PelcoNet™ NET300 Multimedia Transmission Via Network

C2908M-B (4/05)

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Important Safeguards and Warnings

Observe the following warnings before installing and using this product.

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Only use attachments/accessories specified by the manufacturer.

10. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, the apparatus does not operate normally, or the apparatus has been dropped.

11. Apparatus shall not be exposed to dripping or splashing, and no objects filled with liquids, such as vases, shall be placed on the apparatus.

12. **Warning:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

13. To reduce the risk of shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

14. Unless the unit meets NEMA Type 3, 3R, 3S, 4, 4X, 6, or 6P standards, it is designed for indoor use only and must not be installed where exposed to rain and moisture.

15. Only use parts recommended by Pelco.

16. Use only installation methods and materials capable of supporting four times the maximum specified load.

REGULATORY NOTICES

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.

RADIO AND TELEVISION INTERFERENCE

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You may also find helpful the following booklet, prepared by the FCC: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission's rules.

What is the Pelconet NET300 Transmission System?

The PelcoNet™ NET300 transmission system is technology that lets you view video in **real time** across a LAN (local area network) and even WANs (wide area networks). This technology is based on the TCP/IP protocol suite and Ethernet technology, providing compatibility with today's networking standards.

The following devices can be controlled from your computer through Internet Explorer with the PelcoNet NET300 transmission system: Spectra®, Esprit®, Genex® multiplexer, CM9700 systems (older CM9760s require CM9760 data translator), CM6700 (through integrated ASCII port, COM 2), and the CM6800 matrix.

(See the *Glossary* section for definitions of terms used in this manual.)

HOW DO LANS AND WANS WORK?

- A LAN consists of multiple computers connected together, sharing information. This information could be files, e-mail, printers, or—with the PelcoNet NET300 transmission system—even live video.

- A WAN consists of multiple LANs connected through routers and gateways (for example, the Internet).

- In any network environment, each device needs a unique address so other computers on the network know how to reach it.

It is similar to a city with street addresses. For the post office to deliver mail to your house, you need a unique street address for the mail carrier to find you. A network is like a city. Like a street address, the IP address on your computer is your address on the network. The IP address is how other computers can find you on the network.

Remember that the **IP address must be unique on the network**.

- When there are multiple networks and you are using the TCP/IP protocol, there must be a way to communicate between the two networks. A physical device called a router is required. The router's IP address is referred to as the default gateway IP address.

- A cable that connects one computer to another is like a city street you can use to get from one house to another. The cable lets you communicate with each other on the network. This cable is Category 5 cable with RJ-45 connectors at each end. (It looks like a phone cord, only slightly larger.)

WHO SHOULD INSTALL THE PELCONET NET300 TRANSMISSION SYSTEM?

NOTE
nless you are very familiar with how computers work, consult your network administrator for help.

Installation is a matter of configuring an IP address using a standard terminal program or any Internet browser and connecting the PelcoNet NET300 transmission system to the Ethernet network. You should have the following background and experience to configure and install these units:

- Working knowledge of basic network management concepts and terminology

- Working knowledge of tools and procedures for installing and operating sensitive electronic equipment

Instructions for the Network Administrator

The PelcoNet NET300 transmission system allows live video transmission to be viewed over TCP/IP-based networks. This section is intended to help the network administrator know what is involved with installing this product and how it will affect the network. The person installing the product will need the following information about the network to make the network function properly.

THE TRANSMITTER AND RECEIVER

- A valid static IP address* for each PelcoNet NET300 transmission system unit

- Subnet mask*

- Default gateway (if applicable)

- E-mail server's IP address (if applicable)

- Dedicated maximum allowable amount of bandwidth for live video**

  * = Required for the PelcoNet NET300 transmission system to function properly

  ** = The PelcoNet NET300 transmission system requires a continuous amount of bandwidth to display true live video. Pelco recommends using switching hubs with the product so the amount of bandwidth available to each unit is constant and reliable.

THE BROWSER

If you plan to use a browser to view live video across the network, there are procedures to complete before you can use the browser, such as installing the ActiveX® platform. If you installed Microsoft® Internet Explorer 6.0 from the CD that came with the PelcoNet NET300 transmission system, you can skip step 1 below. Otherwise, perform the following before trying to use the browser.

1. Internet Explorer 6.0 or higher must be installed before continuing.

2. Set the computer's display settings to use 16- or 32-bit color.

3. Insert the supplied CD. It will open automatically. **If it fails to open automatically**, perform steps a through d below.

   a. Click the **Start** menu in the Windows® operating system.

   b. Click **Run**.

   c. In the Open box, type **D:\START.EXE** (where D:\ = your CD ROM drive letter).

   d. Click **OK**.

4. Click **Software** and then click **Install PelcoNet ActiveX**.

5. Follow the on-screen setup instructions to finish installing the plug-in.

MINIMUM PC REQUIREMENTS (AS NEEDED)

- PC (Pentium® 4 microprocessor, 1.6 GHz) with Windows 98/2000/XP operating system

- Network card

- Internet Explorer 6.0 (or higher) or free serial interface and terminal program

- Screen resolution of 1024 x 768 or higher, 16- or 32-bit pixel color resolution

NOTE: Old video cards that do not support YUV encoding require 16-bit color resolution.

- RAM: 256 Mbyte

- Graphic Card: ATI RADEON™ 7500 or 8500, Matrox G 550 or Parhelia™, or NVIDIA® GeForce 3 or 4 with direct show-compatible MPEG-4 playback capability

- Ethernet Card: 100 Mbit recommended

- Sound Card: Required for audio application

- Software: DirectX® 8.1 or 9.0 application programming interface

Overview

DESCRIPTION

The PelcoNet NET300 transmission system is a network video server that encodes and decodes live video and control data transmitted and received over Ethernet computer networks (either intranet or Internet) using the TCP/IP protocol.

The transmission system consists of two units: a transmitter (NET300T) and a receiver (NET300R)—however, only the transmitter is required to use the system. If a receiver is used, video can be displayed on an NTSC or PAL monitor connected to the receiver. If a receiver is not used, video can be displayed on a PC connected to the network through a web browser.

Dual MPEG-4 video streams, each of which can be set up differently, is a special feature of the NET300. For example, one video stream might be set to record at high resolution while the second might have monitoring at a lower resolution.

Transmitters and receivers are identified by IP addresses, just like any other equipment connected to a computer network.

There is a bidirectional serial interface for remote control of peripherals, such as PTZ cameras.

In appropriately configured networks, the multicast function permits simultaneous video transmission in real time to several receivers. For this to work, the UDP and IGMP multicasting protocols must be implemented in the network.

SOFTWARE VERSION

This manual documents PelcoNet NET300 software version 3.0.

PACKAGE CONTENTS

The following are supplied:

- Transmitter (NET300T) or receiver (NET300R)

- Universal plug-in power pack with adapters for EU, UK, US, and AU

- DB9 cable with pigtail

- Quick installation guide

- Software resource CD

Optional Compatible Products

NET300RK   The NET300RK rack mount kit provides rack mounting for the PelcoNet NET300. This kit supports the mounting of one to five units per rack. Units can be mounted with either front or rear panel forward.

FRONT PANEL COMPONENTS

The PelcoNet NET300 transmission system uses a compact design. For that reason connectors are placed on both the front and rear panels.

Key:
1 = Terminals for alarm input and relay output
   - Two alarm input terminals (**LN1/LN2)**
   - Two relay terminals (**R**) (for one relay)
   - Two ground terminals (**GND**)
   - (The two unmarked terminals are not supported.)
2 = **Power** terminals for powering the NET300 unit
3 = RJ-45 **Ethernet** connector for connecting to the network (10/100)
4 = Power **LED** lights when power is applied to the unit and flashes when transmitting/receiving video
5 = Network **LED** lights green when the unit is connected to the network
6 = Data **LED** flashes yellow when data is transmitted.
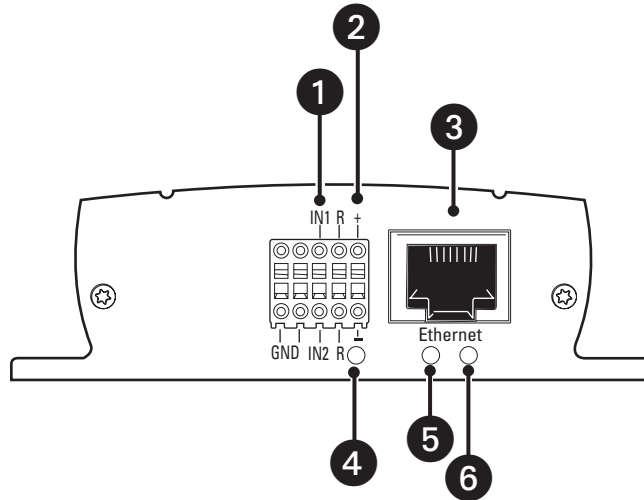
Figure 1. Front Panel Connections

REAR PANEL COMPONENTS

Key:
1 = **Video In** BNC socket (transmitter) or **Video Out** BNC socket (receiver) for video source or for an analog video monitor
2 = **RS232/422/485** serial interface port; 9-pin male sub-D socket for controlling data transmissions (RS-232, RS-422, and RS-485 interfaces) and for configuration using terminal software
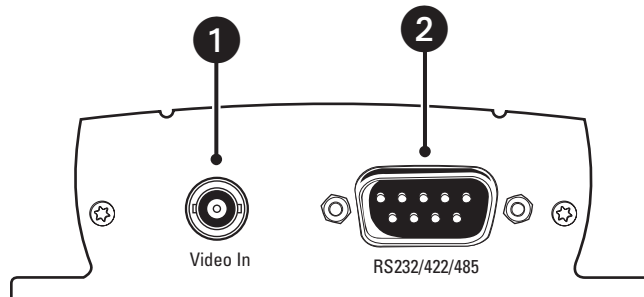
Figure 2. Rear Panel Components

Refer to the Hardware Installation section for information on interfacing peripherals to the unit.

Typical Applications

There are two ways to make a high performance multimedia transmission system for Ethernet networks:

• One way is to use just the transmitter and connect it through the Ethernet network to a PC with a web browser at the receiving end.

• Another way is to connect the transmitter through the Ethernet network to a receiver. This is often called a box-to-box connection because it uses two PelcoNet NET300 transmission system units.

In either case, routing dedicated cables from a camera to a monitor is not required because you can use the existing Ethernet network for that purpose.

