ETHERNET CAMERA, MPEG-4

ZN-L8000

INSTRUCTION MANUAL

ZN-L8210PHA
ZN-L8210NHA
ZN-LN8048PHA
ZN-LN8048NHA

Color or Day/Night High Resolution Camera with Integrated Computar Auto-Iris Varifocal Lens & MPEG-4 Streaming Video

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Edition: v2.0 - English
            April 2004 (based on CBC (Europe) Ltd. version 2.00)

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Trade Marks   All names used in this manual regarding hardware and software are registered trade marks and must be treated as such.

This is a FCC Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures to prevent such interference from adversely affecting the performance of other devices in the area.

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INTRODUCTION

This manual is intended for persons authorized to install and operate this camera and other VCS products. International, national and any relevant regional regulations relating to electronics must be observed at all times.

Conventions
In this manual, the following symbols and notations are used to draw attention to special situations:

Attention! This symbol indicates tips and notes that make using the device easier and more convenient.

Hazard! This symbol indicates that failure to follow the safety instructions given may directly endanger people, cause damage to the system or to other equipment. This symbol represents a direct threat of danger.

The following typographic conventions are used in this manual:

Configuration	menu names and window and key names and parameters
[Enter], [C]	separate key names
[Ctrl] + [C]	two or more keys pressed simultaneously
ping	command line input and output

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Intended Use
This camera is intended to transmit video and control signals via Ethernet data networks.
This camera is designed for use in CCTV systems.
The connection of an external alarm sensor allows functions to be triggered automatically.
Other unauthorized applications are not permitted.

If you have any additional questions concerning the use of these devices which are NOT answered in this manual, please contact your dealer.

This camera is compatible with following VCS products: VideoJet10e and VIDOS software.

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SAFETY INFORMATION

Electrical Shock Hazard

- Ø Never attempt to connect the unit or the power supply to any power source other than the one for which it was provided for.
- Ø Use only appropriate and approved power supply units with this device (see technical specifications).
- Ø Do not open the housing of the power supply unit.
- Ø Disconnect the power supply unit from the outlet and from all other devices if a fault occurs.
- Ø Install the power supply unit and the device in a dry place, which is protected from the elements.
- Ø If you are uncertain about the safe operation of the unit, shut it down immediately and secure it to prevent any unauthorized start-up. Safe operation of this unit is no longer possible under the following conditions:
  - § If damage is visible to the unit or the cables
  - § If the unit no longer operates correctly
  - § If the unit has been exposed to rain or moisture
  - § If objects have penetrated inside the unit
  - § After long storage under improper conditions or
  - § After heavy demands during transport

Installation and Operation

- Ø All applicable electrical codes and regulations must be observed and followed at all times during the installation of this device.
- Ø Before installing or operating the system, ensure that you have read and understand the documentation for all other equipment that will be connected to the unit, such as monitors or pan-tilt (PTZ) heads. These documents may contain important safety notices and information concerning permissible applications.
- Ø Please only install and operate this device as described in this manual. All other work beyond this may lead to injuries to persons and damage to the system or other equipment.
- Ø Ensure a secure footing whenever working in elevated positions. Use only approved safety ladders. If necessary, use a safety harness or railings.
- Ø Use this camera with original Ganz tools.

Repairs and Maintenance

- Ø Never open the housing of the unit.
- Ø Never open the housing of the power supply unit.
- Ø Only allow a qualified technician to perform maintenance or repair work.
- Ø Contact your dealer for authorized service or repair.

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PRODUCT DESCRIPTION

System Requirements

- Ø PC with Windows 98/2000/XP operating system and network connection
- Ø Microsoft Internet Explorer web browser (version 5 and up) or serial interface and terminal program, e.g. Windows Hyperterminal

Configuration Requirements

- Ø Computer with Windows 98/2000/XP operating system and network connection
- Ø Microsoft Internet Explorer (version 5 and up) and MPEG-ActiveX plugin

Operating Requirements

- Ø Computer with Windows 98/2000/XP operating system and network connection
- Ø Microsoft Internet Explorer (version 5 and up) and MPEG-ActiveX plugin
- Ø VideoJet10e with NTSC / PAL monitor or VIDOS software

Functions

This device is a high-resolution color or Day/Night camera for professional use in CCTV systems. It has an integrated video server for encoding the video and audio signals for transfer via an Ethernet LAN.

The camera's ¼" CCD offers a horizontal resolution of 480TVL(PAL) / 470TVL(NTSC). The camera is characterized by a 2.8-10mm (color) or 4-7.5mm (Day/Night) Computar varifocal lens, with DC auto-iris.

All of the camera settings are accessed via HTML pages using an Internet Web Browser, except the anti-flicker function, backlight compensation (BLC) and iris setup.

Main functions are:
- Ø Automatic DC iris and varifocal lens
- Ø BLC and anti-flicker
- Ø AGC ON/OFF
- Ø Analog video output PAL/NTSC (BNC) for focus and iris setup

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Multicast functions

This camera utilizes MPEG-4 compression technology. Thanks to efficient encoding, the data transmission rate remains low, even with maximum image quality at 25 images per second; furthermore, it can be adapted to meet the bandwidth requirements of various network infrastructures.

In appropriately configured networks, the multicast function permits the simultaneous video transmission in real time to several receivers. A requirement for this to function properly is the implementation of the UDP and IGMP protocols on the network.

