



GDB400/440

HDB400/440

GDB800/840/880

HDB800/840/880

3Gb/s, HD, SD 4, 8 or 16 channel audio de-embedder

Installation and Operation manual





Synapse

TECHNICAL MANUAL

GDB400/440/800/840/880

HDB400/440/800/840/880



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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
GDB400/440/800/840/880
HDB400/440/800/840/880



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

Introduction to Synapse	4
An Introduction to Synapse	4
Local Control Panel	4
Remote Control Capabilities	4
Unpacking and Placement	5
Unpacking	5
Placing the card	5
A Quick Start	6
When Powering-up	6
Changing settings and parameters	6
Front Panel Control	6
Example of changing parameters using front panel control	7
Axon Cortex Software	8
Menu Structure Example	8
The GDB880/800/840/440/400	9
Introduction	9
Features	9
Applications	9
Output options	10
Block schematic	10
Settings Menu	11
Introduction	11
Out-Frmt	11
Control	11
GPI-Ctrl	11
ExtMode	12
Active-Preset	12
Edit-Preset	12
PrstEditView	12
#Preset_Name	12
#LocOutA1 ~ #LocOutA4	12
#LocOutA5 ~ #LocOutA8	12
#LocOutB1 ~ #LocOutB4	13
#LocOutB5 ~ #LocOutB8	13
#LocGainOutA1 ~ #LocGainOutA4	13
#LocGainOutA5 ~ #LocGainOutA8	13
#LocGainOutB1 ~ #LocGainOutB4	13
#LocGainOutB5 ~ #LocGainOutB8	13
#LocPhaseOutA1 ~ #LocPhaseOutA4	13
#LocPhaseOutA5 ~ #LocPhaseOutA8	13
#LocPhaseOutB1 ~ #LocPhaseOutB4	14
#LocPhaseOutB5 ~ #LocPhaseOutB8	14
#LocDelayOutA1 ~ #LocDelayOutA4	14
#LocDelayOutA5 ~ #LocDelayOutA8	14
#LocDelayOutB1 ~ #LocDelayOutB4	14
#LocDelayOutB5 ~ #LocDelayOutB8	14
AddonOutA1 ~ AddonOutD4	14
NonPCM-Bypass	14
0dBFS-OUT	15
Fade-Time	15
AudioStatusBits	15
Audio-Phase	15
S2020-Source	15
Extract_Line	15
Extract_Ass_Ch	16
Status Menu	17
Introduction	17
SDI-Input_1	17
SDI-Map_1	17
SDI-Freq_1	17
CRC-Stat_1	17
Locked-To	17
GrpInUse-RI1	17
ANC_RI1	17

LocStatOutA1 ~ LocStatOutA8	17
LocStatOutB1 ~ LocStatOutB8	18
LocFrmtOutA1/2	18
LocFrmtOutA3/4	18
LocFrmtOutA5/6	18
LocFrmtOutA7/8	18
LocFrmtOutB1/2	18
LocFrmtOutB3/4	18
LocFrmtOutB5/6	19
LocFrmtOutB7/8	19
AddOnStatOutA1 ~ AddOnStatOutD4	19
AddOnFrmtOutA1/2 ~ AddOnFrmtOutD3/4	19
S2020-Detect	19
S2020-Src_Line	19
S2020-Src_Ass_Ch	19
S2020-Src_Method	19
Progr_Config	19
FPGA-Stat	20
DM-A_Type	20
DM-A_Status	20
DM-B_Type	20
DM-B_Status	20
Events Menu	21
Introduction	21
What is the Goal of an event?	21
Events	21
Announcements	21
Input_1	21
CRC-Status1	21
Ref-Status	21
What information is available in an event?	21
The Message String	21
The Tag	22
Defining Tags	22
The Priority	22
The Address	22
LED Indication	23
Error LED	23
Input_1 LED	23
Input_2 LED	23
ANC Data_1 LED	23
ANC Data_2 LED	23
Reference LED	23
Data Error_1 LED	23
Data Error_2 LED	23
Connection LED	23
Error LED	23
DM_Pres_A	23
DM_Pres_B	23
DM_Error_A	23
DM_Error_B	23
Block Schematic	24
Connector Panels	25
GPI pinning	25
D-sub pinning	26
GNU Public License version 2	27

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 Synapse Cortex installed, as this increases the ease of use and understanding of the modules.

2 Unpacking and Placement

Unpacking

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

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

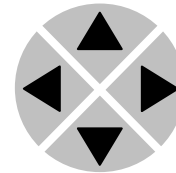
On powering up the Synapse frame, the card set will use basic data and default initialisation settings. All LED's will light during this process. After initialisation, several LED's will remain lit – the exact number and configuration is dependant upon the number of inputs connected and the status of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

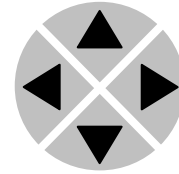
- Press ► To go forward through the menu structure.
- Press ◀ To go back through the menu structure.
- Press ▲ To move up within a menu or increase the value of a parameter.
- Press ▼ To move down through a menu or decrease the value of a parameter.