Refer to figures 3 through 16 for examples of these configurations. Refer to Appendix A for detailed illustrations.
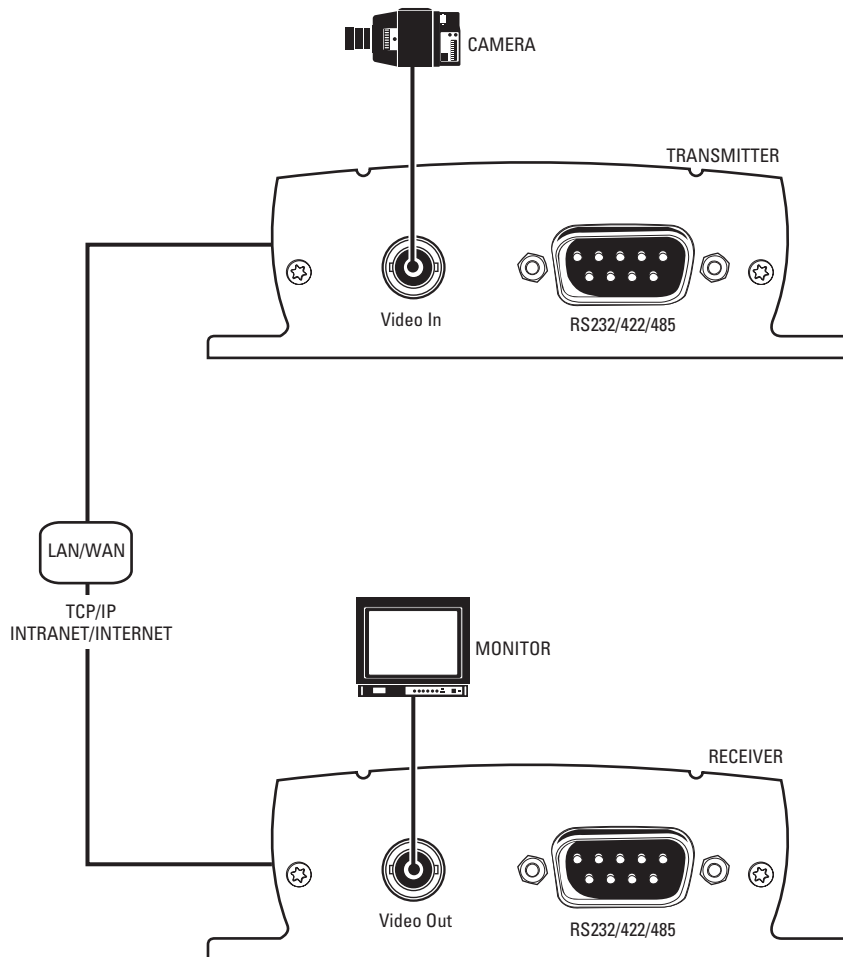
Figure 3. Configuration for Box-To-Box Connections
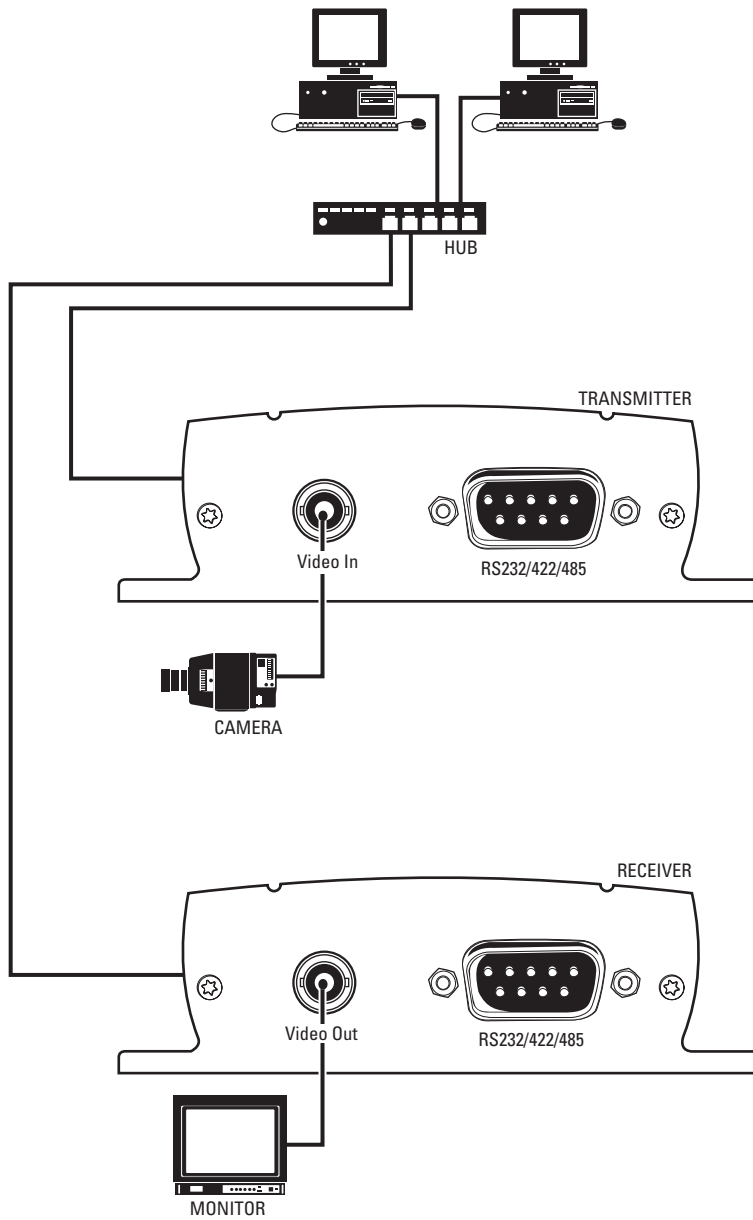
Figure 4. LAN Box-To-Box Connection (Transmitter, Receiver, Fixed Camera)
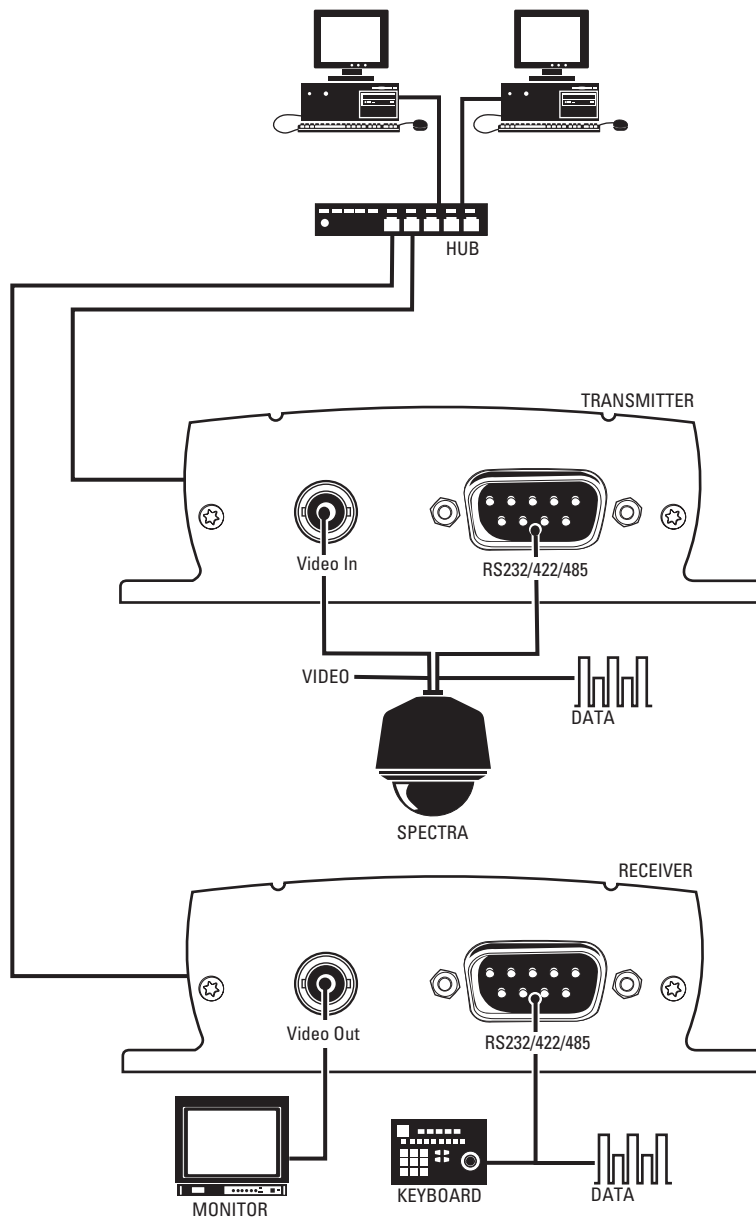
Figure 5. LAN Box-To-Box Connection (Transmitter, Receiver, Spectra)
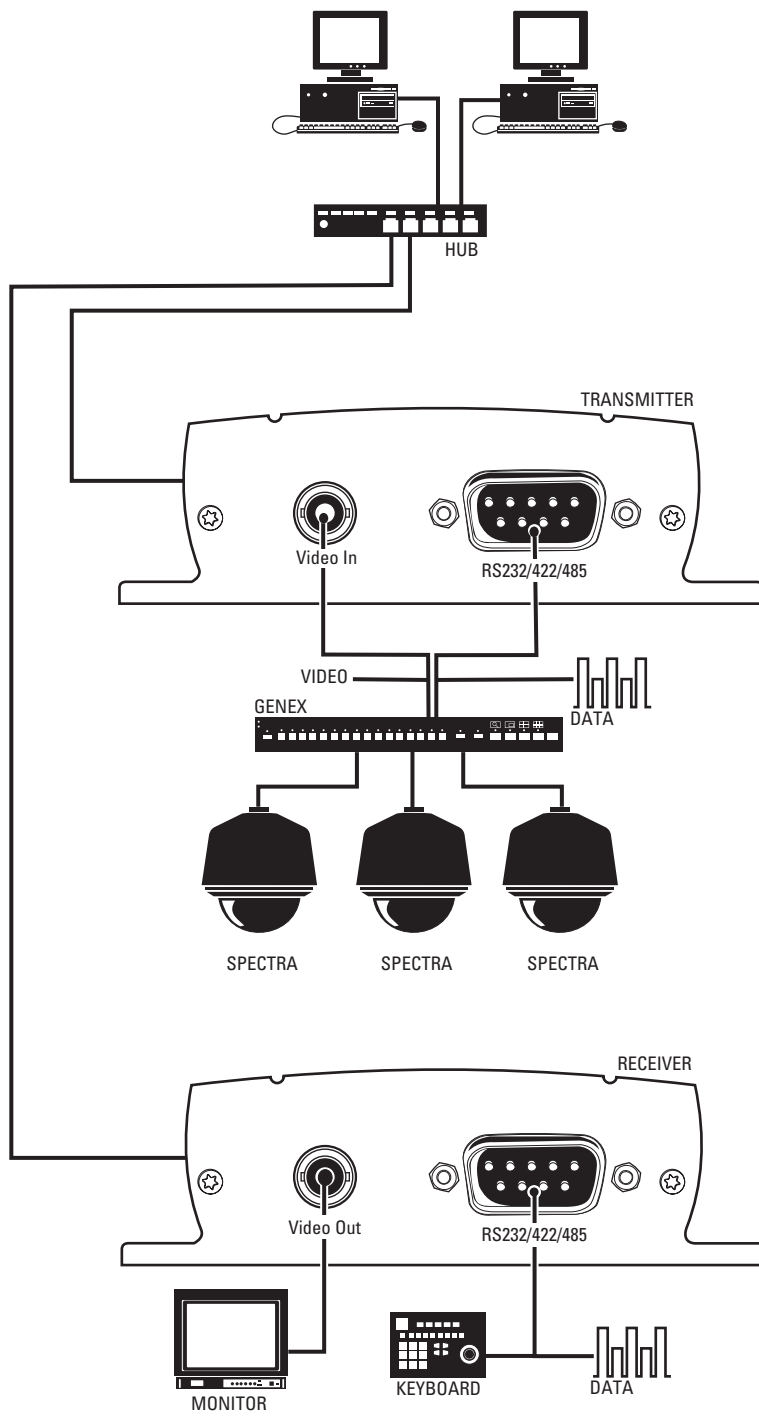
Figure 6. LAN Box-To-Box Connection (Transmitter, Receiver, Spectra, Genex)
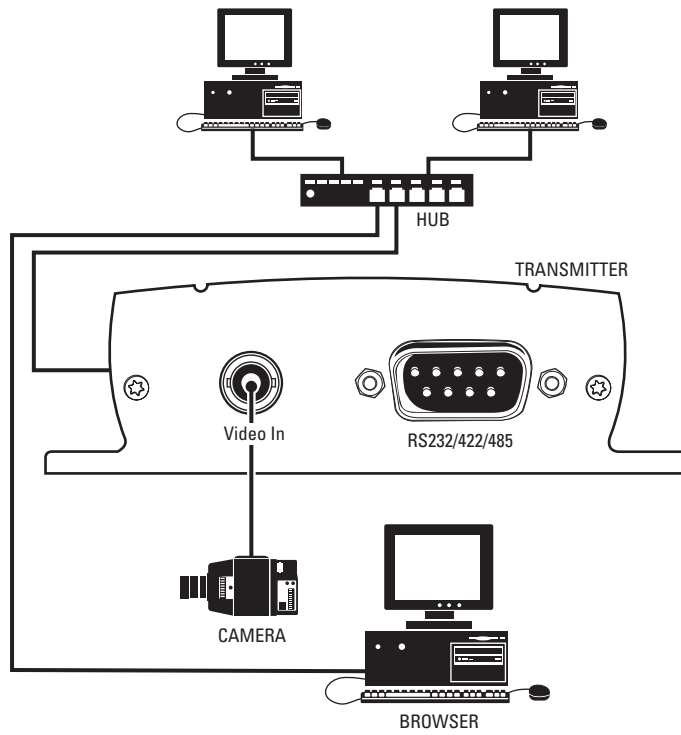
Figure 7. LAN Browser-To-Box Connection (Transmitter, Browser, Fixed Camera)
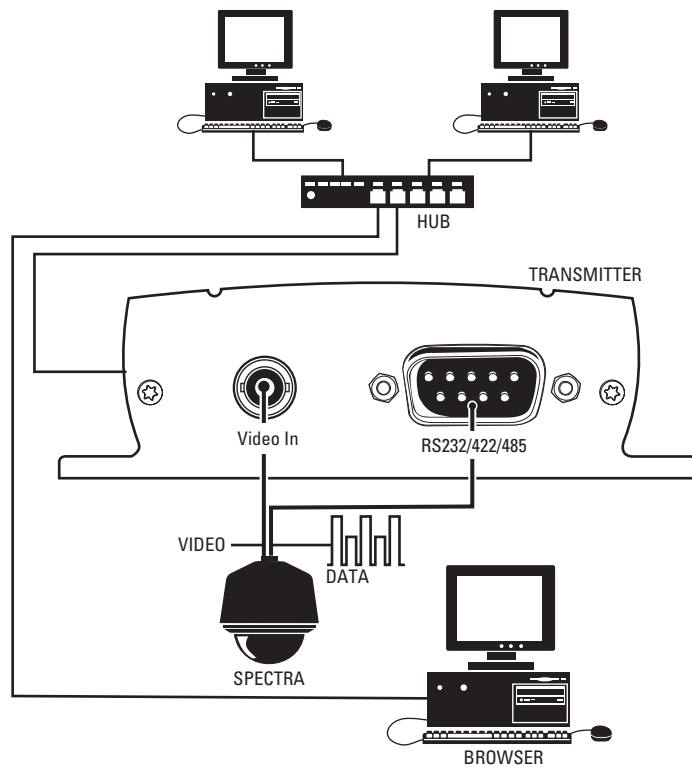
Figure 8. LAN Browser-To-Box Connection (Transmitter, Browser, Spectra)
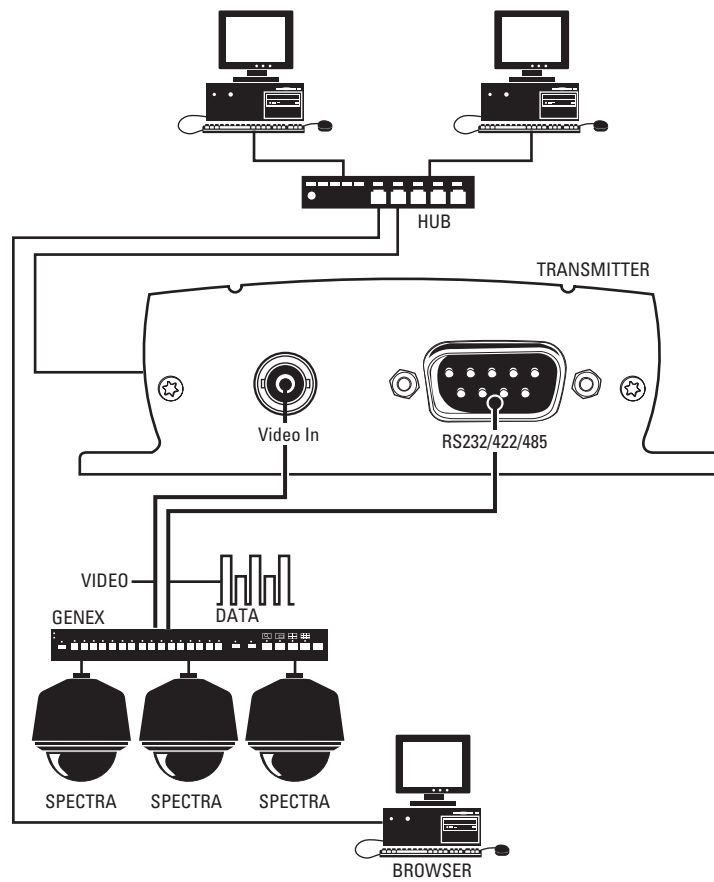
Figure 9. LAN Browser-To-Box Connection (Transmitter, Browser, Spectra, Genex)
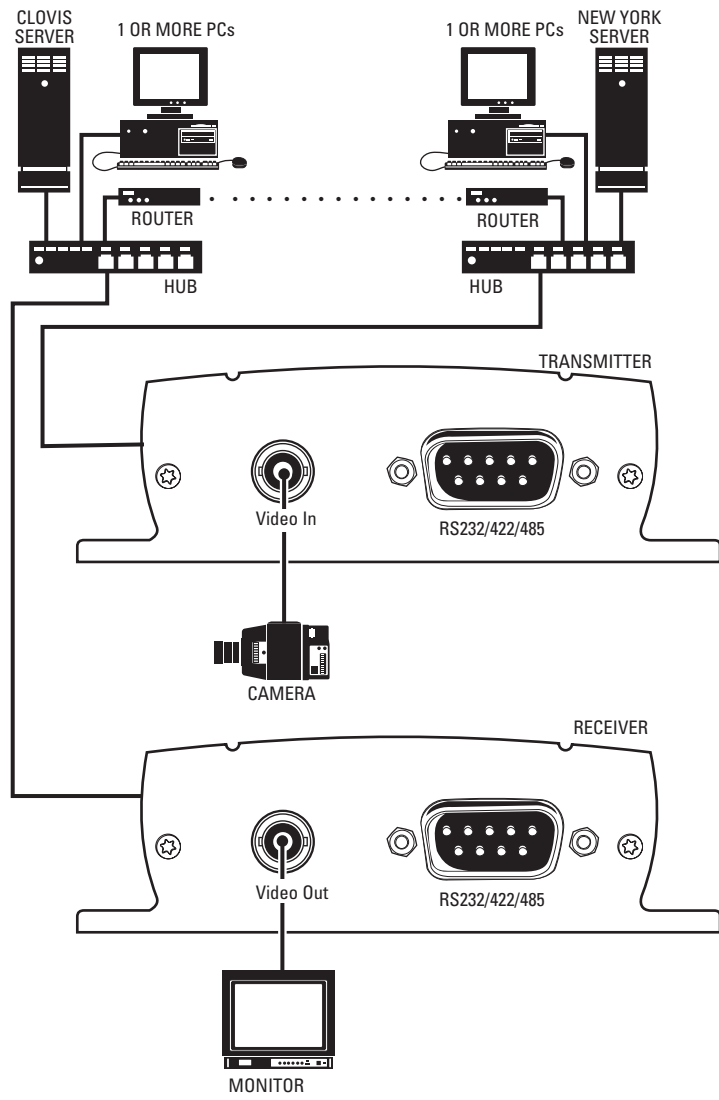
Figure 10. WAN Box-To-Box Connection (Transmitter, Receiver, Fixed Camera)
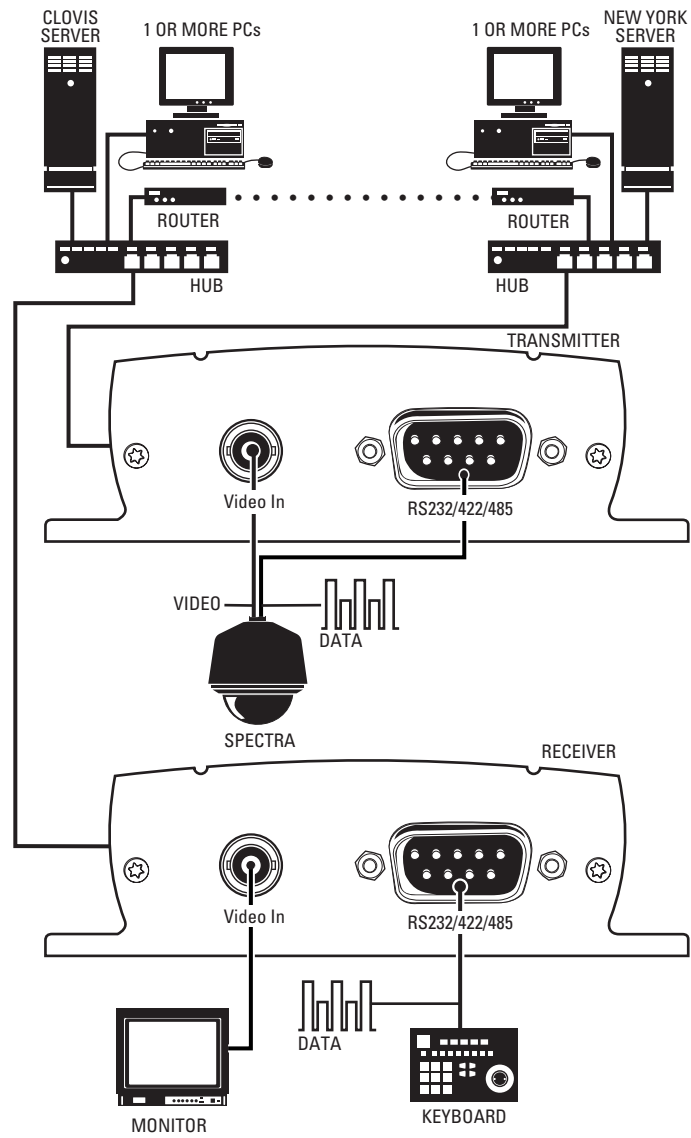
Figure 11. WAN Box-To-Box Connection (Transmitter, Receiver, Spectra)
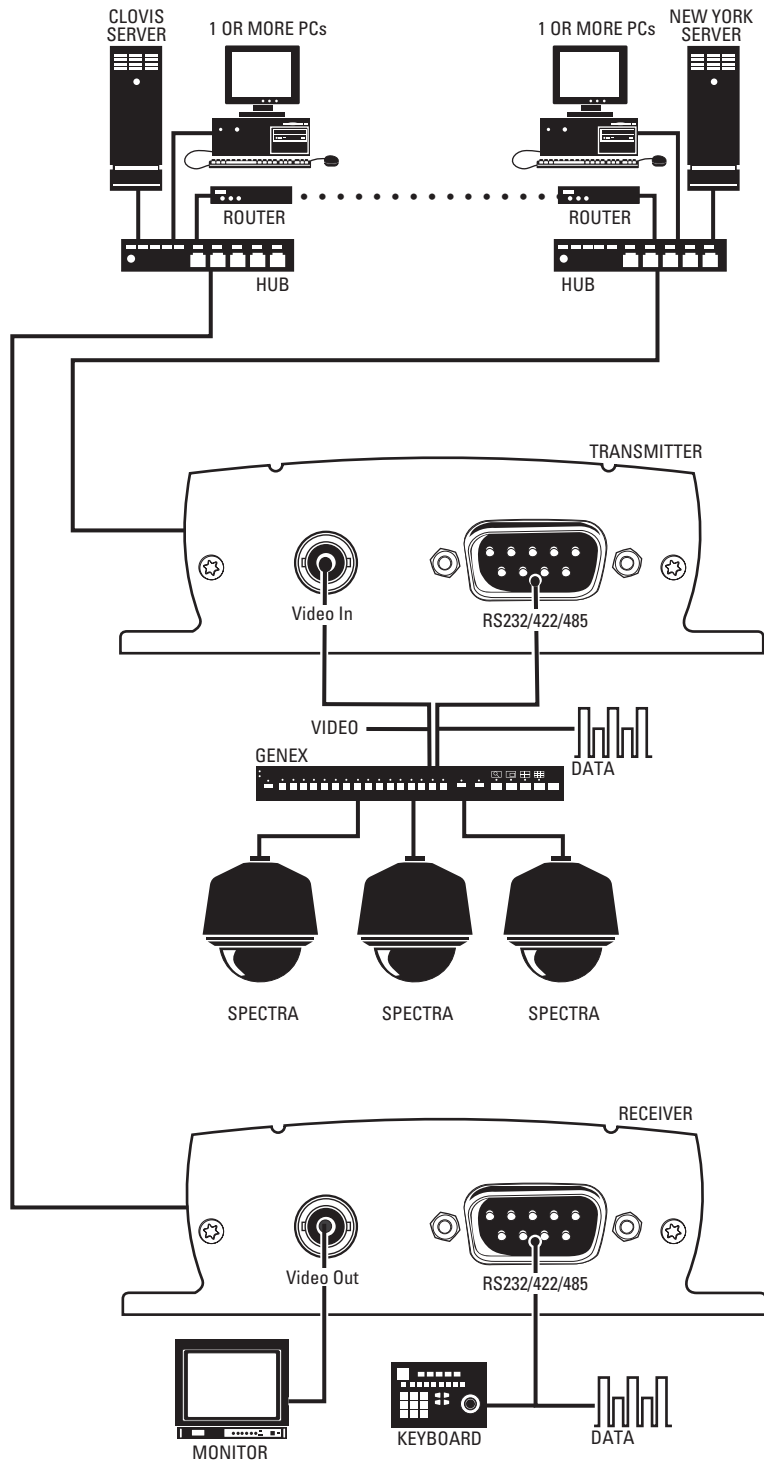
Figure 12. WAN Box-To-Box Connection (Transmitter, Receiver, Spectra, Genex)
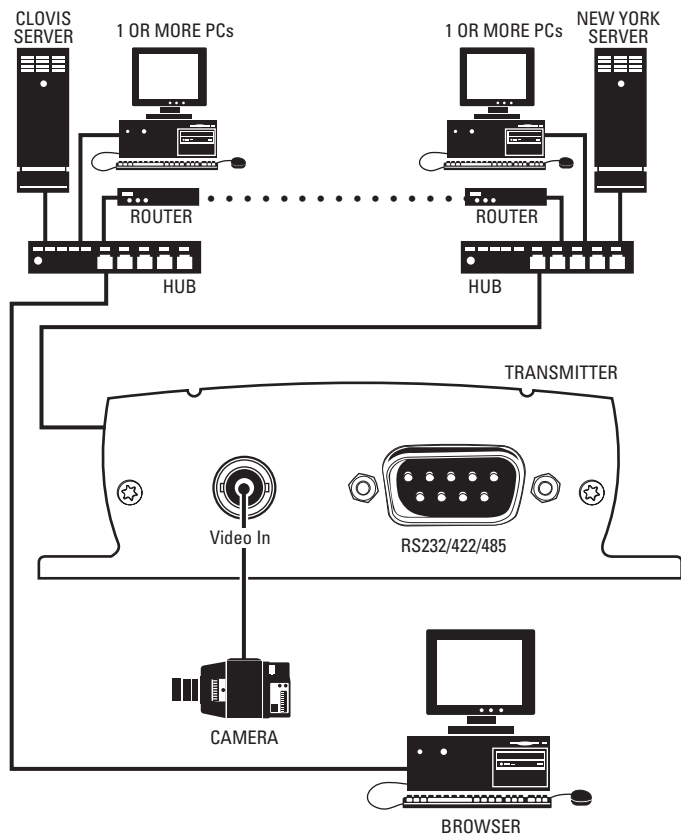
Figure 13. WAN Browser-To-Box Connection (Transmitter, Browser, Fixed Camera)
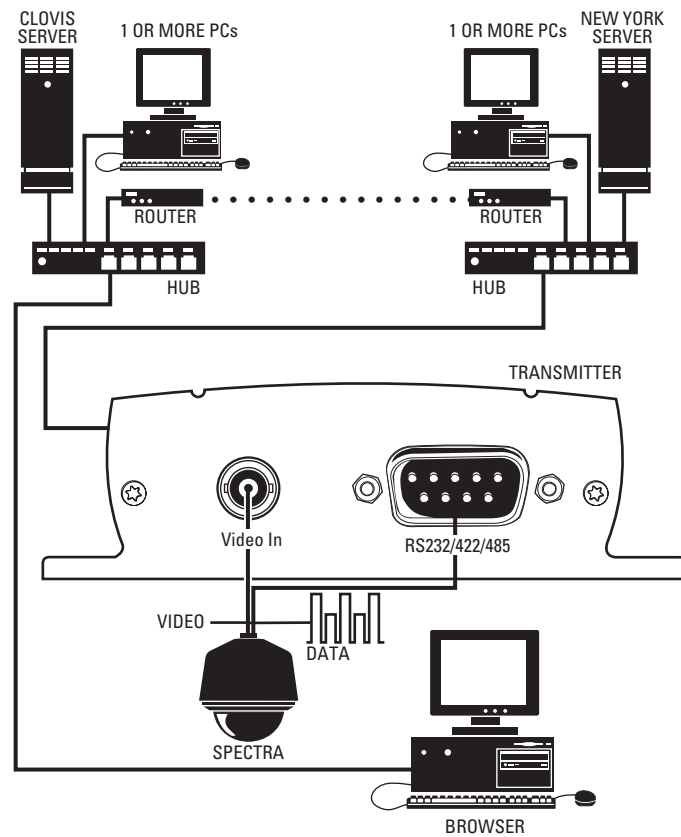
Figure 14. WAN Browser-To-Box Connection (Transmitter, Browser, Spectra)
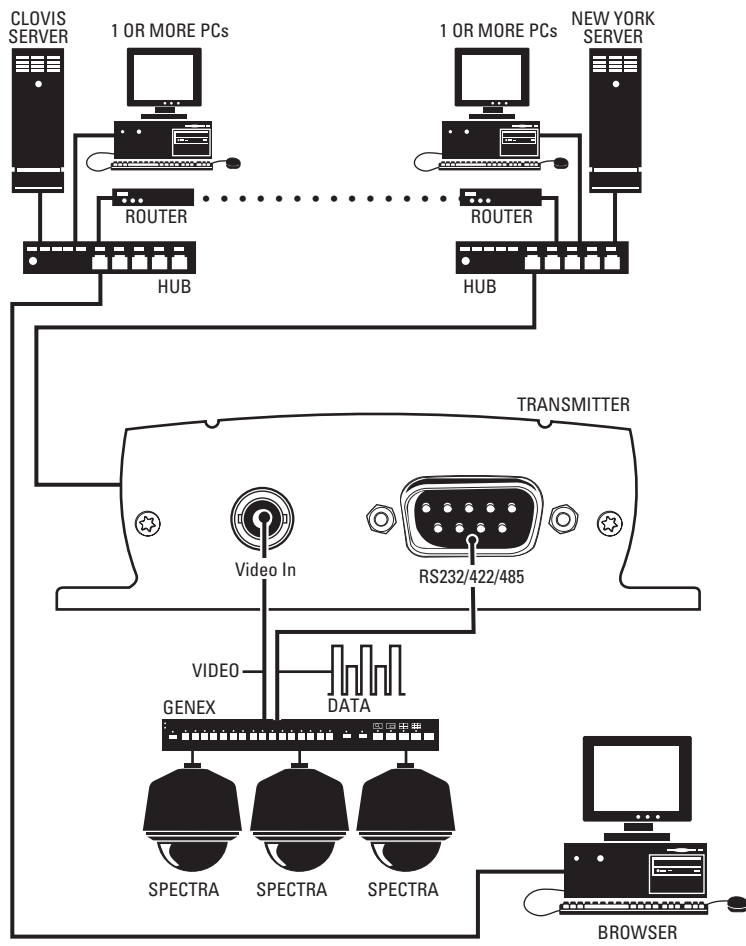
Figure 15. WAN Browser-To-Box Connection (Transmitter, Browser, Spectra, Genex)
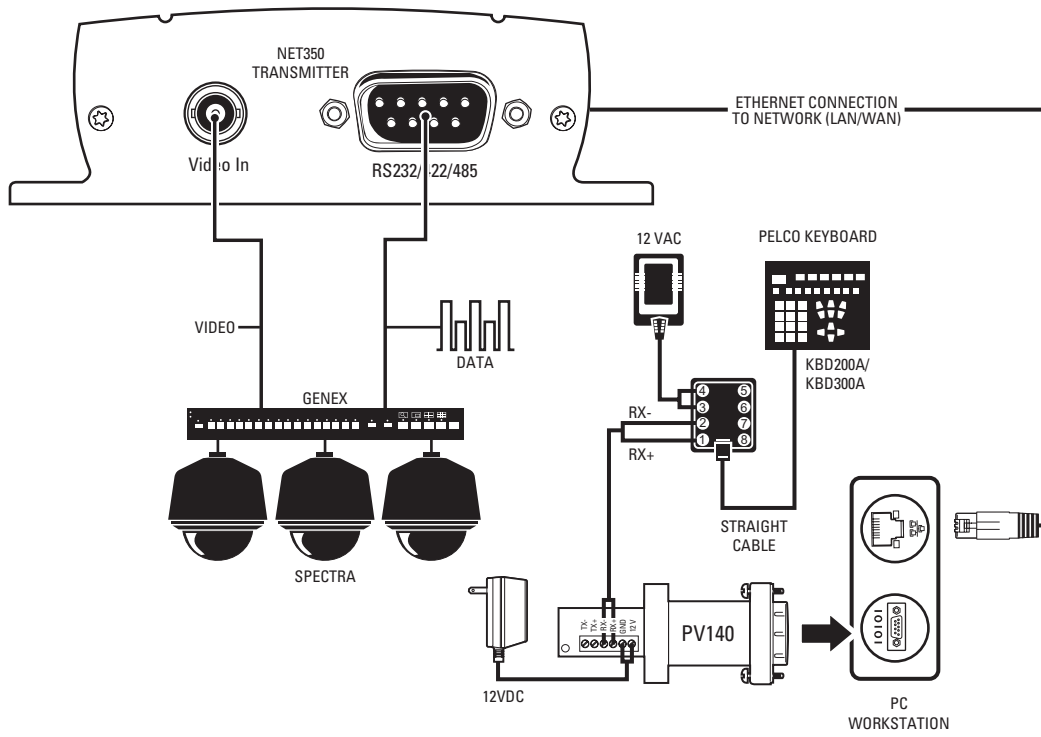
Figure 16. Connection with Pelco Keyboard Control Through a PC (Example Shown with Spectra and Genex)

Hardware Installation

Refer to Appendix A — Connecting PelcoNet NET300 to Different Components for examples of how to connect equipment.

CONNECTING VIDEO SOURCES OR DISPLAYS

- The NET300 transmitter's BNC Video In socket accepts color or black-white sources and automatically detects whether it is PAL or NTSC. The video input has an internal termination of 75 ohms.

- The NET300 receiver's BNC Video Out socket can be connected to any PAL or NTSC video monitor or VCR with a composite PAL or NTSC input.

CONNECTING DATA TERMINALS

The bidirectional data interface port can be used to control equipment connected to the NET300 (for example, a dome camera with motorized lens). The port supports RS-232, RS-422, and RS-485 asynchronous serial interfaces.

PIN ASSIGNMENTS

Table A. Pin Assignments
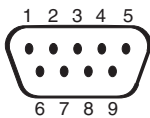
Pin	RS-232	RS-422/485
1	DCD (data carrier detect)	–
2	RX (receive data)	RX+ (receive data plus)
3	TX (transmit data)	TX– (transmit data minus)
4	DTR (data terminal ready)	–
5	GND (ground)	GND (ground)
6	DSR (data set ready)	–
7	RTS (ready to send)	TX+ (transmit data plus)
8	CTS (clear to send)	RX– (receiver data minus)
9	–	–

NOTE: Transmission of transparent data is possible only when a video connection has been established.

WARNING: Pay attention to documentation relating to the installation and operation of the equipment being controlled.

CONNECTING AN ALARM

The NET300 has two alarm inputs. Input 1 lets you connect external signaling devices, such as a door contact. (Note that there is no motion alarm on a NET300 receiver.) Input 2 has limited functionality in that it can only be used to establish a box-to-box connection to another NET300, and only when the Connect On Alarm field is set to On.

If configured accordingly, an alarm trigger can also set up an automatic connection between the NET300 and the remote station. You can connect switches or contacts directly without a separate power supply. The alarm inputs are N.O. (normally open).

Do the following to connect an external sensor. Refer to Figure 17.

⚠ **WARNING:** The maximum rating of the alarm contact is 30 VDC and 8 mA.

On the plug-in terminal block, attach conductors to the alarm input (IN1 and IN2) and ground conductor (GND) terminals. (Insert a small screwdriver tip in the square hole and push hard enough to open the corresponding round hole. Insert the wire in the round hole.)

IN1 (ALARM INPUT1)
NOT USED
NOT USED

R (RELAY)
+ (POWER)

⚠ **30 V**

GND
GND
IN2 (ALARM INPUT2)

− (POWER)
R (RELAY)
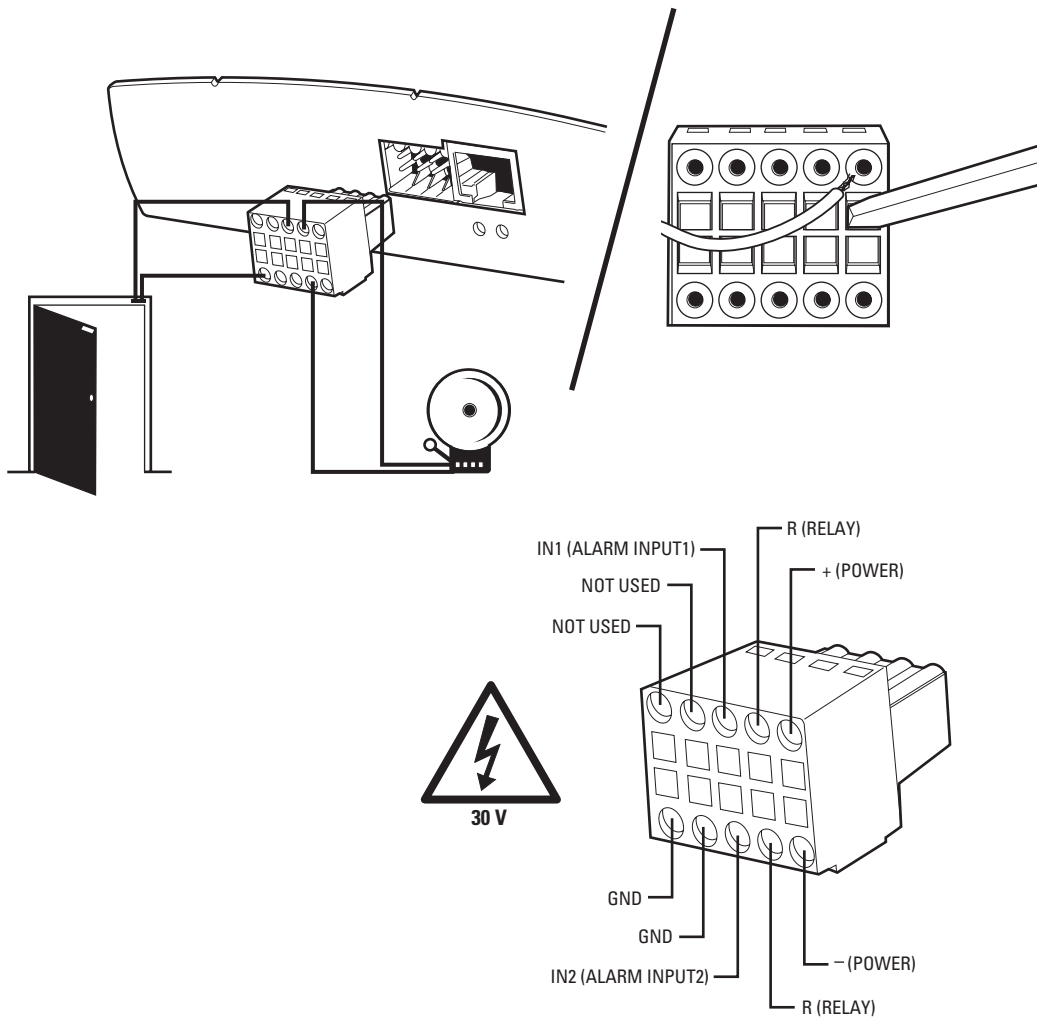
Figure 17. Alarm and Relay Connections

CONNECTING A RELAY

The NET300 has a relay for operating external devices (for example, a light or siren). The relay can be operated from a control page during an active connection or automatically to coincide with certain events. Settings for the relay must be configured (refer to the Configuration section).

Do the following to connect a peripheral device (such as a light) that can be activated from a PelcoNet live video page.

📋 **WARNING:** The maximum rating of the relay contact is 30 VDC and 1 A.

Refer to Figure 17. On the plug-in terminal block, attach a wire conductor to each of the relay terminals (R). (Insert a small screwdriver tip in the square hole and push hard enough to open the corresponding round hole. Insert the wire in the round hole.) It does not matter which conductor wire goes to which relay terminal. The device the relay activates will need its own power supply.

CONNECTING TO A LAN

Refer to Figure 18. You can connect the NET300 to a 10/100BASE-T network either directly or through a hub. To do so, plug a standard Cat5 UTP cable with RJ-45 connectors into the NET300's Ethernet socket.
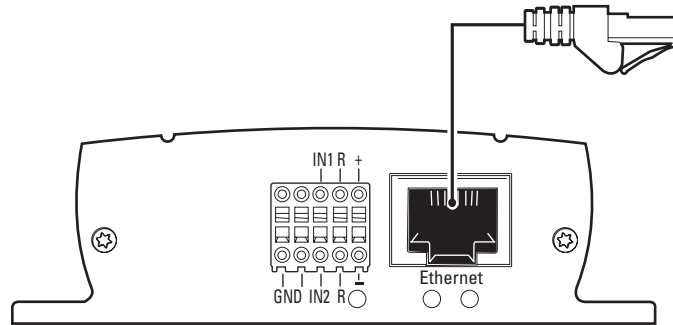
Figure 18. Connecting to the LAN Port

CONNECTING POWER

The NET300 has no power switch. The power supply comes with the attached orange terminal block plug. To apply power do the following:

1. Depending on your country, it may be necessary to attach an appropriate adapter (supplied) to the power supply. If necessary, do so.

2. Refer to Figure 17. Push the orange terminal block into the plug-in base next to the Ethernet port on the NET300. The wires on the plug correspond to the + and – labeling on the NET300.

3. Plug the power supply into an electrical outlet.

Configuration

BOX-TO-BOX CONNECTION

The following explains a box-to-box connection.

1. First, transmitter and receiver need to be configured appropriately. If the units are supposed to be operated in different subnets, a gateway IP address must be configured. Use the Live video receiver IP address field to address the destination. Enter the settings using either a terminal program or a web browser.

