Synapse

HAS05E

HD/SD 8-channel 2-group embedded audio processing with local AES/EBU inputs

Installation and Operation manual

SynLite

HD High definition

MASTER Card

Committed.

AXON

Synapse

TECHNICAL MANUAL

HAS05E

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: 28-03-2011
Date last revised: 28-03-2011

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
HAS05E

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, RRS18 and RRS04 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/RRS18/RRS04) manual. The method of connection to a computer using Ethernet is described in the RRC/RRS manual.

! **CHECK-OUT:** "AXON 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 Axon 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.

Placing the card

The Synapse card can be placed vertically in an SFR18 frame or horizontally in an SFR04 and SFR08 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.

NOTE: On power up all LED's will light for a few seconds, this is the time it takes to initialise the card.

3 A Quick Start

When Powering-up

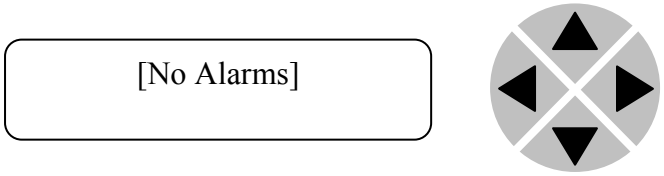
On powering up the Synapse frame, the card set will use basic data and default initialisation settings. All LED's will light during this process. After initialisation, several LED's will remain lit – the exact number and configuration is dependant upon the number of inputs connected and the status of the inputs.

Changing settings and parameters

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

Front Panel Control

Front Panel Display and Cursor



Settings are displayed and changed as follows;

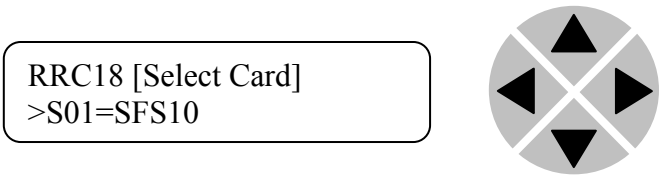
Use the cursor 'arrows' on the front panel to select the menu and parameter to be displayed and/or changed.

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 he value of a para eter.
Press ▼	To move down through a menu or decrease the value of a parameter.

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

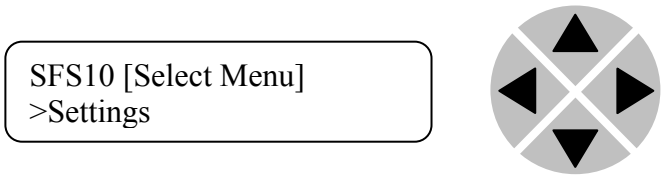
Example of changing parameters using front panel control

With the display as shown below



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.



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

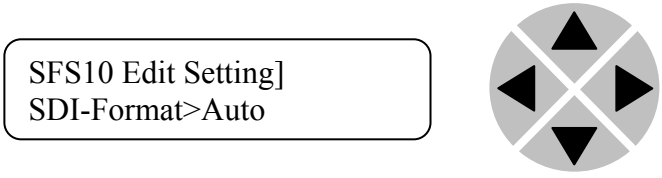
(Pressing ▲ or ▼ will change to a different menu eg Status, Events).

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

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.



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.

