

# ITVINJECTOR



Versatile platform for data encoding and simultaneous graphics generation



## ITVINJECTOR features

- Encodes closed captions, XDS (V-chip), Interactive TV data, and more
- Reads popular caption files directly from floppy drive—external PC not needed
- Remote control via a network connection
- Built-in closed caption decoder, LTC time code reader, bidirectional GPI
- Field upgradable software
- Three models available:  
“D”: serial digital in/out  
“A”: composite analog in/out  
“H”: both SDI and analog
- Optional 32 bit full screen character generator, fault tolerant upgrade, modem

## ITVINJECTOR is ideal for

- Post production
- Tape duplicators
- Caption/DVD subtitle agencies

## ITVINJECTOR—the standard of post houses today

ITVinjector is the successor to the DV2000—the industry’s first VBI data encoder and subtitle generator in a single unit. With ITVinjector you can generate slates, bugs, TV rating icons and subtitles while encoding closed caption and Interactive TV data. Post production and tape duplication facilities can perform these jobs in a single pass without the need for a PC. Broadcasters can comply with FCC rules by encoding closed captions and V-chip data while simultaneously displaying on-screen TV rating icons.

ITVinjector is constructed in a modular fashion. All of the components plug into industry standard slots. The modular architecture allows for easy upgrades in the field. There are slots available for functions that may be required in the future. ITVinjector comes in three versions depending on the type of video input/output: SDI, composite analog, and dual SDI/analog “hybrid”. The CG function is an add-on option and is only available at the SDI output.

## Easy operation

A common complaint in the caption industry is that post houses must deal with caption files with different formats and encoding requirements. ITVinjector addresses this by reading all of the popular caption file formats. The encoder automatically determines the proper settings by looking at the data contained in the file—the operator doesn’t even have to specify the format.

In a broadcast environment, ITVinjector can act as a caption server. Caption data does not have to reside in the VBI of programs on videotape; it can be encoded “on-the-fly” as the program airs. Captions may be downloaded to ITVinjector’s hard disk via a network connection or modem interface. A script may be generated that instructs ITVinjector to encode a sequence of shows based on time code. This technique saves a tape generation, plus it allows easier reformatting of captions if a show is edited.

## Closed caption encoding

Caption encoding is where ITVinjector truly excels. The heart of the encoder is the CCX caption encoding software module. CCX is ULTECH's Windows-based closed caption encoding program. This program has been in use during the last six years in hundreds of post production and duplication facilities. CCX has evolved into a stable and highly accurate method for metering captions based on time code. It ensures that captions will be revealed on the viewer's screen at exactly the moment intended by the caption's creator. We've taken our time-tested CCX software and modified it for use in the ITVinjector.

ITVinjector's most important feature is its ability to read caption files from the industry's leading agencies and caption software providers. Files from unsupported software vendors may be converted to ULTECH .*ULT* format and read directly. Of course, ITVinjector may still encode captions the old-fashioned way, that is, by sending data to an ITVinjector serial port from a PC.

ITVinjector encodes NTSC captions on line 21 of the VBI, and PAL captions on line 22. It can encode field 2 XDS data such as "V-chip" data while encoding captions in field 1. ITVinjector has an upstream caption decoder, so it can reencode, pass, or merge data per EIA-608 recommendations. All of ITVinjector's encoding functions are performed in software—software that can be upgraded via ULTECH's web site. This ensures that ITVinjector will stay current no matter what the industry may conjure up. Even ITVinjector's waveform generator is controlled via software. A benefit of this is that the caption waveform's "0 IRE" level and its "50 IRE" level may be set from the front panel or via script commands—no more problems with VTR's and converters that strip or add NTSC setup levels.

## User interface

ITVinjector's most useful feature is its ability to accept caption or subtitle jobs from a floppy disk or network connection and run them automatically. Operators are not required to make any settings whatsoever. On the other hand, ITVinjector offers a myriad of control and programming capability to "power users". ITVinjector may be controlled from the front panel, or remotely via communications port, modem, or network connection.

## Capabilities table

		SDI composite		SDI component		Analog composite	
		VBI	CG	VBI	CG	VBI	CG
ITVinjector-D	SDI	✓	-	✓	✓	-	-
ITVinjector-A	Analog	-	-	-	-	✓	-
ITVinjector-H	Hybrid	✓	-	✓	✓	✓	-

## Character generator

You may purchase ITVinjector with an optional character generator to produce text and graphics on-screen. The CG option consists of a larger hard drive, video RAM module, CPU upgrade, and associated software. The CG provides two video frame stores of 24 bit RGB plus 8 bits of transparency ("alpha" channel). You can create any image in 16 million colors with 256 levels of transparency over the background video. Your image can occupy up to 512 TV scan lines in each frame for PAL, and 481 for NTSC.



## How to create images with ITVinjector

ITVinjector CG displays text and graphics as individual "subpictures". The subpictures are received via a communications port, network interface, or local script file residing on the hard disk. Subpictures can be displayed by ITVinjector based on longitudinal time code, GPI triggers, and internal or external timing.