2. Once all addresses are configured, under the terminal program menu, go into the "Rcp+" menu and type **e** to make the connection. Or program the live video receiver IP address and enable the live auto connect setting through the web browser. Make sure the unit that will initiate the connection has an alarm IP address that points to the destination unit. After a few seconds, video transmission begins and the camera scene appears on the monitor attached to the receiver.

Instead of using a terminal program or web browser for establishing a connection, you can attach a contact to the alarm input. Make sure the alarm input field on the configuration page for alarm settings is enabled.

You can use a web browser to connect to either of the two units, even during an active box-to-box connection. This way you can make changes to the configuration and immediately see the result of the setting (for example, when changing video quality). (This is not true for passwords, however.) If you are connected to the transmitter, the camera pictures are sent to the receiver and web browser simultaneously. There will be a short break in the video display on the receiver monitor whenever the web browser requests a new frame. This is especially noticeable with the Server Push feature.

Transparent data is always transmitted automatically between the two units as soon as the connection becomes active. Data bytes entering the interface are transported to the other end transparently. There is no flow control mechanism for the data channel. Overflowing the serial interface will cause data loss.

To sever the connection from either end, in the "Rcp+" menu press **3** (or disable the alarm).

CONFIGURATION TYPES

There are two ways to configure your system:

- A convenient, complete configuration and display of video is accomplished through the built-in HTTP server, which connects to any standard web browser (for example, Internet Explorer). You can then configure using screens and menus. This is the recommended method. Refer to the Configuration Using a Web Browser section.

- The most basic configuration is accomplished by connecting a PC to the RS-232 terminal port. You then type in commands and parameters. Refer to the Configuration Using a Terminal Program section.

CONFIGURATION USING A WEB BROWSER

To use a web browser the system features a complete HTTP server.

Microsoft's Internet Explorer 6.0 or higher is the recommended browser.

In order for live video images to be decoded, the special ActiveX control file must be installed on your PC. The latest version of the ActiveX platform comes on the PelcoNet CD. Also, the unit will not function without some form of Microsoft's Virtual Machine installed on the PC. Virtual Machine is included on the PelcoNet resource CD that came with your NET300 unit.

GETTING STARTED

NOTE: NET-Manager is a program that can make it easier to manage PelcoNet units in local networks. The program and manual (C2901M) are on the resource CD that comes with your PelcoNet unit. Refer to the manual for instructions.

The only NET-Manager features available to the NET300 include scanning to see your units' IP and MAC addresses, changing IP addresses, and viewing the setup pages with the browser.

1. Start your web browser.

2. Connect to the URL **http://IP-Address**, where IP-Address is the IP address of the unit you want to configure. Use the standard dot-separated format (x.x.x.x) to enter the address. The home page is displayed along with a snapshot from the camera.

Figure 19. PelcoNet Home Page

MATRIX CONTROL
WITH LIVE VIDEO 1

MATRIX CONTROL
WITH LIVE VIDEO 2

MATRIX CONTROL
WITH MJPEG
SERVER PUSH

GENEX® MUX
WITH LIVE VIDEO 1

GENEX MUX
WITH LIVE VIDEO 2

GENEX MUX WITH
MJPEG SERVER PUSH

SPECTRA® DOME
SYSTEM WITH LIVE
VIDEO 1

SPECTRA DOME
SYSTEM WITH LIVE
VIDEO 2

SPECTRA DOME
SYSTEM WITH
MJPEG SERVER PUSH

ESPRIT™ SYSTEM
WITH LIVE VIDEO 1

ESPRIT SYSTEM
WITH LIVE VIDEO 2

ESPRIT SYSTEM
WITH MJPEG
SERVER PUSH

KEYBOARD CONTROL
WITH LIVE VIDEO 1

KEYBOARD CONTROL
WITH LIVE VIDEO 2

KEYBOARD CONTROL
WITH MJPEG
SERVER PUSH

HOME

VIDEO 1

VIDEO 2

SERVER PUSH

CONTROL

SETUP

GENERAL
UNIT NAME
UNIT ID
PASSWORD LEVEL
PASSWORD
PASSWORD CONFIRM
DATE FORMAT
UNIT DATE
UNIT TIME
TIME ZONE
TIME SERVER IP ADDRESS
HARDWARE VERSION
SOFTWARE VERSION
SOFTWARE UPLOAD
UPLOAD PROGRESS
CONFIGURATION DOWNLOAD
CONFIGURATION UPLOAD

VIDEO SETTINGS MPEG-4
CAMERA
CAMERA NAME STAMPING
TIME STAMPING
VIDEO WATERMARKING MPEG-4
DISPLAY ALARM STAMPING
DISPLAYED ALARM MESSAGE
NAME OF (FIRST/SECOND)ENCODER
PARAMETER PRESET
PRESET PARAMETER NAME
DATARATE
VIDEO QUALITY SETTINGS
INTRA FRAME DISTANCE
FRAME SKIP RATIO
VIDEO RESOLUTION
FIELD MODE
RESET THIS PARAMETER PRESET

ALARM
VIDEO MOTION ALARM
UNIFIED PICTURE DETECTION
VIDEO LOSS ALARM
ALARM INPUT 1/2
NAME
CONNECT ON ALARM
NUMBER OF VIDEO RECEIVER ADDRESS
LIVE VIDEO RECEIVER IP ADDRESS
REMOTE RECEIVER PASSWORD
LIVE VIDEO AUTO-CONNECT

MOTION DETECTION
MOTION DETECTOR
SELECT SENSOR FIELD
MOTION TRACKING
TRACKER
LOCAL SENSITIVITY
AVERAGE N [FRAMES]
OBJECT MIN SIZE [N*N BLOCKS]
ALARM INDICATOR
THRESHOLD

MOTION DETECTOR GRID

RELAY
IDLE STATE
OPERATING MODE
RELAY FOLLOWS
RELAY NAME
TRIGGER RELAY

INTERFACE COM 1
SERIAL PORT FUNCTION
BAUD RATE
DATA BITS
STOP BITS
PARITY CHECK
INTERFACE MODE
HALF-DUPLEX MODE
GENEX PROTOCOL ID
SPECTRA/ESPRIT P PROTOCOL ID

KEYBOARD
COM PORT
BAUD RATE
DATA BITS
STOP BITS
PARITY

NETWORK
UNIT IP ADDRESS
SUBNET MASK
GATEWAY IP ADDRESS
VIDEO TRANSMISSION
MULTICAST STREAMING
MULTICAST GROUP IP ADDRESS
MULTICAST VIDEO PORT ENCODER 1
MULTICAST VIDEO PORT ENCODER 2
MULTICAST PACKET TTL

Figure 20. PelcoNet NET300 Transmitter Menu Tree

```
                          ┌────────────────────────────┐
                          │          GENERAL           │
                          │                            │
                          │  UNIT NAME                 │
                          │  UNIT ID                   │
                          │  PASSWORD LEVEL            │
                          │  PASSWORD                  │
                          │  PASSWORD CONFIRM          │
                          │  DATE FORMAT               │
                          │  UNIT DATE                 │
                          │  UNIT TIME                 │
                          │  TIME ZONE                 │
                          │  TIME SERVER IP ADDRESS    │
                          │  HARDWARE VERSION          │
                          │  SOFTWARE VERSION          │
                          │  SOFTWARE UPLOAD           │
                          │  UPLOAD PROGRESS           │
                          │  CONFIGURATION DOWNLOAD    │
                          │  CONFIGURATION UPLOAD      │
                          └────────────────────────────┘

                          ┌────────────────────────────┐
                          │       VIDEO DECODER        │
                          │                            │
                          │  VIDEO MONITER NAME        │
                          │  VIDEO OUTPUT STANDARD      │
                          └────────────────────────────┘

                          ┌────────────────────────────────┐
                          │            ALARM               │
                          │                                │
                          │  ALARM INPUT 1/2               │
                          │  CONNECT ON ALARM              │
                          │  NUMBER OF ADDRESS             │
┌──────┐    ┌──────────┐  │  LIVE VIDEO TRANSMITTER IP ADDRESS │
│ HOME │────│  SETUP   │──│  REMOTE TRANSMITTER PASSWORD   │
└──────┘    └──────────┘  │  LIVE VIDEO AUTO-CONNECT       │
                          └────────────────────────────────┘

                          ┌────────────────────────────┐
                          │           RELAY            │
                          │                            │
                          │  IDLE STATE                │
                          │  OPERATING MODE            │
                          │  RELAY FOLLOWS             │
                          │  RELAY NAME                │
                          │  TRIGGER RELAY             │
                          └────────────────────────────┘

                          ┌────────────────────────────┐
                          │      INTERFACE COM 1       │
                          │                            │
                          │  SERIAL PORT FUNCTION      │
                          │  BAUD RATE                 │
                          │  DATA BITS                 │
                          │  STOP BITS                 │
                          │  PARITY CHECK              │
                          │  INTERFACE MODE            │
                          │  HALF-DUPLEX MODE          │
                          └────────────────────────────┘

                          ┌────────────────────────────┐
                          │          NETWORK           │
                          │                            │
                          │  UNIT IP ADDRESS           │
                          │  SUBNET MASK               │
                          │  GATEWAY IP ADDRESS        │
                          │  VIDEO TRANSMISSION        │
                          └────────────────────────────┘
```

Figure 21. PelcoNet NET300 Receiver Menu Tree

HOME PAGE

The window in the left of the home page screen is the display area for decoded video.

*   Clicking the Pelco logo on any page connects you to the Pelco Internet home page, provided the LAN supports Internet access.

*   Click **Video 1** or **Video 2** to choose which live display to view.

*   Click **Server Push** for periodically updated stills.

*   Click **Control** to access an options screen with links to pages where you can see and control the displayed view. Refer to the Web Browser Control Pages section.

*   Click **Setup** to access an options screen with links to configuration pages. Click any icon on the side or the text itself to transfer to the desired page.

SETUP PAGES
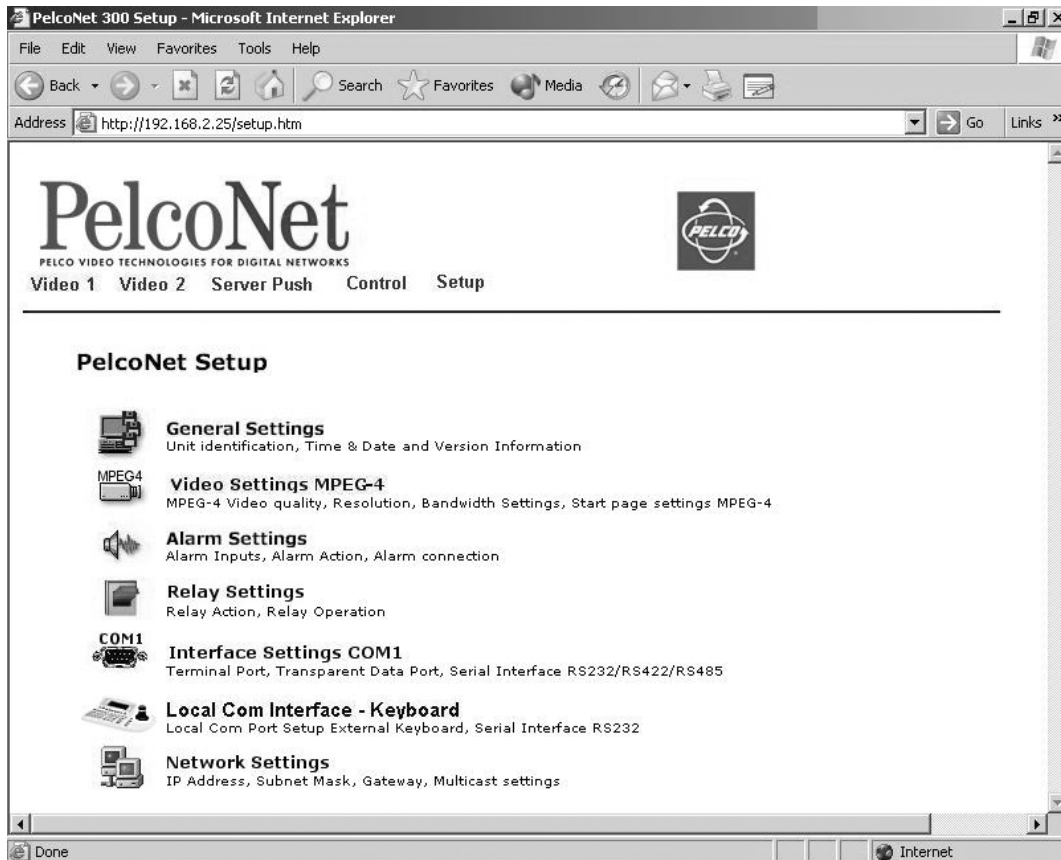
Figure 22. PelcoNet NET300 Transmitter Setup Page
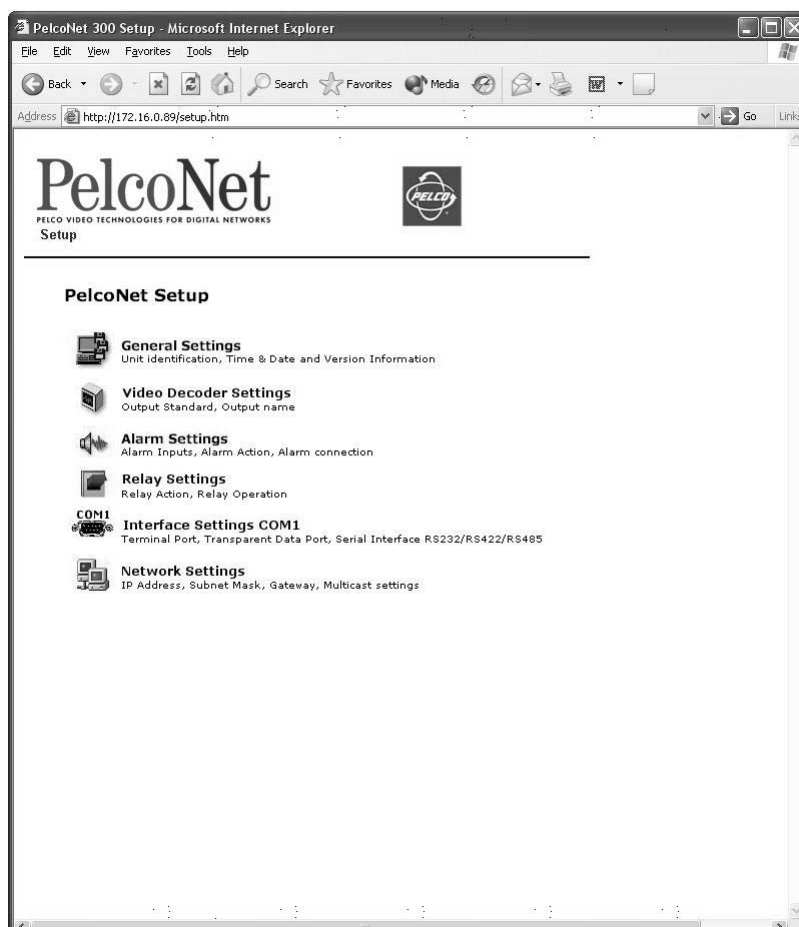
Figure 23. PelcoNet NET300 Receiver Setup Page

NOTE: The Set button within a box on a configuration page applies to all the fields within that box. You can change all the fields in a box and then click Set once and all the changes within that box will be saved.

All configuration items are stored in nonvolatile memory so they are kept when the unit is powered down.

Some configurations apply only to transmitters (for example, camera settings) while others apply to both transmitters and receivers. The configuration pages for receivers do not include fields that apply only to transmitters.

CONFIGURATION PAGE FOR GENERAL SETTINGS

The unit identification, password, date and time, time server, version information, and software update settings make up the General Settings configuration page.

All units have a real-time clock set during manufacture. However, time and date can be changed anytime; for example, when the units are operated in different time zones.

Version numbers for the hardware and firmware are for information only. Whenever you need technical support, have these numbers ready.

Figure 24. Configuration Page for General Settings

Configuration Item	Default Setting	Description
Unit name	None	(For future development.) The Unit name identifies the device; for example, in the event of an alarm, this name would be displayed in the video image, depending on the configuration. You can enter up to 31 alphanumeric characters.
Unit ID	None	(For future development.) The Unit ID identifies the device. You can enter up to 31 alphanumeric characters.
Password level	None	Select the password level from the pull-down menu. Access to the NET300 generally is protected with a password to prevent unauthorized use of the unit. There are three password levels. ⚠ **WARNING:** Setting a User level password on a transmitter can cause complications on the receiver side in a box-to-box configuration. To avoid this, on the receiver's Alarm Settings configuration page enter the transmitter's IP address and user password in the appropriate fields (live video receiver IP address and remote receiver password). If no User level password is set on the transmitter, then the receiver needs no setup. • **Service:** This is the administrative, and highest, level. This level grants access to all configuration parameters after the current password is entered. ℹ **IMPORTANT:** Service is an administrative account. If you do not set up a Service password, there is no point in setting up User or Live passwords because a user can log in to the unit by entering "service" and then eliminate the User and Live passwords. • **User:** This is the second highest level. This level lets the user view live video and access the control pages. • **Live:** This is the lowest level. This level does not grant access to configuration pages but allows the unit to be operated (for example, viewing video). If any password level is set, you will always be required to log on to the NET300. For example, if a Live level password is set and you view that unit through the browser, the unit will ask for a user name and password to access any configuration page. If you then try to access the setup page again, the unit will again prompt for a user name and password. Some scenarios that can occur are as follows: • If a password is set for the Service level, then the only way to access the setup page is by logging on using the Service name and the Service level password. • If no password is set for the Service level, then you can log on with the Service user name and no password or you can log on with the Live user name and the Live password you have selected.
Password	None	You can enter or change a password if the unit is accessed in the Service authorization level or if the unit is not protected by a password. Passwords can be changed one at a time only (that is, either Service, User, or Live). Maximum entry is 19 alphanumeric characters. All entered characters will be saved when you click Set; however, no more than eight asterisks will be displayed when you access the screen next time even if you entered more than eight characters.
Password confirm	None	Re-enter the new password again to guard against typing errors. If the device is not protected by a password, the "No password set" message will be displayed.
Date format	Europe	Use the pull-down menu to select the format for the date: Europe, USA, or Japan.
Unit date	N/A	Enter the current date in MM/DD/YYYY format for the USA, DD.MM.YYYY for Europe, or YYYY/MM/DD for Japan. This is the system date, which is controlled by an internal real-time clock. The day of the week (first entry box) need not be entered and will be automatically adjusted based on the given date.
Unit time	N/A	Enter the current time or click the **Synchr. PC** button and then click **Set** to synchronize the NET300 with your computer's system time. This is the system time, which is controlled by an internal real-time clock. This only synchronizes once. (Pelco cannot guarantee the time will be accurate without the use of a time server.)
Time zone	Pacific	Use the pull-down menu to select the time zone for the NET300. This and the Time Server IP Address settings are important if the internal clock should be synchronized with the time received from a time server on the Internet.

Configuration Item	Default Setting	Description
Time server IP address	0.0.0.0	Enter the IP address of a TIME protocol server and then click **Set**. The time and date are automatically synchronized every two hours to this Internet server. This feature does not adjust for Daylight Saving Time; you should adjust manually as needed.
Hardware version	N/A	Read-only hardware version number. This contains unique serial number, type of hardware, and revision.
Software version	N/A	Read-only firmware version number. This is important information should you need technical support.
Software upload*	N/A	Units have flash EPROMs for firmware upgrades in the field. These upgrades can be done directly from the web browser. Enter the name of the file containing the upgrade, or locate it using the **Browse** button. Then click the **Upload** button.
Upload progress	0%	This field shows the percentage of the upload that has been completed.
Configuration download	N/A	Clicking the **Download** button saves the current configuration of the PelcoNet NET300 transmission system to a PC file.
Configuration upload*	N/A	This copies a file from a PC to the NET300. Enter the name of the file containing the configuration, or locate it using the **Browse** button. Then click the **Upload** button to overwrite the configuration with the configuration stored in the named file.

*Do not press Enter with the cursor in the Software Upload or Configuration Upload box after making an entry. If you do so, the unit will reset and your settings will remain unchanged.

CONFIGURATION PAGE FOR MPEG-4 VIDEO SETTINGS (TRANSMITTER ONLY)

MPEG-4 encoder and live page settings make up the configuration page for MPEG-4 video settings. The table that follows describes configuration items.
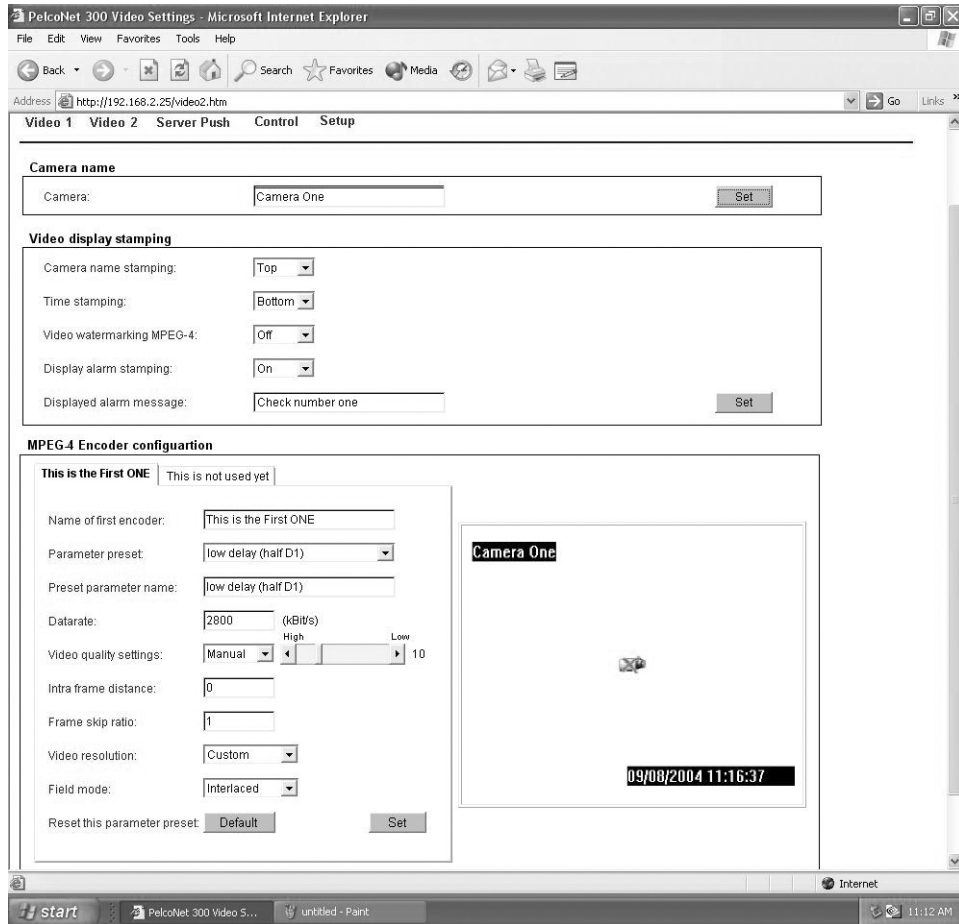

Figure 25. Configuration Page for MPEG-4 Video Settings (Only One Example Shown)

NOTE: In a box-to-box connection, the receiver monitor displays only Encoder 1 settings; Encoder 2 settings are not displayed.

Configuration Item	Default Setting	Description
Camera	Camera 1	Enter a camera name.
Camera name stamping	Off	Use the pull-down menu to select a screen option (Top or Bottom) where the camera name will be displayed. Or select Off.
Time stamping	Off	Use the pull-down menu to select a screen position (Top or Bottom) where the current time will be displayed. Or select Off.
Video watermarking MPEG-4	On	Use the pull-down menu to select whether the MPEG-4 data stream will be stamped with a watermark (On) or not (Off). A green rectangle will be stamped on the decoded signal of the validated data stream.
Display alarm stamping	Off	Use the pull-down menu to select whether a message will be displayed in the event of an alarm.
Displayed alarm message	N/A	Enter the message to be displayed in the event of an alarm (31 alphanumeric characters maximum).
MPEG-4 Encoder 1/2 (tab)	MPEG-4 Encoder 1	Click the tab to choose whether to set parameters for either encoder 1 or encoder 2. The selected button's text will be bold.
Name of (first or second) encoder	(Name of first encoder)	Clicking the **MPEG-4 Encoder** 1 or 2 tab changes the title of, and entry in, this field. If desired, enter a name other than the programmed name to identify video 1 or video 2 (24 alphanumeric characters maximum). (Changing the name here also changes it on the tab.)
Parameter preset	1	Use the pull-down menu to select a setting (1–8) that corresponds to a predefined profile in the Preset Parameter Name field below. The profile changes as you change the setting. These predefined profiles are a starting point from which you can make custom adjustments, if desired.
Preset parameter name	high res. (4CIF)	This field describes the profile associated with the setting in the Parameter Preset field above. This field changes automatically. The profiles are predefined and optimized for different transmission paths. The profiles are 1 = **high res. (4CIF)** for connections with high bandwidth and high resolution of 704 x 576 pixels 2 = **low delay (half D1)** for connections with high bandwidth motion-optimized resolution of 352 x 448 pixels 3 = **low bandw. (CIF)** for connections with lower bandwidth and resolution of 352 x 288 pixels 4 = **DSL** for ADSL connections 5 = **ISDN (2B)** for ISDN connections over two B channels 6 = **ISDN (1B)** for ISDN connections over one B channel 7 = **MODEM** for modem connections 8 = **GSM** for GSM modem connections (Note that QCIF does not support displaying camera name stamping, time stamping, and display alarm stamping.)
Datarate	5000	The data rate figure in this field changes automatically according to the setting you choose in the Parameter Preset field.
Video quality settings	Auto	This setting adjusts the value between video quality and image frame rate. Use the pull-down menu to choose either Auto or Manual. • If you choose Auto, an optimized value is adjusted automatically. • If you choose Manual, you can change the value between high quality and low quality on the slide-bar at the right.
Intra frame distance	0	Enter a value to change the size of the frames within the MPEG-4 video stream.

Configuration Item	Default Setting	Description
Frame skip ratio	1	Enter a skip value for images. • If you enter 1, all images are encoded. • If you enter 2, every second image is encoded. Use this setting if you want low bandwidth and higher quality.
Video resolution	CIF	Use the pull-down menu to choose the video resolution (QCIF, CIF, 2CIF, 4CIF, or custom) for viewing and recording. See the Preset Parameter Name field for descriptions of options.
Field mode	Interlaced	This setting lets you select the field mode for video transmission. Use the pull-down menu to select one of the following: • Interlaced – Interlaced mode on. Setting improves video quality on moving objects. • Progressive – Interlaced mode off.
Reset this parameter preset	N/A	Click the **Default** button to return the settings to the factory defaults.

CONFIGURATION PAGE FOR VIDEO DECODER SETTINGS (RECEIVER ONLY)

Video monitor name and video output standard make up the configuration page for video decoder settings. The table that follows describes configuration items.

