



Quick Start Guide

SilverBack V

CAMERA-BACK FIBER OPTIC TRANSCEIVER SYSTEM



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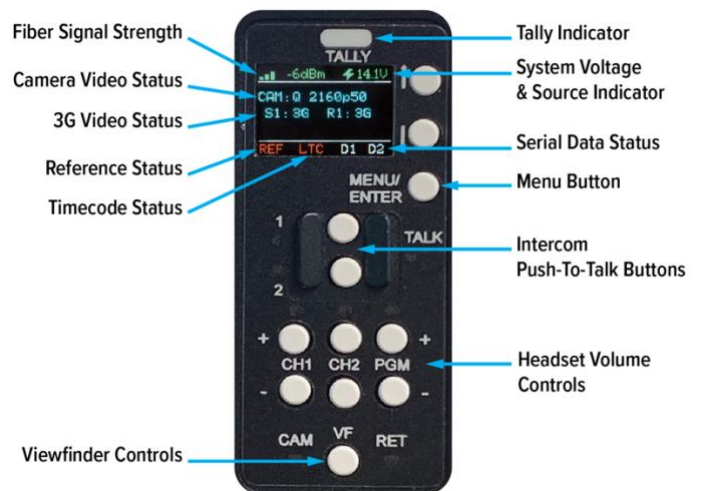
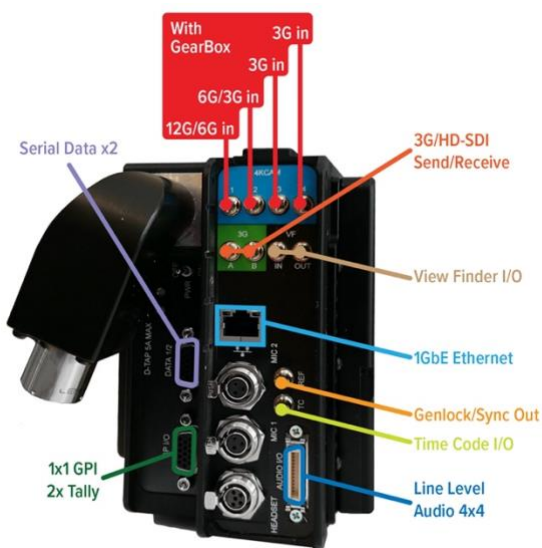
This product was designed and manufactured in the
UNITED STATES of AMERICA

SilverBack V Camera-Mounted Tx Unit

The SilverBack-III family's Camera side unit, also known as a "TX unit", connects to a camera's rear battery plate (or it can be located separately, if required) and all the signals from the camera are fed into this unit via a SMPTE hybrid cable (which includes power) and communicates to a connector on the base station. This signal transport is bi-directional, coming from the camera to the base station and vice versa.

Once mounted on the camera (via an Anton Bauer or "V"-mount battery bracket) the SilverBack unit can have include an additional battery mounted on the outside of the Camera I/O unit for extra protection against power failure or for working where readily available AC power is not present.

The TX control panel's simple interface lets the camera operator easily monitor system link and signal status via an OLED display. Pushbuttons permit easy adjustment of intercom levels and a menu system allows more detailed configuration of system parameters.



Camera Video Connections:

Connect the camera's primary SDI outputs to the 4K CAM inputs on the SBV Camera Unit. Depending on the type of camera and video resolution being used, up to 4 BNC to HDBNC cables may be needed. The 4K CAM inputs on the SBV Camera Unit are highlighted in Blue.

The SBV Camera Unit's 4K CAM inputs are capable of accepting Single Link, Dual Link, and Quad Link video signals, supporting HD, 3G, and 4K resolutions up to 4Kp60. Once the camera's video resolution is known, and whether it is Single Link, Dual Link, or Quad Link, the Gear-boxing Mode in the SBV Camera Unit's Video Settings Menu must be set accordingly.

Menu->Video Settings->Gearbox->Mode: Single, Dual 6G, Quad 3G

If your SBV Camera Unit is not 4K capable or does not contain a Gearbox, no menu setting is necessary for the camera video. Connect the camera's SDI output to the CAM input on the SBV Camera Unit.

