Seneca C-HSS

HDMI to SDI Converter with Scaler

Revision 1.0.2, (November, 2012)

AVITECH

ABOUT THIS MANUAL
This manual contains information on using the Avitech Seneca C-HSS converter. There are two chapters in this manual.

- ✓ **Getting Started**, introduces the features and specifications as well as external components of Seneca C-HSS.
- ✓ **System Configuration**, discusses the steps on using the LCD panel to set up Avitech Seneca C-HSS, as well as using the proprietary Avitech ScreenCrop utility.

Throughout the manual the following conventions are used to distinguish elements of text.

 *provides additional hints or information that requires special attention.*

 *identifies warnings which must be strictly followed.*

Any name of a menu, command, icon or button on the screen is shown in a bold typeset. For example: On the **Start** menu select **Settings**.

To assist us in making improvements to this user manual, we would welcome any comments and constructive criticism. Please send all such – in writing to: sales@avitechvideo.com.

WARNING
Do not attempt to disassemble the Seneca converter module(s). Doing so may void the warranty. There are no serviceable parts inside. Please refer all servicing to qualified personnel.

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AVITECH INTERNATIONAL CORPORATION
- 8655 154th Ave., NE Redmond, WA 98052
- TOLL FREE 1 877 AVITECH
- PHONE 1 425 885 3863
- FAX 1 425 885 4726
- info@avitechvideo.com
- http://avitechvideo.com

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1. Getting Started

Seneca C-HSS allows conversion of signal source from HDMI / DVI / VGA / SDI (3G/HD/SD) and CVBS (NTSC/PAL) to SDI (3G/HD/SD) with scaling. A compact, stand-alone converter with scaling and cropping feature, the Seneca C-HSS is ideal for production, OB vans, post-production, and television broadcasting. It provides automatic video input format detection and supports a wide variety of video resolutions.

This chapter introduces the features and specifications as well as external components of Avitech Seneca C-HSS.

1.1 Package Contents

	
Avitech Seneca C-HSS	**Utility Disc (software and user manual)**
	
12 VDC 2.5A Power Adapter	**Magnetic Foot Stand with Screws (4 pcs)**
	
DVI-I to VGA Adapter	**DVI-I to YPbPr Adapter (optional)**

Table 1-1 Package Contents

1.2 Product Features

The Seneca C-HSS is capable of converting and scaling signals to a high quality SDI signal. It can sense the following input signal: HDMI/DVI/VGA SDI(3G/HD/SD) CVBS(NTSC/PAL) automatically, then convert and scale it to the user-defined SDI signal. SDI (3G/HD/SD). It also features a **DVI-D LOOP OUT*** port for connection of an external display for monitoring of the signal entering the **DVI-I IN** port.

The Seneca C-HSS also supports area of interest cropping through its LCD interface and via a network connection. Additionally, Avitech's ScreenCrop utility** can monitor the broadcast output of all networked Seneca devices and supports multiple instances of area of interest cropping on the C-HSS series.

For television broadcast application, the Seneca C-HSS supports genlock function with timing offset controls, and analog stereo audio can be embedded into the SDI output with delay. Moreover, color space conversion compensation is also functional.***

** DVI-D loop out does not support analog source signals; VGA or YPbPr (through VGA or YPbPr to DVI adapter).*
*** Image/video crop, aspect ratio, output resolution, device name and IP address adjustments are also supported by the Avitech ScreenCrop.*
**** It is only functional when using together with the Seneca C-SHS.*

1.3 Specifications

Input	
SDI/CVBS (BNC connector)	Automatic sensing SDI (3G/HD/SD) CVBS (NTSC/PAL): ❖ *NTSC/PAL* ❖ *SD-SDI (SMPTE 259M): 525i60, 625i50* ❖ *HD-SDI (SMPTE 292M): 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60* ❖ *3G-SDI (SMPTE 424M): 1080p23.97, 1080PsF24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60*
HDMI (HDMI type A)	Automatic sensing, the following input signals are supported: ❖ *640x480, 60Hz/75Hz* ❖ *720×400, 70Hz* ❖ *800x600, 50Hz/60Hz/75Hz* ❖ *1024x768, 50Hz/60Hz/75Hz* ❖ *1280x960, 50Hz/60Hz* ❖ *1280x1024, 50Hz/60Hz/75Hz* ❖ *1360x765, 50Hz/60Hz* ❖ *1400x1080, 50Hz/60Hz* ❖ *1600x1200, 50Hz/60Hz* ❖ *1680x1050, 50Hz/60Hz* ❖ *1920x1080, 50Hz/60Hz* ❖ *1920x1200, 50Hz/60Hz*
DVI-I (DVI-I connector)	Automatic sensing, the following input signals are supported: ❖ *640x480, 60Hz/75Hz* ❖ *720×400, 70Hz* ❖ *800x600, 50Hz/60Hz/75Hz* ❖ *1024x768, 50Hz/60Hz/75Hz* ❖ *1280x960, 50Hz/60Hz* ❖ *1280x1024, 50Hz/60Hz/75Hz* ❖ *1360x765, 50Hz/60Hz* ❖ *1400x1080, 50Hz/60Hz* ❖ *1600x1200, 50Hz/60Hz* ❖ *1680x1050, 50Hz/60Hz* ❖ *1920x1080, 50Hz/60Hz* ❖ *1920x1200, 50Hz/60Hz*
VGA/YPbPr (via adapter)	Automatic sensing, via adapter in DVI-I IN port; input signals supported: ❖ *800x600, 50Hz/60Hz* ❖ *1024x768, 50Hz/60Hz* ❖ *1280x960, 50Hz/60Hz* ❖ *1280x1024, 50Hz/60Hz* ❖ *1360x765, 50Hz/60Hz* ❖ *1400x1080, 50Hz/60Hz* ❖ *1600x1200, 50Hz/60Hz* ❖ *1680x1050, 50Hz/60Hz* ❖ *1920x1080, 50Hz/60Hz* ❖ *1920x1200, 50Hz/60Hz* *If the refresh rate is other than 60Hz, the image could become out of alignment. In the case, use the "VGA Adjustment" features to realign.* ***H START***, ***V START***, ***H ACTIVE***, ***V ACTIVE***, *and* ***H TOTAL*** *(refer to page 10 "Image Adjustment" for details).*
Genlock (BNC connector)	Frame synchronizer (REF IN port)
Audio (Phono jack)	Analog audio (AUDIO IN port, stereo) AES/EBU (embedded)

