STEALTH® v2

User's Guide

ELEMENTLABS

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CHAPTER

1

INTRODUCTION

This User's Guide covers the typical STEALTH system and its various components in detail and illustrates sample configurations.

Chapters in this manual are divided into the following topics:

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The same methodology applies to entries in the Table of Contents although they are not displayed as links.

System Overview

The STEALTH system is a modular LED display product that allows for full motion video to be displayed on high resolution STEALTH panels.

The STEALTH panels are lightweight and rapidly deployable. A nearly 60 percent transparent design makes it easy for set pieces or even other display devices to remain visible behind it allowing for a number of different creative effects.

STEALTH is comprised of the following hardware components:

- VP1 - Video Processing Unit (p. 2-2)
- SP1 – Signal Processing Unit (p. 2-4)
- DD1 – Data Distribution Unit (p. 2-8)
- PDB-3 – Power and Data Distribution (p. 2-9)
- DSU – Data Supply Unit (p. 2-12)
- STEALTH Panel (p. 3-5)

The STEALTH system is capable of handling many types of video signals including:

- DVI
- SD-SDI
- HD-SDI (limited resolution, see page 2-2)
- Component
- S-Video
- Composite

The VP1 takes one of the above signals and converts it to the proper format for input to the SP1. The SP1 requires a 1024x768 Digital Visual Interface (DVI) signal at 60 Hz with high (+) or low (-) vertical sync.

NOTE If you already have a properly formatted DVI signal for the SP1 (1024x768 @ 60 Hz), you do not need the VP1.

Throughout this manual, screen sizes and/or pixel dimensions are referenced in the commonly used form of 1024x768. The first number is the horizontal value and the second number is the vertical value. For example, the DVI input signal to the VP1 is 1024 horizontal pixels by 768 vertical pixels and is represented as 1024x768.

The SP1 has 2 fiber optic outputs each with a resolution of 1024x256 pixels. One or both SP1 outputs are connected to the DD1. The DD1's job is to slice up the signal into 400x80 pixel chunks which are then routed to the individual STEALTH panels via the PDB-3.

The PDB-3 contains 2 DSUs, each with 4 outputs. The DSU handles the final conversion of the video signal into 16x80 blocks which connect to a column of 5 STEALTH panels. Each STEALTH panel is an individual array of 16x16 pixels.

The following figure illustrates the basic signal flow of the STEALTH system. Unless otherwise noted, the numbers shown are pixel dimensions.

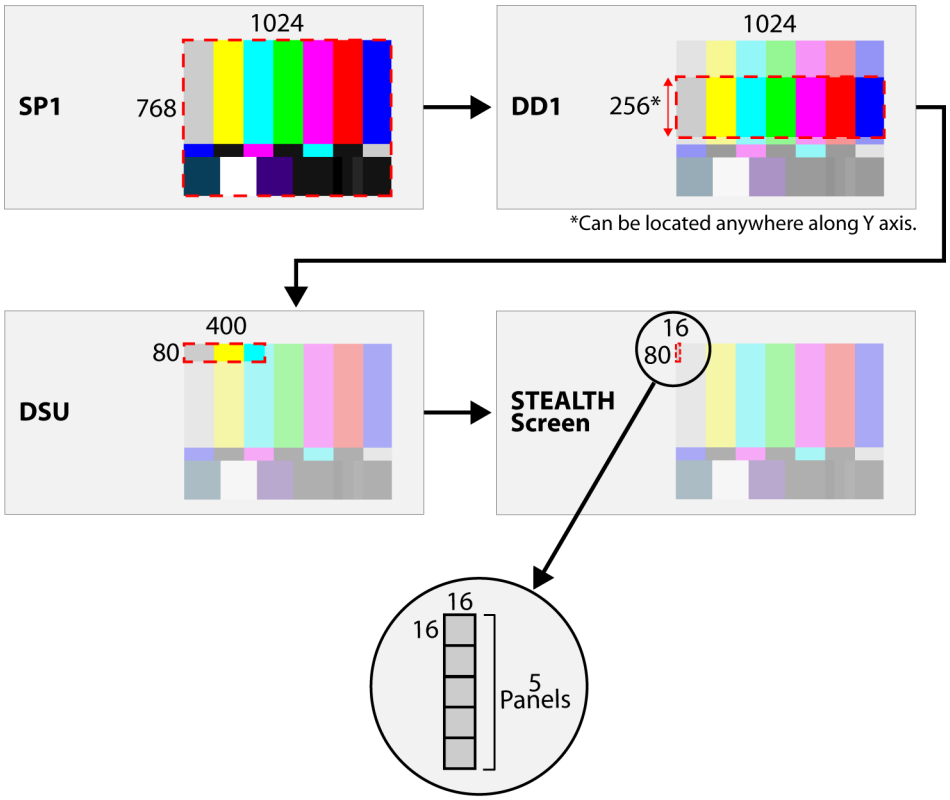


Figure 1.1 STEALTH System Signal Flow

This is a very simplified explanation of the STEALTH system. The following chapters will provide you with more detailed information on the STEALTH system.

CHAPTER

2

PROCESSING COMPONENTS

This chapter provides details on the STEALTH System processing components and covers the following topics:

VP1 - Video Processing Unit

The VP1 is a Video Processing Unit capable of accepting several video formats and outputting a 1024x768 pixel DVI-D signal. The VP1 is operated via serial control from a PC using the supplied LedGuru software. Refer to LedGuru Software, (p. B-1) for information on controlling the VP1 via the LedGuru Software.

The following is a list of the video signals that the VP1 accepts:

- DVI
- SD-SDI
- HD-SDI (limited resolution, see note below)
- Component
- S-Video
- Composite

NOTE If you already have a properly formatted DVI signal for the SP1 (1024x768 @ 60 Hz), you do not need the VP1.

HD-SDI input video is limited to 720x486 resolution.

Front Panel Description

The following information describes the VP1 front panel:

Figure 2.1 VP1 Front Panel

LED Name	Function
OK	Running Normally
DVI	Receiving DVI Signal
SDI	Receiving SDI Signal
VIDEO	Receiving Analog Video Signal
TX	Transferring Data
RX	Receiving Data
F1	System Fault
F2	System Fault

Rear Panel Description

The following information describes the VP1 rear panel:

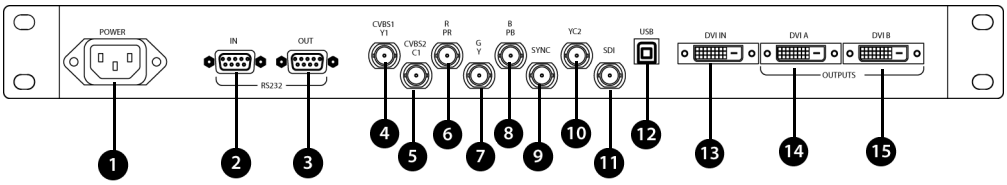


Figure 2.2 VP1 Rear Panel

Legend #	Label	Info
1	AC Power Input	85~264 VAC, 50/60 Hz
2	RS232 in	Serial Control of VP1 from a PC
3	RS232 out	RS232 Output Signal Interface (unused)
4,5	CVBS1,CVBS2	Composite Video Signal Input 1 and 2
4,5	Y1/C1	Y/C Video Signal Input 1
6-9	RGBS	Red, Green, Blue and Sync (RGBS) Component Video Signal Input
6-9	YPrPbS	Y, Pr (R-Y), Pb (B-Y) and Sync Component Video Signal Input
10	YC2	Y/C Video Signal Input 2
11	SDI	Serial Digital Interface Input
12	USB	USB Port (unused)
13	DVI in	DVI Input
14,15	DVI out	2xDVI Outputs (1024x768 @ 60Hz)

SP1 – Signal Processing Unit

The SP1 is the main controller for the STEALTH system. The SP1 receives a DVI input (1024x768 @ 60 Hz) and processes the image to be displayed on up to two DD1s (DD1 – Data Distribution Unit, p. 2-8). The SP1 incorporates a front panel menu display to change many parameters including the following image controls:

- screen brightness
- gamma
- offset
- test pattern display

Front Panel Description

The following information describes the SP1 Front Panel:

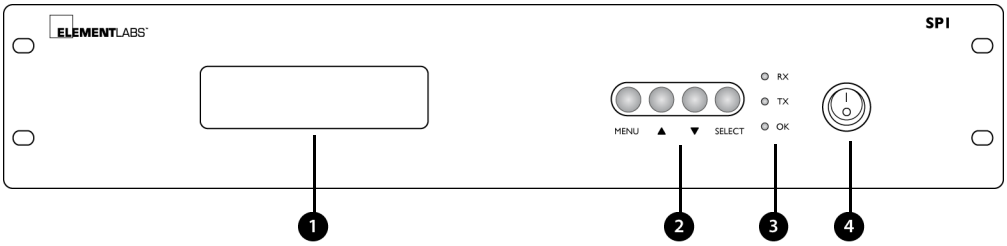


Figure 2.3 SP1 Front Panel

Legend #	Item		Function
1	LED Screen		Displays setup menus
2	Menu Access Buttons	Menu	Used to access setup menus and functions • In select item mode, press to return to the front menu • In change data mode, press to enter select item mode
		5	Increments the menu selection • In select item mode, press to move the cursor up to the previously selected item • In change data mode, press to increase the data value on the selected item
		6	Decrements the menu selection • In select item mode, press to move the cursor down to the next selected item • In change data mode, press to decrease the data value of the selected item
		Select	Selects the displayed parameter • In select item mode, press to enter the next menu or change data mode • In change data mode, press to return to select item mode after saving

Legend #	Item		Function
3	Indicator lights	RXD	RS232 signal is being received
		TX	RS232 signal is transsmitting
		OK	Indicates presence of incoming DVI signal
4	Power		Powers on/off the SP1

Rear Panel Description

The following information describes the SP1 rear panel connections:

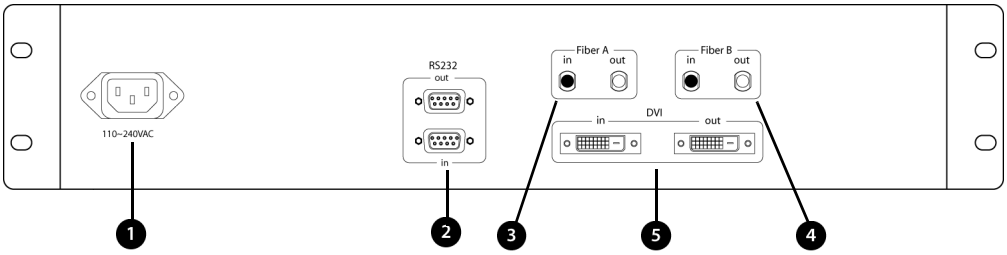


Figure 2.4 SP1 Rear Panel

Legend #	Connector	Info
1	AC Power Input	Accepts between 85~240 VAC
2	RS232 In / Out	Not used
3	Fiber A Out	First image area data out to DD1
4	Fiber B Out	Second image area data out to DD1
5	DVI In / Out	DVI In: Signal from VP1 (1024x768 @ 60 Hz) DVI Out: Loop Out to next SP1 or DVI Monitor

Menu Navigation

The SP1 front panel buttons allow you to navigate the menus and change parameters. Button functionality varies depending upon the current menu mode.

There are 2 Menu Modes: **Select Item** and **Change Data**. Select Item mode, indicated by a hand icon (☞), means that you are navigating the menus and will be selecting an item that you wish to adjust. Once you have selected the item, you are then in Change Data mode, indicated by a floppy disk icon (💾), where you will actually be changing the setting.

The SP1 menu structure has one main menu and five sub-menus outlined in the following table.

Table 2.1 SP1 Menus & Value Ranges

Menu	Item	Description	Values/ Range
Display	Brightness	Set the source of the brightness setting and the setting value	1-10
	Gamma	Set DD1 gamma table	1.0-3.0
SP1	SP1 ID	Set the ID of SP1	1-255
	Cascade SP1	Set the cascade amount of SP1	1-255
DD1	Image Offset	Master offset for all pixel information sent to DD1	
	Width	Horizontal Offset	0-1023
	Height	Vertical Offset	0-1023
	Ch 1-1	Offset for DD1-Fiber A output channel A	X[1]=0-1023 Y[2]=0-1023
	Ch 1-2	Offset for DD1-Fiber A output channel B	X=0-1023 Y=0-1023
	Ch 1-3	Offset for DD1-Fiber A output channel C	X=0-1023 Y=0-1023
	Ch 1-4	Offset for DD1-Fiber A output channel D	X=0-1023 Y=0-1023
	Ch 1-5	Offset for DD1-Fiber A output channel E	X=0-1023 Y=0-1023
	Ch 1-6	Offset for DD1-Fiber A output channel F	X=0-1023 Y=0-1023
	Ch 2-1	Offset for DD1-Fiber B output channel A	X=0-1023 Y=0-1023
	Ch 2-2	Offset for DD1-Fiber B output channel B	X=0-1023 Y=0-1023
	Ch 2-3	Offset for DD1-Fiber B output channel C	X=0-1023 Y=0-1023
	Ch 2-4	Offset for DD1-Fiber B output channel D	X=0-1023 Y=0-1023
	Ch 2-5	Offset for DD1-Fiber B output channel E	X=0-1023 Y=0-1023
	Ch 2-6	Offset for DD1-Fiber B output channel F	X=0-1023 Y=0-1023
SBU	Display Mode		
	Mode	Selects live input (Normal), generates test pattern (Line), triggers internal DSU test (Pattern & All)	Normal, Line, Pattern, All

Table 2.1 SP1 Menus & Value Ranges

Menu	Item	Description	Values/ Range
	Pat	Selects DSU test patterns under PATTERN mode	Black, White, Red, Green, Blue, Pattern1, Pattern2, Pattern3, Pattern4, Column1, Column2, Row1, Row2, ID
	All W.B.	Set scan board white balance individually for Red, Green, and Blue components	R=0-255 G=0-255 B=0-255
	Link Direction	Selects the behavior of successive DSU outputs from horizontal to vertical	Left to Right, Down to Up, Up to Down
	Block Size	Selects horizontal (width) and vertical (height) pixel block output size. Should always be set at 16x80 for STEALTH systems.	Width: 1-255 Height: 1-255
Information		Displays system information. Values are unchangeable.	
	SP1 Version	Shows Version and Date.	
	PC Com Mode	Shows Mode and Channel information.	

1.X = horizontal offset
2.Y = vertical offset

DD1 – Data Distribution Unit

The following is a list of DD1 features:

- fiber optic input from SP1
- 1024x256 pixels (96 columns x 16 rows) maximum display area
- six output ports 400x80 pixels (25 columns x 5 rows)
- additional DD1 required for every additional 256 vertical pixels (16 rows) of screen area

NOTE You will need a 50/125 fiber optic cable with ST-ST connectors.

Front Panel Description

The following information describes the DD1 Front Panel:

Figure 2.5 DD1 Front Panel

Item	Function
OK	Solid green when running normally
Link	Solid red if a problem occurs. Flashing red during communications

Rear Panel Description

The following information describes the DD1 rear panel connections:

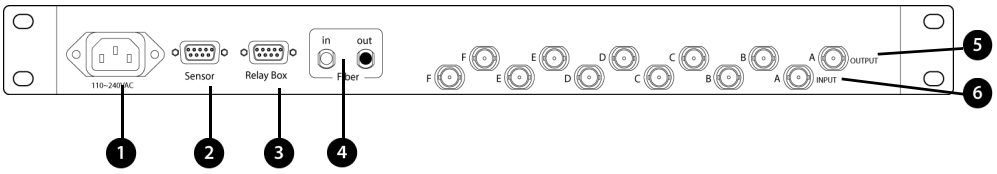


Figure 2.6 DD1 Rear Panel

Legend #	Connector	Info
1	AC Power Input	Accepts between 85~264 VAC
2	Sensor	Unused
3	Relay Box	Unused
4	Fiber In	Data from the SP1
5	Signal Outputs A-F	Data output
6	Signal Inputs A-F	Unused

PDB-3 – Power and Data Distribution

The PDB-3 handles the distribution of power and data to the STEALTH panels. Each PDB-3 includes the following features:

- Two x 1U High Data Supply Units (DSU)
- DC Output Panel, 1U High
- Multiple PDB-3s Can Be Connected

Front Panel Description

As shown below, each PDB-3 contains 3 individual chassis: 2 DSUs and 1 DC Output Panel. The following information describes the front of the PDB-3:

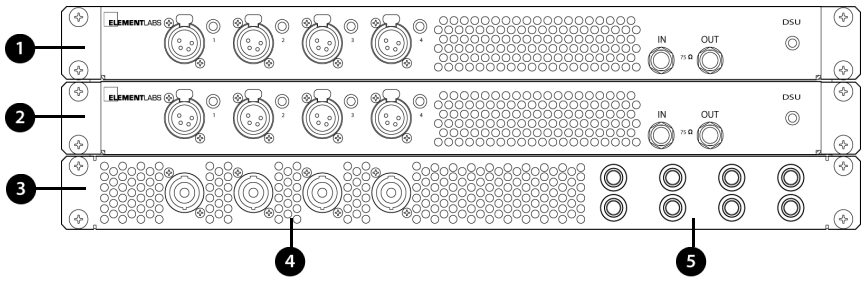


Figure 2.7 PDB-3 Front Panel

Legend #	Item	Info
1	DSU #1	See DSU – Data Supply Unit (p. 2-12) for more info
2	DSU #2	See DSU – Data Supply Unit (p. 2-12) for more info
3	DC Output Panel	Handles the power output to the STEALTH panels
4	Power Output	Cable with Neutrik NL-4 connector breaks out to 2x LTW connectors
5	Circuit Breakers	15 amp (push to reset)

The DC Output Panel contains 4 Speakon connectors for distributing 48VDC power to the STEALTH panels. Each of these power connectors breaks out to 2 LTW connectors that can drive two columns of 5 panels each. Do not daisy chain more than 5 panels together.

