Synapse

HVO10

HD/SD Voice Over inserter/embedder

AXON Digital Design

Synapse

TECHNICAL MANUAL

HVO10

HD/SD Voice Over inserter/embedder

AXON Digital Design

Smarter by Listening

Lange Wagenstraat 55
NL-5126 BB Gilze
The Netherlands
Phone: +31 161 850 450
Fax: +31 161 850 499
E-mail: Info@axon.tv
Web: www.axon.tv

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE

● ALWAYS disconnect your entire system from the AC mains before cleaning any component. The product frame (SFR18 or SFR04) must be terminated with three-conductor AC mains power cord that includes an earth ground connection. To prevent shock hazard, all three connections must always be used.
● NEVER use flammable or combustible chemicals for cleaning components.
● NEVER operate this product if any cover is removed.
● NEVER wet the inside of this product with any liquid.
● NEVER pour or spill liquids directly onto this unit.
● NEVER block airflow through ventilation slots.
● NEVER bypass any fuse.
● NEVER replace any fuse with a value or type other than those specified.
● NEVER attempt to repair this product. If a problem occurs, contact your local Axon distributor.
● NEVER expose this product to extremely high or low temperatures.
● NEVER operate this product in an explosive atmosphere.

Warranty: Axon warrants their products according to the warranty policy as described in the general terms. That means that Axon Digital Design BV can only warrant the products as long as the serial numbers are not removed.

Date created: 11-07-05
Date last revised: 05-03-08

This product complies with the requirements of the product family standards for audio, video, audio-visual entertainment lighting control apparatus for professional use as mentioned below.

CE	EN60950	Safety
	EN55103-1: 1996	Emission
	EN55103-2: 1996	Immunity

Axon Digital Design HVO10 FC Tested To Comply With FCC Standards FOR HOME OR OFFICE USE	This device complies with part 15 of the FCC Rules Operation is subject to the following two conditions: (1) This device may cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Table of Contents

1 Introduction to Synapse

An Introduction to Synapse

Synapse is a modular system designed for the broadcast industry. High density, intuitive operation and high quality processing are key features of this system. Synapse offers a full range of converters and processing modules. Please visit the AXON Digital Design Website at www.axon.tv to obtain the latest information on our new products and updates.

Local Control Panel

The local control panel gives access to all adjustable parameters and provides status information for any of the cards in the Synapse frame, including the Synapse rack controller. The local control panel is also used to back-up and restore card settings. Please refer to the RRC18, RRC10, RRC04, RRS04 and RRS18 manuals for a detailed description of the local control panel, the way to set-up remote control over IP and for frame related settings and status information.

Remote Control Capabilities

The remote control options are explained in the rack controller (RRC18/RRC10/RRC04/RRS04/RRS18) manual. The method of connection to a computer using Ethernet is described in the RRC manual.

! **CHECK-OUT:** "SYNAPSE CORTEX" SOFTWARE WILL INCREASE SYSTEM FLEXIBILITY OF ONE OR MORE SYNAPSE FRAMES

Although not required to use Cortex with a Synapse frame, you are strongly advised to use a remote personal computer or laptop PC with Synapse Cortex installed, as this increases the ease of use and understanding of the modules.

2 Unpacking and Placement

Unpacking

The Axon Synapse card must be unpacked in an anti-static environment. Care must be taken NOT to touch components on the card – always handle the card carefully by the edges. The card must be stored and shipped in anti-static packaging. Ensuring that these precautions are followed will prevent premature failure from components mounted on the board.

Locating the card

The Synapse card can be placed vertically in an SFR18 frame or horizontally in an SFR04 frame. Locate the two guide slots to be used, slide in the mounted circuit board, and push it firmly to locate the connectors.

Correct insertion of card is essential as a card that is not located properly may show valid indicators, but does not function correctly.

3 A Quick Start

When Powering-up

On powering up the Synapse frame, the card set will use basic data and default initialisation settings.

Default settings

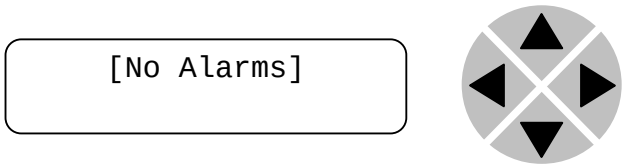
Refer to the menu structure for settings.

Changing parameters and settings

The front panel controls or Synapse Cortex can be used to change settings. An overview of the settings can be found in chapter 4, 5, 6 and 7 of this manual.

Front Panel Control

Front Panel Display and Cursor



Settings are displayed and changed as follows;

Use the cursor 'arrows' on the front panel to select the menu and parameter to be displayed and/or changed.

Press ►	To go forward through the menu structure.
Press ◄	To go back through the menu structure.
Press ▲	To move up within a menu or increase the value of a parameter.
Press ▼	To move down through a menu or decrease the value of a parameter.

REMARK: Whilst editing a setting, pressing ► twice will reset the value to its default.

Example of changing parameters using front panel control

With the display as shown below

```
RRC18 [Select Card]
>S01=SFS10
```

Pressing the ► selects the SFS10 in frame slot 01.

The display changes to indicate that the SFS10 has been selected. In this example the `Settings` menu item is indicated.

```
SFS10 [Select Menu]
>Settings
```

Pressing the ► selects the menu item shown, in this example `Settings`.

