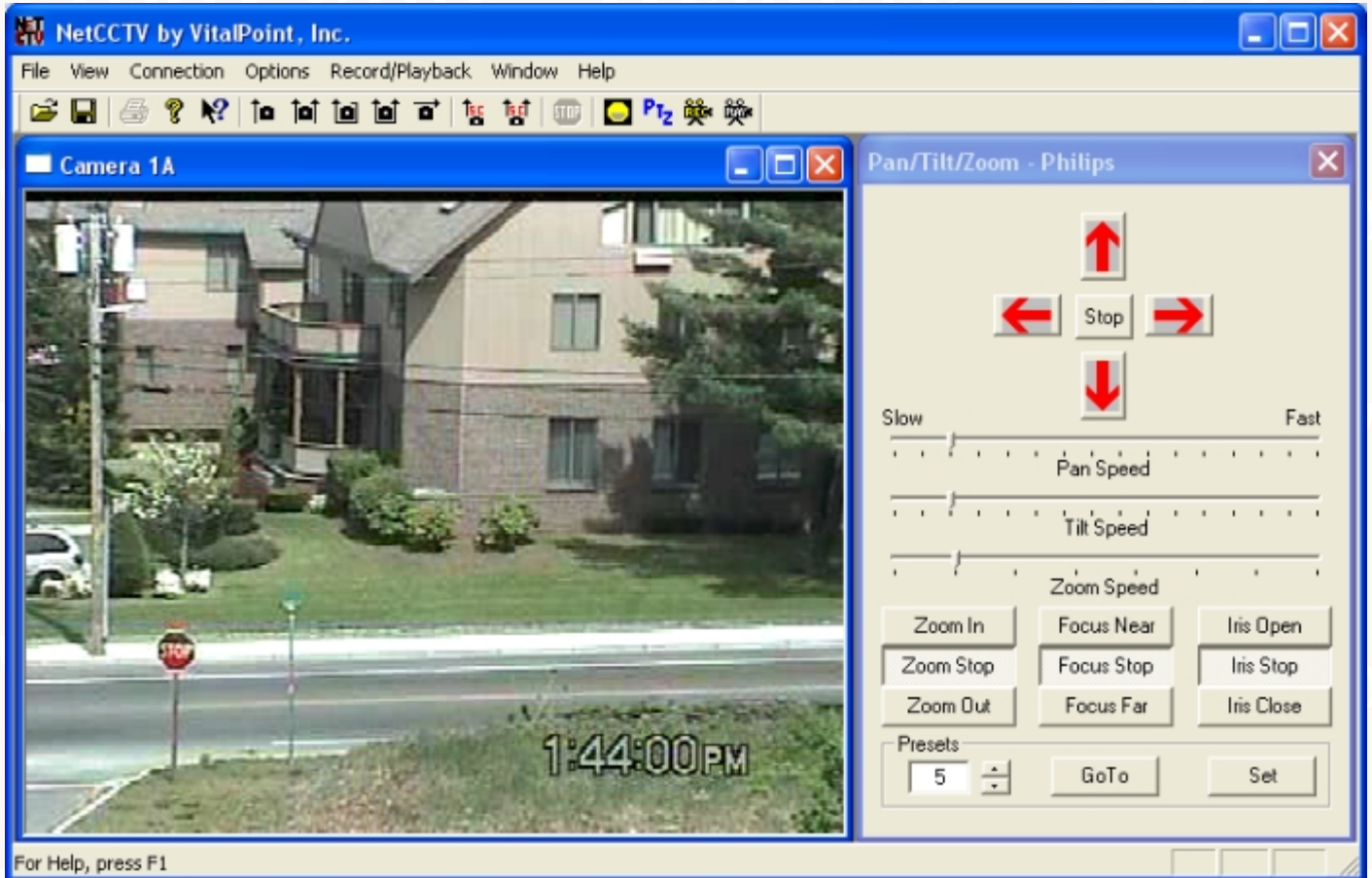


# VitalPoint, Inc.

NetCCTV High speed TCP/IP based Remote Video Server and Digital Recorder  
for LAN's/WAN's DSL/Broadband/Wireless and the Internet

