MHz MEGA HERTZ "The Protector"

Video Inserter with Integral Combiner

Protects
LOCAL AD
STOCK-TICKER
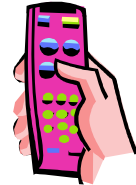
Operation Manual

change 0, 20 Nov 00

PRELIMINARY

Due to possible design modifications, the descriptions and technical data in this manual are subject to change without prior notice. For technical assistance or service, contact Keywest Technology at:

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INTRODUCTION

The Protector is designed specifically for maintaining a background image while displaying a compressed foreground image. The need for the Protector stemmed from CNBC® broadcasts of a real-time stock ticker. When local cable affiliates insert local advertisements without the use of the Protector or its predecessors, the CNBC® ticker would be covered for a period of time. With the boom of day-trading, it became a nuisance to have your ticker covered when the local ad was playing, since you'd have to wait until your stock listing made the rounds again—and as the "law" goes, the local ad would come on exactly at the wrong time, covering the one stock you'd been waiting to see…to buy…. to sell!

The Protector incorporates a state-of-the art digital video-processing device that is actually a full frame sync/time base corrector, with video scaling capability. The Protector also features a built-in video combiner for "picture-in-picture" effects (such as revealing a portion of a background video source). In addition, the Protector serves the purpose of many other devices in former installations—it replaces a separate timer device with its own graphical user interface (GUI) event controller—it replaces a separate distribution amplifier with its own included distribution system—it replaces a separate Vertical Blanking Interval (VBI) extractor/inserter with its own VBI electronics (broadcast quality closed-captioning passes transparently through the device). The Protector also provides the additional features of direct LAN interface, optional dial-up control, and consolidated 2 rack-unit high chassis.

The Protector is well suited for the "ticker" job, and combined with its DVE features, it is a versatile and proven device that will serve you well in any video combining installation you may encounter.

(Manual use note: For a full color version of this manual, visit http://www.keywesttechnology.com\support\downloads or request CD)

CAUTION

The Protector is configured to auto-start as soon as power is applied and the master power switch on the rear of the unit is switched on. This is to ensure the unit will automatically re-start should you experience power fluctuations or loss. It is therefore critical that you connect all setup equipment prior to initial power up. The operating system may not recognize keyboards or mice if not connected prior to boot. Equipment damage could result from failure to follow this caution.
DO NOT CONNECT PERIPHRIALS WITH POWER APPLIED TO THE PROTECTOR

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INSTALLATION

Mount the Protector in a 19" Rack.

CAUTION

Ensure the unit is mounted securely by all four rack-ear bolts to provide sufficient support for the chassis. When the unit is rack-mounted, do not put additional weight on top without adding additional support below. The Protector should be operated in a relatively dust-free environment. Rear air intake and front air expulsion vents must not be obstructed.

Make the necessary cable connections (see fig 1 (overall), 2 (video), 3 (PC), and 4 (GPI))

Provide 115 VAC main power to the unit via the provided, ground-isolation power cord (see fig 1)
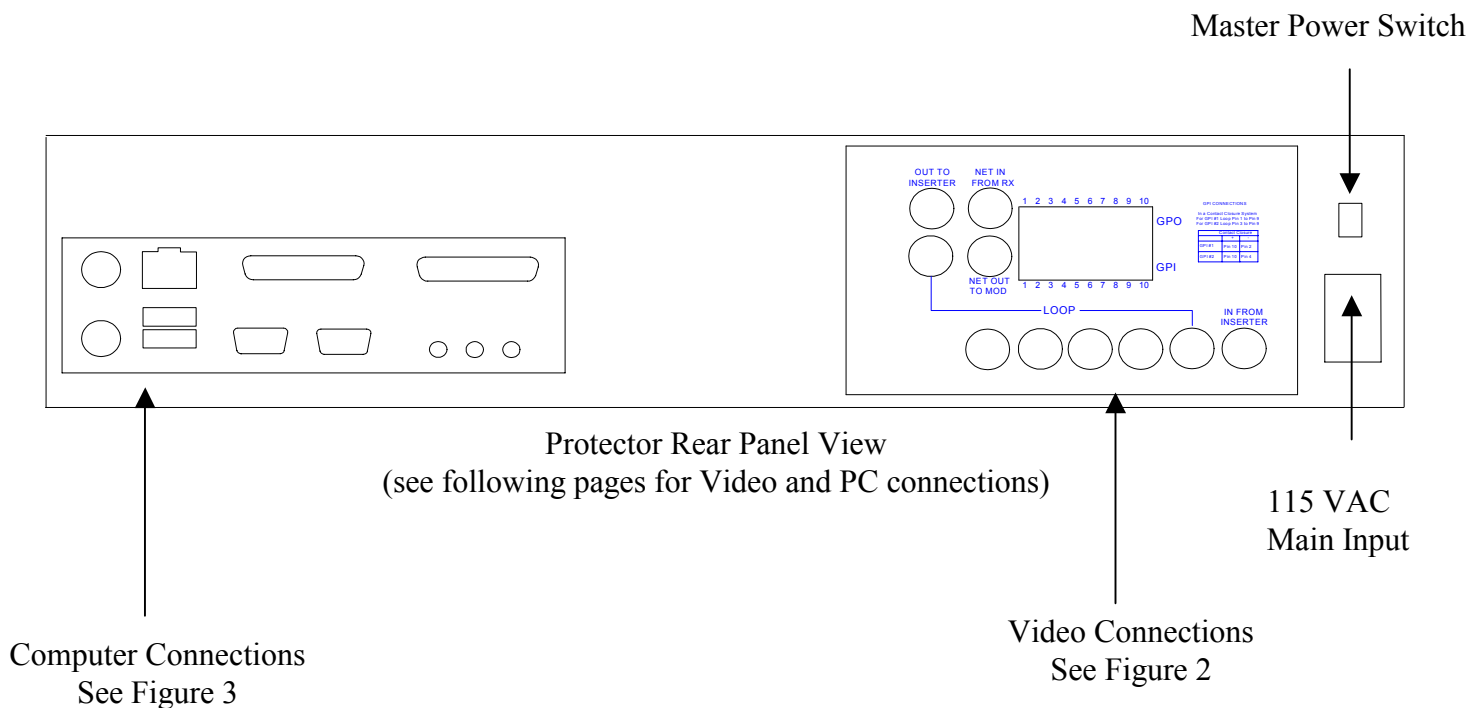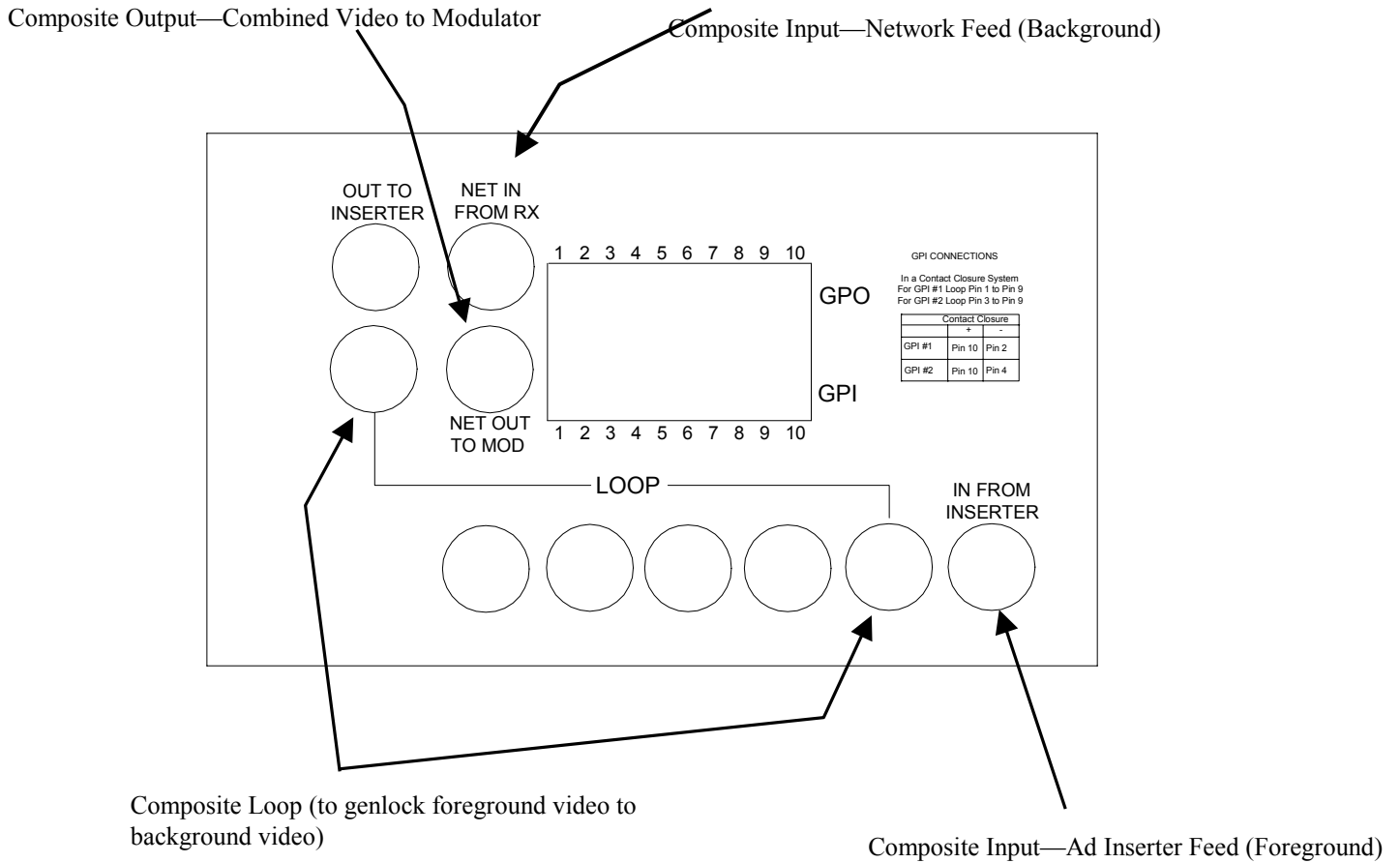
Figure 1