Input	
Ethernet (RJ45 connector)	For using Avitech ScreenCrop utility or performing advanced operations (IP port)

Output	
SDI (BNC connector)	User Configurable (support SMPTE 259M, 292M, and 424M at YCbCr 4:2:2/4:4:4 or RGB 4:4:4, 10-bit): ❖ *SD-SDI: 487i59.94, 576i50* ❖ *HD-SDI: 720p23.98, 720p24, 720p25, 720p29.97, 720p30, 720p50, 720p59.94, 720p60*, *1080i23.98PsF*, *1080i24PsF*, *1080i50, 1080i59.94, 1080i60* ❖ *3G-SDI: 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94 1080p60* SDI Embedded Audio (SDI OUT port)
DVI-D Loopout (DVI-D connector)	Looping output of the DVI-I input (non-configurable and not available for VGA or YPbPr signal through DVI adapter): ❖ *640x480, 60Hz/75Hz* ❖ *720×400, 70Hz* ❖ *800x600, 50Hz/60Hz/75Hz* ❖ *1024x768, 50Hz/60Hz/75Hz* ❖ *1280x960, 50Hz/60Hz* ❖ *1280x1024, 50Hz/60Hz/75Hz* ❖ *1360x765, 50Hz/60Hz* ❖ *1400x1080, 50Hz/60Hz* ❖ *1600x1200, 50Hz/60Hz* ❖ *1680x1050, 50Hz/60Hz* ❖ *1920x1080, 50Hz/60Hz* ❖ *1920x1200, 50Hz/60Hz*

Others	
Power	Power consumption is less than 15W Power Supply: ❖ *Input (AC): 100 to 250V* ❖ *Output (DC): 12V adapter*
Dimension/Weight	Dimension, 141×181×28 mm (5.6×7.1×1.1 inch) Weight, 0.5 kg (1.1 lb)
Environment/ Safety	Temperature: ❖ *Operating: 0 ℃ (32 ℉) to 40 ℃ (104 ℉)* ❖ *Storage: –10 ℃ (–4 ℉) to 50 ℃ (122 ℉)* Humidity, 0% to 80% relative, non-condensing Safety, FCC/CE/C-Tick/Class B

Table 1-2 Specifications

1.4 Connections to the Seneca C-HSS

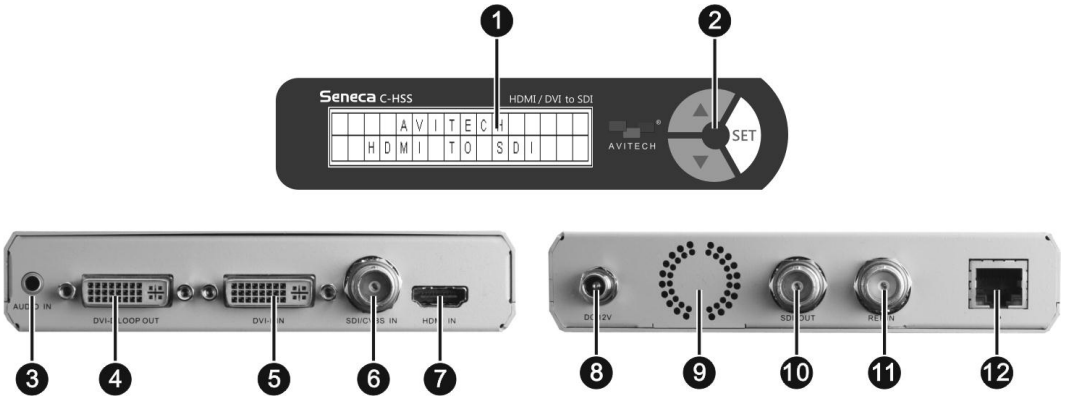

Figure 1-1 Seneca C-HSS Components

LCD Panel	
❶ **LCD Panel**	For displaying the configuration and control parameters
❷ **Control Buttons**	▲ Go to previous selection ▼ Go to next selection SET Enter next level or select the item

Left Side Panel	
❸ **AUDIO IN**	Connects to an analog audio input
❹ **DVI-D LOOP OUT**	DVI connector for DVI video out loop (output signal coming from DVI-I IN port only)* **NOTE:** Often used for preview when the connected desktop computer is only capable of supporting a single display output
❺ **DVI-I IN**	DVI connector for DVI/VGA/YPbPr input sources (a DVI to VGA adapter or DVI to YPbPr adapter may be required)
❻ **SDI/CVBS IN**	BNC connector for SDI (3G/HD/SD) CVBS (NTSC/PAL) video input sources
❼ **HDMI IN**	HDMI connector for HDMI input source**

** DVI-D loop out does not support analog source signals; VGA or YPbPr (through VGA or YPbPr to DVI adapter).*
*** To comply with HDCP license agreement, any source with HDCP will not be converted to SDI.*

Right Side Panel	
❽ **Power (DC 12V)**	Connects to the 12VDC/2.5A power adapter
❾ **System Fan**	Contains the system fan*
❿ **SDI OUT**	BNC connector supports SDI (3G/HD/SD) signal output
⓫ **REF IN**	Multi-format sync reference input (YPbPr/NTSC/PAL) for genlock function (frame synchronizer)
⓬ **Ethernet (IP)**	For controlling the Seneca C-HSS through a network connection. (use with Avitech's ScreenCrop utility)

Table 1-3 Seneca C-HSS Component Description

** Do not cover or block the ventilation openings*.

The following figure shows a sample connection of Seneca C-HSS and application.