Configuration

⚠ This camera can be configured with a browser via the local area network or through the Internet. Firmware updates and the quick uploading of device configurations are handled in the same way. Please note that disconnecting the camera or power supply while the firmware update is still in progress can cause serious damage to the camera.

Summary

- Ø Video and Data Transmission over LAN / WAN networks
- Ø Digitally optimized video data
- Ø Automatic Iris Control
- Ø Integrated Computar Varifocal lens
- Ø Multicast or video streaming multicast connection
- Ø Local analog (NTSC / PAL) video output
- Ø 25 FPS (at high resolution)
- Ø MPEG-4 or M-JPEG
- Ø Integral Ethernet interface 10/100 Base-T RJ-45
- Ø Remote control of internal functions via TCP and UDP
- Ø 3-step Password Protection
- Ø 2 Alarm Inputs (NO or NC)
- Ø 1 Relay (NO or NC)
- Ø Automatic connection on alarm
- Ø Integrated motion detector
- Ø Firmware upgrade by flash memory
- Ø Bi-directional audio transmission

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Connectors and Controls
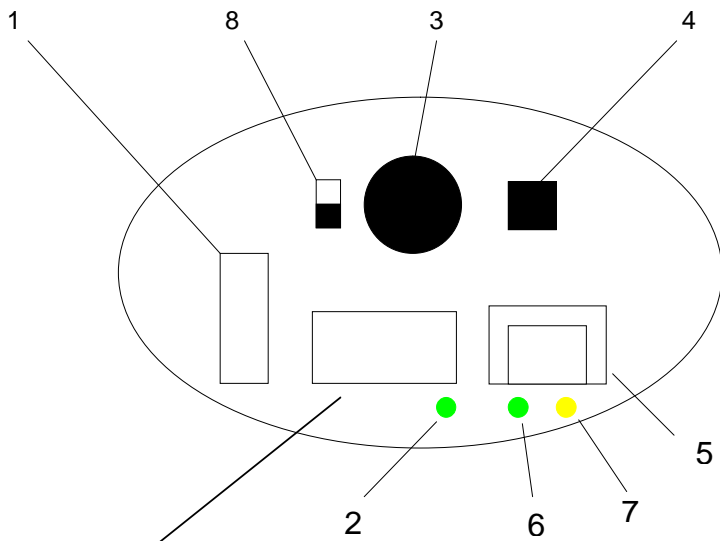
1	USB Port
2	Power Supply LED
3	Analog Video Output (BNC)
4	Day/Night Control Terminal (NO)
	(Only on Day/Night models)
5	10/100 Base-T LAN (RJ-45) connector
6	Link LED
7	Transmission LED
8	Video termination switch (75 Ohm/High)

1	Line Audio In	6	ALARM IN 2
2	GND	7	Relay
3	Line Audio Out	8	Relay
4	GND	9	12 V DC
5	ALARM IN 1	10	GND
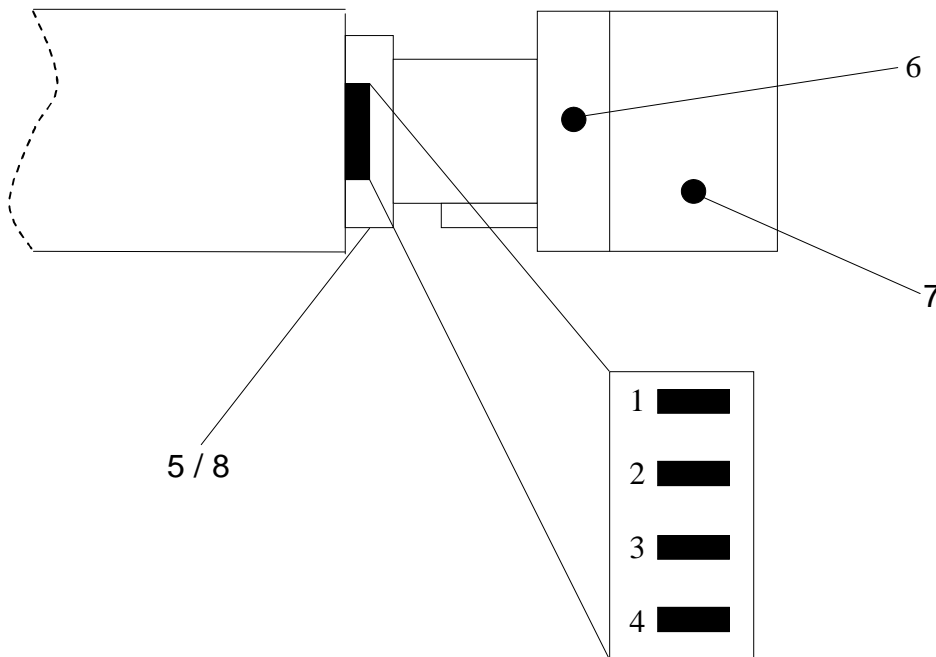
1	DC iris: ON	5	VR for iris adjustment
2	Anti-Flicker: ON/OFF	6	Zoom adjustment
3	BLC: ON/OFF	7	Focus adjustment
4	Always ON	8	DC iris connector

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INSTALLATION

This camera is designed for indoor operations. Choose a site for installation which ensures that the camera is NOT exposed to extreme temperatures or extreme moisture or humidity. The ambient temperature must be between +40°F and 115°F (+5°C ~ 40°C) and the relative humidity cannot exceed 80%.

During operation, the unit generates a good amount of heat. Please ensure sufficient ventilation and install this device away from heat-sensitive equipment or objects.