ITVinjector displays graphics images that are in BMP, PCX, TIF, and PNG formats. Subpictures are loaded into a non-displayed graphics buffer then displayed at the desired time. Subpictures are always rendered off-line, that is, on an external PC, Mac, or workstation. You can use any graphics drawing program from Adobe, Macromedia and many others to create subpictures. Subpictures can be faded on and off the screen.



## Per your request

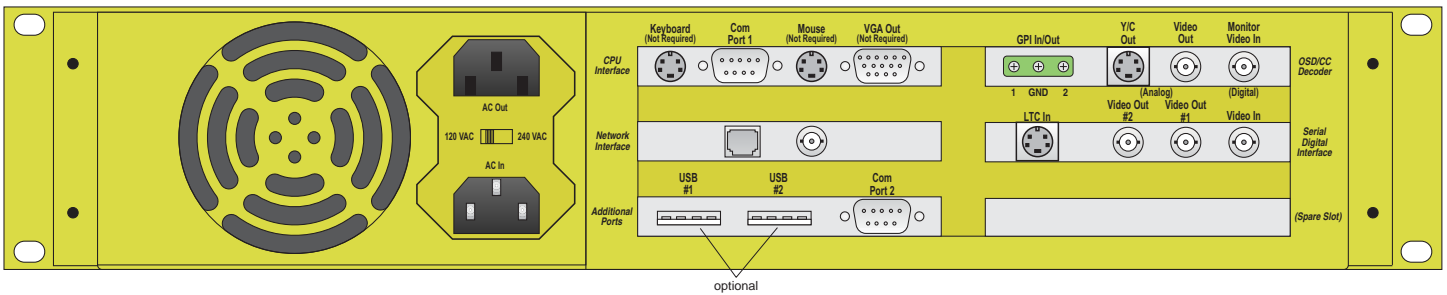
*ITVinjector is the result of comments and suggestions received by experts in the industry during the past five years. Features such as combined VBI encoder/CG, adjustable caption waveform level, network interface, floppy drive, and many more were specified by customers who truly understand the business of closed captioning and subtitling. ULTECH acknowledges the invaluable contribution of these individuals in prescribing the formula for the ideal caption/subtitle platform!*

## Improvements over DV2000

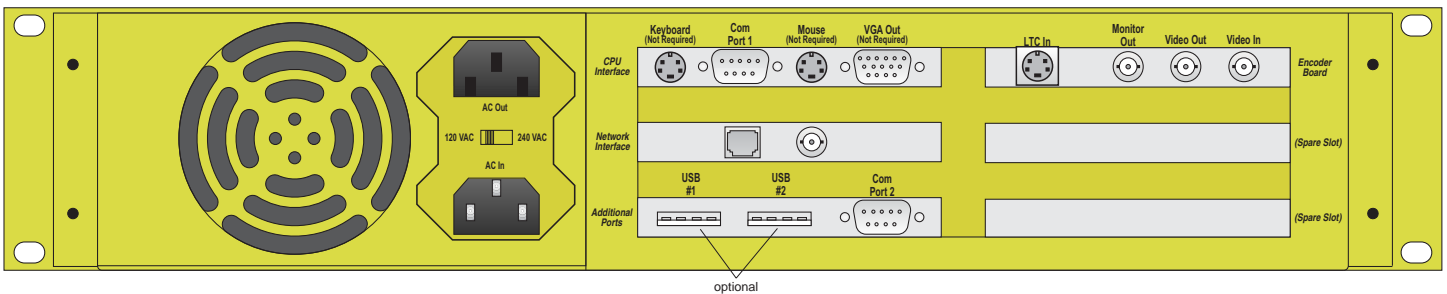
ITVinjector is the successor to ULTECH's DV2000 and offers a number of improvements:

- Virtually unlimited job file size. DV2000 is limited to about 200Kbytes.
- ITVinjector-H can run separate digital and analog jobs at the same time due to its multitasking operating system.
- ITVinjector can read zipped jobs and automatically unzip them.
- ITVinjector is easy to configure for networking, and has client and server network components. DV2000 is difficult to configure for networking, and it only has a client component.
- ITVinjector can be configured—and the front panel can be remotely controlled—from any Windows PC on the network with ULTECH's DvRemote utility.
- ITVinjector can encode NABTS Teletext/ATVEF transport "B" via a network port as well as a serial port. DV2000 only provides for serial port encoding.

