

VISTEK V6333E/D & V6333Q/D HD/SD SDI DIGITAL AUDIO MULTIPLEXER USER GUIDE



Contents

1.	Description.....	3
2.	Installation	4
2.1	Rear Panel - 3U.....	4
2.2	Rear Panel Connections.....	5
2.3	D-Type Connector Pin-Out.....	6
2.4	Power Consumption	6
2.5	Video Insertion Delay.....	6
2.6	Internal Hardware.....	7
2.6.1	Main Board.....	7
2.6.2	Fuse	8
2.6.3	Flash Memory Card.....	8
3.	Operation	9
3.1	Front Panel	9
3.1.1	Direct Indications	9
3.1.2	Display and Switches	9
3.2	Remote Control.....	10
3.3	Menu System.....	10
3.4	Banner Warnings	11
3.5	Main Menu.....	11
3.5.1	Video Input Selection	11
3.5.2	Group Selection	11
3.5.3	Reference Selection & Sample Rate Converter Bypass	12
3.6	Status Menu.....	12
3.6.1	Variant.....	12
3.6.2	Options.....	12
3.6.3	Sub-Module.....	13
3.6.4	Rear ID.....	13
3.6.5	Video Source.....	13
3.6.6	Input Standard.....	13
3.6.7	Video Input 1 & 2 Presence	13
3.6.8	AES ABCD & AES EFGH.....	13
3.6.9	Input Audio Group Presence.....	14
3.6.10	Audio Reference	14
3.6.11	GPI Status.....	14
3.6.12	Module Code & Hardware Versions.....	14



VISTEK V6333E/D & V6333Q/D hd/sd sdi digital audio multiplexer

3.7	Engineering Menu	15
3.7.1	Audio Group Enables	15
3.7.2	Audio Group Resolution	15
3.7.3	Ancillary Data Blanking	15
3.7.4	Group Deletion	15
3.7.5	Output EDH	16
3.7.6	Display Sleep	16
3.7.7	Display Brightness	16
3.8	Configuration Menu	16
3.8.1	GPI Configuration	16
Appendix A.	V6333E/D Digital Audio Multiplexer Menu Structure	17
Appendix B.	Controls	18
Appendix C.	Supported Video Standards	21

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



1. DESCRIPTION

The V6333/D Digital Audio Multiplexer is a full broadcast specification embedder of audio data into HD (High Definition) and SD (Standard Definition) SDI data streams. Two versions of the V6333 are available, one with 4 AES inputs (V6333Q/D), and another with 8 AES inputs (V6333E/D). Although the V6333 processes High Definition (HD) video signals, it is fully compatible with all other products in the range in terms of form factor, power supply requirements and control interface. The V6333 is a 3U high card that can be fitted into a V1606 rack or a V6011 '1-Box', from which it obtains its power and control.

There is also an audio de-multiplexer module, the V6334, which is fully compatible with the V6333.

A passive rear module is required for all signal interconnections. There are 3 types of rear module; a 4 unbalanced input (Single module width), an 8 unbalanced input (Double module width), and one offering 8 balanced inputs (Single module width).

The unit automatically detects the standard and format of the SD or HD input video and operates accordingly.

The unit embeds audio onto SDI video data stream according to SMPTE 272M (SD) and SMPTE 299M (HD). All of the available audio groups may be embedded. Unlike multiplexers from some other manufacturers the audio does not need to be synchronous with the video into which it is to be embedded. This makes the use of embedded audio within a studio area much simpler to implement. However it must be noted that some other manufacturers de-multiplexers will not accept embedded audio if it is asynchronous to the SDI clock.

Another facility to assist the installation in a real environment is the ability to resample an asynchronous AES input to an external reference, generating synchronous multiplexed audio. The external reference may be another AES signal, or the SDI video itself.

There are upto two SDI outputs, and one re-clocked versions of the SDI input. All ancillary data may be optionally stripped off the SDI input signal prior to embedding. The EDH is optionally regenerated on the card for SD.

The unit is fully controllable over the DART remote control system.



