Synapse

GDR216

3Gb/s, HD and SD dual input distribution amplifier with 8 reclocked outputs per channel (ASI/DVB compatible)

Installation and Operation manual

AXON
THE HEART OF BROADCAST

Synapse

TECHNICAL MANUAL

GDR216

Hercules 28
NL-5126 RK Gilze
The Netherlands
Phone: +31 161 850 450
Fax: +31 161 850 499
E-mail: Info@axon.tv
Web: www.axon.tv

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

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

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

Copyright © 2001 – 2014 AXON Digital Design B.V.

Date created: 03-07-2013
Date last revised: 02-04-2014

Axon, the Axon logo and Synapse are trademarks of Axon Digital Design B.V.

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
GDR216

FC Tested To Comply With FCC Standards

FOR HOME OR OFFICE USE

This device complies with part 15 of the FCC Rules
Operation is subject to the following two conditions:
(1) This device may cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Table of Contents

Introduction to Synapse 6
- An Introduction to Synapse 6
- Local Control Panel 6
- Remote Control Capabilities 6

Unpacking and Placement 7
- Unpacking 7
- Placing the card 7

A Quick Start 8
- When Powering-up 8
- Changing settings and parameters 8
- Front Panel Control 8
- Example of changing parameters using front panel control 9
- Axon Cortex Software 10
- Menu Structure Example 10

The GDR216 Card 11
- Introduction 11
- Features 11
- Applications 11
- Block schematic 12

Settings Menu 13
- Introduction 13
- Mode 13
- Input_sel 13
- PLL_set_A 14
- Reclocker_A 14
- Mute_A 14
- PLL_set_B 14
- Reclocker_B 14
- Mute_B 14
- GPO-0 15
- GPO-1 15
- GPO-2 15
- Switch-Back 15
- HDMI1-Format 15
- HDMI1-DVI-Mode 16
- HDMI1_Mute_All 16
- HDMI2-Format 16
- HDMI2-DVI-Mode 16
- HDMI2_Mute_All 16
- CVBS1-In-Format 16
- CVBS2-In-Format 16

Status Menu 17
- Introduction 17
- SDI-Input_A 17
- PLL-rate_A 17
- SDI-Input_B 17
- PLL-rate_B 17
- Active-A 17
- Active-B 17
- Backplane-type 17
- SFP1-Vendor 17
- SFP1-Type 18
- SFP1-Temp-Stat 18
- SFP1-Volt-Stat 18
- Port1/2-Enabled 18
- Port1/2-Power 18
- Port1/2-Power-Stat 18
- Port1/2-Bias 18
- Port1/2-Bias-Stat 18
- Port1/2-Wavelength 18
- SFP2-Vendor 18
- SFP2-Type 18
- SFP2-Temp-Stat 18
- SFP2-Volt-Stat 19

Port3/4-Enabled 19
Port3/4-Power 19
Port3/4-Power-Stat 19
Port3/4-Bias 19
Port3/4-Bias-Stat 19
Port3/4-Wavelength 19

Events Menu 20
Introduction 20
What is the Goal of an event? 20
Events 20
Announcements 20
Input_A 20
Lock-Status_A 20
Input_B 20
Lock-Status_B 20
Active_Out_A 20
Active_Out_B 20
What information is available in an event? 21
The Message String 21
The Tag 21
Defining Tags 21
The Priority 21
The Address 21

LED Indication 22
Error LED 22
Input A LED 22
Input B LED 22
Connected LED 22

Block Schematic 23

Connector Panels 24

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

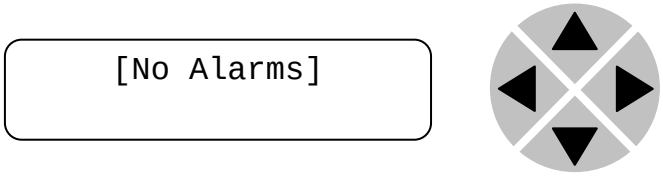
On powering up the Synapse frame, the card set will use basic data and default initialisation settings. All LED's will light during this process. After initialisation, several LED's will remain lit – the exact number and configuration is dependent upon the number of inputs connected and the status of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