Master Power Switch

115 VAC
Main Input

Protector Rear Panel View
(see following pages for Video and PC connections)

Video Connections
See Figure 2

Computer Connections
See Figure 3

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Figure 2 Typical Video Connections

Composite Output—Combined Video to Modulator

Composite Input—Network Feed (Background)

OUT TO INSERTER

NET IN FROM RX

1 2 3 4 5 6 7 8 9 10

GPO

GPI CONNECTIONS

In a Contact Closure System
For GPI #1 Loop Pin 1 to Pin 9
For GPI #2 Loop Pin 3 to Pin 9

Contact Closure		
	+	-
GPI #1	Pin 10	Pin 2
GPI #2	Pin 10	Pin 4

GPI

NET OUT TO MOD

1 2 3 4 5 6 7 8 9 10

LOOP

IN FROM INSERTER

Composite Loop (to genlock foreground video to background video)

Composite Input—Ad Inserter Feed (Foreground)

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Figure 3 Typical PC Setup Connections

LAN

PS2 Mouse

Keyboard

USB (dual) Keyboard or
Mouse

Video

COM1

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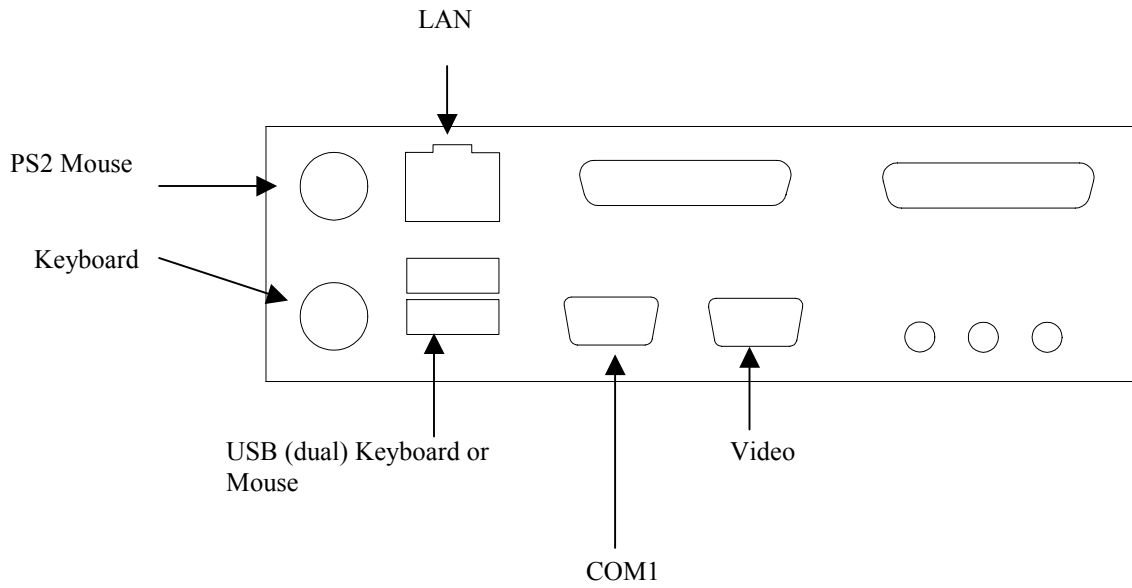
Figure 4 Typical GPI Connections

Contact Closure + (pin 2)

1 2 3 4 5 6 7 8 9 10

GPO

GPI

1 2 3 4 5 6 7 8 9 10

Contact Closure – (pin 10)

Loop pins 1 & 9
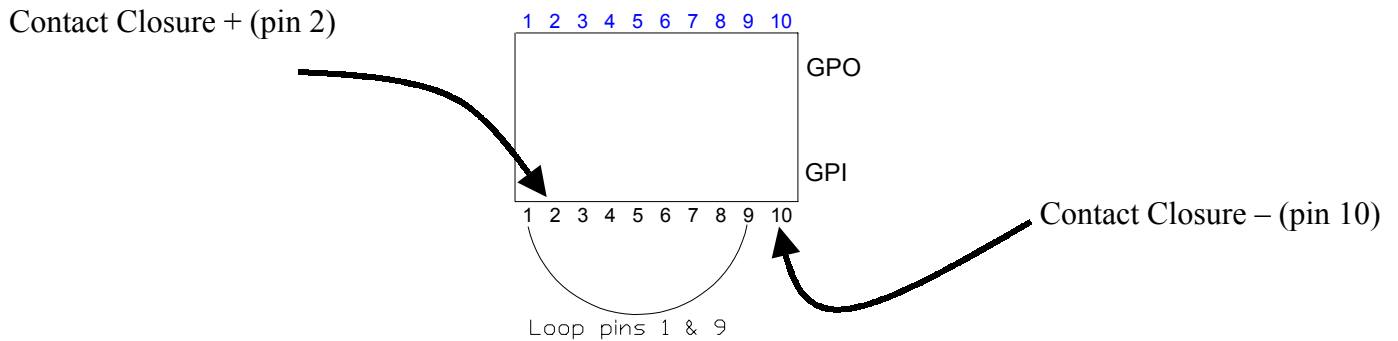
Typical GPI connections for the ticker job require only one set of wires. Ad insertion equipment should have some sort of contact closure, GPI output, or relay that will make a low (0V) or simple ground. The Protector reacts to the GPI based on how you program it in the Event Controller covered later in this manual.

