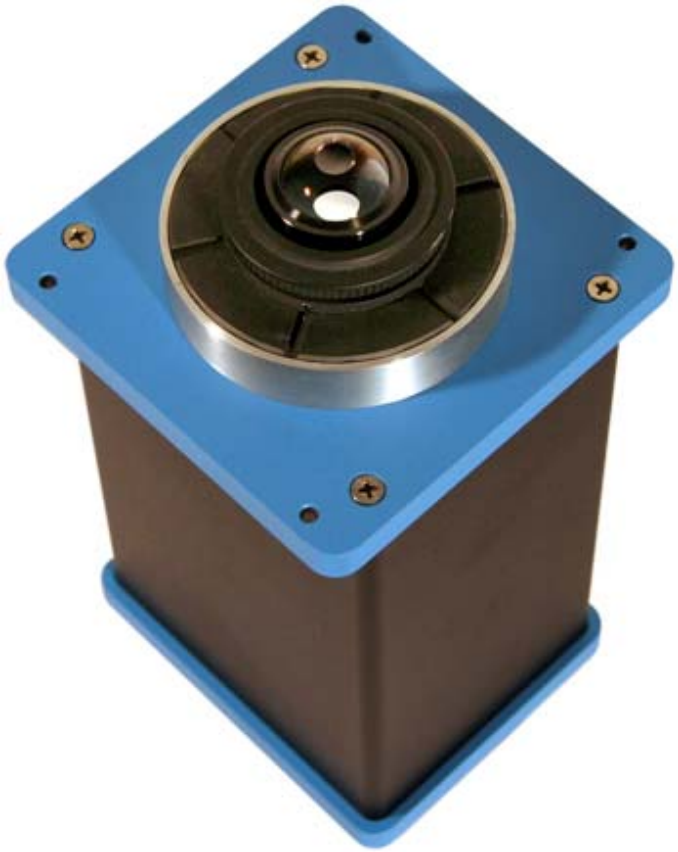
Polar Industries, Inc™

The World Leader in Network Video Recorder Manufacturing

# zPan100™



# User's Manual

# Revision 1.0 – 09/01/2005

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# 1 - INTRODUCTION

## 1.1 Package Contents

### 1.1.1 zPan100

### 1.1.2 Software CD

### 1.1.3 12V Power Adapter

## 1.2 Features and Benefits

### 1.2.1 Panoramic Features

- A special lens provides a full 360 degree image all around is possible using this simple mechanism.
- A discreet lens captures the entire 360 image. The lens is the only part of the unit that is seen and can be discreetly hidden to reduce the awareness of being monitored.
- A True NTSC output is provided to connect to older video systems as well as an IP output for the newest 3rd generation IP systems.
- All image processing is done by the built-in processor. No PC is required to view or manipulate the images.
- Seven (7) Available viewing modes.
- Power Over Ethernet (POE) provides power over a cat5 cable.
- All effect operations (Pan, Tilt, Zoom) are done with no moving parts.

### 1.2.2 Real-Time MPEG4 Compression

With Hardware MPEG-4 compression chip inside, the video stream is efficiently compressed into an MPEG-4 bit stream without any delay. The ASIC base compression engine supports not only CIF, but also FULL D1 image resolution.

### 1.2.3 QoS Enabled Video Streaming

For real-time video streaming requirements, the zPan100™ implements the 802.1pQ features inside of SoC as the streaming engine. The QoS enabled video streaming packets can be forwarded faster than normal TCP/UDP packet when QoS is enabled.

### 1.2.4 Automatic Frame Rate Control

The zPan100™ supports automatic/manual streaming frame rate control. Especially for multiple clients concurrent access to the same video stream, this helps preserve network bandwidth.

### *1.2.5 Digital Time Code Embedded*

The “Digital Time Code Embedded” function embeds the recording time into the MPEG bit stream. Therefore, the exact time each frame is recorded will be saved. It is very useful when users want to find the video at an exact time or a certain time interval.

### *1.2.6 Built-In Power Over Ethernet (POE) Port*

The zPan100™ provides an IEEE 802.3af compliant POE port. The camera can be powered by any POE compliant device supplying 48v.

### *1.2.7 DDNS Supported*

The zPan100™ supports DDNS (Dynamic Domain Name Server). Users can set the zPan100™ at a virtual domain name (such as zPan.MyDomain.com) using a dynamic IP, and be able to view this video anywhere that has access to the internet.

### *1.2.8 Powerful Surveillance Software*

To extend the capabilities of the zPan100™, a powerful surveillance program is available to use. Users can easily utilize a zNVR™ to record the video streams from the camera. Schedule or one-click recording keeps every important moment on the zNVR™, reliable motion detection and instant warning make you sharp for every condition. Quick and simple search and playback let you easily find the moment you want to inspect more carefully and output to AVI files for another copy.

