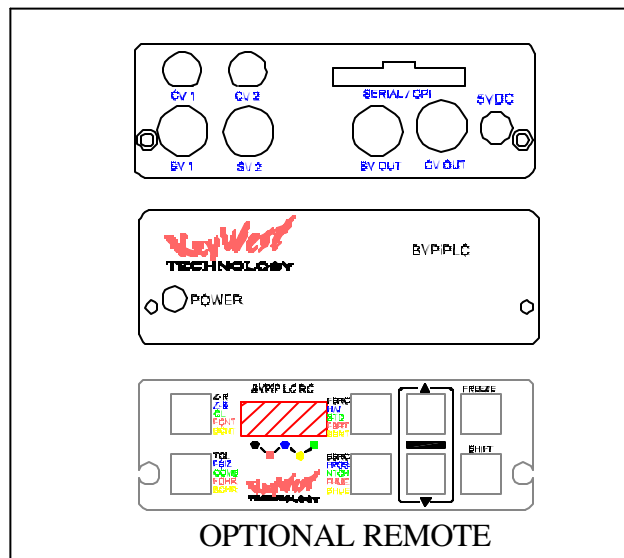


# BVPiP/LC Data Sheet & Operator's Manual Big VooDoo Series

## Multi-Standard Low-Cost Composite and Y/C Picture-in-Picture Processor

The BVPiP/LC sets a new standard for Broadcast Quality Picture-in-Picture (PiP) processing power-per-dollar. It accepts NTSC or PAL-B analog composite or Y/C video foreground and NTSC or PAL-B analog composite or Y/C background video. The PiP device resizes and positions input foreground video and can mix the processed and resized image over a broadcast quality background image. A full feature optional remote control panel gives the user control over zoom, aspect, position, processor amplifier settings, and much more (Remote Panel is covered in this manual for illustration purposes). Main control is intended to normally be serial "set and forget" control, via included Software control application.



## SPECIFICATIONS:

- ⚡ Accepts analog composite and Y/C NTSC and PAL-B video (foreground and background--output standard same as input standard)
- ⚡ Combined video output (composite and Y/C)
- ⚡ Individual contrast, brightness, hue, chroma, sub-carrier, and horizontal phase control
- ⚡ Professional 75 ohm BNC input and output connectors and 4-pin Y/C mini-DIN connectors
- ⚡ Stand-alone, or rack mount four units across with Keywest 19" rack kit (kit not included)
- ⚡ 5 VDC operation (wall transformer included)
- ⚡ Foreground SNR 50dB weighted
- ⚡ 5.8 MHz typical luma NTSC bandwidth (to 3dB)
- ⚡ 16nS typical frame input to output delay
- ⚡ Ambient operating temperature 0 to + 70 ?C

## ORDERING INFORMATION

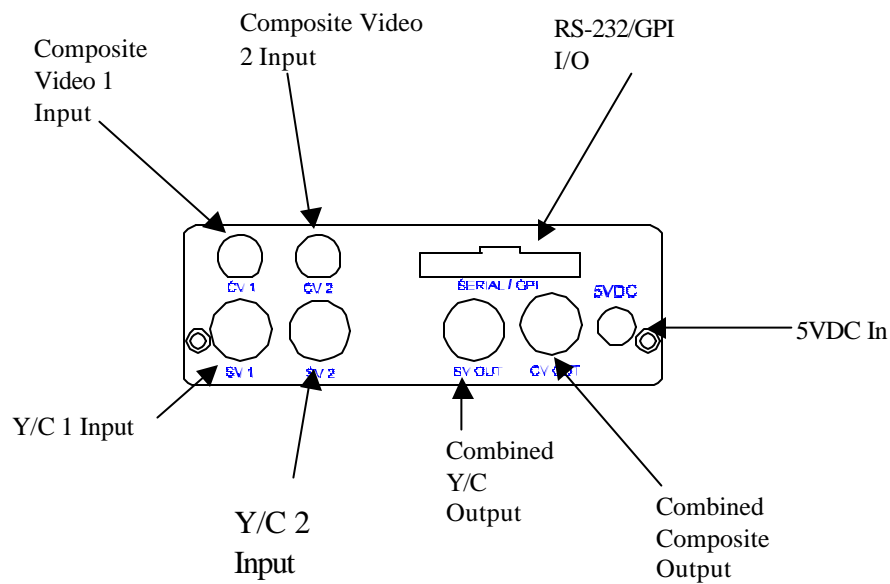
Part #	Options
BVPiP/LC	Rack Kit, Rack Kit Blanks Remote Control Panel

## APPLICATIONS

- ?? In-studio effects
- ?? Over-the-shoulder PiP effects
- ?? Shot Clock resizing and PiP effects
- ?? Distance Learning
- ?? Teleconferencing
- ?? Broadcast PiP applications
- ?? Any picture-in-picture application imaginable

## OPERATING INSTRUCTIONS

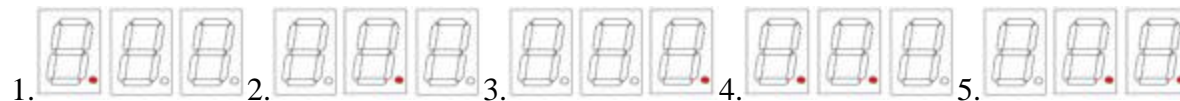
### CONNECTIONS



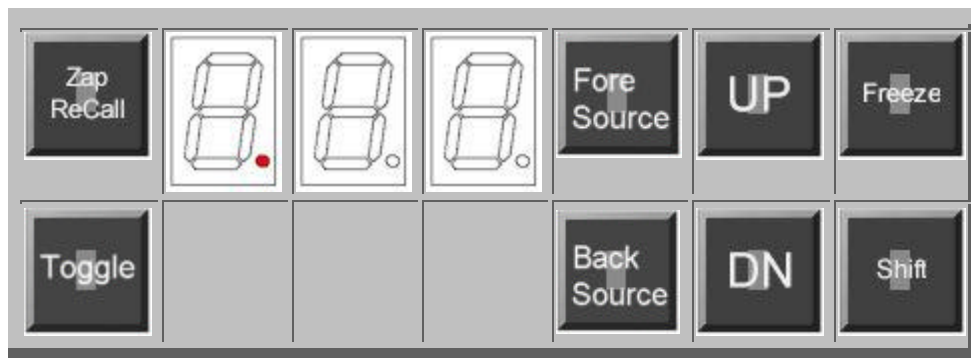
All video connections to be made with industry standard BNC connectors and 4-Pin Mini-DIN Y/C connectors