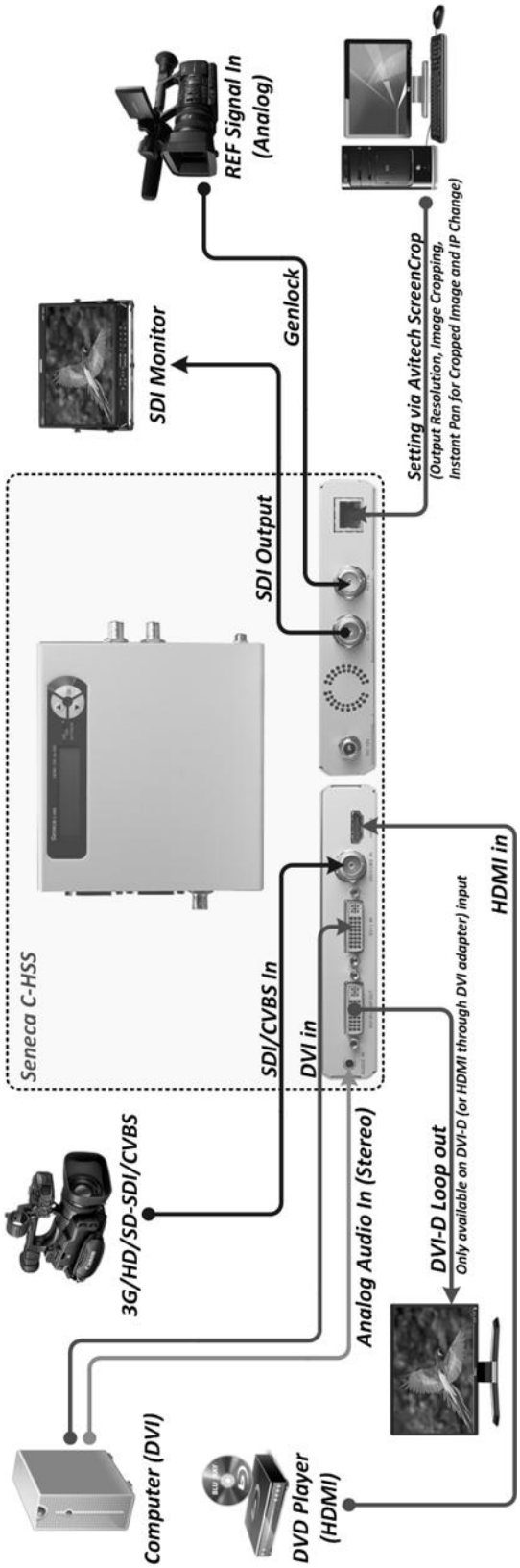

Figure 1-2 Typical Connection and Application

2. System Configuration

This chapter discusses the process of using the LCD panel to set up Seneca C-HSS, as well as using the Avitech ScreenCrop utility.

2.1 Using the LCD Panel

The LCD panel allows for complete control of the Seneca C-HSS, including input/output signal adjustment, video crop, keying/overlay, aspect ratio adjustment and operational status report. The LCD panel consists of 3 buttons:

▲ Go to previous selection (up arrow button)
▼ Go to next selection (down arrow button)
SET Enter the next level of a menu, or select the currently highlighted item.

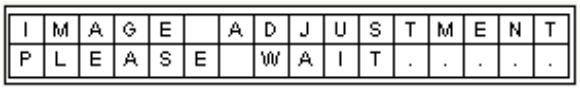

Figure 2-1 LCD Panel: Busy State

⚠ *1. When the busy state "**PLEASE WAIT . . . .**" message is displayed on the LCD panel (see sample screen above), **DO NOT** disconnect or connect any signal cables as, a fault may occur.*
*2. Also, **DO NOT** change any of the incoming signal's display resolutions while the Seneca C-HSS is in the busy state.*

2.1.1 Welcome Screen

Upon starting up the LCD panel, the welcome screen is shown for about 15 seconds.

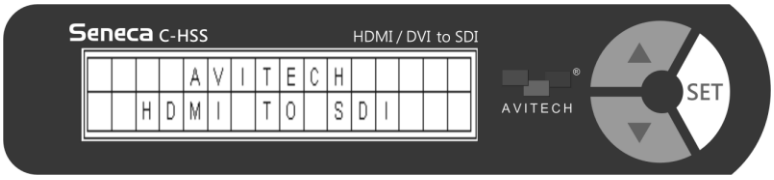

Figure 2-2 LCD Panel: Welcome Screen

Then the following default screen is displayed.

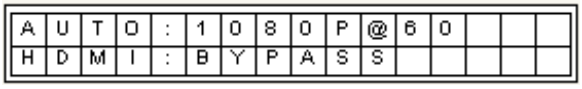

Figure 2-3 LCD Panel: Default Initial Screen

This screen displays the unit's default settings.
*1. First line (video): **AUTO**matically selects the input signal in the following order (firstly CVBS, SDI, YPbPr, VGA, DVI, and lastly HDMI) when more than one signal type is detected. Then, outputs it to the SDI out at **1080P** @ **60**Hz.*
*2. Second line (audio): The default audio source is set at **HDMI**. The audio feature allows the selection of audio signal source (HDMI, SDI, or LINE IN). While audio delay feature is **BYPASS**ed (no audio delay).*

⚠ *Settings made through the LCD panel will be saved automatically upon turning off power to the Seneca.*

2.1.2 Navigating the Main Menu

1. Press the SET button from the default initial screen to enter the main menu.
2. Use the buttons on the front panel to navigate: (▲ / ▼ / SET)
3. The following sections are setup items on the main menu, details of each are in the following tables, respectively:

Input Port	
Autoscan	**On:** enable the signal automatic detection feature. **Off:** select the signal manually. ❖ ***Source:*** ✓ ***HDMI*** ✓ ***DVI*** ✓ ***VGA*** ✓ ***YPbPr*** ✓ ***SDI***
DVI Loop Out	**On:** enable the DVI-D loop out feature. **Off:** disable the DVI-D loop out feature.
Exit	Exit the input signal setup menu.

Table 2-1 Input Port

DVI-D loop out does not support analog source signals; VGA or YPbPr (through VGA or YPbPr to DVI adapter).

Make sure to select the correct signal type based on actual connected input signal to Seneca C-HSS to avoid image display problems (e.g., noise, flicker, etc.).

Output	
SDI	**On:** select the output signal. ❖ ***1080p @ 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (Hz)*** ❖ ***1080i @ 23.98 PsF, 24 PsF, 50, 59.94, 60 (Hz)*** ❖ ***720p @ 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (Hz)*** ❖ ***SD_625 (576i @ 50 Hz)*** ❖ ***SD_525 (487i @ 59.94 Hz)*** **Off:** disable the SDI out feature.
Exit	Exit the output signal setup menu.

