



**INSTALLATION AND OPERATING INSTRUCTIONS v1.01**

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**VCX-4406-E MPEG-4 Multi-Channel Encoder**

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## Introduction

The VCX-4406-E is a stand-alone six channel MPEG-4 video encoder. Video from up to six sources may be connected to the encoder while all six channels are connected to the network through a single Ethernet port. The VCX4406-E will supply four serial control ports for the operators to control the video sources.

The VCX-4406-E Digital Video Codec system consists of VCX series video encoder(s) and decoder(s). The decoders may be either VCX series hardware or MMS series software completing the link providing the capability for one-way end-to-end transmission of compressed digital video in IP packets at data rates in the 64kbps to 4.0 Mbps range.

The system employs MPEG-4 encoding. The encoding-decoding process is applied to an NTSC (or PAL) video input, selected in software.

The video encoder converts the video to a serial signal, which is multiplexed with any data sub-channels present. The stream is then formatted into a series of IP packets sent to the network through a standard Ethernet connection.

Modification of video format and resolution, data sub-channel characteristics, and basic IP parameters is achieved through one of the following means:

- a) a Hyper Terminal accessible menu
- b) Telnet through the Ethernet connection
- c) MMS software

The video decoder receives the IP packets, separates the video data from the data sub-channels, and converts the video data to analog form, providing an NTSC (or PAL) output.

The unit features four bi-directional data sub-channels (programmable for RS-232 or RS-422). Data bits are multiplexed with the digital data stream.

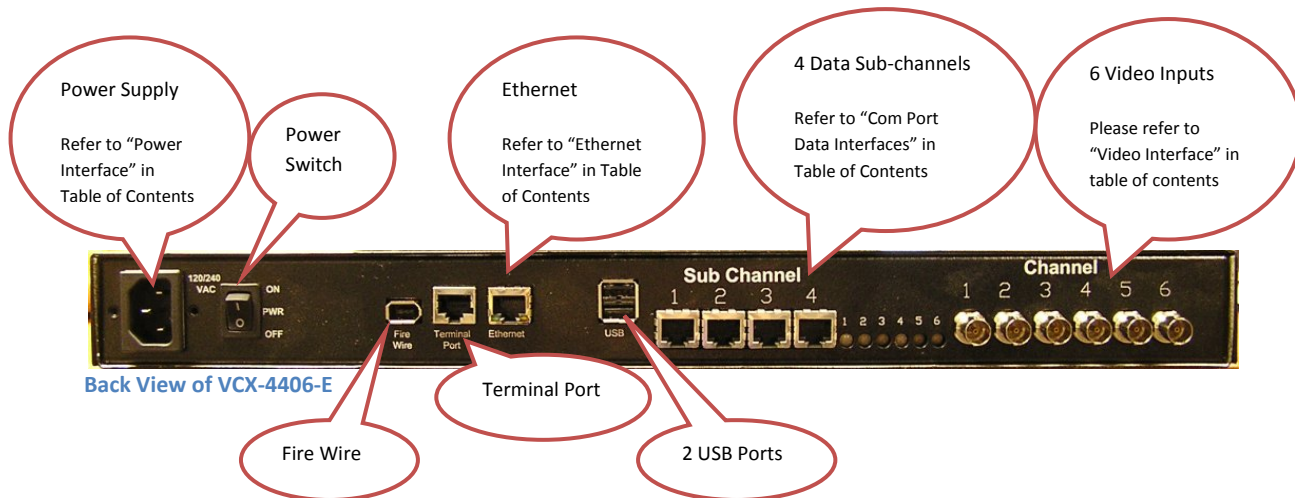
## Familiarization with the VCX-4406 Encoder

The VCX-4406-E Video Encoder accepts up to six (6) video inputs and supplies four (4) data IO ports. The output from the encoder is a stream of IP- packets with all video and control channels encoded on a single Ethernet port. The VCX-4406-E has an optional fluorescent LED display to allow monitoring of unit performance and to facilitate troubleshooting. The encoder has a programmable reset, which prompts the re-initiation of the video stream(s).

The unit effectively compresses six (6) data streams and supplies them to the decoder which re-creates an analog waveform in NTSC (or PAL) video format. The unit supports the bi-directional data transmission of four (4) data sub-channels, corresponding to the selected encoder channel. The unit also features a status LED for each channel. The encoder has a programmable reset, which prompts the re-initiation of the video stream, as well as a reboot command. The decoder also has a programmable reset command, tied to errors in the incoming video stream, as well as a reboot command.



Front view of VCX-4406-E



Back View of VCX-4406-E

## **Com Port Data Interface**

There are four (4) bi-directional data interfaces, RS-232 and RS-422 selectable, on the encoder and decoder assemblies. Each interface uses RJ-45 connectors. When using the RS-232 configuration pin 7 is ground. Com Port parameters are configured through the system software.