## BVPIP/LC Menu Level 1

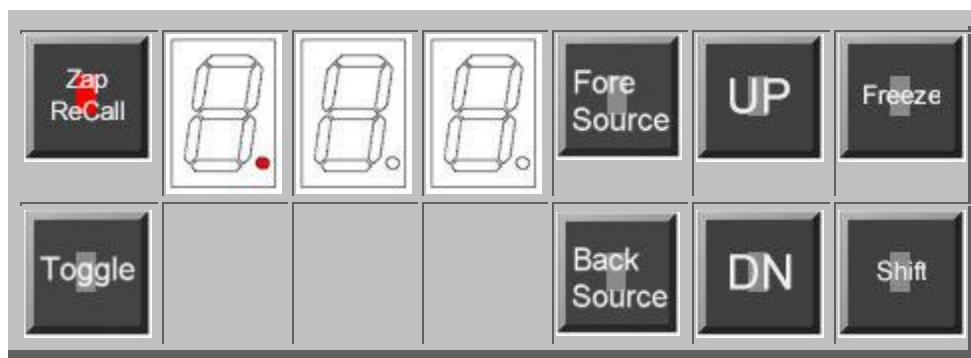
The BVPIP/LC at turn-on looks like this... take note of the **•** decimal point inside the LED's. These little dots indicate the menu level you are on. Below, the **first** LED has the decimal point lit, indicating that we are at menu level ONE. There are a total of 5 menu levels, as shown below:



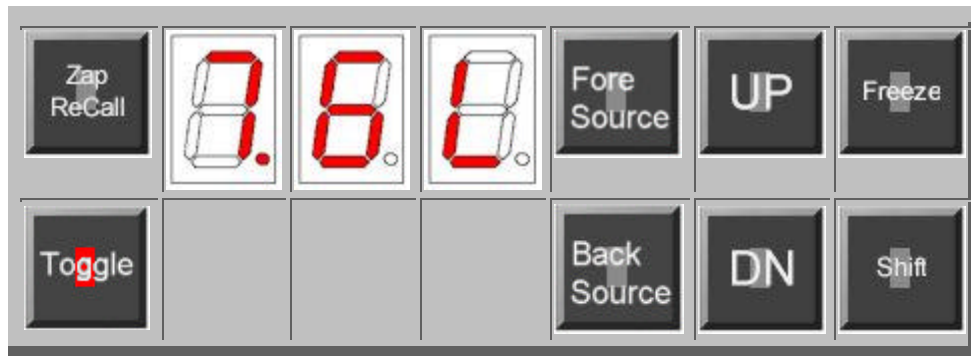
NOTE: The BVPIP/LC returns to this state when there is no user input for approximately 10 seconds.



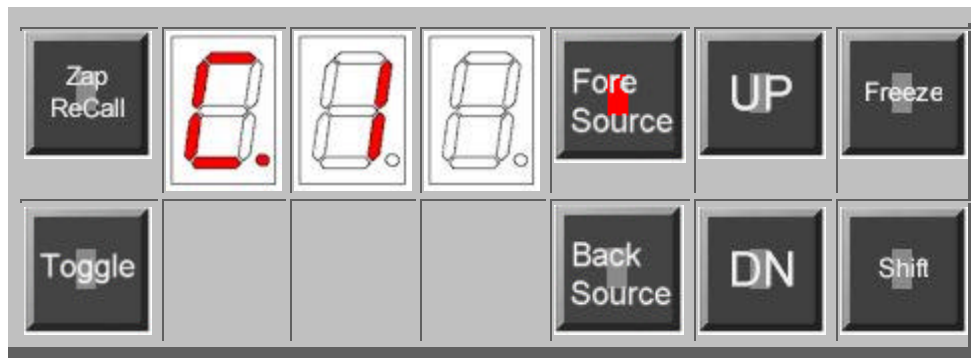
The First Button has the function of **Zap ReCall** - **Zap** is an acronym for **Z**oom, **A**spect, and **P**osition, which refers to the size, shape and position of the image. There are 10 Zap registers—0 through 9. Use the **UP** and **DN** buttons to select which register is to be recalled. Once you have selected the desired register - simply push the **Zap ReCall** again. The image size, shape and position stored in that register is selected. NOTE: Initially, there may be nothing stored, and the output will be random in size, shape, and position - or nothing at all.



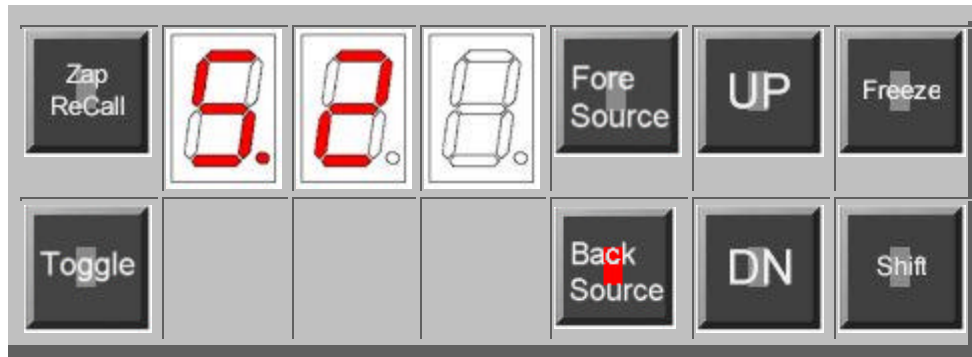
The next button down is **Toggle**. Toggle alternately switches/swaps the foreground and background video each time you press the button. The LEDs will appear as below (76L represents TGL).



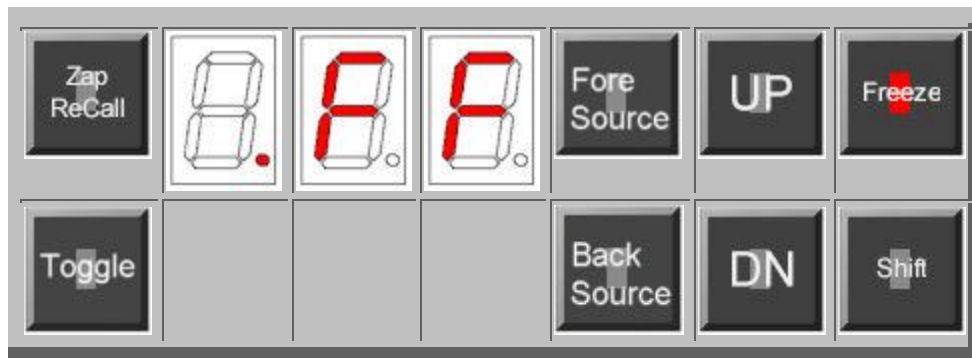
The **Fore Source** (FSRC) button shows which of the four video inputs are selected to display as the foreground (insert) video source. Using the **UP** and **DN** buttons alternately select Composite 1 (C1), Composite 2 (C2), S-Video 1 (S1) or S-Video 2 (S2). A typical display appears as below:



The **Back Source** (BSRC) button shows which of the four video inputs are selected to display as the background (genlock) video source. Using the **UP** and **DN** buttons alternately select Composite 1 (C1), Composite 2 (C2), S-Video 1 (S1) or S-Video 2 (S2). A typical display appears as below:



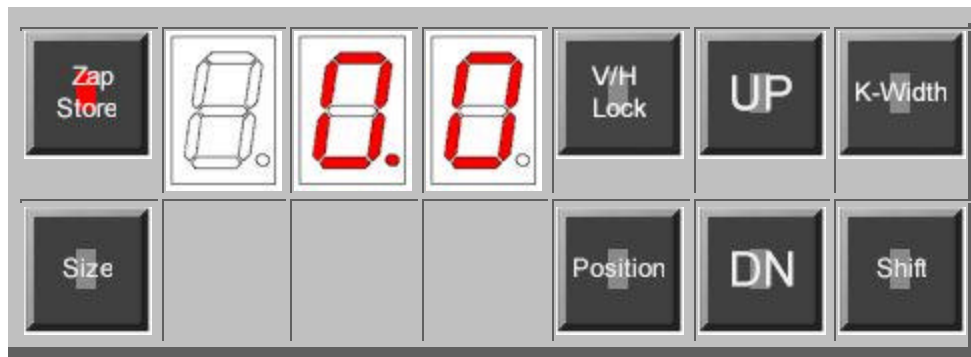
The last item available on Menu level 1 is the **Freeze** button. When **Freeze** is pushed the LED's show that the inserted video is **Field Frozen**, and this condition will remain until the **Freeze** button is pushed again. Thus the **Freeze** button toggles the **Freeze** function on/off. **ONLY FOREGROUND VIDEO CAN BE FROZEN**



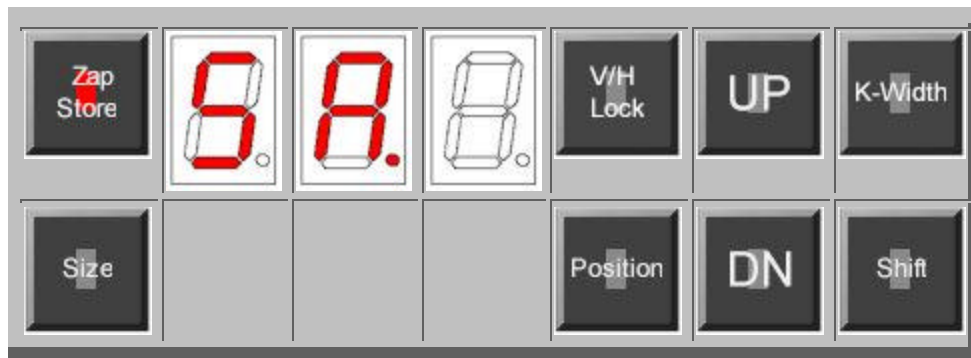
## BVPIP/LC Menu Level 2

The functions for the BVPIP/LC at Menu Level 2 are shown below.

The picture below shows the effect of pushing the **Zap Store** button. When a particular size, shape and position of an effect has been produced, through the functions available on this menu level, these values can be stored and recalled at anytime in the future. Again, there are ten of these registers, 0-9, and using the **UP** and **DN** buttons you can select which register that to use to store a particular effect.



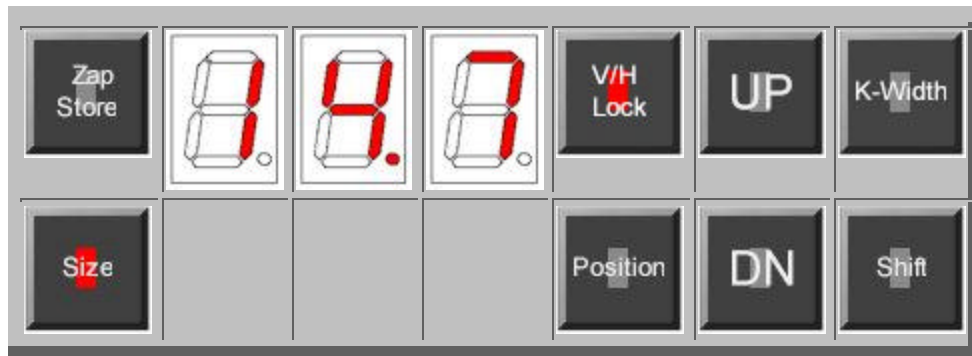
Once the register selection is made, pushing the **Zap Store** button again will initiate the **Store**, and the display will change to look like this... confirming the acceptance of the store request.



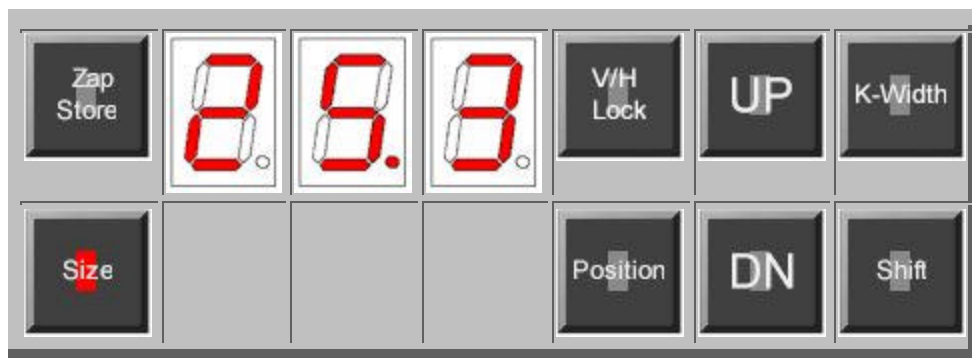
# BVPiP/LC Data Sheet & Operator's Manual Big VooDoo Series

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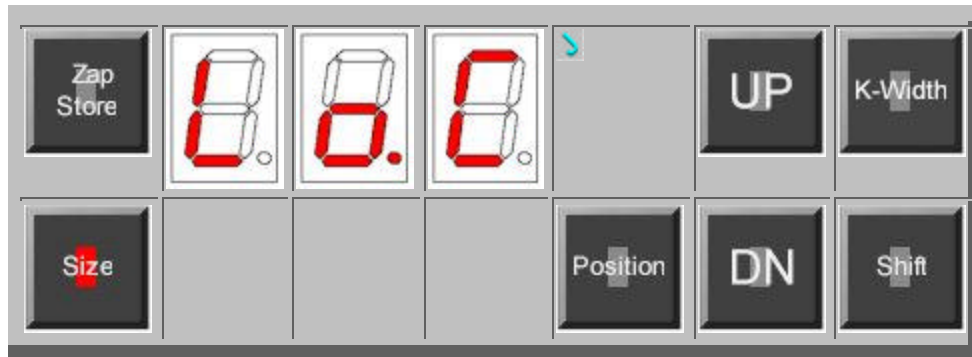
The next series of pushbutton selections will determine the *size and position* of the foreground video effect. Selecting the **Size** button, brings up a display similar to the one below. Notice that the **V/H Lock** button lights at the same time. When the **V/H Lock** button is lit the axis that we will be adjusting is **Vertical**. Conversely, when its dark the axis is **Horizontal** - **remember this** - it will save you a lot of time. The numbers in the LED displays indicate the vertical size of the picture, in this case 147 lines high. The range is 0-240 in NTSC. The **UP** and **DN** adjust the size.