Reference Sync Connections:

Connect the SBV Camera Unit's REF output to the camera's Ref/Sync input using a BNC to HDBNC cable. This REF output from the SBV Camera Unit is either analog NTSC, PAL, or an HD Tri-Level signal that has been supplied to the Base Unit.

If the camera requires SDI Reference, connect one of the 3G SDI outputs of the SBV Camera Unit to the Ref/Sync input on the camera using a BNC to HDBNC cable. This output will be the same signal that is connected to the corresponding SDI Input on the Base Unit.

Timecode Connections and Operation:

Connect the SBV Camera Unit's TC connector to the camera's TC connector using a BNC to HDBNC cable. This TC connector on the SBV Camera Unit can either be an output or an input, supplying Timecode to the camera from the Base Unit or sending Timecode to the Base Unit from the camera.

The direction of this Timecode connector on the SBV Camera Unit is set in the SBV Camera Unit Menus.

Menu->System Settings->Timecode->Direction

Secondary SDI Connections

The SBV Camera Unit may be equipped with 1 or more secondary SDI paths, depending on the model number ordered. These may be all camera returns, all sends, or a combination of both. The secondary SDI paths are 3G capable, they do not support 6G or 12G SDI.

The secondary SDI connectors on the SBV Camera Unit are highlighted in Green and the label indicates their direction. Connect your secondary SDI signals using BNC to HDBNC cables.

Built-in Viewfinder Switch

On SBV Camera Units configured with either Dual SDI returns or a single SDI send and single SDI return, a built-in Viewfinder Switch feature is available to switch an externally connected Viewfinder between the camera's monitor output and a return video feed. This feature may be disabled in the SBV Camera Unit Menus if this functionality is not needed.

Menu->Video Settings->Viewfinder->Enable: On. Off

Menu->Video Settings->Viewfinder->Slot Num: 1-4 (depends on the number and type of SDI cards installed)

Connect the camera's Monitor output or secondary SDI output to the viewfinder CAM connector on the SBV Camera Unit using a BNC to HDBNC cable. Connect the viewfinder OUT connector on the SBV Camera Unit to the SDI input of the external Viewfinder monitor using a BNC to HDBNC cable.

Note that the directions of the Secondary SDI BNC connectors on the SBV Camera Unit will be different when the Viewfinder Switch is enabled versus when it is disabled.

When the Viewfinder switch is enabled, the Viewfinder button on the SBV Camera Unit's control panel is used to select the video source that is output from the Viewfinder HDBNC Connector. Pressing this button will change between the video signal connected to the VF input (typically the Camera's video output) and the Return 1 video being sent by the base station. LED's on the control panel indicate which source is currently switched to the Viewfinder output.

An external switch connected to the DB-15 GPIO connector on the SBV Camera Unit may also be used to control the Viewfinder output, please refer to the pinout guide for pinout information. The Viewfinder select pin on the GPIO connector is typically used with a momentary type pushbutton switch. When this pin is connected to Ground, the Viewfinder Output HDBNC will output Return 1 video. When this pin is left open or unconnected, the Viewfinder Output HDBNC will output the video signal connected to the VF input (typically the Camera's video output).

Ethernet Connection:

The SBV Camera Unit may be equipped with an Ethernet port, depending on the model number ordered. The Ethernet port is 10/100/1000 Mbps and may be connected to the camera and/or other devices local to the camera. Using Cat5e cable is recommended.

Intercom Headset Connection and Operation:

The SBV Camera Unit may be equipped with an Intercom Headset port, depending on the model number ordered. This port uses a 5-pin miniXLR connector to support both single and dual muff intercom headsets. An adapter cable from miniXLR to standard size XLR is available.

Headset MIC Gain and Sidetone settings are adjusted in the SBV Camera Unit Menus:

Menu->Audio Settings->Intercom>MIC Gain

Menu->Audio Settings->Intercom>Sidetone

Volume controls are provided on the SBV Camera Unit control panel for adjusting the audio levels of Intercom Ch1, Intercom Ch2, and Program audio heard in the headset. The volume controls allow for a mix of both intercom channels and program audio all to be listened to in the headset simultaneously. The LED above each channel's set of volume control buttons will illuminate whenever audio is present on that channel. When adjusting the volume, these LED's will rapidly blink 3 times whenever the min or max volume setting has been reached.