NOTE LTW power and data cables from the PDB-3 to the STEALTH panels must be no longer than 8 meters.

The following diagram illustrates basic PDB to STEALTH Power connections:

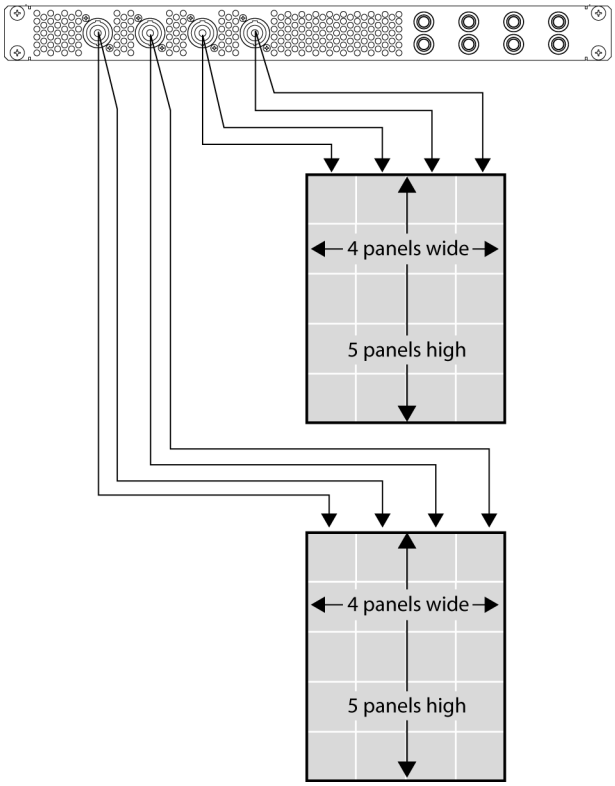


Figure 2.8 PDB Power Connection Diagram

Rear Panel Description

The following information describes the rear of the PDB-3:

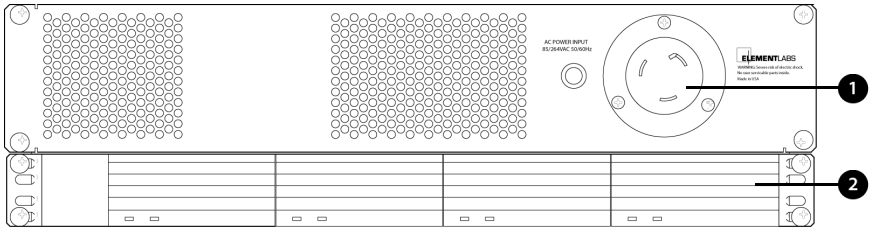
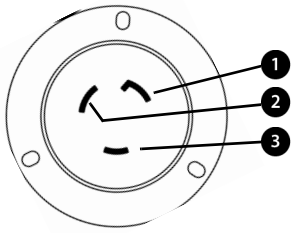


Figure 2.9 PDB-3 Rear Panel

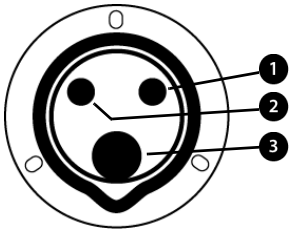
Legend #	Item
1	Power Input Connector (see below)
2	Removable Power Supplies

Each PDB-3 is configured with either a NEMA L6-30 (North America, 30 amp) or IEC 60309 - CEE 17 (EU, 32 amp) power input connector mounted on the rear of the chassis for main power input.



Item	Wire Color	Info
Ground	Green	
Hot Leg X	Black	180-264 VAC, 47/63 Hz Nominally: 200-240 VAC, 50/60Hz
Hot Leg Y	Red	

Figure 2.10 PDB-3 NEMA LC-30 Male Power Input Connector, front view



Item	Wire Color	Info
Hot Leg X	Brown	180-264 VAC, 47/63 Hz Nominally: 200-240 VAC, 50/60Hz
Neutral	Blue	
Ground	Green + Yellow	

Figure 2.11 PDB-3 IEC 60309 - CEE 17 Male Power Input Connector, front view

NOTE

US 120/208v power: you need to run two hot legs on separate phases and a ground to reach the required voltage.

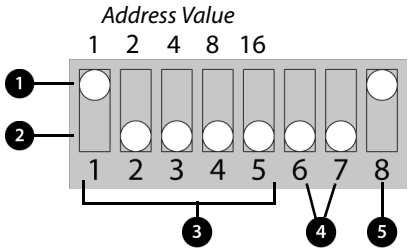
EU 240v power: you need one hot leg, a neutral, and ground.

DSU – Data Supply Unit

The DSU handles the final data output to the STEALTH panels. Each DSU contains four Scan Boards (SB) which must be addressed properly to match your configuration.

For example, if you are going to use 8 columns of STEALTH panels the DIP switches for the first 4 SBs must be set to 1-4. The next DSU SBs need to be set to 5-8.

Each DIP switch has 8 individual switches which allow you to set the Binary ID for that SB. Each of the 8 individual switches can be set to On or Off. When set to the On (up) position, there is a value associated with that setting. The overall value is obtained by adding the individual values of switches 1-5. The following information describes a Scan Board DIP switch:



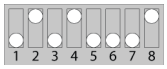
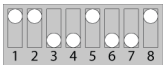
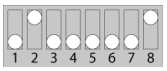
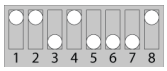
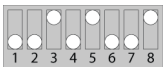
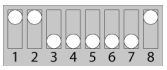
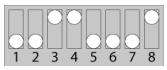
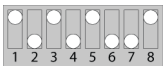
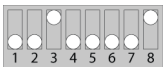
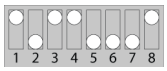
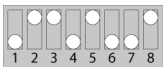
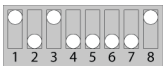
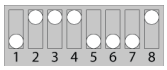
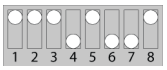
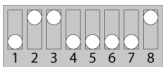
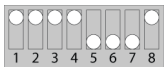
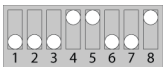
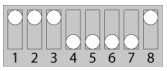
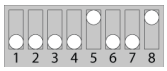
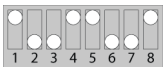
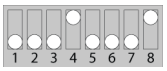
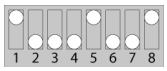
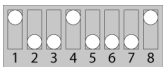
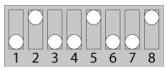
DIP Switch	Binary Value
1	1
2	2
3	4
4	8
5	16

Figure 2.12 Scan Board DIP Switch

Legend #	Item	Description
1	Up	On
2	Down	Off
3	Switches 1-5	Used for SB addressing
4	Switch 6 & 7	Unused
5	Switch 8	Used for either video mode (up position) or test pattern mode (down position)

The following table lists the individual DIP switch values along with an image of how the DIP switch should be set:

Table 2.2 DIP Switch Values

Value	Image	Value	Image	Value	Image
1		10		19	
2		11		20	
3		12		21	
4		13		22	
5		14		23	
6		15		24	
7		16		25	
8		17			
9		18			

As an example, using Table 2.2 above, #7 has switches 1, 2, and 3 in the up position. So simply add the values from switches 1, 2, and 3 (1 + 2 + 4) to get the overall value of 7.

Front Panel Description

The following information describes the DSU Front Panel:

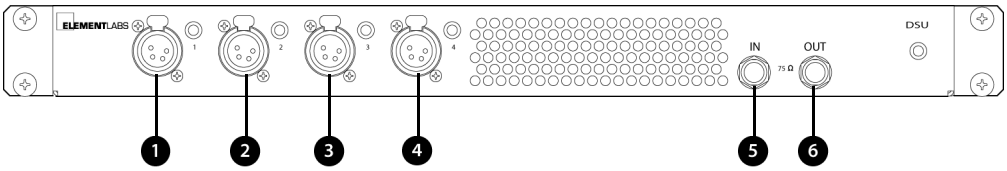


Figure 2.13 DSU Front Panel

Legend #	Function
1-4	Data Output 1-4
5	Coaxial In
6	Coaxial Out

Data output from each DSU is made through the front mounted, 4 pin, female XLR connector.