**Refer to Appendix A for the correct pin out.**

## **Video Input Interface**

Connect a BNC-terminated coaxial cable from a composite video source (e.g., CCTV camera) to one of six BNC connectors labeled “VIDEO IN” (encoder). The composite video input should be in NTSC or PAL format. The maximum length of cable that should be interfaced to the encoder or decoder is 100 feet, although the specific installation environment will dictate the actual permissible length.

## **Ethernet Interface**

There is one Ethernet interface for encoder or decoder, which uses a standard RJ-45 connector. The standard method of terminating an ETHERNET cable reflects the TIA568A standard (Telecommunications Industry Association standard).

**Refer to Appendix A for the Straight Through and Crossover Ethernet Pin Out.**

## **Power**

Power is applied through a standard IEC type detachable line cord at the rear of the unit. The unit automatically senses 110 VAC or 220 VAC supply and will operate with either.

## **Display (if applicable)**

The fluorescent LED display provides a scrolling list of key parameters when the unit is in its active (non-stand-by) state.

The display is a two-line display. Each parameter is displayed, in turn, for three seconds on the bottom line. It then moves to the top line while the next parameter is displayed on the bottom line.

The parameters displayed are as follows:

- Name of unit
- Software version
- Device IP address
- Sub-net mask
- Video IP (multi-cast group)
- Group Length
- FPS (frames per second)
- Maximum Bit Rate (encoder only)
- Audio On or Off
- Com 1 On or Off
- Com 1 Bit Rate
- Com 1 IP
- Com 2 On or Off
- Com 2 Bit Rate
- Com 2 IP

## **Mounting the Encoder**

The VCX-4406-E 1U Encoder is a 19 inch unit and furnished with mounting ears allowing installation in a 19" rack frame. All signal connections are from the rear, eliminating any need for setback from the front plane of the rack.

## Quick Start

If user wishes to test video with VCX4406-E and VCX4400-D use the following method:

1. Unpack the VCX-4406-E Video Encoder.
2. Connect a BNC-terminated coaxial cable from a composite NTSC (or PAL) video source (e.g., CCTV camera) to the BNC connector labeled “VIDEO IN” on the VCX-4406-E Video Encoder.
3. Connect a BNC-terminated coaxial cable to a composite NTSC (or PAL) video output (e.g., CCTV monitor) to the BNC connector labeled “VIDEO OUT” on the VCX-4400-D Video Decoder.
4. Connect the VCX-4406-E Video Encoder to the VCX-4400-D Video Decoder via the Ethernet port (RJ-45), located to the left of the two RJ-45 sub channel-ports on the rear of each unit, using a Cat 5 Ethernet cross over cable (the send and receive pairs are swapped end-to end). Normally, when units are connected to an Ethernet Switch, straight through cables are used, unless connecting to a crossover port on the Ethernet Switch.

**Refer to Appendix A for Ethernet Straight through and Cross Over Pin Outs.**

5. Insert the detachable line cord into the receptacle on the rear of the VCX-4406-E Encoder and VCX-4400-D Decoder. The unit automatically senses 110 VAC or 220VAC supply and will operate with either.
6. The LED display will be illuminated when power is applied.
7. The display will scroll through the parameters currently programmed in the unit.
8. After a few moments, video should appear on the output of the VCX-4400-D Video Decoder.
9. If no video is present on the VCX-4400-D decoder verify the following:
  - a. Both the Encoder and Decoder LED display are in the operate mode. Display should indicate “Core Tec Communications Initializing”.
  - b. The link light on the Ethernet port (RJ-45), located on the upper left of the port connector is lit on both the Encoder and Decoder. If not the Ethernet cross over cable may be defective.
  - c. If the above are correct, please read the network setup installation instructions included in the manual. Note: the setting in default network setup may have been changed.

If user wishes to configure settings for VCX4406-E via COM Port or on the network:

Set up for COM Port:

User may configure VCX4406-E setting using a PC connected to the encoder control port at the front of the unit. A simple 6-wire phone cable (PCA-2400 programming cable) with the **RJ-11 adaptor described in Appendix A** will supply the proper RS-232 connection to the PC's serial port. **Note:** This is not the same as the "Sub-Channel" interface. Do not use the RJ-11 adaptor for this channel.

This configuration will permit the unit configuration by a terminal program running on a PC. Once you have connected the encoder to the PC's serial port open your terminal program. The encoder will boot up then ask for a password. The default password is: **admin**.

**The PC should have its Com Port configured as:**

Baud rate	38,400 kbps
Data bits	8 bits
Parity	No Parity
Stop Bits	1 Stop Bit
Flow control	None

Refer to Appendix A for pin layout for RJ-11 connector.