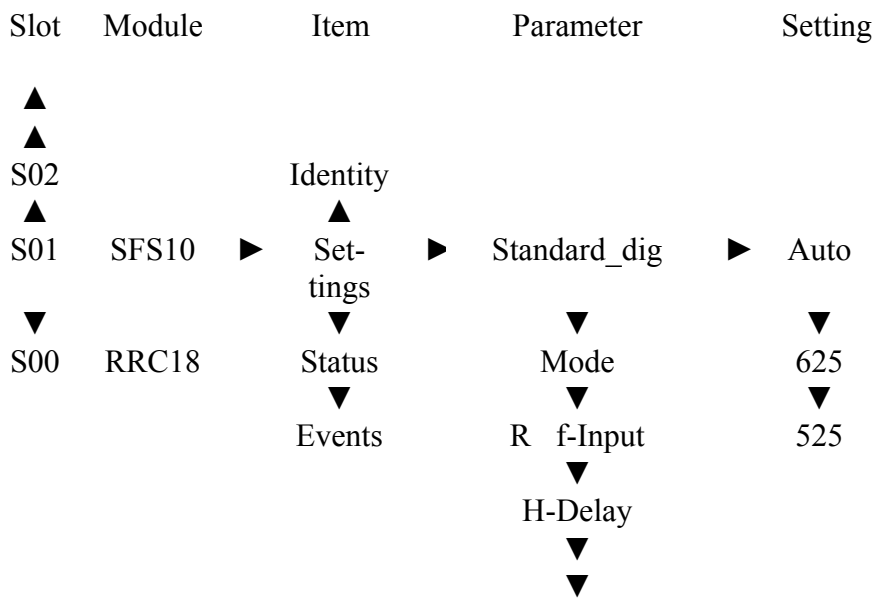
Axon Cortex Software

Axon 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. Axon Cortex 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 operation of Axon Cortex, please refer to the Cortex help files.

Menu Structure Example



NOTE: Further information about Front Panel Control and Synapse Cortex can be obtained from the RRC and RRS operational manuals and the Cortex help files.

4 The HAS05E Card

Introduction

The HAS05E is an 8-channel in 2-group preset-based HD-SDI embedded audio shuffler/mixer. AXON is an industry first with this comprehensive card, and puts full audio control power into the hands of an HD-SDI embedded signal user. Individual gain, phase and delay control for each channel are also part of this powerful card. The preset-based control of this card makes it ideal for repeated corrections or standard channel swapping occasions in a multi-lingual environment. 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.

