Synapse

HFS05T

HD/SD frame synchronizer with smart audio
handling for 2 groups

Installation and Operation manual

SynLite

HD
High definition

Committed.

®AXON

Synapse

TECHNICAL MANUAL

HFS05T

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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.

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 HFS05T	This device complies with part 15 of the FCC Rules
FC Tested To Comply With FCC Standards	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.
FOR HOME OR OFFICE USE	

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

[No Alarms]
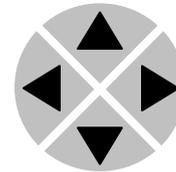
Settings are displayed and changed as follows;

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.

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

With the display as shown below

```
RRC18 [Select Card]
>S01=SFS10
```
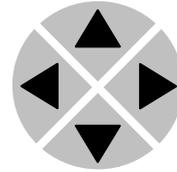
Pressing the ► selects the SFS10 in frame slot 01.

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

```
SFS10 [Select Menu]
>Settings
```
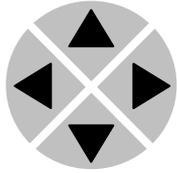
Pressing the ► selects the menu item shown, in this example Settings.

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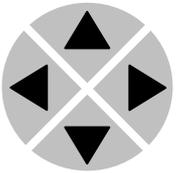
Pressing the ► selects the settings item shown, in this example SDI-Format.

