



NC100 Digital Network Camera Series

User Manual

This device complies with Part 15 of FCC rules.
Operation is subject to the following conditions:

1. This device may not cause harmful interference, and.
2. This device must accept any interference that may cause undesired operation.

- ◆ **This device complies with Part 15 of the FCC Rules.** Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- ◆ **Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.**

- ◆ This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Notice

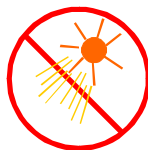
1. Do not drop, puncture or disassemble the camera.



2. Avoid all contact with water . Dry hands before using.



3. Do not expose the camera to high temperature or leave it in direct sunlight.



4. Avoid pressing hard on the camera body.



** Use only the AC adaptor supplied by the manufacturer.*



Contents

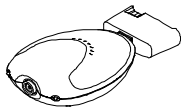
Getting Started	3	NetCam Manager User Interface	20
Package Contents	4		
Parts Description	5		
Positioning the Camera	7		
<hr/>			
Installation	8	Setting	22
Hardware Installation	9	Login NetCam Configuration	23
Wired Connection (NC100)		System Configuration	24
Wireless Connection (NC100W)		System Information	
Connecting DI/DO Device		Change Password	
Software Installation	12	Upgrade F/W (Firmware)	
Installing the NetCam Manager		Network Configuration	26
Configuring the Camera	13	System IP	
<hr/>		WLAN	
Using Your Camera	16	Network Status	29
Taking pictures and Recording AVI Movies	17	Wired Link Information	
Snapshot		WLAN Link Information (for NC100W)	
Video Mail		Camera Configuration	31
Camcorder		Video Configuration	
Zoom		Digital Output	
		Auto-eMail Configuration	33
		Auto-eMail Configuration	



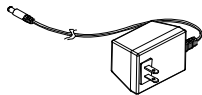
Getting Started

- *Package Contents*
- *Parts Description*
- *Positioning the Camera*

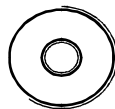
Package Contents



*NC100



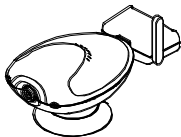
12V AC/DC Adapter



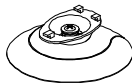
Driver CD



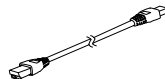
Mounting Kit



*NC100 W



Mounting Stem

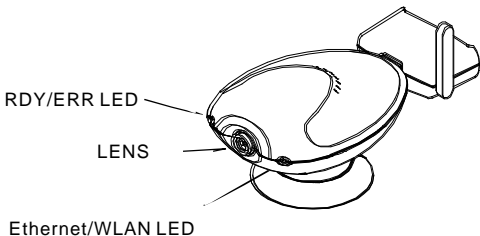


RJ45 Cable

* Each package only contains one model.

Parts Description

Front View

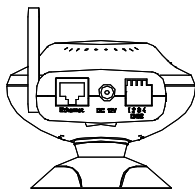
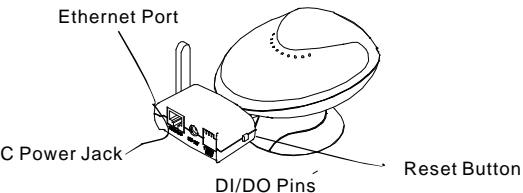


*NC100W

- **Antenna:** only available for NC100W. The antenna is used to communicate with wireless devices.
- **RDY/ERR LED: (Ready/Error LED's)**
 - Flashing green: boot-up and self test.
 - Steady green: power-on and ready.
 - Flashing yellow: auto-email or configuration error.
 - Steady yellow: firmware error.
- **Lens:** the camera lens.
- **Ethernet/WLAN LED:**
 - Flashing green: indicating Ethernet TX/RX event.
 - Steady green: Ethernet connection indicator.
 - Flashing yellow: the camera is searching for a wireless AP (Access Point) device.
 - Steady yellow: wireless connection indicator.

Parts Description

Rear View

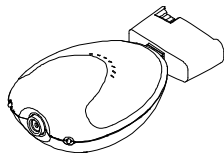


Stem Socket

- **Ethernet Port:** this port is for connecting the Ethernet RJ45 cable.
- **DC Power Jack:** the connector for DC power adaptor.
- **DI/DO Pins:** the digital input/digital output pins. Please refer to the **Installation** chapter for more information.
- **Reset Button:** press and hold this button to restore the default settings or the factory firmware. For more information, please refer to the **Troubleshooting** section.
- **Stem Socket:** this socket is for connecting the mounting stem.