Most contact closure outputs from the ad inserters will be labeled + and -; in reality, the Protector won't care, but following these symbols will ensure proper connection.

Use the removable 10-pin plug (green Phoenix type). Strip your GPI contacts from the ad inserter; insert stripped end into plug; tighten locking screws; plug 10-pin plug back into bottom row of the GPI plug (labeled GPI).

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INITIAL SETUP

Out of the box, the Protector is programmed to run video compression sequences triggered by GPI pulses. You can make the video connections and the GPI connections, and have response from the Protector, but it's much more than that. The Protector software contains an Event Controller that will allow you to set functions based on dates and times. Your Protector can then "squeeze" video when you need it, and maintain full screen video when you don't.

For initial installation, you will need to connect an SVGA (800 x 600 progressive scan) monitor, a mouse (PS2 or USB) and a keyboard. Also, to utilize the full function of the unit, you should take the time to connect it to your Local Area Network (LAN). With the Ethernet or LAN connection, you have the capability to control the unit from any Internet connected PC worldwide (so, while you're off at NAB, and the ticker is running overtime, you can log on and change the Protector's settings to keep your viewers tuned in to your revenue generating ads).

Once initial setup is complete, you can remove the monitor, mouse, and keyboard…but leave the LAN connected.

After you have connected the computer peripherals, power up the Protector as described in the following paragraphs.

Please don't hesitate to call or email us with any questions you may have, or just for general assistance.

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OPERATION

The Protector is a microprocessor-based system. The current operating system is running on a 500 MHz or greater CPU. The operating system is 2000 Professional©. See appendix __ for typical LAN software settings.

The main software engine of the Protector is the Graphical User Interface (GUI). The GUI is a custom application that gives you full control over all features of the video scaling board and the combining board. The combiner handles all of the general-purpose interrupt (GPI) function as well as the mixing of foreground and background video. The unit also features two distributed background outputs for use in other areas of your system (one of which is used as a genlock signal for the foreground video). With the built in flexibility of the system and its GUI, the system can serve many purposes, however, this manual will cover the most important facets of the "stock ticker" application. So, let's get started!

GETTING STARTED

Once you have every thing connected for initial setup we can configure the Protector for operation.

Set the MAIN POWER SWITCH (fig. 1) to the ON position (noted by a visible white dash at the top of the main power switch).

Once the operating system is up and running, you will get a network sign-on prompt. The initial start up USER ID and PASSWORD are both the serial number of your Protector. The user may change this once in and comfortable with the operation of the unit.

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Once you successfully log on to a network, or CANCEL network log on if you choose to run the system off-line, the Protector GUI will auto-run. The next thing you should see on your setup monitor is the GUI's request for you to choose a COMM PORT. For virtually all setups, select COMM 1 (this is the default if you simply press enter at this point) and click OK. Note, if the Protector has been configured to "auto-start" this page may not be seen.

Select Port 1 ——————→

Click OK ——————→
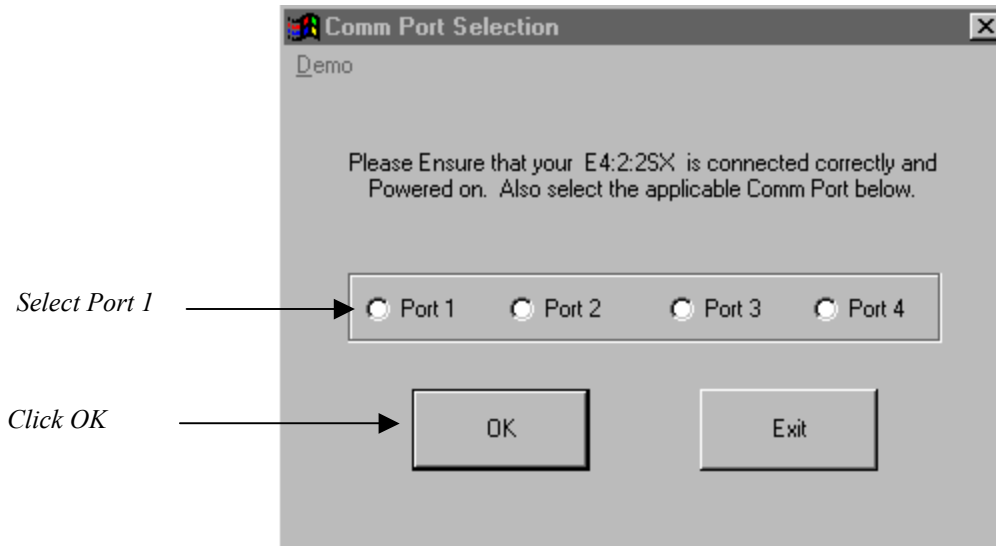
The GUI will now verify the port you selected, and if all is correct will immediately take you to the initialize routine.

INITIALIZE SYSTEM

You will now encounter three successive initialize screens that ask you to verify that you're ready to start the system and initialize the video processing boards. Click OK if you're ready on all three initialize screens.

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The GUI should now be loaded, and you'll see one of the main screens on your setup monitor. (Fig. 5).

The Protector is calibrated for video levels and timings at the factory, but you may wish to tweak these values to perfectly match your system. These adjustments are made on the MAIN form. (Fig. 5)
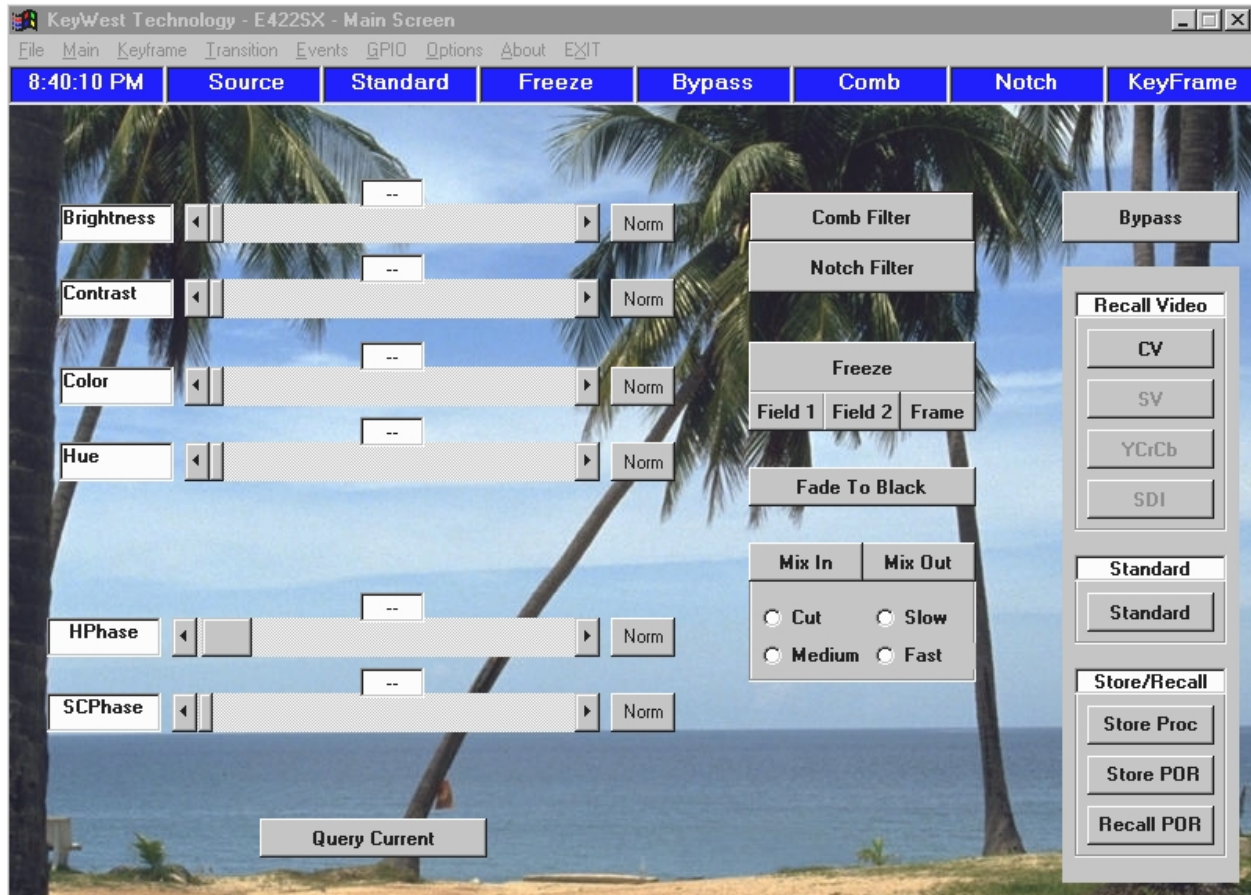
MAIN SCREEN