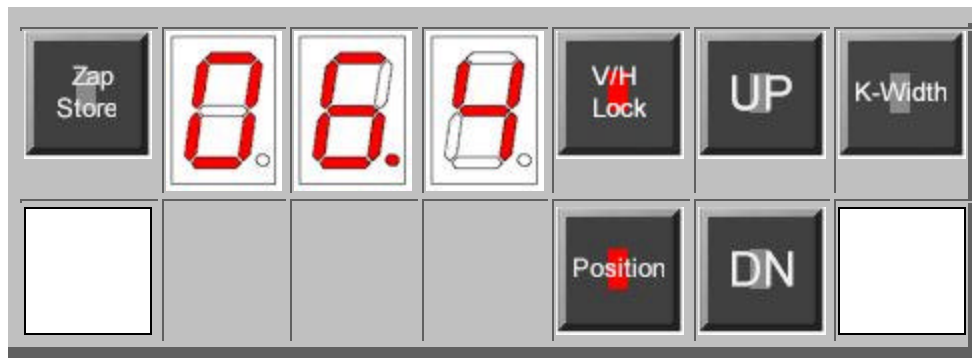
Pushing the **V/H Lock** button again, extinguishes the **V/H Lock** LED and the display changes to show the **Horizontal** size of the picture in pixels, in this case below we show that the Horizontal size is 253 pixels wide. The range is 0-720 in NTSC. Again, the **UP** and **DN** adjust the size.



Pushing the **V/H Lock** for the third time will select the **LoCked** mode and the **V/H Lock** LED will begin to flash. In this mode, both H and V size change together and maintain the same aspect ratio that existed when the mode was initiated. Use the **UP** and **DN** buttons as usual to change the value. The **V/H Lock** is circular, it switches from V, to H, to Lock, to V, to H...

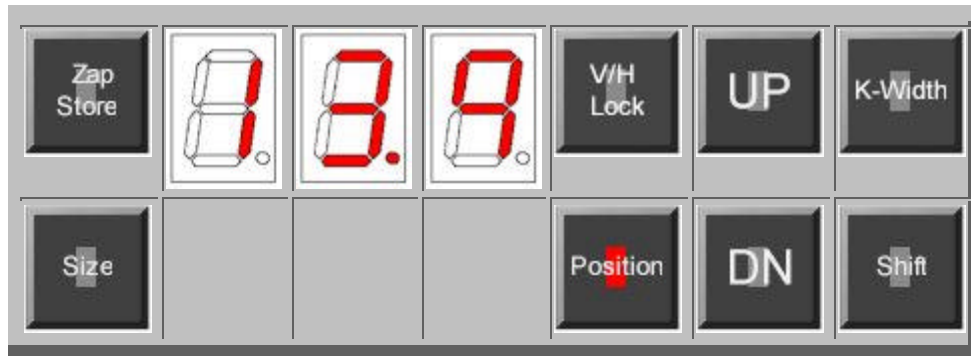


Pushing the **Position** button, lights the **V/H Lock** LED and changes the displays the **Vertical** position of the picture in lines from the top of the picture. In the display below, the number 064 means that the *top* of the resized picture will start at Horizontal line 64. The range is 0-240 in NTSC. Again, the **UP** and **DN** adjust the position for the start of the top of the picture.

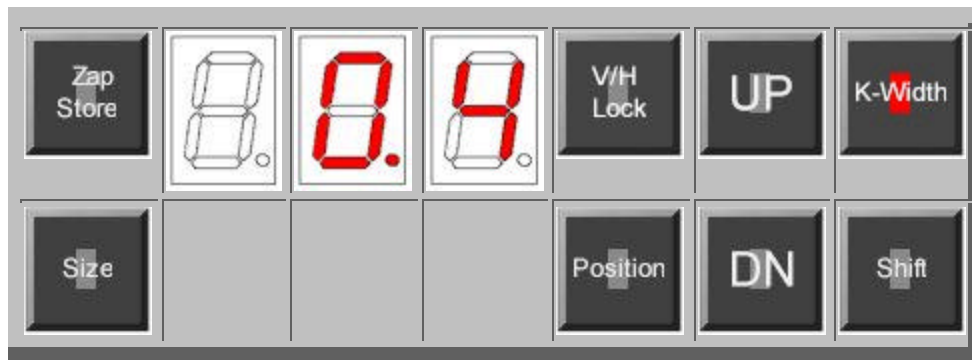




Pushing the **V/H Lock** button again will extinguish its LED and the display will change to indicate the Horizontal position of the picture in pixels from the left side of the picture. In the display below, the number 139 means that the *left edge* of the resized picture will start at pixel number 139. The range is 0-720 in NTSC. The **UP** and **DN** adjust the position for the start left side of the picture. The upper left corner of the picture is 0,0. Once you have sized and positioned the effect you can decide if the resulting picture is one that should be saved for use again - if it is then the **Zap Store** procedure should now be followed...



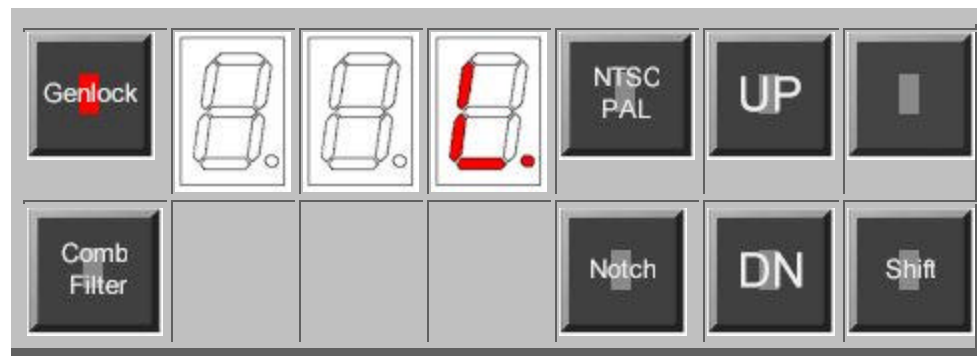
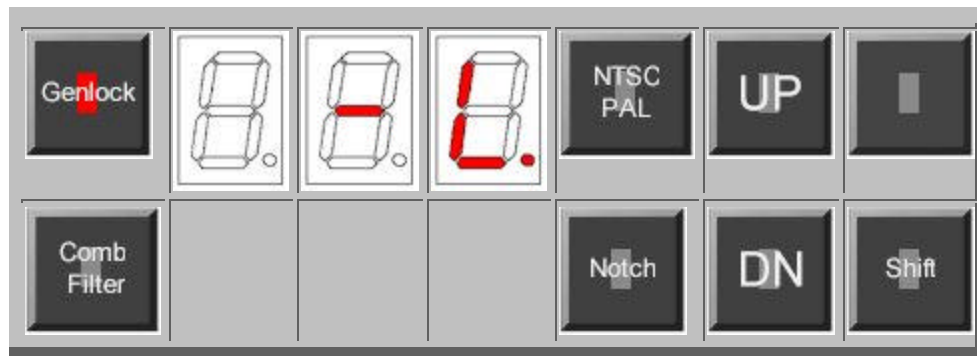
The last function on Level 2 is that of **Key-Width**. The **Key-Width** is used to crop the image that is displayed at the output of the combiner. Because of variations in the blanking width of video sources there may be undesirable black lines on either or both sides of the inserted video. The BVPiP/LC allows the user to eliminate these lines by varying the **Key-Width**. There are 4 steps of adjustment, in pixels, 0, 4, 8 and 12. These values reflect the amount of cropping on each side of the pictures, for example, a value of 4 means that the left and right sides are 4 pixels narrower than normal. Normal being "0" for video that is correctly blanked. Pushing the **Key-Width** button switches the display to the stored value, and the **UP** and **DN** button change the value. When properly set there should not be any residual blanking on the sides of the inserted picture.