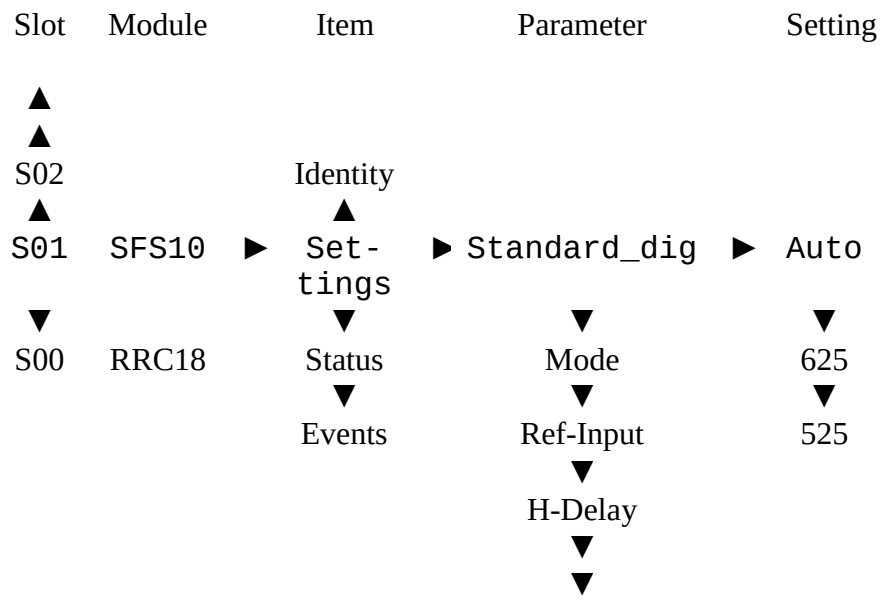
Axon Cortex Software

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

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

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

Menu Structure Example



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

4 The GDR216 Card

Introduction

The GDR216 is a dual channel 3Gb/s, HD, SD SDI reclocking distribution amplifier with simple switching capabilities and selectable outputs. This card is ASI/DVB compatible.