NOTE To connect to the STEALTH panels, you will need to use XLR to LTW adaptors.

LTW power and data cables from the PDB-3 to the STEALTH panels must be no longer than 8 meters.

The following diagrams illustrate basic DSU signal and control connections:

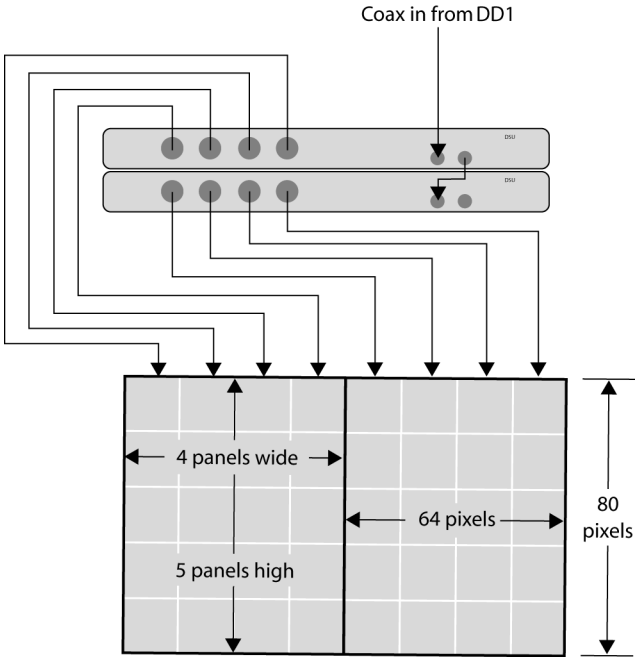


Figure 2.14 DSU Signal and Control Connection Diagram #1

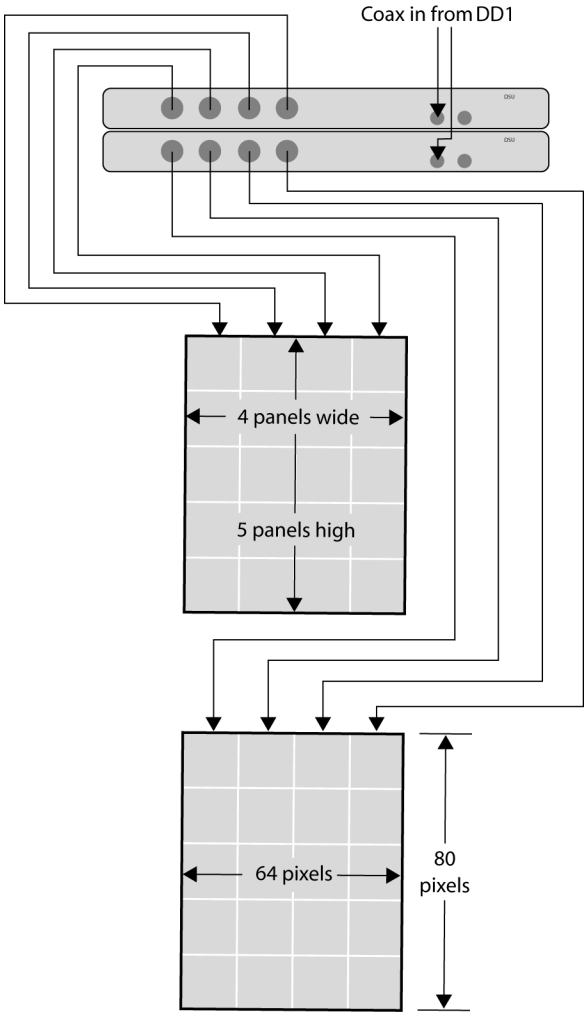


Figure 2.15 DSU Signal and Control Connection Diagram #2

CHAPTER

3

RIGGING AND MECHANICAL

This chapter introduces you to the rigging and mechanical aspects of the STEALTH System and covers the following topics:

Overview

Each STEALTH panel measures 398.5 mm (15.69″) long by 38.5 mm (1.52″) wide by 400 mm (15.75″) high and contains 256 LEDs in a 16 x 16 array. Multiple panels can be assembled together to attain the desired screen size.

NOTE The maximum # of panels that can be connected vertically is 60.

The following information describes a STEALTH panel assembly in a 4 panel wide by 5 panel high configuration. Each of the main parts are discussed in subsequent pages.

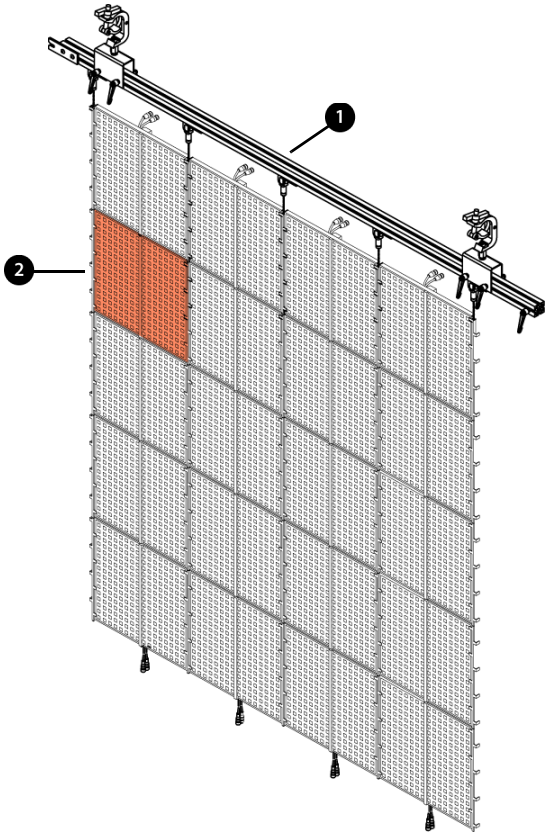


Figure 3.1 STEALTH 4x5 Panel Assembly

Legend #	Function
1	Header Assembly, (p. 3-3)
2	STEALTH Panel, (p. 3-5)

Header Assembly

The header assembly provides an easy way to hang STEALTH panels. Common rigging hardware is used to allow for flexible installation adjustments.

Description

The following information describes the STEALTH header:

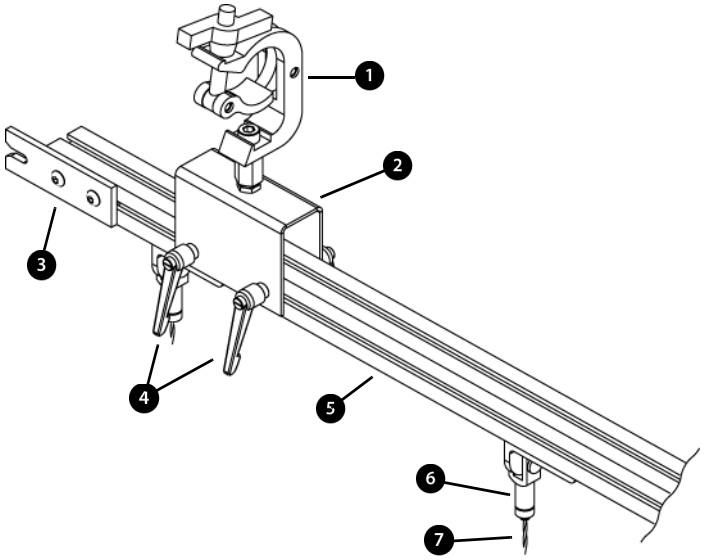


Figure 3.2 STEALTH Header Detail

Legend #	Function
1	Cheeseborough Clamp
2	Adjustable Clamp Bracket
3	Joining Plate for Multiple Headers
4	Horizontal Adjustment Levers
5	Header Bar
6	Grip Lock
7	*Option 1:* Cable for Attaching STEALTH Panels
	Option 2: v2.5 Hinge Connector (not shown)

The following illustration offers more details of the STEALTH header.

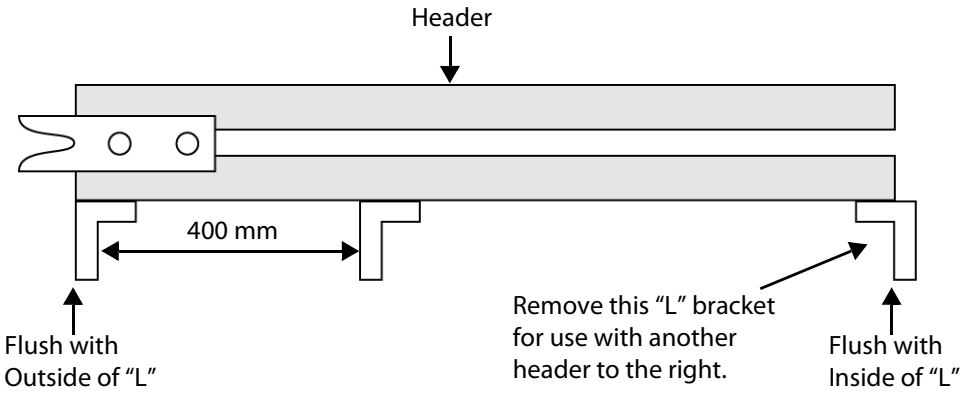


Figure 3.3 STEALTH Header More Details

N O T E S

Check all fasteners and hardware before using.