Two Push-To-Talk (PTT) switches are provided on the SBV Camera Unit control panel, 1 for each intercom channel, for activating Talkback. Each PTT switch provides Momentary/Latching operation of the headset microphone to allow the operator to talk on a particular intercom channel, or on both channels simultaneously.

For Momentary Mode, press and hold the PTT switch down for the intercom channel you wish to speak on and then speak into the microphone. The TALK and the selected intercom channel LED's will blink and the mic will remain open while the PTT switch is held. Release the PTT switch when finished talking. The mic will close and the TALK and channel LED's will turn off.

Latching Mode can be used for longer-term, hands-free operation. To talk on channel 1, quickly press and release the Ch 1 PTT switch. The mic will latch open and the TALK and CH1 LED's will blink continuously. When finished talking, quickly press and release the Ch1 PTT switch again. The mic will then close and the TALK and CH1 LED's will turn off.

To talk on channel 2, quickly press and release the Ch 2 PTT switch. The mic will latch open and the TALK and CH2 LED's will blink continuously. When finished talking, quickly press and release the Ch2 PTT switch again. The mic will then close and the TALK and CH2 LED's will turn off.

To talk on both channels 1 and 2 simultaneously, first quickly press and release the Ch1 PTT switch to activate latching mode. The mic will latch open and the TALK and CH1 LED's will blink continuously. Next, quickly press and release the Ch2 PTT switch to activate its latching mode. The mic will stay open and now the TALK, CH1 and CH2 LED's will all blink continuously. When finished talking, quickly press and release the Ch1 PTT switch to disengage CH1 (the CH1 LED will turn off) then quickly press and release the PTT switch to disengage CH2 (the CH2 LED will turn off). The mic will close and the TALK, CH1 and CH2 LED's will all turn off.

An external switch connected to the DB-15 GPIO connector on the SBV Camera Unit may also be used to control Intercom Talkback operation, please refer to the pinout guide for pinout information. Two mic trigger GPI pins are provided, one for CH1 and one for CH2. A single SPDT momentary type switch or 2 SPST switches may be used.

Audio Connections and Operation:

The SBV Camera Unit may be equipped with Dual Channel MIC/Line Inputs, 4 Ch Line/2AES Inputs and Outputs, or both, depending on the model number ordered.

The MIC/Line Inputs use 3-pin miniXLR connectors and support analog Line-Level audio or MIC Level audio with 48V Phantom capability and adjustable Gain up to 60dB when in MIC mode. MIC/Line settings are adjusted in the SBV Camera Unit Menus.

*Menu->Audio Settings->Input->MIC/Line Setting->Mic/Line1->Mode: Line, MIC
Menu->Audio Settings->Input->MIC/Line Setting->Mic/Line1->Gain: 0 to 65 dB
Menu->Audio Settings->Input->MIC/Line Setting->Mic/Line1->Phantom: 48V, Off
Menu->Audio Settings->Input->MIC/Line Setting->Mic/Line2->Mode: Line, MIC
Menu->Audio Settings->Input->MIC/Line Setting->Mic/Line2->Gain: 0 to 65 dB
Menu->Audio Settings->Input->MIC/Line Setting->Mic/Line2->Phantom: 48V, Off*

Note that Gain and Phantom Settings may be changed when in MIC Mode. When in Line Mode, Phantom power is turned off and Gain is set to 0dB (unity gain).

The 4 Channel Line Level I/O uses a 26-pin MDR connector. From an input perspective, this connector supports 4 Line-Level balanced mono input channels or 2 balanced AES inputs. From an output perspective, this connector supports 4 Line-Level balanced mono output channels or 2 balanced AES outputs.

Selection between analog and AES is on a stereo-pair basis using the SBV Camera Unit Menus.

Menu->Audio Settings->Input->In 1/2 Source: DB-Line, DB-AES, MIC/Line

Menu->Audio Settings->Input->In 3/4 Source: DB-Line, DB-AES

Menu->Audio Settings->Output->Out 1/2 Type: Line, AES

Menu->Audio Settings->Output->Out 3/4 Type: Line, AES

Breakout cables are available for miniXLR to XLR and MDR to XLR.

Serial Data Connections and Operation:

The SBV Camera Unit may be equipped with two Serial Data Ports for controlling cameras with serial control, or other external devices with serial control. The two data ports are combined in a single HD-15 connector on the SBV Camera Unit.