## NetCCTV



Revised Feb 2002

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Model NCCTV1002

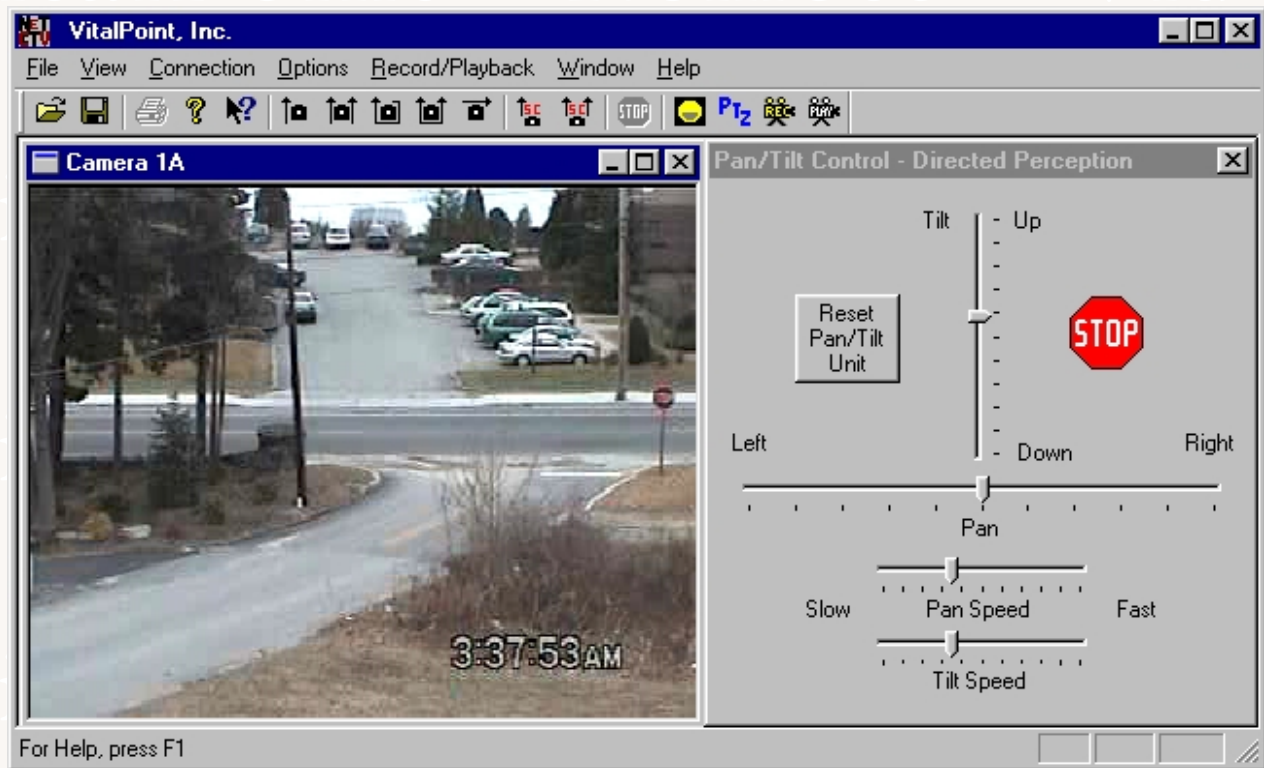
## Preface

VitalPoint® is an all American owned company that specializes in design and manufacturing of secure high-speed remote video servers for home, schools, business, government or any indoor or outdoor remote monitoring activity.

### NetCCTV Remote Video Lan Server

The NetCCTV product is used to view or record remote video from sites hundreds or thousands of miles away via the Internet or any network. The NetCCTV 10/100 Mbit video server works over LAN/WAN Broadband/DSL/Satellite or any Internet connection. All of our products are standalone video servers not webcam's or cards that plug into your computer. The NetCCTV uses the standard's base TCP/IP protocol.

Our NetCCTV product support's from 1- 4 cameras on the base unit and up to a total of 32 standard CCTV cameras with expansion units. Long or short term Digital recording is supported by manually hitting an icon or in conjunction with any contact closure or video triggering device. Use our units with your existing CCTV cameras, Pan/Tilt/Zoom units, Multiplexers's Quad's and recording equipment just add the remote video server and your all set.