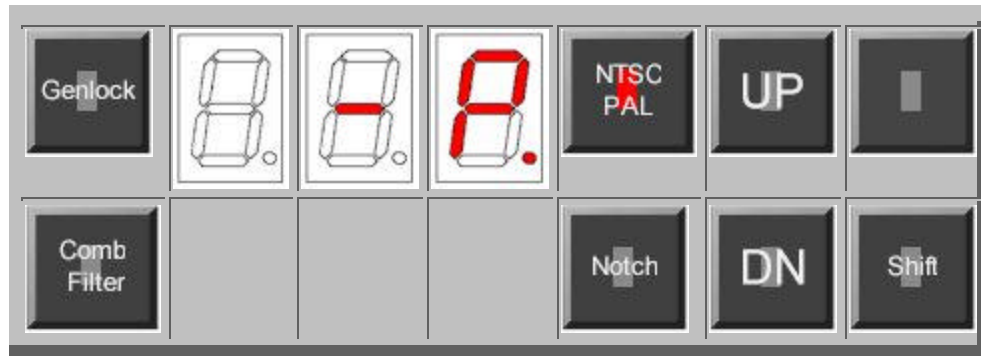
## BVPIP/LC Menu Level 3

The functions for the BVPIP/LC at Menu Level 3 are shown below.

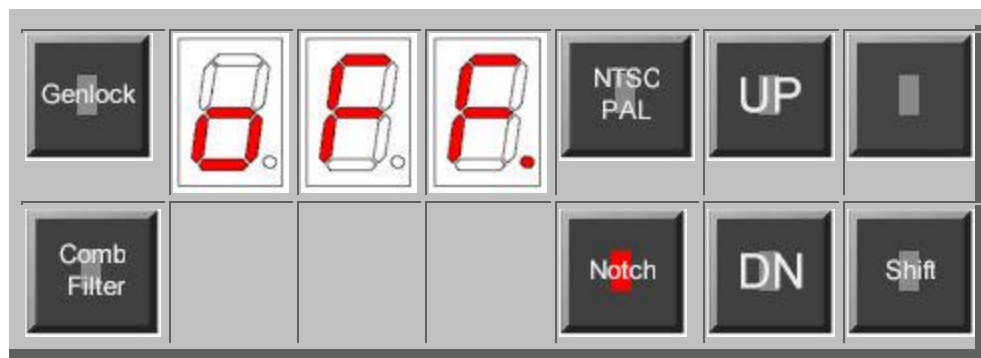
Pushing the Genlock (GL) button shows the Genlock status of the BVPIP/LC, which in the picture below, is - L , meaning NOT LOCKED. The second picture below shows Genlock status Locked. **The BVPIP/LC is not a free-run capable device—it will not function properly without a background video source in place (background must merely consist of composite sync).**



The BVPiP is designed to operate in both the PAL-B and NTSC standards. **NTSC/PAL** button selects which standard, and the display shows the default standard. Below the LED's shows **-P**, which reads NOT PAL or simply NTSC. The **UP** button selects NTSC, the **DN** button selects PAL. The display just reads **P** when the PAL mode is selected. Cycle power one time after changing standards to ensure good chroma lock.



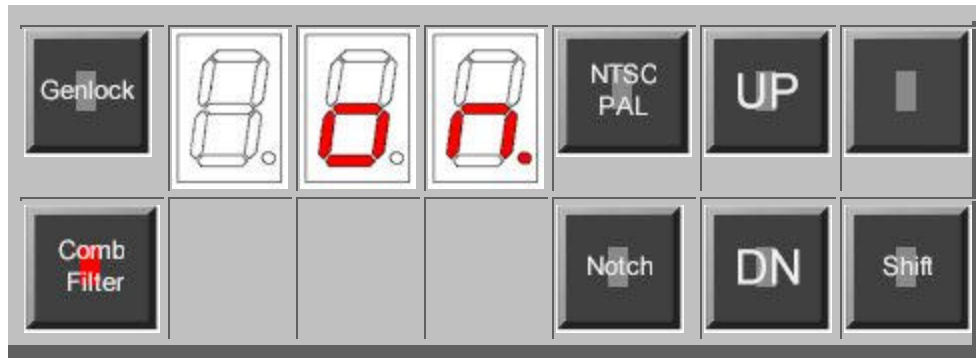
The display below shows the effect of pushing the **Notch** button. The LED's show normal setting of **oFF**. The **Notch** Filter is used in PAL standards, and in NTSC in cases where the chroma in the video is incoherent. The **UP** button turns the filter ON, while the **DN** button turns it OFF.



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The display shown next demonstrates the effect of pushing the **Comb Filter** button. The display shows the factory default for NTSC for the **Comb Filter** which is ON. The Comb Filter should be turned OFF when the unit is operating in the PAL mode.