(Pressing ▲ or ▼ will change to a different menu eg `Status, Events`).

The display changes to indicate that the SFS10 `Settings` menu item `SDI-Format` has been selected and shows that it current setting is `Auto`.

```
SFS10 [Settings]
>SDI-Format=Auto
```

Pressing the ► selects the settings item shown, in this example `SDI-Format`.

(Pressing ▲ or ▼ will change to a different setting, eg `Mode, H-Delay`).

The display changes to indicate that the SFS10 `Edit Setting` menu item `SDI-Format` has been selected.

```
SFS10 [Edit
Setting]
```

To edit the setting of the menu item press ▲ or ▼.

All menu items can be monitored and/or changed in this way. Changing a setting has an immediate effect.

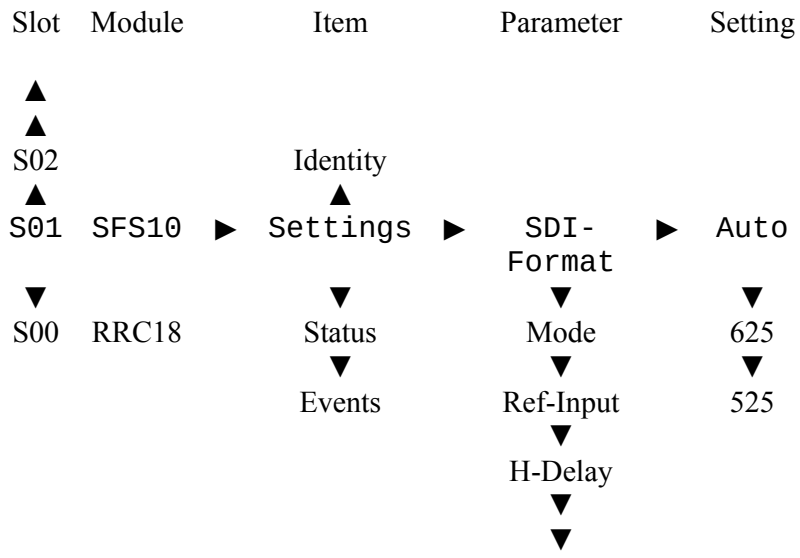
Synapse Cortex

Synapse Cortex can be used to change the settings of Synapse modules from a PC, either locally or remotely. The software enables communication based on TCP/IP between the setup PC and Synapse frames/modules.

Each Synapse frame is addressed through its rack controller's unique IP address, giving access to each module, its menus and adjustment items. The Synapse SetUp software has access to data contained within the Synapse module and displays it on a GUI. The software has an intuitive structure following that of the module that it is controlling.

For more details about operating Cortex please refer to the Cortex help files.

Menu Structure Example



4 The HVO10 Card

Introduction

The HVO10 is an 8-channel in 2-group preset-based HD-SDI embedded audio shuffler/mixer/Voice over card. This card puts full audio mixing and shuffling control power into the hands of an HD-SDI embedded signal user. The preset-based control of this card makes it ideal for repeated corrections.
If dynamic control is required the card can still perform this task as every preset is remote controllable by a third party control protocol or the dedicated control panel SCP08.

Key Features

The key features of the HVO10 are as follows.

- MIX one embedded channel with one external channel (times 8 into 2 groups)
- 8 presets (!)
- Clickless and smooth-fade functions on all embedded audio channels, local audio channels, embedded and local audio Gains, dialog levels and preset-changes.
- ADD dialog levels in mixing calculation
- 4 local AES/EBU inputs (8 Mono)
- 4 ADD-ON inputs (8 Mono)
- HD-SDI and SD-SDI compatible
- Control objects per channel are:
    - Embedded audio Gain (1dB steps)
    - External audio gain (1dB steps)
- Mixing fade time (100-10.000ms)
- Overwrite and append modes
- Transparent for ATC time code RP188, RP196, RP215
- Full control and status monitoring through the front panel of the SFR04/18 frame and the Ethernet port (ACP)
- Compatible with fiber I/O panels

Applications

This card can be applied for the following applications:

- Multi channel voice over card
- MCR audio shuffling/mixing and swapping

Dialog level settings explained

A key feature of the HVO10 is that you can manually set dialog levels for the incoming embedded audio and incoming AES/EBU channels via the physical inputs or via de Synapse bus. These dialog levels are added in the mixing calculation.

When for instance the program-material level is set to -27dBFS and the incoming local audio level (via AES/EBU or Synapse bus) is set to -31 dBFS, the local audio channels are automatically raised by: -27 – (-31) = 4dB. Only the local-audio channels are processed, the embedded audio channels are unaltered.

In addition, the user can manually change gain-settings of embedded and local audio channels using Dem_Gain_ and LocGain_. The Dem_Gain_ setting directly infuence the embedded audio channels. The Loc_Gain_ settings come on top of the dialog-level based adjustment of the local audio-channels.

Note: If the user wants to bypass this automatic dialog-level based adjustment, just set both Prog-DialLev and Loc-DialLev to the same value.

5 Settings Menu

Introduction

The settings menu displays the current state of each setting within the HVO10 and enables the item to be changed or adjusted.

Settings can be changed using the front panel of the Synapse frame (SFR18 or SFR04) or Synapse Cortex.