Figure 26. Configuration Page for Video Decoder Settings

Configuration Item	Default Setting	Description
Video monitor name	N/A	Enter a name (31 characters maximum) for the monitor.
Video output standard	NTSC	For devices that also function as receivers, select the video standard for the monitor output (PAL or NTSC).

CONFIGURATION PAGE FOR ALARM SETTINGS

The PelcoNet NET300 transmission system is not only a multimedia gateway but also a security device and, therefore, has many features related to security applications. The configuration page for alarm settings lets you configure your unit for surveillance applications. In most surveillance-related applications, the receiver is located in a secure center-type environment while the transmitter is located at the site to be monitored.

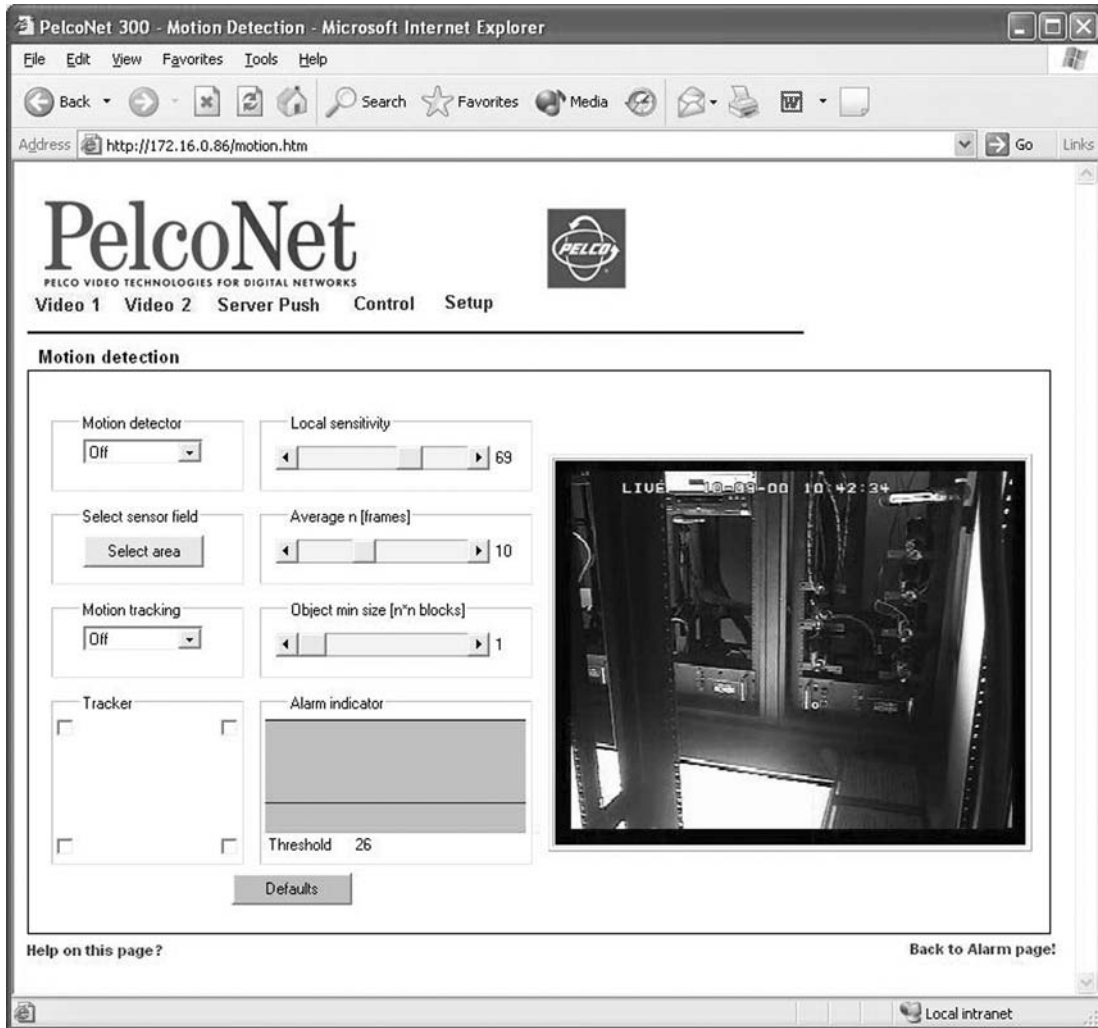**Figure 27.** Configuration Page for Alarm Settings (Transmitter Shown)

Figure 28. Motion Detection Screen

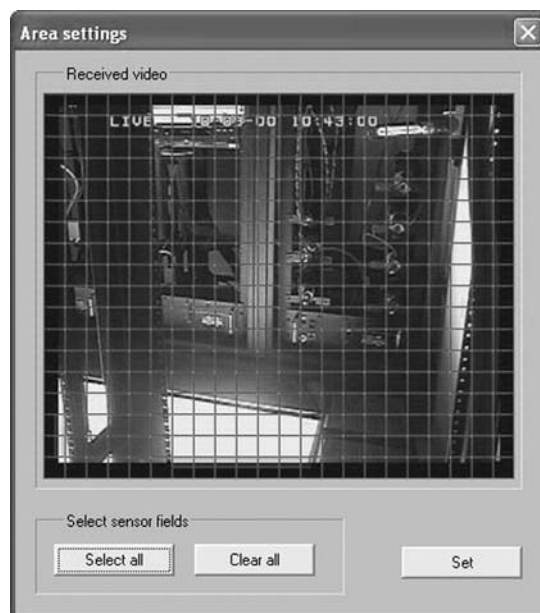**Figure 29.** Motion Detection Grid Screen

The set of alarm features is explained below.

Configuration Item	Default Setting	Description
Video motion alarm	N/A	The system has a video motion detection feature. The video scene is monitored constantly for relevant motion.

(Description for Video motion alarm, continued):

📋 **NOTE:** Use of the motion detection feature is recommended only indoors and under controlled lighting conditions; it is not recommended in dim lighting.

The following conditions must be met for motion detection to function:
- Motion detection must be activated.
- At least one cell must be activated.
- Sensitivity must be set higher than zero.

To set motion detection, do the following:

1. Click the **Motion detection** button to access the Motion Detection screen. (Refer to Figure 28.) Click **Default** to get the default settings for motion detection.

2. Select **On** from the **Motion detector** pull-down menu to trigger an alarm in the event of movement.

3. Click the **Select area** button to display a window with a grid superimposed on it (refer to Figure 29). Select the cells in the image you want the system to monitor for motion. You can use the **Select all** and **Clear** all buttons.

    The default is all cells selected (red).

    To set an individual cell, click it with the left mouse button (it will turn red). Click the right button to deselect a cell (which will turn white). Select or deselect multiple cells by holding down the left or right mouse button and dragging. Release when finished.

    Click the **Set** button.

4. Use the **Motion tracking** pull-down menu to turn on/off tracking. (Note that motion tracking overrides motion detection.)

5. The **Tracker** box indicates and controls the direction of motion detection. You can set motion detection to operate in one direction only by removing the check mark in the opposite direction. (This advanced feature must be set up precisely. Pelco recommends extensive setup testing in order to get the expected results.)

6. Use the **Local sensitivity** slide bar to set detection sensitivity. You need to adapt sensitivity to the respective environment and the acceptable false alarm rate: for a lower false alarm rate select a lower sensitivity and vice versa. Experiment to find the best setting.

7. Use the **Average n [frames]** slide bar to define how much motion must be detected before an alarm will be triggered. If the value is high, even movement over a small time period triggers an alarm. If the value is low, movement over a longer period is required to trigger an alarm.

8. Use the **Object min size [nxn blocks]** slide bar to designate the minimum number of cells in the frame a moving object must fill to trigger an alarm. You can set the value between 1*1 and 6*6 (2*2 is recommended). If the size of the object in the picture exceeds the value you set, motion detection triggers an alarm.

9. The **Alarm indicator** box lets you set a threshold so an alarm is triggered only if the sensitivity of the video sensor is exceeded. Thus, something such as background noise caused by the camera can be filtered to avoid unwanted alarms.The blue line indicates the alarm threshold. Any value exceeding this produces an alarm signal. Components of the motion signal generating the alarm are indicated in red. Pull up or down on the blue line to observe the motion detector.

10. Click **Back to Alarm** page! when finished.

Configuration Item	Default Setting	Description
Unified picture detection	Off	Use the pull-down menu to turn on/off this feature, which gives an alarm when the picture becomes too blurry. You must enable this feature if you want to use the unified picture option in the Relay Follows field on the configuration page for Relay Settings.

Configuration Item	Default Setting	Description
Video loss alarm	Off	If you select **On**, the signal from the video source (the camera in most cases) is monitored constantly for interruption. If no signal is received, the NET300 triggers an alarm.
Alarm input 1	Off/High	1. Select **On** from the pull-down menu if you want to activate an alarm through an external alarm sensor. 2. Select **High** or **Low** for the voltage level to activate the alarm. 3. Enter a name for the alarm input to be displayed on the screen if an alarm is activated (31 alphanumeric characters maximum). If alarm input is set to follow motion alarm, then motion detection must be set to On.
Alarm input 2	Off/High	Functions in the same manner as the Alarm Input 1 field.
Connect on alarm	Off	The alarm functions would have little effect without automatically triggering corresponding actions. Select **On** for automatic connection to the video receiver's IP address. The idea is to provide a monitoring station with live video in case of an alarm. (If you want both motion and alarm input to activate an alarm, set this field to On. If set to motion only, motion alarms will activate an alarm but no input alarms will be recognized.) This feature can be useful even for many applications not related to alarm conditions. One example is a video-equipped door entry system: when the doorbell is pressed, a contact closes and the connected transmitter automatically connects to a receiver. Select **Follows input 1** (transmitter) or **Follows input** (receiver) to specify that the connection remain as long as the alarm is active. (If **Follows input 1** or **Follows input** is set, motion will not activate an alarm.) Select **Follows motion alarm** (transmitter only) to specify that the alarm will turn on when motion is detected and turn off 10 seconds after motion is no longer detected. (If **Follows motion alarm** is set, alarm inputs will not be recognized.)
Number of video receiver address	1	The NET300 can store up to 10 different alarm IP addresses. When an alarm occurs, a connection is established to the first address. Up to 10 separate addresses can be added should the first address not accept the call. Use the pull-down menu to select how many additional addresses to contact, if necessary. (Add the IP addresses in the next field.)
Live video receiver/ transmitter IP address	0.0.0.0	Enter the IP addresses (10 maximum) of the receivers (if configuring a transmitter) or transmitters (if configuring a receiver) to be notified in the event of an alarm.
Remote receiver/ transmitter password	N/A	Enter the password for the remote unit if it is protected by a User or Live password. ⚠ **WARNING:** Setting a User level password on a transmitter can cause complications on the receiver side in a box-to-box configuration. To avoid this, on the receiver's Alarm Settings configuration page enter the transmitter's IP address and user password in the appropriate fields (live video receiver IP address and remote receiver password). If no User level password is set on the transmitter, then the receiver needs no setup.
Live video auto-connect	Off	Select **On** if at each restart an active connection should be setup automatically to the receiver's IP address. The auto-connect feature guarantees active connection to the receiver's alarm IP address even after connection breakdown or network failures. As soon as communication is restored, the connection is reinstated. On a receiver, this feature is enabled to establish a connection to a transmitter automatically.

CONFIGURATION PAGE FOR RELAY SETTINGS

You can use the configuration page for relay settings to specify parameters such as normally open or normally closed switching and bistable and monostable operation of the output.
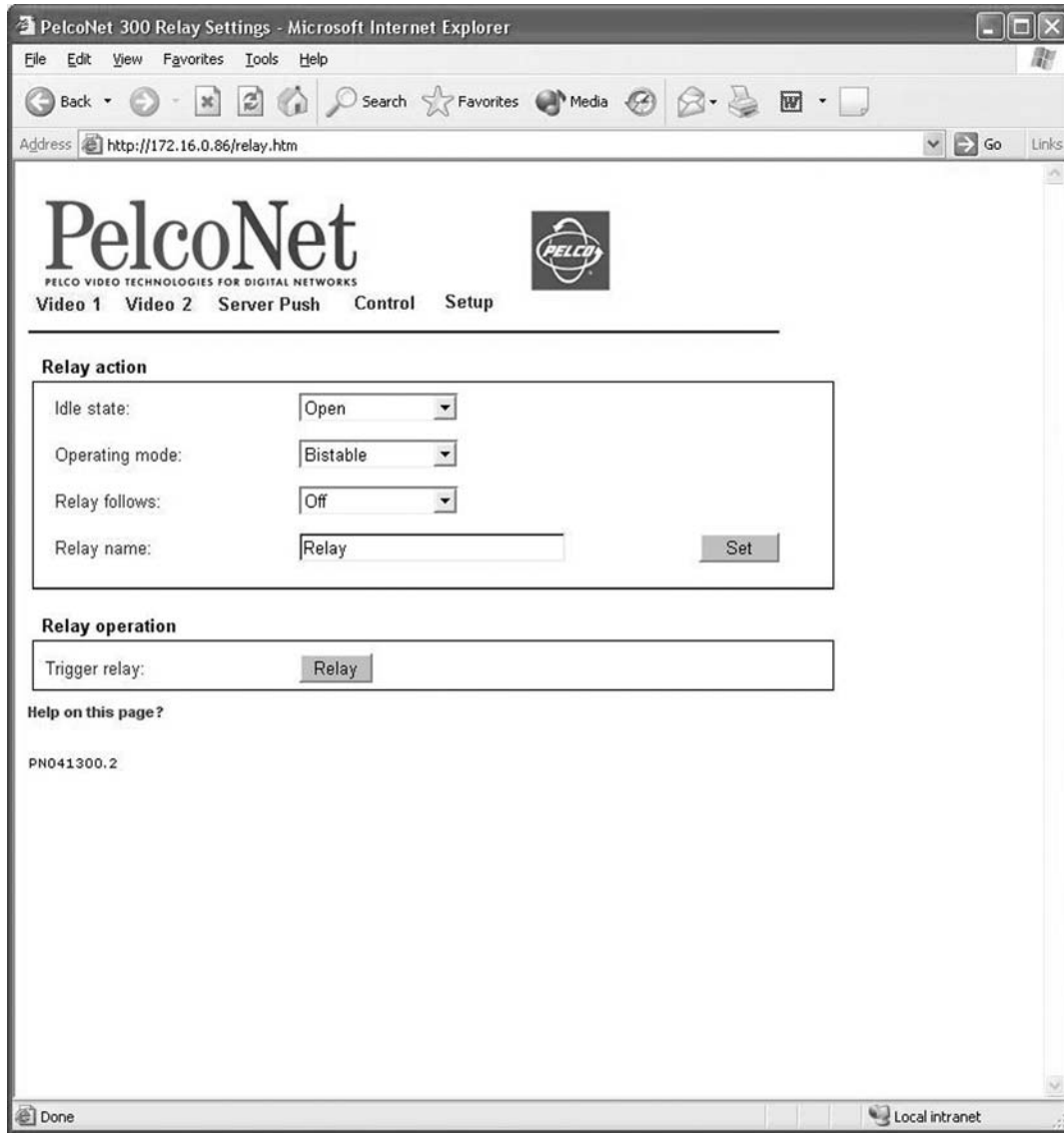

Figure 30. Configuration Page for Relay Settings

Configuration Item	Default Setting	Description
Idle state	Open	Select **Open** (N.O. at zero current) if the relay will operate as a normally open contact or **Closed** (N.C. with current) if it will operate as a normally closed contact.
Operating mode	Bistable	Select the relay's operating mode. • When you select the default **Bistable** mode, the relay will stay in the idle or active state for an indefinite period. (For example, select **Bistable** if a floodlight activated by an alarm is to remain switched on at the end of the alarm.) • When you select a time period (monostable mode), the relay automatically falls back to the idle state after a predefined period expires. (For example, select 10 s if a siren triggered by an alarm is to sound for 10 seconds.) The choices on the pull-down menu are Bistable, 0.5 s, 1 s, 2 s, 5 s, 10 s, and 60 s.
Relay follows	Off	Select from the pull-down menu an event that will activate the relay. A typical application is to have the relay follow the status of the alarm input; for example, to power peripheral equipment or even the camera itself. Select from the following: • **Off:** Relay does not operate. • **Connection:** Relay operates whenever you open live video and will turn off when you exit live video. • **Video alarm:** Relay operates when there is loss of the video signal (transmitter only). • **Motion alarm:** Relay operates when there is motion alarm (transmitter only). • **Local input 1:** Relay operates by an external alarm sensor. • **Remote input:** Relay operates by a switching contact from a remote location. • **Unified picture:** Relay operates by loss of focus on the camera (transmitter only).
Relay name	Relay 1	Enter a name for the relay that will appear on the Live page (31 alphanumeric characters maximum).
Trigger relay	N/A	Click the **Relay** button to switch the relay manually (for example, as a test or to allow a door to be opened).

CONFIGURATION PAGE FOR COM INTERFACE SETTINGS

You can use this configuration page to set the parameters of the RS232/422/485 serial interface port.

Figure 31. Configuration Page for COM Interface Settings (Transmitter Shown)

Configuration Item	Default Setting	Description
Serial port function	Terminal	Select a controllable device from the pull-down menu: Terminal, Transparent, or Pelco Prot (protocol). If the port must transmit data transparently, select **Transparent**. You can use **Pelco Prot** to send any kind of control data for a Spectra, Esprit, Genex, or a Pelco matrix.
Baud rate	19200	Use the pull-down menu to select a transmission rate from 600 to 115200 baud. Refer to Appendix A for settings.
Data bits	8	The number of data bits is set at 8 per character.
Stop bits	1	Use the pull-down menu to select the number of stop bits (1 or 2) per character. Refer to Appendix A for settings.
Parity check	None	Use the pull-down menu to select the type of parity check (None, Even, or Odd). Refer to Appendix A for settings.
Interface mode	RS232	Use the pull-down menu to select the required protocol for the port (RS232 or RS422/485). Use RS-232 for two-wire communication (TXD and RXD) and RS-422 for four wire communication (TX+, TX−, RX+, RX−). (RS-485 is not normally used except in advanced applications.)
Half-duplex mode	Off	Typically, half-duplex mode is used for transmission schemes that use one medium to both transmit and receive data. This RS-485 mode will keep the NET300 from transmitting and receiving data simultaneously. Only one function at a time is allowed. The transmitter is turned off when the device at the other end of the line will use the connection. (Refer to Table A.) Buffered mode also transfers data input to the COM port. Depending on the equipment used, the Serial Port Function field may have to be set to **Transparent** if sending any control data.
Genex protocol ID	N/A	Enter the address of the Genex unit with which you want to communicate.
Spectra/Esprit protocol ID	N/A	Enter the address of the Spectra or Esprit unit with which you want to communicate. This must match the P-protocol address of the Spectra or Esprit unit.

CONFIGURATION PAGE FOR LOCAL COM INTERFACE – KEYBOARD

You can use this configuration page to set the parameters for a local Com port so you can connect a Pelco keyboard to your computer. This lets you control a device through the keyboard; for example, a camera can be controlled from the browser with the Pelco keyboard. You can also use this feature to transmit serial data from your computer to the PelcoNet unit, or vice versa.
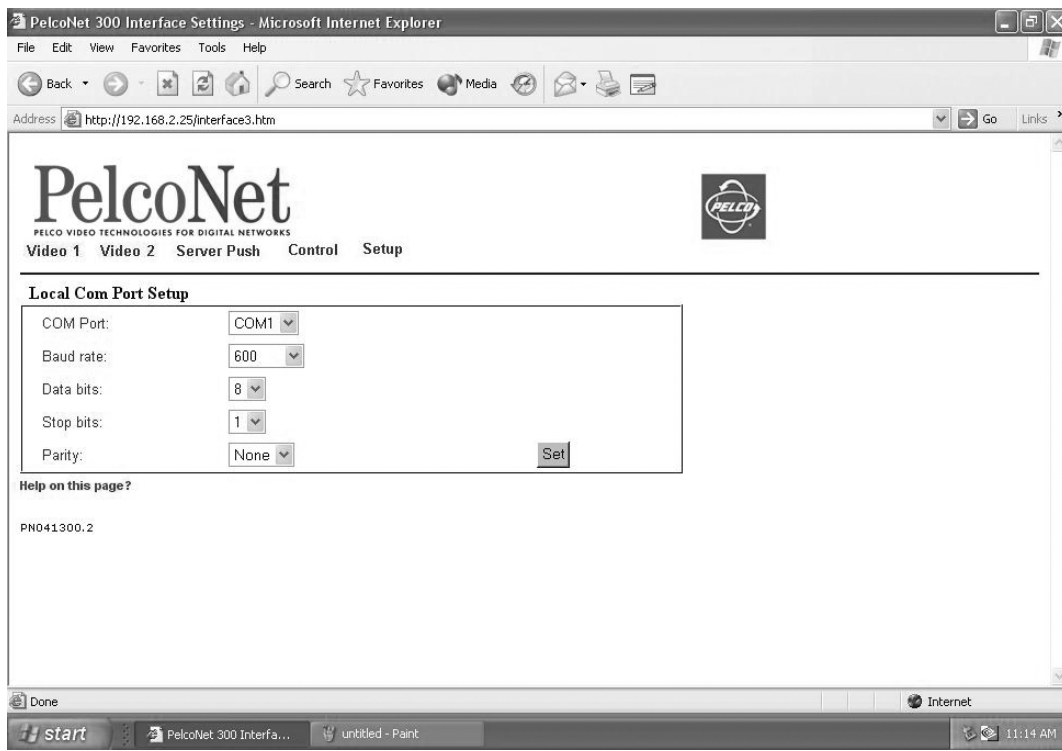
Figure 32. Configuration Page for Local Com Interface – Keyboard

Configuration Item	Default Setting	Description
COM port	COM1	Use the pull-down menu to designate a free COM port on the PC to which you will connect the Pelco keyboard.
Baud rate	600	Use the pull-down menu to select a transmission rate from 600 to 115200 baud. Refer to *Appendix A* for settings.
Data bits	8	The number of data bits is set at 8 per character.
Stop bits	1	Use the pull-down menu to select the number of stop bits (1 or 2) per character. Refer to *Appendix A* for settings.
Parity	None	Use the pull-down menu to select the type of parity check (None, Even, or Odd). Refer to *Appendix A* for settings.

To use this feature, do the following:

1. On the PelcoNet NET300 Setup Page (Figure 22), select **Local Com Interface – Keyboard**. Then select the parameters (Com port, baud rate, etc.) as listed in the table above.

2. You must also change the local PC's Com port configuration (**Start** > **Settings** > **Control Panel** > **Administrative Tools** > **Computer Management** > **Device Manager** > **Ports [COM & LPT]** > **COM1** or **COM2** [depending on the Com port to which the keyboard will be connected]). The configuration of this Com port should be the same as the configuration at the PelcoNet browser.

3. Connect the Pelco keyboard to the COM interface on your PC. This is the COM port that you designated in step 2. Refer to Figure 47 in *Appendix A* for a connection example.) If the keyboard uses RS-422/485, a converter will be required to use it on an RS-232 COM port of your computer.

4. On the PelcoNet NET300 Setup Page (Figure 22), select **Interface Settings COM1**. Use the pull-down menu to set the serial data port to **Transparent**. Also set the baud rate for the connected external device you want to control.

5. Finally, from the Device Controls page (Figure 36), select **Keyboard**. This takes you to the "Keyboard Control with live video" page (Figure 41). The COM port is open and you can send transparent data from your PC COM port to the PelcoNet COM port, and vice versa.

CONFIGURATION PAGE FOR NETWORK SETTINGS

Network and routing information make up the configuration page for network settings. These settings are used to integrate the NET300 into an existing network. The table that follows describes the configuration items.

Figure 33. Configuration Page for Network Settings (Transmitter Shown)

Configuration Item	Default Setting	Description
Unit IP address	10.0.0.1 (transmitter) or 10.0.0.2 (receiver)	Enter a unique IP address that is valid for your network. The preconfigured default IP address allows for easy configuration in closed environments. You can use a cross-over cable to connect directly to a PC. **NOTE:** Changing the IP address also affects the current browser connection. You will have to reset the NET300 and enter the new URL to regain connectivity to the unit.
Subnet mask	255.255.0.0	Enter a valid subnet mask for your network.
Gateway IP address	0.0.0.0	Enter the IP address of the router if the unit is to establish a connection outside of the localnetwork. This is typically used in a WAN environment. This field can otherwise remain empty (0.0.0.0).
Video transmission	UDP	Use the pull-down menu to select the means of transmission. Select **TCP (Port 80)** to send data through a firewall. Select **UDP** for communication between local networks.
Multicast streaming	Off	Use the pull-down menu to select MPEG-4 for multicast streaming mode. Besides a one-to-one connection between a transmitter and a receiver (unicast), the NET300 lets you connect a number of receivers to receive the video signal simultaneously. This is achieved by distributing a single data stream on the network itself to a number of receivers in a defined group (multicast). With a valid multicast group address selected in the Multicast Group IP Address field, the NET300 operates in multicast mode (data stream duplicated over the network). When multicast streaming is turned off, operation resorts to unicast mode.
Multicast group IP address	0.0.0.0	This is the multicast IP address. (Network hardware—such as switches, hubs, routers, etc.—must support the multicasting protocol, IGMP.) This field sets PelcoNet to use the multicasting protocol, which allows more efficient use of bandwidth. The IP range is 224.0.1.0 through 238.255.255.255. Some IP addresses may be reserved for system resources. Contact your network administrator for more information.
Multicast video port encoder 1	60000	Enter the port address for the video encoder 1 MPEG-4 data stream.
Multicast video port encoder 2	61000	Enter the port address for the video encoder 2 MPEG-4 data stream.
Multicast packet TTL	1	Enter the number of hops for the packet to live. TTL stands for time to live. This setting defines the lifetime of multicast packages in the network. If multicast traffic is to be transmitted over routers and switches, this setting is important in adjusting the lifetime of the package to the requirements of the network.

CONFIGURATION USING A TERMINAL PROGRAM

Using a terminal program (for example, the Windows application HyperTerminal) on a computer connected to the RS232/422/485 port on the NET300 provides limited configuration and control capabilities.

Do the following:

1. In the terminal program on your PC, ensure that the PC's COM port is set up properly (default properties are 19200 baud, 8 bits, no parity, 1 stop bit, and no flow control) and that the local terminal echo is disabled.

2. Isolate the NET300 from the network.

3. Connect the RS232/422/485 port on the NET300 to an unused serial port on the PC (null modem required).

4. After the connection is made, you will be prompted for the case-sensitive user name. (Press Enter if the prompt does not appear automatically.) The factory default is **service**.

5. All commands consist of single characters you type inside the terminal window. Enter only one command at a time and do not terminate this input by pressing the Enter key. After entering a value (for example, an IP address), check the entered characters again and only then press Enter to transmit the values to the NET300.

The following shows a typical session.

TYPICAL SESSION

The terminal program main menu appears in the terminal window as shown below.

'v'	video
'i'	IP
'r'	RCP+
'm'	misc
'?'	This Menu
'q'	exit/logout

NOTE: You cannot use backspace during a terminal session—if you mistype a character, end your entry by pressing Enter and try again. If you see duplicate characters on any entry, the "local echo" feature of your PC's terminal program is not disabled.