(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]
SDI-Format>Auto
```
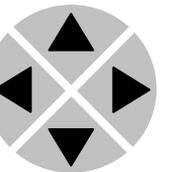
To edit the setting of the menu item press ▲ or ▼.

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

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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

Slot	Module	Item	Parameter	Setting
▲				
▲				
S02		Identity		
▲		▲		
S01	SFS10 ►	Set-tings ►	Standard_dig ►	Auto
▼		▼	▼	▼
S00	RRC18	Status	Mode	625
		▼	▼	▼
		Events	Ref-Input	525
			▼	
			H-Delay	
			▼	
			▼	

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.

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4 The HFS05T Card

Introduction

The HFS05T is an HD/SD frame synchronizer/video delay/autophaser module, video proc-amp and if in synchronizer mode, the HFS05T has smart audio handling for 2 embedded audio groups. The synchronizer function can be used to synchronize a non-synchronous signal or to compensate for a delay. The HFS05T has full transparent blanking, both horizontally and vertically. The video reference is connected through the central genlock input of the SFR18, SFR08 or SFR04 frames and is compatible with 2-level and 3-level sync. The line synchronizer function corrects timing errors (hops) that occur due to switching in a router. In addition the HFS05T can be used as a delay line, giving up to 1 frame delay. A video reference is not required in this case as the output clock frequency is derived from the input video clock.

Features

- HD-SDI and SD-SDI compatible
- Formats:
  - 1080i/50/60
  - 1035i/60
  - 720p/50/60/
  - 1080p(sf)/24/25/30
- Built-in proc amp
- 2 groups smart audio handling (user selectable out of all 4)
- Audio processing pass through, processed or mute
- 2-level, 3-level sync compatible
- Tracking output
- Freeze input
- On loss of input:
  - Freeze
  - Black
  - Green
  - Gray
- One reclocked output
- Two processed outputs
- I/O delay measurement
- Switch positioning measurement (in autophase mode)
- H and V delay offset adjustment with respect to input or reference
- Separate delay settings for 1080, 720p and SD SDI
- ANC blanking of H, V or H+V
- Test pattern (color bar/sweep)
- OSD ident label with maximum 10 characters
- Detection and transparency for S2016 (AFD)
- Locks to Bi-level or Tri-level syncs
- 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

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Applications
- Fee running external video synchronization
- Post router line synchronization or autophasing
- Video timing adjustment for virtual studios
- Jitter killer

Block schematic
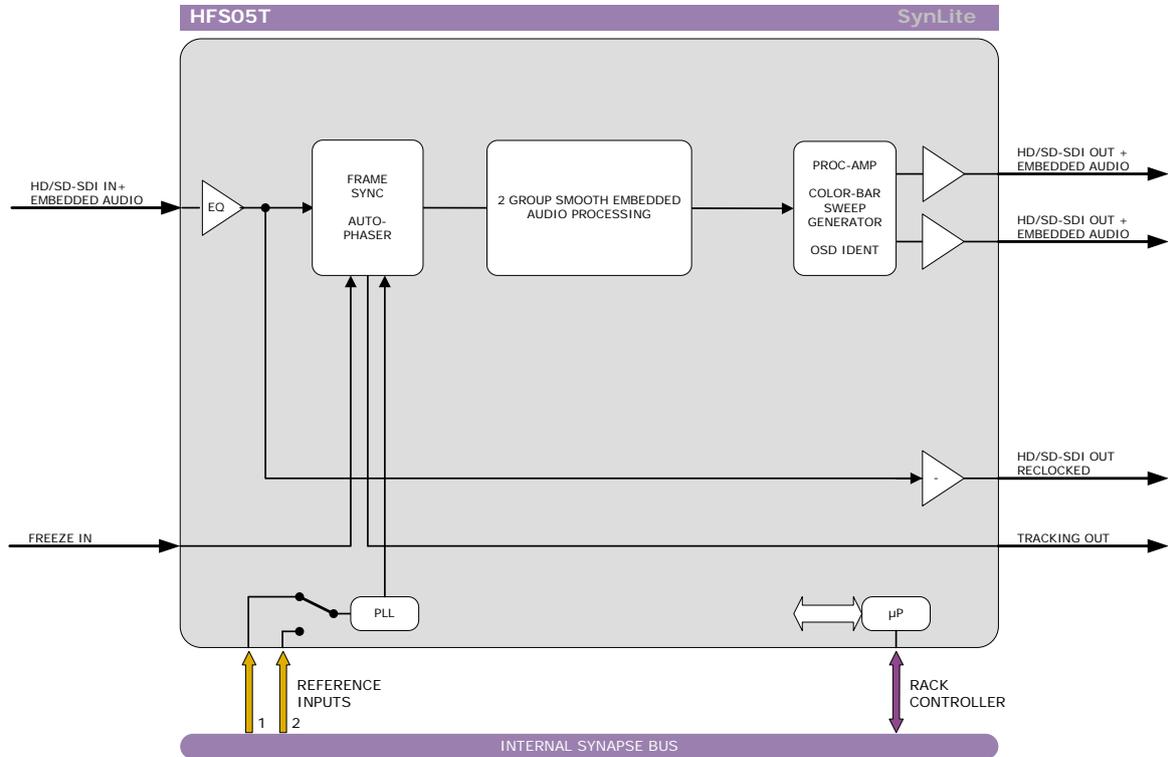
5 Settings Menu

Introduction

The settings menu displays the current state of each HFS05T 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.

Note: All items preceded with a #-sign are part of the presets.

SYSTEM SETTINGS

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`
- `SD525`
- `SD625`

SD is standard definition.

The default setting is set to AUTO.

Field-Freq

`1:1, 1:1.001` or `AUTO` are the values that can be selected

`1:1` is the right field frequency for 1080i-50. Because the actual field frequency of 1080i-60 is 59.97 and not 60 is it necessary when 1080i-60 is selected as input format to adjust the field frequency to `1:1.001`

There is also an `AUTO` mode, the HFS05T will detect the format and switch then to the according field-frequency. Default is `AUTO`.

Mode   Synchronize, Delay and Freerun mode can be selected within the Mode menu.