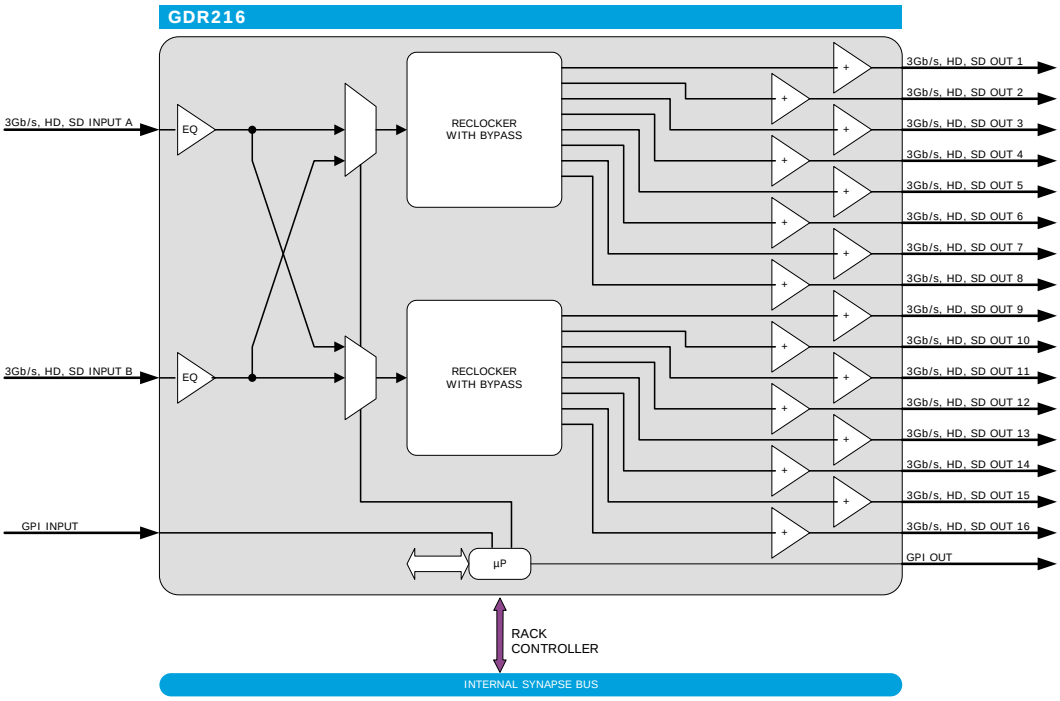
Features

- Single or Dual channel with 16 configurable outputs
- Flexible selection of inputs to outputs
- Input switching as emergency bypass (not clean) on carrier detects
- GPI controlled input swapping and status monitoring
  - GPI-1 = select input 1
  - GPI-2 = select input 2
  - GPO-0 = Crossed mode or straight mode status
  - GPO-1 = input 1 status
  - GPO-2 = input 2 status
- 2x2 or 2x1 function
- 2x1>8 or 1x1>16 function
- Compatible with:
  - SD SDI 270 Mbit/s (SMPTE 259M)
  - HD SDI 1485 Mbit/s (SMPTE 292M)
  - 3Gb/s SDI 2970 Mbit/s (SMPTE 424M)
  - ASI/DVB
- Bypass function of the reclocker for non-standard frequencies
- Optional SFP module on the inputs (only with BPH39) for 2x fiber, 2x CVBS or 2x SDI input
- Optional SFP module on outputs 1 and 2 and on outputs 7 and 8 (only with BPH38) for 2x fiber, 2x CVBS, 2x SDI outputs or 1x HDMI output

Applications

- Dual channel generic wideband 3Gb/s DA
- 1 to 16 generic wideband 3Gb/s DA

Block schematic



5 Settings Menu

Introduction

The settings menu displays the current state of each GDR216 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

Mode

In the setting `Mode` you can select how you want to use the GDR216: 1 input distributed to 16 outputs, or 2 inputs distributed to 8 outputs per input. Set to `1-channel`, 1 input will be set to all 16 outputs. Set to `2-channel`, 2 inputs will be set to 8 outputs each. You can also set the card Default is `2-channel`.

Input_sel

With `Input_sel` you can manually or by GPI select how the GDR216 should function.

In `Normal`, the card works in default: in `1-channel` mode, input A is set to all outputs. In `2-channel` mode input A is set to outputs A1 till 3, and input B is set to outputs B1 till B3.

In `Crossed`, the card works inverted. So in `1-channel` mode input B is set to all outputs. In `2-channel` mode, input A is set to outputs B1 till B3 and input B is set to outputs A1 till A3.

When set to `GPI1 Latch` you can select the way the GDR216 work with GPI1. When GPI1 is open, the card is set to `normal`. When GPI1 is closed, the card is set to `crossed`.

When set to `GPI 1/2 mom` the way the GDR216 works is set via pulses on GPI 1 and 2. A pulse on GPI 1 will set to card to `normal`. A pulse on GPI 2 will set the card to `crossed`. GPI 1 and GPI 2 are triggered on the falling edge.

When set to `Backup Switch`, the card will switch inputs when the input is lost. When the card is in `2 channel` mode, the card will cross the inputs when input 1 is lost. The setting `Switch-back` further down the menu decides whether the card should switch back when the signal returns.

In its default, the card is set to `normal`.

PLL_set_A

The GDR216 is capable of re-clocking a range of 3Gbit/s, HD and SD SDI transport stream bitrates. PLL_Set_A is used to set input A of the GDR216 to the correct bitrate of the incoming signal. PLL_Set_A can be set to Auto, 270 Mb/s, 1485 Mb/s and 2970 Mb/s. The default setting is Auto.

Reclocker_A

The setting item Reclock_A determines if the incoming signal on input A will be reclocked by the GDR216. The settings are:

- Auto: Auto selection between Bypass and Reclocked.
- Bypass: Does not re-clock the incoming signal
- On: The GDR216 always attempts to re-clock the input

The default setting is Auto.

Mute_A

Mute_A enables input A of the GDR216 to be muted. The settings of Mute_A are On, Off, Input Loss or PLL Unlock. Set to Input Loss will mute input A only in case a carrier loss is detected on input A. Set to PLL unlock will mute input A in case the PLL rate of input A is not available. The Default setting is Off.

PLL_set_B

The GDR216 is capable of re-clocking a range of 3Gbit/s, HD and SD SDI transport stream bitrates. PLL_Set_B is used to set input B of the GDR216 to the correct bitrate of the incoming signal. PLL_Set_B can be set to Auto, 270 Mb/s, 1485 Mb/s and 2970 Mb/s. The default setting is Auto.