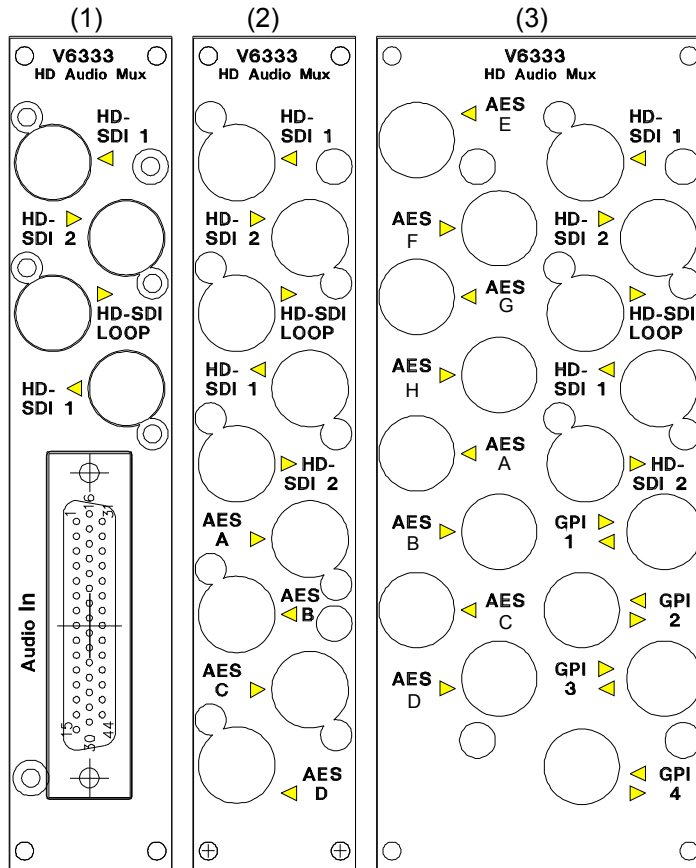
VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer

2. INSTALLATION

2.1 Rear Panel - 3U

Three rear panel options are available, depending on the number and format of the inputs. They are shown below:



(1) 8 balanced AES inputs are provided by an interface cable to the high density 44 way D-Type connector.

(2) 4 unbalanced AES inputs are provided by BNC interface directly onto the rear panel.

(3) 8 unbalanced AES inputs are provided by BNC interface directly onto the double width rear panel.

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



2.2 Rear Panel Connections

SIGNAL	CONN	DESCRIPTION
▶ HD/SDI 1	BNC	HD/SD SDI Video Input 1
▶ HD/SDI 2	BNC	HD/SD SDI Video Input 2
◀ HD/SDI LOOP	BNC	HD/SD SDI Re-clocked and Buffered Loop-through Output
◀ HD/SDI 1	BNC	HD/SD SDI Main Output 1
◀ HD/SDI 2	BNC	HD/SD SDI Main Output 2
▶ AES n	BNC	Unbalanced AES input A to D or A to H
▶ ◀ GPI n	BNC	General purpose interface 1 to 4
Audio I/O	D-Type	Balanced AES inputs A to H, and GPI 1 to 4



VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer

2.3 D-Type Connector Pin-Out

The D type connector on the unit is male.

Sig. Group Label	Pin	Signal Name	Signal Function	Sig. Group Label	Pin	Signal Name	Signal Function
	14	AES_P1	In AES E1 Pos		4	NC	
AES E	44	AES_N1	In AES E1 Neg		34	NC	
	15	GND	In AES E1 Gnd		19	NC	
	13	AES_P2	In AES F2 Pos		3	NC	
AES F	43	AES_N2	In AES F2 Neg		33	NC	
	28	GND	In AES F2 Gnd		19	NC	
	12	AES_P3	In AES G1 Pos		2	NC	
AES G	42	AES_N3	In AES G1 Neg		32	NC	
	26	GND	In AES G1 Gnd		16	NC	
	11	AES_P4	In AES H2 Pos		1	NC	
AES H	41	AES_N4	In AES H2 Neg		31	NC	
	40	GND	In AES H2 Gnd		16	NC	
	9	AES_P5	In AES A1 Pos		23	NC	
AES A	39	AES_N5	In AES A1 Neg		22	NC	
	10	GND	In AES A1 Gnd		35	NC	
	8	AES_P6	In AES B2 Pos		18	NC	
AES B	38	AES_N6	In AES B2 Neg		17	NC	
	24	GND	In AES B2 Gnd		35	NC	
	7	AES_P7	In AES C1 Pos		20	GPI_1	
AES C	37	AES_N7	In AES C1 Neg		25	GPI_2	
	21	GND	In AES C1 Gnd		29	GND	
	6	AES_P8	In AES D2 Pos		30	GPI_3	
AES D	36	AES_N8	In AES D2 Neg		29	GND	
	5	GND	In AES D2 Gnd		27	GPI_4	

2.4 Power Consumption

~12W

2.5 Video Insertion Delay

The video insertion delay, from SDI input to SDI output is:

- 3.64 μ s for SD signals
- 1.05 μ s for HD signals

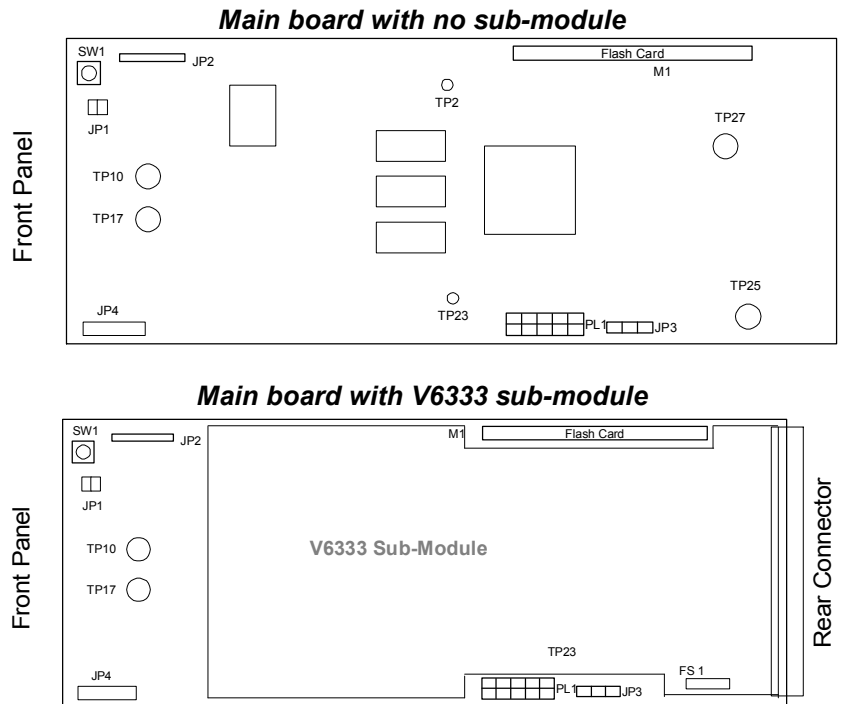
VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



2.6 Internal Hardware

2.6.1 Main Board



The purposes of the links and switches is shown in the following table.

ITEM	Title	Comments
SW1	RESET	Used to reset the internal microcontroller.
JP1	Debug/Normal Link	Should be left with no link, for development only.
TP10	+1.5V	1V5 Test Point
TP17	+3.3V	3V3 Test Point
JP4	+15V Plug	+15V Alternative supply plug.
JP2	H8 Debug and Programming Port	For downloading the H8's Bootloader program, and also used as a serial port for development.
TP2	+1.8V 1	1V8 Test Point from Reg U301
TP23	+1.8V 2	1V8 Test Point from Reg U309
M1	Flash Card	Stores H8 Application code and Firmware for the FPGA. Also used to store application specific data.
PL1	JTAG Connector	For development and test use only
JP3	JTAG enable	Link 2-3 for operational use.
FS1	Fuse	The main 2Amp fuse on the frame supply.



VISTEK V6333E/D & V6333Q/D hd/sd sdi digital audio multiplexer

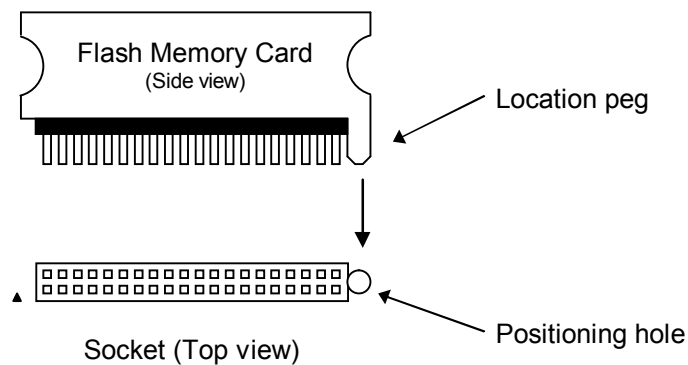
2.6.2 Fuse

There is only one fuse on these modules, which is in series with the main DC input.

FS1	Fuse 2 Amp Wire ended	In series with the +15V input to the module on the I/O daughter board.
-----	-----------------------	--

2.6.3 Flash Memory Card

The Flash Memory Card stores the firmware for the Microcontroller and the FPGA and is essential for the operation of the module. If this card is missing, the front panel display will come up with an error message (ERROR 10). The Flash Memory Card sits in a socket with a location peg to the right. In case of a firmware upgrade, one has to make sure that the replaced card sits firmly and straight in the socket with the location peg mating with the positioning hole on the baseboard.



The Flash Memory Card is re-programmable. Customers are kindly asked not to throw it away after having upgraded a module with a newer firmware version. A Vistek service technician will collect it on his/her next visit or it can be put in an envelope and sent back to the postal address shown on the cover of this manual.

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer

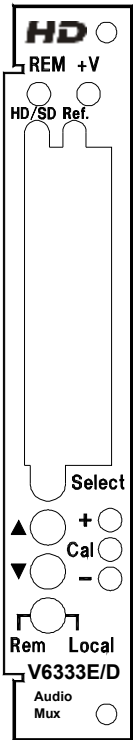


3. OPERATION

3.1 Front Panel

3.1.1 Direct Indications

The four LEDs at the top of the panel provide these direct indications of the unit:



- REM Short blinks to indicate access by the DART controller, if fitted. It does **not** directly indicate that the unit is in remote control mode. If the rack frame does not have a Rack Controller fitted then this LED will not blink.
- +V Indicates that the main +3.3V is present on the board. This is derived from the +15V distributed through the rack. The modules do have many power rails, but only the main +3.3V is indicated here. It will, of course, be off if the fuse, FS1, were to have been blown.
- HD/SD Indicates that a valid SDI signal (either HD or SD) is being received.
- Ref. Indicates that the selected audio reference signal is being received – either the video input, an audio input or nothing; in which case the LED is always on.