Please refer to chapter 3 for information on the Synapse front panel control.

SDI-Format

The `SDI-FORMAT` menu item selects the video Standard.

`Auto`: The unit recognize format is presented at the input and automatically sets that format. It will take more time for the card to lock.

It is also possible to set a fixed format. `1080i-60`, `1080i-50`, `1080p-30`, `1080p-25`, `1080p-24`, `1035i-60`, `720p-60`, `720p-50`, `SD525` and `SD625`.

The default setting is `AUTO`.

Field-Freq

`1:1 or 1:1.001` are the selectable values.

1:1 is the right field frequency for –50 and –25. Because the actual filed frequency of –60 is 59.97 and for 30 is it 29.97 it is necessary to adjust this. 1:1.001 allows you to do this.

`Field Freq` will follow the format as set above automatically.

The default setting is `1:1`

Preset-Contr

This item sets the HVO10 to be controlled either manually (`Manual`), thru GPIs (`GPI`) or by both (`Manual+GPI`). By default, this is set to `Manual`.

Preset

It is possible to define the number of presets with this setting. The possible presets range from 1 to 8. Each setting with the # symbol is part of the preset. The Default setting is set to `#1`.

GPI-Off

With `Control` set to `GPI-local`, you can change presets with a GPI trigger. The HVO10 can react differently to both GPI open en GPI close events.

With the `GPI-Off` setting you can select a preset number which should be triggered when a GPI contact is opened again after being closed. You can also turn this option `off` (meaning a preset will only be triggered when a GPI is closed, without anything changing when it opened again). Can also be set to `Previous`, in which the last active preset will be activated when the GPI is opened after being closed. The Default is `off`.

GPI-On

With `Control` set to `GPI-local`, you can change presets with a GPI trigger. The HVO10 can react differently to both GPI open en GPI close events.

With the `GPI-on` setting you can select a preset number which should be triggered when a GPI contact is closed after being open. You can also turn this option `off` (meaning a preset will only be triggered when a GPI is opened, without anything changing when it is closed again). Can also be set to `Previous`, in which the last active preset will be activated when the GPI is closed after being open. Default is `off`.

Prog_DialContr

This setting is for future use. Can only be set to manual.

Prog-DialLev

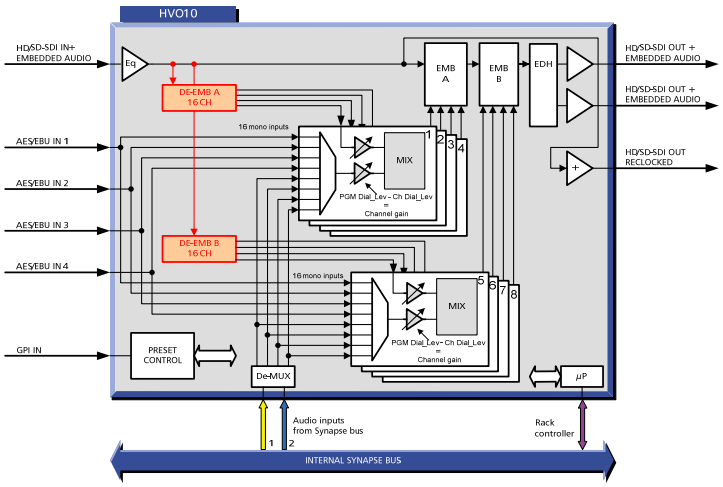
With this setting you can manually set the long term overall incoming audio level of the embedded audio. Can be changed to `-31dBFS` till `-1dBFS.` The Default is `-27dBFS`

Fade-Time

Fade/time is locked to 2 parameters: channel-switch and gain-change. It is used as the fade-in/out time of the channel-switch of embedded/local-audio channels. The old channel will be fade-out and the new channel will be fade in according to the time chosen with fade-time. Fade-Time is also used for smooth transitions when gain-values are changed on the HVO10. These smooth transitions are triggered by a change in Dem-Gain_, Loc_Gain_ or a Preset change. With this setting you can manually set this fade time between `100ms` and `10.000ms`. The default is `500ms`.

Source_A1 ~ Source_B4

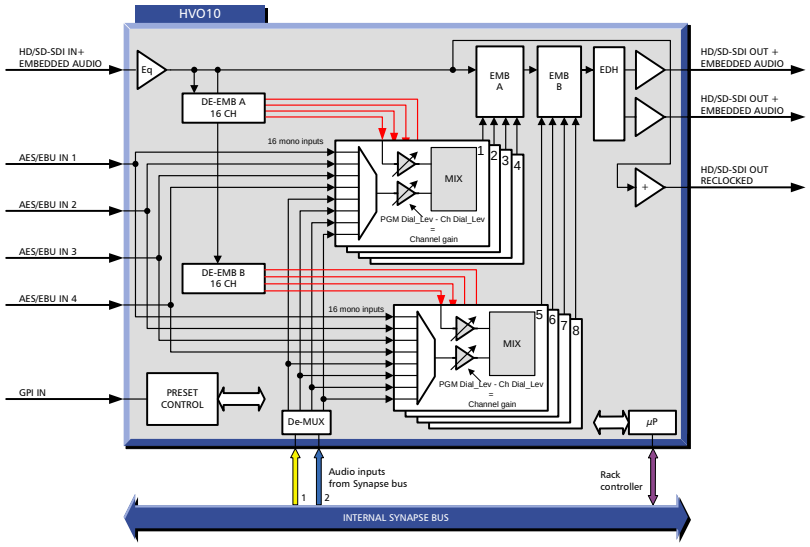
the HVO10 card can process up to 8 channels of audio. With the Source setting you make your selection which of the 16 embedded audio channels you want to pass for this processing. For each de-embedder there are 4 channels to select. You can choose any of the 16 embedded audio channels (`Ch_1` till `Ch_16`) for each de-embedder channel. Default are channels 1 till 8. The lines and blocks that are marked red in the following schematic are done by these settings.