### *1.2.9 Software Development Kit Support*

The zPan100™ can be integrated or controlled by user’s application program through the Streaming Library or ActiveX control. Using its high level programming interface can ease and speed developers’ task.

## 1.3 Usage Guidelines

- This manual in whole or in part, may not be reproduced, translated or reduced to any machine readable form without prior written approval from Polar Industries, Inc.
- The camera is made for indoor use and should remain above freezing temperatures. An outdoor housing is available for outdoor installations.
- Wipe up oil and dirt with cotton and ethyl alcohol.
- The camera should be installed away from any vibrating sources. If unavoidable, it should be mounted on something that will absorb the vibrations.
- Do not apply excessive voltage. (Use only the specified voltage.) Otherwise, you may get an electric shock or a fire may occur.
- Design and specifications are subject to change without notice.

## 1.4 Specifications

| Items | Symbol | | | | Unit | Conditions |
|---|---|---|---|---|---|---|
| **Power**<br>Power Supply Voltage | 12V DC<br>PoE IEEE 802.3af Compliant (48V) | | | | | |
| **Maximum Power supply voltage** | | -0.5 to 10 | | | V | |
| **Lens**<br>Focal (back focus) distance<br>Installation at design standard value<br>Distance between camera and object<br>Angular field of view (Desktop)<br><br>Angular field of view (Ceiling) | F B | 17.526<br>1 " to 32UN<br>0 to infinity<br>depression angle -17°±2° to the direction of ascending angle 38°±2°<br>depression angle 0°+3° to the direction of ascending angle 66°±2° | | | mm<br><br>mm | From lens surface to infinity |
| **CCD**<br>Number of effective pixels<br>Number of pixels used | | H: 1600 x V:1200 approx. 1920K<br>Approx. 900K | | | pixel<br>pixel | 1/2.7 type interline CCD<br>RGB primary color mosaic filters |
| **Min. illumination** | | 20 | | | lx | |
| **S/N ratio** | | | | | dB | |
| **Video output (VBS mode)**<br>Video Signal system<br><br><br>Output driving capacity | | Composite Video 1Vp-p<br>(Sync. Negative)<br>75 | | | Ω | NTSC/PAL switch is possible<br>Motion picture re frame rate: Maximum 7.5fps |
| **Operation Environment** | | Temperature: - 5 to + 40°C<br>(including temperature rise due to cabinet)<br>Humidity: + 40°C, 80% | | | | |
| **Storage Environment** | | Temperature: -30 to + 60°C<br>Humidity: + 60°C 80% | | | | |

## 1.5 Viewing Modes

The vision deployment patterns that can be displayed are described below. Various vision deployment patterns as shown below can be switched with the use of the RS232 port.
Note: When the over-scanned monitor is used, corners of the vision image can be deficient on display.

| | |
|---|---|
|  | **RING:**<br>The image that is captured by the imager element (CCD) is displayed as it is. Operator can specify the vision area to be displayed. (Details are described separately.) |
|  | **DUAL HALF WIDE:**<br>The 360 degree image of the specified location can be displayed in the shape of rectangular screen with the front 180 degrees on the upper half and rear 180 degrees on the lower half of the screen. |
|  | **DUAL HALF WIDE MIRROR:**<br>The 360 degree image of the specified location can be displayed in the shape of rectangular screen with the REAR 180 degrees on the upper half and FRONT 180 degrees on the lower half of the screen. |
|  | **WIDE:**<br>The 360 degree-vision as specified by operator on the captured image can be displayed in the shape of rectangular screen on display. |
|  | **ZOOM AND WIDE:**<br>The 360 degree-Wide view is displayed in the bottom of the display and the view that is specified by surrounding with the “green frame” can be enlarged and displayed on top of the display. |
|  | **QUAD:**<br>The 120 degree-views that are shifted by 90 degrees from each other while each of them covers 120 degree of the captured image. This is displayed on the 4-split screens. |
|  | **QUAD AND ZOOM:**<br>The 360 degree-Wide view is displayed in the center of the 4-split screens of the Quad view. |