Figure 5

Use this form to adjust your proc amp settings (color, bright, contrast, hue, and timings). This form also contains controls for the remaining features of the Protector video processing board set. The Protector is set to broadcast standards at the factory. You can fade video to black, mix video between foreground and background, as well as other functions. These functions are not used in the stock ticker job, and we STRONGLY recommend you don't change any of the settings that you don't need! But, just in case, should buttons be "clicked" to just take it for a spin…you can always recover to original settings by clicking RECALL POR or as a last resort,

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re-booting the system. Use caution when "test driving" the system, for if you do press the STORE POR button, whatever settings you've changed will be the new default state.

If you have made changes that you wish to save, simply click STORE PROC (to store the proc amp settings) and then click STORE POR (to store the default state).

Using the menu bar at the top of this, and all other major screens within the software, you can immediately access any of the other forms.

The next form of some interest would be the KEYFRAME FORM. Click KEYFRAME on the menu bar.
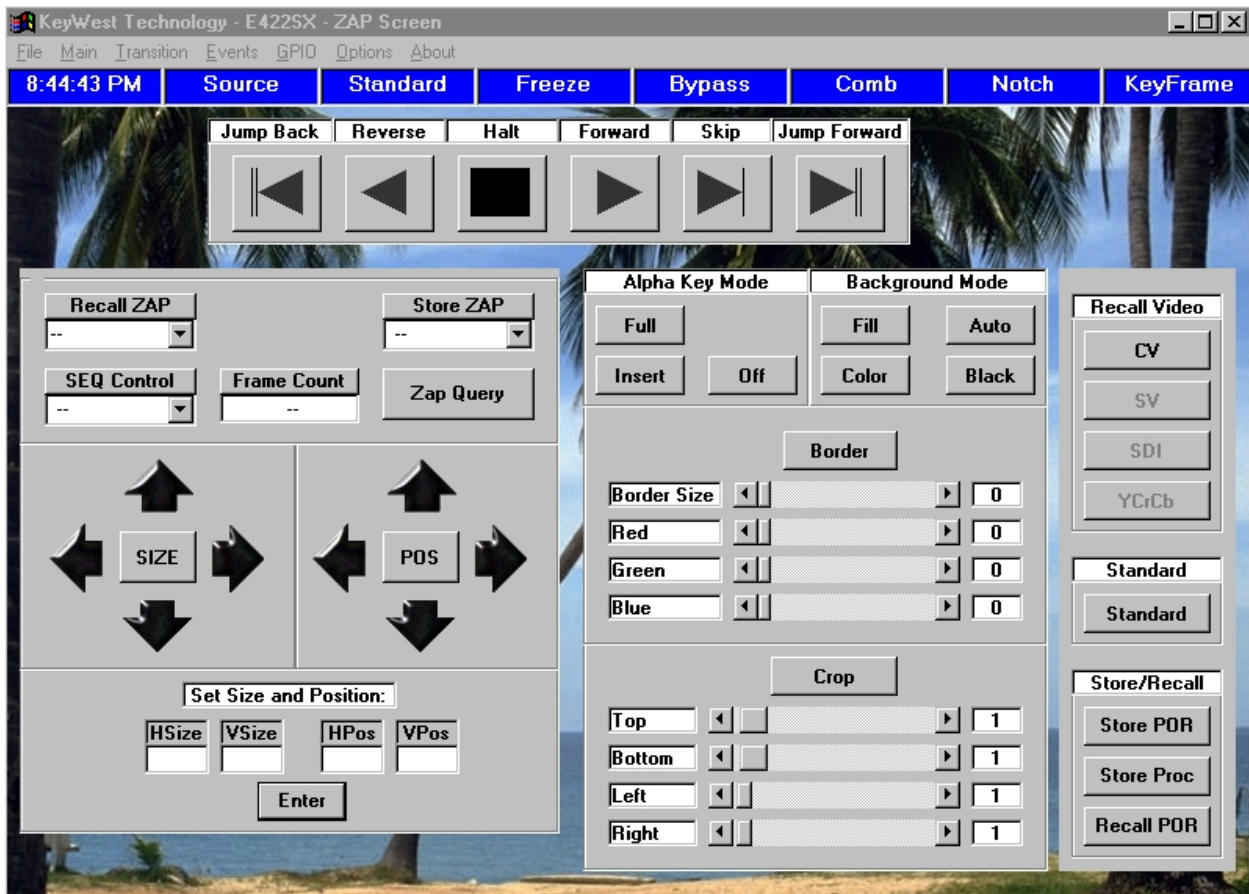
KEFRAME SCREEN

Figure 6

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First, a little definition of a Keyframe: A Keyframe is a conglomeration of several settings within the VP boards. It consists of size, position, transition frame count, transition mode, border and crop settings. You can store 10 different keyframes within the Protector, and you can transition between them. The style of transition can either be a cut or a mix, or be of several different modes.

Each keyframe must be stored as either a start, stop, continue, loop, or pause keyframe. Forward transitions always begin with a start keyframe. For a more detailed discussion of the Keyframes and transition sequencing, see appendix ____ covering processor board function.

In general, for the stock ticker job, you will use only Keyframe 0 and Keyframe 1. Keyframe 0 is preset at the factory to be a full screen, no borders, and no crop, start keyframe, that is set to transition within 1 frame (or transition in $1/30^{th}$ of a second). Keyframe 1 is factory preset as a picture-in-picture effect, designed to display compressed foreground video, and reveal the bottom 1/3 of the background video (the stock ticker). Keyframe 1 is a stop keyframe set at the same position as Keyframe 0, but the vertical size is adjusted down to 195 lines (as opposed to 242 lines for a full screen display). Keyframe 1 is also set to transition within 1 frame.

The Keyframe screen gives you the ability to change a variety of settings.

The six buttons across the top allow you to manually run transitions between keyframes. You can use this function to force a transition. Use the Forward and Reverse buttons to transition between keyframe 0 and 1 (fig. 7).