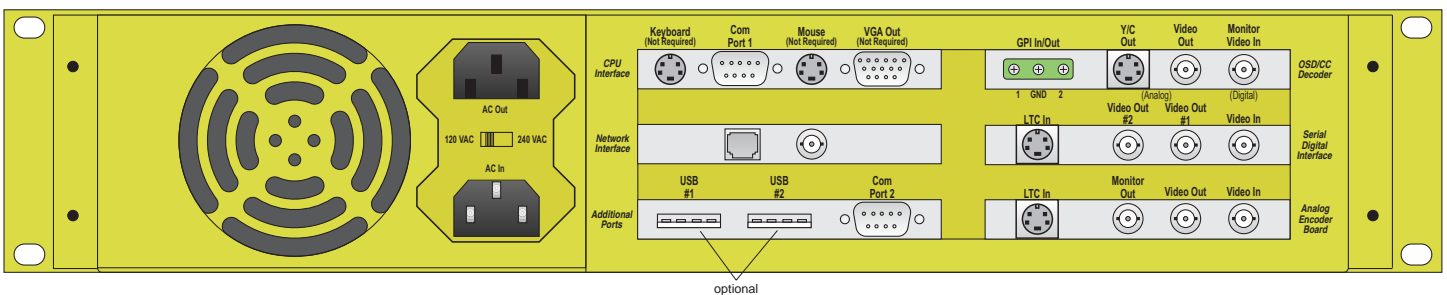
## ITVinjector-D "Digital" rear panel



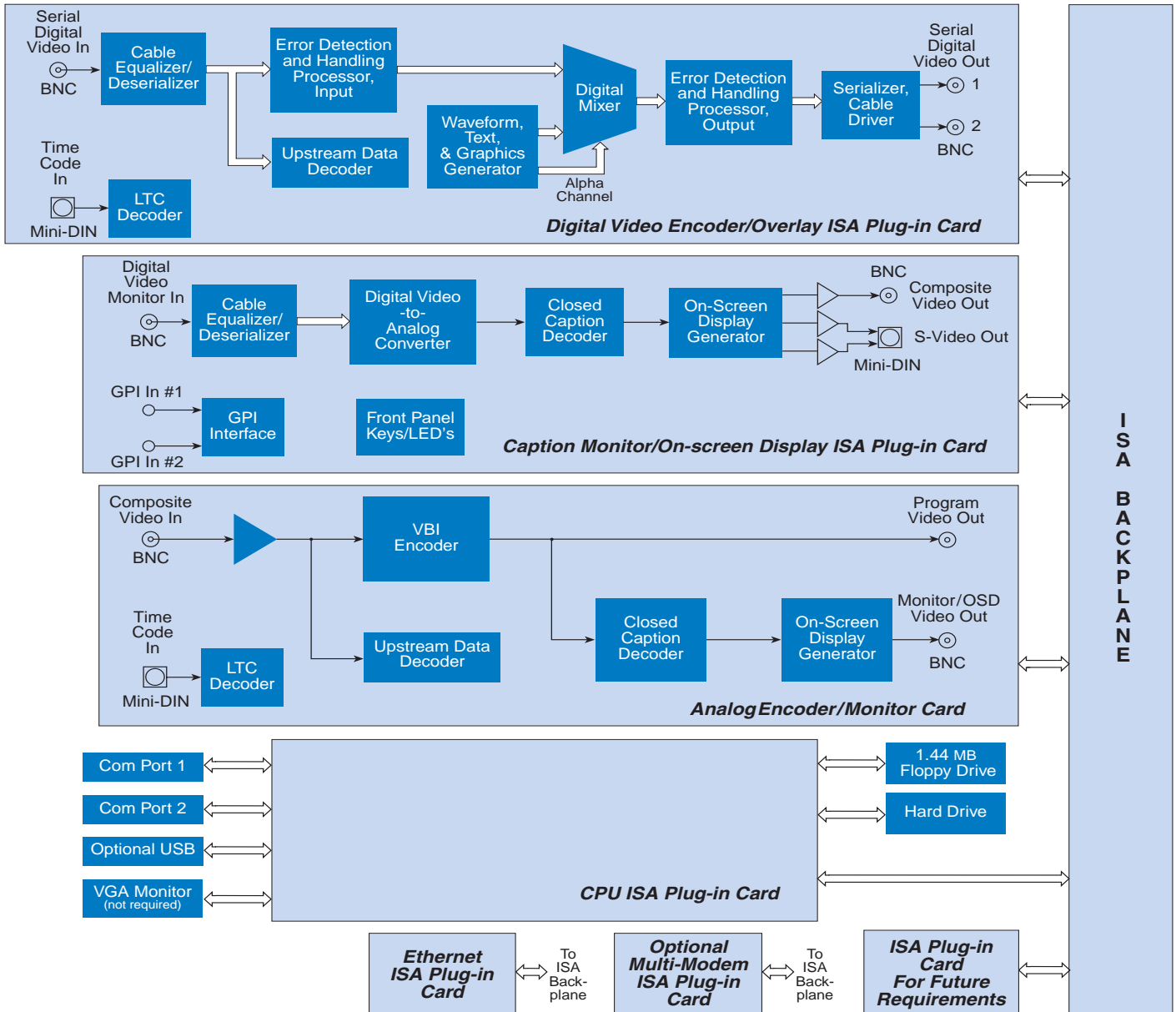
## ITVinjector-A "Analog" rear panel



## ITVinjector-H "Hybrid" rear panel



## Modular architecture, analog/digital "hybrid" shown



## Ordering information

**Models** ITVinjector-D (serial digital only)  
 ITVinjector-A (composite analog only)  
 ITVinjector-H (both SDI and analog)

**Options** OPT12 Character Generator  
 OPT15 56 Kbps Modem  
 OPT18 Fault tolerant upgrade

**Warranty** One year parts and labor

**Toll Free Order Hotline**  
 888-360-0010

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