Use **only** for hanging STEALTH panels.

Connecting Multiple Headers

Multiple STEALTH headers can be connected together as shown in the illustration below.

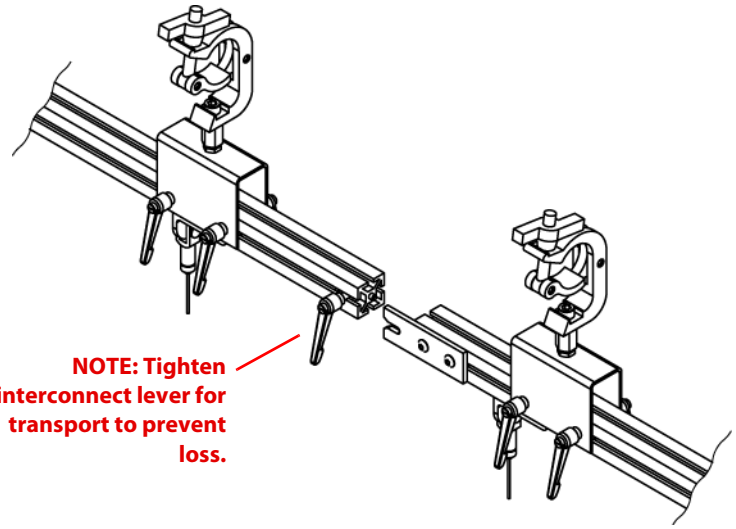


Figure 3.4 Connecting Multiple Headers

STEALTH Panel

Each STEALTH panel measures 398.5 mm (15.69″) long by 38.5 mm (1.52″) wide by 400 mm (15.75″) high and contains 256 LEDs in a 16 x 16 array. Multiple panels can be attached together to attain the desired screen size.

The following information describes a STEALTH panel:

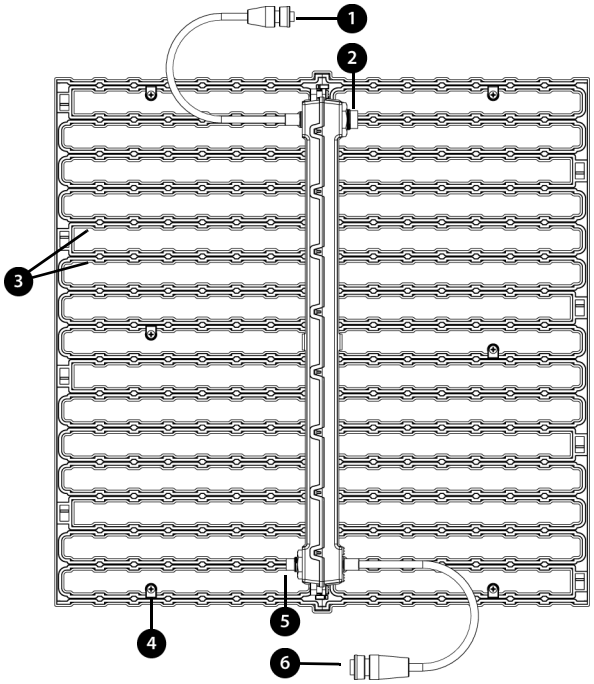


Figure 3.5 STEALTH Panel Detail

Legend #	Function
1	Data input cable (smaller LTW connector)
2	Power input jack (larger LTW connector)
3	LEDs (total of 256 per panel)
4	Mounting hole (6 per panel)
5	Data output jack (smaller LTW connector) Used to connect to other panels
6	Power output cable (larger LTW connector). Used to connect to other panels

Connecting Multiple STEALTH Panels

Multiple STEALTH panels can be easily connected via the included hinge assembly. Once connected, you can snap in/out individual panels as needed and even fold up the entire STEALTH curtain for transport.

The following information describes the STEALTH v2.5 hinge assembly (a detailed illustration of the hinge connection follows):

Legend #	Function
1	Mating Pin
2	STEALTH Panel Snaps
3	Spring Loaded Collar

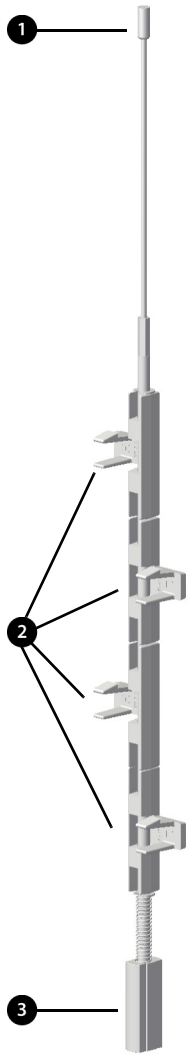


Figure 3.6 STEALTH Panel Hinge Assembly

The following information describes the STEALTH v2.5 hinge connection assembly:

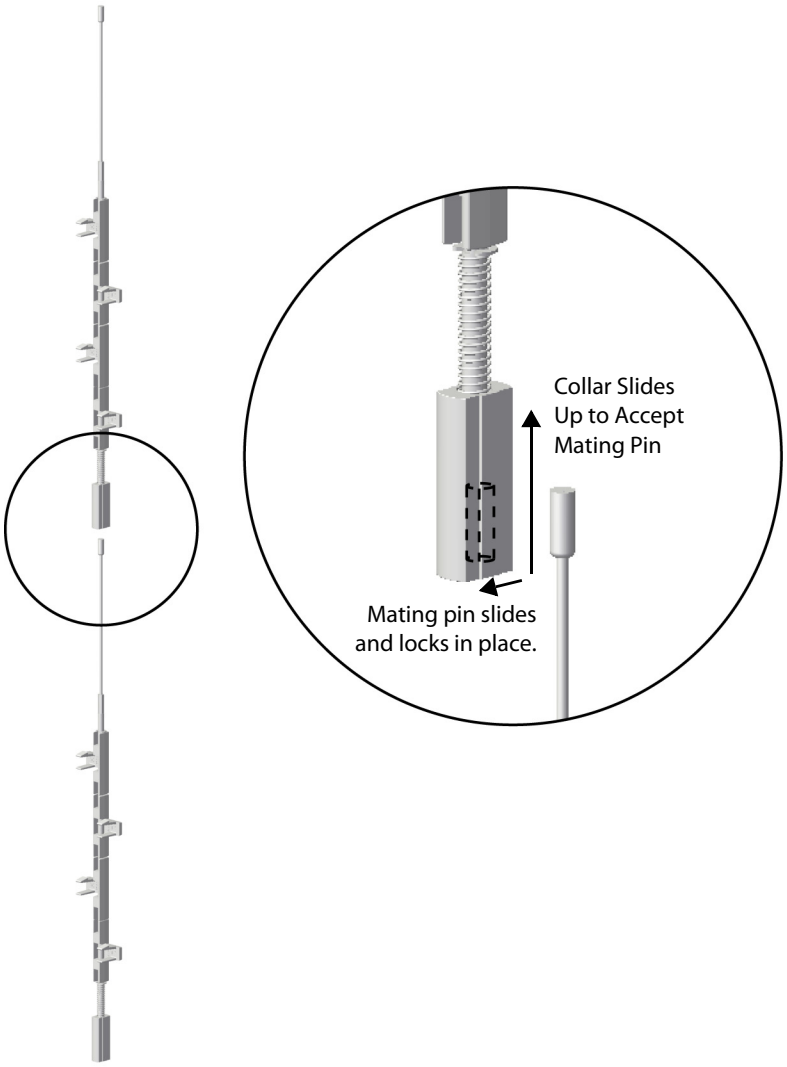


Figure 3.7 STEALTH Panel Hinge Connection Detail

Folding STEALTH Panels

If you are using the cable hinge, STEALTH panels can be folded together as shown in the following illustration.