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

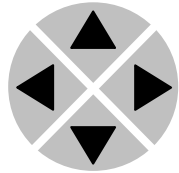
```
RRC18 [Select Card]
>S01=SFS10
```



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 its current setting is Auto.

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

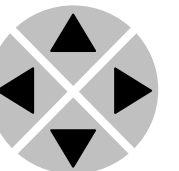


Pressing the ► selects the settings item shown, in this example SDI-Format.

(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.



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 manual.

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 Axon Cortex can be obtained from the RRC and RRS operational manuals and the Cortex help files.

4 The GDB880/800/840/440/400

Introduction

The GDB880-840-800-440-400 is a 3GB/s, HD SDI and SD SDI audio de-embedder. It is capable of extracting AES/EBU digital audio channels or analog audio channels. The card has 2 option output boards: 4 mono analog audio outputs (4ch total) per board, or 4 stereo AES/EBU outputs (8ch total) per board.

In addition, four ADD-ON cards can be connected to create a routing matrix. The architecture of DeEmb_A to DeEmb_D blocks is identical. The local AES/EBU or analog outputs can be controlled to adjust Phase, Gain and delay (on the fly).

Future upgrades are possible, like for instance the HDB400 can be future upgraded to HDB880, GDB800 or GDB880, etc. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

Features

- Up to 8 AES/EBU outputs (available with 110 Ohm and 75 Ohm connectors)
- Up to 8 analog audio outputs (available with balanced or unbalanced connectors)
- 8 extra AES/EBU inputs through the Synapse bus
- 2 SDI + embedded audio outputs
- Pre and post delay de-embedding
- 8 presets that configure all 16 output channels at once. controlled by GPI or ACP (Cortex)
- Audio level and phase control
- Audio offset delay up to 1300 ms
- 16 extra audio channels (4 groups) with ADD-ON card for additional audio outputs
- 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
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional 1 fiber input, 1 or 2 fiber outputs or a fiber in and output (replacing 1 SDI in and output) on the I/O panel
- Optional relay bypass (BHX18 or BHX18D)

Applications

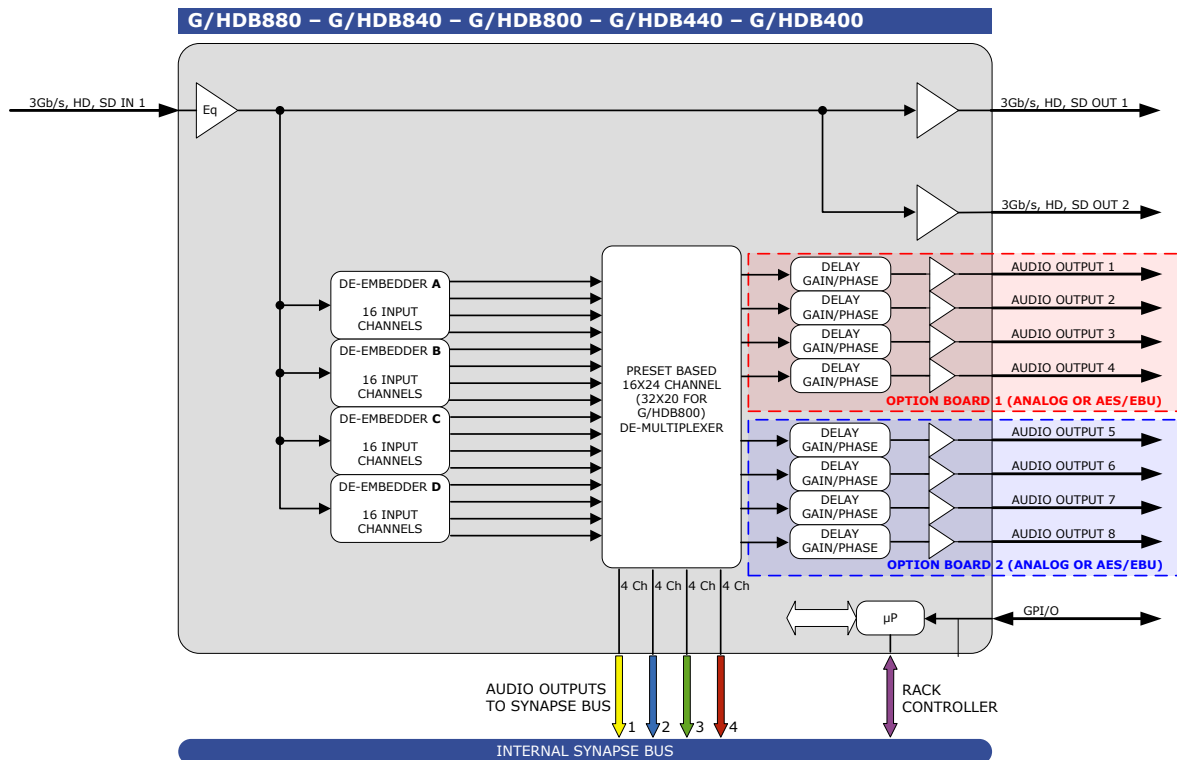
- 3Gb/s, HD and SD audio de-embedding
- Preset based 16 channel audio de-embedding