### **32 camera support on a single LAN video server**

#### **Note**

The NetCCTV application program which comes on a CD will run under Windows 98, Windows 2000/Mil., Windows NT and Windows XP. Windows 95 is not supported with this unit. If you require a remote CCTV video unit to work on Windows 95 we suggest our PhoneHub product. Product information is available at <http://www.vitalpoint.com/>

## How it works

The product model name (NetCCTV) is an Ethernet network video server. The product can be used with any Ethernet Network. The product is designed for global network use with xDSL, Broadband modem or any 10/100BaseT network connection with a unique or static TCP/IP address. NetCCTV is a standalone unit. The product can handle from 1 to 4 cameras on the master unit, and up to 32 cameras on a single NetCCTV network video server with four, 8 port camera expansion units.

The NetCCTV attached to any Ethernet network with an RJ45 connection. The product is focused at 10/100Mb LANs/WAN's , xDSL or Cable Broadband modems.

This device must have its own unique TCP/IP address. The NetCCTV network server supports a range of CCTV cameras (Composite Video Camera) in (NTSC or PAL) Video formats. Image frames are supported in VGA, Midrange and CIF sizes.

Ethernet LAN's, Cable modems and xDSL are growing in large cities and potentially will extend everywhere phone systems now exist. Cable modems or xDSL come into the home or office. A modem box/router or gateway splits the incoming signal and converts it to a standard 10 Megabit LAN interface using TCP/IP as the protocol.

When using a standard multiport-hub port, the NetCCTV network video server can be connected to your LAN. The NetCCTV LAN interface is 10/100Mb. The NetCCTV network video server gets power through an AC adapter that is plugged into a wall outlet and through a jack to the NetCCTV Server. Wiring is very simple. The product is easy to use.



Digital recording to your PC is now the preferential method of recording for users, this involves a lot of data, *VitalPoint* employees a simpler system, which is more useful, robust and easier to use and maintain. The NetCCTV can record everything or just record when an alarm is generated, several menu options will allow you to set up your recording mechanism.

Frame rates will depend on available bandwidth, PC horsepower, frame size, Color or Black & White, and the number of cameras viewed. The product's target market is corporate observation systems using LAN/WAN technology. The purpose of this product is to allow MIS, Security or Operations Managers to view any location from home or office from their monitoring station, desktop or laptop at any time. To see frame rates please see our [speed /frame rate](#) chart in the rear of the manual. The NetCCTV network video server can be used on the World Wide Web or Internet.

Using a standard multiport-hub the NetCCTV LAN server can be connected to your LAN. The NetCCTV LAN interface is 10/100mb. The NetCCTV unit gets power through an AC adapter that is plugged into a wall outlet and through a jack to the NetCCTV LAN Server.

## What you get when you purchase the NetCCTV product kit

**VitalPoint will supply the customer with all the adapters and cabling needed to connect to its master units.**

- NetCCTV multi-processor computer
- 10/100Mb Ethernet interface
- NetCCTV software application on CD for Windows 98/2000 or NT
- Ethernet cable with RJ45 connector to connect up to your LAN or hub
- Four, 10 ft camera cables and Balun adapters for conversion from BNC/RCA to RJ45
- RS 232 cable for the RS232 port used for LAN configuration.
- There is also an additional RS232 port for Pan/Tilt control/outputs
- NetCCTV standard power supply adapter. This power supply will work all around the world
- The NetCCTV user guide/manual

We are the only company to offer camera expansion units to handle up to 32 cameras. The kit does not include cameras please call for information on cameras that are available.

### Camera expansion unit

A camera expansion unit is available and supports 1-8 CCTV cameras. You can use up to 4 camera expansion units per master unit. This camera expansion unit works with all our other models of master units. Frame rates will depend on available bandwidth, frame size and number of cameras viewed. This products target market is on corporate observation systems using LAN technology. The purpose of this product is to allow MIS, Security or Operations Managers to view any location from home or office from their monitoring station, desktop or laptop at any time. To see frame rates please see our speed /frame rate chart in this guide. The NetCCTV LAN video server can be used on The World Wide Web/Internet and Ethernet LAN's.