The Serial Data Ports support RS232, RS422, LANC, and TTL level data. Pre-made cable kits for specific camera manufacturers, e.g. Sony and Panasonic, are available. It is necessary to configure specific data type for each port in SBV Camera Unit as the internal settings are different for LANC vs RS232/422/TTL.

Menu->Data Settings->Data 1: RS232/422, LANC

Menu->Data Settings->Data 2: RS232/422, LANC

GPIO Connections:

The SBV Camera Unit may be equipped with a GPIO Port for interfacing with other devices as well as controlling certain functions within the SBV Camera Unit using GPI's. All the GPIO function pins are combined in a single HD-15 connector on the SBV Camera Unit.

The GPI functions are as follows:

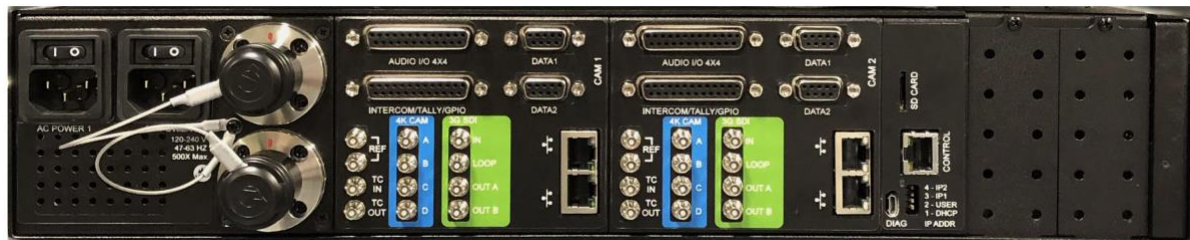
- Generic GPI Input passed down to the Base Unit
- Generic GPO Output passed up from the Base Unit (relay contact closure)
- Red Tally Output (relay contact closure)
- Green Tally Output (relay contact closure)
- Two Headset MIC PTT GPI Inputs (one for each intercom channel)
- External Viewfinder Source Select GPI Input
- Generic GPI Input for controlling a SBV Camera Unit Function (future use)

SilverBack V Base Rx Unit

The SilverBack V family's Base side unit, also known as a "RX unit", connects to up to 2 camera units and all the signals from each camera chain are fed into this unit via SMPTE hybrid cables (which can include power). This signal transport is bi-directional, coming from the camera to the base station and vice versa.

Internally, the Base Station contains redundant 12V power supplies for powering the Base Unit electronics as well as separate individual power supplies for powering each camera chain.

The Base Station front panel's simple interface lets the operator easily monitor system link and signal status via a TFT display. Dedicated status LED's permit easy monitoring of key signals levels and a menu system on the TFT display allows more detailed status and configuration of system parameters.



Connecting the Base Unit

The SBV Base Unit is to be mounted in a standard 19" equipment rack. AC connector 1 is used to power the Base Unit and Camera Chain 1. AC connector 2 is used to power Camera Chain 2 and provide redundant power to the Base Unit.

Camera Video Connections:

Connect the 4K CAM outputs of the SBV Base Unit to the desired facility destination. Depending on the type of camera and video resolution being used, up to 4 HDBNC cables may be needed. The 4K CAM outputs on the SBV Base Unit are highlighted in Blue.

The SBV Base Unit's 4K CAM outputs are capable of outputting Single Link, Dual Link, and Quad Link video signals, supporting HD, 3G, and 4K resolutions up to 4Kp60. Once the camera's video resolution is known, and whether it is Single Link, Dual Link, or Quad Link, the Gear-boxing Mode in the SBV Base Unit's Video Settings Menu must be set accordingly.

*Base Menu->Settings->Video->Cam1 Output: Single Link, Dual Link, Quad Link
Base Menu->Settings->Video->Cam2 Output: Single Link, Dual Link, Quad Link*

If your SBV system is not 4K capable or does not contain a Gearbox, no menu setting is necessary for the camera video. Connect the camera SDI output on the SBV Base Unit to the desired facility destination.

Reference Sync Connections:

Each camera chain in the SBV Base unit has a dedicated Reference Sync Input. Connect the desired sync reference to these ports. This REF input can accept either analog NTSC, PAL, or an HD Tri-Level signal. The 2 HDBNC connectors for each camera chain's reference are internally connected together as a loop-thru. It is recommended to put a 75 ohm termination on the loop-thru connector.