Positioning the Camera

Connecting the Camera to Mounting Stem

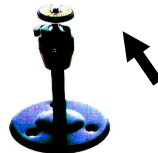
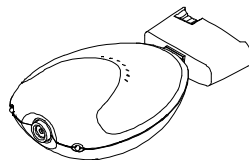


Align the stem with the camera and place it into the stem socket.

Step 1



Mounting Kit



Screw mounting stem to the camera

Step 2



Installation

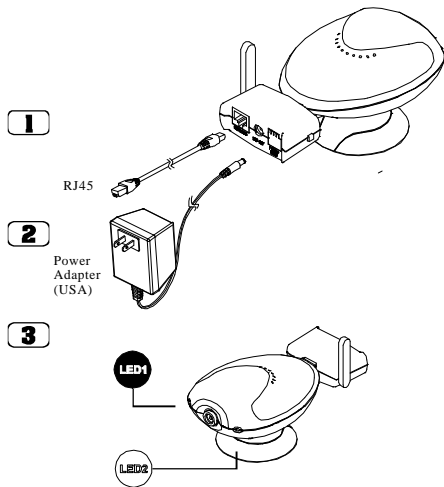
- *Hardware Installation*
- *Software Installation*
- *Configuring the Camera*

Hardware Installation

Connecting the Camera to a Network

Wired Connection (NC100, NC100W)

- 1. Connect to Ethernet port :** Connect the RJ 45 cable to the Ethernet port on your camera, then connect the other end of the cable to a hub or switch.
- 2. Connect to the AC power adaptor :** Connect the AC/DC power adapter to a power outlet and to the camera.
- 3. Check the Indicator status :** Please wait for about 1 minute until flashing LED1 becomes steady green.



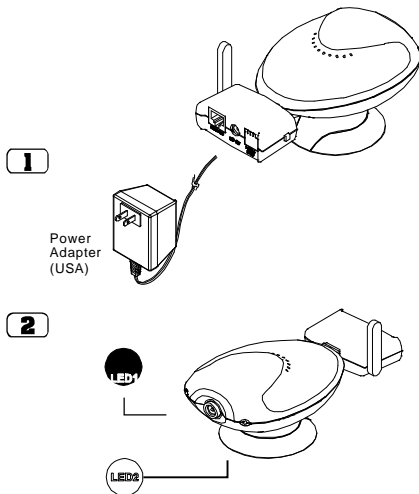
Hardware Installation

Wireless Connection (NC100W)

- 1. Connect to the AC power adaptor :** Connect the AC/DC power adaptor to a power outlet and to the camera.
- 2. Check the Indicator status :** Please wait for about 1 minute until flashing LED1 becomes steady green.



- Wireless connection may require an Access Point (AP) device. Please refer to the AP manual for more information on AP settings.



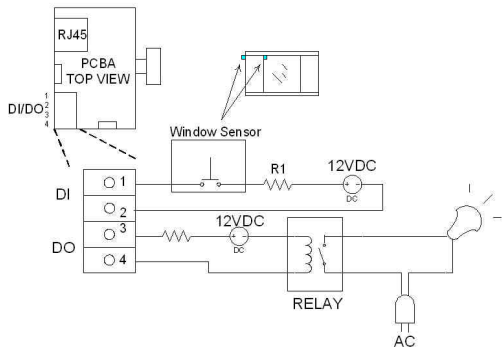
Hardware Installation

Connecting DI/DO Device

The DI/DO feature allows you to connect the camera to various kinds of devices and to extend the utility of the camera. There are 4 pins in total. Pin1 and 2 form a digital input current loop. Its maximum sustainable current is 50mA. Maximum voltage is DC+15V. Normally, R1 is 10K ohms. Pin 3 and 4 form a digital output current loop which is controlled by firmware. You can program the behavior of DO signal through firmware settings (refer to the **Setting** chapter for more information).

Its maximum sustainable current is 50mA. Maximum voltage is DC+15V. Note that a relay is necessary if the connected device requires AC power.