Set up for network:

If the operator wishes to configure the unit through the network the user may accomplish this by the following procedure. **Note:** The operator must be sure that the VCX-4406-E is accessible on their SUBNET. **Before completing this step, please refer to the Programming Configuration Section of this Manual.** Here you will set the IP address and SUBNET Mask of the VCX-4406-E so that it is accessible on your SUBNET and has a valid IP address. (An example IP address is being used in the following example.):

Open a "cmd" window and enter the following commands:

```
Telnet 192.168.0.253 <enter>
```

The encoder will reply asking for a password. Default password is "admin".

```
Password: admin
```

**Having used either of these methods, the encoder is ready to receive configuration commands.**



## **Main unit configuration**

The VCX-4406-E units incorporate support for one form of encoding from six different input channels. It is important the operator understand this to be able to configure the unit properly. All commands follow this simple format:

(command<space>parameter<enter>)

From the command prompt, the operator may view the current configuration by entering the “display” command. This will dump the entire configuration status for the selected encoder. Enter the following configuration for each of the encoder channels. Take note the IP address must be of valid encoders on the network. The IP addresses below are just used as an example. Locate a multichannel MPEG4 encoder.

### ***Connection Configuration***

```
ip 192.168.5.150 (use a valid IP on your network)
ipmask 255.255.240.0
name CoreTec Encoder
com1 1
com1ip 192.168.5.151 (IP address of the decoder that is sending sub-channel commands)
com1tcp 1 (assume a universal decoder)
com1server 0
com1timeout 10
com1baud 38400
```

### ***MPEG4 Configuration***

The MPEG4 encoder requires the following parameters be configured to your network:

```
encoder 2
videoip 239.5.5.151 (use a valid IP on your network)
port 4570
bitrate 1000
res cif
fps 15
```

### ***Saving Configuration***

When all the configuration parameters have been entered, they must be saved to memory and the unit must be restarted by entering the following command:

Commit <enter> (please wait a moment until the following prompt appears)

```
COMMIT
DONE
```

Reboot <enter>

# IP Configuration

## OVERVIEW

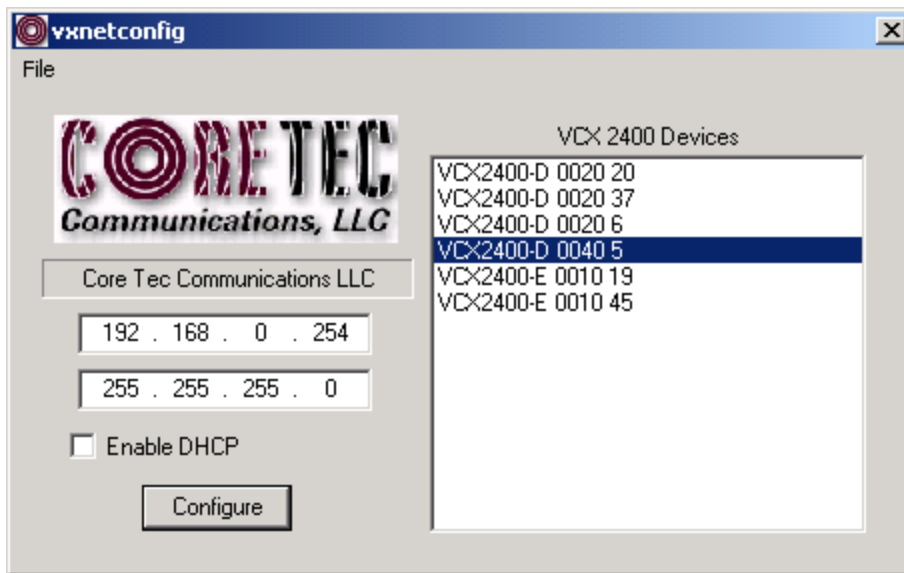
The commands contained in this section provide the means to configure critical network, com ports, encoder, and decoder parameters. The user should consult the factory if specific functions of interest do not appear to be supported.

## INITIAL IP ADDRESSING

To set the device parameters properly, encoder and decoder units must be given appropriate IP addresses, compatible with the network on which they are to be connected. The software module **VXNETCONFIG** was developed to allow a network administrator to set the IP and Subnet in the VCX-4406 series encoders and decoders.

### 1) Installation

To load VXNETCONFIG insert the CORE TEC CD into your CD drive. Select VXNETCONFIG by double clicking on the program. The following window will open:



VCXNETCONFIG Window

## Description of Program Functions

- (a) The first box on the left hand side of the window displays the current IP address of the CORE TEC device being interrogated. Type the new IP address into this space
- (b) The second box is used to change the SUBNET address. Note that the address displayed is always 255.255.255.0. Type the new SUBNET address into this space.
- (c) The Enable DHCP box is checked when DHCP is to be enabled.