3.1.2 Display and Switches

The main display is an eight character LED matrix display. It has been set so that when fitted into a 3U rack (V1606) it can be read from the left, and when fitted to a 1U rack (V1601) it is horizontal and the 'proper' way up. (At time of writing it is not possible to fit the HD products into the V1602 1U rack.)

The three action buttons are labelled **Select**, **▲** and **▼**. The **Select** button is used to move down and up the menus. A short press will move down one level, while pressing and holding for about half a second will move up one level. If you continue to hold it will progressively move up a level every half second until it reaches the top level (**SLEEP**), or you let go, in which case it will stay where it is. When at any level the **▲** and **▼** buttons will move through the list of options, or if in an actual variable (such as Video Gain) they will change the values.

If the unit is in Local control then the display and switches are used to set up and show the operation the module. If in remote mode then they are still active for showing the status but cannot be used to actually change anything.



VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer

Beside the ▲ and ▼ buttons are three LEDs marked +, **CAL** and -. In general the **CAL** LED is used to show that a variable is set to its normalised value and if not then the others show in which direction it has been changed or that it is no longer on its CAL value. The toggle switch Rem/Local selects the source of control for the module. Remote control is discussed next.

3.2 Remote Control

The V6333 can be controlled from either the front panel, shown above or through the DART remote control network. If DART is used then any DART controller, with knowledge of the V6333 can be used. Vistek can provide either the V1605 1U control panel, V1602 2U control panel, or ViewNet, which is a PC based universal control system. Any DART controller can be used, provided it has 'knowledge' on the V6333.

The control source, Local or Remote, is selected by the toggle switch on the front panel. The REM LED does not indicate the selection of remote control, but 'blips' to show access by the Rack Controller, if fitted. Only the position of the toggle switch indicates that remote control has been selected.

The status LEDs on the front panel are active for Local or Remote control so always show the operating condition.

3.3 Menu System

The menus used for local control and status of the module is a hierarchical menu system with five levels as follows:

Sleep	Display is blank (except for Banner warnings).
Top Level	e.g. V6333Q/D
Main Menu	The Main menu items, such as VIDEO , ENG' ING etc. These items are all in Upper Case.
Sub Menu	Menu items under each main heading, such as video or grp1.1 under the MAIN menu. These items are all in Sentence Case (generally lower case but with upper case first letters).
Parameter	The lowest level under the Sub Menu, and used to actually adjust a parameter. The display will depend on the actual parameter and may be a value such as ON or OFF for a switch variable. There is usually a title to describe the variable and a small icon in the left hand character position, but 8 characters cannot provide for a detailed description.

To move down a level just press the **Select** button briefly; then press either the **Select** button again to go down another level or the ▲ and ▼ buttons to move around the options within a level.

To move up a level press and hold the **Select** button for about half a second which will move up one level. If you continue to hold the **Select** button then it will move up a level every half a second until it reaches the Sleep level (one above the Top Level).

The menus are described in the next section.

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



3.4 Banner Warnings

When certain invalid operating conditions occur one or more messages scroll across the front panel in sleep mode. Here are the details of the warnings that can be displayed.

Wrong FPGA File

The configuration file located in the flash memory card is incorrect for this type of module. Probably due to the incorrect flash memory module being fitted.

No sub-module

There is no sub-module fitted on the base board, therefore the module cannot operate.

Wrong sub-module

The incorrect sub-module has been fitted, therefore the module cannot operate.

Unknown rear module

The rear into which the module has been inserted is not a compatible rear for this module.

Group conflict

Audio has been configured to be embedded onto a group that already exists. Either choose a different group to embed on, or set the **AncBlk** control in the **ENG'ING** menu to **Anc Data**, or set the **MuxGrpDel** control also in the **ENG'ING** menu to **GrpDel**.

Only 4 AES I/Ps

The module is a V6333E/D and has been inserted into a rear that only has 4 input. So inputs E to H can not be used.

3.5 Main Menu

Here as a guide and a description of the operation of the module are the details of all the available controls and statuses available on the front panel menu. Please refer to appendix A for an overview of the menu structure, as the menus are described here in the order they appear in Appendix A from top to bottom, left to right.

3.5.1 Video Input Selection

The SDI inputs must conform to either the SD or HD standards listed in Appendix B.

Two selectable SDI input connections are available on all rear versions. If only one input is required then it should be connected to SDI 1.

The input selection is done on the **MAIN : Video** menu.