#Dem-Ch_A1 ~ #Dem-Ch_B4

With the settings `Dem_Ch_A1` till `Dem_Ch_B4` you can switch between the channels Source_A1 to B4. In general, a channel-switch often results in a hard-cut on its audio-output but on the HVO10 smooth-fade functions are included on all processed audio channels. The old channel will be fade-out and the new channel will be fade in according to the time chosen with `Fade-Time`. The `Dem_Ch` settings are within the presets, a change in preset or channel result in a clickless and smooth transition to the newly selected channel.

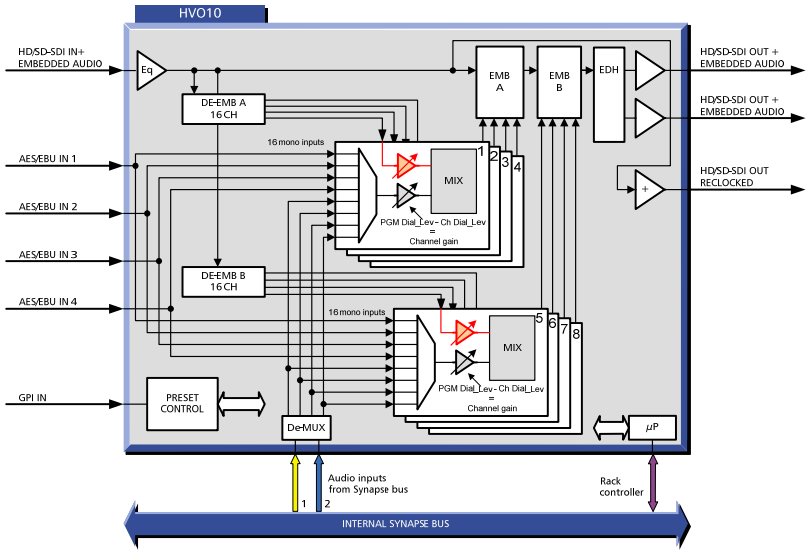
The lines and blocks that are marked red in the following schematic are done by these settings.



#Dem-Gain_A1 ~ #Dem-Gain_B4

With these items you can gain the de-embedded audio (selected in settings `#Dem-Ch_A1` till `#Dem-Ch_B4`). Can be set between `-60dB` and `+12dB` or `-999dB` (= mute).

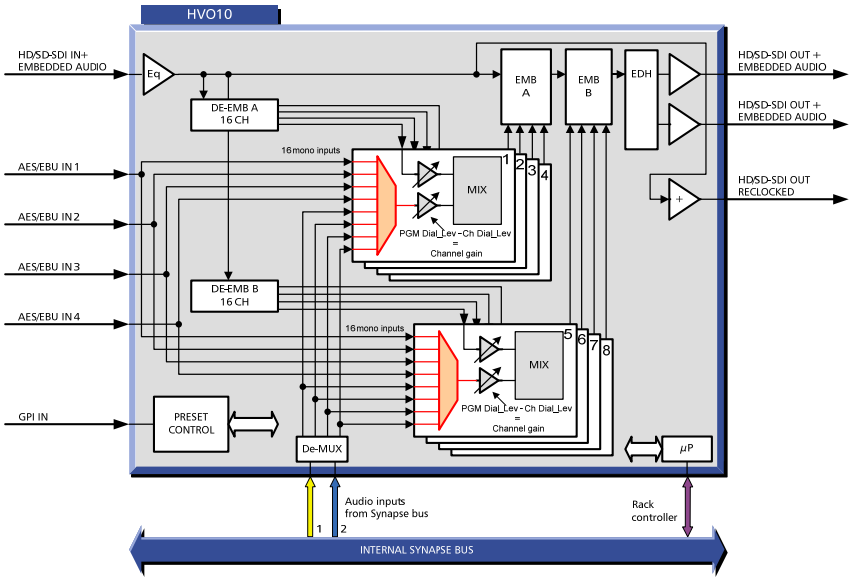
The lines and blocks that are marked red in the following schematic are done by these settings.