Table 2-2 Output

Map Structure	
Status	Select the desired "sampling structure/pixel depth" based on output signal's "image format" and "frame/field rate." ❖ ***YCbCr422*** ❖ ***YCbCr444*** ❖ ***RGB444***
Exit	Exit the map structure setup menu.

Table 2-3 Map Structure

1. *Embedded audio is **not** available with the YCbCr444 and RGB444 output formats*
2. *Map structure is locked at YCbCr422 when output resolution is at SD_525, SD_625, 1080p@50, 1080p@59.94, 1080p@60 (Hz).*

Image Adjustment	
	On: select the output signal ❖ ***Source:*** *auto-detect (firstly CVBS, SDI, YPbPr, VGA, DVI, and lastly HDMI)* ❖ ***VGA Adjustment:*** *this feature was designed to adjust analog VGA signal with misalignment or color-off due to long cabling situation.* ***Note:*** *Only available when the signal is VGA.* ✓ ***DEFAULT*** ✓ ***HSTART*** *(horizontal starting position)* ✓ ***VSTART*** *(vertical starting position)* ✓ ***HACTIVE*** *(horizontal "active area" / width)* ✓ ***HTOTAL*** *(horizontal total) ****(refer figure 2-4)* *Make sure that the values of* ***HSTART*** *plus* ***HACTIVE*** *do not exceed* ***HTOTAL****.* ✓ ***VACTIVE*** *(vertical "active area" / height)* ✓ ***V TOTAL****: (vertical total) ****(refer figure 2-4)* *This value is based on the values of* ***VSTART*** *plus* ***VACTIVE****.* *(****Note:*** *must not exceed the pre-determined value for V Total).* ✓ ***REDGAIN*** ✓ ***GREENGAIN*** ✓ ***BLUEGAIN*** ✓ ***AUTO ADJUST*** *(performs automatic alignment of VGA image inside the window)* ✓ ***AUTO GAIN*** *(performs automatic gain adjustment by correcting the color values)*
Status	❖ ***CVBS/YPbPr Adjustment:*** *this feature was designed to adjust CVBS or YPbPr signal with misalignment or color-off due to long cabling situation.* ***Note:*** *Only available when the signal is CVBS or YPbPr.* ✓ ***DEFAULT*** ✓ ***HSTART*** *(horizontal starting position)* ✓ ***VSTART*** *(vertical starting position)* ✓ ***HACTIVE*** *(horizontal active area or width)* ✓ ***H TOTAL*** *(horizontal total) ****(refer figure 2-4)* *Make sure that the values of* ***H START*** *plus* ***H ACTIVE*** *do not exceed* ***H TOTAL****.* ✓ ***VACTIVE*** *(vertical active area or height)* ✓ ***V TOTAL****: (vertical total) ****(refer figure 2-4)* *This value is based on the values of* ***VSTART*** *plus* ***VACTIVE.*** *(****Note:*** *must not exceed the pre-determined value for V Total).* ❖ ***Image Parameter:*** ✓ ***BRIGHTNESS*** ✓ ***CONTRAST*** ✓ ***SATURATION*** *(only available when signal is CVBS, or YPbPr, or SDI, or HDMI)* ✓ ***HUE*** *(only available when signal is CVBS, or YPbPr, or SDI, or HDMI)* ✓ ***SHARPNESS*** ✓ ***DEFAULT*** **Off:** disable the image adjustment feature.
Exit	Exit the image adjustment setup menu.

Table 2-4 Image Adjustment

1. *Image misalignment is most likely to occur for VGA signal in the 50Hz timing frequency range as well as the not so commonly used resolution in the 60Hz timing frequency range.*
   a) *When switching between VGA resolution signals that have timing frequency (horizontal and vertical frequency, vertical total) that are very near each other, image misalignment may occur.*
   b) *e.g., 1280×1024 60Hz change to 1400×1050 60Hz (adjust HSTART/VSTART/HACTIVE/VACTIVE) back to 1280×1024 60Hz (since the timing frequency is very near that of 1400×1050 60Hz, then adjust HSTART/VSTART/HACTIVE/VACTIVE for 1280×1024 60Hz again).*
2. *Depending on the signal type, **SATURATION** and **HUE** can only be set for YUV color space.*
   a) *YUV is a color space typically used as part of a color image pipeline. It encodes a color image or video taking human perception into account, allowing reduced bandwidth for chrominance components, thereby typically enabling transmission errors or compression artifacts to be more efficiently masked by the human perception than using a "direct" RGB-representation.*
   b) *When HDMI signal is transmitting under YCbCr422 color space (set from HDMI device itself), Seneca C-HSS will enable the **SATURATION** and **HUE** function in **IMAGE PARAMETER** menu. If it is under YCbCr444 color space, the above functions will be disabled.*

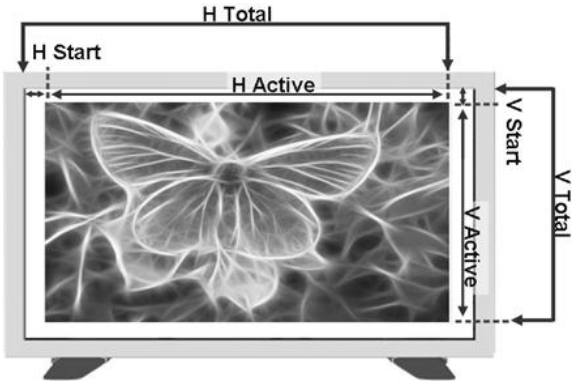

Figure 2-4 (H-Start, H-Active, H-Total, V-Start, V-Active, V-Total)

Crop Image	
Status	**On:** adjust the crop area and location. ❖ ***LEFT:*** *set the horizontal starting point.* ❖ ***TOP:*** *set the vertical starting point.* ❖ ***RIGHT:*** *set the horizontal ending point.* ❖ ***BOTTOM:*** *set the vertical ending point.* ❖ ***DEFAULT*** **Off:** disable the crop image feature.
Exit	Exit the crop image setup menu.