3.5.2 Group Selection

There can be up to four groups of embedded audio, each group carrying two AES streams. The V6333 can embed on all of these groups by selecting an AES input for every channel in every group using the front panel.

In menu **MAIN** there is a control for each group half; **Grp1.1**, **Grp1.2**, **Grp2.1** etc. In each of these controls it is possible to select any of the available AES inputs, i.e. '**Grp1.1 A**' will embed AES input A onto the first half of group 1.



VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer

Note:

1. It is possible to select to embed on a group that is already present. This could result in incorrectly embedded audio. To help identify this situation a banner message is displayed if a group conflict has occurred. See Ancillary Data Blanking and Input Group Deletion on section 0 for more details.
2. All channels in a group must be co-timed, it is left to the user to ensure this. If Input A and B are selected to be embedded on the same group but are from different sources and therefore asynchronous to each other the user can either select one to be the reference to resample the other, or both can be resample and the group made video synchronous.

3.5.3 Reference Selection & Sample Rate Converter Bypass

Many installations have difficulty with embedded audio, which can often be traced to the frequency and phase relationship between the video and AES audio. Unlike many SDI multiplexers the V6333 does not require the signals to be synchronous. In fact it is quite possible for the SDI video and the two multiplexed audio data streams to have no defined relationship.

To assist in operational installation the V6333 can be used to resample the audio at 48kHz synchronised to various reference signals. This may help if the audio is to be de-multiplexed at a later stage by another manufacturer's de-multiplexer. The reference source may be either an AES signal or the video input. The front panel reference selection is used as follows:

Input pair reference selection using input pair AB as an example,

<u>MENU Option</u>	<u>Description</u>
AB Ref : Sys Ref	A and B are re-sampled using the selected system reference as a reference.
AB Ref : AB Ref .A	A bypasses the re-sampling stage and B is re-sampled using A as a reference
AB Ref : AB Ref .B	B bypasses the re-sampling stage and A is re-sampled using B as a reference
AB Ref : Async	A and B bypass the re-sampling stage.

Sample rate converter (SRC) bypass is achieved by setting the input's reference to **Async**, or making the input to be SRC bypassed a reference for other inputs.

The System Reference is selected in **MAIN : Sys Ref** where the reference can be selected between any of the 8 AES inputs (**Ref IPA/B/C/D/E/F/G/H**), the input video (**Ref. Vid**), and re-sampler bypass (**Async**).

3.6 Status Menu

3.6.1 Variant

Displays the module type. This will be the same as the module type displayed on the front panel display on power up.

V6333Q/D
V6333E/D.

3.6.2 Options

Indicates the password protected options.

4 input
8 input

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



3.6.3 Sub-Module

All Vistek sub-modules have a unique identifier which is communicated to the main board so that the module can operate accordingly.

4 IP Mux
8 IP Mux

3.6.4 Rear ID

The V6333 can operate in any of the three rears available. Even if an 8 input mux is plugged into a 4 input rear. The number of available inputs is reduced but the module operates as normal. To help the operator correctly configure the module without having to go around the back of the installation to find out what rear the module is plugged into the type of rear is displayed here.

4AES BNC
8AES BNC
8AES DTp

3.6.5 Video Source

Indicates the value that has been set in the **MAIN** : **Video** menu.

I/P 1
I/P 2

3.6.6 Input Standard

Displays the detected standard of the input video.

3.6.7 Video Input 1 & 2 Presence

Indicates the presence of the video inputs.

I/P 1
I/P 1 Ü Input 1 present
I/P 1 x Input 1 not present
I/P 2
I/P 2 Ü Input 1 present
I/P 2 x Input 1 not present

3.6.8 AES ABCD & AES EFGH

Displays the presence of each Audio input. Indicated by a tick for present and a cross for not present.



VISTEK V6333E/D & V6333Q/D hd/sd sdi digital audio multiplexer

3.6.9 Input Audio Group Presence

Indicates the presence of groups on the input video. Also indicated here will be 'Group Conflict'. This occurs when an audio input has been assigned to be embedded on an already present group.

Display format:

1 2 3 4

Where □ can be:

- ü Group present
- Group not present
- ! Group present and in conflict with the group selection

Group conflicts can be avoided by either setting **ENG' ING: Anc Data** to **Anc Blnk** or **ENG' ING: MuxGpDel** to **Grp Del**.

3.6.10 Audio Reference

Displays the selected audio reference as set in the **MAIN : Sys Ref** menu.

3.6.11 GPI Status

Connecting a GPI input to 0v activates the GPI, leaving it open de-activates it. The status of each GPI is shown in the STATUS menu as ↑ or ↓, the former being active and the latter inactive (despite the fact that connecting it to 0v makes it active).

3.6.12 Module Code & Hardware Versions

Displays the various versions of the code and hardware that make up the module.

