

Synapse

2EB22

Dual 4 channel digital audio embedder



Synapse

TECHNICAL MANUAL

2EB22

Dual 4 channel digital audio embedder.



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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.

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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.



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

Axon Digital Design 2EB22



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.

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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 and RRC04 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) manual. The method of connection to a computer using Ethernet is described in the RRC manual.



CHECK-OUT: “SYNAPSE SET-UP” SOFTWARE WILL INCREASE SYSTEM FLEXIBILITY OF ONE OR MORE SYNAPSE FRAMES

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

Introducing TWINS

TWINS double-density modules are very efficient as they contain two channels of the same functionality. Cost-effective and space efficient, you can use TWINS modules independently or together with other Synapse cards in Axon's ultimate modular broadcast system.

TWINS is developed to serve two purposes:

- Extremely high space efficiency by providing 36 individual processing channels in 4RU.
- Superb flexibility for the customer: TWINS and other Synapse cards can be housed independently or in the same Synapse frame.

TWINS is an important enhancement of AXON's Synapse range and is another example of how AXON translates future proof and customer compatibility into products.

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.

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

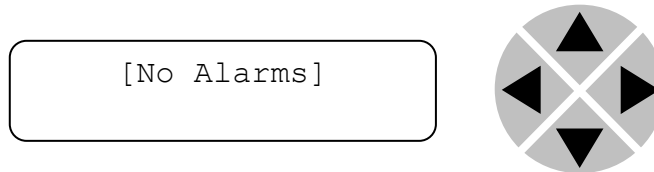
On powering up the Synapse frame, the card set will use basic data and default initialisation settings. All LED's will light during this process. After initialisation, several LED's will remain lit – the exact number and configuration is dependant upon the number of inputs connected and the status of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

Changing settings and parameters

The front panel controls or the Synapse Set-Up Software 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.

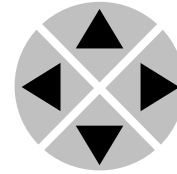
- Press ► To go forward through the menu structure.
- Press ◀ To go back through the menu structure.
- Press ▲ To move up within a menu or increase the value of a parameter.
- Press ▼ To move down through a menu or decrease the value of a parameter.

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

Example of changing parameters using front panel control

With the display as shown below

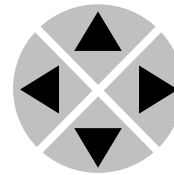
```
RRC18 [Select Card]
>S01=2eb22
```



Pressing the ► selects the 2EB22 in frame slot 01.

The display changes to indicate that the 2EB22 has been selected. In this example the Settings menu item is indicated.

```
2eb22 [Select Menu]
>Settings
```

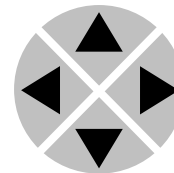


Pressing the ► selects the menu item shown, in this example Settings.

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

The display changes to indicate that the ASM10 Settings menu item SDI-Format has been selected and shows that its current setting is Auto.

```
2eb22 [Settings]
>SDI-Format=Auto
```

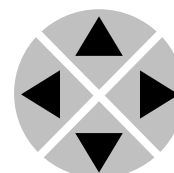


Pressing the ► selects the settings item shown, in this example SDI-Format.