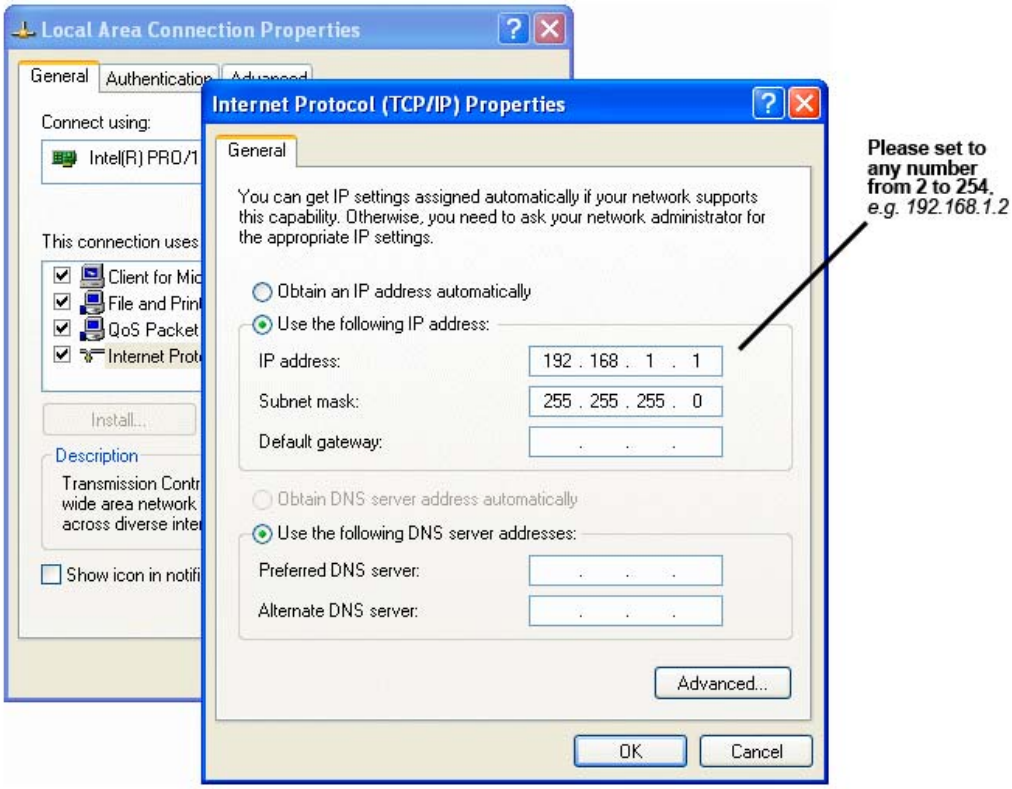
# 2 - INSTALLATION (IP Version ONLY)

## 2.1 Hardware Installation

Please follow the following steps to configure your camera before you attempt to install any Video Management Software.

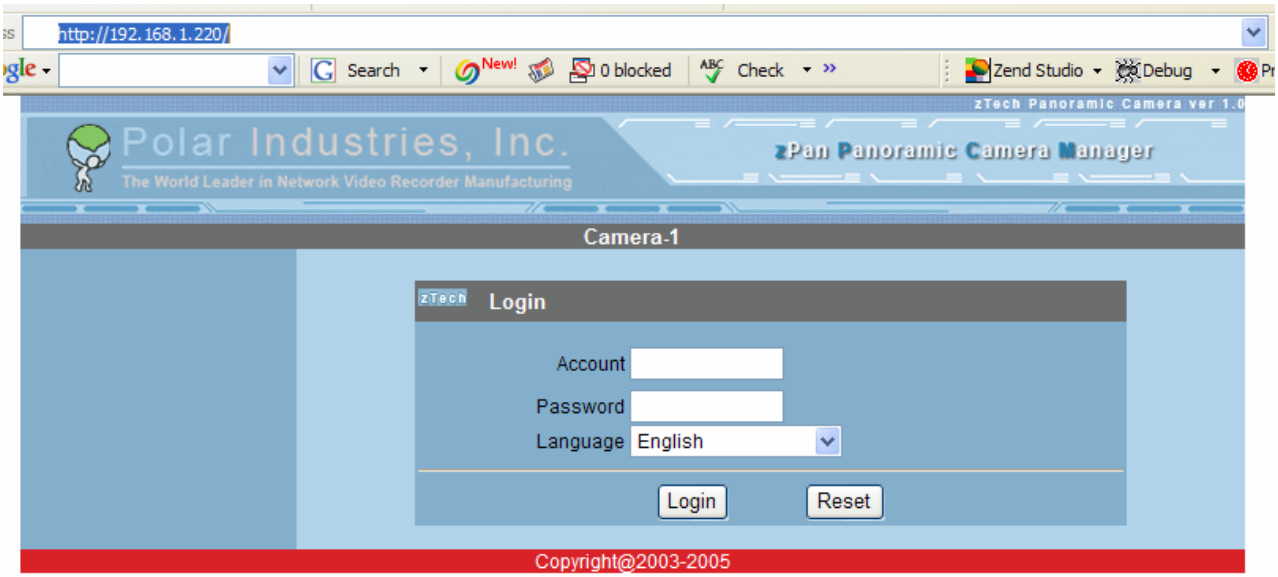
### 2.1.1 Setup Correct Network Environment

The default IP address of the camera is 192.168.1.220. Please make sure the Camera and your PC are in the same network segment before attempting to access the camera.