Please observe the following installation conditions:

- Ø Do not install the camera in the immediate vicinity of radiators or other sources of heat. Avoid installing the camera where it is exposed to direct sunlight.
- Ø Ensure sufficient space for laying the cables.
- Ø Ensure adequate ventilation of the camera.
- Ø For all cable connections, use cables which prevent electrical interference, where necessary.
- Ø Ensure that the camera is not exposed to water at the installation site. If necessary, use fresh desiccant in waterproof housing to avoid moisture due to condensation.
- Ø Lay and install all cables in such a way that they cannot be damaged and ensure sufficient strain relief.
- Ø The camera mounting position always depends on the actual situation. No concrete instructions can be given here. The camera has a standard ¼" thread which can be installed on both the top and bottom of the housing.
- Ø Lay all cables up to the installation position.
- Ø If necessary, connect a monitor with a coax cable to the BNC jack in order to be able to check the video image on the spot (line impedance must be set by the switch #8 to HIGH).
- Ø Connect the leads of the power supply unit to terminals + and – of the DC 12V CONNECTOR. Pay attention to the correct connection of the leads.

Network Connection

You can connect the camera via hub, switch or router to a 10/100 Base-T network. Use a standard UTP Category 5 cable with RJ-45 connectors.

Alarm Inputs, Relay Output

The alarm inputs of the camera will allow you to connect to an external alarm trigger. If configured accordingly, an alarm trigger can, for example, set up an automatic connection between the camera and a remote station.

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The relay output allows for switching external devices. This control output can be used interactively during an active connection with the camera. The contact can be programmed as normally open (NO) or normally closed (NC) and it is possible to invert the mechanical function by software setup.

The relay contact must not be subjected to a load of more than 40V and 0.8A.

Power Supply

This camera has no master power switch. When you have connected the power supply unit to the device and insert the power plug into a socket, the device is powered on and ready for operation.

Assigning the IP Address

- Ø Start the 'Jet Manager' program.
- Ø Click on 'scan' icon.
- Ø Select the desired 'ZN-L8000' and right-click to bring up the context menu.
- Ø Click on "Change IP Address".
- Ø Click on "IP Pool" if you have not yet specified a valid IP address range and set it.
- Ø Select "Set manually" and choose a valid IP address.
- Ø Click on "OK"
- Ø Wait few seconds and click again on 'scan' icon to view new IP address in the list.
- Ø Select again the 'ZN-L8000' and right-click, selecting "View in Browser" to view the camera in Microsoft Internet Explorer.

Day / Night Manual Control Function

Only the ZN-LN8048PHA and ZN-LN8048NHA Day / Night Models feature the N.O. input terminal (#4). This terminal will manually switch the camera from color (open contact) to B&W (closed contact). When this terminal is closed, the camera switches into Night Mode and adjusts the DC iris by fixing the AES speed.
When the camera switches to Night Mode automatically, the DC iris is completely opened and the AES speed is adjusted by the camera.

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CONFIGURATION WITH WEB BROWSER

Making the Connection

The integrated HTTP server offers you the possibility of configuring the camera over the network with a web browser. This possibility is far more convenient than the configuration via the terminal program and also allows you to view live video images.

⚠️ In order for live video images to be decoded, the special MPEG ActiveX control required must be installed on the computer. The latest version of the MPEG ActiveX control may be installed from the supplied CD, or downloaded from our website. Notes on operation of the web browser can be found in the online help file.

System Requirements

- Ø Microsoft Internet Explorer (version 5 and up)
- Ø Microsoft Java Virtual Machine (in case of Windows Pro XP, your dealer can provide you this software)
- Ø Network connection

Establishing the Connection

To use the camera on the network, it must be provided with an IP address.

The following address has been preset at the factory:
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
Gateway	0.0.0.0

Type the camera's IP address into the web browser's address bar. If the address is not compatible with your network, you can easily change it using the JetManager software that you can download from our website.

Configuration
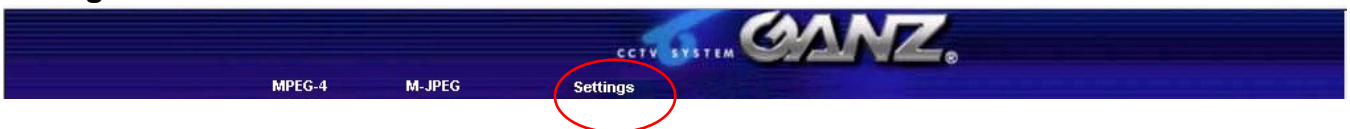
Once the Livepage has loaded, click on **Settings** to view the configuration pages.

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Click on the items in the left gray bar to navigate the configuration pages. The pages are divided into categories; click on each category and then on the desired subject.

⚠️   To save your changes, it is necessary to click the **Set** button on each screen before moving on to another category of settings.

Unit Identification ➏ General Settings

Unit identification

Unit name:	[ ]
Unit ID:	[ ] Set

Help on this page?

Unit name:
      Enter a name for the camera to aid in identification in multiple camera systems.

Unit ID:
      Each device can be assigned a unique identifier which can be used to identify it.

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Unit Identification ➏ Password Settings

Password settings

Password level:

Password:

Password confirm: Set

Help on this page?

Password level:

Access to the camera is generally protected with a password in order to prevent unauthorized use of the device. The transmitters operate with three authorization levels: Live, User and Service.