#Loc-Ch_A1 ~ #Loc-Ch_B4

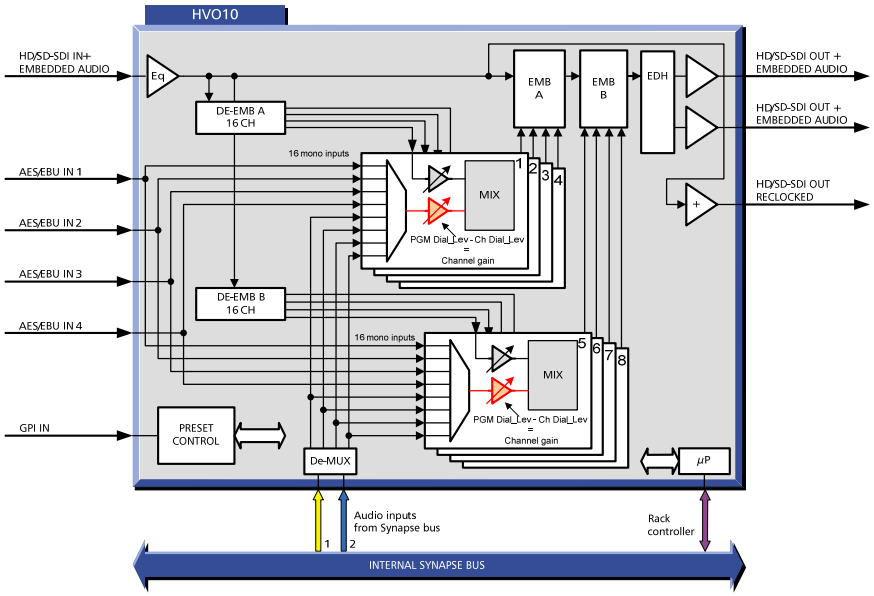
With the settings Loc_Ch_A1 till Loc_Ch_B4 you can switch between the channels AES1 to AES8, AddOnA1 to AddOnB4 or switch this channel to Off. In general, a channel-switch often results in a hard-cut on its audio-output but on the HVO10 smooth-fade functions are included on all processed audio channels. The old channel will be fade-out and the new channel will be fade in according to the time chosen with `Fade-Time`. The `Loc_Ch` settings are within the presets, a change in preset or channel result in a clickless and smooth transition to the newly selected channel or smoothly fade the channel to mute (Off).

The lines and blocks that are marked red in the following schematic are done by these settings.



#Loc-Gain_A1 ~ #Loc-Gain_B4

With these items you can gain the selected incoming audio (selected in settings `#Loc-Ch_A1` till `#Loc-Ch_B4`). Can be set between `-60dB` and `+12dB` or `-999dB` (= mute). The lines and blocks that are marked red in the following schematic are done by these settings.

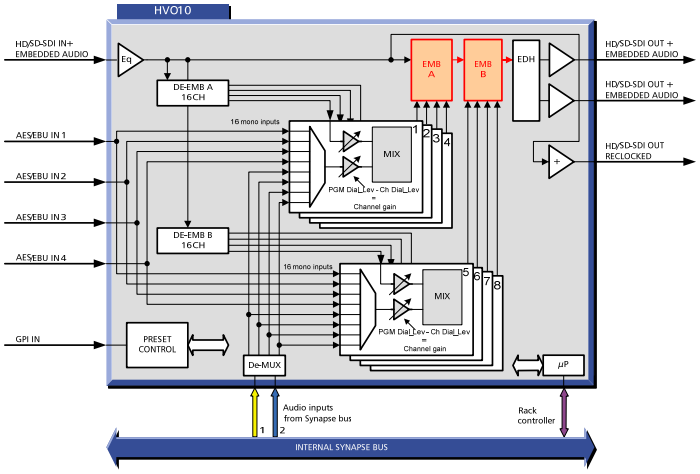


#Loc-DialLev

With this setting you can manually set the long term overall incoming audio level of the local audio channels (AES/EBU inputs and Synapse bus inputs). Can be changed to `-31dBFS` till `-1dBFS.` The Default is `-27dBFS`

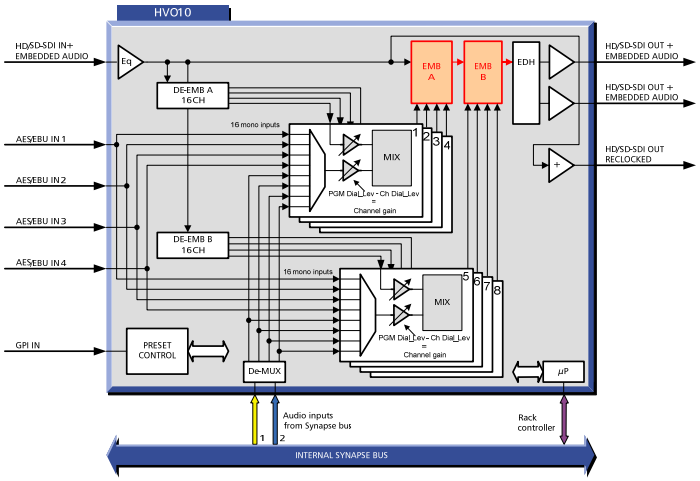
Emb-Mode

`Emb-Mode` enables additional audio channels to be appended added to the existing audio-groups in the ancillary data space of the SDI stream. `Emb-Mode` has three settings, `Off`, `Append`, and `Overwrite`. The default setting is `Overwrite`. In `Overwrite` mode all existing audio groups will be overwritten and the processed group is inserted. In `Append` mode additional audio channels are added. In order to blank the ancillary data space of the SDI stream, set `Emb-Mode` to `Overwrite` and set `Emb-Sel` to `Off` (see below). The lines and blocks that are marked red in the following schematic are influenced by this settings.