The following diagram illustrates an example of the connections. The window sensor is a N.C sensor. In addition to window sensor, you can also use a door sensor,




- Connecting these devices requires certain technical knowledge. Please consult an expert before making changes to the settings.

Software Installation

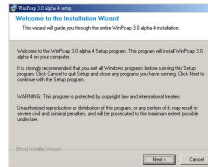
Installing the NetCam Manager

(1) Insert the accessory CD into your CD-ROM drive. The software installation menu should open automatically.

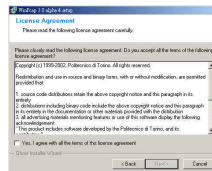
(2) Click  to start the NetCam Manager Installation. Follow the on-screen instructions, and a shareware program named "WinPcap" will be installed.



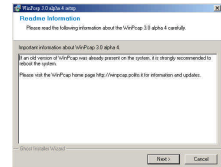
(3) Click on "Next".



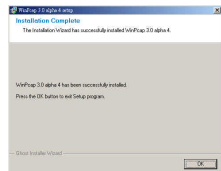
(4) Check "Yes" and click on "Next".



(5) Click on "Next".



(6) Click on "OK" to finish the installation.




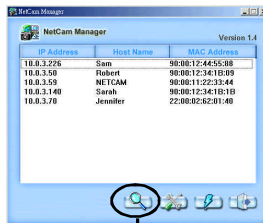
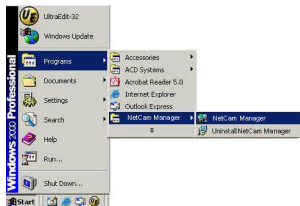
Configuring the Camera

1. Using NetCam Manager to locate the camera in the same LAN segment.

By default, NC100W will accept the IP address assigned by a DHCP server. If no DHCP server is present in the network segment, NC100W will automatically set its IP address to 192.168.1.x (x ranges from 1 to 254) with subnet mask 255.255.255.0. You can launch NetCam Manager to locate all cameras within your LAN segment.

To Launch NetCam Manager:

Click on the "Start" menu and go to "Programs". Then browse to the folder named "NetCam Manager" and run the program. After the main screen appears, the program will scan automatically, or you can manually click on  to scan cameras in the same LAN segment. If two or more cameras are using the same host name, you can change their host names to distinguish them. Please refer to the **Setting** chapter for more information.



Press this button to scan.

Configuring the Camera

2. Locating the camera on the Internet.

To locate the camera on the Internet, you need to know the IP address of the camera. Launch Internet Explorer and enter the IP address of your camera, and you can use the camera as if it is in the same network segment.

Ping a specified IP Address to verify accessibility:

You can use PING (Packet Internet Groper) utility to check whether a specified IP address is accessible by sending a packet to the specified IP address.

1. Start a Command prompt.
2. Type "ping [IP address]".
3. Check the reply messages to determine whether the IP address is reachable.

```
Command Prompt
Microsoft Windows [Version 5.00.2195]
(C) Copyright 1985-1999 Microsoft Corp.
C:\>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<10ms TTL=64
Reply from 192.168.1.1: bytes=32 time<10ms TTL=64
Reply from 192.168.1.1: bytes=32 time=31ms TTL=64
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 31ms, Average = 7ms
C:\>_
```

Note: If any problem should occur during the PING process, please check your network environment or ask an expert for help.



- For detailed information on the configuration of the camera, please refer to the **Setting** chapter.



Using Your Camera

- *Taking Pictures and Recording AVI Movies*
- *NetCam Manager User Interface*

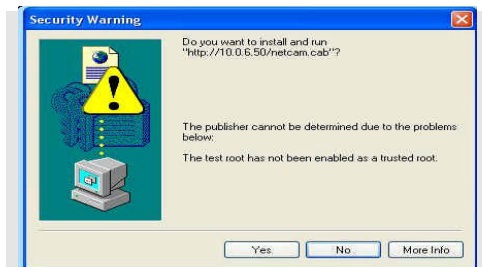
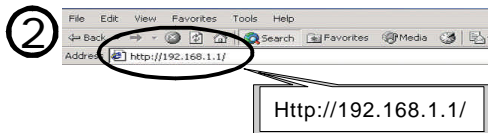
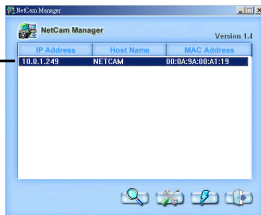
Configuring the Camera

3. Entering the NetCam Viewer

There are two ways to enter the NetCam Viewer:

1. Use NetCam Manager to scan the camera in the same network segment, and double-click on the title bar to enter the Viewer.
2. Start Microsoft Internet Explorer. In the address field, input the IP address of your camera and press "Enter" to access the Viewer.