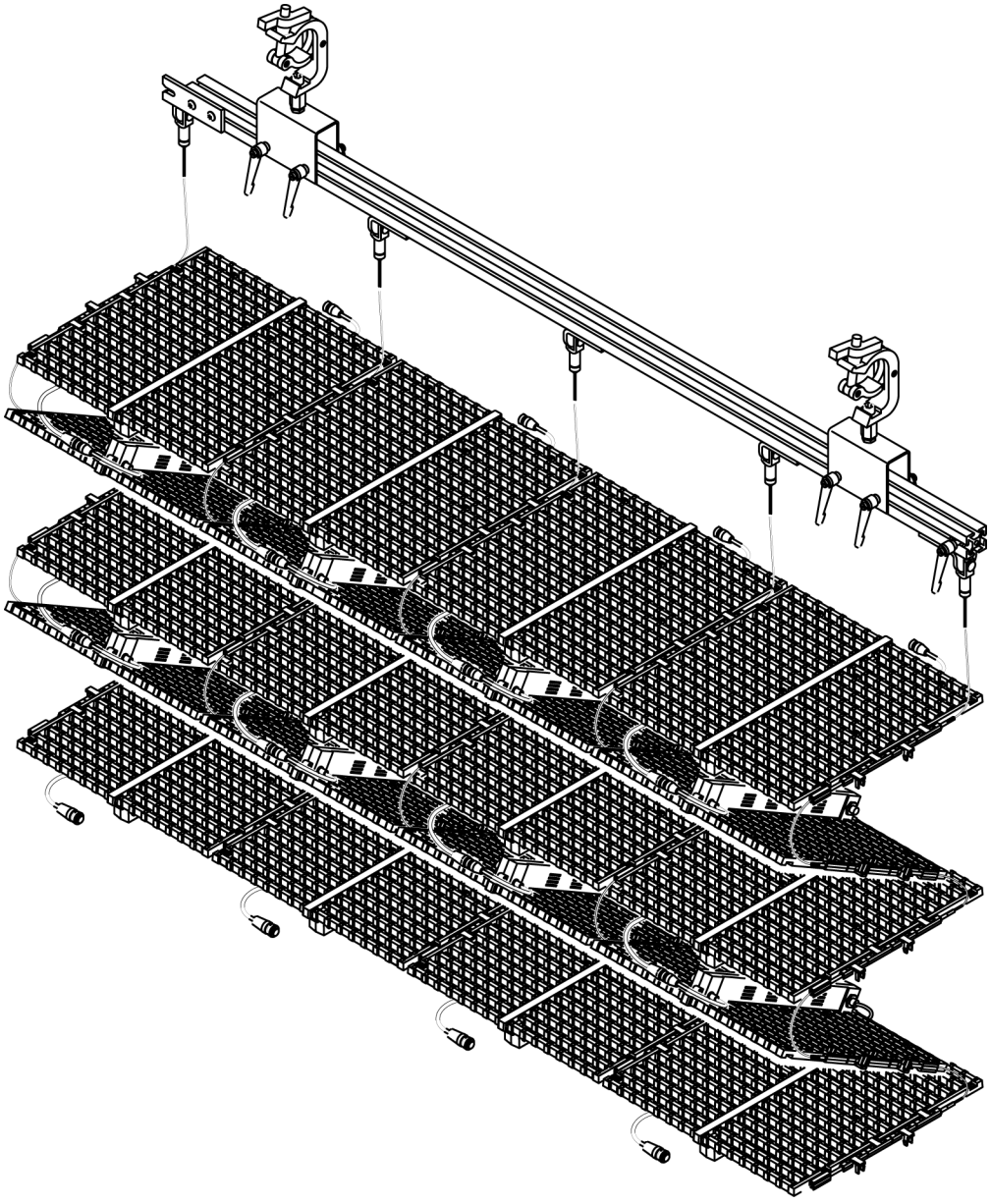


Figure 3.8 Folding STEALTH Panel Assembly

Power & Data Connections

The power and data connections from the PDB-3 (PDB-3 – Power and Data Distribution, p. 2-9) to each STEALTH panel are daisy-chained within each column or row, depending upon your type of configuration. The first data connection is plugged into the top of a panel via the pigtail with the smaller LTW connector. Subsequent data connections are made by plugging the second panel's pigtail into the LTW jack at the bottom of the first panel.

The first power connection is made with the larger LTW connector and the jack mounted on the rear of the STEALTH panel. Subsequent power connections between panels are made by plugging in the first panel's pigtail into the LTW jack at the top of the second panel.

APPENDIX

A

SPECIFICATIONS

This chapter covers the STEALTH system specifications and is divided into the following sections:

VP1 Specifications

The following table lists the VP1 (Video Processing Unit) specifications:

Item	Specification	
Inputs	*Format*	*Resolution*
	DVI	1024x768
	SD-SDI	720x486
	HD-SDI	720x486
	Component	640x480
	S-Video	720x486
	Composite	640x480
Outputs	2xDVI	1024x768
Vertical Frequency	60 Hz	
Dimensions	(H) 44.45 mm (1.75″/1U)	
	(W) 482.6 mm (19″)	
	(D) 266.7 mm (10.5″)	
Weight	4.49 kg (9.9 lbs)	
Power	110-240 VAC, 50/60 Hz	
	10.6 watts	

SP1 Specifications

The following table lists the SP1 (Signal Processing Unit) specifications:

Item	Specification	
Inputs	*Format*	*Resolution*
	DVI	1024x768
Outputs	2xFiber	
	DVI (loop through)	
Vertical Frequency	60 Hz	
Dimensions	(H) 44.45 mm (1.75″/1U)	
	(W) 482.6 mm (19″)	
	(D) 285.75 mm (11.25″)	
Weight	5.03 kg (11.1 lbs)	
Power	110-240 VAC, 50/60 Hz	
	8.0 watts	

DD1 Specifications

The following table lists the DD1 (Data Distribution Unit) specifications:

Item	Specification
Input	Fiber
Outputs	6x Coaxial BNC
	192,000 pixels (max)
Dimensions	(H) 44.45 mm (1.75″/1U)
	(W) 482.6 mm (19″)
	(D) 266.7 mm (10.5″)
Weight	4.13 kg (9.1 lbs)
Power	110-240 VAC, 50/60 Hz
	11.7 watts

PDB-3 Specifications

The following table lists the PDB-3 (Power and Data Distribution) specifications:

Item	Specification
Inputs (data)	See DSU Specifications (p. A-6)
Outputs (data)	See DSU Specifications (p. A-6)
Outputs (power)	48VDC via 4xSpeakon Connectors (chassis mounted)
	2xLTW Connectors (via breakout cable)
Max Cable Length (power & data)	8 meters (between PDB-3 and STEALTH panel)
Dimensions	(H) 177.80 mm (7.00”)
	(W) 533.40 mm (21.00”)
	(D) 609.6 mm (24.00”)
Weight	31.64 kg (69.75 lbs)
Circuit Breakers	15 amp (push to reset)
Power	180-264 VAC, 47/63 Hz Nominally: 200-240 VAC, 50/60Hz NEMA L6-30 connector (North America) IEC 60309 connector (EU)

DSU Specifications

The following table lists the DSU (Data Supply Unit) specifications:

Item	Specification
Inputs	Coaxial via BNC
Outputs	Coaxial via BNC (loop through)
	4xXLR (4 pin female)
Dimensions	(H) 44.45 mm (1.75″/1U)
	(W) 482.6 mm (19″)
	(D) 406.4 mm (16″)
Weight	3.63 kg (8 lbs)
Power	85-264 VAC, 50/60 Hz
	27.5 watts

STEALTH Panel Specifications

The following table lists the STEALTH panel specifications:

Table 3.1 STEALTH panel specifications

Item	Specification
Resolution	25 mm pixel pitch
Colors	Trillions (48-bit)
Power	70 watts / panel
Output	2400 nits (average)
Transparency	60% (Aperture Ratio)
Bezel Color	Black or White
Dimensions	(L) 398.5 mm (15.69″)
	(W) 38.5 mm (1.52″)
	(H) 400 mm (15.75″)
Weight	1.0 kg (2.2 lbs)

APPENDIX

B

LEDGURU SOFTWARE

This chapter covers the LedGuru software used for control of the STEALTH Video Processing Unit (VP1). This appendix is divided into the following major categories:

Communication Setup

The following is a list of the requirements for using LedGuru software:

- Microsoft Windows-Compatible OS
- Serial Port
- Serial Cable

A USB high speed serial adapter cable, such as the Keyspan model #USA-19HS, can be used to connect your computer to the VP1.

When LedGuru runs it automatically checks all available com ports to see if a VP1 is connected. If one is found LedGuru asks the user if they would like to read settings from the VP1 to ensure the software & hardware settings match.

NOTE LedGuru will not launch if no com port is detected.

If LedGuru does not find a VP1 connected, the **Com Setup** screen is displayed as shown in the following figure.