Synchronize Mode: When Mode is set to Synchronize and the card is locked to a reference, the card is in synchronizing mode, and the following timing is of importance. The minimum delay between input and output signal (output advanced) is 5 lines. (NOTE that it is referred to the output signal so it takes the H-V-delay into account) The maximum delay between input and output signal (output advanced) is '1frame' + 5 lines. Due to a hysteresis, when the timing between in- and output is from 4 lines to 5 lines, it is not say whether the card is in a frame delay or not. The maximum delay between the input and output signal (output advanced) to ensure that the card has a frame delay are '1frame' + 4 lines.

Delay Mode: When Mode is set to Delay, the card is in Delay Mode. In this mode the delay between input and output is 4 lines The H-Delay and V-Delay settings give a delay in addition of this. Synchronize and Delay mode can be selected within the mode menu. In Synchronize mode, the Autophaser/Line synchroniser is active. In Delay mode a reference is not required, the output timing is derived from the Input.

Freerun mode: In freerun mode, the card is not running on reference, nor on input but on his own clock. The default setting is Synchronize.

Ref-Input   This setting allows the user to determine which reference input is used to lock the HFS05T. Input 1 is the uppermost input of the rack controller connector panel at the back of the SFR18 or SFR08. The SFR04 has one reference input. The available settings for Ref-Input are 1, 2 and Auto. The default setting of Ref-Input is 1. Auto automatically selects the reference of the selected standard. Ref_1 is the 50Hz standard, Ref_2 is the 60 Hz standard. The default setting is Auto.

Ref-Type   Ref-Type sets the type of reference Tri-Level or Bi-Level. The default setting is Bi-level

1080-H-delay

The `1080-H-Delay` setting allows adjustment of the horizontal phase of the output signal, with respect to the selected reference input, of 1080i60, 1080i50, 1080p30. 1080p25, 1080p24 and 1035i60 signals. The H-Delay setting gives a delay in addition to the reference timing. The signal is delayed (advanced) with respect to the phase of the reference signal. HD resolutions 1 pix = 13.5nsec. The delay of the card is indicated by the tracking pulse on the BNC output. This can be used, for example, to track an audio delay. The default setting is 0 px.

1080i60	Range 0-2199 pix
1080i50	Range 0-2639 pix
1080p30	Range 0-2199 pix
1080p25	Range 0-2199 pix
1080p24	Range 0-2749 pix
1035i60	Range 0-2199 pix

1080-V-delay

The 1080-V-Delay setting allows adjustment of the vertical phase of 1080i60, 1080i50, 1080p30. 1080p25, 1080p24 and 1035i60 signals.

For example, if the V-Delay is set to 10 TV lines, the output signal will be delayed by the reference timing + 10 TV lines. The signal is delayed (advanced) with respect to the phase of the reference signal.

The delay of the card is indicated by the tracking pulse on the BNC output. This can be used, for example, to track an audio delay. 1080-V-delay can be set in a range of 0 to 1124 lines. Default settings is 0 lines.

720-H-delay

The `720p-H-Delay` setting allows adjustment of the horizontal phase of 720p60 and 720p50 signals. The default setting is 0 px. These are the other possible settings:

720p60	Range 0-1649 pix
720p50	Range 0-1979 pix

HD resolutions 1 pix = 13.5nsec

720-V-delay

The 720p-V-Delay setting allows adjustment of the vertical phase of 720p60 and 720p50 signals. You can adjust the delay of these signals in lines ranging from 0 to 749. The default setting is 0 lines.

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SD-H-delay

The `SD-H-Delay` setting allows adjustment of the horizontal phase of SD525 and SD625 signals. The default setting is 0 samples.