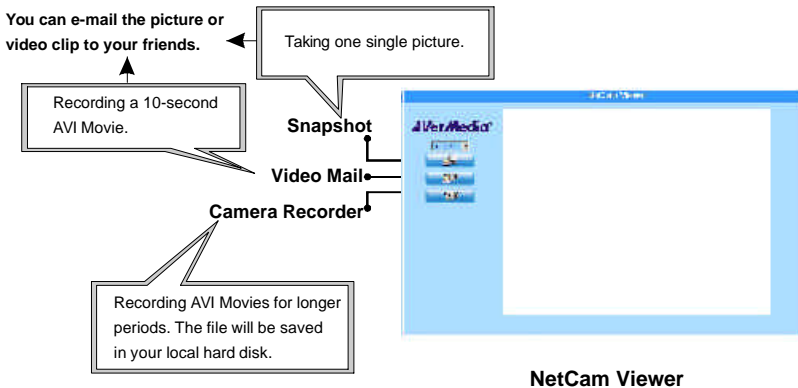
- ① While running NetCam Manager, double-click on a specific camera title bar to enter the NetCam Viewer.



- If you are entering the Viewer for the first time, you will see this warning message. Press "Yes" to install the software. This is required for the Viewer's operation.

Taking Pictures and Recording AVI Movies

NetCam Viewer displays real-time video stream captured by the camera. With NetCam Viewer, you can take snapshots or record video clips and e-mail these files to your friends, or you can save video clips in your hard disk. To prevent anyone from directly accessing the Viewer, you can set up a Guest Password. Refer to the **Setting** chapter for more information.



Taking Pictures and Recording AVI Movies

Snapshot

1. Click on



2. The e-mail program will be automatically started and the recorded BMP file is ready to be sent as an attachment. You can then key in an e-mail address to send the mail.

Video Mail

1. Click on



2. The camera starts to record a video clip. Click on the icon again to stop recording.
3. The e-mail program will be automatically started and the recorded video clip is ready to be sent as an attachment. You can then key in an e-mail address to send the mail.



- 1. Make sure that your PC has an e-mail program installed before using these functions.
- 2. The maximum recording time for Video Mail is 10 seconds.

Taking Pictures and Recording AVI Movies

Camera Recorder

1. Click on



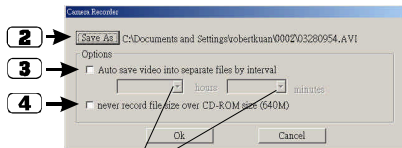
1



2. Press the button and specify a folder and file name to save the file.

3. Check this box if you want to auto-save video clips between intervals.

4. Check this box if you don't want the file size to exceed 640MB.



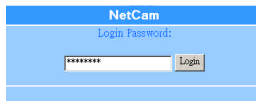
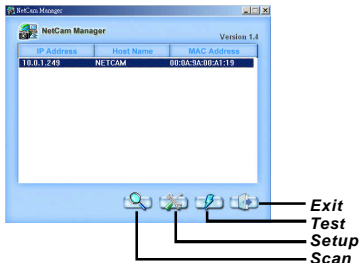
- If you choose to auto-save video clips, you can specify the time interval. For example, a "10" in the minutes field indicates video clips will be automatically saved to hard disk every 10 minutes. The file name will be automatically rendered.

Zoom

"Zoom x 1" is the default Viewer setting. Choose "Zoom x 2" or "Zoom x 4" if you need to view the objects in detail.

NetCam Manager User Interface


NetCam Manager User Interface




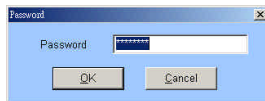
Access the Login page on Internet Explorer.