Service - for configuration, services control and live picture.
User - for services control and live picture.
Live - for live picture only.

Password:

You can define and change passwords for access to the device when you are working with the authorization level 'Service' or if the device is not protected with a password. Please enter the password.

Password Confirm:

Type the new password again and click **Set**.

Unit Identification ➏ Language Settings

Language selection

Website language: English   Set
Help on this page?

Website language: select the desired language of the HTML pages.

Unit Identification ➏ Time Settings

Date and time

Date format: Europe

Unit date: Tuesday , 10 . 06 . 2003

Unit time: 10 : 29 : 54   Synchr. PC   Set

Help on this page?

If a number of cameras are combined in a system, it is important that the internal clocks of the separate units are all synchronized.

Date Format: select here the desired date format, based on your country.
Europe: DD.MM.YYYY **USA:** MM.DD.YYYY **Japan:** YYYY.MM.DD

Unit Date/Time: manually enter the date and time or click on **Synchr. PC** to update the date and time, in synchronization with the PC's current date and time.

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Unit Identification ↪ Time Server Settings

Timer server

Time zone:	(UTC +1:00) Western & Central Europe (MEZ) ▾
Time server IP address:	0.0.0.0 [Set]

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The camera can receive a time signal from an NTP server and use it to set the internal clock. The device calls up the time signal automatically every two hours.

Time zone: select the current time zone.
Time server IP address: enter the IP address of the NTP server.

Display Settings ↪ Camera name

Camera names

Camera 1:	[ ] [Set]

Help on this page?

Camera 1:
      Enter here the camera name, click **Set**.

Display Settings ↪ Display stamping

Display stamping

Camera name stamping:	Off ▾
Time stamping:	Off ▾
Alarm mode stamping:	Off ▾
Displayed alarm message:	[ ] [Set]

Help on this page?

You can configure the device so that the camera name, time and alarm source are displayed on the video image. Select **Top** if the names are to be displayed at the top of the image, or **Bottom** if the names are to be displayed at the bottom of the image. If you do not wish the names to be displayed, select **Off**.

Camera name stamping:
      Camera name is shown in the LH corner of the video image.

Time stamping:
      Date and time are shown in the RH corner of the video image.

Alarm mode stamping:
      Select **On** to display the alarm source (e.g. motion alarm) in the video image.
      Select **Off** to not display the alarm source.

Displayed alarm message:
      The text that should be displayed during an alarm event.

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Video/Audio Settings ☝ MPEG-4 Encoder

The data transmission parameters can be configured to suit the local operating environment (e.g. network architecture, bandwidth, data structures).
The ZN-L8000 camera can provide you the power of 2 independent MPEG-4 Encoders that you can use at different transmission bandwidths, resolutions, etc. for remote transmission, local transmission or recording, in order to optimize your system and network usage.

Name of first/second encoder:
Enter a name for the selected encoder

Parameter preset:
Input a name for the selected setup to recall it later.

Datarate:
Select the desired data rate (max 5000 Kbits per second, about 5 Mbps.)

Video quality settings:
Here you can select if the camera can automatically optimize the video quality or set this value manually. In Manual mode, move the bar close to "High" if you prefer picture quality over video refresh or otherwise ("Low") you prefer good refresh rate over picture quality.

Intra frame distance:
The number of frames to be sent between two Intra-frames.

Frame skip ratio:
With this parameter you define which frames are encoded. If '1' is selected all images are encoded. When '2' is selected only every other image is encoded, etc. - the lower the bandwidth the higher this value should be in order to have highest-quality video.

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Video resolution:
You can choose between these resolutions:
Low 176 x 144 pixels (QCIF)
Standard 352 x 288 pixels (CIF)
High 704 x 288 pixels (2CIF)

Reset this parameter preset:
When the 'Default' button is pressed, the parameters for the selected profile are reset to the factory default values.

⚠️ If the MPEG ActiveX control is not installed on your computer, a corresponding message will be displayed when you switch to the live image page. The latest version of the MPEG ActiveX control may be installed from the supplied software CD, or downloaded free from our website.

Video/Audio Settings ↻ Video Input Settings

Video input settings

| Video input termination: | On ▼ | Set |

Help on this page?

If a local analog video output connector is used, this page will allow you to open the line 75 Ohm termination to use with other devices. Please set to **On** if external video peripherals are not being used (this setting must be identical to the position of the external 75 Ohm/High impedance video line termination switch).

Video/Audio Settings ↻ Audio Settings

Audio configuration

| Activate audio: | On ▼ | Set |

Help on this page?

Activate audio:
Switch this option **On** if you want to send an audio stream along with the MPEG-4 video. Transmitting audio requires additional bandwidth of approximately 80 Kbps. When audio is set to **On,** it is stored together with the video stream when centralized recording is active; audio can not be recorded on local storage media.

Alarm settings ↻ Alarm sources

Alarm sources

Video loss alarm:	Off ▼		
Unified picture detection:	Off ▼		
Motion alarm:	Off ▼		
Alarm input 1:	Off ▼	Active high ▼	Name:
Alarm input 2:	Off ▼	Active high ▼	Name:	Set

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Video loss alarm:
>	Select the option **On** if the unit is to activate an alarm when the video signal is interrupted.

Unified picture detection:
>	This function constantly checks the contrast of the video image and triggers an alarm when the video is locked, for example, when the lens is covered.

Motion alarm:
>	Select **On** if the unit is to activate an alarm when the motion alarm is triggered.