Emb-A-Sel ~ Emb-B-Sel

The settings `Emb-A-Sel` and `Emb-B-Sel` determine to what group the audio is inserted. `Emb-Sel` can be set to `Off, Group_1`, `Group_2`, `Group_3`, or `Group_4`. The default setting is `Group_1` for Embedder A and `Group_2` for Embedder B. The lines and blocks that are marked red in the following schematic are done by these settings.



SRC-AES1/2 ~ SRC-AES7/8

The AES/EBU inputs of the HVO10 are connected to a Sample Rate Converter. This allows the input to use audio sample rates that are non-synchronous to video. Non PCM audio data the SRC can be bypassed and the data is inserted in the card transparently. (Transp).

The settings for SRC-AES are ON or Transp.

The default setting is On.

HD-AudioLock

HD-SYNC is the default setting and assumes that all audio present in the video stream is synchronously embedded. The setting HD-AudioLock can be useful if audio is asynchronously embedded into the HD video stream. The HVO10 can be locked to embedded Audio-Clk_A or Audio-Clk_B. HD-AudioLock determines whether the card locks to the HD input (HD-SYNC) or to the AUDIO CLOCK as is present in embedded audio group_1 (Audio-Clk_A) or embedded audio group_2 (Audio-Clk_B).

The default setting is HD-SYNC.

Note: All audio channels should be synchronously embedded to the video-clock. In some situations, audio can be asynchronously embedded into the HD-video stream. If all audio channels, selected by Source-A, are set within the same embedded audio group (1 to 4), the embedded audio clock can be de-embedded. Audio-Clk_A will show the status of the embedded audio clock within this group.

ATC-Transp.

ATC-Transp: this setting allows to set the time code back in the horizontal interval. The supported standards are RP188, RP196 and RP215. It is possible to select one of these standards, select all or to switch off the functionality. In the latter case the time code is blanked.

Audio-Phase

If this setting is set to *Align*, the card ensures audio-phase alignment between multiple audio channels and audio groups, which is necessary for multi-channel (surround) purposes. If errors in the signal-chain occur the de-embedder blocks reset synchronously to maintain audio-phase-alignment.

If this setting is set to *Off*, the card *eats-all* audio including errors. Even if there are DBN/ANC/ECC or channel-sequence errors, the de-embedder will pass them. Be aware that audio-phase-alignment between multiple audio channels and audio groups can not be maintained if this setting is set to *Off*.

Note: This setting can be helpful to solve problems in the field using equipment which doesn't follow the standards correctly.

Audio-Status

Can be set to `Overwrite` (which overwrites the audio-status-bit) or `Transparent`. In the overwrite mode, disappearing audio after shuffling mono channels, which appeared on some equipment, is fixed. By default it is set to `Transparent`.

Explanation: When an embedded audio-source is used which includes the z-bit (start-of-frame for audio status bits) only in 1 channel of a stereo pair, the z-bit may be lost on an output stereo pair after shuffling channels (inserting 2 channels without z-bit into one stereo pair). In this case the user is able to regenerate a set of status-bits by setting the Audio-Status to `overwrite`. This function is automatically bypassed if non-PCM (Dolby-E, AC3 etc.) is detected on a stereo-pair.

6 Status Menu

Introduction

The status menu indicates the current status of each listed item below.

SDI-Input

This status item indicates what format is coming in. Possible are the following formats:

- 1080i-60, 1080i-50
- 1080p-30, 1080p-25, 1080p-24
- 1035i-60
- 720p-60, 720p-50, 720p-30, 720p-25, 720p-24
- SD525
- SD625

CRC-Stat

CRC Stat gives the status of the incoming HD/SDI signal. Can indicate a general CRC Error, a Luminance error (Luma_CRC), a Chroma error (Chroma_CRC) or OK (no errors)

Preset-Stat

This status item shows which is the current active preset: #1 till #8.

GPI-Stat

This item displays the current GPI status. Can be either Open of Closed.

GrpInUse

GrpInUse indicates the audio groups that are already present in the incoming SDI signal. The indication of a group, or groups being present is as follows, ___1, __2_, etc. When no groups are present GrpInUse indicates _____.

Grp-Ins

When the serial digital video signal already contains audio data and Emb-Mode is set to Append and the selection Emb-Sel is set to the same group number as the present audio, this status item will generate an Error. No embedding occurs for the selected group that creates the error. If Emb-Mode is set to Overwrite the present audio data will be lost, and replaced by the new audio data. If Emb-Mode is set to Overwrite, no Grp-Ins error can occur. If an error does not occur Grp-Ins will indicate Ok.

Dem-Aud_A1 ~ Dem-Aud_B4

This item indicates the status of the audio-data coming out of de-embedders A and B. When this channel does not contain audio, this item will indicate NA. If embedded audio is present and not clipped it will indicate Ok. Due to an adjustment of #Dem-Gain_, the audio signal can be raised above 0dBFS and a distorted audio signal will be the result. In this situation the status indicates Clipped and the DATA-ERROR-led will light.