## 2.2 Web Server Configuration

Whenever you want to configure the camera, you can access the Configuration Utility by opening a web browser and typing in the IP address of the camera. The Camera's default IP address is 192.168.1.220




**NOTE:** Please make sure you are using IE6 or higher to ensure proper web server viewing.

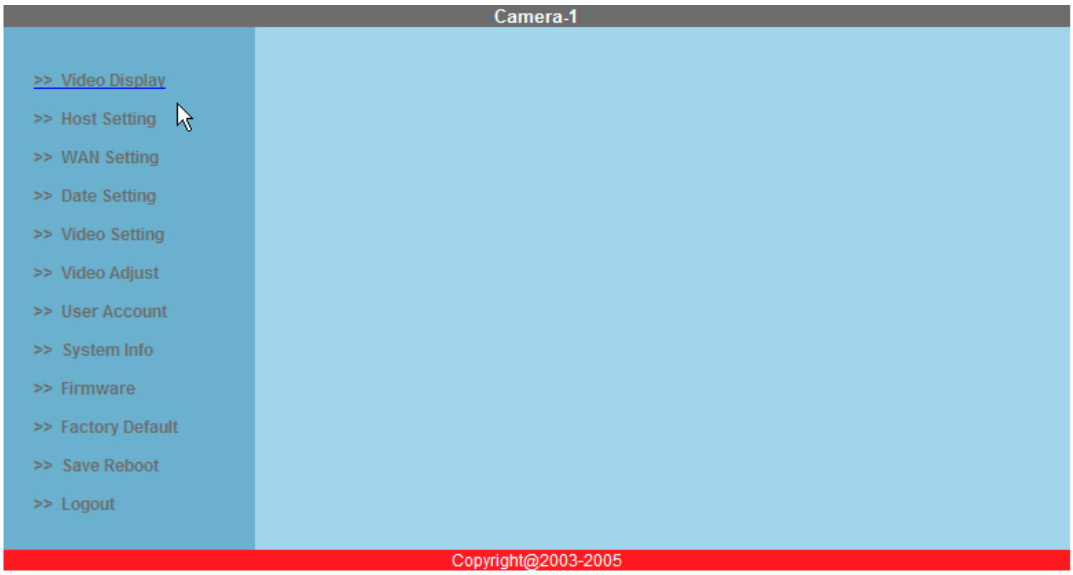
### 2.2.1 Login

Use your Account name and password to login.

- **Account:** Type **admin** as the default account name
- **Password:** Type **admin** as the default password.
- **Language:** Choose the language of the Web Configurator
- **LOGIN:** Click this to login
- **RESET:** Click this to reset the form