Alarm input 1/2:
>	Select the option **On** in order to activate the alarm by means of an external alarm sensor. Otherwise select **Off**. If this setting is turned **On,** you must also select if the alarm is activated by an **Active high** or **Active low** voltage level. Enter into the text field a message for the alarm input which will be displayed on screen if an alarm is activated.

Alarm Settings ➏ Alarm Connections

Alarm connections

Connect on alarm:	Off
Number of video receiver address:	1
Alarm IP address:	0.0.0.0
Remote password:	
Live video auto-connect:	Off

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Options are provided to specify the behavior of the devices in the event of an alarm.

Connect on alarm:
>	Select **On**, to automatically establish a connection to one of the predefined IP addresses in the event of an alarm. The addresses will be contacted in turn once until a connection is established.
>	Select **Assign IP to input** if you want a predefined allocation of alarm input and remote IP address. Thereby only one remote IP address will be contacted in case of an alarm, namely the first IP address with alarm input 1 being triggered, the second with alarm input 2 and so on.
>	Choosing the parameter **Follow input 1**, a connection to the first IP address is established when alarm input 1 is triggered and holds only until there is a contact at alarm input 1. For example, the connection is established if a push-button connected to alarm input 1 is activated and will be disconnected automatically when the button is turned off.

Number of video receiver address:
>	The ZN-L8000 can store up to 10 alarm IP addresses. In case of an alarm, the addresses are contacted one after the other until a connection is established.

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Alarm IP address:
> You can enter the IP addresses of a possible receiver.

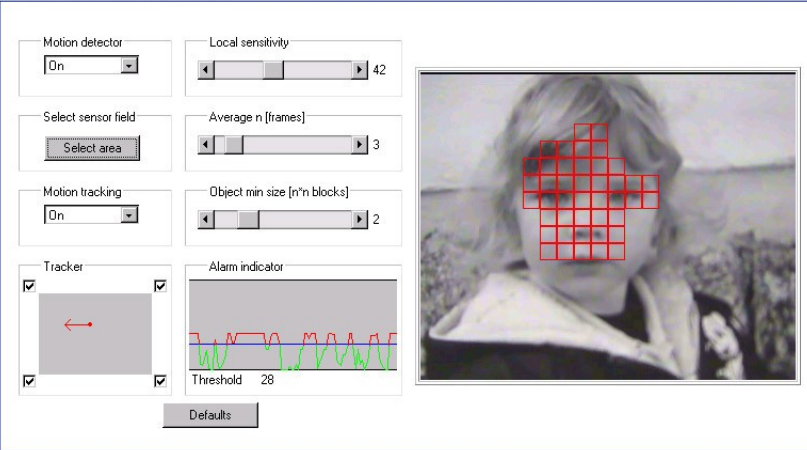**Remote receiver password:**
> Here you can enter the respective receiver password in case the receiver is protected by one.

Live video auto-connect:
> Select the option **On** if it is required to re-establish a connection to the previously specified IP address after each restart, e.g. after a connection breakdown or network dropout. The addresses will be contacted in turn once until a connection is established.

Alarm settings ➥ Motion detector

The camera contains an integrated video sensor, which based on the video processing can register changes in the video signal. These changes are primarily initiated by movement in the field of view of the camera. The sensitivity of the video sensor can be adjusted, so that an alarm is generated only if a given threshold is exceeded.

In order for the alarm to operate, the following conditions must be fulfilled:
- ∅ motion detection must be activated.
- ∅ at least one cell must be activated.
- ∅ parameters must be matched to environmental conditions and to required responses.
- ∅ the sensitivity must be set to a value greater than 0.

⚠ Light reflections, switching on or off of floodlights or light level changes caused by cloud movement in bright daylight can cause undesirable responses from the video sensor and thereby generate false alarms. Test for different day and night time conditions in order to ensure correct operation of the video sensor.
For surveillance of indoor areas, ensure a constant lighting of the areas during the day and at night. Uniform surfaces without contrast can trigger false alarms even with uniform lighting.

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Motion detector:
Select the option **On** to activate the video sensor.

Select sensor field:
The areas of the image to be monitored by the video sensor are selected here. The video frame is subdivided into 396 square cells. Each of these cells can be activated or deactivated. If it is necessary to exclude particular regions of the camera field of view from the monitoring process because of, say, continuous movement (e.g. due tree movement in a wind), the relevant cells can be deactivated (use mouse click for this operation)

Local sensitivity:
The basic sensitivity of the video sensor can be adapted for the ambient camera conditions. The sensor reacts to brightness variations in the video image. The darker the observation range, the greater the value that must be selected here. Adjust the sensitivity by moving the slider to the desired setting with the mouse key held down.

Average n [frames]:
It is possible to define the number of frames during which a movement is monitored in order to generate an alarm. In this way, it is possible to prevent generating a false alarm, e.g. by a bird flying across the surveillance area. Select the desired value by moving the slider to the desired position with the mouse key held down.

Object min size [n*] blocks:
The number of sensor cells, which a moving object must cover in order to generate an alarm, can be specified. In this way it is possible to prevent too small objects from producing an alarm. For this, the minimum recommended value is 2 (2 × 2 sensor fields). Select the desired value by moving the slider to the desired position with the mouse key held down.