**NOTE: Do not enable DHCP if sub-channels are being used of if there is no DHCP server. Check with the Network Administrator, or call Core Tec Tech Support if further assistance is needed.**

- (d) The Configure button is to execute the requested changes to the IP and SUBNET information. Note that future queries of the SUBNET will indicate 255.255.255.0. Therefore, the correct SUBNET address should always be entered prior to using the Configure button.
- (e) The box on the right hand of the window displays all VCX-4406 devices (encoders and decoders) on the network.

### 1) To make a change to the equipment addressing perform the following steps:

- (a) Select the Core Tec device address from the list in the box on the right side of the window.
- (b) Move the cursor to the IP box and select the first octet by highlighting the octet. Enter the new IP data for the selected octet. As the 3 digits are entered, the software will automatically highlight the next octet for change. Complete entering the IP address and then switch to the SUBNET data.
- (c) Move the cursor to the SUBNET box and select the first octet by highlighting the octet. Enter the new SUBNET data for the selected octet. As the 3 digits are entered, the software will automatically highlight the next octet for change. Complete entering the SUBNET data.
- (d) To execute the change press the configure button. The IP address and the SUBNET will be updated in the selected Core Tec equipment. The new IP address will be displayed. The SUBNET will display a default class C- SUBNET there is no read back of the changed SUBNET displayed.
- (e) Repeat this process for all the CORE TEC equipment requiring change.

# CONNECTING TO UNIT

There are currently two ways to connect to the VCX-4406-E.

## 1) Telnet

### **Password: admin (default)**

To change the default password perform the following:

Type password <your password (up to 11 characters)>

Where <your password> equals the new password, the password can be anything up to eleven (11) characters in length.

For configuration using an Ethernet connection, activate the Telnet function by the following:

- a. Initiating from the Command Prompt - Telnet nnn.nnn.nnn.nnn
- b. Use the MS Windows – START – RUN Telnet nnn.nnn.nnn.nnn

(where nnn.nnn.nnn.nnn is the IP address of the unit being configured)

Employ the command set as described below.

Note that the initial IP addresses (factory default) are:

Encoder 192.168.0.253

Decoder 192.168.0.254

Sub net Mask 255.255.255.0

(Alternatively, the end user software SW-2400 is usable when an Ethernet connection is established.)

## 2) HyperTerminal

**NOTE:** The following procedure is valid for standalone units only and is not applicable to rack mount units.

The HyperTerminal configuration procedure uses the serial connection on the front of the unit.

Using the PCA-2400 programming cable, connect to the control port. This cable should be attached to the serial port of an attached PC and the Hyper Terminal program launched. The PC should have its Com Port configured as:

Baud rate	38,400 kbps
Data bits	8 bits
Parity	No Parity
Stop Bits	1 Stop Bit
Flow control	None

**Refer to Appendix A to see Pin Out for RJ-11 to Serial adaptor.**

Activate the HyperTerminal function, normally found in a sub-menu under ACCESSORIES. Employ the command set as described in the following section.

### **Password: admin (default)**

To change the default password perform the following:

Type password <your password (up to 11 characters)>  
Where <your password> equals the new password  
The password can be anything up to eleven (11) characters in length.

## Program Commands

### IMPORTANT NOTES:

1. After entering one or more commands, it is necessary to enter COMMIT and REBOOT for the new settings to take effect.
2. Typing “?” displays a listing of all commands.

## NETWORK SETUP

### IP <IP Address>

The IP address setup is in the form of decimal dotted notation. The selection of an IP should come from the person who administrates the network. The current IP selection is static. A dynamic IP setting using DHCP is planned for future enhancement.

Default:

Encoder - 192.168.0.253

Decoder - 192.168.0.254

Example command:

IP 192.168.0.10 (sets IP address to 192.168.0.10)

### IPMASK <IP Subnet Mask>

The IP Subnet Mask is in the form of decimal dotted notation. The selection of an IP subnet mask should come from the network administrator. It is used to represent the number of bits in the current IP subnet.

Default: 255.255.255.0

Example command:

IPMASK 255.255.255.128

## **GATEWAY <ip-address> [<ip-subnet address> <subnet mask>]**

The GATEWAY command can have either one or three parameters. The first parameter is the IP address of the host that is the gateway. Optionally you may include the IP address and the subnet mask of the subnet you want to route through the gateway. You can program up to five gateway entries.

Default: No Gateways  
Example command:  
GATEWAY 192.168.0.1

The following example indicates that all packets sent to hosts on the 62.41.1.0.xxx subnet should be routed through the gateway at 192.168.0.2

Example command:  
GATEWAY 192.168.0.2 62.41.1.0 255.255.255.0

## **CLEARGATEWAY**

This command will clear the gateway table. There are no parameters. This command clears all entries.

## **CMDPORT <TCP command port number>**

The TCP command port selection is configurable. However, the default setting should be adequate for normal operation. The command port is used by software that can operate the VCX-4406 devices programmatically. For example, a Microsoft Windows GUI based application.