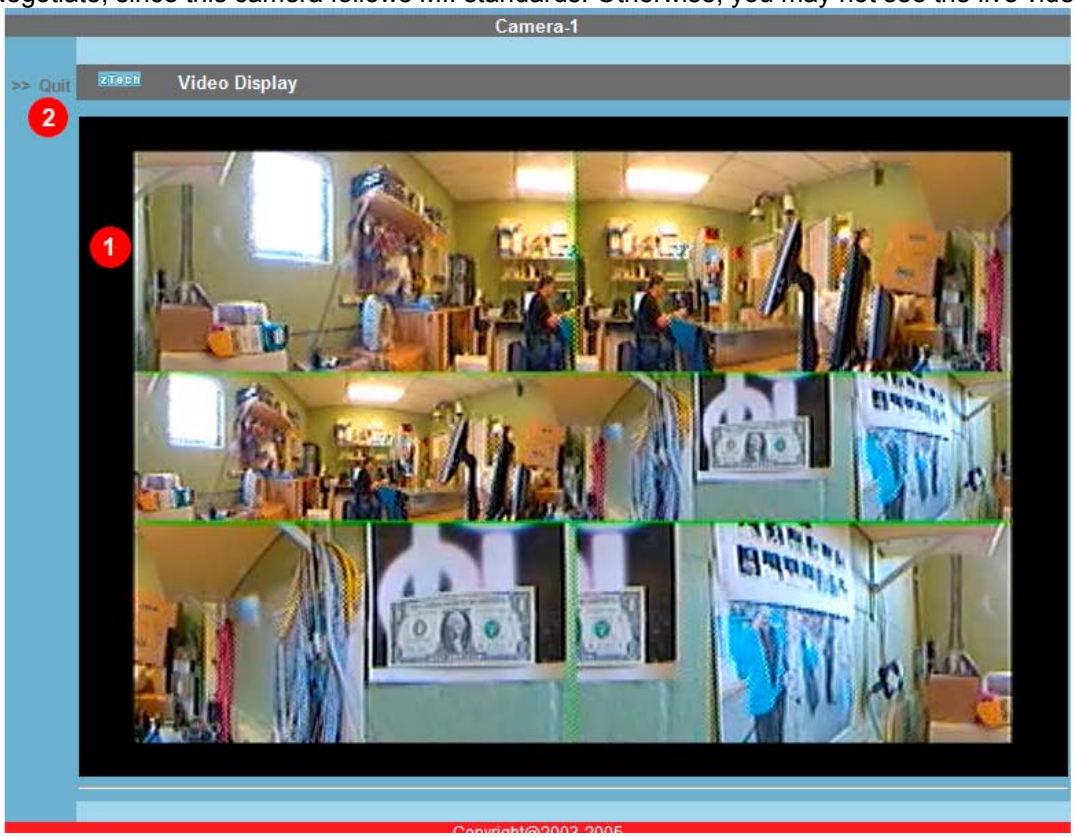
### 2.2.2 Video Display

This section allows you to preview live video.




**NOTE:** Please register your client information through the bundle CD before viewing live video

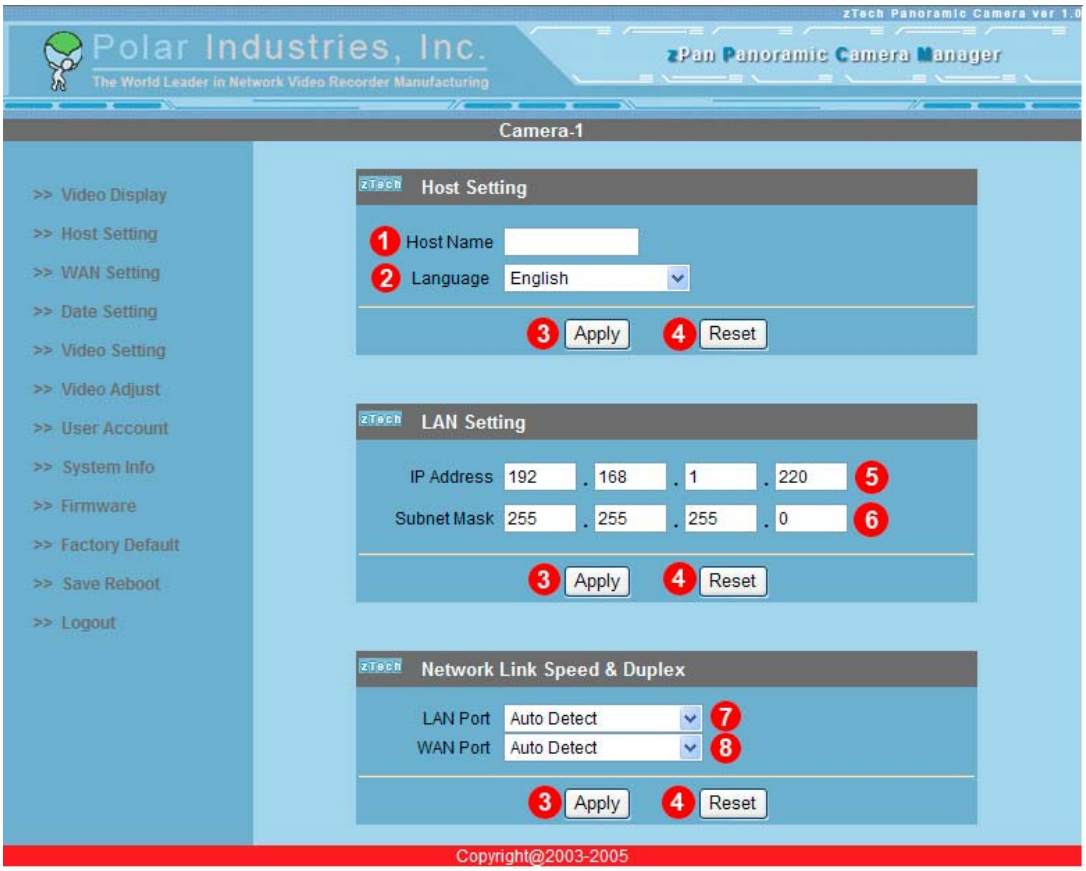
**NOTE:** In your client PC, please make sure the setting of Network Connections Type is set to Auto Negotiate, since this camera follows MII standards. Otherwise, you may not see the live video.




1. **Video Display:** Viewing the live video
2. **Quit:** Quit the Video Display Function

### 2.2.3 Host Settings

This section allows you to configure the LAN settings.