These are the other possible settings:

525i60	Range 0-857 samples
625i60	Range 0-863 samples

SD-V-delay

The SD-V-Delay setting allows adjustment of the vertical phase of SD525 and SD625 signals. You can adjust the delay of these signals in lines ranging from 0 to 624. The default setting is 0 lines.

Freeze

`Freeze` enables the capture of one Video Field or Frame (depending on the setting of Frz-Mode). The settings of Freeze are `On` or `Off`. The default setting is `OFF`.

Frz-Mode

`Frz-mode` allows you to choose between storing a complete Video `Frame` or `Field` (double written) for the above `Freeze` Menu and the external freeze input. The default setting is `Field`

Input-Loss

INPUT-Loss determines what the output produces in case of lost input:
- `Freeze`: a capture of the last good field.
- `Black`: a black output.
- `Grey`: a grey output.
- `Green`: a green output.
- `Freeze+OSD`: a capture of the last good field + on screen display (can be set with the `OSD_Text` setting)
- `Black+OSD`: a black output + on screen display
- `Grey+OSD`: a grey output + on screen display
- `Green+OSD`: a green output + on screen display
- `Colorbar`: a colorbar on the output
- `Colorbar+blink`: a colorbar with blinking on screen display

The default setting is `Freeze`.

Ext-Frz

Ext-Freeze enables the external freeze input (GPI contact closure J9 of the BPH01.). `Disabled` means that this feature is not active. `Enabled` means that this feature is active. The default setting is `Disabled`.

Y-Gain

Y-Gain controls the Luminance gain of the built-in processing amplifier. The control range is between 0% and 199.8%. The default setting of Y-Gain is 100%.

Cb-Gain | Cb-Gain controls the Colour Difference gain of the built-in processing amplifier. The control range is between 0% and 199.8%. The default setting of Cb-Gain is 100%.

Cr-Gain | Cr-Gain controls the Colour Difference gain of the built-in processing amplifier. The control range is between 0% and 199.8%. The default setting of Cb-Gain is 100%.

Y-Black | This item controls the Luminance black level adjustment between -128 and +127 (10 bit digital value). The black level can be aligned by +/– 100mV(analog video). 64 (10 bit digital value) represents the nominal black level value for all digital video standards

Cb-Black | This item controls the Colour Difference (Cb) black level adjustment.

Cr-Black | This item controls the Colour Difference (Cr) black level adjustment.

Line-lock | Line lock is only available in HD. In the line data, a line number is interwoven. The line number can be locked to the reference. Can be enabled or disabled. The default setting is Disabled.

This function is de-activated for SD formats.

ANC-Blank | ANC-Blank allows you to blank the ancillary data in the horizontal and/or in the vertical interval.
- H: ancillary data in the Horizontal interval blanked.
- V: ancillary data in the Vertical interval blanked.
- H+V: ancillary data in the Horizontal and Vertical interval blanked.
- Off: The ancillary data is passed.

The default setting is Off.

Pattern | The HFS05T also includes a test pattern generator. A reference is required to generate a test pattern. There are two test patterns, namely Colorbar and Sweep. Can also be set to Off. The default setting is off

OSD-Enable

The HFS05T has the option to display an on-screen text at a fixed position (left corner) in the HD_output:

- `Off`: nothing is displayed.
- `Transp`: the OSD is displayed transparent.
- `Masked`: the OSD is displayed in a black box.
- `Blink-Transp`: OSD is displayed blinking transparant