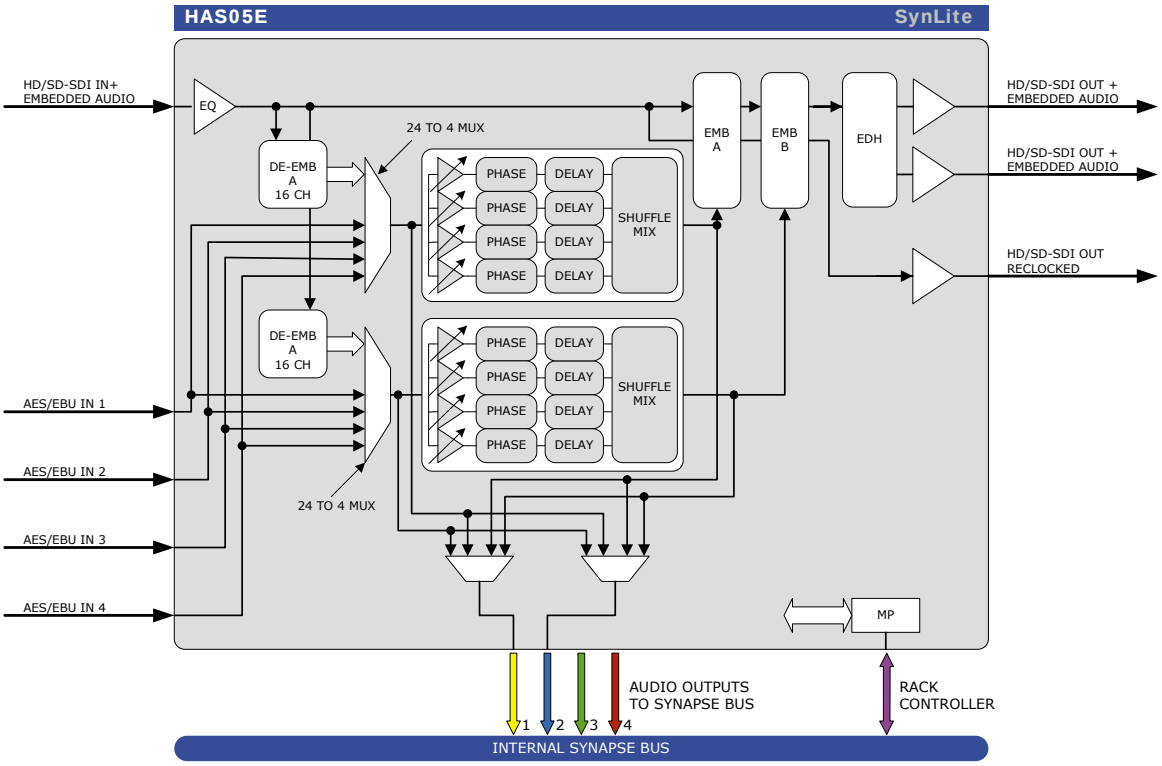
Features

- 4 local AES/EBU inputs
- HD-SDI and SD-SDI compatible (functional equivalent to SD is SAS30)
- 8-channel selection (any out of 16 embedded + any out of 8 from local AES/EBU inputs)
- 8 presets (ACP controlled)
- Pre and post monitoring with ADD-ON card
- Audio input gain (0.25dB steps)
- Audio input phase (0 - 180 deg)
- Audio input delay offset
- Mix of any 4 channels in group A embedder and group B embedder
- Overwrite and append modes
- Peak detection 0, -6, -12 and -18dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Locks to SDI input
- Audio format detection (e.g. AC3, Dolby E and PCM)
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional 1 fiber input (replacing 1 SDI input) or 1 fiber output (replacing 1 SDI output) on I/O panel

Applications

- HD/SD SDI audio shuffling with external source inputs
- MCR audio shuffling and swapping (for non compliant input signals)

Block schematic



5 Settings Menu

Introduction

The settings menu displays the current state of each HAS05E setting and allows you to change or adjust it. Settings can be changed using the front panel of the Synapse frame (SFR18, SFR08 or SFR04) or with Cortex. Also the SCP08 control can be used. Please refer to chapter 3 for information on the Synapse front panel control and Cortex.

SYSTEM SETTINGS

SDI-Format

The format menu item selects the input 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.
- `1080i-60/50`
  `1080p-30/25/24`
- `1035i-60,`
- `720p-60/50`
- `720p-30/25/24`
- `SD525`
- `SD625`

SD is standard definition.

The default setting is set to AUTO.

Field-Freq

1:1, 1:1.001 or `Auto` 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 auto

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 #1.

In-A1 ~ In-A4	In-A1 till In-A4 determine which of the 16 audio channels embedded in the incoming SDI input are selected for processing by Channel 1 till channel 4 of the HAS05E. In-A1 till In-A4 can be set to Ch_1 till Ch_16 (referring to embedded audio channels) or to AES1 till AES8 (referring to local inputs). The default settings for In-A1 till In-A4 are respectively Ch_1 till Ch_4. An incoming source can be used by one or more inputs. To maintain synchronization when the source of a channel is switched, the timing of all channels is reset.
In-B1 ~ In-B4	In-B1 till In-B4 determine which of the 16 audio channels embedded in the incoming SDI input are selected for processing by channel 5 till channel 8 of the HAS05E. In-A1 till In-A4 can be set to Ch_1 till Ch_16 (referring to embedded audio channels) or to AES1 till AES8 (referring to local inputs). The default settings for In-B1 till In-B4 are respectively AES1 till AES8. An incoming source can be used by one or more inputs. To maintain synchronization when the source of a channel is switched, the timing of all channels is reset.
#In_Gain-A1 ~ #In_Gain_B4	The levels of In-A1 till In-B4 are determined by these settings. The audio level can be adjusted between +12dB and –60 dB in steps of 0.25dB. Below 60dB the audio is muted and the display shows –999.00dB. The default setting is 0.00dB.
#In_Delay-A1 ~ #In_Delay-B4	Every audio-process-output-channel can be delayed up to 2.6 seconds. The delay of Out-Ch_1 till Out-Ch_8 can be adjusted with Delay-A1 till Delay-B4. The delay can be adjusted between 0ms and 2600ms in steps of 1ms. The default delay is 0ms.
#In_Phase-A1 ~ #In_Phase-B4	The phase of the audio of Sources A1 till B4 can be adjusted using Phase-A1. The user can choose between 0 degrees and 180 degrees phase shift. The default setting is 0 degrees.

#Out-A1 ~ #Out_B4

`Out-A1` till `Out-B4` defines which source-channels (`Source_A1` to `Source_B4`) are routed and added to the corresponding output. Table 1 below gives all possible configurations.