Reclocker_B

The setting item Reclock_B determines if the incoming signal on input B will be reclocked by the GDR216. The settings are:

- Auto: Auto selection between Bypass and Reclocked.
- Bypass: Does not re-clock the incoming signal
- On: The GDR216 always attempts to re-clock the input

The default setting is Auto.

Mute_B

Mute_B enables input B of the GDR216 to be muted. The settings of Mute_B are On, Off, Input Loss or PLL Unlock. Set to Input Loss will mute input B only in case a carrier loss is detected on input B. Set to PLL unlock will mute input B in case the PLL rate of input B is not available. The Default setting is Off.

GPO-0	With this setting you can set what status the General Purpose Interface Output 0 should be reporting. The following are possible: ▪ `Input-A`: lets the GPO indicate whether or not there's signal present on input A (follows status menu item SDI-input_A). Value 0 means input A is ok, value 1 means input A is not ok. This function is not available when mode is set to `1-channel` and Input_sel setting is set to `crossed`. ▪ `Input-B`: lets the GPO indicate whether or not there's signal present on input B (follows status menu item SDI-input_B). Value 0 means input B is ok, value 1 means input B is not ok. This function is not available when mode is set to `1-channel` and Input_sel setting is set to `normal`. ▪ `Normal`: Lets the GPO indicate the status of the setting `Input_sel`. Value 0 indicates that the card is in normal mode. Value 1 indicates that the card is operating in crossed mode. ▪ `Crossed`: Lets the GPO indicate the status of the setting `Input_sel` the other way around. Value 0 indicates that the card is in crossed mode. Value 1 indicates that the card is operating in normal mode. ▪ `GPI-1`: Lets the GPO indicate the Value of GPI-1 ▪ `GPI-1 inv`: Lets the GPO indicate the inverted value of GPI-1 ▪ `GPI-2`: Lets the GPO indicate the Value of GPI-2 ▪ `GPI-2 inv`: Lets the GPO indicate the inverted value of GPI-2 The default setting for `GPO-0` is `Input-A`.
GPO-1	With this item you can set what status the General Purpose interface Output 1 should be reporting. The same settings are possible as described at GPO-0. The default setting for `GPO-1` is `Input-B`.
GPO-2	With this item you can set what status the General Purpose interface Output 2 should be reporting. The same settings are possible as described at GPO-0. The default setting for `GPO-2` is `Normal`.
Switch-Back	When a signal is lost and the card has switched to the other input, you can set the card to switch back to the former input when the signal returns. Set to `On` will switch back to the previous input, when set to `Off`, the input will stay switched even if the previous input returns. Priority is always on channel 1.
	HDMI
HDMI1-Format	Here you select the output format of HDMI output module 1.

	Possible modes are: ▪ `RGB444` (default) ▪ `YCrCb422` ▪ `YCrCb444`
HDMI1-DVI-Mode	With these settings you set SFP HDMI output A to either `DVI-Mode` or `HDMI-Mode`. Default is `DVI-Mode`.
HDMI1_Mute_All	Here you can mute all audio on SFP HDMI output A. Off means no audio mute. On means all audio is muted. Default is off.
HDMI2-Format	Here you select the output format of SFP HDMI output B. It has the same options as for `HDMI1-Format`.
HDMI2-DVI-Mode	With these settings you set SFP HDMI output B to either `DVI-Mode` or `HDMI-Mode`. Default is `DVI-Mode`.
HDMI2_Mute_All	Here you can mute all audio on SFP HDMI output B. Off means no audio mute. On means all audio is muted. Default is off.
	CVBS
CVBS1-In-Format	With these settings you select the analog input format of the corresponding SFP CVBS input A. Possible formats are: ▪ `PAL-BGHID` (default) ▪ `PAL-N` ▪ `NTSC-M` ▪ `PAL-M` ▪ `NTSC-4.43` ▪ `NTSC-J` ▪ `PAL-60`
CVBS2-In-Format	With these setting you select the analog input format of SFP CVBS input B. It has the same options as for `CVBS1-Format`.