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

The display changes to indicate that the 2EB22 Edit Setting menu item SDI-Format has been selected.

```
2eb22 [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 Setup Software

Synapse Setup Software 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.

Having selected the desired Frame and Module from the GUI Synapse Network View, select the menu item that you wish to open. Opening the menu item gives a complete list of available properties with their associated Value.

For example to change a setting e.g. SDI-Format, select SDI-Format from the list of settings by 'double clicking' to open a dialogue box. The dialogue box allows parameters to be changed or set to default value. On completion close the dialogue box.

Menu Structure Example

Slot	Module	Item	Parameter	Setting
▲				
▲				
S02		Identity		
▲				
S01	2EB22	Settings	Standard_dig	Auto
▼				
S00	RRC18	Status	Mode	625
		▼		▼
		Events	Ref-Input	525
			▼	
			H-Delay	
			▼	
			▼	

NOTE: Further information about Front Panel Control and Synapse Setup Software can be obtained from the RRC18 and RRC04 operational manuals.

4 The 2EB22 Card

Introduction	<p>The 2EB22 contains two fully independent digital audio embedders. The AES/EBU inputs can handle sample rates between 32 and 96 kHz. This SRC can be by-passed for Dolby E or other transparent applications.</p> <p>Gain and Phase control, append and overwrite modes and 110 Ohm balanced digital audio inputs are provided on a high density D-sub connector.</p>
Two processed SDI outputs	<p>Both SDI inputs have two processed SDI outputs.</p>
Automatic Standard Selection	<p>Both SDI input channels have Automatic standard selection, meaning that the input video standard (525 or 625) is recognized automatically.</p>
AES/EBUInputs	<p>A high density D-sub is used for the AES/EBU inputs. The AES/EBU inputs have to be 110 Ohm Balanced.</p>
Back planes	<p>BPL12 is the backplane for the 2EB22</p>
Miscellaneous	<p>The 2EB22 cards fit into the Axon SFR04 & SFR18 racks.</p> <p>LED's at the front of the board indicate the presence of an Input signal, Connection & Processor Errors.</p> <p>The 2EB22 can be controlled by Axon Synapse set-up software.</p>

5 Settings Menu

Introduction

The settings menu displays the current state of each setting within the 2EB22 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 Setup software.

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

Card_Mode

Card_Mode determines whether the card operates as dual SDI input (TWINS) card or as a single SDI input with 4 AES inputs (SINGLE).

TWINS for dual

SINGLE for single

The default setting is Twins.

Note: for proper single mode operation, set EMB_A_MODE to Overwrite, Emb_B_mode to APPEND and Emb_B_sel to GROUP 2.

Emb-A_mode

Emb-A_mode enables additional audio channels to be added to the existing audio-groups in the ancillary data space of the SD stream Emb-A_Mode has three settings, Off, Append, and Overwrite. The default setting is Overwrite.

In Off mode the card will re-clock the input.

In Overwrite mode all existing audio groups will be overwritten and the processed group is inserted.

In Append mode additional audio channels will be added.

In order to blank the ancillary data space of the SDI stream, set Emb-A_Mode to Overwrite and set Emb-A_Sel to Off.

Emb-A-sel

Emb-A-Sel determines which of the four groups of audio available on the SDI video stream will be embedded by embedder A of the 2EB22. The settings of Emb-A-Sel are Off, Group_1, Group_2, Group_3, Group_4.

The default setting is Group_1.

Emb-A1/2	<p>Emb-A1/2 determines which audio channels are embedded by channels 1 and 2 of embedder A. The available settings are, AES1/2, AES3/4.</p> <p>The default setting of Emb-A1/2 is AES1/2.</p>
Emb-A3/4	<p>Emb-A3/4 determines which audio channels are embedded by channels 3 and 4 of embedder A. The available settings are, AES1/2, AES3/4.</p> <p>The default setting of Emb-A1/2 is AES3/4.</p>