Alarm indicator:
To prevent false alarms, a motion signal can be matched to a given alarm threshold. In this way, for example, it is possible to filter out effects caused by the background noise generated in the camera itself. The blue line indicates the alarm threshold. Any value greater than this will produce an alarm signal. The components of the motion signal generating the alarm are indicated in red. The alarm threshold can be varied to suit individual requirements.
Take note of the amplitude of the movement signal displayed in the window over a long period and at all light levels likely to be encountered in practice. Move the mouse pointer onto the blue line. Holding the left mouse button pressed, move the blue line to the required position.
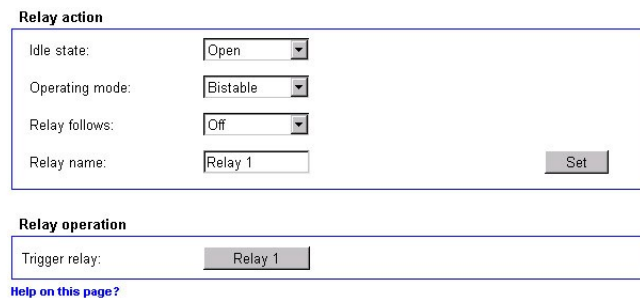
Motion tracking:
For certain applications, it can make sense to generate an alarm only if movement takes place in a particular direction. You can activate the motion detection and select the direction of movement required to generate an alarm. Select the option **On**, in order to activate the motion tracking feature of the video sensor.

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Tracker:

In the **Tracker** field you see an arrow, which indicates the current motion in the video image. By means of check boxes in the four corners, the desired direction can be activated. If, for example, all movements to the "left" and "upwards" are to activate an alarm, then mark the top left corner. If all movement to the "left" is to activate the alarm, then check the left upper and the lower left corners. Note the movements indicated by the arrow in the video image over a long period and at all light levels likely to be encountered in practice. Click the check box in order to activate the corresponding directional component.

Relay Setting ⟳ Relay Configuration

```
Relay action

  Idle state:          Open       ▼

  Operating mode:      Bistable   ▼

  Relay follows:       Off        ▼

  Relay name:          Relay 1           [ Set ]


Relay operation

  Trigger relay:          [  Relay 1  ]

Help on this page?
```

The switching conditions for the relay output can be configured. The function of an open switching relay (normally closed contact) or a closed switching relay (normally open contact) can be specified. It is also possible to specify whether the output should operate as a bistable or as a monostable. In bistable operation, the activated state of the relay remains as switched. In monostable operation, the time can be selected after which the relay is to revert to its steady state. Various events can be selected to automatically activate the output. In this way, for example, it is possible to switch on a floodlight when a motion alarm has been detected and to switch the light off again at the end of the alarm. Please note that changing the default configuration the relay will work as set when the camera is powered on but as indicated in the previous session when powered off.

Idle state:

Select **Open** if the relay is to operate as a normally open contact or **Closed** if it is to operate as a normally closed contact.

Operating mode:

Select the operating mode for the relay. If, for example, a lamp is switched on by an alarm and is to remain on when the alarm has ended, select **Bistable**. If an acoustic signal activated by an alarm is to remain on for a period of, for example, 10 seconds, select **10 s**.

Relay follows:

Select a particular event by which the relay is to be activated as required.

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The following events can activate the relay:
- Ø **Off**: No relay triggering by events
- Ø **Connection**: Triggering if any connection is established
- Ø **Video alarm**: Triggering caused by loss of the video signal
- Ø **Motion alarm**: Triggering by the motion alarm
- Ø **Local input**: Triggering caused by an external alarm sensor
- Ø **Remote input**: Triggering by a switching contact from a remote location.

Relay name:

The relay can be assigned a name here. The name will be shown on the live page, depending upon the configuration.

Trigger relay:

Click on the button **Relay** to manually switch the relay (e.g. for test purposes or to operate a door opener).

Service Settings ✆ Network Settings

Network settings

Unit IP address:	192.168.1.121
Subnet mask:	255.255.255.0
Gateway IP address:	0.0.0.0 Reboot after 'Set' necessary!
Video/Audio transmission:	UDP
Ethernet link type:	Auto
DNS server IP address:	0.0.0.0
DNS refresh time:	0 (Between 30 - 86400 sec.) Set

Help on this page?

Unit IP address: the unit's IP address.

Subnet mask: the unit's Subnet mask.

Gateway IP address: the gateway IP address (usually the router or firewall)

Video/Audio transmission:

If the device is used in front of a firewall, transmission over **TCP (Port 80)** should be selected. If used in a local network select **UDP**.

Ethernet link type:

Adjust the type of Ethernet link to the network. In most applications, 'Auto' is the correct choice. For some routers and switches it may be necessary to set the Ethernet link type to a fixed value.

Select the appropriate value:
     10 MBit/s HD = 10 Mbps half-duplex
     10 MBit/s FD = 10 Mbps full-duplex
     100 MBit/s HD = 100 Mbps half-duplex
     100 MBit/s FD = 100 Mbps full-duplex

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DNS Server IP Address:

When working with a device over the Internet, dynamic IP addresses are assigned for efficient use of the IP address pool, i.e. the device gets a new (changing) IP address each time a connection is set up. Connecting is easier when the device is listed on a DNS server. The device logs in regularly, leaving the device name, device IP address and the current Internet IP address.

To connect to a device over the Internet you just insert the device name together with the URL of the DNS server, which then returns the valid Internet IP address for automatic connection set up. The default setting for the DNS server IP address is the IP address of the VCS DNS server videotec.info. The ZN-L8000 contacts the server automatically when a refresh time is specified in the next parameter. The IP address of the VCS DNS server is 195.145.107.78.