Output options

This platform has 2 option boards which define the outputs of the card. Refer to the block schematic for the position of the option boards. These are the options:

Card model	Option board 1	Option board 2
GDB880	4 AES/EBU outputs (8 channels)	4 AES/EBU outputs (8 channels)
HDB880	4 AES/EBU outputs (8 channels)	4 AES/EBU outputs (8 channels)
GDB840	4 AES/EBU outputs (8 channels)	4 analog outputs (4 channels)
HDB840	4 AES/EBU outputs (8 channels)	4 analog outputs (4 channels)
GDB800	4 AES/EBU outputs (8 channels)	None
HDB800	4 AES/EBU outputs (8 channels)	None
GDB440	4 analog outputs (4 channels)	4 analog outputs (4 channels)
HDB440	4 analog outputs (4 channels)	4 analog outputs (4 channels)
GDB400	4 analog outputs (4 channels)	None
HDB400	4 analog outputs (4 channels)	None

Block schematic



5 Settings Menu

Introduction

The settings menu displays the current state of each GDB-HDB 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.

VIDEO

Out-Frmt

With this setting you select what the output format will be. Please note that this is not a video conversion setting. This setting is only used to correctly set the delay. Default is `Auto`.

PRESET

Control

With this setting you decide whether the presets are controlled manually (using cortex of the front controls of the frame), or by use of the GPI inputs.

GPI-Ctrl

The GRB/HRB/550/590/950/990 has several physical GPI contacts to control the card's presets (if presets are set to be GPI controlled)

Latch: Latching GPI mode. When a contact is closed momentarily (edge triggered). Refer to the following table for examples of possible preset triggers:

GPI 1	GPI 2	GPI 3	Preset value
1	0	0	#1
0	1	0	#2
0	0	1	#3

Non-Latch: Non-latching GPI mode. When a contact is closed all the time (level triggered). Refer to the following table for examples of possible preset triggers:

GPI 1	GPI 2	GPI 3	Preset value
0	0	0	#1
1	0	0	#2
0	1	0	#3
0	0	1	#4

ExtMode	With this item you set the purpose of pins 5 till 8 of the RJ45 connector on the backpanel. The pupose can be either additional GPIO contacts (resulting in 7 GPI contacts instead of 3) or to use those pins for a dolby metadata input. Default is GPIO.
Active-Preset	With this item you can manually change the currently active preset . Can be any preset between 1 and 7. By default it is set to 1. All menu settings that are preceded with a '#'-prefix are part of the preset.
Edit-Preset	Here you can select which of the 7 selectable presets you want to edit. Changing this will not change the active preset, unless the currently active preset is the same you are going to edit. All menu settings that are preceded with a '#'-prefix are part of the preset.
PrstEditView	With this setting set to <code>Follow Active</code> , the edit preset settings will follow the active preset when the active preset is changed. This to avoid confusion when changing the active. Set to <code>Independent</code> the edit preset will not automatically follow active preset changes. By default set to <code>Follow Active</code> .
#Preset_Name	Sets/displays the name of the currently displayed preset.

LOCAL AUDIO OUT

#LocOutA1 ~ #LocOutA4	With these settings you can select one of the available embedded 16 channels of the above chosen rail input which should de-embedded to the corresponding output channel. A1 till A4 indicate AES/EBU outputs 1 and 2 in case of the 800/840/880 models and analog outputs 1 till 4 in case of the 400/440 models. Can also be set to off, resulting in no audio on the corresponding output channel.
#LocOutA5 ~ #LocOutA8	Only available in the GDB/HDB 800/840/880 models. With these settings you can select one of the available embedded 16 channels of the above chosen rail input which should de-embedded to the corresponding output channel. A5 till A8 indicate AES/EBU outputs 3 and 4. Can also be set to off, resulting in no audio on the corresponding output channel.