However, it may be possible that your PC and camera are using IPs that are considered to be in different segments (even though they are actually in the same network segment). If this happens, pressing this button will pop up a prompting message asking if you really want to configure the camera settings. If you select "Yes", the following dialogue window will appear:

There are four buttons on the screen:

 [Scan]: Press this button to scan all cameras in the same network segment.

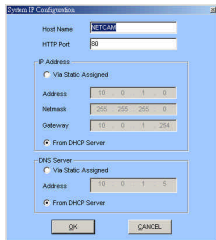
 [Setup]: Normally, pressing this button will launch Internet Explorer and lead you to the Login page, which will then lead you to the NetCam Configuration page provided the correct password is entered.



After entering the correct password and pressing "OK", a setup window will pop up, as the following:

NetCam Manager User Interface

NetCam Manager User Interface (continued)



Change settings in this window.

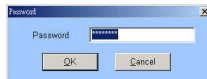
You can then make changes and press "OK" to apply these changes to the camera. For more information about these settings, please refer to the **Setting** chapter.



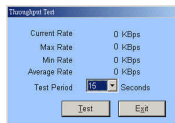
- The default Login password is "password". If the default password is not changed, you can simply press "OK" to enter the setup window.



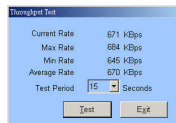
[Test]: Press this button to test the throughput readings. The Login password is required to access the throughput test function.



Enter password and press "OK".



Press "Test".



Test result.



[Exit]: Press this button to exit NetCam Manager.



Setting

- *Login NetCam Configuration*
- *System Configuration*
- *Network Configuration*
- *Network Status*
- *Camera Configuration*
- *Auto-eMail Configuration*

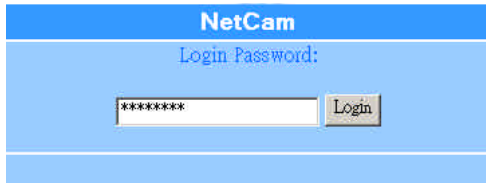
Login NetCam Configuration

1. Enter the login address of your camera in the address field of your browser.



2. The default password of the camera is "password". If the default password is not changed, you can simply click on " Login" to login NetCam Configuration.

To change password, please refer to page 25.

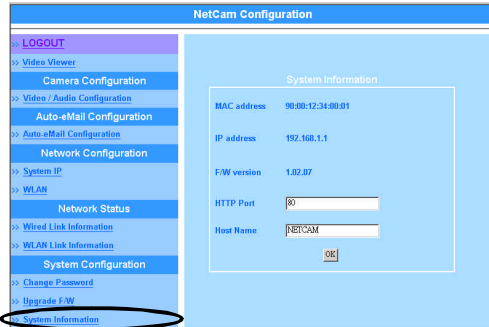


System Configuration

System Information

The System Information screen displays the current status of the camera on the Network.

- **MAC address:** the MAC address of your camera's built-in network card. This item cannot be changed.
- **IP address:** the camera's IP address.
- **F/W version:** the camera's firmware version.
- **HTTP Port:** the port number configured to receive data packets from the camera. The default HTTP port number is 80. If you configure a different port number, you must specify the port number in the browser (ex. 192.168.1.1:8080, where 8080 is the port number). An alternative way is to configure your router's NAT settings. Please refer to the router's user manual for more information.
- **Host Name:** host name can be renamed to distinguish different cameras.



System Configuration

Change Password

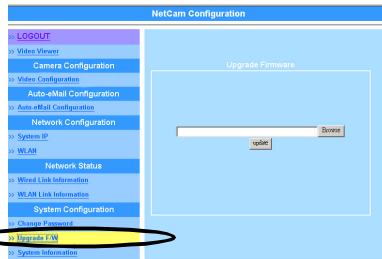
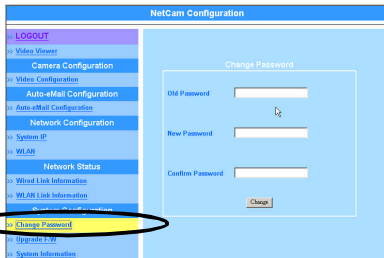
Here you can change the Login password.
Type in a new password and click on "Change"; the old password will be replaced by the new password.



- The default Login password is "password". You should change this password to ensure security.