Default: 5000  
Example Command:  
CMDPORT<sp>5010 (sets TCP command port to 5010)

## **VIDEOIP <video destination IP address>**

The video destination IP is an address that allows the reception of the MPEG-4 stream by a single (unicast) or multiple (multicast) device(s).

**NOTE:** Class D IP addresses, in the range 224.0.0.0 to 239.255.255.255 are called multicast addresses. The range 224.0.0.0 to 224.0.0.255 is reserved for local purposes and the range 239.0.0.0 to 239.255.255.255 is reserved for administrative scooping. Both the encoder and decoder should be set to the same Video IP for correct operation together.

Default: 239.5.6.8

Example Command:

VIDEOIP 234.5.6.10 (sets multicast IP to 234.5.6.10)

## **VIDEOPORT <video multicast port number>**

The video multicast port selection is configurable. However, the default setting should be adequate for normal operation.

Default: 4568

Example Command:

VIDEOPORT 4569 (sets multicast port to 4569)



## COMM PORT SETUP <1|2|3|4|5|6>

The VCX-4406 supports four (4) sub-channels that allow the two-way transmission of serial data to selected target devices such as joysticks and PTZ cameras. The sub-channel can be configured for either RS232 or RS422 operation. It is not necessary for both ends to use the same configuration. The following is a list of the configuration items for the sub-channel:

- Channel Enable
- Baud rate
- Parity
- Stop Bits
- IP address of target
- TCP port for operation
- RS422 or RS232

Certain VCX-4406 devices can be delivered with either one or two com ports. The ports are designated as 5 and 6. These ports are not sub-channels.

Example(s):    COM5xxx for the Terminal Port  
                  COM6xxx for the Data Port if present

**Note:** These ports are not a sub channels. If this port is also needed for non-programming related data purposes, the user should program the necessary parameters with the jumper in place if using the Hyper Terminal method. Contact Coretec for additional information on the use of these ports.

### COMx <0|1>

This command sets the active state of the com port. The parameter is “0” or “1”, where “1” enables and “0” disables the com port function. At this time, the com port is always enabled and this command has no effect.

Default: 0 (OFF)

Example Commands:

COM1 1 (enables com port 1)

### **COMxBAUD<baud rate value>**

This command sets the baud rate for the com port. Valid values are 2400, 4800, 9600, 19200, and 38400. Other data rates may be functional but are not tested.

Default: 9600

Example Command:

COM1BAUD 4800 (sets baud rate for com port 1 at 4800 bps)

### **COMxPARITY<n|o|e>**

The parity for the com port can be set to Odd, Even, or None. The parameters for the COM[1|2]PARITY command are N,O,E, which correspond respectively to None, Odd, Even.

Default: None

Example Command:

COM2PARITY N (sets com port 2 to no parity)

### **COMxSTOPBITS<1|2>**

The number of stop bits for the com port can be set to one (1) or two (2).

Default: 1

Example Command:

COM1STOPBITS 2 (sets com port 1 to 2 stop bits)

## **COMxIP <com port IP address>**

The IP address of the destination for the com port data is set by this command. A typical setup would have an encoder and a decoder. The decoder would have a com port IP address that is the same as the encoder. In addition, likewise, the encoder's com port IP would be the same as the decoder. Notice that the default com ports IP's are the opposite of the default device IP's.

Default:

Encoder com ports- 192.168.0.253

Decoder com ports- 192.168.0.254

Example Command:

COM2IP 192.168.0.10 (points the com port data to an encoder, decoder,  
or other device whose IP address is 192.168.0.10)

## **COMxPORT <com port>**

The com port selection is configurable. However, the default setting should be adequate for normal operation.

Default:

Com port 1- 5002

Com port 2- 5004

Example Command:

COM1PORT 5010 (sets com port 1 to port 5010)

## **COMxRS422 <0|1>**

The com port data-format is configurable. The parameter is "0" or "1", where "1" enables RS-422 and "0" enables RS-232 format.

Default: 0 (RS-232)

Example Command:

COM1RS422 0 (sets com port 1 for RS-232)

## **COMxTCP <0|1>**

0=Use UDP

1= Use TCP

## **COMxSERVER <0|1>**

0 = client

1 = server

## **COMM PORT COMMAND – SETUP EXAMPLE**

The following examples set up com port 1 as enabled, 9600 baud, even parity, 1 stop bit and in RS232 mode communicating through IP port 5002 on IP address 192.168.0.10.