#LocOutB1 ~ #LocOutB4	Only available in the GDB/HDB 440/840/880 models. With these settings you can select one of the available embedded 16 channels of the above chosen rail input which should de-embedded to the corresponding output channel. B1 till B4 indicate AES/EBU outputs 5 and 6 of the 880 models, analog outputs 5 till 8 of the 440 models and analog outputs 1 till 4 of the 840 models. Can also be set to off, resulting in no audio on the corresponding output channel.
#LocOutB5 ~ #LocOutB8	Only available in the GDB/HDB 880 models. With these settings you can select one of the available embedded 16 channels of the above chosen rail input which should de-embedded to the corresponding output channel. B5 till B8 indicate AES/EBU outputs 7 and 8 of the 880 models. Can also be set to off, resulting in no audio on the corresponding output channel.
#LocGainOutA1 ~ #LocGainOutA4	Adjusts the gain for the corresponding audio output (Analog outputs 1 till 4 in case of the 400/440 models; AES/EBU outputs 1 and 2 in case of the 800/840/880 models) between -144 and 12dB. -144dB means the audio will be muted.
#LocGainOutA5 ~ #LocGainOutA8	Only available in GDB/HDB 800/880 models. Adjusts the gain for the corresponding audio output (AES/EBU outputs 3 and 4 in case of de 800/840/880 models) between -144 and 12dB. -144dB means the audio will be muted.
#LocGainOutB1 ~ #LocGainOutB4	Only available in GDB/HDB 440/840/880 models. Adjusts the gain for the corresponding audio output (Analog outputs 5 till 8 in case of the 440 model; analog outputs 1 till 4 in case of the 840 model; AES/EBU outputs 5 and 6 in case of the 880 model) between -144 and 12dB. -144dB means the audio will be muted.
#LocGainOutB5 ~ #LocGainOutB8	Only available in GDB/HDB 880 models. Adjusts the gain for the corresponding audio output (AES/EBU outputs 7 and 8) between -144 and 12dB. -144dB means the audio will be muted.
#LocPhaseOutA1 ~ #LocPhaseOutA4	Adjusts the audio phase of the corresponding individual output (Analog outputs 1 till 4 in case of the 400/440 models, AES/EBU outputs 1 and 2 in case of the 800/840/880 models) to 0 deg or 180 deg.
#LocPhaseOutA5 ~ #LocPhaseOutA8	Only available in GDB/HDB 800/840/880 models. Adjusts the audio phase of the corresponding individual output (AES/EBU outputs 3 and 4) to 0 deg or 180 deg.

#LocPhaseOutB1 ~	Only available in GDB/HDB 440/840/880 models. Adjusts the audio phase of the corresponding individual output (Analog outputs 5 till 8 in case of the 440 model; analog outputs 1 till 4 in case of the 840 model; AES/EBU outputs 5 and 6 in case of the 880 model) to 0 deg or 180 deg.
#LocPhaseOutB4 ~	
#LocPhaseOutB5 ~	Only available in GDB/HDB 880 models. Adjusts the audio phase of the corresponding individual output (AES/EBU outputs 7 and 8) to 0 deg or 180 deg.
#LocPhaseOutB8 ~	
#LocDelayOutA1 ~	Adjusts the delay of the corresponding audio channel (Analog outputs 1 till 4 in case of the 400/440 models, AES/EBU outputs 1 and 2 in case of the 800/840/880 models) between 0 and 4000ms.
#LocDelayOutA4 ~	
#LocDelayOutA5 ~	Only available in GDB/HDB 800/840/880 models. Adjusts the delay of the corresponding audio (AES/EBU outputs 3 and 4) between 0 and 4000ms.
#LocDelayOutA8 ~	
#LocDelayOutB1 ~	Only available in GDB/HDB 440/840/880 models. Adjusts the delay of the corresponding audio channel (Analog outputs 5 till 8 in case of the 440 model; analog outputs 1 till 4 in case of the 840 model; AES/EBU outputs 5 and 6 in case of the 880 model) between 0 and 4000ms.
#LocDelayOutB4 ~	
#LocDelayOutB5 ~	Only available in GDB/HDB 880 models. Adjusts the delay of the corresponding audio channel (AES/EBU output 7 and 8) between 0 and 4000ms.
#LocDelayOutB8 ~	

ADDON AUDIO OUT

AddonOutA1 ~ AddonOutD4	With these settings you can select one of the available embedded 16 channels of the above chosen rail input which should de-embedded to the corresponding add-on bus output channel. Can also be set to off, resulting in no audio on the corresponding output channel.
------------------------------------	---

MISC

NonPCM-Bypass	With this setting you can switch to bypass audio processing for all non-PCM audio on or off.
----------------------	--

0dBFS-OUT

The setting 0dBFS-Out sets the analog audio output level for a digital full-scale output signal. The available settings are +12 dBu, +15dBu, +18dBu and 24dBu.