Figure 7

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The larger black directional arrows give you the ability to change size and position of the foreground video (IN FROM INSERTER). You can also manually type in desired sizes and positions at the bottom of that frame, and click ENTER to immediately change the size and position of the foreground video (fig 8).
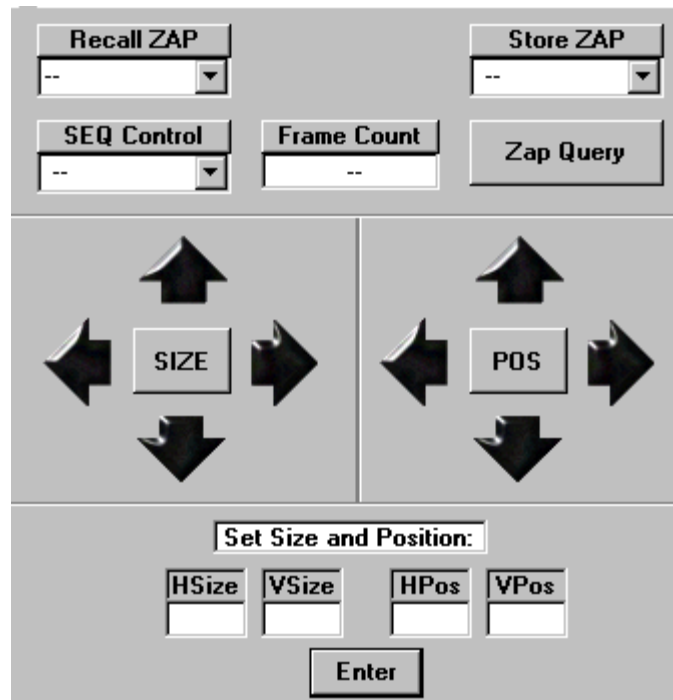

Figure 8

Border and crop are not used in the stock ticker job, but if you wish to test drive, you'll need to "squeeze" the foreground video down some, and move it so that all 4 edges are visible. You can then "play" with the border and crop settings to add full color borders to your foreground, and/or crop the foreground to mask unwanted parts of the foreground (such as blanking interval differences usually visible on the left edge of a "squeezed" foreground).

Alpha Key Mode and Background Modes are further explained in Appendix ____. Again, they are not used in the stock ticker installation, but changing these settings could change the display to an undesirable state. Remember, to recover, press RECALL POR or re-boot the system.

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TRANSISTION SCREEN

The TRANSITION screen is accessed by clicking TRANSITION on a main screen's menu bar.

This screen is a small sized screen, with a blue background, that will allow you to manually create a transition from the current keyframe, or video state, to a new state, over a time that you manually type in the FRAME COUNT block (fig. 9).
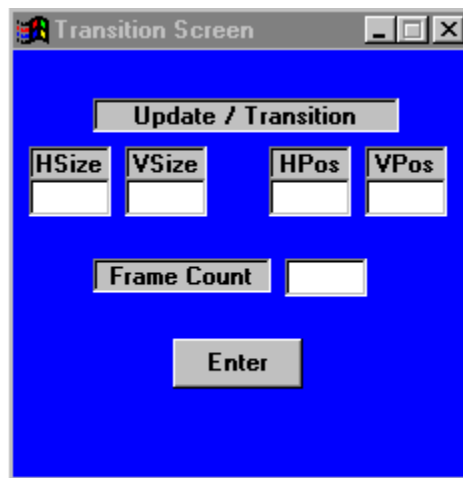

Figure 9

A quick way to recover from a size and position setting that are not what you want, is to return to the KEYFRAME SCREEN and press the JUMP BACK (‖◄) button at the top left of the screen (fig. 7).

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GPIO

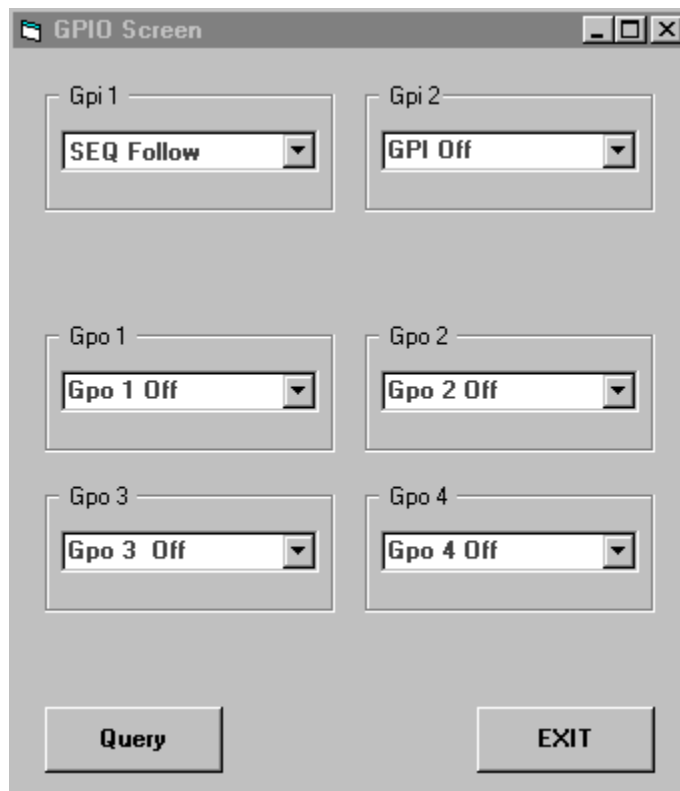The GPIO screen (fig. 10) can be accessed through the Main screen menu bar. Click on GPIO.

Figure 10

This screen allows for manual setting of the GPI and GPO functions. Each GPI and GPO has multiple states of operation. For the ticker job however, only two are of significant consideration.

As shown in figure 4, the GPI consists of a two-wire contact closure link from the video inserter device. In the GUI, you want only GPI 1 to be used, and you have two states in which the GPI should be set. GPI #1 Sequence Follow, and GPI # 1 Off. As you will see in the Event Controller section of this manual, GPI #1 Sequence Follow will force the Protector to react to is contact closures from the ad inserter. The Protector will "squeeze" the foreground (local ad insert) while the GPI is low (or the contact closure is closed) and will return to full screen when the GPI is high (or the contact closure is open).

Setting the GPI to OFF, will force the Protector to ignore GPI inputs. This mode is used when you don't want the Protector to compress the local ad (at times when the stock ticker is not on the network feed—nights, weekends, holidays).

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Using the GPIO screen can be useful if the Protector has entered an incorrect mode (such as, being in SEQUENCE FOLLOW mode when it should have been GPI OFF mode…you can use this screen to manually force the unit into the correct mode).

A second possible time you may want to use the GPIO screen is during special coverage from the network. It has occurred during erratic market swings, that the network ran the ticker after normal hours and through weekends. For this occurrence, it would be beneficial to force the Protector into the SEQUENCE FOLLOW mode for GPI #1, rather than changing you normal programming in the EVENT CONTROLLER. So, when normal schedules resume, the Protector will still be programmed correctly.

With this basic knowledge, we're ready to examine the most important part of the GUI for the stock ticker job—the EVENT CONTROLLER.