Soft Ver : Software Version
FPGA Ver : FPGA Firmware Version
DCPLDVer : Daughter Board CPLD Firmware Version
MCPLDVer : Main Board CPLD Firmware Version
PCB Ver : PCB Version
Boot Ver : Software Boot Version

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



3.7 Engineering Menu

3.7.1 Audio Group Enables

Each group half can individually be turn off, or muted. If both halves of the group are turned off then the group will not be embedded at all, otherwise silence is embedded into the off channel.

En Grp1.1	Control for the first half of group 1
G1.1 On	Turn the first half On
G1.1 Off	Turn the first half Off
G1.1 Mute	Mute the first half
En Grp1.2	Control for the first half of group 2
Etc ...	

3.7.2 Audio Group Resolution

When embedding audio onto HD SDI the resolution of the audio is always 24 bits. SD on the other hand uses extended data packets to increase the resolution of the embedded audio from 20 bits to 24 bits. By default the resolution of the audio embedded onto SD SDI is 20 bits, but it can be changed here to be 24 bits. The control therefore has no effect when the input is HD.

Grp1 Res.	Control for Group 1's audio resolution
Grp1 20b	limit the embedding of audio onto SD to 20 bits
Grp1 24b	Let the embedding of audio onto SD be 24 bits
Grp2 Res.	Control for Group 2's audio resolution
Etc ...	

3.7.3 Ancillary Data Blanking

If the SDI into the V6333 has audio already embedded on the selected group, it is necessary to remove any data already in the ancillary data space, or select another group. This can be done by setting **ENG' ING:Anc Data** to **Anc Blnk.**

If the Ancillary data is set to be blanked then ALL data in the horizontal ancillary HANC space will be removed, not just the audio data.

3.7.4 Group Deletion

Setting the **MuxGpDe1** control to **Grp De1** will mark for deletion any groups already embedded on the input video if they are to be embedded on. The original embedded group's data is still present in the blanking of the output video, but the identifier for the data is changed to a reserved deletion code. New embedded data is appended to any data already present in the blanking of the input video.

It is possible to run out of blanking space if data already exists there, particularly with SD. If this happens the embedded audio will be corrupt.

By setting **Anc Data** to **Anc Blnk** full use can be made of the blanking space, and the **MuxGpDe1** control has no effect.



VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer

3.7.5 Output EDH

EDH is a method of embedding data within the ancillary data space which carries a measurement of the video and other data. By regenerating the equivalent measurement at the receiving end it is possible to check that the data has been received correctly.

HD signals always have the EDH data embedded, but for SD signals it is optional. On the V6333 Audio multiplexer, the EDH on the output can be disabled on the **ENG' ING : O/P EDH** menu. Care must be taken if the new EDH generation is disabled and the old EDH is being passed through because it will probably not correctly represent the data. In this case the Ancillary Data really ought to be blanked. (On early units the ancillary data is always blanked.)

3.7.6 Display Sleep

Since, for the vast majority of its life, the modules will operate behind the front panel of a rack frame the display on the local front panel will not be visible so it will go to sleep after a certain time. This timeout delay can be changed on the **ENG' ING : Sleep** menu to be anything between 0 and 30 minutes; 0 minutes means that it will stay on indefinitely. The sleep timeout always counts from the last front panel button push. The default time is 5 minutes.

The panel can also be forced into its sleep mode by moving up a level from the Top Level menu which displays the module type, **V6333Q/D** etc.

To get the display to come on again simply press one of the buttons and the menus will start again at the Top Level.

3.7.7 Display Brightness

The brightness of the front panel display can be adjusted on the **ENG' ING : LEDLevel1** menu.

3.8 Configuration Menu

The GPI functionality can be enabled in the configuration menu. Apart from the GPIs it does not any operator functions. It is mainly used for factory initialisation of the module.