Table 2-5 Crop Image

1. *This feature will be **OFF** when **KEYING** feature is enabled.*
2. *Make sure the difference in value for **LEFT** compared to the **RIGHT** is not less than 20% (e.g., **LEFT** = **80.0% RIGHT** = **100.0%**). Likewise, the difference in value for **TOP** compared to the **BOTTOM** must not be less than 20% (e.g., **TOP** = **80.0% BOTTOM** = **100.0%**). To put it simply, the smallest crop size that is valid is 20% the total height by 20% the total width.*

Aspect Ratio	
Status	**On:** set the display's aspect ratio. ❖ ***4:3*** ❖ ***16:9*** ❖ ***AUTO*** ❖ ***CUSTOM*** ***1*** *to* ***20*** *for width ratio :* ***1*** *to* ***20*** *for height ratio.* **Off:** disable the aspect ratio detect feature.
Exit	Exit the aspect ratio setup menu.

Table 2-6 Aspect Ratio

1. *This feature will be* ***OFF*** *when* ***KEYING*** *feature is enabled.*
2. *When the width is greater than the height, then the width must be less than 6 times the value of the height. (6:1 ratio)*
3. *Likewise, when the height is greater than the width, then the height must be less than 6 times the value of the width. (1:6 ratio)*

Keying (Overlay)	
Status	**On:** superimpose the inputted computer image on top of an existing video signal. This feature works best with green screens and virtual sets. ❖ ***CROP IMAGE:*** *set the crop area parameters.* ❖ ***OUTPUT WINDOW:*** *set output video range.* ❖ ***BACKGROUND COLOR:*** *set background color range (RGB)* ❖ ***DEFAULT*** **Off:** disable the keying feature.
Exit	Exit the keying setup menu.

Table 2-7 Keying

1. *This feature will be* ***OFF*** *when* ***CROP IMAGE*** *or* ***ASPECT RATIO*** *feature is enabled.*
2. *Make sure that* ***KEYING*** *is disabled (****OFF****) before running the Avitech ScreenCrop utility.*
3. *The* ***CROP IMAGE*** *parameters within the* ***KEYING*** *menu are the same as that shown in table 2-5 (****LEFT****,* ***TOP****,* ***RIGHT****,* ***BOTTOM****).*

Color Correct(ion)	
Status	**On:** enable the color correction feature. **Off:** disable the color correction feature.
Exit	Exit the color correction setup menu.

Table 2-8 Color Correction

Make sure to enable (set ***ON****) the* ***COLOR CORRECT*** *function when connecting to the Seneca C-SHS.*

Genlock	
Status	**On:** this feature in Seneca C-HSS synchronizes the video sources (**DVI-I IN**, **SDI/CVBS IN**, and **HDMI IN** port's signal synchronized with **REF IN** port signal). ❖ ***GENLOCK OUTPUT:*** *refer to table 2-10 for more details on supported output standard.* ❖ ***TIMING OFFSET:*** *set the delay lines.* ✓ *for SD 525 signal up to 524 delay lines* ✓ *for SD 625 signal up to 624 delay lines* ✓ *for 720p signal up to 749 delay lines* ✓ *for 1080p or 1080i signal up to 1124 delay lines* **Off:** disable the genlock feature.
Exit	Exit the genlock setup menu.

Table 2-9 Genlock

The genlock feature requires a sync reference signal to enter the REF IN port. Changing, or disconnecting the sync reference will cause the Seneca to automatically turn <u>off</u> genlock.

Reference Input Standard	Selected SDI Output Standard																					
	525	625	720p60	720p59.94	720p50	720p30	720p29.97	720p25	720p24	720p23.98	1080i60	1080i59.94	1080i50	1080p60	1080p59.94	1080p50	1080p30	1080p29.97	1080p25	1080p24	1080p23.98	1080psf24	1080psf23
525	✔			✔								✔			✔								
625		✔			✔								✔			✔							
480p59.94				✔								✔			✔								
576p50					✔								✔			✔							
720p60			✔								✔			✔									
720p59.94	✔			✔								✔			✔								
720p50		✔			✔								✔			✔							
720p30			✔			✔					✔			✔			✔						
720p29.97	✔			✔			✔					✔			✔			✔					
720p25		✔			✔			✔					✔			✔			✔				
720p24									✔											✔		✔	
720p23.98										✔											✔		✔
1080p60			✔								✔			✔									
1080p59.94	✔			✔								✔			✔								
1080p50		✔			✔								✔			✔							
1080p30			✔			✔					✔			✔			✔						
1080p29.97	✔			✔			✔					✔			✔			✔					
1080p25		✔			✔			✔					✔			✔			✔				
1080p24									✔											✔		✔	
1080p23.98										✔											✔		✔
1080i60			✔								✔			✔									
1080i59.94	✔			✔								✔			✔								
1080i50		✔			✔								✔			✔							
1080psf24																						✔	
1080psf23																							✔

Table 2-10 Genlock Output

Color Bar	
Status	**On:** enable the color bar and pattern select feature. ❖ ***COLOR BAR*** ❖ ***2×2 CROSSHATCH*** **Off:** disable the color bar feature.
Exit	Exit the color bar setup menu.

Table 2-11 Color Bar

1. *The color bar and the 2x2 Crosshatch can only be turned on/off when there is no input signal.*
2. *The default setting is for the color bar to be activated whenever there is no input signal.*
3. *The color bar feature is a pattern generator for showing a signal when there is no source. It can be utilized as test pattern (input signal) for self testing or other devices verification.*

Audio	
Status	**On:** enable the audio output. ❖ ***SOURCE:*** *select the audio source.* ✓ ***HDMI*** ✓ ***LINE IN*** ✓ ***SDI*** ❖ ***DELAY:*** *set the delay times.* ✓ ***0*** *to* ***170****ms, sample rate at 48kHz.* ❖ ***BYPASS*** **Off:** disable the audio output.
Exit	Exit the audio setup menu.