Out_Ch_1..4	Display
Mute	____
1	1___
2	_2__
1 + 2	12__
3	__3_
1 + 3	1_3_
2 + 3	_23_
1 + 2 + 3	123_
4	___4
1 + 4	1__4
2 + 4	_2_4
1 + 2 + 4	12_4
3 + 4	__34
1 + 3 +4	1_34
2 + 3 + 4	_234
1 + 2 + 3 + 4	1234

#Out_Gain-A1 ~ #Out_Gain_B4

The levels of the shuffler outputs can be adjusted by these settings. The audio level can be adjusted between +12dB and –60 dB in steps of 0.25dB. Below 60dB the audio is muted and the display shows –999.00dB. The default setting is 0.00dB.

#AddOn-A1/2

`AddOn-A1/2` defines which channels are routed to the ADD_ON Axon bus in add-on bus group A, channels 1 and 2. There are two possibilities: routing *before* or *after* swapping the channels. The settings `In-A1/2` till `In-B3/4` are used before swapping channels. `Out-A1/2` up to `Out-B3/4` are used after channel swapping.

`Off` means that no channels are routed to the Axon bus. And the channels `ADD_ON-A1/2` are muted. Default setting of `AddOn_A1/2` is `Out-A1/2`.

#AddOn-A3/4

`AddOn-A3/4` defines which channels are routed to the ADD_ON Axon bus in add-on bus group A, channels 3 and 4. There are two possibilities: routing *before* or *after* swapping the channels. The settings `In-A1/2` till `In-B3/4` are used before swapping channels. `Out-A1/2` up to `Out-B3/4` are used after channel swapping.

`Off` means that no channels are routed to the Axon bus. And the channels `ADD_ON-A3/4` are muted. Default setting of `AddOn_A3/4` is `Out-A3/4`.

#AddOn-B1/2

`AddOn-B1/2` defines which channels are routed to the ADD_ON Axon bus in add-on bus group B, channels 1 and 2. There are two possibilities: routing *before* or *after* swapping the channels. The settings `In-A1/2` till `In-B3/4` are used before swapping channels. `Out-A1/2` up to `Out-B3/4` are used after channel swapping.

`Off` means that no channels are routed to the Axon bus. And the channels `ADD_ON-B1/2` are muted. Default setting of `AddOn_B1/2` is `In-A1/2`.

#AddOn-B3/4

`AddOn-B3/4` defines which channels are routed to the ADD_ON Axon bus in add-on bus group B, channels 3 and 4. There are two possibilities: routing *before* or *after* swapping the channels. The settings `In-A1/2` till `In-B3/4` are used before swapping channels. `Out-A1/2` up to `Out-B3/4` are used after channel swapping.

`Off` means that no channels are routed to the Axon bus. And the channels `ADD_ON-B3/4` are muted. Default setting of `AddOn_B3/4` is `In-A3/4`.

Mixed mode

This setting controls the Sum-block as seen in the block schematic of the card. With it you can set the HAS05E whether to:

- embed A1 till A4 with Emb A and B1 till B4 with Emb B (`2x4 Chn`)
- embed all possible channels (so A1 till B4) with Emb A and the same channels with Emb B (`1x8 Chn`)

By default it is set to `2x4 Chn`.

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 processes 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).

Emb-A-Sel

The setting `Emb-A-Sel` determines 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`.

Emb-B-Sel

The setting `Emb-B-Sel` determines 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_2`.

SRC-AES1 / 2 ~ SRC-AES7 / 8

The AES/EBU inputs of the HAS05E 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 are `ON` or `Transp`.

The default setting is `On`.

Peak-Ref

Peak-Ref sets the audio peak monitoring threshold for all channels. The default reference is 0dBFS, and can be changed to the following preset levels, -6dBFS, -12dBFS, or -18dBFS.

Silence-Time

This item allows you to set the amount of seconds until the card displays a silence status. A variable between 1 and 255 seconds can be chosen. The default setting is 10 sec.

Silence-Level

`Silence-level` determinates what the value level of silence is. A variable between –100 dBFS and –20 dBFS can be set. The default setting is – 60dBFS.

Note for HD-AudioLock; 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 In-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.

HD-AudioLock

`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`).