The SBV Base unit also has the ability to route either of the Reference Sync inputs to either or both camera units. This way, only a single reference signal is needed per frame. The Reference Sync routing is configured in the SBV Base Menu.

*Base Menu->Settings->Reference>Cam1 Ref: In1, In2
Base Menu->Settings->Reference>Cam2 Ref: In1, In2*

If the camera requires SDI Reference, use one of the 3G SDI return inputs on each of the camera chains of the SBV Base Unit to provide reference to the cameras.

Timecode Connections:

Each camera chain in the SBV Base Unit has dedicated Timecode Inputs and Outputs. Connect Timecode inputs/outputs to these ports as necessary. Note that in order for a

camera chain in the Base to output the camera's timecode output, the direction of the Timecode connector on the SBV Camera Unit must be set as an input.

The SBV Base Unit also has the ability to route either of the Timecode inputs to either or both camera units. This way, only a single timecode reference signal is needed per frame. The Timecode routing is configured in the SBV Base Menus.

*Base Menu->Settings->Reference>Cam1 LTC: In1, In2
Base Menu->Settings->Reference>Cam2 LTC: In1, In2*

Secondary SDI Connections

Each camera chain in the SBV Base Unit may be equipped with 1 or more secondary SDI paths, depending on the model number ordered. These may be all camera returns, all sends, or a combination of both. The secondary SDI paths are 3G capable, they do not support 6G or 12G SDI.

The secondary SDI connectors on the SBV Base Unit are highlighted in Green and the label indicates their direction. Connect your secondary SDI signals using HDBNC cables.

Camera Ethernet Connection:

Each camera chain in the SBV Base Unit may be equipped with a 2-port Ethernet card, depending on the model number ordered, providing an Ethernet path for the camera. The Ethernet ports are 10/100/1000 Mbps and both RJ45 ports on the card are connected to an internal Ethernet switch.

The 1st port is typically connected to the facility's network switch. The 2nd port may be connected to the 2nd camera chain camera and/or other devices if desired. Using Cat5e cable is recommended.

Intercom, Tally, and GPIO Connections:

Each camera chain in the SBV Base Unit is equipped with an Intercom Interface, supporting both 2-Wire Party-Line and 4-Wire Intercom systems. The Intercom Interfaces use a DB25 connection and follows the pinout used by Sony and Panasonic SMPTE camera CCU's. Intercom, Tally, and GPIO signals are all combined into these connectors.

2-Wire or 4-Wire Intercom Type selection is made through the SBV Base Unit Menus:

Base Menu->Settings->Intercom>Intercom Type: 2-Wire, 4-Wire

When in 2-Wire mode, each camera chain's internal 2-Wire interface needs to be Nulled after initial installation.

Base Menu->Settings->Intercom>2-Wire Autonull->: Cam1 Ch1

Base Menu->Settings->Intercom>2-Wire Autonull->: Cam1 Ch2

Base Menu->Settings->Intercom>2-Wire Autonull->: Cam2 Ch1

Base Menu->Settings->Intercom>2-Wire Autonull->: Cam2 Ch2

GPI Inputs are simple pull to Ground to activate and the GPO output provides a relay contact closure to Ground when activated. The Tally/GPIO signals in the Intercom Interface Connector are shown below.

Red Tally Input (pull to GND to activate)

Green Tally Input (pull to GND to activate)

Generic GPI Input passed up to the Camera Unit (pull to GND to activate)

Generic GPO Output passed down from the Camera Unit (relay contact closure)

Audio Connections and Operation:

Each camera chain in the SBV Base Unit is equipped with a Bi-Directional 4 Channel (mono) audio interface. Inputs and outputs may either be analog Line-Level or AES. All channels are balanced connections.

Each interface uses a DB25 connector and follows the Tascam channel numbering convention. The first four channels are used for the audio inputs and the last 4 channels are used for the audio outputs.

When using AES, only the odd numbered channels are used as AES is a 2-channel interface. Selection between analog and AES is made on a stereo-pair basis using the SBV Base Unit Menus.