Upgrade F/W (Firmware)

To upgrade the camera firmware, please go to your dealer's website to download the latest firmware and save it in your hard disk. Then click on the "Browse" button and locate the downloaded file. Click on "Update" button and the camera's firmware will be upgraded.



Network Configuration

System IP

By default, the camera is set to receive any IP address assigned by the DHCP server in the same network segment. If you want to assign a static IP to the camera, make sure that the IP is available every time the camera is powered on. To configure a static IP address, click on the item "Via Static Assigned" and then input the IP address, subnet mask, gateway, and DNS server. The following is an example of the settings:

IP address: 192.168.1.1

Netmask: 255.255.255.0

Gateway: 192.168.1.254

DNS server: 192.168.1.254

Note that the example may not be suitable for your actual condition. You should consult an expert before making any change to these settings.

The screenshot displays the 'NetCam Configuration' web interface. On the left, a navigation menu lists various settings, with 'System IP' highlighted in yellow. The main panel shows the 'System IP Configuration' section. Under 'IP Address', the 'Via Static Assigned' radio button is selected. The IP address is entered as 192.168.1.1, the netmask as 255.255.255.0, and the gateway as 192.168.1.254. The 'From DHCP Server' option is unselected. In the 'DNS Server' section, 'Via Static Assigned' is selected, and the DNS server address is set to 192.168.1.254. The 'From DHCP Server' option is also unselected. An 'OK' button is located at the bottom right of the configuration area.



- You can assign a static DNS server address even though the camera is set to receive IP address from a DHCP server.

Network Configuration

WLAN For NC100W

● Mode:

Infrastructure: In this mode, the camera will try to communicate with an Access Point (AP) device.

Ad-hoc: In this mode, the camera will try to establish a peer-to-peer connection with another wireless device.

You can choose a proper mode that suits your environment best.

- **ESSID:** This is the Network Name used to distinguish one network group from another. This setting is case sensitive, and it should match the ESSID of your target device or the connection will not be established. The default setting "Any" enables the camera to search all possible targets to make a connection. It is advised that you keep the default setting under most circumstances.

NetCam Configuration

WLAN Configuration

Mode: Infrastructure

ESSID: Any

Channel: 1

Encryption (WEP): Disable WEP key index: 1

Alphanumeric Hexadecimal

WEP Key: _____

Confirm: _____

Cancel OK



- These settings are only for wireless connection purposes.

Network Configuration

WLAN (continued)

- **Channel:** This setting can only be changed in Ad-hoc mode. In peer-to-peer connection, two associated devices must be configured to use the same channel; otherwise the connection will fail. Channel number ranges from 1 to 14. Due to different regulations, applicable channels differ in different areas. See the following table for reference.

Channel 1 - 11	America
Channel 1 - 14	Japan
Channel 1 - 13	Europe (most areas)
Channel 10 -11	Spain
Channel 10 -13	France

- **Encryption (WEP Key):** Two levels of encryption methods are available - 64bits and 128bits. The 128bits method provides more protection, while the 64bits standard is more widely supported. After specifying the encryption method, you can choose either Alphanumeric mode or Hexadecimal mode to enter the encryption key. Note that the WEP key of camera and AP must match, or the connection will fail. The length of key varies according to the encryption mode and method, as the following table shows:

Alphanumeric mode		Hexadecimal mode	
64	128	64	128
5 letters	13 letters	10 letters	26 letters

- **WEP key index:** After enabling WEP encryption, you must set this index value to match that of your Access Point (AP); otherwise the connection cannot be established.

Network Status

Wired Link Information

- **Port:** the port number configured to receive data packets for the camera. The default HTTP port number is 80.
- **IP:** the camera's IP address.
- **MAC:** the MAC address of the camera's built-in network card.
- **DNS (Domain Name Service) Server:** the IP address of DNS server.
- **Link Status:** displays the Ethernet link status (up or down).
- **Total Tx Packets:** the amount of transmitted packets.
- **Total Rx Packets:** the amount of received packets.
- **Clear button:** press this button to reset the counting of "Total Tx Packets" and "Total Rx Packets".