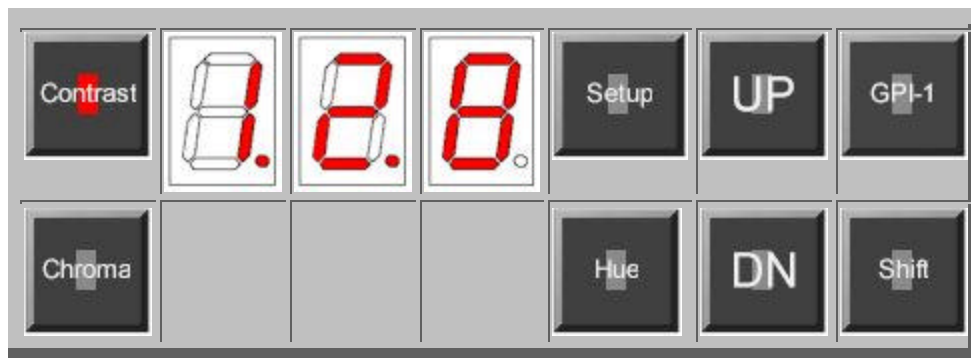


## BVPIP/LC Menu Level 4

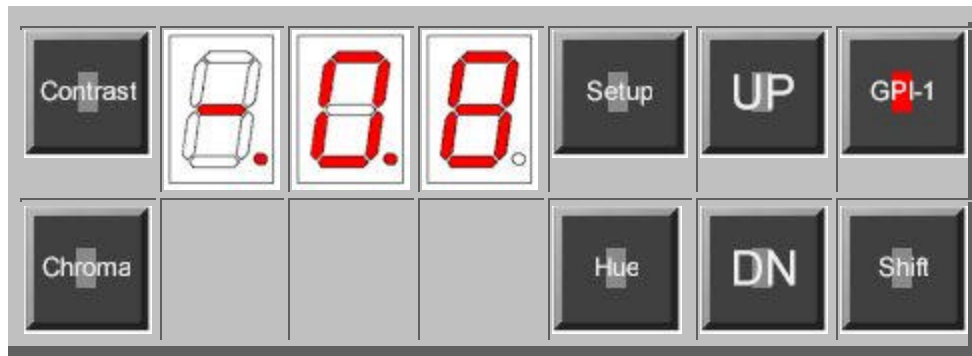
The functions for the BVPIP/LC at Menu Level 4 are shown below.

Level 4 comprises the video processing amplifier controls for the Foreground Video. Pushing the **Contrast** button - the LED's show a level of 128, which is the factory default settings for all the proc amp adjustments. The **UP** button increments the number and increases the gain of the selected function, while the **DN** button decrements, or reduces the gain. For example, in the case of **Setup**, the black level is made more positive with the **UP** button and less positive with the **DN** button.

Click on the proc amp adjustment desired and see an example of the change in the LED display. These are only examples of typical values. The actual values will be those the user has chosen for the material being processed. All adjustment are stored automatically 15 seconds after the last adjustment is performed.



The BVPiP offers only two GPI inputs, but the action performed by the GPI is user programmable from a list of 19 different functions. The front panel below shows that GPI-1 is programmed to control function #8 and the GPI is triggered by a low level on the GPI-1 input. Below the picture is a complete list of the GPI functions. As usual, pushing the GPI-1 button displays the saved value, and this is changed with the **UP** and **DN** buttons.



The following GPI options are available by number:

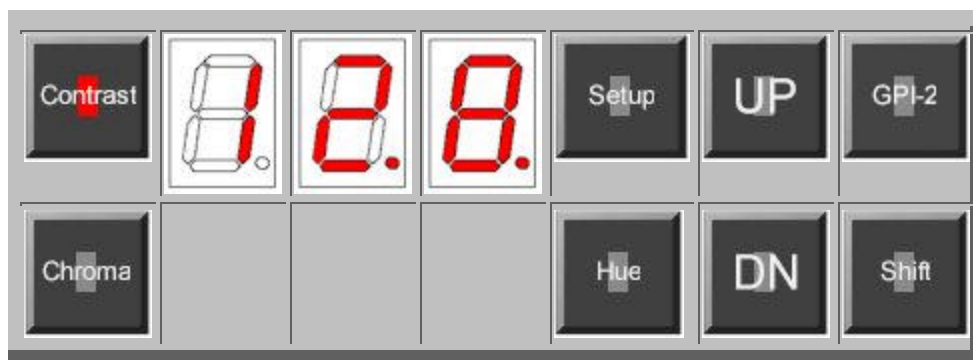
00	GPI off
01	Freeze OFF
02	Freeze ON
03	Freeze TOGGLE
04	Freeze FOLLOW
05	Freeze FOLLOW INVERSE
06	ZAP Beginning (Go to ZAP 0)
07	ZAP Forward (Loop back to previous ZAP)
08	ZAP Reverse (Loop to next ZAP)
09	ZAP Ending (Go to ZAP 9)
10	Source Normal
11	Source Toggle
12	Source Follow
13	Source Follow Inverse
14	Select CV1
15	Select CV2
16	Select SV1
17	Select SV2
18	RESET (ZAP 0, Freeze Off, Insert CV1, BKGD CV2)

## BVPIP/LC Menu Level 5

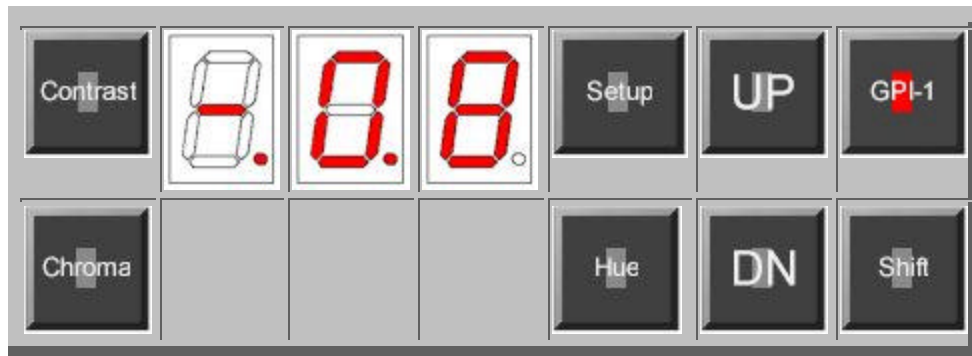
The functions for the BVPIP/LC at Menu Level 5 are shown below.

Level 5 comprises the video processing amplifier controls for the Foreground Video. Pushing the **Contrast** button - the LED's show a level of 128, which is the factory default settings for all the proc amp adjustments. The **UP** button increments the number and increases the gain of the selected function, while the **DN** button decrements, or reduces the gain. For example, in the case of **Setup**, the black level is made more positive with the **UP** button and less positive with the **DN** button.

Click on the proc amp adjustment desired and see an example of the change in the LED display. These are only examples of typical values. The actual values will be those the user has chosen for the material being processed. All adjustment are stored automatically 15 seconds after the last adjustment is performed.



As with GPI-1, GPI-2 is user programmable from a list of 19 different functions. The front panel below shows that GPI-2 is programmed to control function #8 and the GPI is triggered by a low level on the GPI-2 input. Below the picture is a complete list of the GPI functions. As usual, pushing the GPI-2 button displays the saved value, and this is changed with the **UP** and **DN** buttons.