DNS refresh time: enter here the time interval for the ZN-L8000 to contact the DNS server. You can enter a value from 30 to 86400 sec (24 h). Leave this field empty if you don't want to use the DNS function.

⚠️ Multicast operation is only possible using the UDP protocol. The TCP protocol does not support any multicast connection.

Due to settings inside this device, the following ports in your network have to be opened:
TCP (Port 80): port 80
UDP (without Multicast): all UDP ports starting with port 1024 and TCP port 1756.
UDP (with Multicast): the defined **Multicast video port** and the consecutive 7 ports.

Service Settings ⏻ Multilink – Multicast

Multicast settings

Multicast streaming:	Off
Multicast group IP address:	0.0.0.0
Multicast video port encoder 1:	60000
Multicast video port encoder 2:	61000
Multicast audio port:	55000
Multicast packet TTL:	1 [Set]

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Along with a 1:1 connection between a transmitter and a receiver (unicast), the units provide the option of connecting a number of receivers to simultaneously receive the video signal. This is achieved either by a duplication of the data stream in the unit with subsequent distribution to a number of receivers (multi-unicast) or by distribution of a single data stream on the network itself to a number of receivers in a defined group (multicast).

⚠️ Requirement for multicast operation is a multicast compliant network with implementation of the UDP protocol and the IGMP protocol. Other group management protocols are not supported. The TCP protocol does not support any multicast connection.

The devices support the multi-unicast operation up to a maximum of 5 simultaneously connected receivers for MPEG-4. The transparent data connection is maintained from the first unit. However, after 15 seconds of inactivity the data connection is automatically suspended and another unit can exchange transparent data with the transmitter.

For multilink operation, the network is not required to be multicast compatible as the devices are also multi-unicast compatible. Duplication of the data in the unit requires considerable processor power and, under certain circumstances, leads to limitations in the picture quality.

Multicast streaming:
> Select the option **On** in order to activate the multicast function. For that purpose a valid Multicast group IP address has to be entered.

Multicast group IP address:
> Before you and use the multicast and the streaming mode in a multicast-compatible network, you must establish a special IP address (class D address). The network must support the establishment of a group IP address and the Internet Group Management Protocol (IGMP). The address range is from 224.0.1.0 to 238.255.255.255. With this field left empty (0.0.0.0) the device is sending in multi-unicast mode and streaming is not possible.

Multicast port MPEG-4:
> This field is read-only and informs about the selected video port. Assignment of port numbers is done automatically by the software.

Multicast racket TTL:
> Here the number of junctions can be entered a data packet can pass within the network. By setting the parameter you determine the life span of the data packets, e.g. if multicast is operated over a router the value must be greater than 1 to guarantee transmission of the packets.

Service Settings ☉ Version Information

Version information

Hardware version:	70064140
Software version:	01000610

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Hardware and software version numbers are only required for information and can not be altered. Keep a record of these numbers in case technical assistance is required.

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Service Settings ⎙ Livepage Settings

The live page can be set up to suit individual requirements. Options are provided here to display different information and operating elements along with the video picture. In addition, individual background images for the main window and for the upper screen area (banner) can be used.

⚠️ For the background image you can use the file types GIF and JPEG. The file paths must correspond to the type of access (for access to a locally stored file, for example, *c:\Images\Logo.gif*, for access to an Internet/Intranet file, for example, http://www.cbcamerica.com/images/logo.gif). Note that with Internet or Intranet access, the connection must be maintained in order to continually display the image. The image files are not stored in the device.

Start page background URL:
> Enter the file path to a suitable background image. The image can be stored on a local computer, on a local network or at an Internet address.

Start page logo URL:
> Enter the file path to a suitable image for the upper screen area (banner). The image can be stored on a local computer, on a local network or at an Internet address.

Video from Encoder on live page:
> Select the encoder you want to use for viewing in the web browser, on the **livepage**.

⚠️ Select all items that you want to view on the **Livepage**; you have choice of alarm, relay, show alarm messages and show general messages. (all shown by default)

Save alarm logfile to hard disk:
> Select this option to store alarm data in a text file on the local computer.

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Save general logfile to hard disk:
Select this option to store the logfile in a text file on the local computer.

File for saving alarm messages:
Enter the path to the location where the log files for the alarm messages are stored.

File for saving general messages:
Enter the path to the location where the log files for the general system messages are to be stored.

Path for JPEG/MPEG-4 files:
Enter the path to the storage location for the JPEG snapshots and video sequences which can be stored from the live page or the DRAM-Replay.

Service Settings ➏ Software Update

Software upload:
The units are designed in such a way that their functions and parameters can be updated with firmware (device software). In such cases, transmit the updated firmware package via the selected network to the device. On termination of the connection, the firmware will be automatically installed. This allows a device to be remotely serviced and updated without a technician having to modify the device installation on site.

⚠️ Before starting the firmware upload, ensure that you have selected the correct upload file! An upload of other files can result in the device being no longer addressable and having to be replaced. Please remember that you can damage a camera interrupting a firmware upload.

Configuration download:
You can store the configuration setting of the device on a PC and upload stored configuration settings from a PC to the device. (Click on **Download**)

Configuration upload:
Upload the configuration by selecting a file and clicking **Upload**.