3.8.1 GPI Configuration

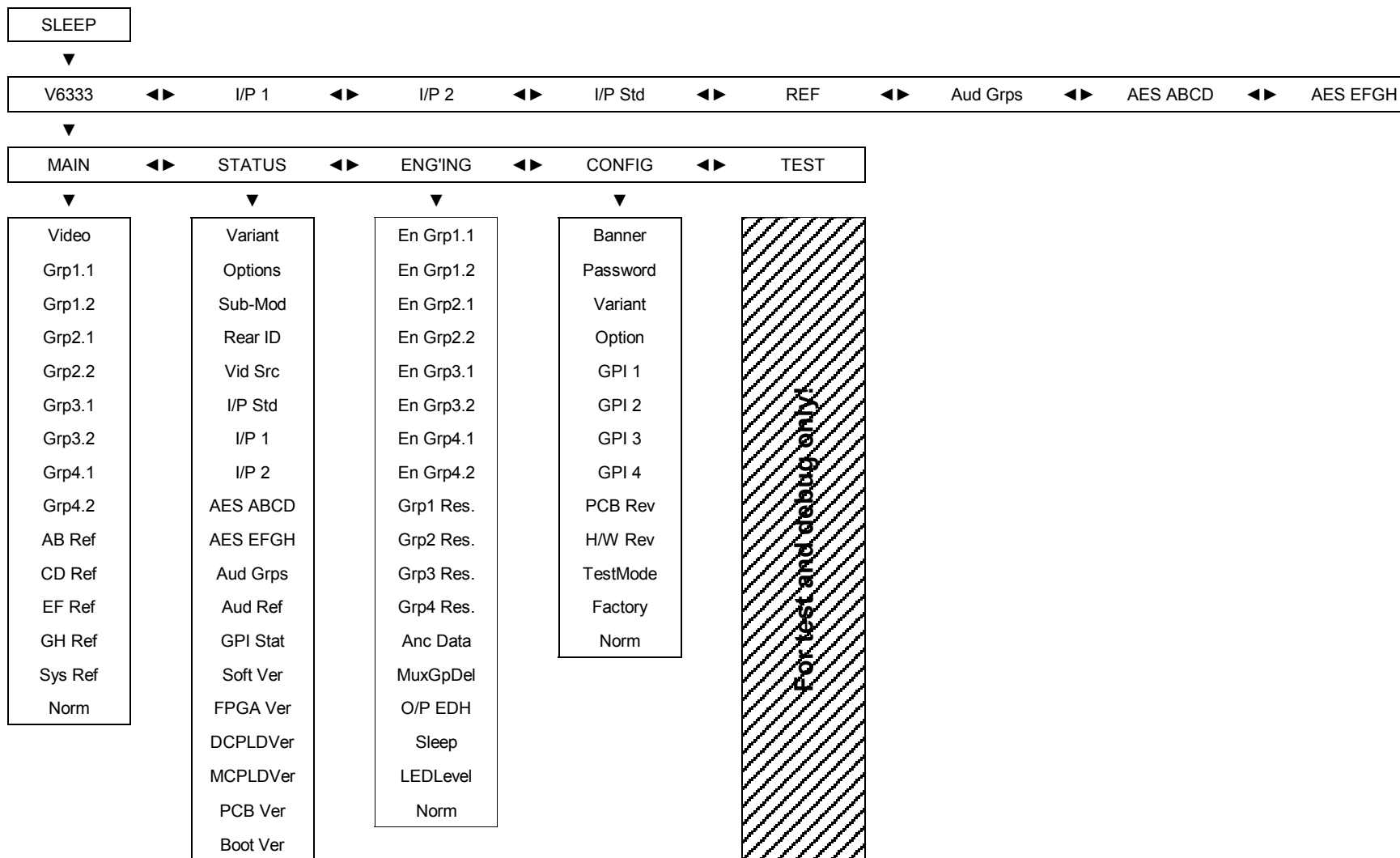
There are four GPIs. They are all active low with on-board pull-ups and voltage protection. Each of the four GPIs can be configured to switch the SDI input selection to the second input when active, or the GPI can be disabled.

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



APPENDIX A. V6333E/D DIGITAL AUDIO MULTIPLEXER MENU STRUCTURE



Note: All references to inputs E to H are not present in the V6333Q/D menu structure due to the reduced number of inputs.

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



APPENDIX B. CONTROLS

These tables show a complete list of all the parameters that can be controlled locally. The tables also show the full range of the controls and their ranges and normalised value, if appropriate. The normalised value or setting is shown by the 'n'.

MAIN	Video	I/P 1	n	SDI Input selection
		I/P 2		
	Grp1.1	None		Assign audio inputs to group halves.
		Grp1.1 A	n	
		Grp1.1 B		
		Grp1.1 C		
		Grp1.1 D		
		Grp1.1 E		
		Grp1.1 F		
		Grp1.1 G		
		Grp1.1 H		
	Grp1.2	Grp1.2 B	n	Selection available is the same as above.
	Grp2.1	Grp2.1 C	n	
	Grp2.2	Grp2.2 D	n	
	Grp3.1	Grp3.1 E	n	
	Grp3.2	Grp3.2 F	n	
	Grp4.1	Grp4.1 G	n	
	Grp4.2	Grp4.2 H	n	
	AB Ref	Sys Ref	n	Assign a reference for each input pair.
		AB Ref A		
		AB Ref B		
		Async		
	CD Ref	Sys Ref	n	
		CD Ref C		
		CD Ref D		
		Async		
	EF Ref	Sys Ref	n	
		AB Ref E		
		AB Ref F		
		Async		
	GH Ref	Sys Ref	n	
		CD Ref G		
		CD Ref H		
Async				
Sys Ref	Ref Vid	n		
	Async			
	Ref IP A			
	...			
	Ref IP H			