6 Status Menu

Introduction

The status menu indicates the current status of each item listed below. There are no defaults for status indicators. Status depends of input signals being present or not. **The GDR216 is not able to monitor the inactive input in 1-channel mode.**

SDI-Input_A

This status item indicates the presence of a valid SDI signal on input A. `SDI_Input_A` indicates if an input signal is `Present`, `Loss` or `NA` (Not Available: only used when `mode` is set to `1-channel` and `Input_sel` setting is set to `crossed`).

PLL-rate_A

`PLL_rate_A` indicates the rate at which the PLL of input A is locked when `PLL_Set_A` is set to `auto`. PLL_rate_A is a copy of the PLL_Set setting that sets the input. The range of locking rates is as follows: `270` Mb/s, `1485` Mb/s, and `2970` Mb/s

SDI-Input_B

This status item indicates the presence of a valid SDI signal on input B. `SDI_Input_B` indicates if an input signal is `Present`, `Loss` or `NA` (Not Available: only used when `mode` is set to `1-channel` and `Input_sel` setting is set to `crossed`).

PLL-rate_B

`PLL_rate_B` indicates the rate at which the PLL of input B is locked when `PLL_Set_B` is set to `auto`. PLL_rate_B is a copy of the PLL_Set setting that sets the input. The range of locking rates is as follows: `270` Mb/s, `1485` Mb/s, and `2970` Mb/s

Active-A

Displays which input channel is currently on outputs A

Active-B

Displays which input channel is currently on outputs B

Backplane-type

This status item indicates the type of backplane (I/O-panel) is currently connected to the card.

SFP STATUS

SFP1-Vendor

These status item display the name of the vendor of the SFP input/output module A.

SFP1-Type	These status items display the type name/number of SFP input/output module A.
SFP1-Temp-Stat	These indicate whether the temperature of SFP input/output module A is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case Temperature monitoring is not available or the module is not inserted.
SFP1-Volt-Stat	These indicate whether the voltage usage of SFP input/output module A is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case Voltage monitoring is not available or the module is not inserted.
Port1/2-Enabled	These item indicate whether the corresponding output port on SFP output module A is `enabled`, `disabled` or `NA` (Not available, when no input signal is available or an input module is inserted.)
Port1/2-Power	These status items indicate the current transmitter power of the specified port on SFP output module A between 0mW and 6.55mW. When a receiver is installed or no SFP module is inserted this value is 0.
Port1/2-Power-Stat	These indicate whether the output power of the specified port on SFP output module A is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case of an input module or no module is inserted.
Port1/2-Bias	These status items indicate the current laser bias of the specified port on SFP module A is between 0mA and 300mA. When there is a non fiber SFP or an input module is inserted, this value will be 0.
Port1/2-Bias-Stat	These indicate whether the laser bias of the specified port on SFP output module A is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case laser bias monitoring is not available or no output module is inserted.
Port1/2-Wavelength	Indicates the current wave length of the corresponding output port on the SFP output module A between 0nm and 2000nm. When there is a non fiber SFP or RX module installed, this value will be 0.
SFP2-Vendor	These status item display the name of the vendor of the SFP input/output module B.
SFP2-Type	These status items display the type name/number of SFP input/output module B.
SFP2-Temp-Stat	These indicate whether the above indicated temperature of SFP input/output module B is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case Temperature monitoring is not available or the module is not inserted.

SFP2-Volt-Stat	These indicate whether the above indicated voltage usage of SFP input/output module B is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case Voltage monitoring is not available or the module is not inserted.
Port3/4-Enabled	These item indicate whether the corresponding output on SFP output module is `enabled`, `disabled` or `NA` (Not available, when no input signal is available or an input module is inserted)
Port3/4-Power	These status items indicate the current transmitter power of the specified port on SFP output module B between 0mW and 6.55mW. When an input module is inserted or no SFP module is inserted this value is 0.
Port3/4-Power-Stat	These indicate whether the output power of the specified port on SFP output module B is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case of an input module or no module is inserted.
Port3/4-Bias	These status items indicate the current laser bias of the specified port on SFP output module B is between 0mA and 300mA. When there is a non fiber SFP or RX SFP installed, this value will be 0.
Port3/4-Bias-Stat	These indicate whether the laser bias of the specified port on SFP output module B is `Too_High`, `High`, `OK`, `Low` or `Too_Low`. Can also be `NA` in case laser bias monitoring is not available or no module is inserted.
Port3/4-Wavelength	Indicates the current wave length of the corresponding output port on SFP output module B between 0nm and 2000nm. When there is a non fiber SFP or RX module installed, this value will be 0.