COM1<sp>1 (Enable com port 1)

COM1BAUD 9600 (Set com port 1 baud rate to 9600)

COM1PARITY E (Set com port 1 parity to even)

COM1STOPBITS 1

COM1RS422 1 (Set com port 1 mode to RS422)

COM1PORT 5002 (Set com port 1 port to 5002)

COM1IP 192.168.0.10 (Set destination address for data to 192.168.0.10)

## ENCODER COMMANDS

### ENCODER <channel number>

This command is used to select a desired encoder channel. All command prompts that follow will show the encoder channel number as part of the prompt.

Default: 1 <1, 2, 3, 4, 5, 6>

Example Command:

encoder 2 (sets command interface to encoder 2)

The return prompt will notify the user the selected channel is active:

#2>\_

### PROFILE <frame size>

This command is used to select a desired resolution for the encoded video. It also sets the optimal defaults for other parameters, such as bit rate. The allowable settings are QQCIF, QCIF, CIF, 1/2, D1.

Default: 1/2

Example Command: PROFILE<sp>1/2 (sets resolution to 1/2 D1)

**Note:** Since the Profile command selects defaults for other settings, it should be issued before any other commands relating to the encoded MPEG stream.

QQCIF	80x60
QCIF	160x120
CIF	352x240
1/2	352x480
D1	720x480

### FPS <value>

Sets encoded frames/second. Where <value> = frames per second of the video stream (i.e. 30, 15, 10, 5, 3, 2, 1)

## **GROUPLN <value>**

Sets frame spacing between I frames. Where <value> = number of frames between I-Frames. The default is 30. A larger GROUPLN and smaller FPS increases the startup time of the decoder.

Default: 30

Example Command:

**GROUPLN 30**

## **RES <display size>**

This command sets encoder resolution. Where <display size> is one of the following:

QQVGA - 160x120 (cropped horz)

QCIF - 176x120

QVGA - 320x240 (cropped horz)

CIF - 352x240

1/2 - 352x480

VGA - 640x480 (cropped horz)

D1 - 720x480

Default: 1/2

Example Command:

**RES D1** (sets the resolution to D1-720x480)

## **BRIGHT <value>**

This command adjusts image brightness. The acceptable range is from 0 to 255, where a higher number provides more brightness.

Default: 128

Example Command:

**BRIGHT 170** (increases brightness from default setting)

## **CONTRAST <value>**

This command adjusts image contrast. The acceptable range is from 0 to 127, where a higher number provides more contrast.

Default: 63

Example Command:

CONTRAST 90 (increases contrast from default)

## **SATURATION <value>**

Adjusts color saturation. The acceptable range is from 0 (no color) to 127.

Default: 63

Example Command:

SATURATION 75 (increases color saturation from default)

## **TINT <value>**

Adjusts color tint. The acceptable range is from -128 to 127.

Default: 0

Example Command:

TINT -10 (adjusts tint)

## **BITRATE**

This command adjusts the bit rate (in kbits/sec) of the encoded MPEG-4 video. This sets the maximum rate (of the variable bit stream) encoded. If audio is in the MPEG-4 stream, then an additional 256 kbits/sec will be added to the rate set by this command.

Default: The default is set by the Profile command

Example Command:

BITRATE 2000 (Sets max bit rate to 2 Mbits/sec)

**Note:** This command should be issued AFTER the Profile command if the Profile command is used.

## **DISPLAY <VIDEO|COM|IP|SAP>**

This command displays current encoder settings. Entering DISPLAY only provides all settings. Adding the VIDEO, COM, or IP qualifiers displays settings for video, com port, or IP parameters, respectively.

Example Command:

DISPLAY IP (displays current IP encoder settings)



## COMMON COMMANDS

The following commands apply to both encoders and decoders. Many of the commands that have options or other data as part of the command line will remain operative until a reboot or restart. If the parameters are to be made permanent a “COMMIT” command must be performed before any type of restart is done.

### AUTOREBOOT

This command permits a periodic timed reboot of the device. The parameter is the number of seconds between reboots.

Default: 0 (off)

Example: AUTOREBOOT 3600

### AUTOSTART

This command sets a periodic timed restart of the video encoder/decoder. The parameter is the number of seconds between starts.

Default decoder: 0 (off)

Default encoder: 28800 (8 hours)

Example command:

AUTOSTART 3600

300 seconds equals 5 minutes

3600 seconds equals 1 hour

### COMMIT

This command saves the parameter changes in permanent memory. A commit command must be issued before a reboot or power cycle if the new device settings are to be maintained.

### DISCOVERY <0|1>

This command sets the boot-up state of the discovery process. If the discovery variable set to “0” the unit will not request the discovery protocol be started, where if set to “1” the unit signals its presence on the network and the discovery process is performed.

### DISCOVERYIP <ip-targethost>

This command sets the IP address of the host system doing the discovery process.

## **DISCOVERYPORT <ip-targetport>**

This command sets the IP address of the host system doing the discovery process.