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EVENT CONTROLLER

To access the EVENT CONTROLLER, click on EVENTS on a main screen. A blue background event controller programming screen will appear (fig. 11).
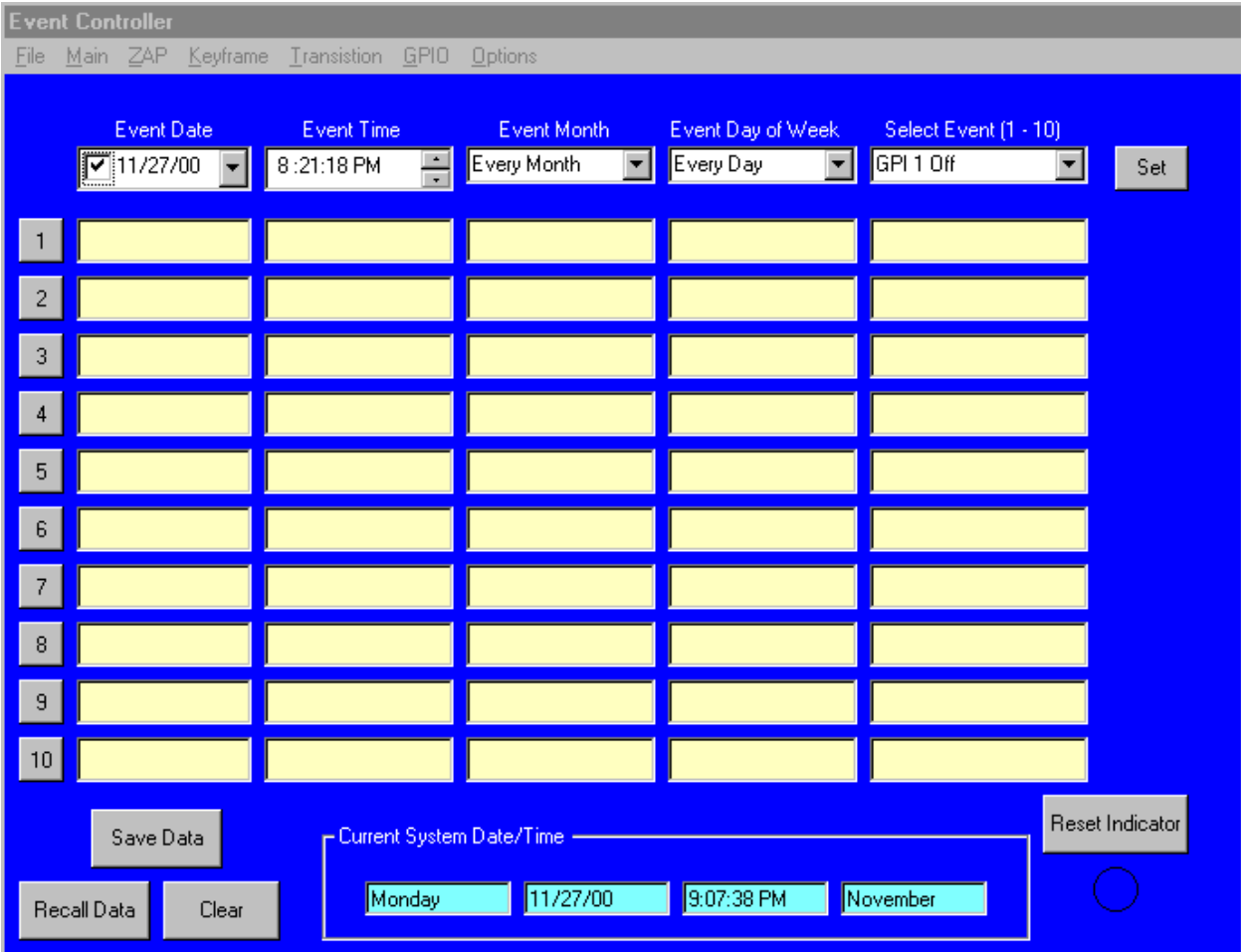

Figure 11

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The event controller is capable of an infinite number of programmings, but for the ticker job, the 10 that initially appear on the screen are more than enough. In fact, only two are absolutely necessary.

To program an event, you must first know exactly what you want the unit to do. For the stock ticker job, you more than likely want the local ads to be compressed during times that the ticker is present on the national feed, and you want the local ads full screen when no national ticker is present.

This makes programming very simple. You will program EVENT #1 to send the Protector GPI #1 into SEQUENCE FOLLOW mode during ticker times. You will then program EVENT #2 to send the Protector GPI #1 to OFF mode during non-ticker times.

So, let's take a look at what you have to do to make this happen!

Across the top of the Event Controller form, you will see five white text boxes (fig. 12).

Figure 12

The first box is for selecting a specific date. You may want to select a specific date to program a certain day differently than most days, such as a holiday. For our purposes though, you will want to make a couple of events that run the same every weekday, so DESELECT EVENT DATE box by clicking on the checkmark, and ensuring the checkmark disappears (fig. 13).

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Move to the next white box, the EVENT TIME box. Since you are setting the on event first, you'll want to select the time in this box at which you want the Protector to begin compressing the local ad (this should be the time when the national ticker begins in your area). We'll use 5:00 AM for this example, but you can set it to any desired time for your locale.   Change the time in this EVENT TIME box by placing the cursor over the hours, minutes, seconds, or AM/PM consecutively. Use the up and down arrows that are part of this box to change the event time to your desired time. Ensure your AM/PM is set correctly (fig. 14)!
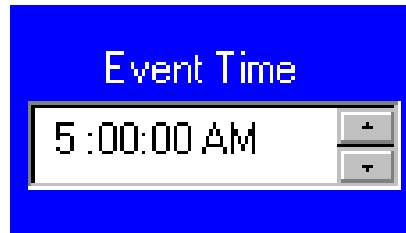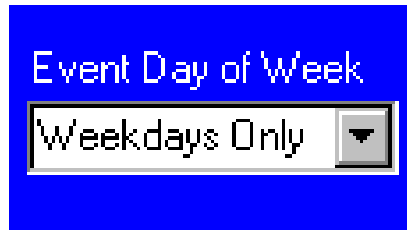

Figure 14

Once you have the proper "on" time set, move to the EVENT MONTH box. For normal ticker operations, you'll want to set this at EVERY MONTH by pressing the down arrow on this box, and clicking on EVERY MONTH. You want this setting of course, because the ticker happens every month (fig. 15).

Figure 15

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Next, move to the EVENT DAY OF THE WEEK box. Here, you'll want to use the down arrow, and select WEEKDAYS ONLY. This selection is made because in the vast majority of instances, you will only want the local ads compressed during normal business days, and full screen on the weekends (fig. 16).

Now, move to the SELECT EVENT (1 – 10) box. Since we are setting up the "on" condition, you will want to select GPI 1 SEQUENCE FOLLOW. Ignore the other options; they aren't necessary for this ticker protector job!

Figure 16

Review the white boxes at the top of the Event Controller--you have preset the Protector for the on conditions—from left to right, you should see that the EVENT DATE box is de-selected (no checkmark); the EVENT TIME box should contain the time at which you want local ad compression to begin; the EVENT MONTH box should read EVERY MONTH; the EVENT DAY OF THE WEEK box should display WEEKDAYS ONLY; and the SELECT EVENT box should read GPI 1 SEQ FOLLOW (sequence follow) (fig. 17).

Figure 17

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If that is all correct, click on the SET button, just to the right of the white boxes we just set up.

You will now see a small form that asks you which event to set this information as. Select EVENT 1, and then click ENTER on this form (fig. 18).
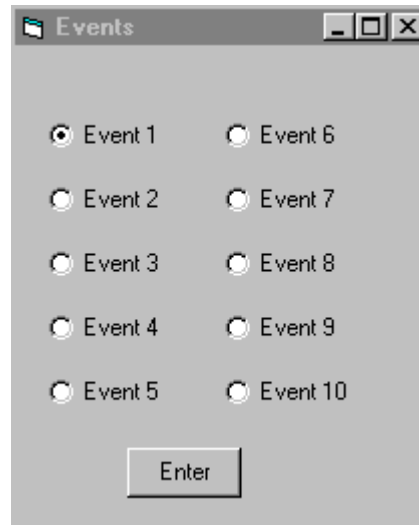

Figure 18

The information you entered in the white boxes should now be transposed to the EVENT CONTROLLER EVENT 1 line. The numbered box to the left of EVENT 1 line should now be green (this indicates that the event is active, that you intend for the protector to run this command at the set time and day) (fig. 19).