Base Menu->Settings->Audio Inputs->Cam1 Input 1/2: Analog, AES

Base Menu->Settings->Audio Inputs->Cam1 Input 3/4: Analog, AES

Base Menu->Settings->Audio Inputs->Cam2 Input 1/2: Analog, AES

Base Menu->Settings->Audio Inputs->Cam2 Input 3/4: Analog, AES

Base Menu->Settings->Audio Outputs->Cam1 Output 1/2: Analog, AES

Base Menu->Settings->Audio Outputs->Cam1 Output 3/4: Analog, AES

Base Menu->Settings->Audio Outputs->Cam2 Output 1/2: Analog, AES

Base Menu->Settings->Audio Outputs->Cam2 Output 3/4: Analog, AES

Serial Data Connections:

Each camera chain in the SBV Base Unit is equipped with two Serial Data Ports for controlling cameras with serial control, or other external devices with serial control. Each data port uses a dedicated DB-9 connector on the rear of the SBV Base Unit.

The Serial Data Ports support RS232, RS422, LANC, and TTL level data. Pre-made cable kits for specific camera manufacturers, e.g. Sony and Panasonic, are available.

It is necessary to configure specific data type for each port in SBV Base Unit as the internal settings are different for LANC vs RS232/422/TTL.

Base Menu->Settings->Data->Cam1 Data 1: RS232/422, LANC

Base Menu->Settings->Data->Cam1 Data 2: RS232/422, LANC

Base Menu->Settings->Data->Cam2 Data 1: RS232/422, LANC

Base Menu->Settings->Data->Cam2 Data 2: RS232/422, LANC

Frame Controller

You can monitor the status and control settings in your SilverBack V Base frame via a Web page dashboard that is embedded within the frame. The steps for connecting to your facility's Ethernet network will depend on the network requirements of your facility. Contact your IT Department before connecting to your facility network to ensure that there will not be any conflicts.

Network Settings:

The method for setting the IP address of the SilverBack V Base Unit is determined using the 4-position DIP switch on the rear of the chassis. The four possible settings for IP address configuration are outlined below:

- Preset IP address configuration — the network controller card in the frame can be forced to use one of two specific predefined IP address settings. This can be used to establish initial communications, configure the frame for future deployment on another network, or to override a custom user configuration.
- User-defined IP address configuration — the network controller card in the frame can be configured to use a user-defined static IP address from the device's embedded Web page. Re-configuration can only be done once network communications have been established.
- Automatic configuration using DHCP — the network controller card in the frame is configured to automatically obtain network settings from a Dynamic Host Configuration Protocol (DHCP) server. This method would be recommended for advanced users only as there is no way to display the DHCP assigned address on the frame itself.

The physical DIP switching settings are shown below. Only one switch is allowed to be in the ON position.

DIP Switch #	Description
1	DHCP. Network settings assigned by a DHCP server
2	User IP Address. IP Address is set by the user through embedded webpage. Factory default is 192.168.1.249
3	Fixed IP Address #1. 192.168.2.2
4	Fixed IP Address #2. 10.1.1.2

Note — The IP Addresses of the SilverBack V Base Unit and your computer must be on the same Subnet. For example, if the SilverBack V Base Unit has an IP Address of 192.168.2.2, then your computer should be configured for an IP address of 192.168.2.X where X is a number other than 2.

To use one of the fixed preset IP addresses:

1. Set the DIP Switch to specify the desired preset IP address as outlined in the IP address DIP switch table.
2. Ensure the network settings of your computer are compatible with those chosen for the SilverBack V Base Unit frame. Both your computer and the SilverBack V Base Unit must be on the same subnet. Contact your IT Department if you need help determining or configuring the network settings of your computer.
3. To prevent any possible IP address conflicts, initially isolate the SilverBack V Base Unit frame and your computer from the rest of your network.
 - If you are using a hub or switch, unplug all devices except the SilverBack V Base Unit frame and your computer
 - or
 - Connect the SilverBack V Base Unit frame directly to your computer with an Ethernet cable.
4. Launch a web browser on your computer.
5. Power up the SilverBack V Base Unit frame.
6. In the address bar of the web browser, enter the preset IP address selected on the DIP switch.
7. Wait approximately 30 seconds while the frame establishes network communications.
8. Verify that the SilverBack V Base Unit Dashboard webpage displays in the web browser.
9. Should the webpage fail to display after a minute or two:
 - Click the refresh/reload button in your browser.
 - Verify the Ethernet cables are properly connected.
 - Check the link/activity LEDs found on the Ethernet RJ-45 connectors.
 - Verify that you have properly performed each step of this procedure.
 - Contact MultiDyne Technical Support if you cannot establish a connection

To use a Custom User IP Address via webpage Dashboard

Once network communications have been established with a SilverBack V Base Unit, a custom static IP address can be configured through the Frame Ethernet Settings box in the webpage Dashboard.