Fade-Time

Fade/time is locked to 2 parameters: channel-switch and gain-change. It is used as the fade-in/out time of the channel-switch of audio channels. The old channel will be fade-out and the new channel will be fade in according to the time chosen with fade-time. Fade-Time is also used for smooth transitions when gain-values or presets are changed. These smooth transitions are triggered by a change in Gain settings or a Preset change. With this setting you can manually set this fade time between 100ms and 10.000ms. The default is 400ms.

AudioStatusBits

With this setting you select whether the audio status bits should be *Transparent* (same status bit on the outputs as on the inputs) or to *overwrite* them with new status bits.

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.

METADATA

S2020-Source

With this setting you select whether metadata should come from input 1 (Rail1) input 2 (Rail2) or if it is coming from the Local RJ45 input (requires the setting ExtMode to be set to Metadata). Default is Rail1.

Extract_Line

With this item you set a line between line 0 and line 1125 from where you want to extract the metadata from the input when S2020-Soucre is set to Rail1 or Rail2. By default set too line 0.

Extract_Ass_Ch

One attribute of the S2020 metadata is the association channel. The association channel is the channel to which the metadata is connected. You can select the S2020 metadata to be extracted from one of the possible associated channel pairs ranging from Ch01/02 to Ch15/16. Can also be set to `None` (in case there is no association set in the S2020 source) or to `Auto` (in which case the S2020 is extracted from the first available associated channel).

6 Status Menu

Introduction	The status menu indicates the current status of each item listed below.
SDI-Input_1	<p>This status item indicates the presence and format of a valid signal in input 1. This is displayed as:</p> <ul style="list-style-type: none"> ▪ 1080P60 ▪ 1080p50 ▪ 1080i60 ▪ 1080i50 ▪ 1080p30 ▪ 1080p25 ▪ 1080p24 ▪ 1035i60 ▪ 720p60 ▪ 720p50 ▪ SD525 ▪ SD625 ▪ NA
SDI-Map_1	Displays whether the 3Gb/s input on input 1 is mapped as Level A or Level B. If the input is not 3Gb/s (1080p50 or 1080p60) this item indicates NA.
SDI-Freq_1	Indicates the frequency of SDI input 1. Can be 1:1, 1:1.001 or NA.
CRC-Stat_1	Displays if there are CRC errors on input 1.
Locked-To	Displays to what the card is locked: SDI1, or Not Locked.
GrpInUse-RI1	Displays which groups are in use. Displayed as for instance 1_3_ when groups 1 and 3 contain audio and for instance _234 when groups 2, 3 and 4 contain audio.
ANC_RI1	Shows the status of the ancillary data. Can be NA, OK or error.
LocStatOutA1 ~ LocStatOutA8	Display the status of the individual audio channels of outputs 1 till 4. Can be OK, NA or Clipped (meaning the audio is clipping)

**LocStatOutB1 ~
LocStatOutB8**

Display the status of the individual audio channels of outputs 5 till 8. Can be OK, NA or Clipped (meaning the audio is clipping). This is only available for the GDB/HDB 440/840/880 models.

LocFrmtOutA1/2

Displays the format of outputs 1 and 2 in case of a 400/440 and output 1 in case of a 840/800/880. Can be one of the following:

- NA
- PCM
- Null
- AC-3
- TimeStmp
- MPEG-1
- MPEG-2
- SMPTE-KLV
- Dolby E
- Caption data
- UserDef
- Rsvd

LocFrmtOutA3/4

Displays the format of outputs 3 and 4 in case of a 400/440 and output 2 in case of a 800/880. Can be one of the formats listed under LocFrmtOutA1/2.

LocFrmtOutA5/6

Displays the format of output 3 in case of a 800/880. Can be one of the formats listed under LocFrmtOutA1/2. Only available in 800/880 models

LocFrmtOutA7/8

Displays the format of output 4 in case of a 800/880. Can be one of the formats listed under LocFrmtOutA1/2. Only available in 800/880 models

LocFrmtOutB1/2

Displays the format of outputs 5 and 6 in case of a 440 and output 5 in case of a 880. Can be one of the formats listed under LocFrmtOutA1/2. This status is only available in the 440 and 880 models.

LocFrmtOutB3/4

Displays the format of outputs 7 and 8 in case of a 440 and output 6 in case of a 880. Can be one of the formats listed under LocFrmtOutA1/2. This status is only available in the 440 and 880 models.