Delay-Ch_A1	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_A1 can be adjusted with Delay-Ch_A1. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Delay-Ch_A2	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_A2 can be adjusted with Delay-Ch_A2. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Delay-Ch_A3	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_A3 can be adjusted with Delay-Ch_A3. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Delay-Ch_A4	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_A4 can be adjusted with Delay-Ch_A4. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Gain-Ch_A1	<p>The level of input Channel A1of is set by the Gain control Gain-Ch_A1. 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.</p> <p>The default setting is 0.00dB.</p>

Gain-Ch_A2	<p>The level of input channel A2 of is set by the Gain control Gain-Ch_A2. 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.</p> <p>The default setting is 0.00dB.</p>
Gain-Ch_A3	<p>The level of input channel A3 of is set by the Gain control Gain-Ch_A3. 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.</p> <p>The default setting is 0.00dB.</p>
Gain-Ch_A4	<p>The level of input channel A4 of is set by the Gain control Gain-Ch_A4. 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.</p> <p>The default setting is 0.00dB.</p>
Phase-Ch_A1	<p>The phase of the audio of channel A1 can be adjusted using Phase-Ch_A1. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>
Phase-Ch_A2	<p>The phase of the audio of channel A2 can be adjusted using Phase-Ch_A2. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>
Phase-Ch_A3	<p>The phase of the audio of channel A3 can be adjusted using Phase-Ch_A3. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>
Phase-Ch_A4	<p>The phase of the audio of channel A4 can be adjusted using Phase-Ch_A4. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>

SRC_A	<p>The AES/EBU inputs of the 2EB22 are connected to a Sample Rate Converter. This enables the input to use audio sample rates that are non-synchronous to video. For Non PCM audio data the SRC can be bypassed and the data is inserted in the card transparently (Transp).</p> <p>The settings of SRC_A are On and Transp.</p> <p>If DolbyE is used, the setting for SRC_A is Transp.</p> <p>The default setting is On.</p>
EDH-Gen_A	<p>This setting allows the user to switch the built-in EDH generator on/off. The EDH generator inserts EDH (SDI Error Detection Handling) into the output signal.</p> <p>The settings of EDH-Gen are On and Off.</p> <p>The default setting is On.</p>
Emb-B_mode	<p>Emb-B_mode enables additional audio channels to be added to the ancillary data space of the SD stream</p> <p>Emb-B_Mode has three settings, Off, Append, and Overwrite. The default setting is Overwrite.</p> <p>In Off mode the card will re-clock the input.</p> <p>In Overwrite mode all existing audio groups will be overwritten and the processes group is inserted.</p> <p>In Append mode additional audio channels will be added.</p> <p>In order to blank the ancillary data space of the SDI stream, set Emb-B_Mode to Overwrite and set Emb-B_Sel to Off</p>
Emb-B-sel	<p>Emb-B-Sel determines which of the four groups will be embedded into the SDI stream_B. The settings of Emb-B-Sel are Off, Group_1, Group_2, Group_3, Group_4.</p> <p>The default setting is Group_1.</p>
Emb-B1/2	<p>Emb-B1/2 determines which audio channels are embedded by channels 1 and 2 of embedder B. The available settings are, AES1/2, AES3/4.</p> <p>The default setting of Emb-B1/2 is AES1/2.</p>
Emb-B3/4	<p>Emb-B3/4 determines which audio channels are embedded by channels 1 and 2 of embedder B. The available settings are, AES1/2, AES3/4.</p> <p>The default setting of Emb-B1/2 is AES3/4.</p>