1. **Host Name:** Enter a name for the camera.
2. **Language:** Language setting for the Web Configurator after Save Reboot.
3. **APPLY:** Apply settings for the current section.
4. **RESET:** Reset the form for the current section.
5. **IP Address:** Set the IP address of the Camera.
6. **Subnet Mask**: Set the subnet mask of the Camera
7. **LAN Port:** Set the link speed. Recommend to leave on Auto Detect.
8. **Wan Port:** Set the link speed. Recommend to leave on Auto Detect.

**NOTE: Save Reboot** is necessary to save the configuration changes.

### 2.2.4 WAN Settings

If you plan on using the camera through a firewall or NAT device, you must set the IP of this port in a DIFFERENT subnet then the LAN port, or the camera may fail to function on either port. Only use this port if you plan on making the camera available on the Internet. You MAY use this port instead of the LAN port as your main port if you do not wish to use both ports.
(i.e. – LAN: 192.168.1.50, WAN: 192.168.2.50)

### 2.2.5 Date Settings

This section is used to set the date and time by SNTP/NTP server or to set it manually.


1. **SNTP/NTP Server:** Select this to set the Date & Time mode to automatic.
2. **IP Address:** Set the IP address of the SNTP/NTP server.
3. **Sync Time:** Set how often to sync with the SNTP/NTP server.
4. **Set Manually:** Select this to set the Data & Time mode to manual.
5. **Date:** Set the date here.
6. **Time:** Set the time here.
7. **Time Zone:** Set the Time Zone offset for your local setting.
8. **APPLY:** Apply the settings in this section.
9. **RESET:** Reset the settings in the form.

**NOTE: Save Reboot** is necessary to save the configuration changes.

## 2.2.6 Video Settings

This section is used to select the Video I/O options


1. **Camera Name:** Set the specific ID for this camera
2. **LAN Streaming:** Set Multicast or TCP mode for LAN, default is Multicast.
3. **WAN Streaming:** Set Multicast or TCP mode for WAN, default is Multicast.
4. **Multicast IP:** Set Multicast 228.5.6.x, default is 228.5.6.1.
5. **Analog Video:** Sets the camera to NTSC or PAL, this should be set to which Version you purchased.
6. **Resolution:** Set your resolution. Default is NTSC 720*480
7. **Bitrate:** Set your bitrate. Default is 1.2 Mbps
8. **TOS:** Add TOS flag in order to support QoS in RTP/RTCP package. Default is disabled.
9. **TOS Priority:** Set TOS Priority. Default is Normal-Service.
10. **Frame Rate Mode:** Set your frame mode to Constant or Variable.
11. **Frame Rate:** Set your frame rate. Default is 30fps. (Cam does not support more than 7.5fps)
12. **Serial Port Baud Rate:** Set the baud rate for the RS232 input. Default is 9600.
13. **HTTP Port:** Http port you want the web server to run on.
14. **Search Server Port 1**: The port of the “send” protocol for searching server.
15. **Search Server Port 2:** The port of the “receive” protocol for searching server.
16. **Video Register Port:** Port of video registration.
17. **Video Streaming Port:** Port of video streaming.
18. **Video Multicast Port:** Port of video multicasting.

19. **APPLY:** Click to apply settings.
20. **REST:** Click to reset settings.

**NOTE:** If you change **Search Server Port 1 & Search Server Port 2**, then you need to change the ports in IP_Utility, otherwise you may not find the Camera in the network.