- `Blink-Masked`: OSD is displayed blinking in a black box

Default is `off`

OSD_text

This is the field where you can enter the OSD text with a maximum of ten characters.

Delay-Status

In the status menu it is possible to display the processing time of the HFS05T (`IO_delay` item). This setting enables you to switch this function `on` or `off`. Default setting is `off`.

Switch-Status

In the status menu it is possible to display the switching time in the selected line (7 for 50Hz) of the HFS05T (`switch-Det` item). This setting enables you to switch this function `on` or `off`.

Default setting is `off`.

Audio

The HFS05T has a built-in embedder, de-embedder and audio gain stage. This menu item controls the functionality of these stages.

- `BLANK`: blanks the horizontal blanking.
- `PASS`: passes the audio un-processed.
- `PROCESS`: controls the 'smart' audio handling. The selected groups in the following `Grp-A-Sel` and `Grp-B-Sel` setting item are de-embedded. The audio is routed through an audio gain stage and is re-embedded in the selected group afterwards. This is performed after the frame synchronizer. When a video (+embedded audio) frame needs to be re-written or removed as a result of an asynchronous SD/HD input, the audio gain stage ramps down the selected group prior to the action and ramps up afterwards. This whole process masks audio irregularities that are audible in a normal Frame synchronizer.

The default setting is `Process`

Grp-A-Sel

The HFS05T is capable of handling two full audio groups (4 channels) in the SD/HD embedded domain. `Grp-A-Sel` selects the first audio group to be processed when the audio mode is in `process`. Group1, 2, 3 or 4. The default setting is group 1.

Grp-B-Sel

The HFS05T is capable of handling two full audio groups (4 channels) in the SD/HD embedded domain. `Grp-B-Sel` selects the second audio group to be processed when the audio mode is in `process`. Group1, 2, 3 or 4. The default setting is group 2.

HD-AudioLock

The setting HD-AudioLock can be useful if audio is asynchronously embedded into the HD video stream. It 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`.

ATC-Transp

`ATC-Transp`: this setting allows setting 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.

S2016_AFD

With this setting you can insert an Active Format Description (AFD) into the signal if the output is HD. You can insert any AFD value between `AFD_1` and `AFD_16` or switch this option `Off`. Default value 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.

F1V-Blank-S

F1V-Blank-S sets the blanking start line of the first field. The selectable range is from line 4 to line 23. The default setting is 6

Note: line 6 is always blanked because it is the switching line.

F1V-Blank-E   F1V-Blank-E sets the blanking end line of the first field. The selectable range is from line 4 to line 23. The default setting is 6.

Note: line 6 is always blanked because it is the switching line.

Note2: When Blank-S and Blank-E are set to the same line, there will be no blanking.

F2V-Blank-S   F2V-Blank-S sets the blanking start line of the second field. The selectable range is from line 4 to line 23. The default setting is 6.

Note: line 6 is always blanked because it is the switching line.

F2V-Blank-E   F2V-Blank-E sets the blanking end line of the first field. The selectable range is from line 4 to line 23. The default setting is 6.

Note: line 6 is always blanked because it is the switching line.

Note2: When Blank-S and Blank-E are set to the same line, there will be no blanking.

6 | Status Menu

Introduction

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