The light yellow boxes in EVENT 1 line should remain yellow with the exception of the DATE box, which should now be gray, and will read not selected—indicating that we are not programming a specific date event, but an everyday event.
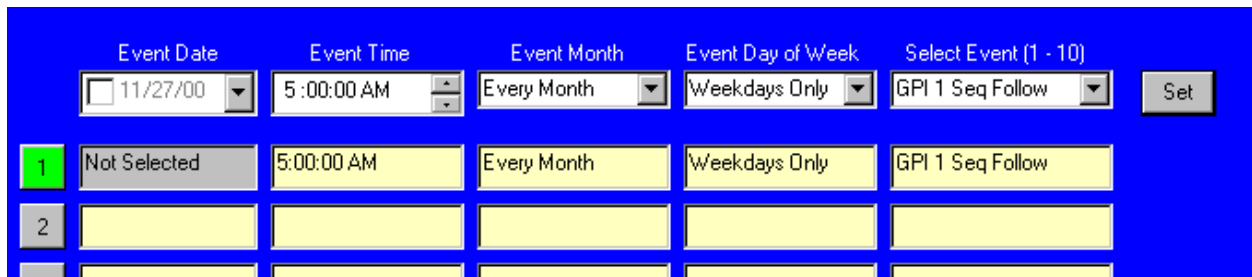

Figure 19

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If all of this is correct, then you are ready to move on to programming the "off" event.

Most of the data in the white boxes at the top of the screen will be useful for the off event, so, you'll only have to adjust a couple of them.

EVENT DATE should still be de-selected—if not, de-select it (remove the checkmark) (fig. 20).

Figure 20

EVENT TIME will have to change. Using the same method you used to set the "on" time, now set the "off time" (in our example, we use 6:00 PM). This should be the time at which the national ticker is no longer used, and you then want the local ad to be full screen (fig. 21).
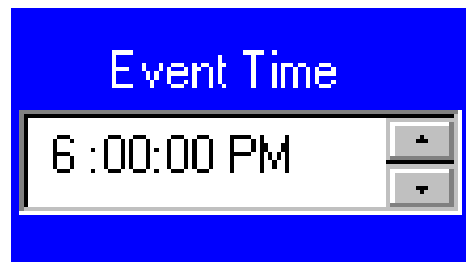

Figure 21

EVENT MONTH and EVENT DAY OF WEEK should remain the same as the "on" settings (EVERY MONTH and WEEKDAYS ONLY) (fig. 22).

Figure 22

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SELECTED EVENT needs to be changed. Select GPI 1 OFF for this box now (fig. 23).
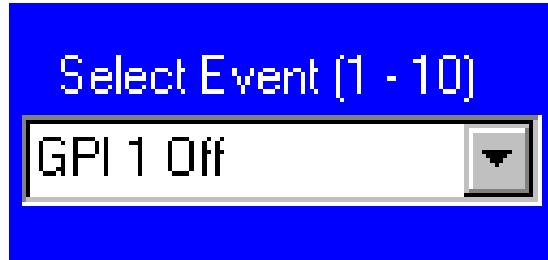

Figure 23

Click the SET button, to access the event enter screen. This time, select the event to enter as EVENT 2, and then click ENTER on this small form (fig. 24).
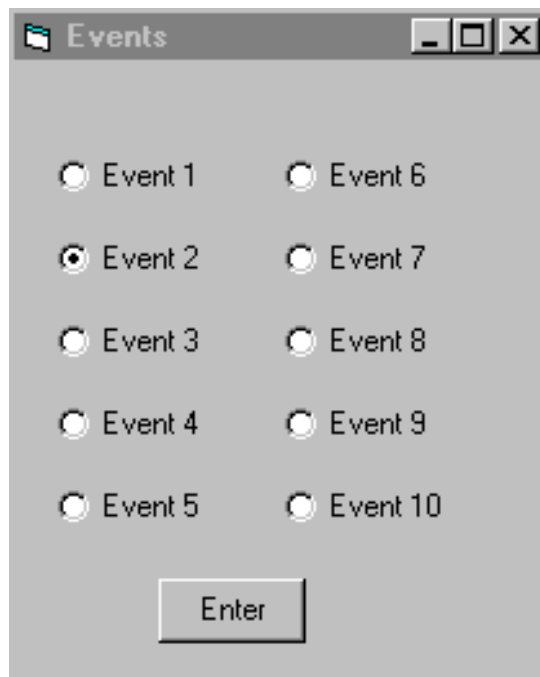

Figure 24

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Now, you should see two programmed lines on your EVENT CONTROLLER. EVENT 1 as we described previously—set to start the compressions and SEQ FOLLOW every weekday—and now EVENT 2, set to end the compressions in the PM by going to GPI 1 OFF mode. Both event lines should have the numbered indicators to their left illuminated green (fig. 25).
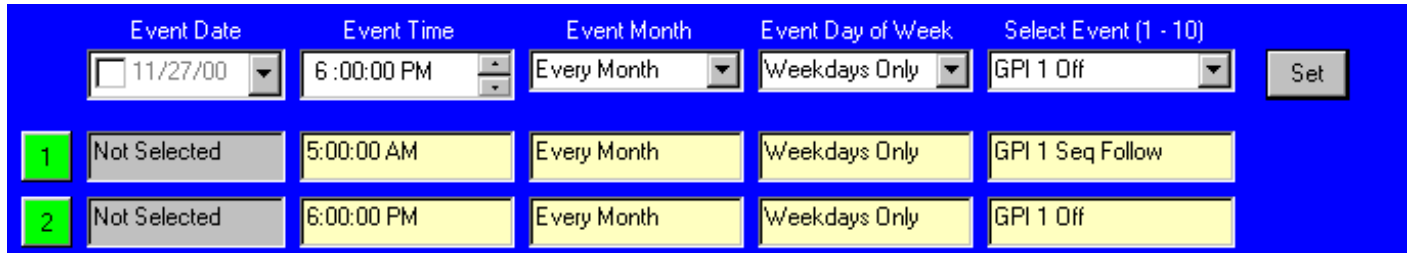

	Event Date	Event Time	Event Month	Event Day of Week	Select Event (1 - 10)	
	☐ 11/27/00 ▾	6 :00:00 PM ▴▾	Every Month ▾	Weekdays Only ▾	GPI 1 Off ▾	Set
1	Not Selected	5:00:00 AM	Every Month	Weekdays Only	GPI 1 Seq Follow	
2	Not Selected	6:00:00 PM	Every Month	Weekdays Only	GPI 1 Off	

Figure 25

Is this all correct? If so, let's move on to see it work…if not, backtrack through the above steps and make the necessary corrections.

In the lower right corner of the EVENT CONTROLLER you'll see a small circle, and above it is a button labeled RESET INDICATOR (fig. 26).
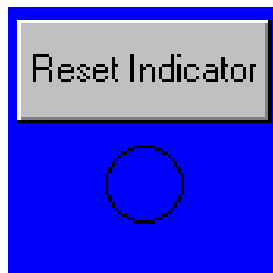

Figure 26

This little circle is an aid for you to verify that the Protector can tell accurate time, and can communicate with the VP boards. Whenever an event occurs (the time and days you programmed) this circle will turn red. If the circle does not turn red, then we need to revisit our settings (days of week, months, AM/PM, etc…) (fig. 27).
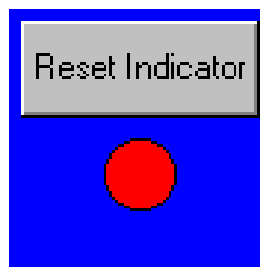

Figure 27

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You can reset this circle to "unfilled" and use it to verify that the Protector has effectively triggered.