Table 2-12 Audio

Setup	
Backlight	**On:** enable the LCD panel's backlight. **Off:** disable the LCD panel's backlight.
Contrast	To set the LCD panel's contrast from **1** to **16**.
Idle Time	**On:** scrolling text (conversion format and related frame rate) will appear when the LCD panel of Seneca C-HSS is idle. ❖ ***15 mins*** ❖ ***30 mins*** ❖ ***45 mins*** ❖ ***60 mins*** **Off:** disable the scrolling text feature.
Reset	**On:** reset to default setting, system reboot is required. **Off:** present setting.
BIOS Version	Show the current firmware version for reference.
IP Address	Allow user to modify the **IP ADDRESS**, **SUBNET MASK**, and **GATEWAY** based on their Ethernet environment.
Exit	Exit the setup menu.

Table 2-13 Setup

Using the Avitech ScreenCrop Utility

1. *This utility can be used with the Windows operating system only.*
2. *This utility's cropping feature cannot be used when **KEYING** is enabled (**Status: ON**) in the LCD panel.*

For ScreenCrop to display correctly:

1. *When using a computer that does not support dual displays, make sure to use a DVI cable (or a HDMI cable with a HDMI-to-DVI® adapter) to allow the signal to enter **DVI-I IN** port of Seneca. Then connect the external monitor to the **DVI-D LOOP OUT** port of the Seneca.*
2. *When using a computer with a built in monitor such as; (a laptop, or an all in one computer) or when using a computer that supports dual display outputs* then you can connect via the **HDMI IN** port.*

** One connects to Seneca C-HSS and another connects to monitor.*

The Seneca C-HSS comes with a windows based user interface called ScreenCrop. Avitech's ScreenCrop utility is intuitive and hosts several powerful tools including:

- ✓ *Live Pan Preview*
- ✓ *Area of Interest Cropping. (supports 2 instances)*
- ✓ *Cropped-area scaling*
- ✓ *Easy adjustment of the output resolution and timing*
- ✓ *The ability to control up to 153 Seneca's via network connection*

With ScreenCrop utility:

- ✓ *Get Microsoft PowerPoint presentations and other computer-based content to air.*
- ✓ *Select and scale a YouTube window to fit any broadcast output resolution.*
- ✓ *Crop out extraneous interface toolbars and broadcast clean Google Earth maps.*
- ✓ *Output any video stream playing on any media player. Such as; QuickTime, VLC, or Windows Media Player.*

2.2.1 ScreenCrop Utility Control Panel

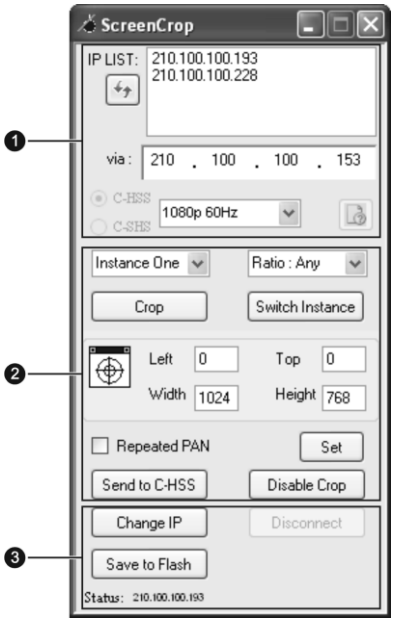

Figure 2-5 ScreenCrop Utility Control Panel

Status Information (1)	
IP LIST	Display all detected Avitech's Seneca Converters in the same network mask. The status button will become active (not grayed-out) when Seneca C-HSS/C-SHS is selected from the IP LIST window.
IP List Refresh Button	Click IP list refresh button to update the connected Avitech devices' IP address in the same network mask.
via	Upon clicking an IP address in the IP LIST window, the selected IP address is displayed here. A device can also be selected by typing its IP address here.
C-HSS / C-SHS	This displays what type of Seneca converter is currently connected.
Output Resolution	For configuring the specific output resolution and related frame rate.
Status Button	View the selected Seneca C-HSS/C-SHS operational status. This button is only available (not grayed-out) when Seneca C-HSS/C-SHS is selected in IP LIST window (refer to section 2.2.3 for details).

Cropping Feature (2)	
Instance	Select between two different area of interest instances (**Instance One** or **Two**) and then set the cropping parameters.
Switch Instance	If both **Instance One** and **Instance Two** cropping parameters have been set, then clicking the **Switch Instance** button will toggle between the two instances and automatically output the cropping parameters.
Ratio	Select a fixed (**1:1**, **3:2**, **4:3**, **5:4**, **16:9**) aspect ratio or non-fixed (**Any**) aspect ratio for the area of interest selector.
Crop	Click this button and drag the cursor to crop an area. Upon releasing left mouse button, four green cropping corners are displayed signifying the area just selected (area of interest).
Crosshair	Automatically select a window/object to be cropped by positioning the **Crosshair** on the desired window/object. ❖ For example, auto-select a YouTube window or a Google Map.
Left/Top/Width/ Height	Display and adjust the cropped instance's size and related location.
Set	After entering/adjusting the **Left**/**Top**/**Width**/**Height** parameters, click this button to update the location of the four green cropping corners.
Repeated Pan	Enable the pan feature for cropped instance (pan anywhere).
Send to C-HSS	Send the cropped instance to selected Seneca C-HSS.
Disable Crop	Disable the cropping.

Cropping feature is only available on Seneca C-HSS.

Others (3)	
Change IP	Change the IP address of selected Seneca C-HSS/C-SHS.
Save to Flash	Save the current ScreenCrop session's parameter to flash memory of Seneca C-HSS. The settings can be automatically loaded on next ScreenCrop session.
Disconnect	Terminate the connection of selected Seneca C-HSS/C-SHS.

Table 2-14 ScreenCrop Utility Control Panel Description

Note: *The Seneca C-HSS's sister device the Seneca C-SHS has different features and only has limited support of the ScreenCrop utility. It only supports:* **status**, **change output resolution** *and* **change IP**.

2.2.2 Using the ScreenCrop Utility

Before using the ScreenCrop utility to control Seneca C-HSS, it needs to be set in same network mask with connected computer. Please refer to the "Appendix" for further details on setting up the network mask.

To use the ScreenCrop utility, perform the following steps:

Step 1. Copy the three ScreenCrop utility system files to the computer.