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 GDR216 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 A status can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.

Lock-Status_A

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

Input_B

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

Lock-Status_B

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

Active_Out_A

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

Active_Out_B

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

What information is available in an event?

The message consists of the following items;

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

The Message String

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

The Tag

The tag is also defined in the card. The tag has a fixed meaning. When controlling or monitoring software should make decisions based on events, it is easier to use the tag instead of interpreting a string. The first implementation is the tag controlled switch in the GPI16. In cases where the event marks a change to fault status (e.g. 1 for Loss of Input) the complement is marked by the tag increased by 128 (80_{hex}) (e.g. 129 (81_{hex}) for Return of Input).

Defining Tags

The tags defined for the card are:

Event Menu Item	Tag	Tag	Description
Announcements	0 or NA	0 or NA	Announcing of report and control values
Input_A	01_{hex} =INP_LOST	81_{hex} =INP_RETURN	SDI input A lost or returned
Lock-status_A	11_{hex} =PLL_LOCKED	91_{hex} =PLL_UNLOCKED	PLL input A locked or unlock
Input_B	12_{hex} =INP_LOST	92_{hex} =INP_RETURN	SDI input B lost or returned
Lock-status_B	51_{hex} =PLL_LOCKED	$d1_{hex}$ =PLL_UNLOCKED	PLL input B locked or unlock
Active_Out_A	19_{hex} =IN_B_->_OUT_A	99_{hex} =IN_A_->_OUT_A	Active output A is In_B or In_A
Active_Out_B	$1a_{hex}$ =IN_A_->_OUT_B	$9a_{hex}$ =IN_B_->_OUT_B	Active output B is In_A or In_B

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 GDR216 card is not configured correctly or has a hardware failure.