`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 HAS05E can be locked to embedded `Audio-Clk_A` or `Audio-Clk_B`.

The default setting is `HD-SYNC`.

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.

Unlock-Mute

The HAS05E can mute the audio while it is busy locking to the SDI-input. This can be switched `on` or `off`. Default is `off`.

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`

Lock-Det

This status item displays if the card is locked to the input or not (`Un-lock`).

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.

AES1-In ~ AES8_In

`AES1-IN` till `AES8-IN` displays if there is AES detectedon the corresponding AES input. This is represented as OK or N/A.

Audio-A1 ~ Audio_B4

This item indicates the status of the audio-data of a channel that is assigned to output Out-A1 till Out-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 gain settings, the audio signal can be raised above 0dBFS and a distorted audio signal will be the result. In this situation the status of indicates `Clipped` and the DATA-ERROR-led will light. It can also indicate an audio `silence`.

FrmtStat_A1/2 ~

Format status gives the format of the incoming signal to Shuffle

FrmtStat_B3/4	block A1/2 till B3/4 (this can come from the local AES inputs or from the embedded audio). NA, PCM, Null, AC-3, TimeStmp, MPEG-1, MPEG-2, SMPTE-KLV, Caption, UserDef, Rsvd and Dolby_E can be recognized.
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
CRC-Stat	CRC Stat gives the status of the incoming HD/SDI signal: CRC Error Luma_CRC Chroma_CRC
FPGA-Stat	FPGA-Stat displays the status of the internal processor of the HAS20. 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.

Events

The events reported by the HAS05E 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

Input

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

CRC-Status

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

ANC-Status

Ancillary data 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 Set-up 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 card are:

Event Menu Item	Tag		Description
Announcements	0 or NA	0 or NA	Announcement 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

The error LED indicates an error if the internal logic of the HAS05E card is not configured correctly or has a hardware failure.

Input LED

This LED indicated the presence of a valid SDI video signal on the input.

ANC Data LED

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

Data Error LED

This led indicates three different types of errors:

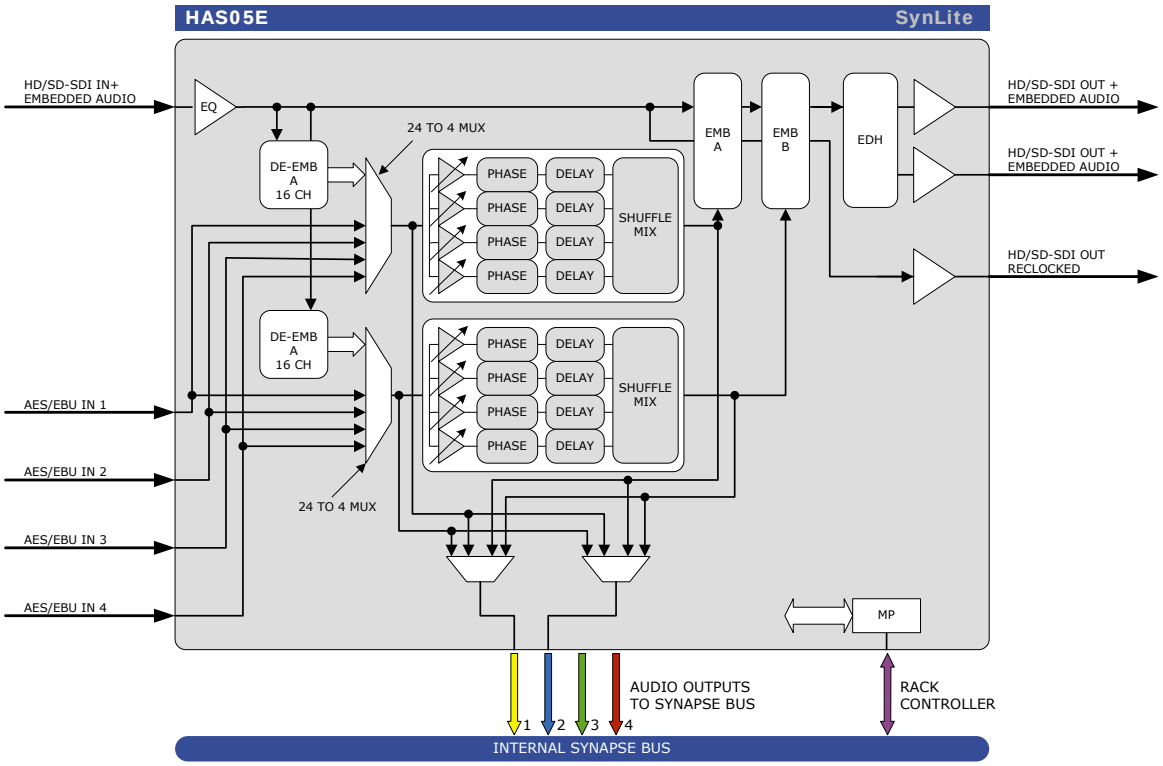
- Audio signal 1, 2, 3 ,4 ,5 ,6 ,7 or 8 of the local output is clipped.
- ANC Error.