### Configuration

The NetCCTV unit is capable of viewing up to 32 cameras through the Ethernet connection. The NetCCTV supports standard Composite Video 1Volt p-p, 75 ohm analog signals. Cable lengths to cameras may vary depending on the cameras used. Distances off 100-200 feet should be easily obtainable. Signal quality will effect distances that can be achieved. The NetCCTV's IP address/mask is entered locally on the NetCCTV via the RS-232 port. The NetCCTV's password may initially be entered locally via the RS-232 port. BOOTP is not supported as some routed networks disable this function preventing configuration.

### Network interface

NetCCTV's network interface is a 10/100Megabit Ethernet RJ-45 (Twisted Pair) connection. NetCCTV does not support TCP/UDP/IP traffic over its serial ports. NetCCTV is not a multi-homed device (We only support one IP address). NetCCTV will communicate only over its 10/100Megabit Ethernet interface. IP traffic will not go over the serial ports they are reserved for sensor inputs and control outputs.

## **Hardware specifications**

- Multiple Processors
- 10/100Mbit Ethernet Interface standard twisted pair with RJ45 connection
- Support for 10/100Mbit Ethernet, xDSL, or Broadband modem
- Four (NTSC or PAL) camera inputs with independent video signals
- Standalone LAN video server configuration with RS-232 interface
- Two RS-232 interfaces for input/output capability
- Expandable to 32 cameras with four camera expansion units (8 cameras per expansion unit)
- External AC/DC power supply adapter
- Hardware reset switch for lost passwords and default camera settings

The hardware is split into two main processing areas providing a simultaneous multi-processing system. This is necessary to achieve full video with the amount of data required for full VGA. One processor handles the operating system management and communications. Another is used for video compression and data manipulation and packaging.

The NetCCTV unit comes with a power adapter. The power adapter is a +5V regulated power supply that converts 110VAC power to +5VDC power at 2A or greater for the NetCCTV unit. The Power adapter may be plugged directly into a wall outlet however it is always a better idea to plug the adapter into a power strip with surge suppression. Make sure that the NetCCTV unit power is turned off when connecting or removing cables from the unit. Although it should not damage anything, it is not recommended that you connect or disconnect cameras, Ethernet cable or PC cables to the NetCCTV with power on.

As a safety precaution make all connections to the NetCCTV with power to the NetCCTV shut off. Connect your NetCCTV to the Ethernet using the Ethernet port on the NetCCTV. Connect your NetCCTV directly to the PC to enter an IP address to the NetCCTV unit through Serial Port 1. Serial port 2 will be used in the future for an RS232 connection to automation control. Connect your cameras to the NetCCTV on Port1A, Port2A, Port3A and/or Port4A. An alternative is to connect an expansion unit to the desired port and the cameras to the Expansion Unit.

When everything is installed apply power to the cameras and the NetCCTV. When you apply power to the NetCCTV, the NetCCTV will initialize, check all cameras present and then is ready when the green light comes on. You are now ready to execute your program. Make sure all cameras are powered on before powering on the NetCCTV unit.