⚠️ **Reset operation**
In order to activate the new configuration the system must be rebooted by entering the current IP address followed by a **reset** operation.
(http://192.168.0.1/reset)

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⚠️ You must use Microsoft Internet Explorer from version 5, the Microsoft Java Virtual Machine and please disable the java script debugging.
You need to install the MPEG ActiveX plugin.
Your PC should support a video resolution of 1024 x 768 pixels.

Connection

Once you have configured your device, you may enter the IP address of the camera into the Internet Explorer address bar. (using *192.168.0.1* or http://192.168.0.1/ is acceptable.)

Alarm Input Status

Picture Dimensions (352 x 288 or 704 x 576 pixels)

Relay

Alarm Messages

JPEG Snapshots

Start or Stop Recording MPEG-4 Streams

Event Messages

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Snapshot

Individual images can be displayed in different resolutions. To select the resolution, append the corresponding parameter to the command **snap.jpg:**

Ex: *192.168.0.1/snap.jpg*

- Ø *Snap.jpg?JpegSize=S*   176 x 144 pixels
- Ø *Snap.jpg?JpegSize=M*   352 x 288 pixels   (default value)
- Ø *Snap.jpg?JpegSize=XL* 704 x 576 pixels

SERVICE

The connection between two IP addresses can be checked using the command *ping*. You can thus check whether the device in the network is active.

- Ø Open the DOS input window and enter the command *ping* followed by the IP address of the device.   (Ex: *ping 192.168.0.1*)
- Ø When the device is found, you receive in response: Reply from ..., followed by the number of bytes transmitted and the transmission time in milliseconds (ms). Other messages, such as a time out or unreachable, this indicates that the device cannot be addressed via the network. This can have the following causes:

  The device is not physically connected to the network. In this case, check the connecting leads, and the link lights on all devices. Or, perhaps the device is not correctly integrated into the network with its settings. Check the IP address, the subnet mask and the gateway IP.

⚠ **Reset**
In order to activate the new configuration the system must be rebooted by entering the current IP address followed by a **reset** operation:
ex. http://192.168.0.1/reset

⚠ **Updated Firmware Download**
You can find updated firmware for ZN-L8000 cameras at the following URL:
http://www.cbc-europe.it/cctv/download

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TECHNICAL SPECIFICATIONS

Video

Model	ZN-LN8048NHA	ZN-LN8048PHA	ZN-L8210PHA	ZN-L8210NHA
System	NTSC/EIA (Day/Night)	PAL/ CCIR (Day/Night)	PAL	NTSC
Sensor	1/4" Interline Transfer CCD			
Pixels	768(H) x 492(V) pixels	752(H) x 582(V) pixels		768(H) x 492(V) pixels
Scanning System	2:1 interlaced			
Sync. System	Internal			
Scanning freq.	(H) : 15.734KHz (V) :59.94Hz	(H) : 15.625KHz (V) :50.00Hz		(H) : 15.734KHz (V) :59.94Hz
Res. (H)	470 TVL	480 TVL		470 TVL
S/N ratio	>50dB			
Sensitivity	< 0.09 lux (F1.6) @ 30 IRE (Night Mode)		< 1.5 lux (F1.2) @ 50 IRE	
Gamma	0.45			
Video Output	1.0Vp-p / 75O, BNC			
White Balance	Auto Tracking			
DC iris control	Elect. Shutter 1/60 sec. fixed (1/100 sec. @ FL mode)	Elect. Shutter 1/50 sec. fixed (1/120 sec. @ FL mode)		Elect. Shutter 1/60 sec fixed (1/100 sec. @ FL mode)
AES	1/60 (1/100 sec. @ FL mode) 1/20,000 sec	1/50 (1/120 sec. @ FL mode) 1/20,000 sec		1/60 (1/100 sec. @ FLmode) 1/20,000 sec
Controls	Anti-Flicker On/Off, BLC On/Off, Night-Mode On/Off		Anti-Flicker On/Off, BLC On/Off	

Power

Voltage	12VDC
Power consumption	600mA max.

Dimensions

Dimensions	(L) 180 x (W) 80.5 x (H) 59 mm
Operation Temp.	40° ~ 115°F (5° ~ 45°C)
Weight	~400 g (~0.9 lbs)

Lens

Model	ZN-LN8048NHA	ZN-LN8048PHA	ZN-L8210PHA	ZN-L8210NHA
Focal length	4 ~ 7.5 mm		2.8 ~ 10 mm	
F-stop	F:1.6-360		@ 2.8 mm: 1.2 / @ 10 mm: 2.1	
Iris control	DC			

Network

Standard	MPEG-4 (ISO/IEC 14496), M-JPEG
Bandwidth	adjustable – 4 Mbps max (MPEG-4)
Video Encoder	176 x 144 QCIF / 352 x 288 CIF / 704 x 288 2CIF
Audio	Datarate: 80 kbps / Standard: G.711; 300 Hz – 3.4 KHz
Audio input	1 x mono, 1Vp-p, 50K Ohm
Audio Output	1 x mono, 1Vp-p, min 8 Ohm
Protocols	RTP, RTCP, UDP, TCP, IP, HTTP, IGMP, ICMP, ARP, DHCP, *FTP, *SNMP
Software update	Flash ROM, remote site programmable
Configuration	using web browser (through built-in web server)
Alarm input	2x, max 24V, max load 10 Ohm
Relay	1x, max 40Vp-p, 0,8A
USB	* 1 x memory local storage or Wireless LAN (IEEE 802.11) connection
Ethernet	10/100 Base-T, RJ45

* with future firmware update

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