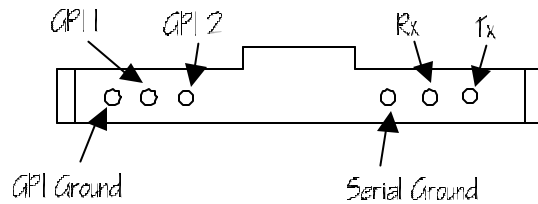


The following GPI options are available by number:

00	GPI off
01	Freeze OFF
02	Freeze ON
03	Freeze TOGGLE
04	Freeze FOLLOW
05	Freeze FOLLOW INVERSE
06	ZAP Beginning (Go to ZAP 0)
07	ZAP Forward (Loop back to previous ZAP)
08	ZAP Reverse (Loop to next ZAP)
09	ZAP Ending (Go to ZAP 9)
10	Source Normal
11	Source Toggle
12	Source Follow
13	Source Follow Inverse
14	Select CV1
15	Select CV2
16	Select SV1
17	Select SV2
18	RESET (ZAP 0, Freeze Off, Insert CV1, BKGD CV2)



## Serial and GPI Connector Pinout



### Default Serial Settings:

RS-232  
9600, 8, N, 1, N  
Address "a"

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## COMMAND SET

This is a listing of the RS232 Serial Commands for the Low Cost PIP Unit

All serial commands must be proceeding by an address byte. The W command will ignore the address byte.

Addresses are an ASCII character of 'a' thru 'd' (lower case letters).

Commands not understood or wrong will elicit a NAK response as follows:  
cr lf nak

Commands understood which don't return value(s) will elicit an ACK response as follows:  
cr lf ack

### Command List -- LCPIP

A	---	a	
B	Background Video Select	b	address
C	Foreground Color	c	
D	Save	d	
E	Freeze	e	
F	Foreground Video Select	f	
G	GPI Functions	g	
H	Foreground Hue (Tint)	h	
I	Comb Filter	i	
J	Notch Filter	j	
K	Key Size	k	
L	Foreground Luma (Contrast)	l	
M	---	m	
N	Standard	n	
O	Background Contrast	o	
P	Background Color	p	Positon
Q	Background Brightness	q	Size & Position
R	Background Hue (Tint)	r	Recall ZAP
S	Foreground Brightness	s	Size
T	Source Switching	t	Store ZAP
U	Genlock	u	
V	---	v	
W	Who Are You ?	w	
X	Version ?	x	
Y		Y	
Z		z	

## SOURCE SETTING COMMANDS

### B Background

Select Sources for Background Input Settings (5 bytes)

Format:

```
select CV
  a B @ 0 cr -- CV1
  a B @ 1 cr -- CV2
select SV
  a B @ 2 cr -- SV1
  a B @ 3 cr -- SV2
```

### F Foreground

Select Sources for Foreground Input Settings (5 bytes)

Format:

```
select CV
  a F @ 0 cr -- CV1
  a F @ 1 cr -- CV2
select SV
  a F @ 2 cr -- SV1
  a F @ 3 cr -- SV2
```

### T Toggle

Switching Input Settings (5 bytes)

Format:

```
a T G L cr
```

## PROCAMP COMMANDS

### C Foreground Color

Adjust/Set Color Settings (5 bytes)

Format:

a C 1 + cr	Increment Chroma value	
a C 1 - cr	Decrement Chroma value	
a C 1 @ cr	Normalize Chroma value	
a C 2 x cr	Set Chroma value	x = hex value to be set

Returns:

cr lf ack

### H Foreground Hue (Tint)

Adjust/Set Hue Settings (5 bytes)

Format:

a H 1 + cr	Increment Hue value	
a H 1 - cr	Decrement Hue value	
a H 1 @ cr	Normalize Hue value	
a H 2 x cr	Set Hue value	x = hex value to be set

Returns:

cr lf ack

### L Foreground Luminance (Contrast)

Adjust/Set Luminance Settings (5 bytes)

Format:

a L 1 + cr	Increment Luma value	
a L 1 - cr	Decrement Luma value	
a L 1 @ cr	Normalize Luma value	
a L 2 x cr	Set Luma value	x = hex value to be set

Returns:

cr lf ack

### S Foreground Setup (Brightness)

Setup Adjust/Set (5 bytes)

Format:

a S 1 + cr	Increment Setup value	
a S 1 - cr	Decrement Setup value	
a S 1 @ cr	Normalize Setup value	
a S 2 x cr	Set Setup value	x = hex value to be set

Returns:

cr lf ack

## O Background Luminance (Contrast)

Adjust/Set Luminance Settings (5 bytes)

Format:

a O 1 + cr	Increment Luma value	
a O 1 - cr	Decrement Luma value	
a O 1 @ cr	Normalize Luma value	
a O 2 x cr	Set Luma value	x = hex value to be set

Returns:

cr lf ack

## P Background Color

Adjust/Set Color Settings (5 bytes)

Format:

a P 1 + cr	Increment Chroma value	
a P 1 - cr	Decrement Chroma value	
a P 1 @ cr	Normalize Chroma value	
a P 2 x cr	Set Chroma value	x = hex value to be set

Returns:

cr lf ack

## Q Background Setup (Brightness)

Setup Adjust/Set (5 bytes)

Format:

a Q 1 + cr	Increment Setup value	
a Q 1 - cr	Decrement Setup value	
a Q 1 @ cr	Normalize Setup value	
a Q 2 x cr	Set Setup value	x = hex value to be set

Returns:

cr lf ack

## R Background Hue (Tint)

Adjust/Set Hue Settings (5 bytes)

Format:

a R 1 + cr	Increment Hue value	
a R 1 - cr	Decrement Hue value	
a R 1 @ cr	Normalize Hue value	
a R 2 x cr	Set Hue value	x = hex value to be set

Returns:

cr lf ack

## FREEZE COMMANDS

### E Freeze

Freeze Control (5 bytes)

Format:

a E @ + cr	Freeze On
a E @ - cr	Freeze Off
a E @ & cr	Freeze Triggle

Returns:

cr lf ack

Freeze Query (5 bytes)

Format:

a E @ ? cr	Request Freeze Information
------------	----------------------------

Returns:

a E n cr lf ack	n = bit encoded byte value
-----------------	----------------------------

## SAVE COMMANDS

### S Save

Format:

a D @ S cr	Save
------------	------

Returns:

cr lf ack

## VIDEO STANDARD COMMANDS

### N Standard

Video Standard Control (5 bytes)

Format:

a N @ + cr	Set NTSC Standard
a N @ - cr	Set PALB Standard
a N @ N cr	Set NTSC Standard
a N @ P cr	Set PALB Standard

Returns:

cr lf ack

Video Standard Query (5 bytes)

Format:

a N @ ? cr	Request Standard Information
------------	------------------------------

Returns:

a N n cr lf ack	n = N, P
	N = NTSC
	P = PalB

## GENLOCK COMMANDS

### U Genlock

Genlock Control (5 bytes)