## **Software specifications**

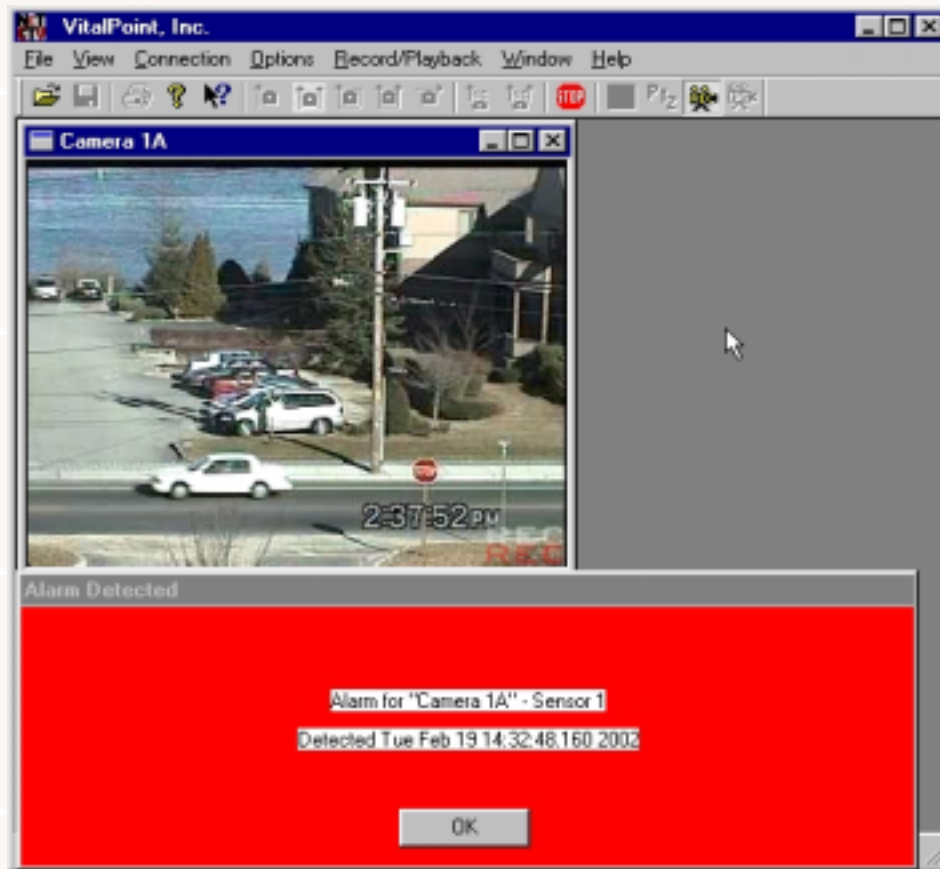
- Software utilizes Windows 98/Windows 2000/Mil. or Windows NT. Our GUI/application comes on CD.
- Network configuration and camera control with password protection
- High-Speed camera video, delay scaleable for network media type and interface.

Up to 4 users can access a single NetCCTV LAN camera server simultaneously. Only one (Master User) is allowable at any time. Slave users will have ability to look at all functions of NetCCTV except streaming video and camera controls. This is reserved for (Master User) only and is password protected by the application. The password is encrypted and stored on the LAN video server.

Up to 32 camera ports are supported with expansion units. Single sets of camera controls apply to all cameras on a given NetCCTV. The Master User has total control of these settings. Any user may connect to any single server on the network to view cameras. One can only view one set of served cameras at one time. You can stop and connect to any server you wish from the application.

The Master User may set a camera delay. The delay controls viewing speed and overall bandwidth used by the system on the network at any one time. This setting is on a sliding scale for easy use starting at 0. Default settings are based on bandwidth tests. A master user may view still or streaming video. A user can save the last image from a camera (still on-view) as a JPEG file. A user may print the last image (from a camera) still on-view.

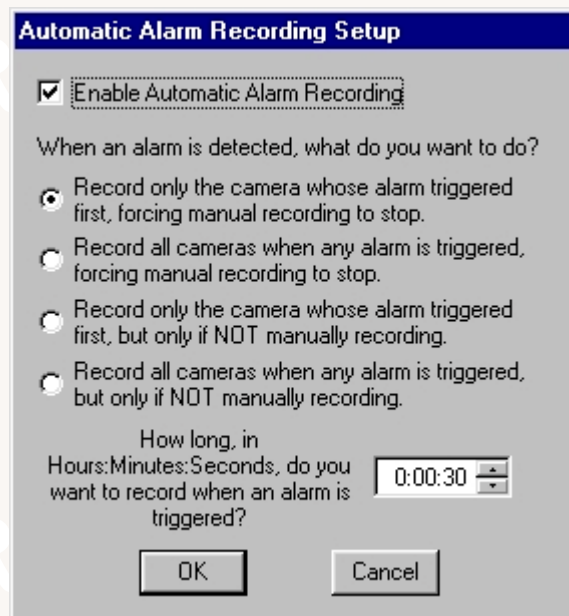
## Motion Alarm activated/Computer PC/ Digital Recording



### Long Term Data recording

The NetCCTV is capable of delivering 20-30 frames per second. To record this data our recommended or primary method is computer hard disc recording using the NetCCTV Motion trigger based digital-recorder application.