## **DEATHBLOW**

This command causes a reboot of the device. The purpose of this command is to cause a reboot from the password prompt. If you cannot login into the command, prompt because of the “Another administrator is logged in.” message, then you can use DEATHBLOW as the password to return the unit to the power up state.

## **DEFAULT**

This command returns the unit to factory default settings.

## **EXIT**

Exits from the command prompt and releases the current login. You may also use the following alternatives... LO (LogOff) and QUIT.

## **NTSC**

This command sets unit for NTSC video operation.

## **PAL**

This command sets unit for PAL video operation.

## **REBOOT**

This command restarts device from powerup state. Most changes in device settings require a reboot after a commit.

## **START**

This command starts encoding or playback (video out).

## **STREAMTYPE**

This command selects between Program and Transport multiplexing of the video stream. Acceptable parameters are T or P, where P is Program and T is Transport.

Default: P (program stream)

Example command:

STREAMTYPE T (transport stream)

## **STOP**

This command stops encoding or playback (video out).

## **VER**

This command displays the software version/build date, BSP (board support package) version/build date, and board revision.

Example response:

Version: VCX4406e v1.0h, Date: 10AUG05

BSP VCXWIS v1.2, 29SEP04

Board revision: 2.4

## **WD**

The watchdog is a timer that will perform a complete reset of the device if the firmware encounters a lockup condition. The parameter is “0” or “1”, where “1” enables and “0” disables the watchdog function. Enabling the watchdog allows the VCX-4406 devices to recover from some fatal error conditions without user intervention.

Default: 0 (OFF)

Example Command:

WD 1 (enables watchdog)

## **SAP Settings**

The encoder is capable of multicasting SAP (Session Announcement Protocol RFC-2974) packets with SDP (Session Description Protocol RFC-2327) content. There are a number of parameter settings for configuring SAP. They are presented in this section. The user should refer to the referenced RFCs to understand the significance of the SAP/SDP parameter settings.

### **SAP**

This command is used to enable or disable the SAP multicast. ON or OFF are the permitted parameters.

Default: OFF

Example:

SAP ON

### **SAPAUTHOR**

This command is used to set the SDP (RFC-2327) author information. The parameter is an ASCII string with a limitation of 30 characters.

Default: No text

### **SAPCOPYRIGHT**

This command is used to set the SDP (RFC-2327) copyright information. The parameter is an ASCII string with a limitation of 30 characters.

Default: No Text

### **SAPINFO**

This command is used to set the SDP (RFC-2327) info information. The parameter is an ASCII string with a limitation of 62 characters.

Default: Core Tec VCX2400e

Example:

SAPINFO Intersection of 1st and main

## **SAPINTERVAL**

This command sets the interval between SAP packet transmissions. The parameter is the number of milliseconds between transmits.

Default: 5000 (5 seconds)

Example command:

SAPINTERVAL 10000 (10 seconds)

## **SAPIP**

This command sets the IP address of the destination host for SAP packets. This address is a multicast address defined in RFC-2974. It is unlikely that the user will need to change this setting.

Default: 224.2.127.254

## **SAPKEYWORD**

This command is used to set the SDP (RFC-2327) keyword information. The parameter is an ASCII string with a limitation of 30 characters.

Default: No text

## **SAPNAME**

This command is used to set the SDP (RFC-2327) name information. The parameter is an ASCII string with a limitation of 30 characters.

Default: Core Tec Communications, LLC

Example command:

SAPNAME Main Street Camera #1

## **SAPPORT**

This command sets the destination port for SAP packets. The port number is defined in RFC-2974. It is unlikely that the user will need to change this setting.

Default: 9875

## **SAPUPDATE**

Issue this command after changing the SAP parameters to update all devices listening to SAP multicasts.

## **MISCELLANEOUS SETTINGS**

### **CAMERA [n]**

Store a user defined camera type code 0..255

This is a current list of the Cameras we support:

Cohu = 1  
Philips\_Bosch = 2  
Pelco = 3  
Vicon = 4  
RVision = 5  
Panasonic = 6

### **CAMERAID [n]**

Store a user defined camera ID code 0..255

# Specifications

## PHYSICAL AND ENVIRONMENTAL

### *Dimensions*

11.0" x 5.25"

### *Mounting*

R-12 Card Cage Enclosure

### *Weight*

.6 pounds

### *Temperature*

-20 degrees to + 70 degrees Centigrade  
(-4 to 158 degrees Fahrenheit)

### *Humidity*

0 to 95% non-condensing

## POWER REQUIREMENTS

From Enclosure

## CONNECTORS

### *Video*

NTSC/PAL      BNC

### *Power*

From Back-plane (36 pin Molex)