The "real-world" check can be done by shorting the contact closure connection manually (simulating the contact closure out of the inserter device)…if the Protector is programmed in SEQ FOLLOW mode for the time and day you're running the test, you should see a foreground video compress revealing a background video bottom 1/3 (a ticker). If you perform the test at a time programmed as GPI 1 OFF, you should be able to short the contact closure wires manually, and the Protector will not react (will not compress the foreground).

Final note on the Event Controller…this form is the heart and soul of the timed operation of the Protector. The EVENT CONTROLLER CAN BE MINIMIZED, but not exited without exiting the entire program. IF YOU EXIT THE GUI, the PROTECTOR will continue to operate, but will not be able to change modes. Leave the software running!

Once you have everything set, and it are ready to move on, you can remove your setup monitor, your setup keyboard, and your setup mouse, and leave the Protector to do its job.

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APPENDIX A: VP Function

The Video Processor (VP) is a TBC/Synchronizer and Digital Video Effects unit all in one. It not only stabilizes video output, but it has the unique ability to scale video both vertically and horizontally then position it anywhere on the screen. Featuring digital comb filtering as well as notch filtering, line and pixel interpolation, the VP produces a high-resolution picture output and preserves maximum image content for smooth image resizing and positioning.

The VP is ideal for "over-the-shoulder" effects. With the combiner board, the VP may also be used to produce a multitude of special editing effects such as dissolves, cuts, fade-to-black and zooming transitions. Users may produce bulletins and captions with the VP or use it to manipulate an image via aspect ratio control for a perfect fit on any screen, or they may display multiple images on one screen for teleconferencing, training and before/after effects.

TRANSITION BUTTON DEFINITIONS

‖◀   Press this button to JUMP BACK through key frames to the previous START mode key frame stored in memory.

◀   Press this button to initiate a REVERSE SEQUENCE.

■   Press this button to HALT a sequence in progress.

▶   Press this button to initiate a FORWARD SEQUENCE.

▶| Press this button to SKIP to the next key frame in numerical order.

▶‖ Press this button to JUMP FORWARD to the next STOP mode keyframe stored in memory.

OTHER CONTROL FUNCTIONS

 FREEZE: Select freeze mode buttons to toggle between freeze modes of FRM (frame), FD1 (field 1), and FD2 (field 2).

 MIX: Select between the MIX ON and MIX off mode. MIX ON will show the picture-in-picture insert video generated by the VP, overlaid on the video input on the combiner board.

Fade-To-Black: Toggle between FTB ON and FTB OFF modes. FTB ON will fade the entire on-screen image to black, while FTB OFF will fade from black the entire on-screen image.

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Frame Count: Adjusts time of transition between keyframes.

Mode: Press the CTRL button to access the control mode of the active keyframe while in sequencing mode. This control toggles between START, PAUSE, CONT (continue), LOOP, and STOP.

Border: Press the BORDER button to access and toggle between border on and border off function.

SIZE=xx—Slide to select border size value (from 00 to 15)

RED=xx—Slide to select red component of the border color value (00-15).

GREEN=xx—Slide to select green component of the border color value (00-15).

BLUE=xx—Slide to select blue component of the border color value (00-15).

KEY—when the LCD indicates this option, rotate the encoder to toggle between the following KEY options:

INSERT: Fills background (area not covered by compressed video signal) with genlock signal (see paragraph f1 above).

FULL: Outputs a full KEY signal for use with color background or external devices

OFF: Disables KEY signal.

CROP: Press the CROP button to toggle CROP on and off

TOP=xx—Slide to select crop value for top of full screen image

BTM=xx—Slide to select crop value for bottom of full screen image

LEFT=xx—Slide to select crop value for left edge of full screen image

RIGHT=xx—Slide to select crop value for right edge of full screen image.

HORZ PHA: Slide to adjust the horizontal phase value. This allows for horizontal position of background (genlocked) video

SC PHASE: Slide to adjust the sub-carrier phase value. This option is used to control the color phase of a genlocked image (similar to Hue).

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STANDARD: Select between NTSC and PAL video standards

NOTCH: Select NOTCH FILTER on or off

COMB: Select COMB FILTER on or off

SEQUENCING

Sequencing is the function of performing live transitions between pre-stored key frames. You may program and initiate key frame sequences based on the 10 available key frame registers (00 through 09).

Some common uses of sequencing include: transitioning from a full screen image to a compressed image for an "over-the-shoulder" shot; or from a full screen to a compressed image to reveal a scroll on-screen (stock tickers, school closings, news tickers, weather alerts); or from compressed image to compressed image for on-screen special effects. The uses of sequencing are limited only by your imagination. Sequences can include borders with transitioning colors, aspect ratio changes, position changes, size changes; they can also be reversed, paused, looped or continued.

GPI MODES

FTB OFF: Will cause image to fade from black when a GPI pulse is received.

FTB ON: Will cause the image to fade to black when a GPI pulse is received.

FTB TOGGLE: Will cause the image to fade to black on the first receipt of a GPI pulse; and fade from black on the second receipt of a GPI pulse

FTB FOLLOW: Will cause the image to fade to black and remain there while the GPI signal is LOW (0.0 to 0.4 VDC); the image will immediately fade from black when the GPI signal returns high (4.0 to 5.0 VDC).

MIX OFF: Will cause image to mix in (background with insert video) when a GPI pulse is received.

MIX ON: Will cause the image to mix out (background video only) when a GPI pulse is received.

MIX TOGGLE: Will cause the image to mix out on the first receipt of a GPI pulse; and mix in on the second receipt of a GPI pulse.

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MIX FOLLOW: Will cause the image to mix out and remain there while the GPI signal is LOW (0.0 to 0.4 VDC); the image will immediately mix in when the GPI signal returns high (4.0 to 5.0 VDC).

FRZ OFF: Will cause image to unfreeze when a GPI pulse is received.

FRZ ON: Will cause the image to freeze when a GPI pulse is received.

FRZ TOGGLE: Will cause the image to freeze on the first receipt of a GPI pulse; and unfreeze on the second receipt of a GPI pulse

FRZ FOLLOW: Will cause the image to freeze and remain there while the GPI signal is LOW (0.0 to 0.4 VDC); the image will immediately unfreeze when the GPI signal returns high (4.0 to 5.0 VDC).

SEQ BEG: Will cause the unit to display the previous START mode keyframe when a GPI pulse is received.

SEQ REV: Will cause the unit to initiate a reverse sequence when a GPI pulse is received

SEQ STOP: Will cause the unit to halt an in-process sequence when a GPI pulse is received

SEQ FWD: Will cause the unit to initiate a forward sequence when a GPI pulse is received.

SEQ NEXT: Will cause the unit to skip to the next keyframe when a GPI pulse is received.

SEQ END: Will cause the unit to skip to the next STOP mode keyframe when a GPI pulse is received.

SEQ FOLLOW: Will cause the unit to initiate a forward sequence from KEYFRAME 00 to the next STOP mode keyframe and hold there while the GPI pulse is low (0.0 to 0.4 VDC); the unit will immediately initiate a reverse sequence returning to KEYFRAME 00 when the GPI signal returns high (4.0 to 5.0 VDC).

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SPECIFICATIONS

PHYSICAL	
Dimensions	
Weight	
POWER	
Input	110 – 220 VAC Manual Switch Internal
VIDEO PROCESSOR	
Frequency Response	4.5MHz Luma, 5.5MHz Chroma minimum
Filtering	Notch, Comb
Raster Size (per Field)	720 pixels by 242 lines
Input Formats	Composite, Y/C
Output Formats	Composite, Y/C
GPI	2 GPI
GPO	4 GPO
Microcomputer	
CPU	Greater than 500 MHz
Buss	Greater than 66 MHz
RAM	Equal to or Greater than 64 Mb
Hard Drive	Greater than 10 Gb
PSU	250W

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