Input

This status item indicates the presence and format of a valid HD/SD serial in input_1.

This is displayed as:
- `1080i/60/50`
- `1080p/30/25/24`
- `1035i/60`
- `720p/60/50/30/25/24`
- `SD525`
- `SD625`

`NA` is used when no valid input signal is available or if the selected format doesn't match the input signal.

Ref-Det

This status item recognizes a valid reference in the genlock input. `NA` indicates that no valid reference is present. `Present` indicates that a valid reference is present. No status feedback indicates that there is no SD/HD input.

GrpInUse

Detects the embedded audio groups that are used within the HD/SD data stream. If no groups are detected, the display indicates `----`. A single group is detected as `1---`. All groups are represented by `1234`. When for instance only group 2 and 4 are present, this is indicated by `-2-4`.

Grp-ins

If the same re-inserted 2 groups are selected (`Grp-A-sel` and `Grp-B-sel`) then an `Error` is diplayed in this status item. `Ok` is indicated when no problems are detected.

Audio-ch_A1 ~ Audio-ch_B4

These item indicate the status of the audio-data of each individual channel that is assigned to output Out-A1 till 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`.

Audio-A-Clk

HD-AudioLock 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-B-Clk

HD-AudioLock 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

Lock-Det

Displays if the card is locked to a reference (locked) or not (Un-Lock).

CRC-stat

Gives the status of the incoming HD/SDI signal CRC. Error, Luma_CRC or Chroma_CRC are possible.

IO_delay

IO-Delay displays the processing time of the card in milli seconds (ms). It is necessary to enable this function in the settings menu under Delay status.

Switch-Det

Displays the switching time of the card in milli seconds (ms). It is necessary to enable this function in the settings menu under Switch status.

S2016_AFD-Det

Indicates the current detected Active Format Description (AFD) on the input. Can be any value between AFD_1 and AFD16 or NA if no AFD is detected.

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 HFS05T 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.

Ref-Status

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

Lock-Status

If the card is locked 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.

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.

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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
Reference	02_{hex}=REF_LOSS	82_{hex}=REF_RETURN	reference lost or returned
EDH-Status	03_{hex}=EDH_ERROR	83_{hex}=EDH_OK	EDH error occurred
ANC-Status	04_{hex}=ANC_ERROR	84_{hex}=ANC_OK	ANC status 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 HFS05T 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.

Reference LED

Indicated the presence of a valid reference signal on the selected reference input connector (ref-1 or ref-2).

Data Error LED

This LED indicate two different types of error:
- ANC (embedded audio) checksum error.
- EDH 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.

9 Block Schematic
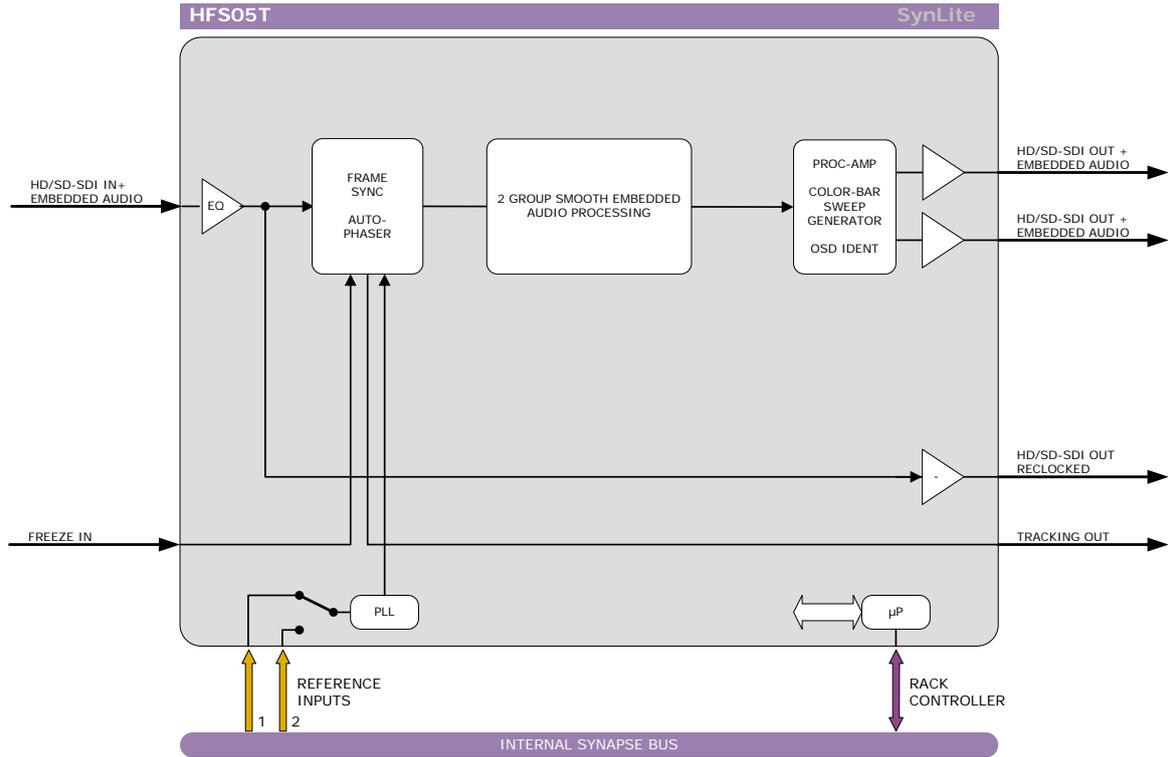
10 Connector Panels

The HFS05T can be used with the BPH01 and BHX01. The following table displays the pinout of these backpanels.

BPH01

HD/SD SDI INPUT (OPTIONAL FIBER INPUT)	
HD/SD SDI RECLOCKED OUTPUT	
HD/SD SDI PROCESSED OUTPUT 1	
HD/SD SDI PROCESSED OUTPUT 2 (OPTIONAL FIBER OUTPUT)	
FREEZE INPUT	
TRACKING OUTPUT	

For fiber connectivity see www.axon.tv

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

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