Dem-Frmt_A12 ~ Dem-Frmt_B78

Format status gives the format of the signal coming out of de-embedders A and B. Recognized are the following formats:
- PCM
- Null
- AC-3
- TimeStmp
- MPEG-1
- MPEG-2
- SMPTE-KLV
- Dolby E
- Caption
- UserDef
- Rsvd
- NA (No valid format)

Loc-Aud_A1 ~ Loc-Aud_B4

This item indicates the status of the audio-data selected with settings #Loc-Ch_A1 till #Loc-Ch_B4. When this channel does not contain audio, this item will indicate NA. If embedded audio is present and not clipped it will indicate Ok. Due to an adjustment of #Loc-Gain_, the audio signal can be raised above 0dBFS and a distorted audio signal will be the result. In this situation the status indicates Clipped and the DATA-ERROR-led will light.

Loc-Frmt_A12 ~ Loc-Frmt_B78

Format status gives the format of the signal selected with settings #Loc-Ch_A1 till #Loc-Ch_B4. Recognized are the following formats:
- PCM
- Null
- AC-3
- TimeStmp
- MPEG-1
- MPEG-2
- SMPTE-KLV
- Dolby E
- Caption
- UserDef
- Rsvd
- NA (No valid format)

Audio-Clk_A

HD-AudioLock-A determines whether the card is locked to the HD input (HD-SYNC) or to the CARD that is locked to the AUDIO CLOCK as is present in the embedded audio group_1 (Audio-Clk_A)

The status can be Out-of-range, 48KHz-ASYNC or 48KHZ-SYNC

Audio-Clk_B

HD-AudioLock-B determines whether the card is locked to the HD input (HD-SYNC) or to the CARD that is locked to the AUDIO CLOCK as is present in the embedded audio group_1 (Audio-Clk_B)

The status can be Out-of-range , 48KHz-ASYNC or 48KHZ-SYNC

ANC-Stat

ANC-stat, Ancillary Status, indicates that embedded audio is present and valid. ANC-stat indicates if an input signal is OK, NA (not available) or Error.

ATC-Det

ATC-Det detects if there is an ATC time code available in the vertical interval. NA or Present are the available options.

ATC-Stat

ATC-Stat determines the status of the ATC time code. The available setting options are Ok or ERROR

FPGA-Stat

FPGA-Stat displays the status of the internal processor of the HVO10. The status is indicated as Ok or Error.

7 Events Menu

Introduction

An event is a special message that is generated on the card asynchronously. This means that it is not the response to a request to the card, but a spontaneous message.

What is the Goal of an event?

The goal of events is to inform the environment about a changing condition on the card. A message may be broadcast to mark the change in status. The message is volatile and cannot be retrieved from the system after it has been broadcast. There are several means by which the message can be filtered.

HVO10 Events

The events reported by the HVO10 are as follows;

Announcements

Announcements is not an event. This item is only used for switching the announcement of status changes on/off. 0=off, other =on.

Beware: this does NOT influence the announcement from the cards within the frame or the announcing of the Frame Status object. Use the 'Settings' menu items 'Broadcasts' and 'Forwarding' for Announcement propagation on the network.

Input

Input can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.

CRC-Status

CRC status can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.

ANC_Status

ANC status can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.

Grp-Insert

Grp-Insert status can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.

What information is available in an event?

The message consists of the following items;

1) A message string to show what has happened in text, for example: “INP_LOSS”, “REF_LOSS”, “INP_RETURN”.
2) A tag that also shows what happens, but with a predefined number: e.g. 1 (= loss of input), 2 (= loss of reference), 129(= 1+128 = return of input). For a list of these predefined tags see the table on the next page.
3) A priority that marks the importance of an event. This value is defined by the user and can have any value between 1 and 255, or 0 when disabled.
4) A slot number of the source of this event.

The Message String

The message string is defined in the card and is therefore fixed. It may be used in controlling software like Synapse Setup to show the event.

The Tag

The tag is also defined in the card. The tag has a fixed meaning. When controlling or monitoring software should make decisions based on events, it is easier to use the tag instead of interpreting a string. The first implementation is the tag controlled switch in the GPI16.

In cases where the event marks a change to fault status (e.g. 1 for Loss of Input) the complement is marked by the tag increased by 128 (80_{hex}) (e.g. 129 (81_{hex}) for Return of Input).

Defining Tags

The tags defined for the RRC10 are:

Event Menu Item	Tag		Description
Announcements	0 or NA	0 or NA	Announcing of report and control values
Input	01_{hex}=INP_LOSS	81_{hex}=INP_RETURN	primary input lost or returned
CRC-Status	03_{hex}=CRC _ERROR	83_{hex}=CRC _OK	CRCerror occurred
ANC-Status	04_{hex}=ANC_ERROR	84_{hex}=ANC_OK	ANC status error
Grp-Insert	06_{hex}=GRP_ERROR	86_{hex}=GRP_OK	Grp-Insert error

The Priority

The priority is a user-defined value. The higher the priority of the alarm, the higher this value. Setting the priority to Zero disables the announcement of this alarm. Alarms with priorities equal or higher than the Error Threshold setting of the RRC will cause the error LED on the Synapse rack front panel to light.

The Address

Together with the message string or the tag, the slot number or address of the card is relevant to be able to assign the event to a certain card.

8 LED Indication

Error LED

Although mounted on the HVO10 card, this LED is not yet defined and therefore has no function.

Input LED

This LED indicated the presence of a valid serial digital video signal at the input.

ANC Data LED

This led indicates the presence of embedded audio in the serial digital video signal.