The second is an RGB/RCA video output adapter, which attaches to the back of your PC. This device generates an NTSC or PAL output to your standard time-lapse recorder/video monitor or digital recording device. This is a practical low cost and reliable way to record high-speed video today without the use of a PC. These recorders are built to run 24 hours a day 7 days a week and time-lapse recorders depending on model can record from 2 hours to days at a time.



## Playback of Digital recorded Data

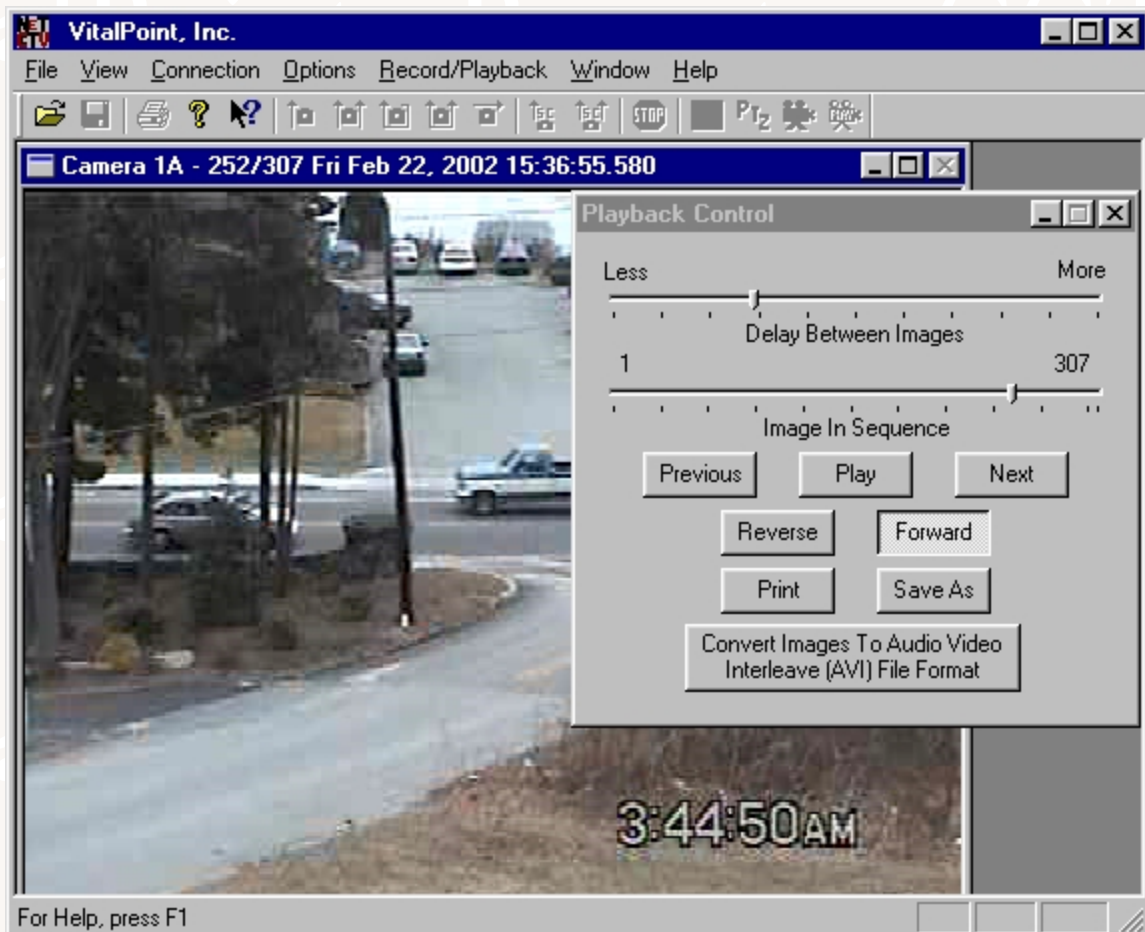
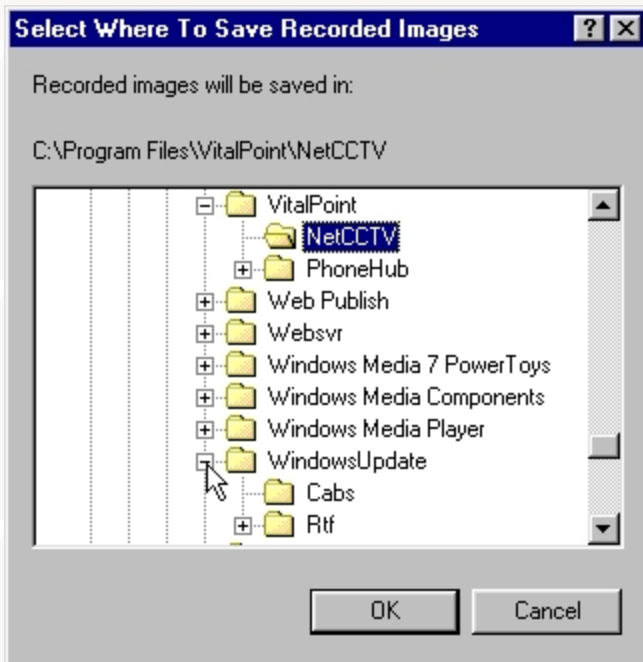
The NetCCTV is capable of playing back data at 60 plus frames per second.