### *Data*

Network      RJ-45  
Com ports    RJ-45

## **ELECTRICAL**

### ***Video Input (NTSC/PAL)***

Impedance: 75 ohm unbalanced, return loss  $\geq$  30 dB

Dynamic

Range: .5 volts to 2.0 volts peak to peak

### ***Video Output (NTSC/PAL)***

Impedance: 75 ohm unbalanced, return loss  $\geq$  30 dB

Output Level: 1.0 volts peak to peak nominal  
(.9 volts minimum to 1.1 volts maximum)

Sync Level: 257 mV (36 IRE) to 314 mV (44 IRE)

Bar Level: 642 mV (90 IRE) to 785 mV (110 IRE)

Burst Level: 257 mV (36 IRE) to 314 mV (44 IRE)

Resolution: Full D1: 720h x 480v (NTSC); 720h x 576v (PAL)

1/2 D1: 352h x 480v (NTSC); 480h x 576v (PAL)

CIF: 352h x 240v (NTSC); 352h x 288v (PAL)

QCIF: 160x120

QQCIF: 80x60

Frame Rate: 1 to 30 frames per second maximum

### ***Data (Network)***

Format: Ethernet IEEE 802.3; 10/100 Base T

Line Rate: down to 64kbps

### ***Data (Sub-channels)***

Format: RS-232 or RS-422 (programmable) (2)

Data Rates: 2400, 4800, 9600, 19200, 38400 bps



***Programming Data***

Format: EIA RS-232C (primary data lines)

Rate: 38.4 kbps

Form: 8-bit data, 1 stop bit, no parity

**Part Numbers**

**BASE MODELS**

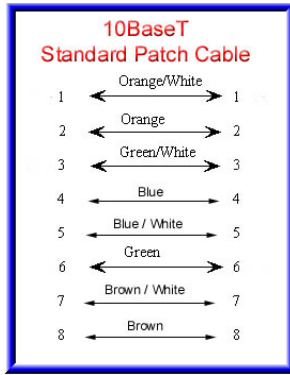
VCX-4406-E MPEG 4 Video Encoder – IP

**ACCESSORIES**

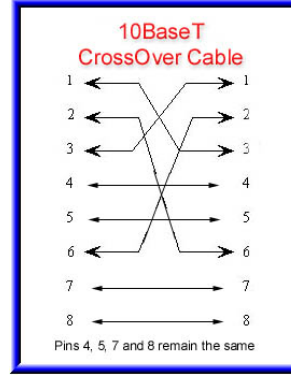
SW-2400 Video Watchdog™ User Software

# Appendix A

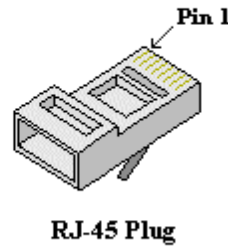
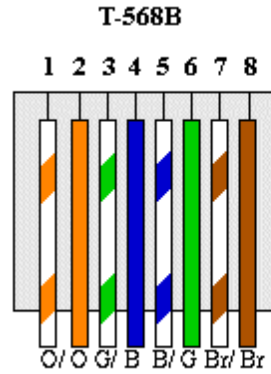
## Standard Ethernet Pin Outs



Straight Through Ethernet Pin Out



Cross Over Ethernet Pin Out



### Com Port Data Interface Pin Out (uses RJ-45 Plug)

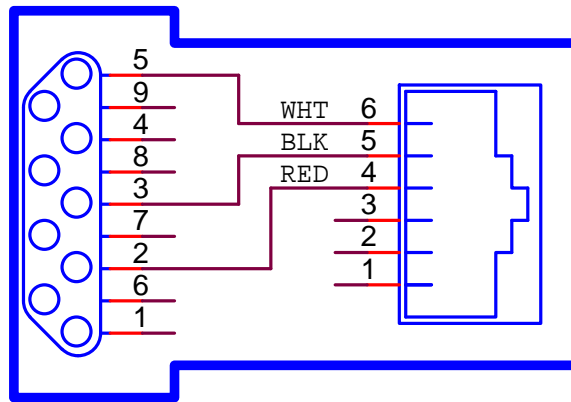
Pin	Signal	Description	Signal Type
1	RS-232	Receive	Input
2	RS-232	RTS	Output
3	RS-232	Transmit	Output
4	RS-232	CTS	Input
5	RS-422	Receive Data +	Input
6	RS-422	Transmit Data -	Output
7	RS-422 RS-232	Receive Data - Ground	Input Ground
8	RS-422	Transmit Data +	Output

## RJ-11 to Serial Interface Adaptor Pin Out

The PC should have its Com Port configured as:

Baud rate	38,400 kbps
Data bits	8 bits
Parity	No Parity
Stop Bits	1 Stop Bit
Flow control	None

RJ-11 Adaptor VCX-Encoder Series  
Front Panel Serial Interface



Manufacturer Supplied Serial Adaptor

Below is the pin layout of the RJ-11:

Pin	Function
1	Ground
2	Unused
3	Unused
4	Serial Out
5	Serial In
6	Ground