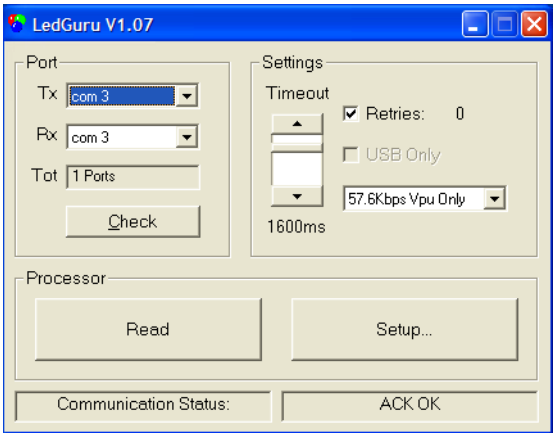


Figure 3.9 LedGuru Communications Setup Screen

Com ports and baud rates can be changed as required to establish communications with the VP1. Click **Check** to repeat the search for a VP1.

The default baud rate is 57.6Kbps. However, if a slower rate is required for communication over a long cable, then speeds down to 9600 can be selected.

NOTE Both LedGuru and the VP1 remember the last selected baud rate in non-volatile memory. Therefore, when connecting to a VP1 for the first time you may need adjust the baud rate and hit **Check** to find which baud rate the VP1 is set to.

Input Tab

The LedGuru Input tab allows the user to select inputs and adjust various input parameters.

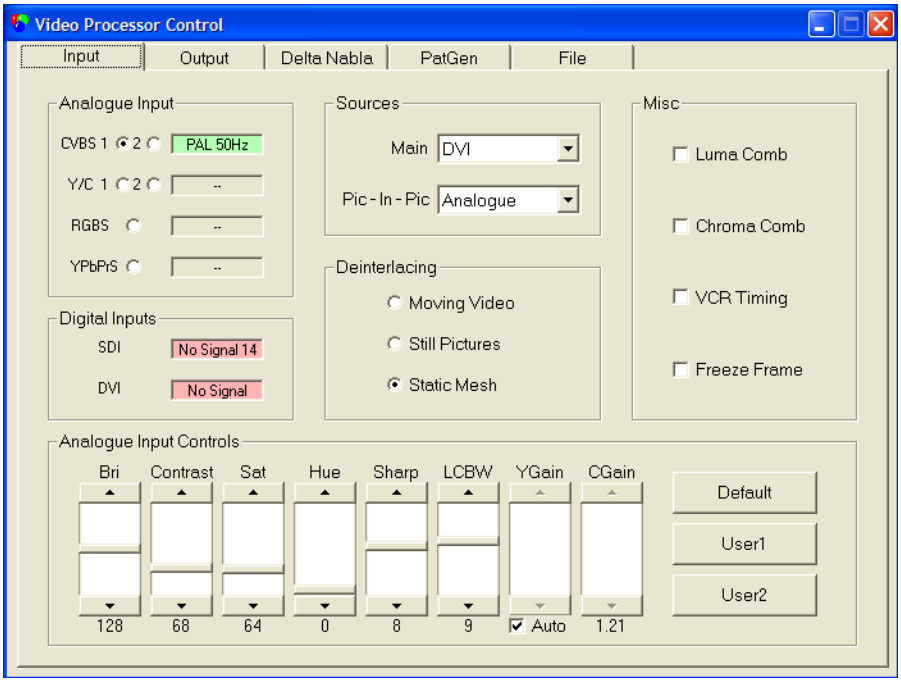


Figure 3.10 LedGuru Input Tab

The VP1 will accept three active video inputs simultaneously: analog, SDI and DVI. Any two of these inputs can be displayed simultaneously using the **Main** and **Picture-in-Picture** scaling channels. Only one analog input can be selected at a time. The signal indication for the currently selected analog input is updated when the signal is first selected (continuous signal status polling will be added in a later release). Note that there is only one analog input channel so only one analog input type can be monitored at a time.

Output Tab

The LedGuru Output tab lets the user adjust output image parameters.

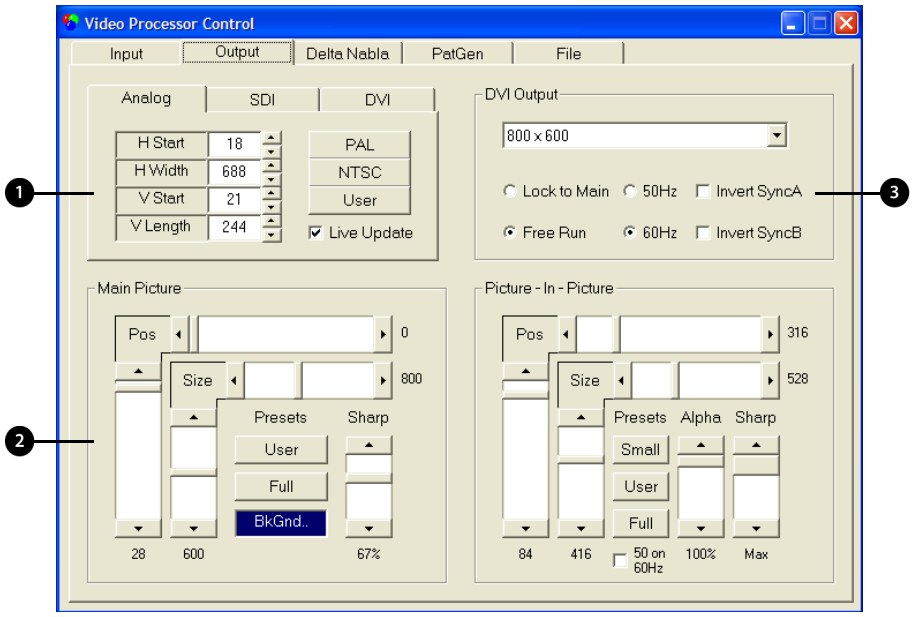


Figure 3.11 LedGuru Output Tab

The following table describes the PDB-3 front panel functionality:

Table 3.2 PDB-3 Front Panel Connector Info

Legend #	Item
1	Input Cropping Adjustments
2	Picture Scaling Adjustments
3	DVI Output Adjustments

The Output tab is divided into three sections that are explained below.

Input Cropping

Adjustments over which part of the input image is selected for output can be accomplished in the Input Cropping section of the Output tab. For example, you can crop off the black bands at the top & bottom of certain input video images.

The **PAL** and **NTSC** buttons can be used to set default crop values for these input sources.

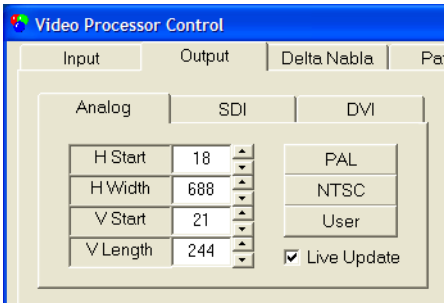


Figure 3.12 LedGuru Input Crop Settings

NOTE Care should be taken to ensure that you do not attempt to select an area which is outside the boundaries of the input image since this will cause a corrupt output. Make sure that if you increase **VStart** you also reduce **VLength** to ensure the selected image area remains within the input image area.

DVI Output

The DVI Output drop down can be used to select various DVI output modes. The SP1 requires a 1024x768 signal. The other modes are provided for use with video systems or displays.

NOTE The SP1 requires the **Invert Sync** box to be ticked on the output connected to the SP1.

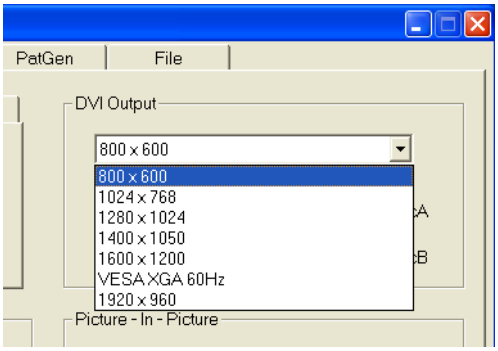


Figure 3.13 LedGuru DVI Output Settings

50 / 60 Hz Field Rates

The output field rate should typically be set to match the input field rate – and **Lock to Main** should be selected. This ensures the best picture quality – with no frame dropping or repetition.

NOTE If the video input is changed from 50Hz to 60Hz you may at first see a juddering or corrupt output. It is necessary to select the appropriate DVI Output field rate – to match the input. Then update the **Crop** settings to match the input by clicking the appropriate **PAL** or **NTSC** crop buttons.

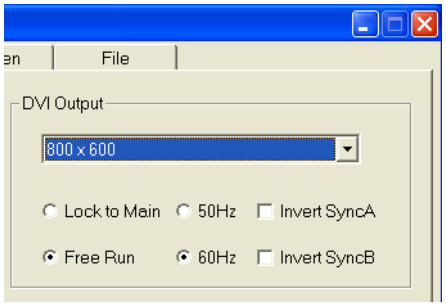


Figure 3.14 LedGuru Field Rate Settings

Frame Rate Conversion

It is possible to convert between 50 and 60Hz output by selecting the **Free Run** DVI output mode, then selecting either 50Hz or 60Hz output as required. In free-run mode the VP1 will drop or repeat frames as necessary to match the input and output field rates.