If you are using the terminal to set up the unit's IP address, just type **i** and then **i** again. You are prompted to enter a new IP address. Do so and press Enter.

If you want to establish a live video connection to a remote unit, you have to specify the remote IP address by typing **r** and then entering the remote IP address.

To establish a connection, go to the main menu, then type **r**, then type **e**, and then select either video 1 or video 2. To disconnect, type **2** in the same menu.

TERMINAL PROGRAM TRANSMITTER MENU STRUCTURE

The following describes the terminal program transmitter menu structure. The menu items and commands are enclosed in single quotation marks. Do not enter the quotation marks. Information and current settings are displayed to the right of the commands. Refer to the *Command Reference* section for descriptions of the commands.

Main Menu

'v'	video
'i'	IP
'r'	RCP+
'm'	misc
'?'	This Menu
'q'	exit/logout

v – Video Menu

'e'	Encoder Settings	
't'	set video input termination	1(1)
'a'	adapt std res (e.g., CIF) to NTSC:	1
'x'	Leave this Menu	
'?'	This Menu	

e – Encoder Settings Submenu

'e'	Select Encoder	1
'p'	Parameter set:	1
'n'	Parameter set name:	
'k'	min frame dist [1…]:	1
'r'	Encoder Bitrate [kBit]:	5000
'Q'	I Quantizer:	8
'q'	P Quantizer:	8
'i'	I frame distance:	0
'u'	I update distance:	132
's'	frame size (res):	3
'w'	custom width:	432
'h'	custom height:	288
'd'	reset to default	
'x'	Leave this Menu	
'?'	This Menu	

t – Set Video Input Termination Submenu

Set video input termination: (0: no termination, 1: termination)

a – Adapt Standard Resolutions Submenu

Adapt standard resolutions (e.g., CIF) to NTSC?   (0: no, 1: yes)

i – IP Menu

An asterisk (*) means a reset of the NET300 is necessary after a change. Reset by cycling the power.

'i'	(*) local IP	10.0.0.1
's'	(*) local subnet mask	255.255.255.0
'g'	(*) local gateway	0.0.0.0
'r'	remote IP	0.0.0.0
	Mac Address	00-07-5f-50-00-11
'a'	Auto Connect	Off
'm'	Set HD/FD 10/100 auto mode	
'p'	Ping remote IP	0.0.0.0
'l'	RTP Packet Loss Stats	
'x'	Leave this Menu	
'?'	This Menu	

r – RCP+ Menu

'e'	Local video coder number	1
'D'	Remote video decoder number	1
'c'	Display connection list	
'1'	Connect to Alarm IP	0.0.0.0
'2'	Disconnect this Connection	
'3'	Disconnect all Connections	
'5'	Join Stream	0.0.0.0
'x'	Leave this Menu	
'?' This Menu		

m – Misc Menu

'v'	Get Version Info	
'x'	Leave this Menu	
'?'	This Menu	

TERMINAL PROGRAM RECEIVER MENU STRUCTURE

The following describes the terminal program receiver menu structure. The menu items and commands are enclosed in single quotation marks. Do not enter the quotation marks. Information and current settings are displayed to the right of the commands. Refer to the *Command Reference* section for descriptions of the commands.

Main Menu

'i'	IP
'r'	RCP+
'm'	misc
'?'	This Menu
'q'	exit/logout

i – IP Menu

An asterisk (*) means a reset of the NET300 is necessary after a change. Reset by cycling the power.

'i'	(*) local IP	10.0.0.2
's'	(*) local subnet mask	255.255.255.0
'g'	(*) local gateway	0.0.0.0
'r'	remote IP	0.0.0.0
	Mac Address	00-07-5f-50-00-06
'a'	Auto Connect	Off
'm'	Set HD/FD 10/100 auto mode	
'p'	Ping remote IP	0.0.0.0
'l'	RTP Packet Loss Stats	
'x'	Leave this Menu	
'?'	This Menu	

r – RCP+ Menu

'E'	Local video coder number	1
'd'	Remote video decoder number	1
'c'	Display connection list	
'1'	Connect to Alarm IP	0.0.0.0
'2'	Disconnect this Connection	
'3'	Disconnect all Connections	
'5'	Join Stream	0.0.0.0
'x'	Leave this Menu	
'?'	This Menu	

m – Misc Menu

'v'	Get Version Info	
'x'	Leave this Menu	
'?'	This Menu	

COMMAND REFERENCE

The following table gives an overview of the available commands.

Table B. Terminal Command Reference

| Cmd	Description
?	This command redisplays (refreshes) the current menu.
1	Use this command to connect to the receiver in a box-to-box setup.
2	Use this command to sever this connection to the unit.
3	Use this command to sever all connections to the unit.
5	Use this command to join the stream of video from the NET300 transmitter. It establishes a physical box-to-box connection.
a	**(IP menu)** Use this command to toggle auto-connect on/off. The default is off.
a	**(Video menu)** Enter **0** (no) or **1** (yes) to indicate whether to adapt standard resolutions to NTSC (for example, CIF to NTSC).
c	Use this command to display a list of physical network connections. This can be through Internet Explorer or a box-to-box connection.
d	**(Encoder transmitter menu only)** This command returns the settings on this menu to factory defaults.
d	(Receiver only) **(RCP+ menu)** Use this command to select to which decoder a connection to the encoder should be established.
D	(Transmitter only) **(RCP+ menu)** Use this command to select to which decoder a connection to the encoder should be established.
e	(Transmitter only.) Use this command to select the video you wish to configure or for which you wish to see information. Enter 1 or 2.
E	(Receiver only) **(RCP+ menu)** Use this command to select to which encoder a connection to the decoder should be established.
g	Use this command to enter a new gateway IP address. Type a new gateway address, and then press Enter.
h	This command lets you set custom resolution (height: 128 to 240).
i	**(Encoder submenu)** Use this command to change the size of the frames within the video stream.
i	**(IP menu)** Use this command to enter a new IP address that PelcoNet will be using on the network. Type the new IP address, and then press Enter.
k	Use this command to set minimum frame distance.
l	Use this command to show, and reset, the RTP packet loss statistics.
m	Use this command to select the Ethernet link mode.
n	Use this command to name the encoder presets. Type in the name and press Enter. (Name appears in Internet Explorer.)
p	**(Encoder submenu)** Enter a number (1–8) that corresponds to a predefined profile. For example, 1 corresponds to "high quality (CIF)."
p	**(IP menu)** Use this command to see if a unit can be reached. This pings the IP set in the 'r' menu (remote IP). The unit will respond if it can be reached, or the ping command will time out if it cannot be reached.
q	Use this command to adjust the value between frame quality and data rate. Enter a value between 1 and 31. Value 1 has highest I-frame quality with a higher bandwidth while value 31 has lower quality and less bandwidth.
Q	Use this command to adjust the value between video quality and the image frame rate. Enter a value between 1 and 31. Value 1 has the highest quality with a lower video frame rate while value 31 is a maximum frame rate at lower quality.
r	**(Encoder submenu)** Use this command to designate the data rate. Enter the data rate figure.
r	**(IP menu)** Use this command to connect to a remote IP. Type the IP address, and then press Enter.
s	**(Encoder submenu)** Enter a number to designate the frame resolution. Enter 2 for QCIF, 3 for CIF, or 6 for 2CIF.
s	**(IP menu)** Use this command to enter a new subnet mask. Type the new subnet mask, and then press Enter.
u	Use this command to set the I-frame update distance.
v	Displays version information for the unit.
w	This command lets you set custom resolution (width: 176 to 704).
x	Exits this menu.

Operation

LIVE VIDEO AND SERVER PUSH VIDEO PAGES

The Live Video pages show a real-time picture of a camera view with update rates and image quality similar to a box-to-box configuration. It can be configured for bandwidth use and for various image quality settings. (Live video is accessible only through a NET300 transmitter and not through a NET300 receiver.) The Server Push pages show still pictures that are updated periodically, and image quality is fixed.

These six indicators are located at the top of the live video and live video control pages.

Table C. Live Video Page Indicators

Indicator	Description
MPEG-4	Indicates that live viewing is in MPEG-4 format.
M (motion detector)	When motion alarm is triggered, this indicator turns red while the alarm is activated.
V (video alarm)	When the video loss alarm is triggered, this indicator turns red until the video returns.
I (input activation)	(Alarm 1) When triggered, this indicator turns red. The name assigned to this trigger and its duration and how it reacts can be assigned on the Alarm page.
I (input activation)	(Alarm 2) Same as alarm 1.
R (relay activation)	When triggered, this indicator turns red. The name assigned to this trigger and how it reacts can be assigned on the Relay page.
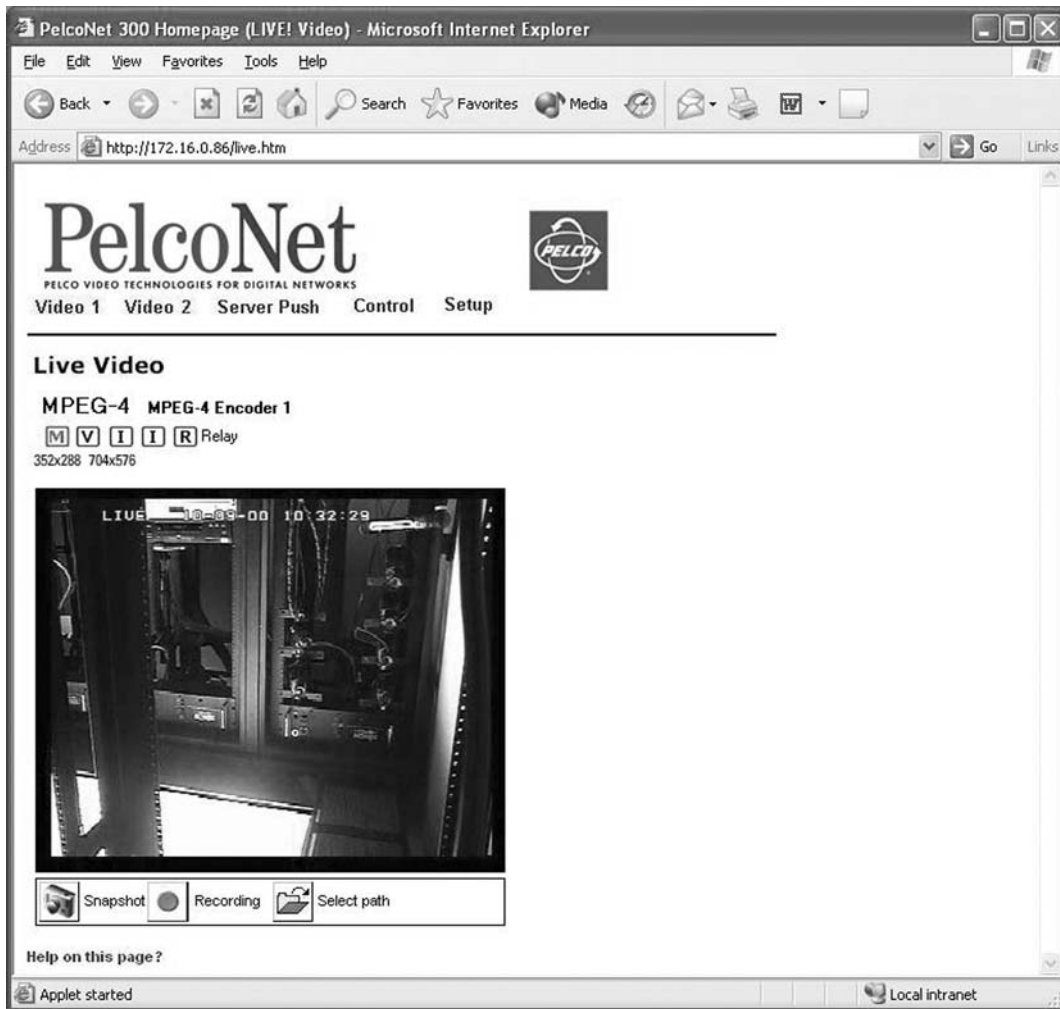
Figure 34. Live Video and Server Push Pages (Transmitter Shown)

1. To access the PelcoNet NET300 transmission system home page, you must first connect to the Internet/intranet network and open Internet Explorer (the browser).

2. Then, enter the IP address in the address box. The home page appears.

3. Click either **Video 1** or **Video 2** or **Server Push** on the home page.

To exit any page, click an option at the top of the page.

The program displays dialog boxes when you try to view live video under any of the following conditions:

• With a browser other than Internet Explorer

• Without first installing ActiveX platform

• When your computer display is not set for 16- or 32-bit color

   To change: right click the desktop, and then click **Properties**, the **Settings** tab, and select **High Color [16 bit]** or **True Color [32 bit]**. For NT, select **65536 Colors**.

NOTE: Do not change the video properties while viewing live video. You may get a gray background if you do.

• When Microsoft Virtual Machine is not enabled.

   To enable: on the Tools menu select **Internet Options**, select the **Advanced** tab, locate **Microsoft VM**, checkmark **Java Console Enabled** and **JIT compiler for virtual machine enabled**. Reboot your PC.

With any of these conditions, you can only view the video as a series of still images.

DISPLAYING VIDEO ON A WEB BROWSER

The NET300 uses MPEG-4 for transmitting video across the network. This enables transmission to standard web browsers of either live video (Video 1 or 2 mode) or a stream of still images (Server Push mode).

- To activate the live video feature, click either **Video 1** or **Video 2** above the video window on the PelcoNet NET300 transmission system home page (refer to Figure 35). The unit transmits using MPEG-4 format for display in the browser.

    To stop live video, click any other option at the top of the page.

- To activate the Server Push feature, click **Server Push** above the video window on the home page. The unit continuously grabs snapshots to be JPEG encoded, transferred, and displayed continuously by the browser.

    To stop Server Push, click any other option at the top of the page.

The PelcoNet NET300 transmission system can display live video to a maximum of 25 users at a time (multicasting).

Server Push can support multiple users simultaneously on the same transmitter. Image quality is good with an update rate of one image about every 2 to 10 seconds depending on the number of users and available bandwidth.

Browsers that do not support live video technology can display an updated still image or a stream of images in Server Push mode.
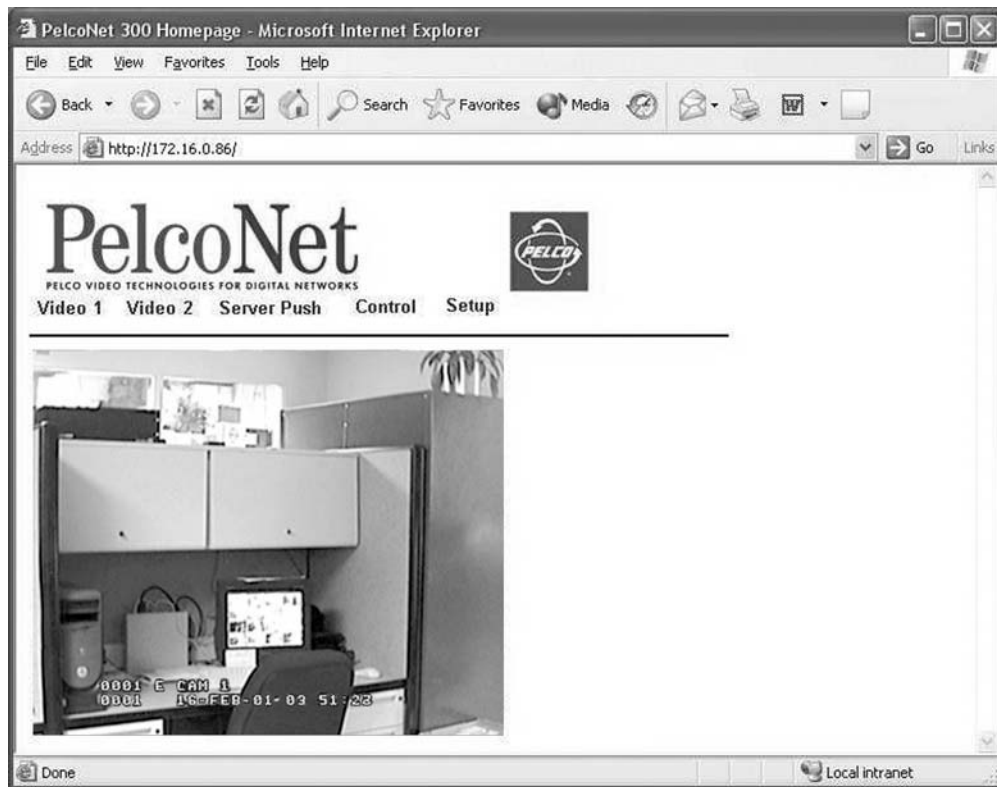

Figure 35. PelcoNet NET300 Home Page (Transmitter Shown)

WEB BROWSER CONTROL PAGES

These pages let you control certain Pelco equipment at your computer through a NET300 transmitter (not through a NET300 receiver). Matrices supported include CM9700, CM6700, and CM6800.

1. To access the PelcoNet NET300 transmission system home page, you must first connect to the Internet/intranet network and open Internet Explorer (the browser).

2. Then, enter the IP address in the address box. The home page appears.

3. Click **Control** to access the Device Controls page.

4. The Device Controls page has underlined links to the control pages. To access, click one.
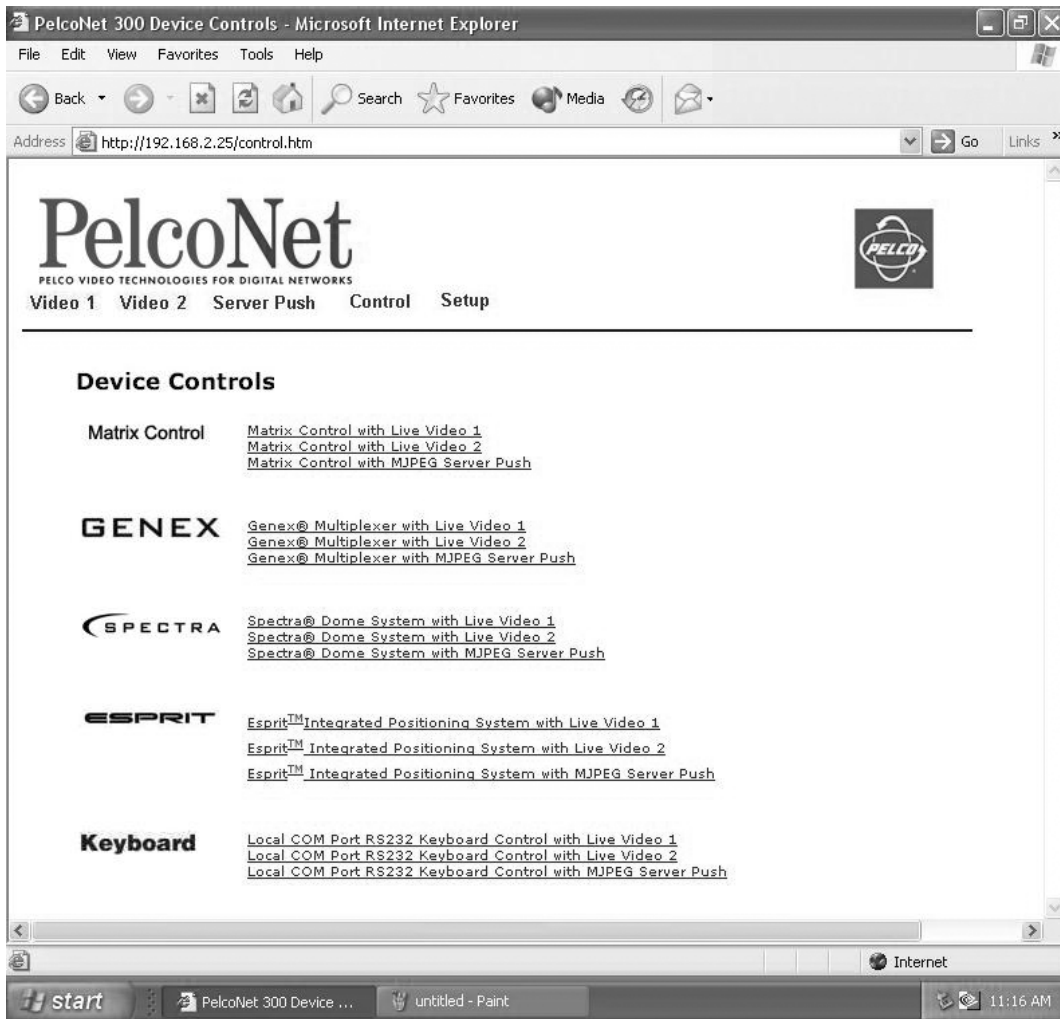
Figure 36. Device Controls Page (Transmitter Only)

The live video control pages include representations of keys that let you control various functions (in addition to showing the camera display). Use the mouse pointer and click the left mouse button to enable options and operate controls on the screen. Click outside the options to disable a radio button or selection button.

Live video pages let you choose the size of the video viewing area. Click either **352x288** (small) or **704x576 (**large) in the Resize Video field. Live video pages also let you record and play back camera views on a PC's hard drive. Refer to the Recording and Playing Back the Display on a PC section for details.

Server push page displays are similar to live video page displays except the server push page lacks the live page indicators at the top of the page and the recording buttons below the picture.

MATRIX LIVE VIDEO/SERVER PUSH PAGE CONTENTS
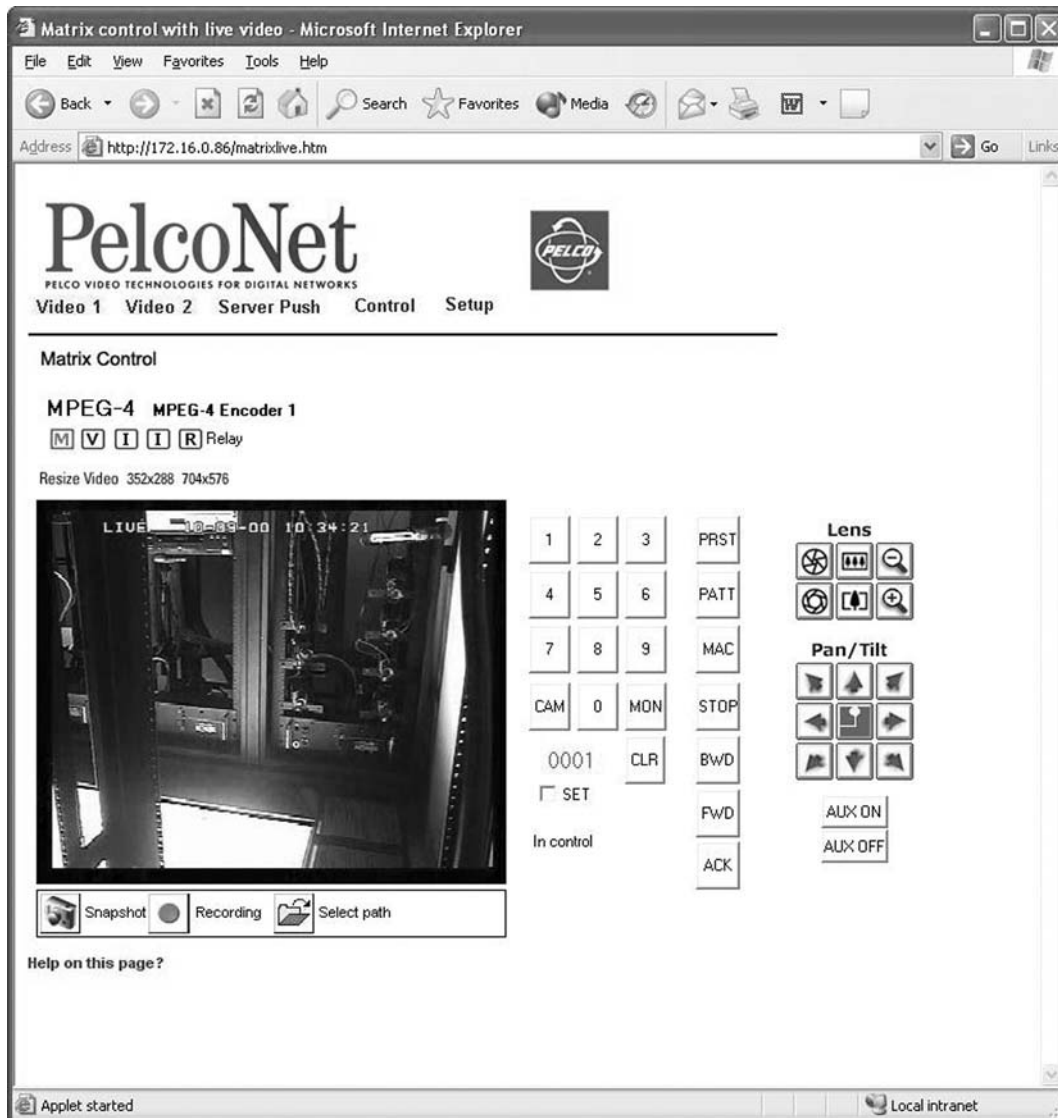
Figure 37. Matrix Control Page (Live Video Page Shown; Transmitter Only)

The Matrix Control pages contain the following:

• Live video indicators (live video page only)

• Ten numbered buttons

• CAM (camera) button to select a camera

• MON (monitor) button to select a monitor

• CLR (clear) button to cancel an entered number

• PRST (preset) button to select a preset

• PATT (pattern) button to select a pattern

• MAC (macro) button to select a group camera sequence (not supported for the CM6700)

• STOP button (not functional)

• BWD (backward) button to scroll through the cameras in reverse order

• FWD (forward) button to scroll through the cameras in forward order

- AUX ON button to activate an auxiliary

- AUX OFF button to deactivate an auxiliary

- ACK button to close a message when programming a pattern on the **CM6700 only**

- SET check box to use in programming presets and patterns

The following are arrayed under "Lens":
- Iris open and close buttons

- Focus far and near buttons

- Zoom out and in buttons

The following are arrayed under "Pan/Tilt":
- Eight direction arrow buttons

- Home button in the center to return the camera to its home position (preset 1)

"In Control" or "No Control" indicates whether you have control of the camera. Recording control buttons are beneath the picture (live video page only).

On the Matrix live video control page, you can control the following:
- **Monitor**—To select a monitor: enter the monitor number and then click **MON**. (You must select the monitor that feeds the camera input of the PelcoNet transmitter.)

- **Camera**—To select a camera: enter the camera number (1–16) and then click **CAM**.

- **Presets**—To program a preset: set the image using the arrow keys, click **SET**, enter a preset number, and then click **PRST**. To activate a preset, enter the preset number (1–66) and then click **PRST**. (You must click the **CLR** button before activating another preset.) Performing any PTZ stops a scan preset.

- **Patterns**—To program a pattern: click **SET**, click **PATT**, run your pattern using the arrow keys, and then click **PATT** again when you are finished. (The CM6700 does not support programming of a pattern from the browser.) To run a pattern, click **PATT**. To halt, click a pan and tilt button, call a preset, or click **STOP**. (Clicking **STOP** will not halt a pattern on the CM6700 and CM6800.)

📋 **NOTE:** For the CM6700 only, click the **ACK** button to close the message "Send Pattern End Command to Exit" when it appears.
- **Programming Menus**—To access the programming menus: click **9**, **5**, and then **PRST**.