**NOTE: Save Reboot** is necessary to save the configuration changes.

### 2.2.7 Video Adjustment

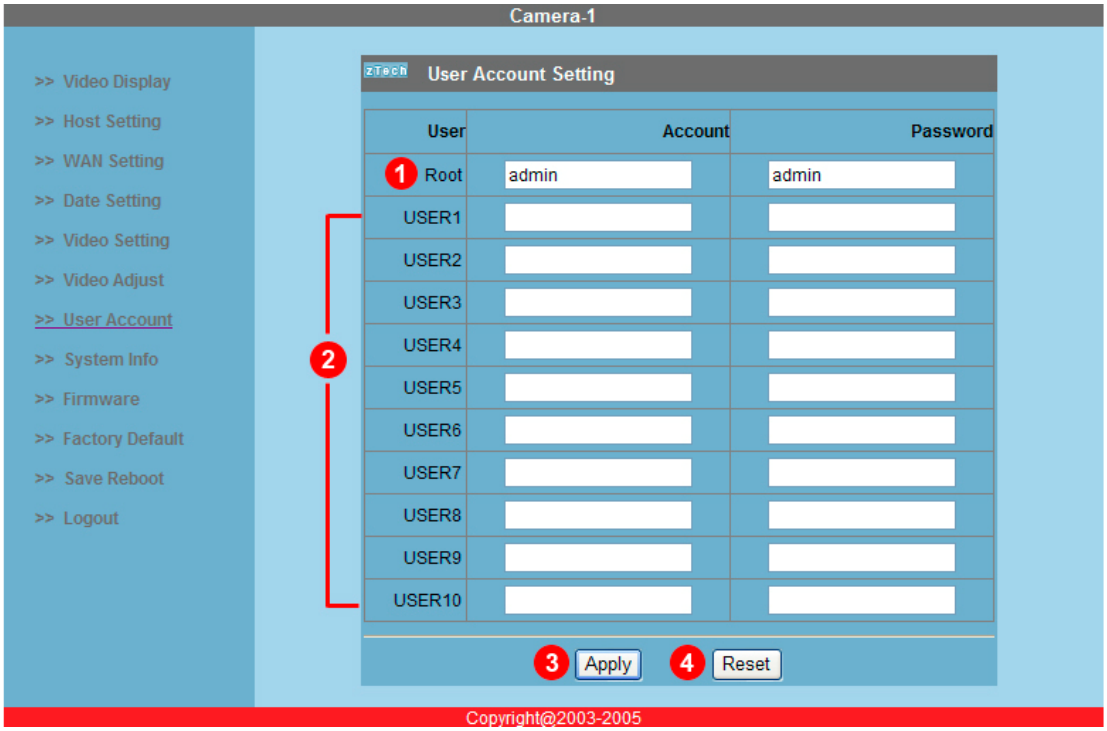
This section is used to fine tune the image quality and preview the video.


1. Video Preview Window
2. Hue Adjustment
3. Brightness Adjustment
4. Saturation Adjustment
5. Contrast Adjustment
6. APPLY: Click to apply settings
7. RESET: Click to reset form

**NOTE: Save Reboot** is necessary to save the configuration changes.

## 2.2.8 User Account Management

This section is used to create user accounts and passwords.