Data Error

This led indicates three different types of errors:

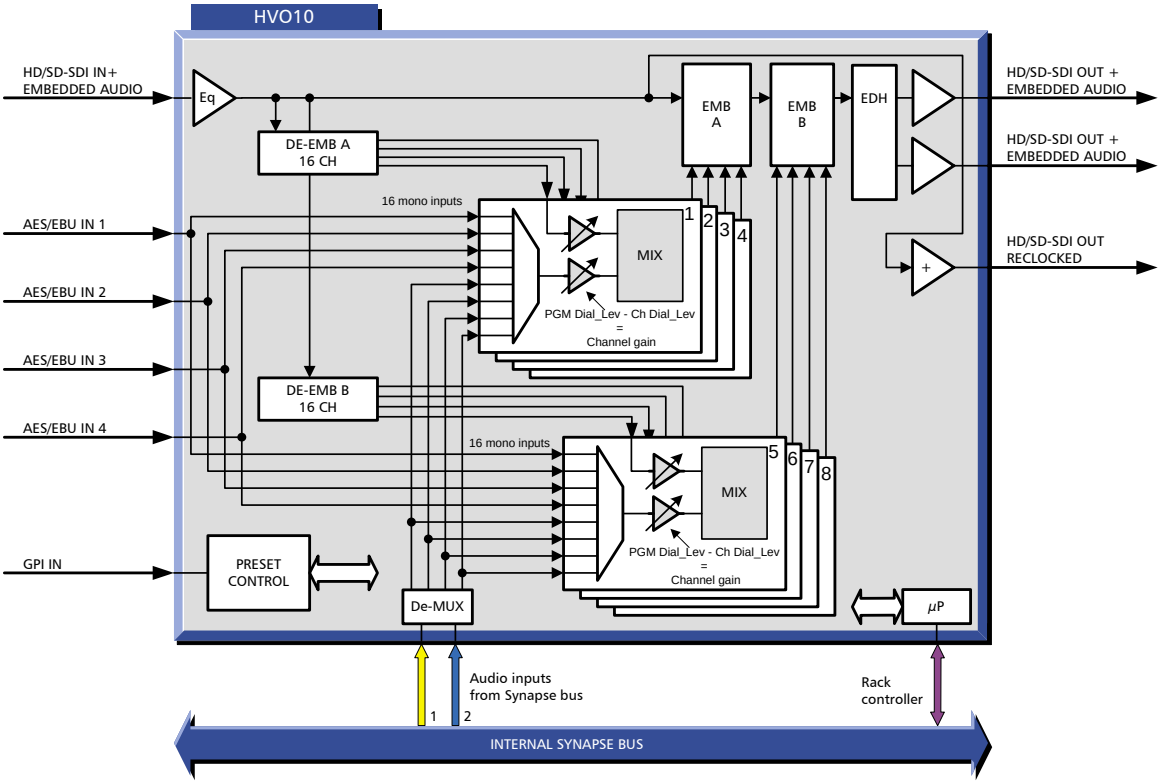
- Audio signal 1, 2, 3 ,4 ,5 ,6 ,7 or 8 of the local input is clipped.
- ANC Error.

Connection LED

This LED illuminates after the card has initialised. The LED lights for 0.5 seconds every time a connection is made to the card.

REMARK: To set audio levels correctly and avoid distortion, the DATA ERROR LED can be used as an active peak-detector. By adjusting the level of one of the four local output channels, the DATA ERROR LED continuously monitors whether a signal is going to overload (Peak) or not. Clipping in the digital domain is very unpleasant, ensure that the DATA ERROR LED does not illuminate and clipping will be prevented.

9 Block Schematic

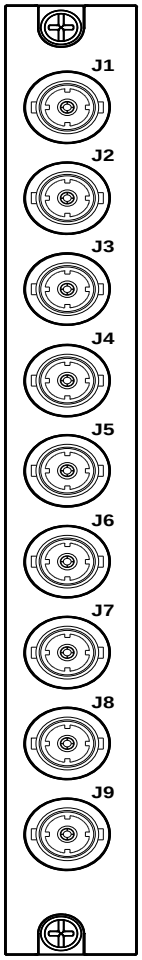


10 Connector Panel

The HVO10 can be used with the following backplane: BPH01. BPH02 and BPH02D

And the fiber backpanels T_FC/PC, T_SC, R_FC/PC and R_SC

!Unused inputs and outputs must be terminated with the correct impedance!



J1 = SDI/ HD-SDI Input

J2 = SDI/ HD-SDI Reclocked output

J3 = SDI/ HD-SDI Output

J4 = SDI/ HD-SDI Ouput

J5 = GPI

J6 = AES/EBU Input_1

J7 = AES/EBU Input_2

J8 = AES/EBU Input_3

J9 = AES/EBU Input_4

When the BPH02D is used then are BNC 6 ,7, 8 and 9 replaced by a 15 pole female D-SUB

Type	Pin number
AES_1 positive	pin 8
AES_1 negative	pin 7
GND	pin 20
AES_2 positive	pin 22
AES_2 negative	pin 21
GND	pin 9
AES_3 positive	pin 11
AES_3 negative	pin 10
GND	pin 23
AES_4 positive	pin25
AES_4 negative	pin 24
GND	pin 12
GND	pin 3,4,5,6, 9,12,13,14, 17,18,19,20,21,23