Delay-Ch_B1	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_B1 can be adjusted with Delay-Ch_B1. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Delay-Ch_B2	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_B2 can be adjusted with Delay-Ch_B2. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Delay-Ch_B3	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_B3 can be adjusted with Delay-Ch_B3. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Delay-Ch_B4	<p>Every audio output channel can be delayed up to 2.6 seconds. The delay of Delay-Ch_B4 can be adjusted with Delay-Ch_B4. The delay can be adjusted between 0ms and 2600ms in steps of 1ms.</p> <p>The default delay is 0ms.</p>
Gain-Ch_B1	<p>The level of input channel B1 of is set by the Gain control Gain-Ch_B1. 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.</p> <p>The default setting is 0.00dB.</p>
Gain-Ch_B2	<p>The level of input channel B2 of is set by the Gain control Gain-Ch_B2. 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.</p> <p>The default setting is 0.00dB.</p>
Gain-Ch_B3	<p>The level of input channel B3 of is set by the Gain control Gain-Ch_B3. 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.</p> <p>The default setting is 0.00dB.</p>

Gain-Ch_B4	<p>The level of input channel B4 of is set by the Gain control Gain-Ch_B4. 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.</p> <p>The default setting is 0.00dB.</p>
Phase-Ch_B1	<p>The phase of the audio of channel B1 can be adjusted using Phase-Ch_B1. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>
Phase-Ch_B2	<p>The phase of the audio of channel B2 can be adjusted using Phase-Ch_B2. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>
Phase-Ch_B3	<p>The phase of the audio of channel B3 can be adjusted using Phase-Ch_B3. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>
Phase-Ch_B4	<p>The phase of the audio of channel B4 can be adjusted using Phase-Ch_B4. The user can choose between 0 degrees and 180 degrees phase shift.</p> <p>The default setting is 0 degrees.</p>
SRC_B	<p>The AES/EBU inputs of the 2EB22 are connected to a Sample Rate Converter. This enables the input to use audio sample rates that are non-synchronous to video. For Non PCM audio data the SRC can be bypassed and the data is inserted in the card transparently (Transp).</p> <p>The settings of SRC_B are On and Transp.</p> <p>If DolbyE is used then the SRC , then is the setting for SRC_B Transp.</p> <p>The default setting is On.</p>

EDH-Gen_B	<p>This setting allows the user to switch the built-in EDH generator on/off. The EDH generator inserts EDH (SDI Error Detection Handling) into the output signal.</p> <p>The settings of EDH-Gen are On and Off.</p> <p>The default setting is On.</p>
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6 Status Menu

Introduction	The status menu indicates the current status of each item listed below.
SDI-Input_A	This status item indicates the presence of a valid serial digital video signal on input A. <code>SDI-Input_A</code> indicates if an input signal is NA (not available) or Present.
SDI-Input_B	This status item indicates the presence of a valid serial digital video signal on input B. <code>SDI-Input_B</code> indicates if an input signal is NA (not available) or Present.
GrpInUse_A	<code>GrpInUse</code> indicates the audio groups that are already present in the incoming <code>SDI_A</code> signal. The indication of a group, or groups being present is as follows, <code>__1</code> , <code>__2</code> , etc. When no groups are present <code>GrpInUse</code> indicates <code>_____</code> .
GrpInUse_B	<code>GrpInUse</code> indicates the audio groups that are already present in the incoming <code>SDI_B</code> signal. The indication of a group, or groups being present is as follows, <code>__1</code> , <code>__2</code> , etc. When no groups are present <code>GrpInUse</code> indicates <code>_____</code> .