The screenshot shows the 'NetCam Configuration' web interface. On the left is a navigation menu with items like LOGOUT, Video Viewer, Camera Configuration, Video Configuration, Auto-eMail Configuration, Auto-eMail Configuration, Network Configuration, System IP, WLAN, Network Status, Wired Link Information (highlighted with a yellow oval), WLAN Link Information, System Configuration, Change Password, Upgrade F/W, and System Information. The main content area is titled 'Wired Link Information' and contains a table with the following data:

Wired Link Information	
PORT	80
IP	192.168.1.1
MAC	98:00:12:34:00:01
DNS	192.168.1.254
Link Status	UP
Total TX Packets	1607
Total RX Packets	1207

Below the table is a 'Clear' button.

Network Status

WLAN Link Information (for NC100W)

- **Port:** the port number configured to receive data packets for the camera. The default HTTP port number is 80.
- **IP:** the camera's IP address.
- **MAC:** the MAC address of the camera's network card.
- **DNS Server:** the IP address of DNS server.
- **Link Status:** displays the wireless link status (up or down).
- **ESSID:** current ESSID setting.
- **CHANNEL:** the channel currently used for transmission.
- **Total Tx Packets:** the amount of transmitted packets.
- **Total Rx Packets:** the amount of received packets.
- **Link Strength:** indicates the link strength between the camera and AP device.
- **Clear button:** press this button to reset the counting of "Total Tx Packets" and "Total Rx Packets".

The screenshot displays the 'NetCam Configuration' interface. On the left is a navigation menu with categories like Camera Configuration, Network Configuration, and System Configuration. The 'WLAN Link Information' option is highlighted with a yellow oval. The main content area shows the following details:

WLAN Link Information	
PORT	80
IP	10.0.1.249
MAC	08:0A:9A:00:A1:19
DNS	10.0.1.5
Link Status	UP
ESSID	Any
CHANNEL	3
Total TX Packets	18314
Total RX Packets	14273
Link Strength	(100%)

A 'Clear' button is located at the bottom of the information panel.

Camera Configuration

Audio/Not available yet

- **Video:**

QVGA(320x240): VGA with lower resolution.

VGA(640x480): this is the default setting.

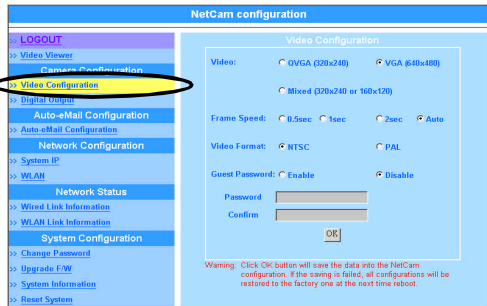
Mixed (320x320 or 160x120): If you select this option, the PC display resolution is 320x320; while on other devices with smaller screens (such as PDA or cell phones), the display resolution will become 160x120.

- **Frame Rate:** determines the time length to produce one frame. You can increase the time length if the network is congested.

- **Video Format:** NTSC is for America; while PAL is for Pan-European areas.

- **Guest assword:** determines whether a regular user

- Needs to enter password before accessing the NetCam Viewer page.



NetCam configuration

Video Configuration

Video: QVGA (320x240) VGA (640x480)
 Mixed (320x240 or 160x120)

Frame Speed: 0.5sec 1sec 2sec Auto

Video Format: NTSC PAL

Guest Password: Enable Disable

Password:

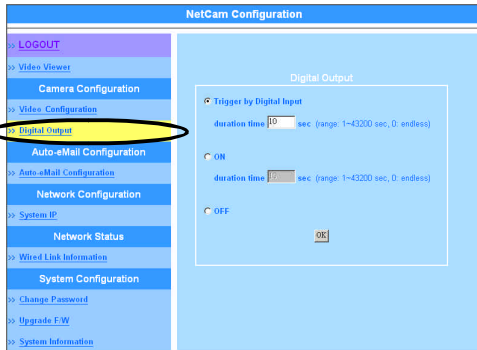
Confirm:

Warning: Click OK button will save the data into the NetCam configuration. If the saving is failed, all configurations will be restored to the factory one at the next time reboot.

Camera Configuration

Digital Output

- **Trigger by Digital Input:** specify that the digital output signal is triggered upon receiving the digital input signal. You can further specify the duration of effective time in the blank field.
- **On:** manually turn on the digital output signal. You can further specify the duration of effective time in the blank field.
- **Off:** manually disable the digital output feature.