LocFrmtOutB5/6	Displays the format of output 7 in case of a 880. Can be one of the formats listed under LocFrmtOutA1/2. This status is only available in the 880 models.
LocFrmtOutB7/8	Displays the format of output 8 in case of a 880. Can be one of the formats listed under LocFrmtOutA1/2. This status is only available in the 880 models.
AddOnStatOutA1 ~ AddOnStatOutD4	Display the status of each individual add-on buss audio output channel. Can be OK, NA or Clipped (meaning the audio is clipping).
AddOnFrmtOutA1/2 ~ AddOnFrmtOutD3/4	Display the format of each add-on buss audio output channel pair. Can be one of the formats listed under LocFrmtInA1/2.
S2020-Detect	This status indicates whether or not S2020 is present or not (NA or Error). Depends on the S2020 source setting in the settings menu.
S2020-Src_Line	This status indicates in what line the source S2020 metadata was detected.
S2020-Src_Ass_Ch	Indicates the value of the Associated Channel item in the currently present S2020 signal.
S2020-Src_Method	Indicates the insert method of the currently present S2020 signal.
Progr_Config	<p>This status indicates the program config as present on the current S2020 source. Can be one of the following values:</p> <ul style="list-style-type: none"> ■ 5.1+2 ■ 5.1+1+1 ■ 4+4 ■ 4x2 ■ 8x1 ■ 5.1 ■ 3x2 ■ 6x1 ■ 2+2 ■ 7.1 ■ Other ■ NA

FPGA-Stat	Displays the status of the FPGA chip. Can be error or OK.
DM-A_Type	Displays which type of input or output board is currently detected on circuit A. Can be Digital input or output, Analog input or output or NA. For the GDB/HDB800/880 this should always be Digital output.
DM-A_Status	Indicates the status of I/O board A, can be OK, NA or Error.
DM-B_Type	Displays which type of input or output board is currently detected on circuit B. Can be Digital input or output, Analog input or output or NA. For the GDB/HDB880 this should always be Digital output. For the GDB/HDB800 this should always be NA.
DM-B_Status	Indicates the status of I/O board B, can be OK, NA 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 card 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_1	Input_A can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.
CRC-Status1	CRC-Status1 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.
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

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_A	01 _{hex} =INPA_LOSS	81 _{hex} =INPA_RETURN	input A lost or returned
CRC-Status1	03 _{hex} =CRC1_ERROR	83 _{hex} =CRC1_OK	CRC on input 1 error or OK
Reference	03 _{hex} =REF_LOSS	83 _{hex} =REF_RETURN	reference lost or returned

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.