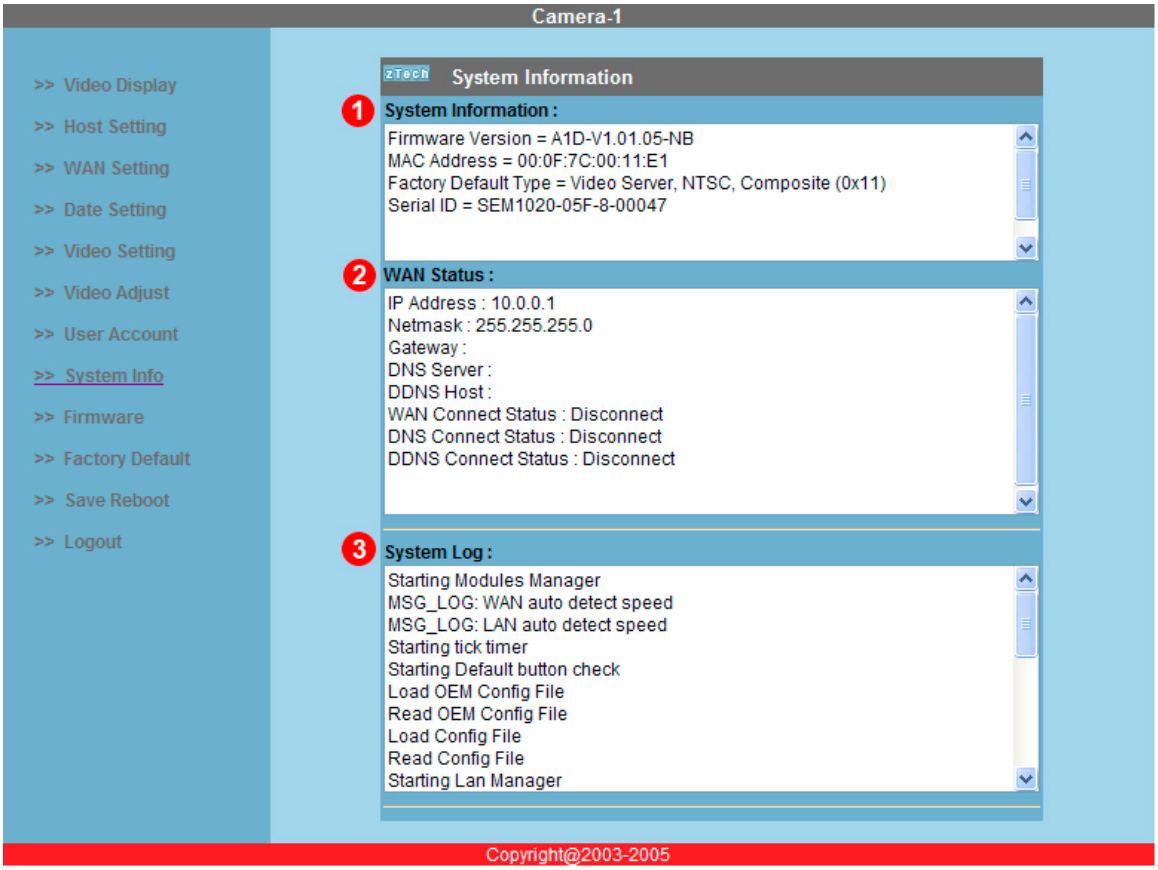

1. **Root:** Default Account name is Admin, Password is admin.
2. **User 1 – 10:** 10 user Accounts and Passwords can be defined.
3. **APPLY:** Click to apply the settings
4. **RESET:** Click to reset the form.

**NOTE:** Only root administrator has the ability for full range settings, the other users can only preview the video.

**NOTE: Save Reboot** is necessary to save the configuration changes.

### 2.2.9 System Info

This section is used to show the system information and logs



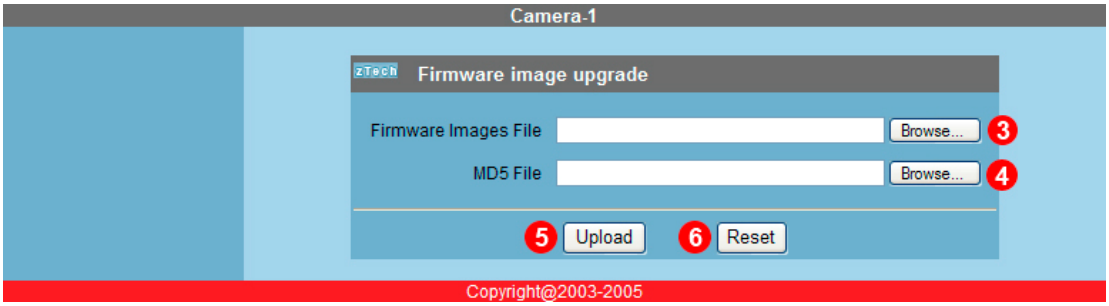

1. **System Information:** View System Information
2. **WAN Status:** View WAN status
3. **System Log:** View network status, system events and gather information about hardware problems.

## 2.2.10 Image Upgrade (1/2)

This section is used to upgrade the web server firmware. Firmware should only be upgraded if advised by Polar Industries, Inc. support staff.


1. Click **APPLY** to go to the next section.
2. Click **RESET** to cancel the firmware upgrade.

## 2.2.11 Image Upgrade (2/2)




3. **Firmware Images File:** You can update the Firmware Image version of your device by downloading the latest release from our website. Select the file from this box.
4. **MD5 File:** You can update the MD5 file version of your device by downloading the latest firmware release from our website. Select the file from this box.
5. **UPLOAD:** Click this button to upload the new firmware.
6. **RESET:** Click this button to reset the file locations.

### 2.2.12 Factory Default

This section is used to rest the camera to its factory settings.


1. **APPLY:** Click this to restore the unit to factory defaults.
2. **RESET:** Click this to cancel the restore.

**NOTE: Save Reboot** is necessary to save the configuration changes.

### 2.2.13 Save Reboot

When you finish making any configuration changes, YOU MUST click Save Reboot and wait 30 seconds for the system to save and reboot. When the LAN/WAN LEDs are solid, the boot up was successful.

### 2.2.14 Logout

Click logout to exit the web server and close the IE window

# 3 - HARDWARE INFORMATION

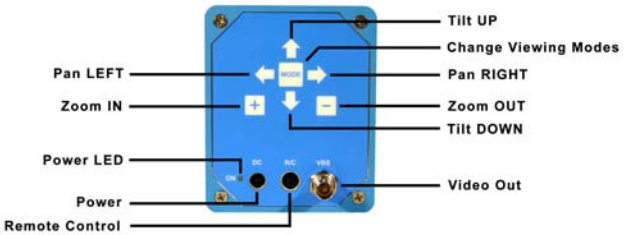
## *3.1 General Information*

The zPan comes in several different models. There are both Analog and IP Versions as well as ceiling and desktop mount versions. They also come in either NTSC or PAL. The following is a breakdown of the model number to help determine which version you have.

D – Digital
A – Analog
N – NTSC
P – Pal
(C) – Ceiling
(D) – Desktop

zPAN100N(C)-A – This is an NTSC Analog Ceiling Mount Version.

## *3.1 Analog Back Panel*




## *3.1 Digital Back Panel*