*Step 2. Double-click **ScreenCrop.exe**. In case an alert screen appears, click **Unblock** to continue.*

*Windows Security Alert screen may appear upon using ScreenCrop utility for the first time on computer. Click **Unblock**, and the Windows Alert will not appear on subsequent uses of ScreenCrop.*

2.2.3 Status Information

ScreenCrop utility allows for easy monitoring of all networked Seneca devices. With 2 clicks of the mouse you can have the operational status of any of the Seneca converters that are on your network.

Step 1. Click to select the desired IP address from the IP LIST window. This will connect you to that particular Seneca device.

- ✓ *The "Status" button will be enabled and the radio button for Seneca C-HSS or Seneca C-SHS would be faintly highlighted.*

Step 2. Click the "Status" button and a popup window will display detailed information about that device's operational status and broadcast output.

- ✓ *Display the Seneca converter's status information such as input signal type, output resolution and related frame rate, audio source, color correction on/off, sampling, pixel depth, genlock on/off; and input timing such as horizontal/vertical frequency, vertical total lines, horizontal total/start pixel, and vertical start line.*

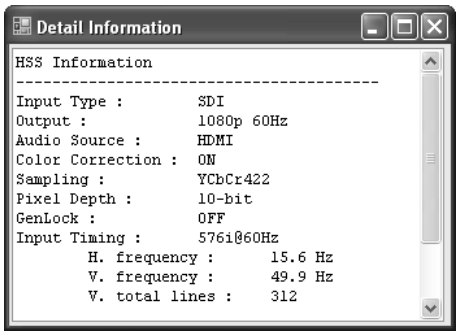

Figure 2-6 Detailed Information of Connected Seneca C-HSS

2.2.4 Cropping Feature

ScreenCrop utility allows the setting of 2 instances of an "area of interest" which can then transmit the associated contents to the intended audiences. For area of interest cropping perform the following steps.

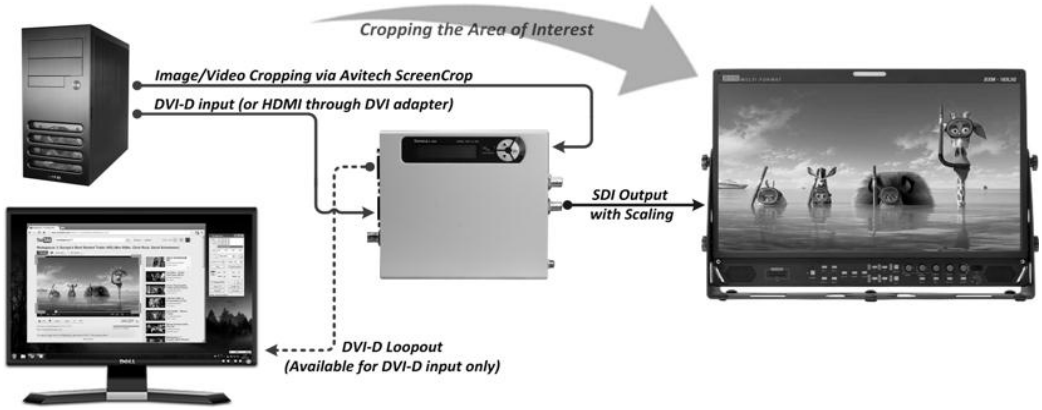

Figure 2-7 Cropping a Defined Area of Interest

*Step 1. Click the **Crop** button and use the cursor to select an area to crop. Upon releasing left mouse button, four green cropping corners are displayed signifying the area just selected.*

- ✓ *A floating 5× magnifying window shows any nearby graphics at 5x and relevant cursor information (e.g., position and RGB value).*

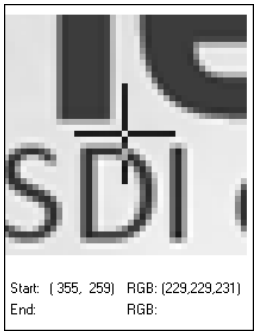

Figure 2-8 Magnified Floating Window Showing Cursor and RGB Value

- ✓ *Drag on any of the four green cropping corners to enlarge/reduce the area just selected. Or, use the keyboard's top/left/right/down buttons to fine-tune the scope of the area to be cropped without lifting the mouse button.*

- ✓ *For fine tuning, enter the values of the **Left**/**Top**/**Width**/**Height** manually and click the **Set** button. This will modify the scope of area to be cropped with pixel level accuracy.*

1. *When cropping, the **Left**/**Top** position, **Width**, and **Height** are calculated based on the module's input display size. The value for **Width** and **Height** must be greater than 20% of the panel width and panel height.*
   - ✓ *For example, if the module's input display timing is 1280×1024 @ 60Hz, then the panel width is 1280 and the panel height is 1024. The cropped window size must be greater than 256 (20% of 1280) × 204 (20% of 1024).*

2. *Depending on the display resolution, a minimal change in the cropping parameters (**Left**/**Top**/**Width**/**Height**) might not produce any noticeable effect.*
3. *It is highly recommended to set the displayed image to fill up the whole screen of monitor to prevent black bar(s) from appearing after cropping.*

*Step 2. Then click the **Send to C-HSS** button to send the cropped image to the Seneca C-HSS to be displayed on the output monitor via the **SDI OUT** connector.*

*Due to the image scaling method of the different graphics cards in the market, a pixel or more of any of the four green corner's residue may be left on the screen. Adjust the value of **Left**/**Top**/**Width**/**Height**, and then click the **Set** button to fine-tune the display area so that the four green corner's residue will disappear.*

- ✓ *Automatically select a window or object to be cropped by clicking and dragging the crosshair button and then positioning it on desired window/object to be cropped.*
  - ■ ***Notice** how the mouse cursor has become a crosshair. As you continue to hold the mouse button depressed and move around the screen, four green corners as well as a violet rectangle would encompass the selected window/object. When the desired window has been selected, release the left mouse button.*
- ✓ *To do another screen crop, perform the steps again.*
- ✓ *To discard the just selected area, click the **Disable Crop** button.*

*Step 3. To disconnect the computer from the Seneca C-HSS/C-SHS, click the **Disconnect** button. Or, close the ScreenCrop utility.*

1. *Upon quitting ScreenCrop utility, the last crop parameters (**Left**/**Top**/**Width**/**Height**) which were stored either via: "Saved to Flash" button or "Send to C-HSS" button will automatically be shown upon next start-up of the utility.*
2. *Upon restarting ScreenCrop utility and if the present screen resolution is different compared to resolution of last saved crop parameters, then the crop parameters will need to be adjusted based on new resolution.*

2.2.5 Cropped Instances Switching

ScreenCrop utility not only provides area of interest cropping but also allows selection of two different instances which can be switched accordingly when desired. Perform the following steps for switching between two cropped instances.