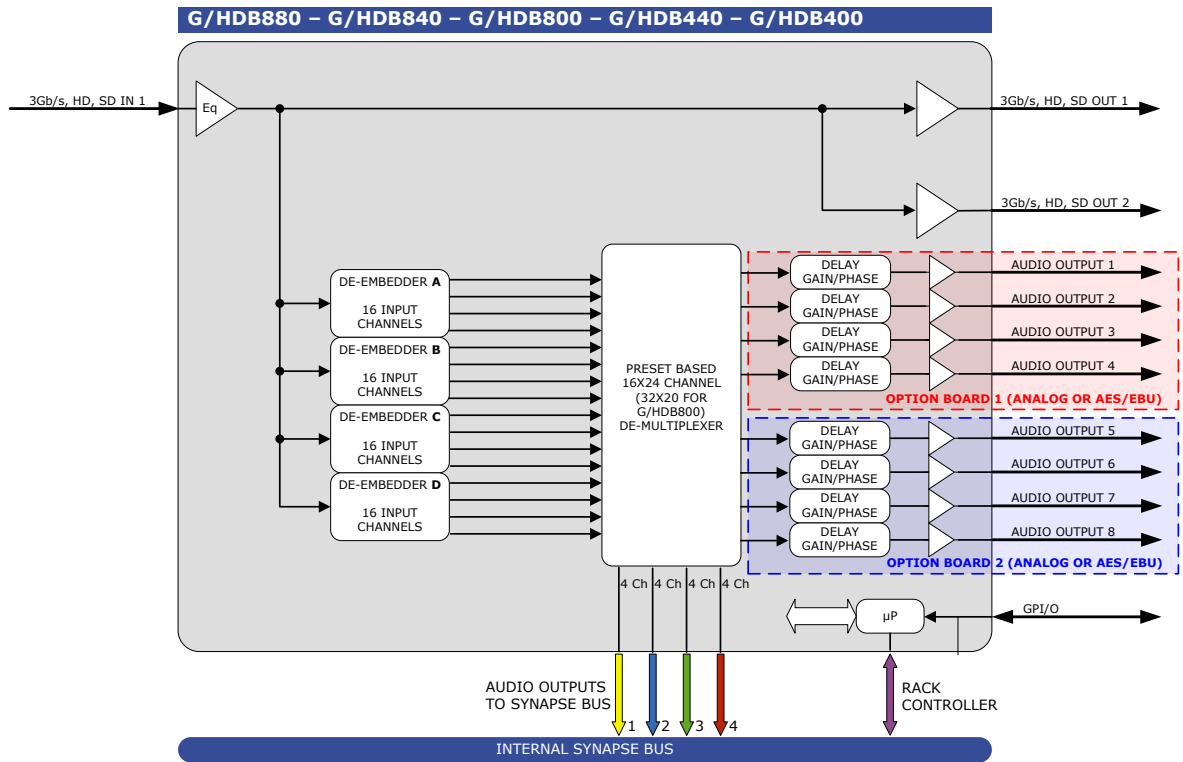
The Address

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

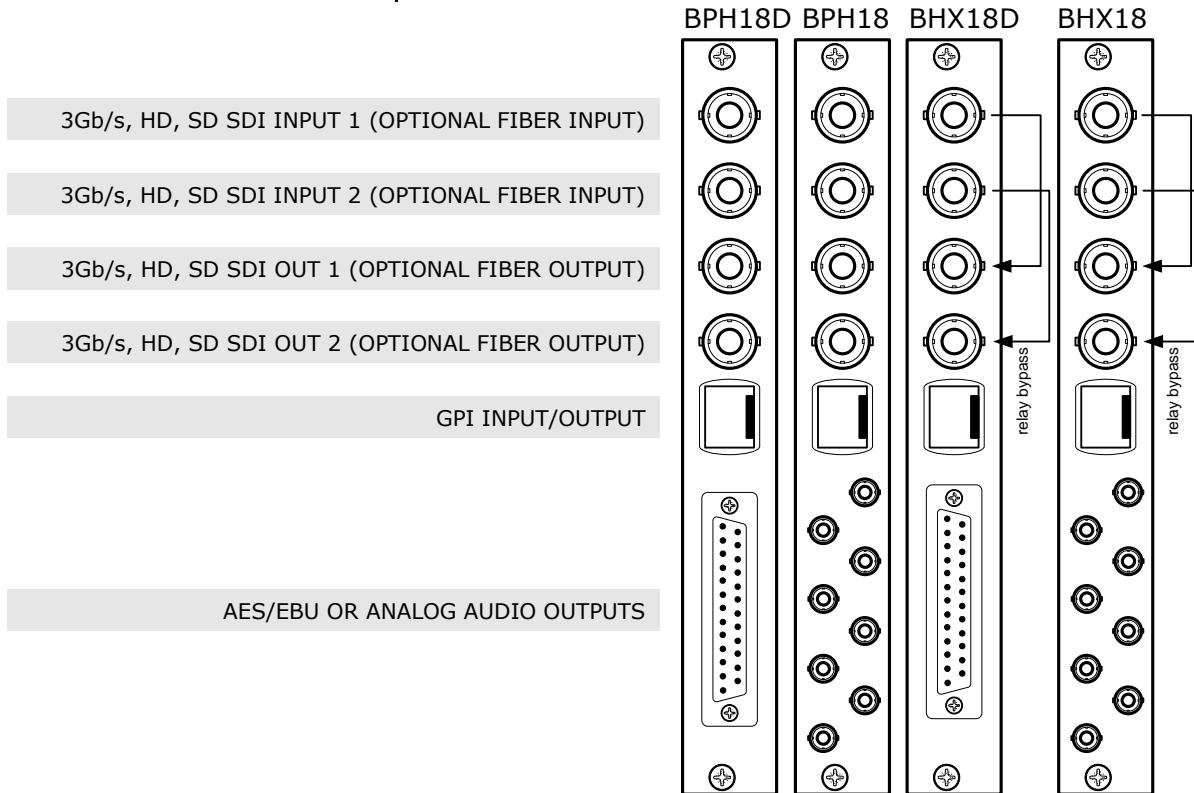
Error LED	The error LED indicates an error if the internal logic of the GDB/HDB card is not configured correctly or has a hardware failure.
Input_1 LED	This LED indicated the presence of a valid SDI video signal on input 1.
Input_2 LED	This LED indicated the presence of a valid SDI video signal on input 2.
ANC Data_1 LED	Indicates the presence of embedded audio within input 1.
ANC Data_2 LED	Indicates the presence of embedded audio within input 2.
Reference LED	Indicated the presence of a valid reference signal on the selected reference input connector (ref-1 or ref-2).
Data Error_1 LED	This LED indicates a CRC error in input 1.
Data Error_2 LED	This LED indicates a CRC error in input 2.
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.
Error LED	The error LED indicates an error if the internal logic of the card is not configured correctly or has a hardware failure.
DM_Pres_A	This LED illuminates when a I/O board is present on position A
DM_Pres_B	This LED illuminates when a I/O board is present on position B
DM_Error_A	Indicates an error on the I/O board on position A
DM_Error_B	Indicates an error on the I/O board on position B

9 Block Schematic



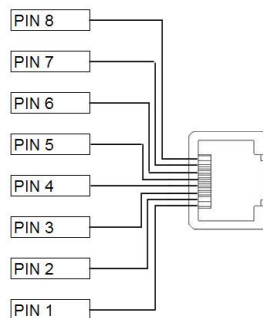
10 Connector Panels

The GDB-HDB400/440/800/840/880 can be used with the BPH18, the BHX18D or the bypass relay equivalents. The following table displays the pinout of these backpanels in combination with the card.