To configure the User IP address using the webpage Dashboard:

1. Establish Ethernet communications with the SilverBack V Base Unit using one of the preset IP addresses, DHCP, or previously configured User IP address and load the device's Dashboard webpage in a web browser by entering the IP address in the browser's address bar.
2. In the Frame Ethernet Settings Box, enter the desired User IP address in the User IP boxes.
3. Ensure the new network settings chosen for the SilverBack V Base Unit are compatible with the network the SilverBack V Base Unit is to be employed in. The computer used for monitoring the SilverBack V Base Unit must be on the same subnet. Contact your IT Department if necessary.
4. Verify the IP address entered is correct and then click the "Save IP" Button. This IP address will be stored in non-volatile memory on the frame controller card.
5. The new IP address will not take effect until the IP Address DIP switch is changed to the User IP address position. If the DIP switch is already in the User IP position, a toggle of the User IP position switch from off to back on again may be required for the new address to take effect.
6. Enter the new IP address in the address bar of a web browser and hit enter to verify the new IP address.

Frame Ethernet Settings

MAC Address: FC:C2:3D:0:8C:CA

Current IP Address: 192.168.1.249

IP Switch Setting: User IP

User IP Address: . . .

Frame Description:

Frame ID Led:

To use DHCP to automatically assign network settings

Network settings for the SilverBack V Base Unit may be automatically configured via a DHCP server on the facility network. This method would be recommended for advanced users only as there is no way to display the DHCP assigned address on the frame itself.

To configure the network settings via DHCP:

1. Connect the SilverBack V Base Unit to your network using an Ethernet cable.
2. Power up the SilverBack V Base Unit.
3. Set the DIP Switch position 1 to ON to specify DHCP configured settings.

Physically Identifying a SilverBack V Base Unit in a facility

On the rear of the chassis, there is an ID LED which can be used to help identify the location of a particular SilverBack V Base Unit. The Frame ID LED button in the Ethernet Settings Box of the webpage allows you to turn this LED ON or OFF. When turned ON, the LED on the chassis will blink.

SBV Connector Pinouts – Base Unit

Base Unit Intercom/GPIO Connector Pinout			
Number	Description	Number	Description
1	2-Wire Intercom Pin2 / 4-Wire Intercom Ch1 Output+	14	2-Wire Intercom Pin3 / 4-Wire Intercom Ch2 Output+
2	4-Wire Intercom Ch1 Output-	15	4-Wire Intercom Ch2 Output-
3	GND	16	GND
4	4-Wire Intercom Ch1 Input+	17	4-Wire Intercom Ch2 Input+
5	4-Wire Intercom Ch1 Input-	18	4-Wire Intercom Ch2 Input-
6	PGM Audio Ch1 Input+	19	PGM Audio Ch2 Input+
7	PGM Audio Ch1 Input-	20	PGM Audio Ch2 Input-
8	GND	21	GND
9	GND	22	N/C
10	GPI Input 1	23	GPO Output 1
11	Red Tally GPI In	24	Green Tally GPI In
12	GND	25	GND
13	GND		

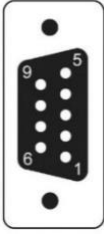
DB25-F

Follows Sony/Panasonic CCU Convention

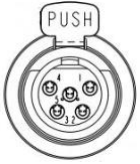
Base Unit Audio Connector Pinout			
Number	Description	Number	Description
1	Ch4 Analog Audio Output+	14	Ch4 Analog Audio Output-
2	GND	15	Ch3 Analog Audio Output+ or AES2 Output+
3	Ch3 Analog Audio Output- or AES2 Output-	16	GND
4	Ch2 Analog Audio Output+	17	Ch2 Analog Audio Output-
5	GND	18	Ch1 Analog Audio Output+ or AES1 Output+
6	Ch1 Analog Audio Output- or AES1 Output-	19	GND
7	Ch4 Analog Audio Input+	20	Ch4 Analog Audio Input-
8	GND	21	Ch3 Analog Audio Input+ or AES2 Input+
9	Ch3 Analog Audio Input- or AES2 Input-	22	GND
10	Ch2 Analog Audio Input+	23	Ch2 Analog Audio Input-
11	GND	24	Ch1 Analog Audio Input+ or AES1 Input+
12	Ch1 Analog Audio Input- or AES1 Input-	25	GND
13	N/C		