- **Macros**—To start a macro: enter **1** or **2** and click **MAC**. To stop a macro, click a pan and tilt button.

- **Auxiliaries**—To turn on an auxiliary: enter the auxiliary number and then click **AUX ON.** To turn off, enter the auxiliary number and then click **AUX OFF.**

📋 **NOTE:** The CM6700 programming menu is not supported.

GENEX LIVE VIDEO/SERVER PUSH PAGE CONTENTS
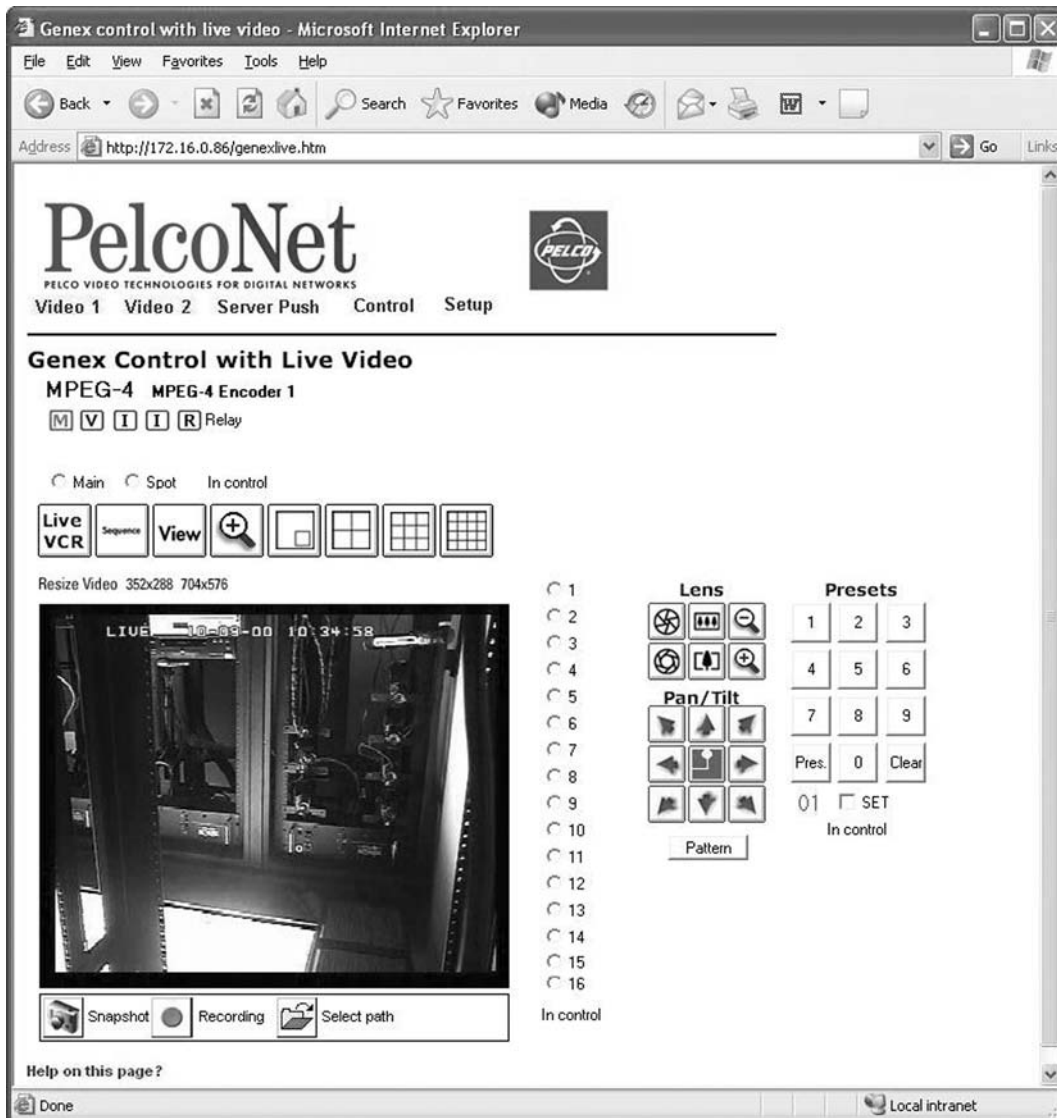
Figure 38. Genex Control Page (Live Video Page Shown; Transmitter Only)

The Genex pages contain the following across the top of the page:

• Live video indicators (live video page only)

• Main and Spot monitor selection radio buttons

• A LIVE/VCR button to toggle main monitor display between live input and playback from a VCR

• A Sequence button to activate a group camera sequence

• A View button to show in Live mode the multiplexed output from the VCR and in VCR mode to show the multiplexed input from the VCR

• A zoom button

• A picture-in-picture button

• Buttons for 4-, 9-, and 16-screen display

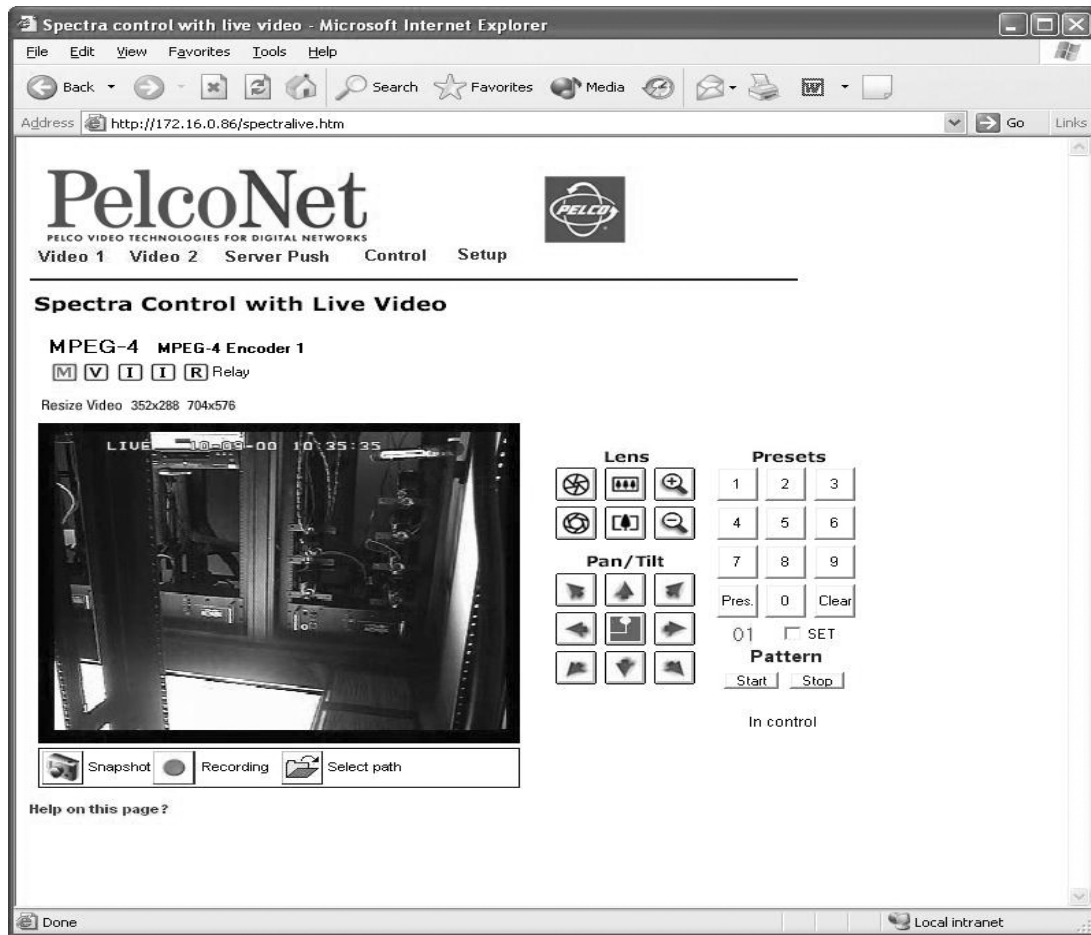The following are arrayed down the right side of the page:

- Radio buttons for 16 cameras

- Iris open and close buttons

- Focus far and near buttons

- Zoom out and in buttons

- Eight direction arrow buttons with a home button in the center to return the camera to its home position (preset 1)

- Ten numbered buttons to use with the Pres and Pattern buttons to activate a preset and run patterns

- A SET check box to use in programming presets and patterns

- A Pattern button to run a pattern for each camera

"In Control" or "No Control" below the buttons indicates whether you have control of the camera. Recording control buttons are beneath the picture (live video page only).

On the Genex live control page, you can control the following:

- **Monitor**—To select a monitor: click either the **Main** or **Spot** radio button.

- **Camera**—To select a camera: click one of the 16 camera radio buttons.

- **Presets**—To program a preset: set the image using the arrow keys, click **SET**, enter a preset number, and then click **Pres**. To activate a preset, enter the preset number and click **Pres.** (You must click the **Clear** button before activating another preset.) Performing any PTZ stops a scan preset.

- **Patterns**—To program a pattern: click **SET**, click **Pattern**, run your pattern using the arrow keys, and then click **Pattern** again when you are finished. To run a pattern, click **Pattern**. (You can run only the first programmed pattern.) To stop a pattern: click **96** and then click **Pres**.

- **Sequence**—To activate a group camera sequence: click **Sequence**.

SPECTRA LIVE VIDEO/SERVER PUSH PAGE CONTENTS

Figure 39. Spectra Control Page (Live Video Page Shown; Transmitter Only)

The Spectra page contains the following at the top of the page:
• Live video indicators (live video page only)

The following are arrayed down the right side under "Lens":

• Iris open and close buttons

• Focus far and near buttons

• Zoom out and in buttons

The following are arrayed under "Pan/Tilt":

• Eight direction arrow buttons

• Home button in the center to return the camera to its home position (preset 1)

The following are arrayed under "Presets":

- Ten numbered preset buttons

- Pres (preset) button

- Clear button

- A SET check box

The following are arrayed under "Pattern":

- A Start pattern button

- A Stop pattern button

"In Control" or "No Control" indicates whether you have control of the camera. Recording control buttons are beneath the picture (live video page only).

On the Spectra live video control page, you can control the following:

- **Presets**—To program a preset: set the image using the arrow keys, click—**SET**, enter a preset number, and then click **Pres**. To activate a preset: enter a preset number and click the **Pres** button. Performing any PTZ stops a scan preset.

- **Patterns**—You can program and run only one pattern through PelcoNet. To program a pattern: click **SET**, click **Start**, run your pattern using the arrow keys, and then click **Stop**. To operate a pattern: click **Start** to begin the pattern and **Stop** to halt.

- **Programming Menus**—To access the programming menus: enter **95**, click **Pres**. Use the open iris icon to open menus and arrow keys to navigate and set options. Use the open iris icon in conjunction with the **Exit** option to move backward through menu layers and to exit programming mode.

NOTE: You can program presets and patterns for Spectra III either from inside the camera menu or through a controller. With Spectra II you can program presets and patterns through a controller or through the browser.

ESPRIT LIVE VIDEO/SERVER PUSH PAGE CONTENTS
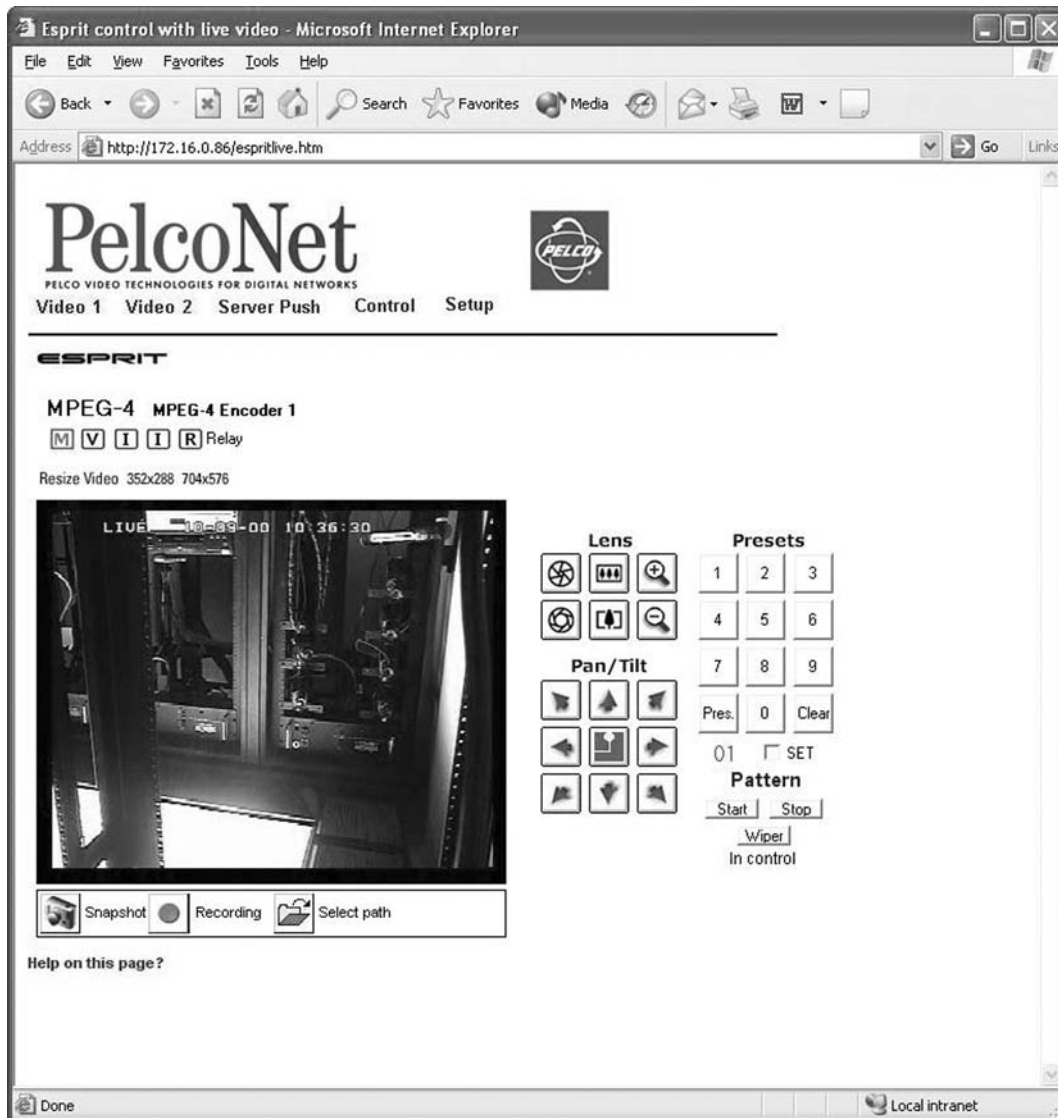
Figure 40. Esprit Control Page (Live Video Page Shown; Transmitter Only)

The Esprit page contains the following at the top of the page:

• Live video indicators (live video page only)

The following are arrayed down the right side under "Lens":

• Iris open and close buttons

• Focus far and near buttons

• Zoom out and in buttons

The following are arrayed under "Pan/Tilt":

• Eight direction arrow buttons

• Home button in the center to return the camera to its home position (preset 1)

The following are arrayed under "Presets":
- Ten numbered preset buttons
- Pres (preset) button
- Clear button
- A SET check box

The following are arrayed under "Pattern":
- A Start pattern button
- A Stop pattern button
- A Wiper button

"In Control" or "No Control" indicates whether you have control of the camera. Recording controls buttons are beneath the picture (live video page only).

On the Esprit live video control page, you can control the following:

- **Presets**—To program a preset: set the image using the arrow keys, click **SET**, enter a preset number, and then click **Pres**. To activate a preset: click a preset number button, and then click **Pres**. (You must click the **Clear** button before activating another preset.) Performing any PTZ stops a scan preset.

- **Patterns**—You can program and run only one pattern through PelcoNet. To program a pattern: click **SET**, click **Start**, run your pattern using the arrow keys, and then click **Stop**. To operate a pattern: click **Start** to begin the pattern and **Stop** to halt.

- **Programming Menus**—To access the programming menus: enter **95** and click **Pres**. Use the open iris icon to open menus and arrow keys to navigate and set options. Use the open iris icon in conjunction with the **Exit** option to move backward through menu layers and to exit programming mode.

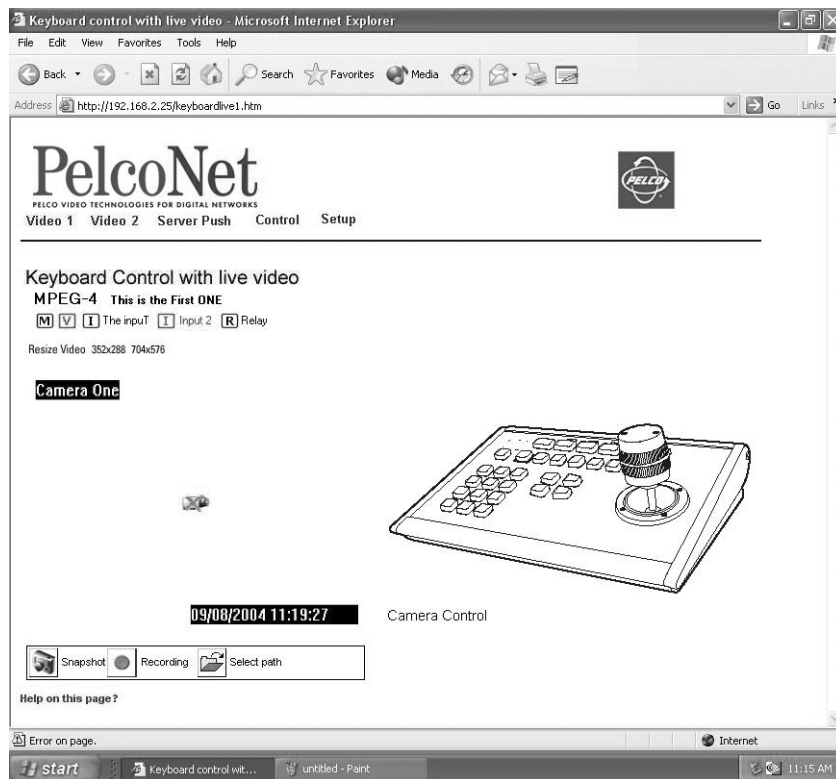## KEYBOARD LIVE VIDEO/SERVER PUSH PAGE CONTENTS

Figure 41. Keyboard Control Page (Live Video Page Shown)

The Keyboard page lets you control a camera through a Pelco keyboard rather than through a PC's keyboard. The Keyboard page contains live video indicators (live video page only) at the top of the page. Recording control buttons are beneath the picture (live video page only). The hard disk icon (when showing) indicates that a compact flash drive is connected.

RECORDING AND VIEWING THE DISPLAY ON A PC

Video 1 and 2 and live video control pages let you keep snapshots (still pictures) and record the camera video display on a PC's hard drive and play it back later. The file is recorded on the hard drive of the PC on which you are viewing the picture. The controls are a row of buttons beneath the screen.

NOTE: When video files are saved, an extra file (.ind extension) is created that lets you see the video in Pelco's MPEG Viewer. If you delete this file, you cannot view the saved .mp4 file.

CHOOSING WHERE TO STORE THE FILE

The program automatically saves snapshots and video recording files at C:\ on the hard drive of the PC on which you are viewing the picture unless you tell it otherwise. If you want to store files in a different location on the PC, you need to first specify that location. To do so:

1. On the Home page, click either **Control** (and then click one of the underlined links to a live video control page) or **Video 1** or **Video 2**.

2. Click the **Select path** icon (open folder) beneath the picture. (Click the icon just once. Double-clicking may cause display problems with the select path window.)

3. The program opens the "Path for saving MPEG/JPEG files" screen. Do not specify a file name (leave blank), just navigate to the location where you want the file stored and then click the **Save** button.

The file of any snapshot or video you record will be saved to that location.

RECORDING A SNAPSHOT FROM VIDEO

You can record a snapshot from the Video 1 or 2 pages or from the live video Matrix, Genex, Spectra, or Esprit control pages. The file is recorded on the PC on which you are viewing the picture. To do so:

1. On the Home page, click either **Control** (and then click one of the underlined links to a live video control page) or **Video 1** or **Video 2**.

2. Position the camera as desired (if it has PTZ capability).

3. Click the **Snapshot** icon (camera) to record a still picture. The snapshot is saved on the PC's hard drive with a .jpg extension.

VIEWING A SNAPSHOT

You can view a snapshot by double-clicking the desired file (.jpg extension) in Windows Explorer.

RECORDING THE VIDEO DISPLAY ONTO THE PC

You can record the camera display from the Video 1 or 2 pages or from the live video Matrix, Genex, Spectra, and Esprit control pages. The file is recorded on the PC on which you are viewing the picture. To do so:

1. On the Home page, click either **Control** (and then click one of the underline links to a live video control page) or **Video 1** or **Video 2**.

2. Position the camera as desired (if it has PTZ capability).

3. Click the **Recording** icon (red dot button) to begin recording. The button flashes while recording is happening. (Note that recording stops if you exit the page.)

4. Click the **Recording** button again to stop recording. The recording is saved on the PC's hard drive with an .mp4 extension.

VIEWING THE VIDEO DISPLAY

The video file is identified by date and time. View the video display using the MPEGViewer program included on the PelcoNet Resource CD. Do the following:

1. Locate the **MPEGViewer.exe** file (either on the resource CD or the PC) or MPEG Viewer shortcut on the desktop if you used the installation program on the CD. Double-click the file. The viewer opens.
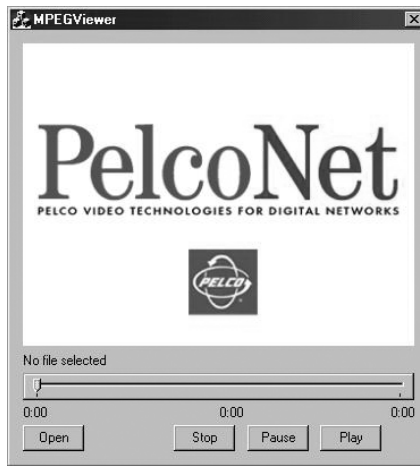
Figure 42. Viewer Screen

2. Click the **Open** button. A browse dialog box opens. Navigate to the recorded file (.mp4 extension) you want to view. Click the file to highlight it, and then click **Open**.

3. Click **Play** on the viewer to begin playback. The start and end locations are shown below the slide control. A counter marks your location in the file.

4. Use the **Pause** button to temporarily halt playback. You can change your location in the file by moving the pointer on the slide control. Click **Play** to resume playback.

5. Click **Stop** to halt playback.

NOTE: When video files are saved, an extra file (.ind extension) is created that lets you see the video in Pelco's MPEG Viewer. If you delete this file, you cannot view the saved .mp4 file.

Software Upload

Units have flash EPROMs for software upgrades in the field. These upgrades can be done directly from the web browser. To do so:

1. Obtain the latest PelcoNet NET300 transmission system software from Pelco (http://pelco.com).

2. Use the browser to select the General Settings configuration page of your unit.

3. Use the **Browse** button in the **Software upload** field to select the correct new firmware file.

4. Click the **Upload** button. The **Upload progress** field shows how the upload is proceeding.

    After about 30 seconds you should get a feedback message from the connected unit. The message "Upload Complete – WAIT" confirms the correct upload of the new firmware, which is now being installed. If you try to upload an invalid firmware file, you will get the message "Upload Failed."

    ⚠ **WARNING:** Do not disconnect power to the unit for any reason while firmware is being installed. Disrupting the cycle will damage the flash EPROM. If this occurs, you will have to return the unit for repair.

    The unit automatically restarts when a successful upload is completed.

    However, if the LED flashes green/red alternately on conclusion, the upload has been unsuccessful and must be restarted. To do so: in the browser's address field after the unit's IP address, enter **/main.htm**. For example, 192.168.0.12/main.htm. Restart the upload process.

5. If you revisit the General Settings configuration page after the firmware is uploaded successfully, you will see the message "New Firmware Installed."

Resetting the NET300

To reset the unit, type a forward slash (/) and **reset** at the end of the unit's address in the Internet Explorer browser address window, and then press Enter.

Troubleshooting

If the following instructions fail to solve your problem, contact Pelco Technical Support at 1-800-289-9100 for help. You should have the serial number from the bottom of the unit and the firmware version ready in case they are needed.

Do not try to repair a unit yourself. Opening it immediately voids any warranty. Leave maintenance and repairs to qualified technical personnel. Swap a defective unit with a replacement unit and return the defective one for repair.

TERMINAL PROGRAM

If the terminal program fails to connect to the unit's terminal port, check the following:

*   Is the right COM port interface on the PC selected for the terminal program, and are the settings correct? Program default settings are 19200 kb/s, 8 data bits, no parity, 1 stop bit (8N1) and no flow control for the terminal program.

*   If the data exchange between the terminal program and the system still does not work, check the serial cable. Does the system answer when you press Enter on your keyboard?

*   Disable the local echo if you see duplicate characters on your screen.

TROUBLESHOOTING A TCP/IP NETWORK USING A PING UTILITY

(Enter the appropriate information where indicated by the quotation marks. Do not enter the quotation marks.)

To see if a unit in your network can be reached, try to ping your unit by typing the following command in a DOS window:

> c:\ping 'unit IP address'

If it is reached, there will be a response like the following:

> Reply from <IP address>: bytes=32 time=NN ms TTL=xxx

If the LAN is malfunctioning, the ping command will time out. If so, you could have one of the following problems:

*   Wrong physical connections. Make sure the LAN link LED is on.

*   Wrong network connection. Verify the IP address is entered correctly and that subnet mask and gateway address are set properly.

Otherwise, ask your network administrator.

NOTE: The error message "Destination Host Unreachable" means the ping command was not sent from your computer because the address you are trying to ping is not in the same IP subnet as your computer.

For example, if your computer's IP address is 192.168.0.12 and your PelcoNet unit's IP address is 192.168.0.18 and you are using a subnet mask of 255.255.255.0, then there is no problem and you will not get the error message.

However, using a subnet mask of 255.255.255.248 creates 32 subnets each of which has 6 usable IP addresses. So, now the client PC is in a subnet that has usable addresses from 192.168.0.9 to 192.168.0.15 and the PelcoNet is in a subnet that has usable addresses from 192.168.0.17 to 192.168.0.23. Computers in the first subnet cannot communicate with the PelcoNet in the second (unless there is a gateway/router/bridge to route traffic from one subnet to the other).

TROUBLESHOOTING CONNECTION PROBLEMS

If you fail to connect to a system from a NET300 receiver, check the following to pinpoint the problem:

*   Do not connect two units of the same type (for example, receiver to receiver).

*   Make sure network connectivity is available (for example, by using the ping command as described previously).

*   Does the power LED flash?

    If flashing, the units are connected. Verify how much bandwidth your connection has available and ensure the bandwidth specified in the Datarate field on the MPEG-4 Video Settings page does not exceed the available bandwidth.

    If the power LED does not flash, verify that the Live Video Auto-Connect feature is set up correctly. Also, set the Video Transmission field on the Network Settings page to "TCP (port 80)."