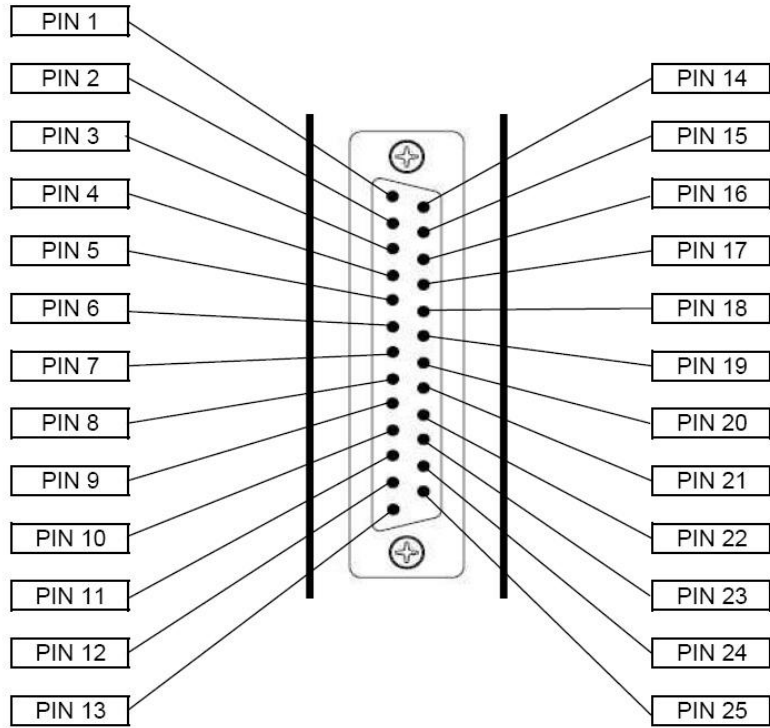
!Unused inputs and outputs must be terminated with the correct impedance!

GPI pinning



Pin	Function
1	Ground
2	GPI 1
3	GPI 2
4	GPI 3
5	GPI 4
6	GPI 5
7	GPI 6
8	GPI 7

D-sub pinning



Pin	G/HDB400	G/HDB440	G/HDB800	G/HDB840	G/HDB880
1	A1neg OUT	A1neg OUT	D1neg OUT	D1neg OUT	D1neg OUT
2	A1pos OUT	A1pos OUT	D1pos OUT	D1pos OUT	D1pos OUT
3	GND	GND	GND	GND	GND
4	A3neg OUT	A3neg OUT	D3neg OUT	D3neg OUT	D3neg OUT
5	A3pos OUT	A3pos OUT	D3pos OUT	D3pos OUT	D3pos OUT
6	GND	GND	GND	GND	GND
7	Not used	A5neg OUT	Not used	A1neg OUT	D5neg OUT
8	Not used	A5pos OUT	Not used	A1pos OUT	D5pos OUT
9	GND	GND	GND	GND	GND
10	Not used	A7neg OUT	Not used	A3neg OUT	D7neg OUT
11	Not used	A7pos OUT	Not used	A3pos OUT	D7pos OUT
12	GND	GND	GND	GND	GND
13	Not used	Not used	Not used	Not used	Not used
14	GND	GND	GND	GND	GND
15	A2neg OUT	A2neg OUT	D2neg OUT	D2neg OUT	D2neg OUT
16	A2pos OUT	A2pos OUT	D2pos OUT	D2pos OUT	D2pos OUT
17	GND	GND	GND	GND	GND
18	A4neg OUT	A4neg OUT	D4neg OUT	D4neg OUT	D4neg OUT
19	A4pos OUT	A4pos OUT	D4pos OUT	D4pos OUT	D4pos OUT
20	GND	GND	GND	GND	GND
21	Not used	A6neg OUT	Not used	A2neg OUT	D6neg OUT
22	Not used	A6pos OUT	Not used	A2pos OUT	D6pos OUT
23	GND	GND	GND	GND	GND
24	Not used	A8neg OUT	Not used	A4neg OUT	D8neg OUT
25	Not used	A8pos OUT	Not used	A4pos OUT	D8pos OUT



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