Picture Scaling

The size, position and sharpness of the output image can be adjusted using the Main Picture Scaling section of the Output tab.

Clicking the **Full** button causes the image size to reset to fill the entire output frame. Shift-clicking the **User** button saves the current size settings. Subsequently clicking the button will recall the saved size settings.

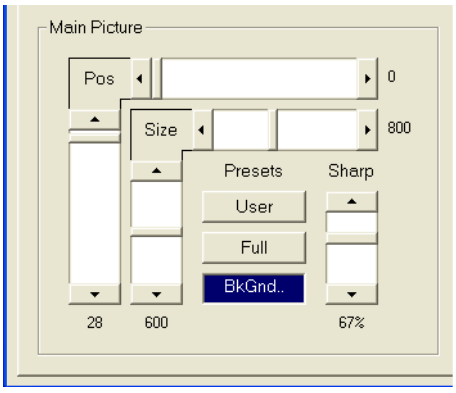


Figure 3.15 LedGuru Picture Scaling Settings

Pattern Generator

The internal pattern generator can be used to display various test patterns to help identify and locate screen faults.

Most of the controls are self-explanatory.

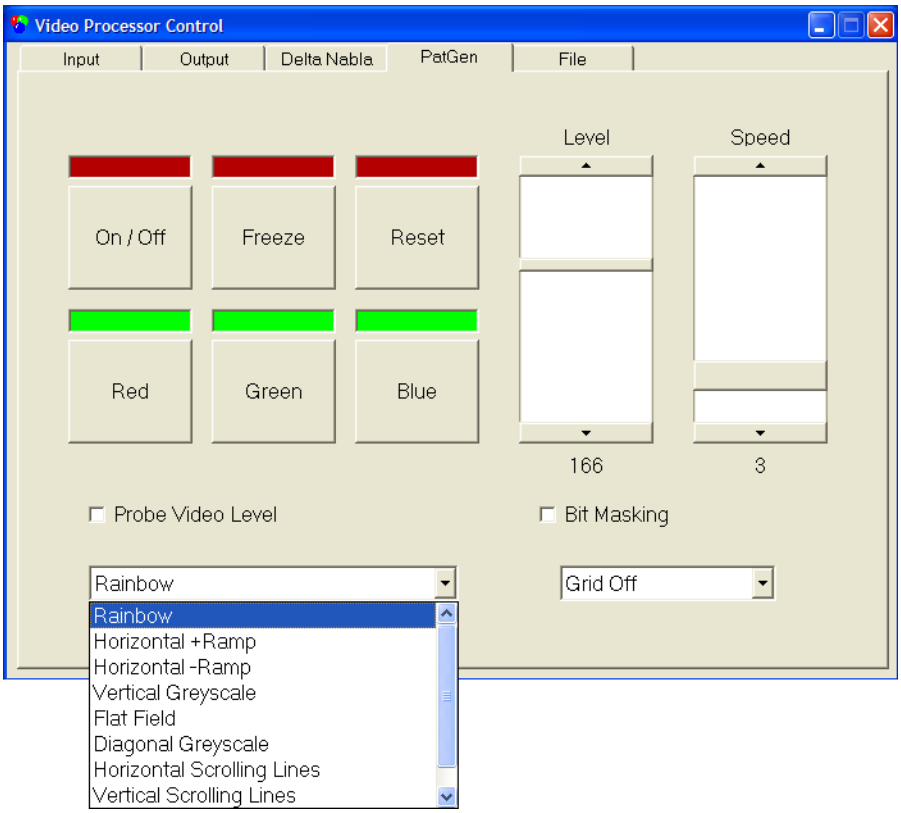


Figure 3.16 LedGuru Pattern Generator Tab

When **Probe Video Level** is selected only the parts of the video image which have an 8-bit video data value equal to the current **Level** slider setting will be displayed at max video level (255). This allows the user to visually probe the video levels being displayed on screen. This is useful when adjusting the video black level and contrast controls since it shows if any parts of the output image are clipping (>255) or if the black level is incorrectly set.

When **Bit Masking** is selected, the 8-bit video data is 'ANDed' with the **Level** slider value before display. This allows the user to isolate single greyscale bits of video. For instance, if **Level** is set to 128 and **Bit Masking** is selected, then only the MSB of the incoming video signal will be displayed. This is useful to isolate faults which only affect one greyscale bit within the video signal.

File Load Save

The File Load/Save page allows the user to load and save VP1 setups to disk or internal memory.

The VP1 stores all settings and adjustments in an active internal memory. This memory is automatically restored when the VP1 boots up. All user adjustments are automatically stored in the active memory.

The VP1 also provides 16 internal memory slots. These can be used to store complete VP1 setups for later recall. The LedGuru internal memory frame allows the user to manage these memories.

The current active memory settings can be saved to the currently selected internal memory slot by clicking **Internal Memory / Save**. This will overwrite any existing settings stored in the memory slot.

When **Apply** is clicked the currently selected internal memory is copied into the active memory – overwriting any existing settings in the active memory.

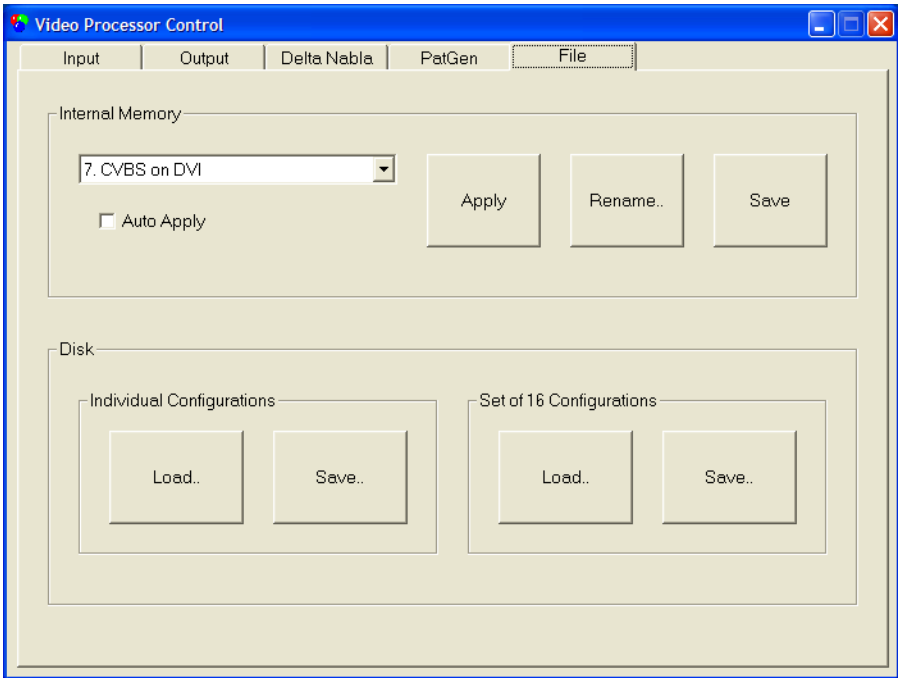


Figure 3.17 LedGuru File Tab

The current active memory settings can be individually saved or loaded to/from disk. In addition complete sets of 16 internal memory configs can be loaded and saved from/to disk.

APPENDIX

C

APPLICATION NOTES

This chapter offers you some hints and notes on using STEALTH. The following information is discussed:

SP1 Vertical Offset

The SP1 provides 2 fiber outputs, each with a resolution of 1024x256. The vertical offsets for each fiber output port is limited by the lowest offset of it's corresponding DD1 output channel. Vertical offsets are changed via the SP1 front panel menus.

If any of the DD1 channels are set to a vertical offset of 0, whether they are used or not, that fiber output will only display the first 256 vertical pixels. In order to move the fiber output down to the 257th pixel or lower, all corresponding DD1 output channels must be offset as well via the SP1 front panel menus.

For example, a 19 panel high screen should use the following SP1 settings:

Menu	Item	Settings	Notes
DD1	Image Offset	0,0	
	CH 1-1	0, 0	panels 1-5
	CH 1-2	0, 80	panels 6-10
	CH 1-3	0, 160	panels 11-15
	CH 1-4	0, 0	unused
	CH 1-5	0, 0	unused
	CH 1-6	0, 0	unused
	CH 2-1	0, 240	panels 16-19
	CH 2-2	0, 240	unused, but must be set to move fiber output
	CH 2-3	0, 240	unused, but must be set to move fiber output
	CH 2-4	0, 240	unused, but must be set to move fiber output
	CH 2-5	0, 240	unused, but must be set to move fiber output
	CH 2-6	0, 240	unused, but must be set to move fiber output

For more information on the SP1, refer to SP1 – Signal Processing Unit, (p. 2-4).

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