Format:

a U @ + cr            Genlock to Auto Mode  
a U @ - cr            Genlock to Stand-Alone Mode

Returns:

cr lf ack

Genlock Query (5 bytes)

Format:

a U @ ? cr            Genlock Request Information

Returns:

a U n cr lf ack    n = +, -  
                  + = Genlock mode  
                  - = Stand Alone mode

## MISC COMMANDS

I Comb Filter Control (5 BYTES)

Format:

a I @ + cr            Comb Filter On  
a I @ - cr            Comb Filter Off

Returns:

cr lf ack

J Notch Filter Control (5 bytes)

Format:

a J @ + cr            Notch Filter On  
a J @ - cr            Notch Filter Off

Returns:

cr lf ack

V Foreground Video Source Select (5 bytes)

Format:

a V @ n cr            Switch video    n = 0, 1, 2, 3  
                  0 = CV1  
                  1 = CV2  
                  2 = SV1  
                  3 = SV2

Returns:

cr lf ack

note: changes video source without changing proc settings

## INFO COMMANDS

### W Who are you ? (4 bytes)

Format:

W @ ? cr Request board address

Returns:

W n cr lf ack n = board address 'a,b,c, or d'

note: special command, does not require address byte

### X Request Boad Info (5 bytes)

Format:

a X @ ? cr Request board version

Returns:

name version date cr lf ack

i.e. BvPip V1.00 07/24/00 cr lf ack

## SYSTEM TIMING COMMANDS

### Z System Timing

#### Horizontal Phase Adjust (5 bytes)

Format:

a Z 1 + cr Increment hPha value

a Z 1 - cr Decrement hPha value

a Z 1 @ cr Normalize hPha value

a Z 2 x cr Set hPha value x = hex value to be set

Returns:

cr lf ack

#### Subcarrier Phase Adjust (5 bytes)

Format:

a Z 3 + cr Increment scPha value

a Z 3 - cr Decrement scPha value

a Z 3 @ cr Normalize scPha value

a Z 4 x cr Set scPha value x = hex value to be set

Returns:

cr lf ack

#### Timing Query (5 bytes)

Format:

a Z @ ? cr Request Timing Information

Returns:

a Z x y cr lf ack x = hex Hphase value, y = hex SCPhase value



## POSITION AND SIZE COMMANDS

### p Set Position (lower case p) (7 bytes)

Format:

a p yy xx cr

yy horz pos, two hex bytes 0000 to 02C4 hex (0 to 708 dec)

xx vert pos, two hex bytes 0000 to 00F2 hex (0 to 242 dec)

Returns:

cr lf ack

### q Position and Size (lower case q) (eleven bytes)

Format:

a q yy xx ww hh cr

yy horz pos, two hex bytes 0001 to 02C4 hex (1 to 708 dec)

xx vert pos, two hex bytes 0001 to 00F2 hex (1 to 242 dec)

ww pixel width, two hex bytes 0000 to 02C4 hex (0 to 708 dec)

hh line height, two hex bytes 0000 to 00F2 hex (0 to 242 dec)

Returns:

cr lf ack

### s Set Size (lower case s) (seven bytes)

Format:

a s ww hh cr

ww pixel width, two hex bytes 0000 to 02C4 hex (0 to 708 dec)

hh line height, two hex bytes 0000 to 00F2 hex (0 to 242 dec)

Returns:

cr lf ack

## ZAP REGISTER COMMANDS

### r Recall Zap register (lower case r) (five bytes)

Format:

a r @ n cr            n = 0 - 9, A

Returns:

cr lf ack

### t Store Zap register (five bytes)

Format:

a t @ n cr            n = 0 - 9

Returns:

cr lf ack

## KEY COMMANDS

### K Key Size

Adjust Key Size (5 bytes)

Format:

a K 1 + cr	Increment Key Size value (with loop around)
a K 1 - cr	Decrement Key Size value (with loop around)

Returns:

cr lf ack

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## GPI COMMANDS

**G GPI Functions** (upper case G) (5 bytes)

Format:

a G x y cr

Where:

a address byte, lower case ASCII 'A' to 'D'  
G an ASCII 'G' (uppercase G)  
x an hex byte \$01 or \$02 (GPI1 or GPI2)  
y a hex byte \$00 to \$16, \$20, or \$21 for GPI functions \*\*\*\*\*  
cr carriage return, (0D hex).

Returns:

cr lf ack

### GPI function

00hex thru 16hex selects a GPI function (same as LCD Menu)  
20hex initiates a GPI function  
21hex stores the GPI function (for POR recall)

00 GPI Off

01 Freeze Off  
02 Freeze On  
03 Freeze Toggle  
04 Freeze Follow  
05 Freeze Follow Inverse

06 Zap Beginning           Go to ZAP register 0  
07 Zap Forward            Go to previous ZAP register (loop from 0-9)  
08 Zap Reverse            Go to next ZAP register (loop from 9-0 if  
                          needed)  
09 Zap Ending             Go to ZAP register 9

0A Source Normal  
0B Source Toggle  
0C Source Follow  
0D Source Follow Inverse

0E Select CV1  
0F Select CV2  
10 Select SV1  
11 Select SV2

12 All Normal             Set ZAP 0, Freeze Off & Source CV1 (PIP), CV2

Symbols used in this document:

a	address byte, ASCII lower case 'a,b,c, or d'
+	ASCII '+' plus sign (hex 2B)
-	ASCII '-' minus sign(hex 2D)
@	ASCII '@' (at sign) (hex 40)
cr	ASCII carriage return, (0D hex)
lf	ASCII line feed, (0A hex)
ack	ASCII '}' close brace (hex 7D)
nak	ASCII '?' question mark (hex 3F)

**KEYWEST TECHNOLOGY  
LIMITED WARRANTY**

KEYWEST TECHNOLOGY does hereby declare that the said product be covered under limited warranty for defective materials and workmanship. This warranty is extended to the original purchaser only, for the amount of time indicated below, effective from the original purchase date and subject to the following:

**\*\*\*\*THIS WARRANTY DOES NOT COVER\*\*\*\***

- A. Products that have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, or if repaired or attempted repair performed by anyone other than a service facility authorized to render such service, or if the model or serial number has been altered, tampered with, defaced, or removed
  
- B. Operational adjustments covered in this manual

WARRANTY PERIOD: 2 Years Parts & Labor

Cut and return the following page to register your product.

## PRODUCT WARRANTY REGISTRATION

Complete and mail within 10 days of purchase

Purchaser's Name \_\_\_\_\_  
Title: \_\_\_\_\_ Phone: \_\_\_\_\_  
Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Purchased From: \_\_\_\_\_  
Comments: \_\_\_\_\_  
\_\_\_\_\_

**PURCHASE DATE:**

**MO.**

**YR.**

MODEL #	SERIAL #	PARTS	LABOR
		2 YRS.	2 YRS.