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.

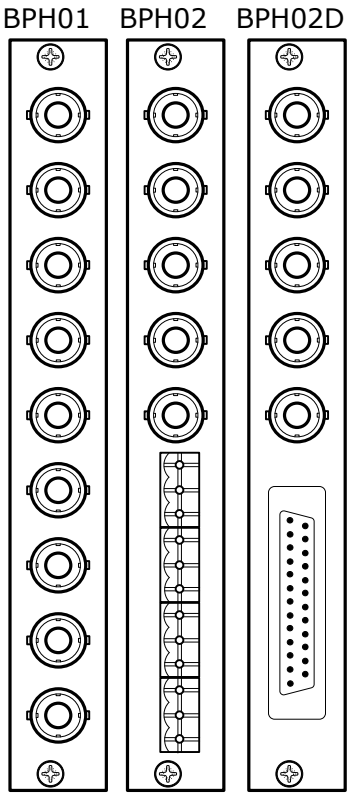
REMARK: To set audio levels correctly and avoid distortion, the DATA ERROR LED can be used as an active peak-detector. By adjusting the level of one of the four local output channels, the DATA ERROR LED continuously monitors whether a signal is going to overload (Peak) or not. Clipping in the digital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

9 Block Schematic



10 Connector Panels

The HAS05E can be used with the BPH01, BPH02, BPH02D or bypass relay BHX equivalents.



HD/SD SDI INPUT (OPTIONAL FIBER INPUT)

HD/SD SDI RECLOCKED OUTPUT

HD/SD SDI PROCESSED OUTPUT 1

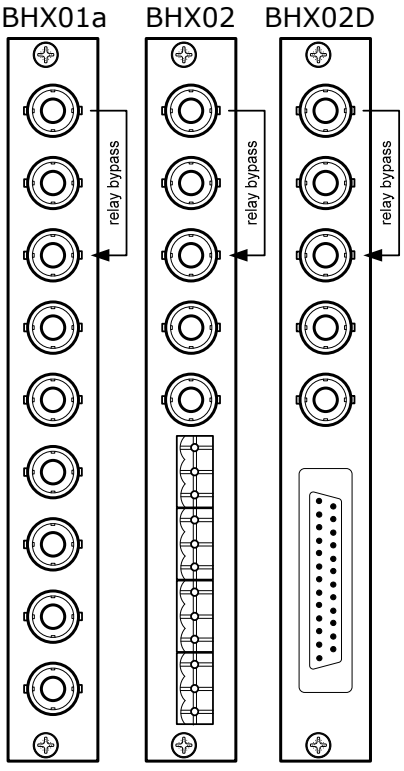
HD/SD SDI PROC. OUTPUT 2 (OPTIONAL FIBER OUTPUT)

AES/EBU INPUT 1

AES/EBU INPUT 2

AES/EBU INPUT 3

AES/EBU INPUT 4



HD/SD SDI INPUT (OPTIONAL FIBER)

HD/SD SDI RECLOCKED OUTPUT

HD/SD SDI PROCESSED OUTPUT 1

HD/SD SDI PROC. OUTPUT 2 (OPTIONAL FIBER)

AES/EBU INPUT 1

AES/EBU INPUT 2

AES/EBU INPUT 3

AES/EBU INPUT 4

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

BPH02D and BHX02D d-sub pinout:

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