TROUBLESHOOTING THE VIDEO CONNECTION

If no video or a distorted video image is displayed at the receiver during a connection to a transmitter:

• Make sure to use the right unit for your application: a camera can only be connected to a transmitter, <u>never</u> to a receiver.

• Make sure the video input on the transmitter is properly terminated.

• Make sure the camera is switched on and the coaxial cable is connected to the transmitter.

• Check the camera cable and connect a video monitor to the camera to check that the camera is functioning correctly.

• Make sure the monitor is switched on and the coaxial cable is connected to the NET300 receiver.

• Check the monitor cable and the selection of the monitor channel if the monitor features more than one video channel.

• (NET300R unit only.) Make sure the Output Standard field on the Video Decoder Settings page is set for the TV signal used in your region (NTSC or PAL). Restart the receiver if you have to change this field.

Specifications

NETWORK PROTOCOL & STANDARDS COMPATIBILITY

Network Protocols:	RTP, RTCP, UDP, TCP, IP, HTTP, SNMP, IGMP, ICMP, ARP
Video Coding:	MPEG-4 (M-JPEG in Server Push mode only)
Video Frame Rate:	Up to 30 images/second

INTERFACE

Video Input or Output:	1, BNC, PAL/NTSC, 75 ohms, 1 Vp-p
LAN Interface:	Ethernet 10/100BaseT autosensing, RJ-45
LAN Data Rate:	9.6 Kbps to 1.5 Mbps
Data Interface:	1 RS-232/RS-422/RS-485, bidirectional (9-pin, D-sub)
Alarm Input:	2 terminals, 30 VDC maximum
Alarm Output:	1 terminal, 30 VDC, 1 A

VIDEO

Video Standards:	PAL, NTSC
Video Image Size	
PAL:	704 x 576 pixels (4CIF)
	704 x 288 pixels (2CIF)
	352 x 288 pixels (CIF)
NTSC:	704 x 480 pixels (4SIF)
	704 x 240 pixels (2SIF)
	352 x 240 pixels (SIF)

POWER

Type:	Plug power adapter
Operating Voltage:	12-24 VDC, power supply included
Power Consumption:	Approximately 10 W

ENVIRONMENTAL

Operating Temperature:	32° to 122°F (0° to 50°C)
Operating Humidity:	80% maximum relative humidity, non-condensing
Storage Temperature:	−4° to 140°F (−20° to 60°C)
Storage Humidity:	95% maximum relative humidity, non-condensing

GENERAL

|	
Dimensions:	3.4" W x 1.2" H x 4.5" D (8.6 x 3.1 x 11.4 cm)
Unit Weight:	Approximately 0.4 lb (0.2 kg) without power supply

Glossary

10BASE-T	IEEE 802.3 specification for 10 Mbs Ethernet
ARP	Address Resolution Protocol
Baud Rate	Data transmission rate
bps	Bits per second, the actual data rate
Cat5 Cable	Type of cable used on a LAN to connect computers, printers, and transmitters and receivers to a hub on the network
CIF	Common Intermediate Format; video format with 352 x 288 pixels
Default Gateway	The router's IP address (for example, 192.168.0.1)
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Service
FTP	File Transfer Protocol
Full Duplex	Simultaneous data transmission in both directions
G.711, G.728	Standard audio coding algorithms defined by ITU-T
H.224	Standardized protocol for data communication and remote control
H.261	Standard motion video coding algorithm defined by ITU-T
H.323	Standard for M-JPEG video and audio compression defined by ITU-T
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
Hub	A device on the network that connects multiple computers together to form a LAN
ICMP	Internet Control Message Protocol
ID	Identification: machine readable number or name
IGMP	Internet Group Management Protocol
IEEE	Institute of Electrical and Electronics Engineers
Internet Protocol	The main protocol used on the Internet. Forms—in conjunction with the Transmission Control Protocol (TCP)—the TCP/IP protocol suite.
IP	See Internet Protocol
IP Address	A unique four-byte number that identifies each unit on the Internet or network. Usually written in dotted decimal notation with periods separating the bytes. This address is required to communicate on the network (for example, 192.168.0.100)
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
JPEG	Joint Photographic Expert Group (procedure to encode still images)
Kbps	Kilobits per second; the actual data rate
LAN	Local Area Network. Multiple computers linked together into a network to share information within a limited geographic area (such as a building or a campus) controlled by a network operating system and using a transport protocol.
MAC Address	Media Access Control/hardware address
Mbps	Megabits per second; the actual data rate
MPEG-4	Used for transmission of audiovisual data with very low transfer rates (for example, via Internet); further development of MPEG-2 (enhanced video compression standard)
NAT	Network Address Translator. A proposal for IP address for re-use where the local IP address is mapped to a globally unique address
Network Address Translator	A proposal for IP address re-use where the local IP address is mapped to a globally unique address
Parameter	Values used for the configuration of the network system
Picture	A video picture that has been digitized at a particular resolution
PPP	Point-To-Point Protocol. A protocol allowing a computer using TCP/IP to connect directly to the Internet
Router	A physical device that connects multiple LANs; a router knows where to direct a given packet of data
QCIF	Quarter CIF, video format with 176 x 144 pixels
Server Push	A continuous stream sent from the transmitter to the web browser

Subnet Mask	A mask that explains which part of an IP address is the network address and which part composes the hose address; it is usually expressed in dotted-decimal notation (for example, 255.255.255.192)
TCP	Transfer Control Protocol
UDP	User Datagram Protocol
URL	Uniform Resource Locator
UTP	Unshielded Twisted Pair
WAN	Wide Area Network. Multiple LANs connected together, usually over a great distance.

Appendix A — Connecting Pelconet To Various Components

Some of the connection examples that follow require a DB9 cable. Refer to the following figure when one is needed.
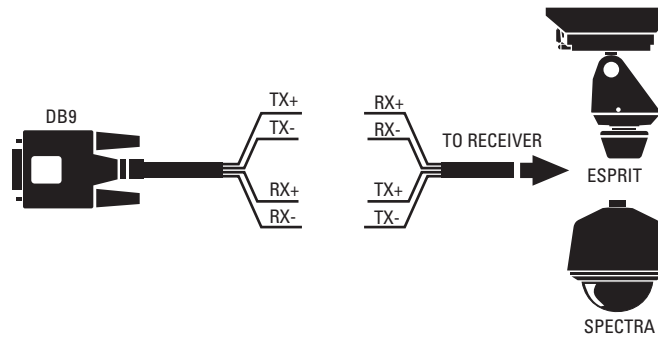
PIN	RS-422/RS-485
1	
2	RX+ (RECEIVE DATA PLUS)
3	TX- (TRANSMIT DATA MINUS)
4	
5	GND
6	
7	TX+ (TRANSMIT DATA PLUS)
8	RX- (RECEIVE DATA MINUS)
9	

Figure 43. DB9 Cable Wire Splicing

CONNECTING PELCONET TO VARIOUS COMPONENTS WITH ASSORTED KEYBOARDS

CONNECTION SCENARIO 1 – USING A KBD300A IN DIRECT MODE

Refer to Figure 44 and the instructions that follow.
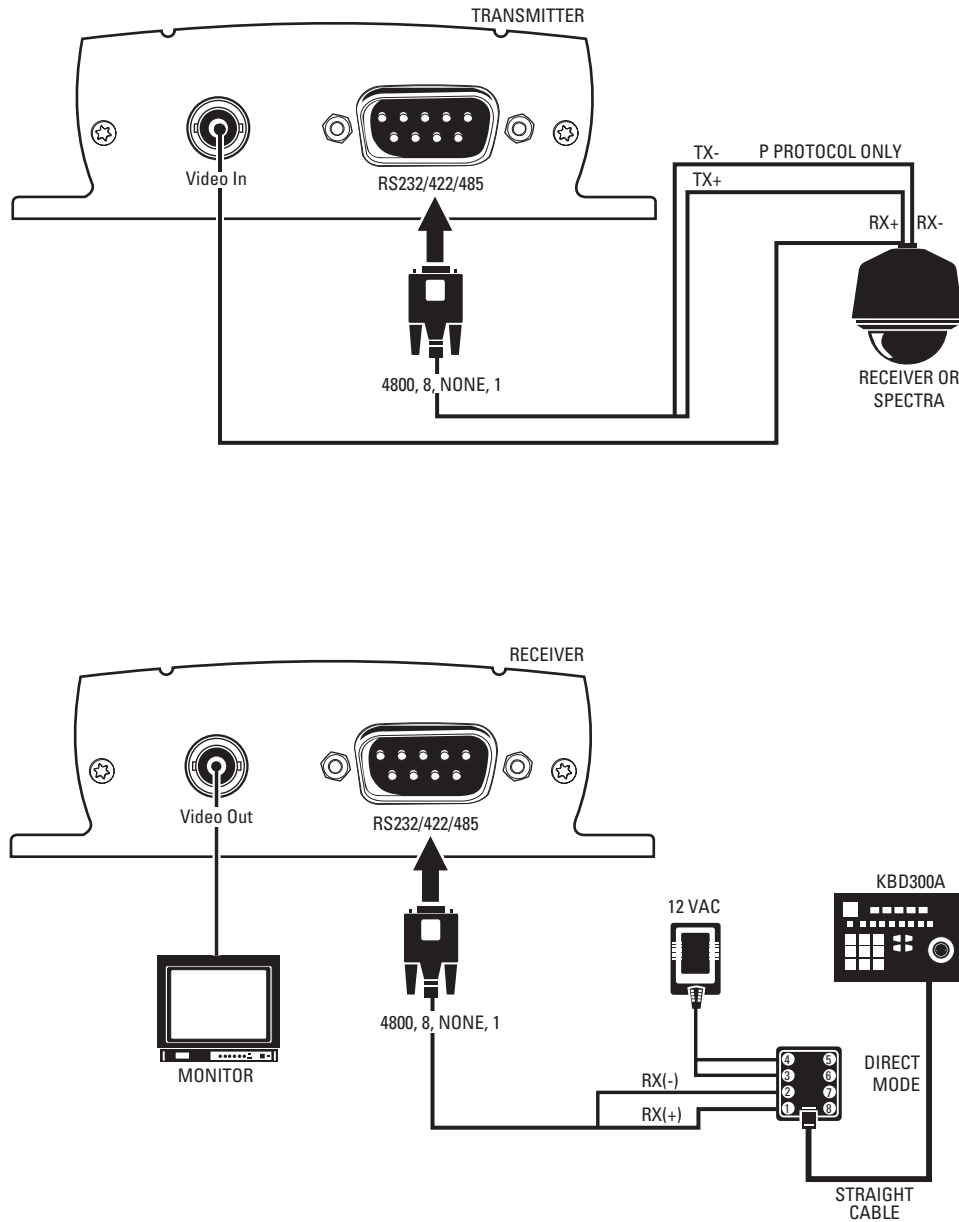
Figure 44. KBD300A (Direct Mode) Connected to a Receiver or Spectra Dome System

1. Connect a DB9 cable to the RS232/422/485 port on the NET300 receiver. (In the Interface Mode field on the configuration page for the interface settings, select RS-422/485.) The data format should be 4800 baud, 8 data bits, no parity, and 1 stop bit.

2. Connect RX– on the DB9 cable to terminal 2 on the wall block. Connect RX+ on the DB9 cable to terminal 1 on the wall block.

3. Connect a 12 VAC power supply to terminals 3 and 4 on the wall block.

4. Set DIP switch 6 on the KBD300A to ON to enable turbo pan operation or OFF to disable that feature. The KBD300A will recognize Direct Mode automatically.

5. Connect the wall block to the KBD300A with an RJ-45 straight cable.

6. Connect the monitor.

7. Refer to Figure 43 and Figure 44. Splice the supplied DB9 cable into the Spectra/Esprit or receiver cable. Use P protocol only.

8. Plug the DB9 cable into the RS232/422485 port on the transmitter. (In the Interface Mode field, select RS-422-485.) The data format should be 4800, 8, no parity, 1.

9. Connect the camera's video to the transmitter.

CONNECTION SCENARIO 2 – USING A KBD4000 FOR MULTIPLEXER CONTROL

Refer to Figure 45 and the instructions that follow.

NOTE: If you set all your cameras to Standard Coaxitron for better control on the browser, you will lose most of the KBD4000 keyboard functions. If you set your cameras to Extended Coaxitron, you will have all the keyboard functions but the PTZ functions on the NET300 will be very slow.
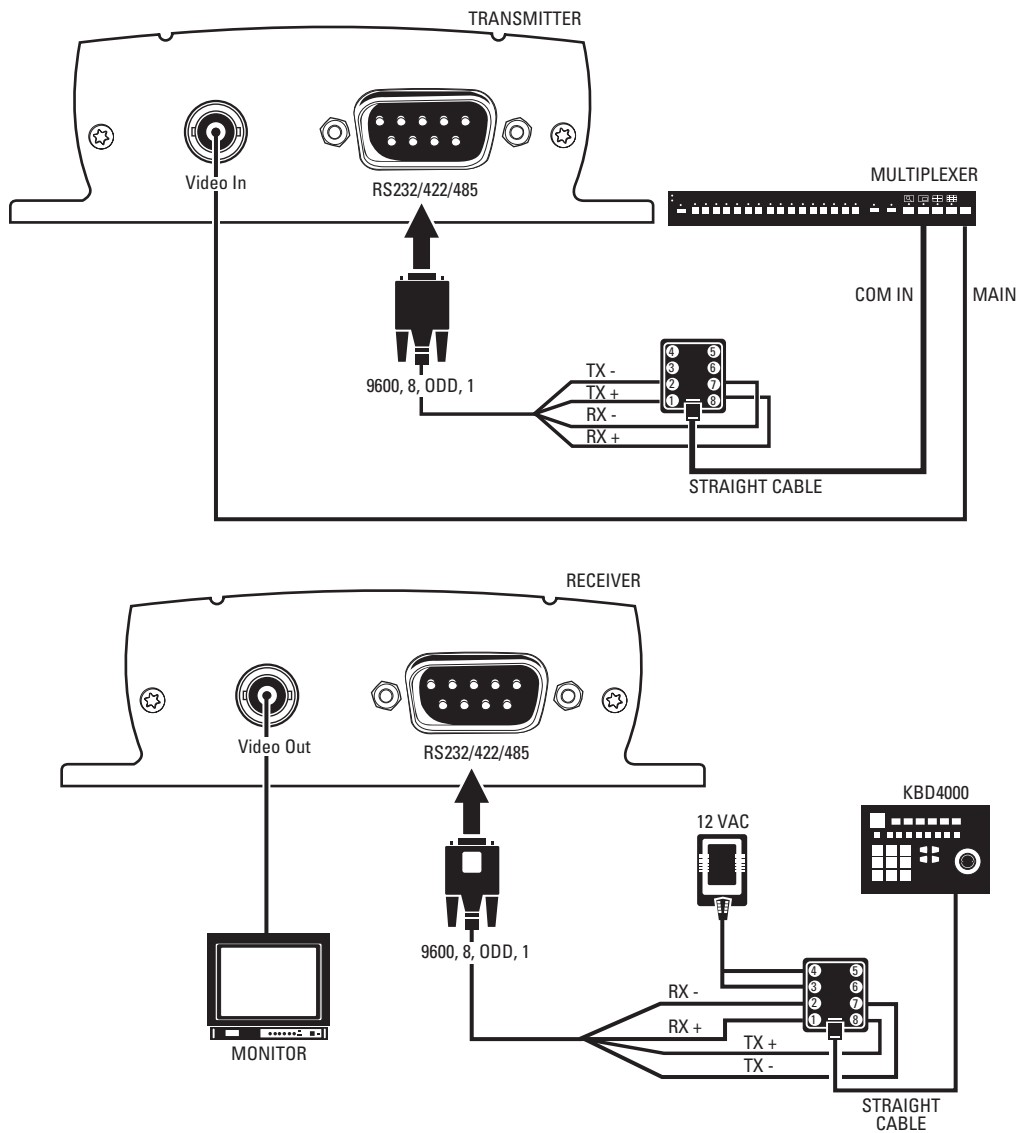
Figure 45. KBD4000 Connected to a Multiplexer

1. Connect a DB9 cable to the RS232/422/485 port on the NET300 receiver. (In the Interface Mode field on the configuration page for the interface settings, select RS-422/485.) The data format should be 9600 baud, 8 data bits, odd parity, and 1 stop bit.

2. On the receiver side, connect TX– on the DB9 cable to terminal 7 on the wall block. Connect TX+ on the DB9 cable to terminal 8 on the wall block. Connect RX– on the DB9 cable to terminal 2 on the wall block. Connect RX+ on the DB9 cable to terminal 1 on the wall block.

3. Connect a 12 VAC power supply to terminals 3 and 4 on the wall block.

4. Connect the wall block to the KBD4000 with an RJ-45 straight cable. (Note that DIP switches 4 and 8 on the KBD4000 must be set ON.)

5. Connect the monitor.

6. Refer to Figure 43 and Figure 45. Splice the supplied DB9 cable into the multiplexer wall block. Connect TX– from the NET300 transmitter to terminal 2 on the wall block, TX+ to terminal 1, RX– to terminal 7, and RX+ to terminal 8.

7. Plug the DB9 cable into the RS232/422485 port on the transmitter. (In the Interface Mode field, select RS-422-485.) The data format must be 9600, 8, odd, 1.

8. Connect the wall block to COM IN on the multiplexer with RJ-45 straight cable.

9. Connect MAIN video output from the multiplexer to the transmitter.

CONNECTION SCENARIO 3 – USING A CM9760-KBD

Refer to Figure 46 and the instructions that follow.

Figure 46. CM9760KBD Connected to a CM9760-CC1 Controller

1. Connect a DB9 cable to the RS232/422/485 port on the NET300 receiver. (In the Interface Mode field on the configuration page for the interface settings, select RS-422/485.) The data format should be 4800 baud, 8 data bits, even parity, and 1 stop bit.

2. On the receiver side, connect TX– on the DB9 cable to terminal 7 on the wall block. Connect TX+ on the DB9 cable to terminal 8 on the wall block. Connect RX– on the DB9 cable to terminal 2 on the wall block. Connect RX+ on the DB9 cable to terminal 1 on the wall block.

3. Connect an RJ-45 straight cable from the wall block to the power pack.

4. Connect an RJ-45 straight cable from the keyboard input connector on the power pack to COM 1 on the keyboard.

5. Connect the monitor.

6. Refer to Figure 43 and Figure 46. Splice the supplied DB9 cable into the CM9760-CC1 wall block. Connect TX– from the NET300 transmitter to terminal 2 on the wall block, TX+ to terminal 1, RX– to terminal 7, and RX+ to terminal 8.

7. Plug the DB9 cable into the RS232/422/485 port on the transmitter. (In the Interface Mode field, select RS-422/485.) The data format should be 4800, 8, even, 1.

8. Connect an RJ-45 flipped cable from the wall block to Sercom port 5 on the CC1's rear panel.

9. Connect one of the three monitor outputs on the rear of the controller to the transmitter.

CONNECTING A LOCAL KEYBOARD TO A PC

Refer to Figure 47. This configuration lets an operator control a camera or other external device through a Pelco keyboard attached to a local PC. (The KBD200A is shown as an example.)
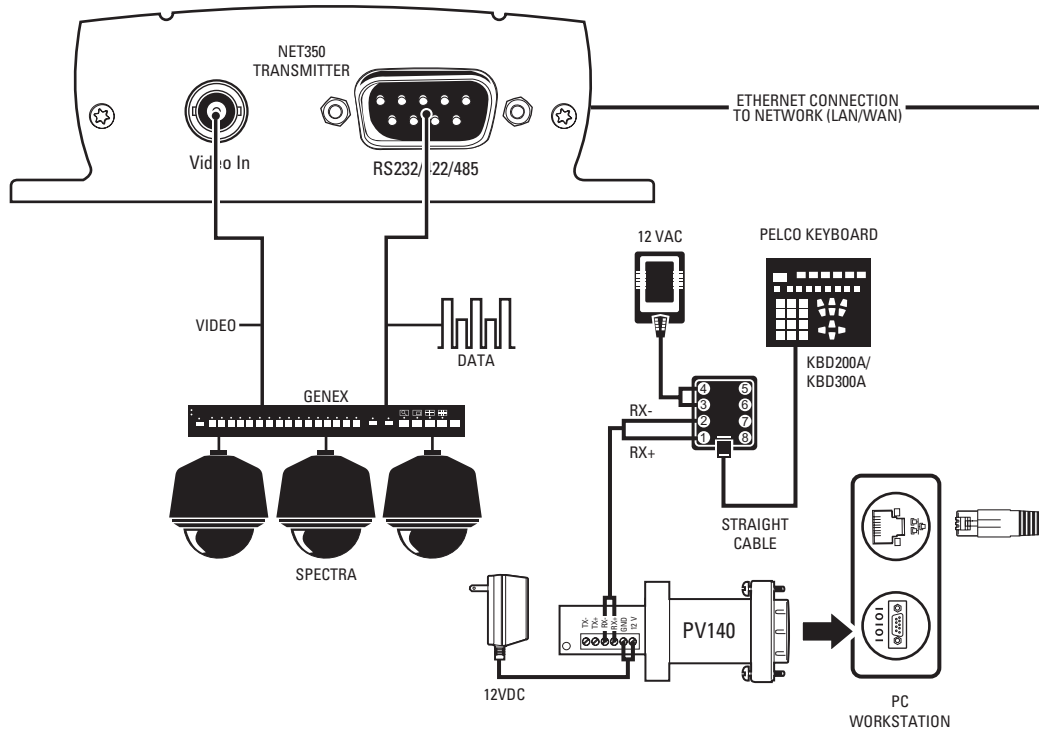
Figure 47. Connecting a Local Keyboard to a PC

CONNECTING THE PELCONET'S COM PORT TO THE GENEX MULTIPLEXER'S COM OUT PORT

Refer to Figure 48 and the instructions that follow.
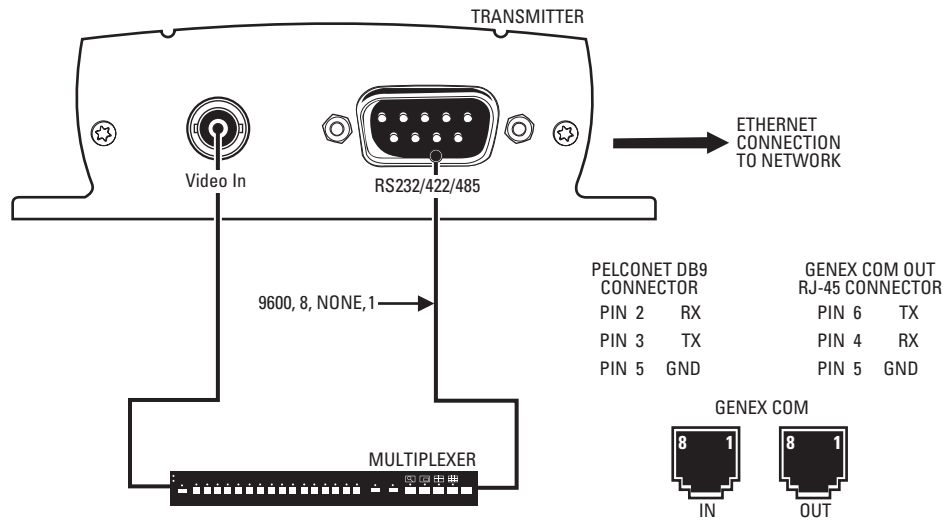
Figure 48. Connecting PelcoNet to Genex Using the COM Port

1. Verify that the multiplexer has Version 4.1 or higher software for Genex units manufactured before November 22, 2002—or Version 1.12 or higher for units manufactured on or after that date. (The version numbering was restarted in 2003, which is why newer units have a smaller version number. The version number flashes on the monitor when power is applied to the multiplexer.)

2. Set the NET300 RS232/422/485 data port to Transparent, 9600 baud, 8 data bits, none (for parity), 1 stop bit, and off if it is not so set already. (In the Interface Mode field on the configuration page for the interface settings, select RS-232.)

3. Create a cable using the diagram in Figure 48.

4. Attach the cable's DB9 connector end to PelcoNet's RS232/422/485 port. Connect the cable's RJ-45 connector end to COM OUT on the back of the multiplexer.

5. Connect the MAIN video output from the multiplexer to the NET300 transmitter.

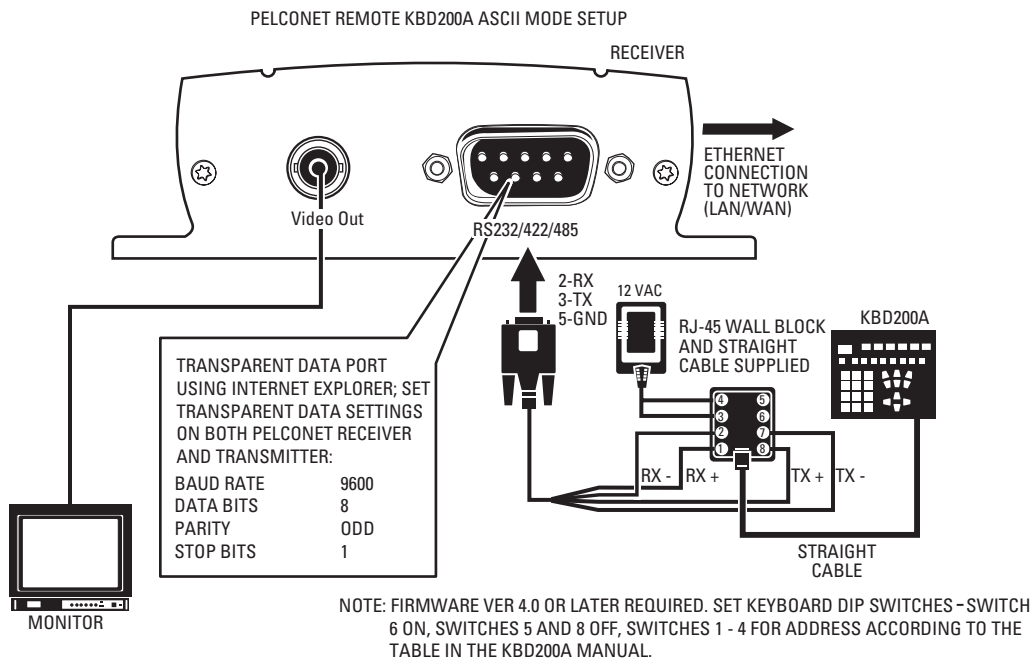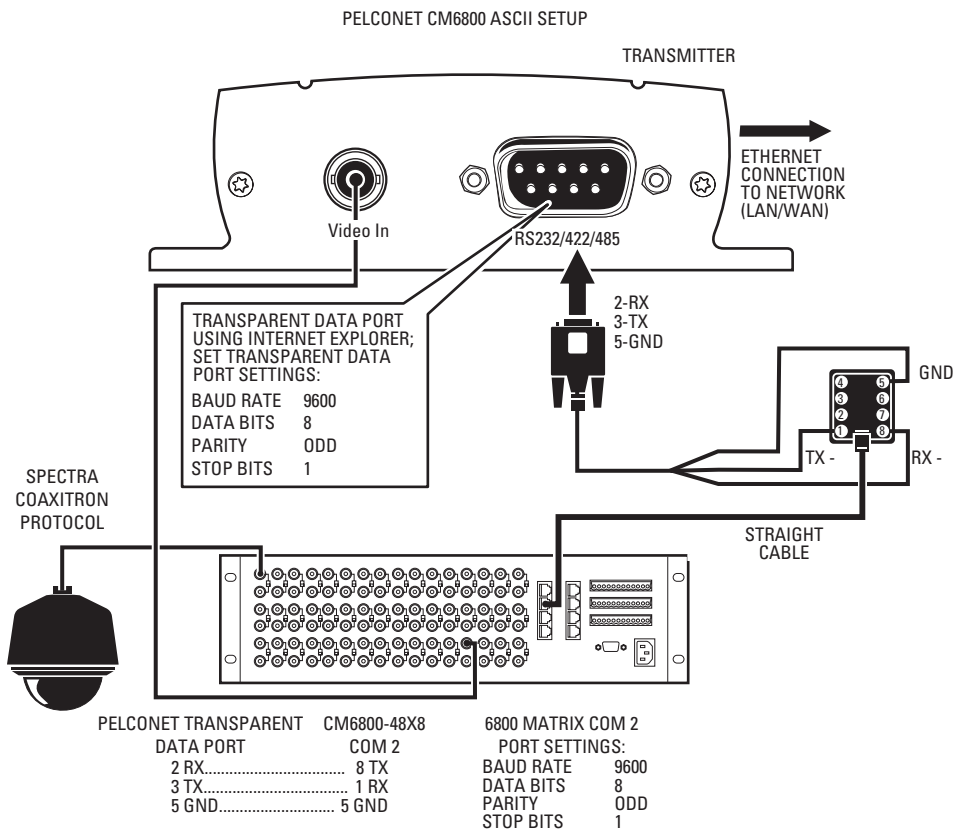6. Connect PelcoNet's Ethernet port to the network using a Cat5 Ethernet patch cable.