Grp-Ins_A	When the serial digital video signal already contains audio data and <code>Emb-A_Mode</code> is set to <code>Append</code> and the selection <code>Emb-A_Sel</code> is set to the same group number as the present audio, this status item will generate an <code>Error</code> . No embedding occurs for the selected group that creates the error. If <code>Emb-Mode</code> is set to <code>Overwrite</code> the present audio data will be lost, and replaced by the new audio data. If an error does not occur <code>Grp-Ins</code> will indicate <code>Ok</code> .
Grp-Ins_B	When the serial digital video signal already contains audio data and <code>Emb-B_Mode</code> is set to <code>Append</code> and the selection <code>Emb-B_Sel</code> is set to the same group number as the present audio, this status item will generate an <code>Error</code> . No embedding occurs for the selected group that creates the error. If <code>Emb-Mode</code> is set to <code>Overwrite</code> the present audio data will be lost, and replaced by the new audio data. If an error does not occur <code>Grp-Ins</code> will indicate <code>Ok</code> .

Audio-Ch_A1	<p>The status menu item <code>Audio-Ch_A1</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_A</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_A1</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_1</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>
Audio-Ch_A2	<p>The status menu item <code>Audio-Ch_A2</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_A</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_A2</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_2</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>
Audio-Ch_A3	<p>The status menu item <code>Audio-Ch_A3</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_A</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_A3</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_3</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>
Audio-Ch_A4	<p>The status menu item <code>Audio-Ch_A4</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_A</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_A4</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_4</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>

Audio-Ch_B1	<p>The status menu item <code>Audio-Ch_B1</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_B</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_B1</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_1</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>
Audio-Ch_B2	<p>The status menu item <code>Audio-Ch_B2</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_B</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_B2</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_2</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>
Audio-Ch_B3	<p>The status menu item <code>Audio-Ch_B3</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_B</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_B3</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_3</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>
Audio-Ch_B4	<p>The status menu item <code>Audio-Ch_B4</code> indicates the status of audio data that will be embedded in channel 1 of the group selected by <code>EMB_B</code>.</p>
	<p>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 mis-adjustment of <code>Gain-Ch_B4</code>, the audio signal can be raised above 0 dBFS, a distorted audio signal will be the result. In this situation <code>Audio-Ch_4</code> indicates Clipped and the DATA-ERROR-led on the 2EB22 will illuminate.</p>

EDH-Stat_A

EDH-Stat_A, indicates the status of the EDH within the incoming SDI (A) signal.

OK is indicated if the status of the detected EDH does not indicate errors.

UES is shown if an EDH data block is not present.

EDA is displayed if an EDH error has previously been detected by another card in the SDI chain.

EDH is displayed if a previously undetected EDH error is detected by this device.

EDH-Stat_B

EDH-Stat_B, indicates the status of the EDH within the incoming SDI (B) signal.

OK is indicated if the status of the detected EDH does not indicate errors.