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



STATUS	Variant	V6333E/D	Eight AES input Mux
		V6333Q/D	Four AES input mux
Options		8 x AES	
		4 x AES	
Sub-Mod		8 IP Mux	
		4 IP Mux	
Rear ID		8AES DTp	DType rear provides 8 balanced I/Ps
		8AES BNC	8 Unbalanced AES inputs
		4AES BNC	4 Unbalanced AES inputs
Vid Src		I/P 1	
		I/P 2	
I/P Std		625i50	
I/P 1		I/P 1 ü	SDI input presence
I/P 2		I/P 2 ü	ü= Present x = No input
AES ABCD		AüBüCüDü	Audio input presence
AES EFGH		EüFüGüHü	ü= Present x = No input
Aud Grps		1 2 3 4	SDI input embedded group presence
Aud Ref		REF ü	Audio Sys Ref presence
GPI Stat		1↓ 2↓ 3↑ 4↑	GPI States ↑ - Active ↓ - Inactive
Soft Ver		00.00.00	Version numbers
FPGA Ver		00.00	
MCPLDVer		00.00	
DCPLDVer		00.00	
PBC Ver		00.00	
Boot Ver		00.00.00	

ENG'ING	EnGrp1.1	G1.1 On	n	Group Embedding On/Off/Muting
		G1.1 Off		
G1.1Mute				
EnGrp1.2	G1.2 On	n	Selection available	
EnGrp2.1	G2.1 On	n	is the same as above.	
EnGrp2.2	G2.2 On	n		
EnGrp3.1	G3.1 On	n		
EnGrp3.2	G3.2 On	n		
EnGrp4.1	G4.1 On	n		
EnGrp4.2	G4.2 On	n		
Grp1 Res	Grp1 20b	n	Valid for SD only	
	Grp1 24b			
Grp2 Res	Grp2 20b	n	Selection available	
Grp3 Res	Grp3 20b	n	is the same as above.	
Grp4 Res	Grp4 20b	n		
Anc Data	Anc Blnk	n	Blank data already in I/Ps HANC	
	Anc Pass		Pass data already in I/Ps HANC	
MuxGpDel	Grp Del	n	Delete replaced groups	
	Grp Pass		Pass any groups present	
O/P EDH	EDH On	n	EDH handling	
	EDH Off			
Sleep	0 – 30 min		Normalised Value = 5 min	
LEDLevel		■ ■ ■ ■		



VISTEK V6333E/D & V6333Q/D hd/sd sdi digital audio multiplexer

CONFIG	Banner	On	n	Enable banner messages
		Off		
	Password	0		Test purposes only
	Variant	V6333E/D		
	Option	8 x AES		
	GPI 1	GPI Off	n	Activating GPI has no function
		GPI SDI2		Activating GPI switches the V6334 to SDI input 2
	GPI 2	GPI Off	n	Selection available
	GPI 3	GPI Off	n	is the same as above.
	GPI 4	GPI Off	n	
	PCB Rev	0		Test purposes only
	H/W Rev	0		Test purposes only
	TestMode	Off	n	Test purposes only
		On		
	Factory	Off	n	Test purposes only
		On		

VISTEK V6333E/D & V6333Q/D

hd/sd sdi digital audio multiplexer



APPENDIX C. SUPPORTED VIDEO STANDARDS

These units have been designed to operate using all the current Standard Definition and High Definition Standards based on field and frame rates of 23.98Hz, 24Hz, 25Hz, 29.97Hz, 30Hz, 50Hz, 59.94Hz and 60Hz. The Bit Serial Interface for all listed HD modes is in accordance with SMPTE specification 292M. For all SD modes, the Serial Digital Interface is in accordance with ANSI/SMPTE 259M.

V6333 HD/SD Digital Audio Multiplexer

Supported Video I/O Standards at the time of printing

Tektronix Definition	SMPTE	Colloquial
1920x1080/60/2:1	274M - 4	1080i60
1920x1080/59.94/2:1	274M - 5	1080i59
1920x1080/50/2:1	274M - 6	1080i50
1920x1080/30/1:1	274M - 7	1080p30
1920x1080/29.97/1:1	274M - 8	1080p29
1920x1080/25/1:1	274M - 9	1080p25
1920x1080/24/1:1	274M - 10	1080p24
1920x1080/23.98/1:1	274M - 11	1080p23
1920x1080/24/1:1SF	RP211 - 15	1080sf24
1920x1080/23.98/1:1SF	RP211 - 16	1080sf23
1280x720/60/1:1	296M	720p60
1280x720/59.94/1:1	296M	720p59
1280x720/50/1:1	296M	720p50
1280x720/30/1:1	296M	720p30
1280x720/29.97/1:1	296M	720p29
1280x720/25/1:1	296M	720p25
1280x720/24/1:1	296M	720p24
1280x720/23.98/1:1	296M	720p23
1920x1035/60/2:1	260M	1035i60
1920x1035/59.94/2:1	260M	1035i59
625/50/2:1	125/259M	625i50
525/59.94/2:1	125/259M	525i59

Note: The 'colloquial' label is how they are referred to in this manual.