Each Camera has its own digital File/Folder and it is time stamped with day/date/Hr/Min/Sec.

Conversion to single JPEG, multiple JPEG's or AVI File formats is available

## Recording Digital Data to Disc Farm

When installing the NetCCTV application you can install to our default folder or specify any disc location or folder for long term data recording complete flexibility in single or multiple camera recording is available, duration of recording based on motion sensor is also specified. In the event a sensor is activated digital recording commences, if a second alarm is generated by the same sensor the specified time for recording will continue until time and sensors are quiet.



**Frame Rate Chart /Size Versus Speed/ on different link speed connections**

**Viewing One Camera only**

**VGA :Full Screen (307,200 pixels)**

10-25% image change

<b>Link Speed</b>	<b>Kilo Bit Rate</b>	<b>Kilo Byte Rate</b>	<b>Screen Size Pixels</b>	<b>Ave. Frames per/sec</b>
SDSL	256 KBits	32K Bytes	VGA: 640 X 480	4 to 6
	512 KBits	64K Bytes	VGA: 640 X 480	10
	768 KBits	96K Bytes	VGA: 640 X 480	15
	1 MBits	128K Bytes	VGA: 640 X 480	15 to 25
10BaseT	10 Mbits	1.25 MByte	VGA: 640 X 480	30
100BaseT	100 MBits	12.5 MByte	VGA: 640 X 480	30
T1	1.544 MBits	193K Bytes	VGA: 640 X 480	30
E1	2.048 MBits	256KBytes	VGA: 640 X 480	30
T3	44.736 MBits	5.592MBytes	VGA: 640 X 480	30