*Step 1. Use the drop-down menu to select **Instance One** or **Two**, and then set the cropping parameters.*

*Step 2. Switch between the two "Instances" by clicking the **Switch Instance** button.*

Figure 2-9 Area of Interest (First/Second Instance)

2.2.6 Pan Anywhere

The “Pan” feature allows transfer of previously set crop area of interest to another portion of screen by clicking **Repeated Pan** button. Upon clicking the **Repeated Pan** button, the following dialog box will appear.

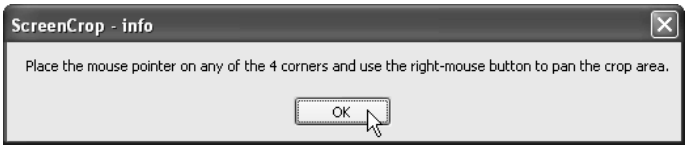

Figure 2-10 Pan Instruction

Follow the instruction in the dialog box by placing the mouse pointer on any of the four cropping corners, and then use the right-mouse button to pan the crop area.

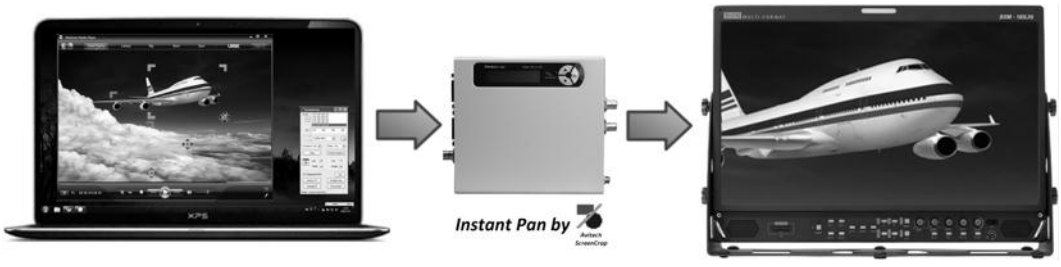

Figure 2-11 Pan Area of Interest

Appendix

The following two methods allow Seneca C-HSS/C-SHS to be in the same network mask with the connected computer.

Method 1: Change the IP Address of the Seneca C-HSS/C-SHS

*Step 1. Run ScreenCrop utility by double-clicking **ScreenCrop.exe**. Select the Seneca C-HSS/C-SHS IP address appearing in the **IP LIST** window. Then click **Change IP**.*

*The following screen will appear showing the present IP address in the **New IP** field. The corresponding **Network Mask** and **Gateway** belonging to the present IP address is automatically displayed.*

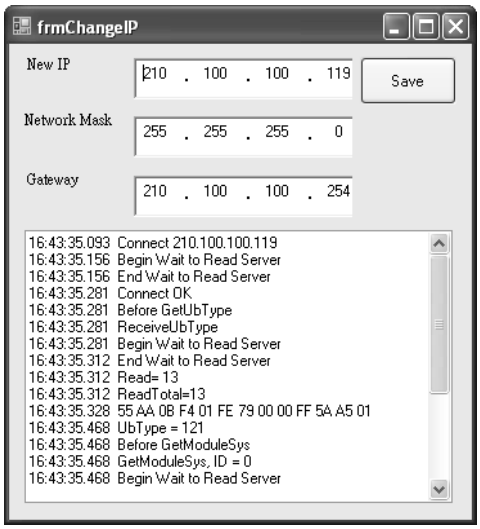

Figure A-1 ScreenCrop Utility: Change IP Screen

*Step 2. Enter the **New IP** address. Edit the **Network Mask** and **Gateway** as necessary. Then, click **Save**. The IP address will be changed for the target device (saved to flash memory of Seneca C-HSS/C-SHS).*

*Step 3. When the next window appears, click **OK** to exit.*

Figure A-2 Save IP Screen

Other devices on Network:
In some cases you may have a large number of devices from various manufactures all on the same network. ScreenCrop will detect all devices that are set to the same Network Mask as it is. If this occurs and you select a device that is not support by ScreenCrop then, the status button will be grayed-out and non-selectable. Also, in this case if you click ***Change IP*** *then the following error message would appear.*

Figure A-3 Device Does Not Support ScreenCrop Utility (Error Message)

Method 2: Change the IP Address of the Controlling Computer

For Windows XP

Step 1. Click ***Start****, and then right-click the mouse on* ***My Network Places****, and click* ***Properties****.*

Step 2. When the next screen appears, right-click the ***Local Area Connection*** *icon, and click* ***Properties****.*

Step 3. When the next screen appears, click to highlight ***Internet Protocol (TCP/IP)****, and click* ***Properties****.*

Step 4. When the next screen appears, click the radio button to select ***Use the following IP address:****, and then enter the* ***IP address: 210 . 100 . 100 . x*** *(where* ***x*** *is any value from* ***1*** *–* ***253****), and* ***Subnet mask: 255 . 255 . 255 . 0****.*

Step 5. Click ***OK*** *to exit.*

For Windows 7

Step 1. Click ***Start*** *and type in* ***Network and Sharing Center****.*

Step 2. Click ***Change Adapter Settings*** *on the left.*

Step 3. Right-click the ***Local Area Connection*** *the Seneca is connected to and select* ***Properties****.*

Step 4. When the next screen appears, click to highlight ***Internet Protocol Version 4 (TCP/IPv4)****, and click* ***Properties****.*

Step 5. When the next screen appears, click the radio button to select ***Use the following IP address:****, and then enter the* ***IP address: 210 . 100 . 100 . x*** *(where* ***x*** *is any value from* ***1*** *–* ***253****), and* ***Subnet mask: 255 . 255 . 255 . 0****.*

Step 6. Click ***OK*** *to exit.*