DB25-F

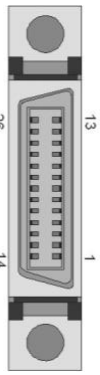
Follows Tascam Convention

Base Unit Data Connector Pinout			
 <p>DB-9F</p>	Number	RS232 Pinout	RS422 Pinout
	1	N/C	TTL Bias
	2	TXD Out	TXD Out -
	3	RXD In	RXD In -
	4	Tie to GND	N/C
	5	GND	GND
	6	N/C	N/C
	7	N/C	TXD Out +
	8	N/C	RXD In +
	9	+12V Out	+12V Out

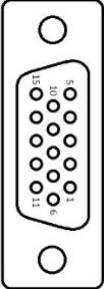
SBV Connector Pinouts – Camera Unit

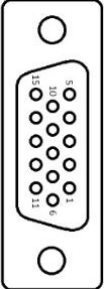
Camera Unit Intercom Headset Audio Connector Pinout		
	Number	Description
 <p>miniXLR-5F</p>	1	GND
	2	MIC Input+
	3	GND
	4	Audio L Output
	5	Audio R Output

Camera Unit MIC/Line Audio Input Connector Pinout		
	Number	Description
 <p>miniXLR-3F</p>	1	GND
	2	Input+
	3	Input-

Camera Unit Audio Connector Pinout				
	Number	Description	Number	Description
 <p>MDR26-F</p>	1	GND	14	GND
	2	Ch1 Analog Audio Input- or AES1 Input-	15	Ch1 Analog Audio Output+ or AES1 Output -
	3	Ch1 Analog Audio Input+ or AES1 Input+	16	Ch1 Analog Audio Output- or AES1 Output +
	4	GND	17	GND
	5	Ch2 Analog Audio Input+	18	Ch2 Analog Audio Output +
	6	Ch2 Analog Audio Input-	19	Ch2 Analog Audio Output -
	7	GND	20	GND
	8	Ch3 Analog Audio Input+ or AES2 Input+	21	Ch3 Analog Audio Output + or AES2 Output +
	9	Ch3 Analog Audio Input- or AES2 Input-	22	Ch3 Analog Audio Output - or AES2 Output -
	10	GND	23	GND
	11	Ch4 Analog Audio Input+	24	Ch4 Analog Audio Output +
	12	Ch4 Analog Audio Input-	25	Ch4 Analog Audio Output -
	13	GND	26	GND

Follows Multidyne VB Audio Series Convention

Camera Unit Serial Data Connector Pinout						
 HDB15-F	Number	RS422 Pinout	RS232 Pinout	Number	RS422 Pinout	RS232 Pinout
	1	Data1 RXD In-	Data1 RXD	9	Data2 TTL Bias	N/C
	2	Data1 RXD In+	N/C	10	GND	GND
	3	N/C	Tie to GND	11	Data1 TXD Out-	Data1 TXD
	4	Data2 RXD In-	Data2 RXD	12	Data1 TXD Out+	N/C
	5	Data2 TXD Out+	N/C	13	N/C	N/C
	6	Data1 TTL Bias	N/C	14	Data2 TXD Out-	Data1 TXD
	7	GND	GND	15	Data2 RXD In+	GND
	8	N/C	Tie to GND			

Camera Unit GPIO Connector Pinout				
 HDB15-F	Number	Description	Number	Description
	1	Red Tally Output	9	GND
	2	Green Tally Output	10	GND
	3	GPO 1 Output	11	Ch1 ICOM MIC Talk Trigger GPI Input
	4	GPI 1 Input	12	Ch2 ICOM MIC Talk Trigger GPI Input
	5	N/C	13	VF Input Select GPI Input
	6	GND	14	REC Trigger GPI Input
	7	GND	15	+12VDC Output, 1A Max
	8	GND		