UES is shown if an EDH data block is not present.

EDA is displayed if an EDH error has previously been detected by another card in the SDI chain.

EDH is displayed if a previously undetected EDH error is detected by this device.

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 2 EB22 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_A	Input_SDI_A can be selected between 0 .. 255. 0= no event, 1..255 are the priority setting. If set to 0 no events will be generated. If the input is lost an Event will be generated at the priority.
Input_B	Input_SDI_B can be selected between 0 .. 255. 0= no event, 1..255 are the priority setting. If set to 0 no events will be generated. If the input is lost an Event will be generated at the priority.
EDH-Status_A	EDH status can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.
EDH-Status_B	EDH status can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.
Grp-Insert_A	Grp-Insert_A status can be selected between 0..255. 0= no event, 1..255 is the priority setting.
Grp-Insert_B	Grp-Insert_B status can be selected between 0..255. 0= no event, 1..255 is the priority setting.

Audio-A12-Status	Audio-A12-Status can be selected between 0..255. 0= no event, 1..255 is the priority setting.
Audio-A34-Status	Audio-A34-Status can be selected between 0..255. 0= no event, 1..255 is the priority setting.
Audio-B12-Status	Audio-B12-Status can be selected between 0..255. 0= no event, 1..255 is the priority setting.
Audio-B34-Status	Audio-B34-Status can be selected between 0..255. 0= no event, 1..255 is the priority setting.
What information is available in an event?	<p>The message consists of the following items;</p> <ol style="list-style-type: none"> 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	<p>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.</p> <p>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).</p>

Defining Tags | The tags defined for the 2EB22 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
EDH-Status	03 _{hex} =EDH_ERROR	83 _{hex} =EDH_OK	EDH error occurred
Ref-Status	02 _{hex} =REF_LOSS	82 _{hex} =REF_RETURN	reference lost or returned
ANC-Insert	0 _{hex} =ANC_ERROR	8 _{hex} =ANC_OK	ANC- 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.

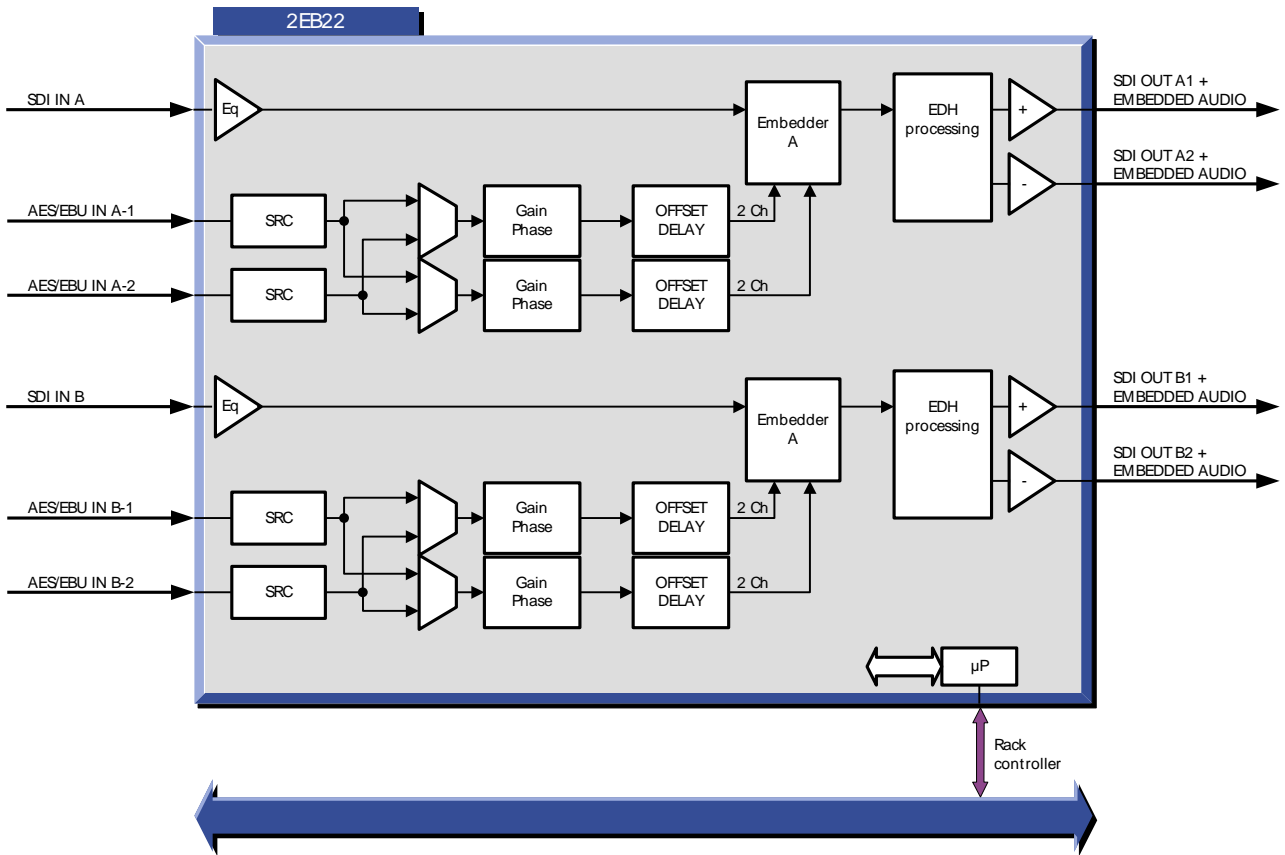
The Address

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.

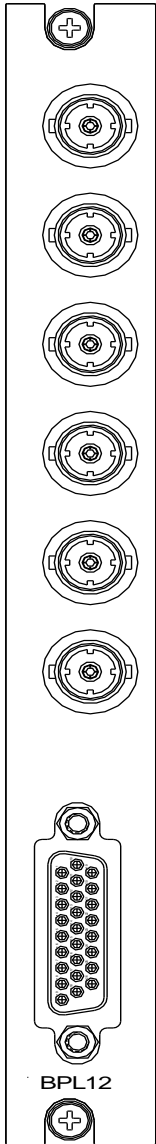
8 LED Indication

Error LED	The error LED indicates an error if the internal logic of the 2EB22 card is not configured correctly or has a hardware failure.
Input LED_A	This LED indicates the presence of a valid video signal on input A.
Input LED_B	This LED indicates the presence of a valid video signal on input B.
ANC Data LED-A	This led indicates the presence of embedded audio in the serial digital video signal A.
ANC Data LED_B	This led indicates the presence of embedded audio in serial digital video signal B.
DATA ERROR LED_A	This led indicates three different types of errors: <ul style="list-style-type: none">- Audio signal 1, 2, 3 or 4 of the local output is clipped- ANC Error- EDH Error
Data ERROR LED_B	This led indicates three different types of errors: <ul style="list-style-type: none">- Audio signal 1, 2, 3 or 4 of the local output is clipped- ANC Error- EDH Error
Connection LED	This LED illuminates after the card has initialized. The LED lights for 0.5 seconds every time a connection is made to the card.

9 Block Schematic



10 Connector Panel



- J1 = SDI in A
- J2 = SDI+Emb Out A
- J3 = SDI+Emb Out A
- J4 = SDI in B
- J5 = SDI+Emb Out B
- J6 = SDI+Emb Out B
- J7 = Digital audio in (see table for connections)

AES_INPUT	D-SUB
AES_1A_Pos	10
AES_1A_Neg	19
AES_1A_GND	1
AES_2A_Pos	11
AES_2A_Neg	20
AES_2A_GND	2
AES_1B_Pos	14
AES_1B_Neg	23
AES_1B_GND	5
AES_2B_Pos	15
AES_2B_Neg	24
AES_2B_GND	6

THE FIBER BACKPLANES THAT CAN BE USED ARE:
 BPL12T2_FC/PC, BPL12T2_SC, BPL12R2_FC/PC and
 BPL12R2_SC

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