**CIF: 1/4 Screen (76,800 pixels)**

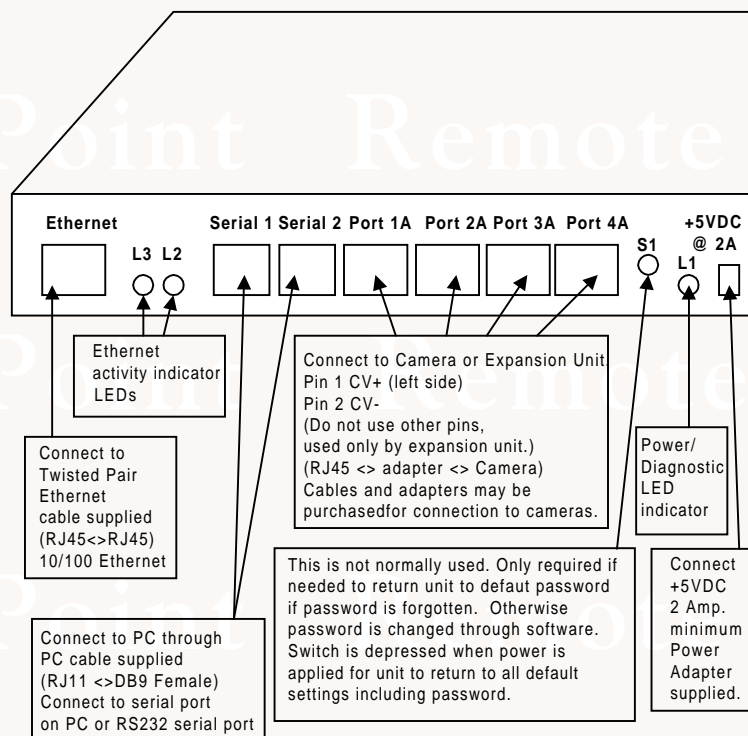
**Viewing One Camera only**

SDSL	256 KBits	32K Bytes	CIF: 320 X 240	8
	512 KBits	64K Bytes	CIF: 320 X 240	16
	768 KBits	96K Bytes	CIF: 320 X 240	25-28
	1 MBits	128K Bytes	CIF: 320 X 240	30
	4 MBits	500K Bytes	CIF: 320 X 240	30
	7 MBits	875K Bytes	CIF: 320 X 240	30
10BaseT	10 Mbits	1.25 MByte	CIF: 320 X 240	30
100BaseT	100 MBits	12.5 MByte	CIF: 320 X 240	30
T1	1.544 MBits	193K Bytes	CIF: 320 X 240	30
E1	2.048 MBits	256KBytes	CIF: 320 X 240	30
T3	44.736 MBits	5.592MBytes	CIF: 320 X 240	30

Disclaimer This frame rate chart is a guideline only for setting a level of expectation. Frame rate and speed will depend greatly on available bandwidth. This is a frame size versus frame rate chart for different network LAN media types connections. The following assumptions are made (one 1Ghz PC) viewing (one B&W camera) on a network at the frame size indicated. Speeds cannot always be sustained based on network traffic. This document is considered an outline document and is subject to change at any time based on conditions. VitalPoint, Inc. reserves the right to change this document at its discretion without notice or permission from anyone. Copyright © 1999-2002.

# VitalPoint ... NetCCTV

## INSTALLATION



### Cameras

Wiring installation of the NetCCTV is very simple.  
Connect cameras to the NetCCTV unit with supplied camera cables.

Or connecting cameras outputs from a Video Mux. (Multiplexer).

Connecting using a video splitter is not recommended unless it is powered with an amplifier. This is done if you require one or more outputs from a camera which is also connected to a CRT monitor or VCR.

### Network

Connect the NetCCTV to Ethernet LAN with the RJ45 cable supplied. This can be done using an Ethernet 10/100BaseT switch or hub.

## **Alarm activated Digital Recording Kit**

We can supply a 24 dry contact alarm input strip as an accessory to the NetCCTV unit. Of the 24 inputs, 6 dry contact closure/ preset points are allocated per camera, for a total of 4 cameras and 24 triggers. Once camera location presets are set and alarms are triggered, pop up alarms will be displayed. At this time the camera will turn to the preset and record the event. Time based settings for event recording can be set from 10 Seconds to the power of "n", where "n" is defined by available disc space. Settings to record all cameras or just one camera can also be set. Audible alarms can be an enabled or disabled.



### **Recommended system prerequisites**

Computer: PC compatible with a 600 MHz. Processor on low bandwidth networks.  
PC compatible with at least 750MHz.-2.2 GHz Processor on high bandwidth networks.  
Memory: Minimum 128-256 Mbytes ideal  
Software: Windows 98, NT V4.0, Windows 2000, ME, XP.  
Communicate: Ethernet 10/100BaseT with RJ45 connection  
Display: Minimum 24 Bit Color, prefer true color  
Disk Space: 10 Mbyte required by NetCCTV software  
Distribution Media: CD ROM drive

Other lower power computer systems may be used but are not recommended for best performance. Higher processor power computers will result in faster video performance. In mission critical applications where 24hr x 7 day connections are required a dedicated PC is preferred we do not support firewall applications running on the same PC due to the interruptions of such application and the single processor design nature of the PC.

### **NetCCTV Product size**

8" x 5" x 1.33" (L x W x H). Weight approximately 3 pounds.

### **Operating Temp**

Range 0 to 70 degrees C

### **Weather Enclosures**

Nema enclosures available for outdoor use based on client application and specification.

### **Power**

Regulated +5VDC, 2A minimum. Table top power source with AC power cord

### **Product software and manual updates**

Updates will be made periodically and posted on our web site at <http://www.vitalpoint.com/>

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