CONNECTING PELCONET TO A CM6700 AND KBD200A FOR REMOTE ASCII CONTROL

Refer to Figure 49. This configuration lets an operator view and control cameras with a remote KBD200A keyboard.

PELCONET REMOTE KBD200A ASCII MODE SETUP

TRANSMITTER

ETHERNET CONNECTION
TO NETWORK (LAN/WAN)

Video In

RS232/422/485

PELCONET   CM6700-MXB
TRANSPARENT COM 2 (7-12)
DATA PORT

2 RX......................7 TX
3 TX......................12 RX
5 GND..................9 GND

SPECTRA

SW5 DIP SWITCH SETTINGS
RS-422/485
ON
1 2 3 4 5 6 7 8

RS-232
ON
1 2 3 4 5 6 7 8

KEY
ON   OFF

SET DIP SWITCH (SW5) ON
CM6700-MXB TO RS-232 MODE

CM6700 MATRIX COM 2
PORT SETTINGS:

BAUD RATE   9600
DATA BITS   8
PARITY   ODD
STOP BITS   1

CONNECT PELCONET TO
6700 VIA RS-232 PORT

RECEIVER

ETHERNET CONNECTION
TO NETWORK (LAN/WAN)

Video Out

RS232/422/485

2-RX
3-TX
5-GND

12 VAC

KBD200A

TRANSPARENT DATA PORT
USING INTERNET EXPLORER; SET
TRANSPARENT DATA SETTINGS
ON BOTH PELCONET RECEIVER
AND TRANSMITTER:

BAUD RATE   9600
DATA BITS   8
PARITY   ODD
STOP BITS   1

RX - RX +   TX + TX -

STRAIGHT
CABLE

MONITOR

SPECTRA COAXITRON®
PROTOCOL

NOTE: FIRMWARE VER 4.0 OR LATER REQUIRED. SET KEYBOARD DIP SWITCHES – SWITCH
6 ON, SWITCHES 5 AND 8 OFF, SWITCHES 1 - 4 FOR ADDRESS ACCORDING TO THE
TABLE IN THE KBD200A MANUAL.

Figure 49. Using PelcoNet with CM6700 and KBD200A to Provide Remote Control

CONNECTING PELCONET TO A CM6700 ASCII PORT

Refer to Figure 50. This configuration lets an operator view and control cameras from a PC using a web browser. (The operator's PC is not shown on the diagram.)

PELCONET CM6700 ASCII SETUP SPECTRA COAXITRON® PROTOCOL
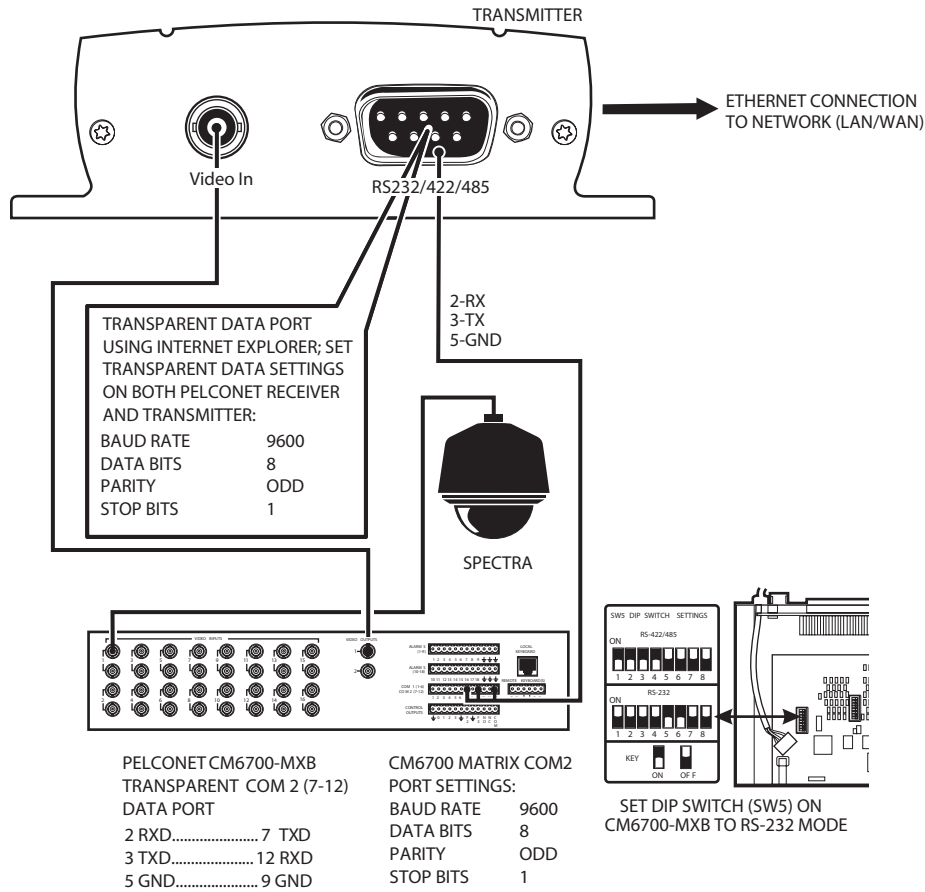
Figure 50. Using PelcoNet with CM6700 to Provide Remote Control

CONNECTING PELCONET TO A CM9760-DT FOR REMOTE BROWSER CONTROL

Refer to Figure 51. This configuration lets an operator view and control cameras from a PC using a web browser. (The operator's PC is not shown on the diagram.)

PELCONET CM9760-DT SETUP
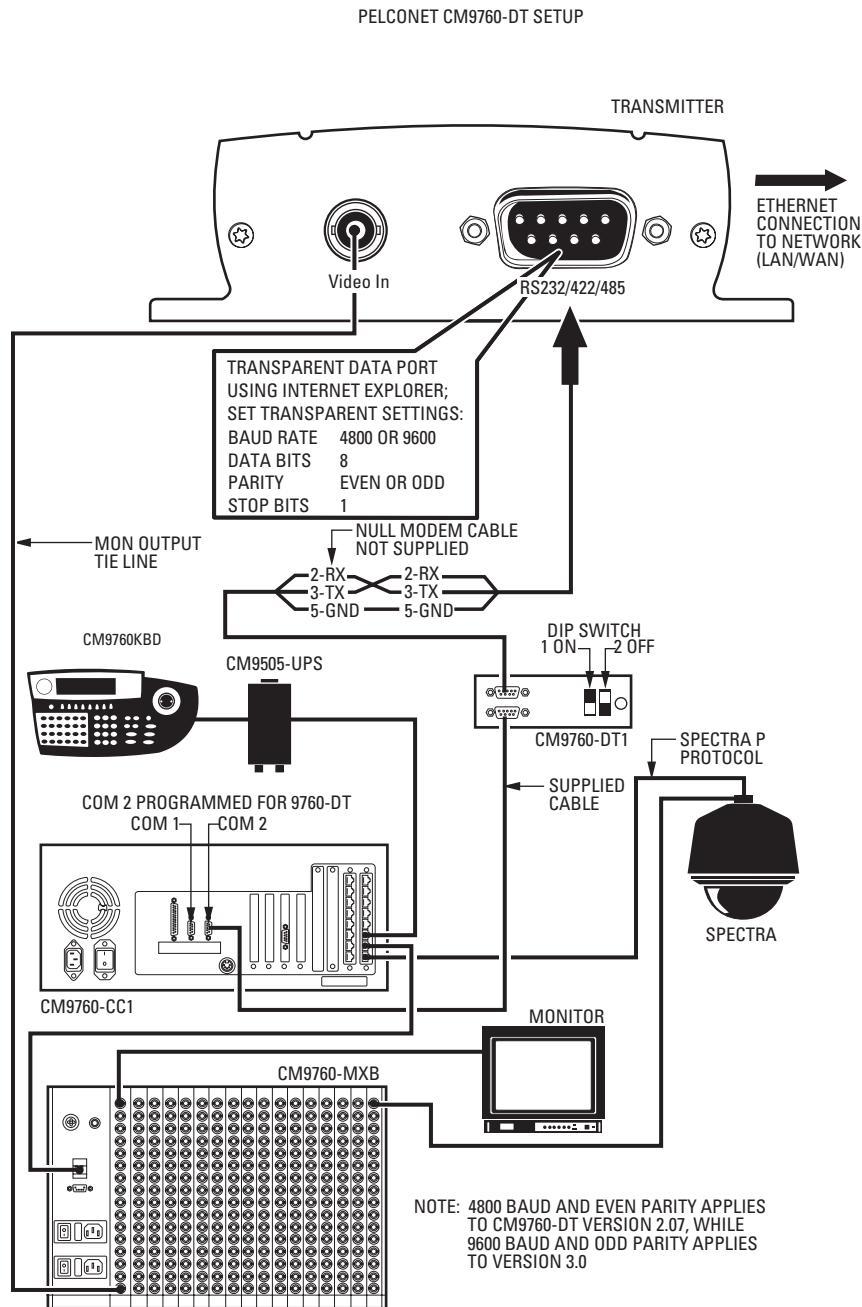
Figure 51. Using PelcoNet with CM9760-DT to Provide Remote Control of a 9760 Monitor Output

CONNECTING PELCONET TO CM9700 FOR REMOTE COMMUNICATION

Refer to Figure 43 and Figure 52 and Figure 53. These configurations let an operator remotely view and control cameras connected to the CM9700.

REMOTE NODE: TRANSMITTING DATA AND VIDEO
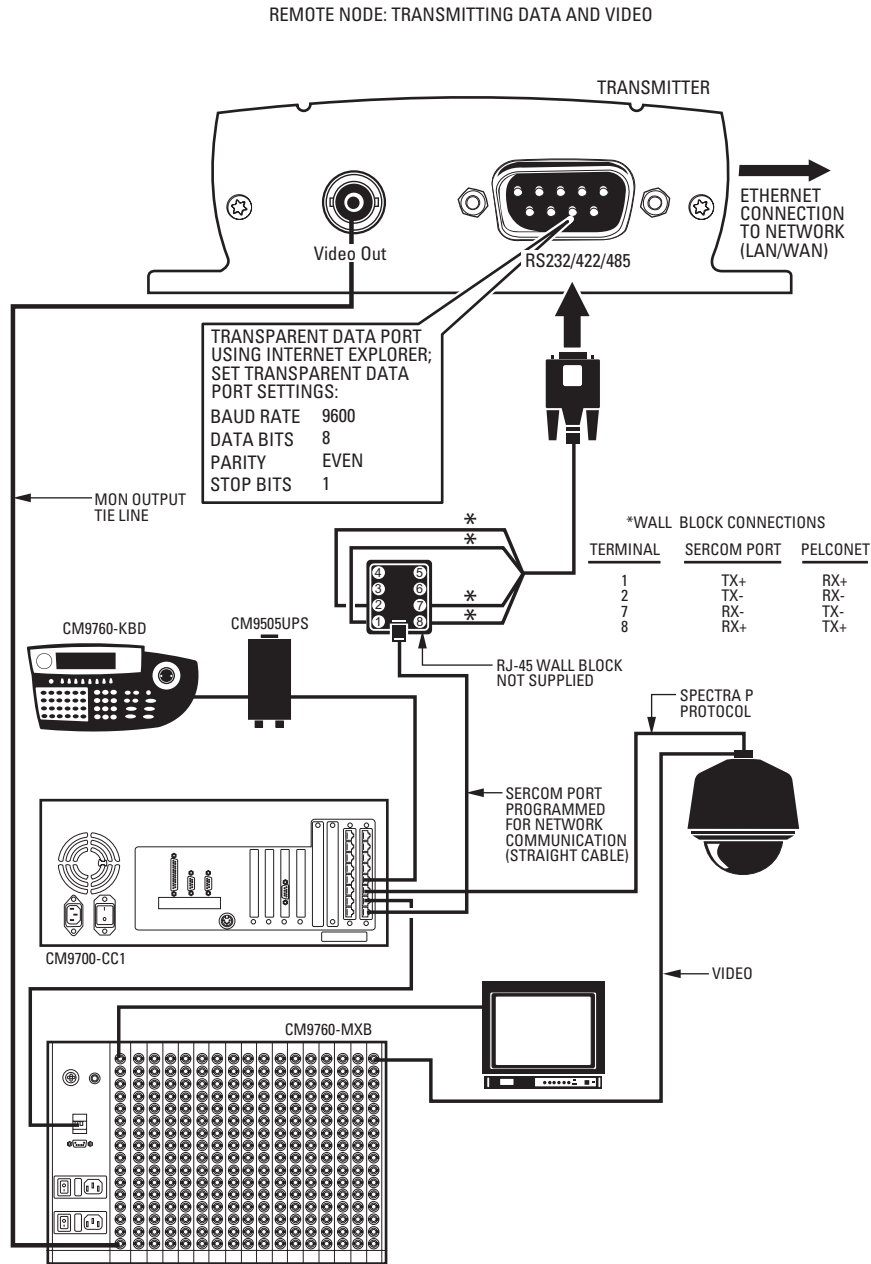
Figure 52. Using PelcoNet to Transmit Data and Video Between 9700 Nodes (9760 Shown)

RECEIVER

ETHERNET
CONNECTION
TO NETWORK
(LAN/WAN)

Video Out

RS232/422/485

TRANSPARENT DATA PORT
USING INTERNET EXPLORER;
SET TRANSPARENT DATA
PORT SETTINGS:

BAUD RATE	9600
DATA BITS	8
PARITY	EVEN
STOP BITS	1

CAM INPUT
TIE LINE

CM9505-UPS

CM9760KBD

*WALL BLOCK CONNECTIONS

TERMINAL	SERCOM PORT	PELCONET
1	TX+	RX+
2	TX-	RX-
7	RX-	TX-
8	RX+	TX+

RJ-45 WALL BLOCK
NOT SUPPLIED

CM9700-NW1

SERCOM PORT
PROGRAMMED
FOR NETWORK
COMMUNICATION
(STRAIGHT CABLE)

SPECTRA P
PROTOCOL

CM9700-CC1

SPECTRA

VIDEO

CM9760-MXB

MONITOR

Figure 53. Using PelcoNet to Receive Data and Video Between 9700 Nodes (9760 Shown)

CONNECTING A PELCONET TRANSMITTER TO THE CM6800 ASCII PORT

Refer to the transmitter portion of Figure 56. This configuration lets an operator view and control cameras from a PC using a web browser. (The operator's PC is not shown on the diagram.) All settings are done in the CM6800 manager program or through a CM6800 menu. Note the following:

- Port 2 defaults to ASCII and RS-232.

- Ports 7 and 8 can be set to ASCII and RS-232 by using the CM6800 manager program (refer to Figure 54) or by using a CM6800 menu (refer to Figure 55).

- Port 2 is recommended.
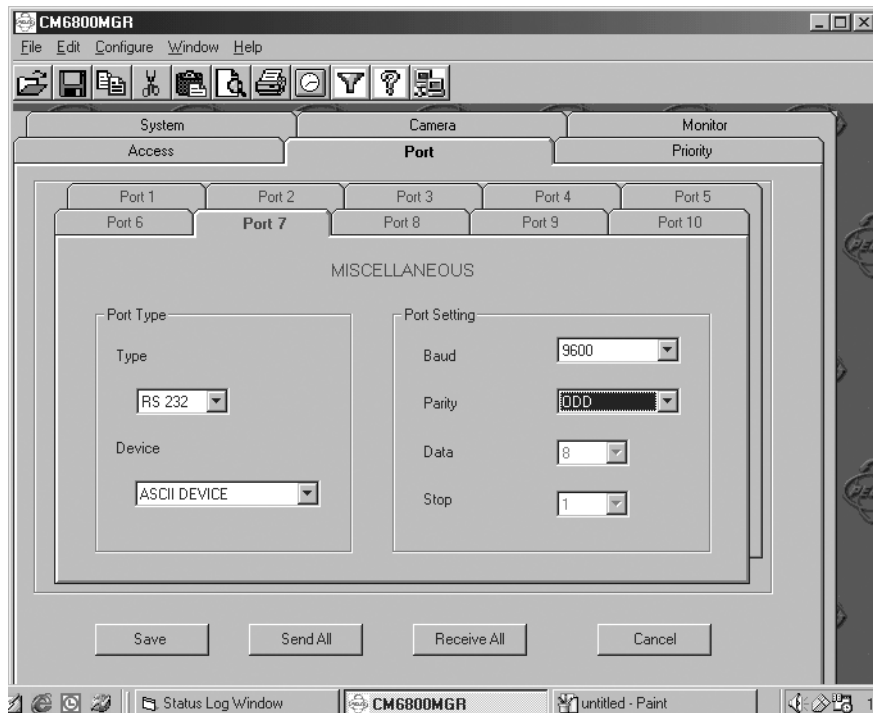
Figure 54. Manager Screen

```
       SET SERIAL PORT 07
DEVICE:          ASCII
TYPE:            RS232
BAUD RATE:       9600
PARITY:          ODD
DATA BITS:       8
STOP BITS:       1
          RETURN
```

Figure 55. Menu Screen

CONNECTING PELCONET TO A CM6800 AND KBD200A FOR REMOTE CONTROL

Refer to Figure 56. This configuration lets an operator view and control cameras with a remote KBD200A keyboard. All settings are done in the CM6800 manager program or through a CM6800 menu. Note the following:

- Port 2 defaults to ASCII and RS-232.

- Ports 7 and 8 can be set to ASCII and RS-232 by using the CM6800 manager program (refer to Figure 54) or by using a CM6800 menu (refer to Figure 55).

- Port 2 is recommended.

PELCONET CM6800 ASCII SETUP

TRANSMITTER

ETHERNET
CONNECTION
TO NETWORK
(LAN/WAN)

Video In

RS232/422/485

2-RX
3-TX
5-GND

GND

TRANSPARENT DATA PORT
USING INTERNET EXPLORER;
SET TRANSPARENT DATA
PORT SETTINGS:

BAUD RATE	9600
DATA BITS	8
PARITY	ODD
STOP BITS	1

SPECTRA
COAXITRON
PROTOCOL

TX -   RX -

STRAIGHT
CABLE

PELCONET TRANSPARENT	CM6800-48X8	6800 MATRIX COM 2
DATA PORT	COM 2	PORT SETTINGS:
2 RX..................................	8 TX	BAUD RATE 9600
3 TX..................................	1 RX	DATA BITS 8
5 GND............................	5 GND	PARITY ODD
		STOP BITS 1

PELCONET REMOTE KBD200A ASCII MODE SETUP

RECEIVER

ETHERNET
CONNECTION
TO NETWORK
(LAN/WAN)

Video Out

RS232/422/485

2-RX
3-TX
5-GND

12 VAC

RJ-45 WALL BLOCK
AND STRAIGHT
CABLE SUPPLIED

KBD200A

TRANSPARENT DATA PORT
USING INTERNET EXPLORER; SET
TRANSPARENT DATA SETTINGS
ON BOTH PELCONET RECEIVER
AND TRANSMITTER:

BAUD RATE	9600
DATA BITS	8
PARITY	ODD
STOP BITS	1

RX - RX +   TX + TX -

MONITOR

STRAIGHT
CABLE

NOTE: FIRMWARE VER 4.0 OR LATER REQUIRED. SET KEYBOARD DIP SWITCHES – SWITCH
6 ON, SWITCHES 5 AND 8 OFF, SWITCHES 1 - 4 FOR ADDRESS ACCORDING TO THE
TABLE IN THE KBD200A MANUAL.

Figure 56. Using PelcoNet with CM6800 and KBD200A to Provide Remote Control

Appendix B — Frequently Asked Questions (FAQs)

1. **What Pelco devices can I control from my computer with PelcoNet?**

   PelcoNet can control the following from Internet Explorer:

   - Spectra and Esprit
   - Genex multiplexer
   - CM9700 matrix (older CM9760s require CM9760 data translator)
   - CM6700 matrix (through integrated ASCII port)
   - CM6800 matrix

2. **Can I view PelcoNet over the Internet?**

   Yes. You will need a static IP address and enough bandwidth to view live video. Pelco recommends a minimum of 250 Kbps for medium image quality. Also check with your ISP to verify the correct TCP and UDP ports are open through any routers or firewalls through which you connect.

3. **How many connections does PelcoNet support? Can more than one receiver connect to a transmitter at the same time?**

   Yes. PelcoNet can support up to 25 simultaneous connections. To do so, all hubs, switches, and routers must support multicasting (IGMP), and PelcoNet must be configured to use multicasting. If the network hardware does not support this, then the maximum number of simultaneous connections is five.

4. **Can I enlarge the picture size in the browser?**

   Yes. You can select from two different image sizes in PelcoNet with the browser: 352 x 288 or 704 x 576.

5. **What software does PelcoNet require?**

   PelcoNet works with Internet Explorer 6.0 or higher. An ActiveX plug-in and Microsoft Virtual Machine are also required for Internet Explorer to get live video. All software is included.

6. **Can I control other manufacturers' equipment from the browser?**

   Not at this time.

7. **Can I record video with PelcoNet?**

   Yes. PelcoNet can record video to the hard drive of the viewing PC. The video is recorded in MPEG-4 format, which allows playback through either the browser or Windows Media Player.

8. **Everything is wired correctly but I do not have any control from the browser. What else could be wrong?**

   The transparent port settings should be set to match the equipment to which PelcoNet is connected.

   Also, in Internet Explorer, the Microsoft Virtual Machine should be enabled. To do so: on the Tools menu, select **Internet Options**. Then select the **Advanced** tab. Locate the option **Microsoft VM**. Place a checkmark next to **Java Console Enabled** and **JIT compiler for virtual machine enabled**. Reboot your computer.

   These options are required for the Java applets in PelcoNet to function properly.

9. **Can I control the Genex multiplexer from the browser and have a local KBD4000?**

   Yes. You must have Genex version 4.1 or higher for Genex units manufactured before November 22, 2002—or version 1.12 or higher for units manufactured on or after that date. (The version numbering was restarted in 2002, which is why newer units have a smaller version number.) These versions let you connect a KBD4000 to the COM IN port, and PelcoNet to the COM OUT port. This gives you both local and remote control. Refer to—Connecting PelcoNet to the COM OUT RS-422 Port on a Genex Multiplexer in Appendix A for detailed information.

10. **Can I control the Genex multiplexer server?**

    Not at this time.

11. **Can I use DHCP (dynamically assigned IP address) with PelcoNet?**

    No.

12. **What type of compression does PelcoNet NET300 use?**

PelcoNet uses the MPEG-4 industry standard for video teleconferencing over the Internet. It provides the most effective use of bandwidth with excellent video quality.

13. I do not get live video in the browser but server push is working. What could be wrong?

Verify that the ActiveX plug-in is installed and that your video is set to 16-bit color. Also check with your network administrator to verify that the TCP/IP ports PelcoNet uses are not being filtered and that you have enough bandwidth.

14. How do I program PelcoNet with HyperTerminal?

Using a null modem cable, connect a COM port on your PC to the RS232/422/485 port on PelcoNet. Open HyperTerminal and set the port to use 19200, 8, N, 1 and No Flow Control. Type **?**, and follow the help menu.

15. How much bandwidth does PelcoNet use?

PelcoNet's bandwidth is adjustable. You can set it from 9.6 kbps up to 5000 kbps. PelcoNet recommends a minimum of 250 Kbps for live video at medium image quality. Check with your network administrator for how much bandwidth to use.

16. Can I use PelcoNet with a DSL or cable connection?

Yes. You will need a static IP address from your provider. Also verify what kind of bandwidth you will get since it varies by location. Verify that your provider is not filtering the TCP/IP ports that PelcoNet uses.

17. Is an RS-232 to RS-422/485 converter required for control with PelcoNet?

No. the NET300's RS232/422/485 port supports RS-232, RS-422, and RS-485.

18. What TCP/IP ports should I use with PelcoNet?

- If you will be using PelcoNet in a LAN environment, Pelco recommends all TCP/IP ports above 1024 be opened. Also, if you will use a time server, TCP port 37 must be opened.
- If you will be using PelcoNet in a WAN environment, Pelco recommends changing the "Video transmission" setting to "TCP" in the Network Settings configuration page. This makes PelcoNet use port 80 and whatever source port the client computer chooses.

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This equipment contains electrical or electronic components that must be recycled properly to comply with Directive 2002/96/EC of the European Union regarding the disposal of waste electrical and electronic equipment (WEEE). Contact your local dealer for procedures for recycling this equipment.

REVISION HISTORY

Manual #	Date	Comments
C2908M	11/03	Original version.
C2908M-A	2/04	Added NET300 receiver menu tree, two NET300 receiver screen captures, and material noting differences between the transmitter and receiver. Revised heading and figure caption in the instructions documenting how to connect a NET300 to a Genex multiplexer. Noted that pressing Enter in the Software Upload and Configuration Upload boxes causes a unit reset. Revised the Troubleshooting section. Revised the definition for the "Time server IP address" field to remove "NTP."
C2908M-B	4/05	Added information, application, and connection drawings about the Local Com Interface – Keyboard feature. Included information on the Video Watermarking MPEG-4, Video Quality Settings, and Field Mode fields that were added to the Video Configuration page. Updated the menu tree, the Setup page, and the Device Control page to reflect these changes. Corrected Figures 48 and 49 (now figures 52 and 53) for wall block connections and updated Figure 49 (now Figure 53) in which a CM9760-NW1 was incorrectly labeled a CM9760-CC1. Added NTSC pixel resolution to the *Specifications* section.

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