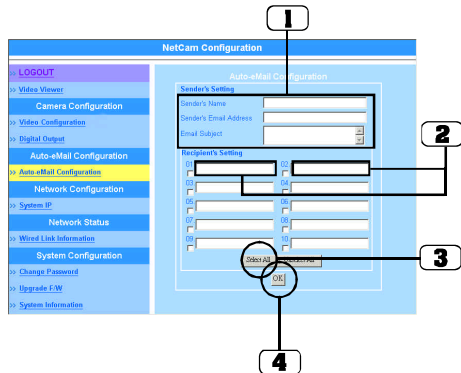
Auto-eMail Configuration

Auto-eMail Configuration

As long as recipient's e-mail settings are set up in Auto-eMail Configuration, you can send e-mails with still pictures attached to the selected recipients. The captured image will be in JPEG format.

1. Key in Sender's Name, Sender's Mail address, and Email Subject.
2. Key in e-mail addresses for one or more recipients.
3. Click on "Select All" or select recipients manually.
4. Click on "OK" to complete Auto-eMail Configuration.
5. Every time the camera receives a DI (Digital Input) signal, this Auto-eMail will be sent with a still picture attached.

*Auto-eMail does not send video clips.



Glossary

1. IP Address

⇒IP address is an address which is used to locate a network device on TCP/IP network.

2. DHCP

⇒Dynamic Host Configuration Protocol (DHCP) provides a framework for passing configuration information to hosts on a TCP/IP network.

3. DNS Server

⇒The Domain Name System is a distributed database that is used by TCP/IP applications to map between host names and IP addresses, and to provide electronic mail routing information.

4. MAC Address

⇒MAC (Media Access Control) address is a unique hardware number on network. It is used by the Media Access Control sub-layer of Data-Link Layer of communication protocol.

5. HTTP

⇒The Hypertext Transfer Protocol (HTTP) is an application-level protocol with the lightness and speed necessary for distributed, collaborative, hypermedia information system.

6. ESSID

⇒ESSID stands for Extended Service Set Identifier. It is used to identify wireless LAN groups.

7. TX

⇒TX stands for transmission.

8. RX

⇒RX stands for reception.

9. NAT (Network Address Port Translation)

⇒NAPT is a method by which many network addresses and their TCP/UDP ports are translated into a single network address and its TCP/UDP ports.

Troubleshooting

Q1: How do I restore the camera to the default setting while the RDY LED is flashing yellow light?

A1: Step 1. Press and hold down the reset button.

Step 2. Plug in the AC/DC adapter.

Step 3. Release the reset button immediately when the RDY LED light changes into orange light. Camera will soon be reset.

Q2: How do I recover device while RDY LED indicates yellow light?

A2: Follow the steps to restore firmware & configuration.

Step 1. Press and hold the reset button.

Step 2. Plug in the AC/DC adapter.

Step 3. When you see the RDY LED indicates steady orange light, don't release the reset button. Release the reset button after the RDY LED light has changed into flashing orange light. The camera will then start restoring firmware.

Q3: How can I access my NetCam if my NetCam is connected to internet via an IP sharing router?

A3: Please configure NetCam's IP address to router's DMZ item, or configure router's NAPT table to redirect HTTP packet to NetCam's IP address. For example, IP sharing router's network address is "192.168.1.x", and NetCam's IP address is "192.168.1.123". You can directly configure router's DMZ item to "192.168.1.123". Or, set router to forward IP packet with port 80 to "192.168.1.123" in NAPT table.

Troubleshooting

Q4: No image shows while accessing NetCam Viewer.

A4: The web page hasn't passed Windows Logo testing. Please go to the Internet Explorer and change all settings to default settings.

Q5: Is there any limitation on the number of administrators?

A5: Only one administrator is allowed.

Q6: Is there any limitation on the number of NetCam Viewer?

A6: Maximum guests and 1 administrator are allowed to connect at the same time.

Q7: Recipients can't receive mails sent by the camera.

A7: The mail server may be temporarily down or busy. Please try to send the mail again later.

Q8: I would like to configure a static DNS IP, how can I obtain the information of my local DNS server?

A8: Please ask your local ISP (Internet Service Provider) for assistance.

Q9: The NetCam Viewer display is blank.

A9: Please check the security level of your browser. If it is set to High, lower the security level to solve this problem.