Input A LED

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

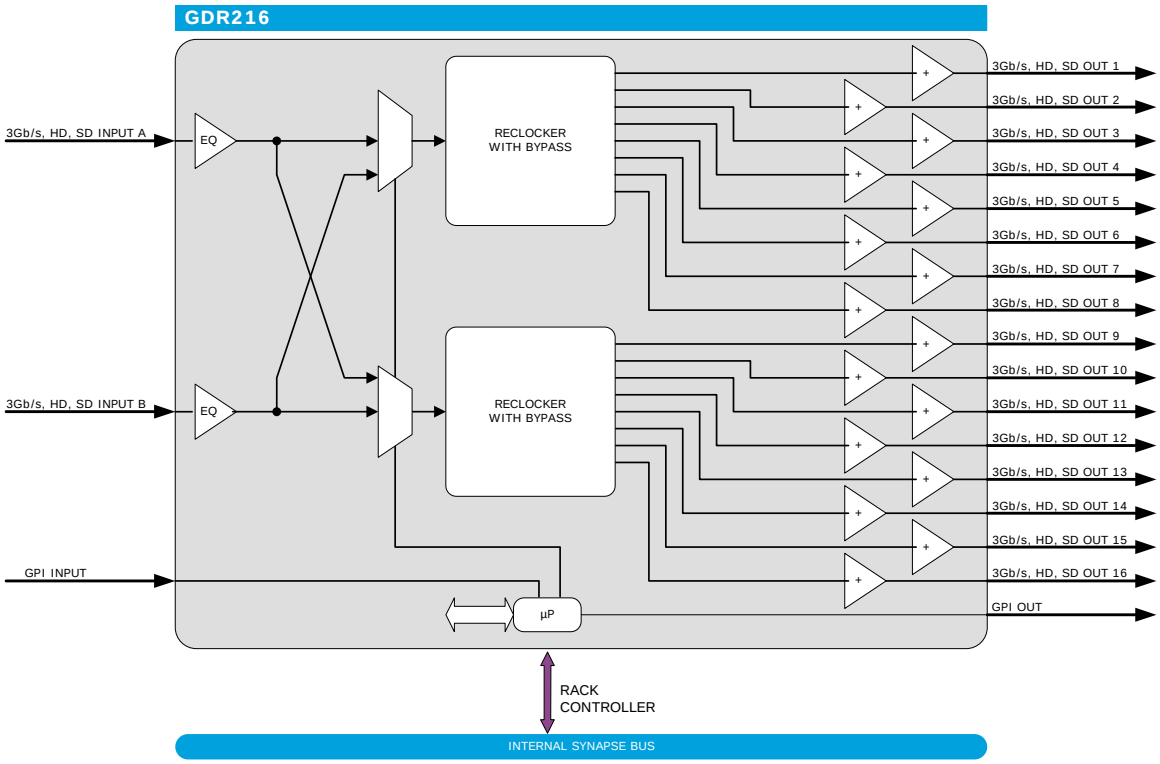
Input B LED

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

Connected 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 GDR216 can be used with the BPH37, BPH38, BPH39, BPH42 and the relay bypass versions BHX37 and BHX42. The following table displays the pinout of these backpanels.

BPH37: Standard IO panel 16 output, 2 input

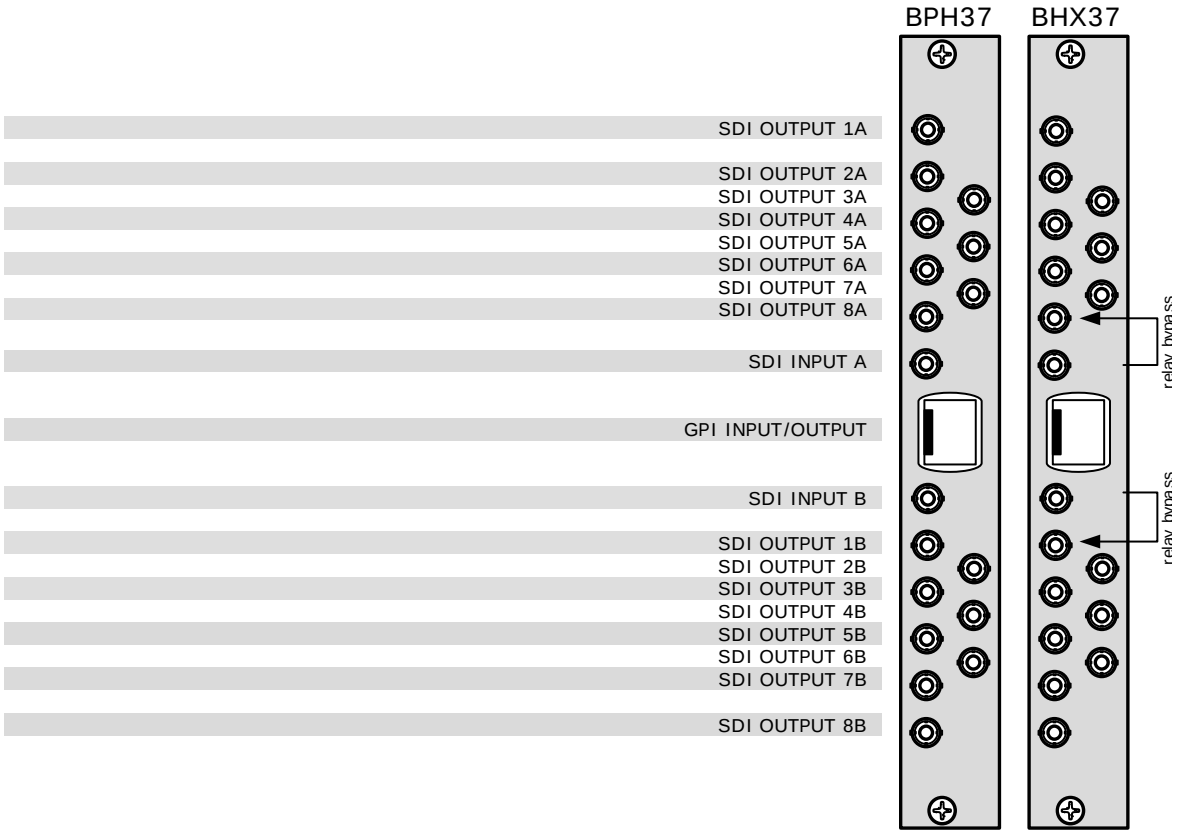
BHX37: Bypass IO panel 16 output, 2 input

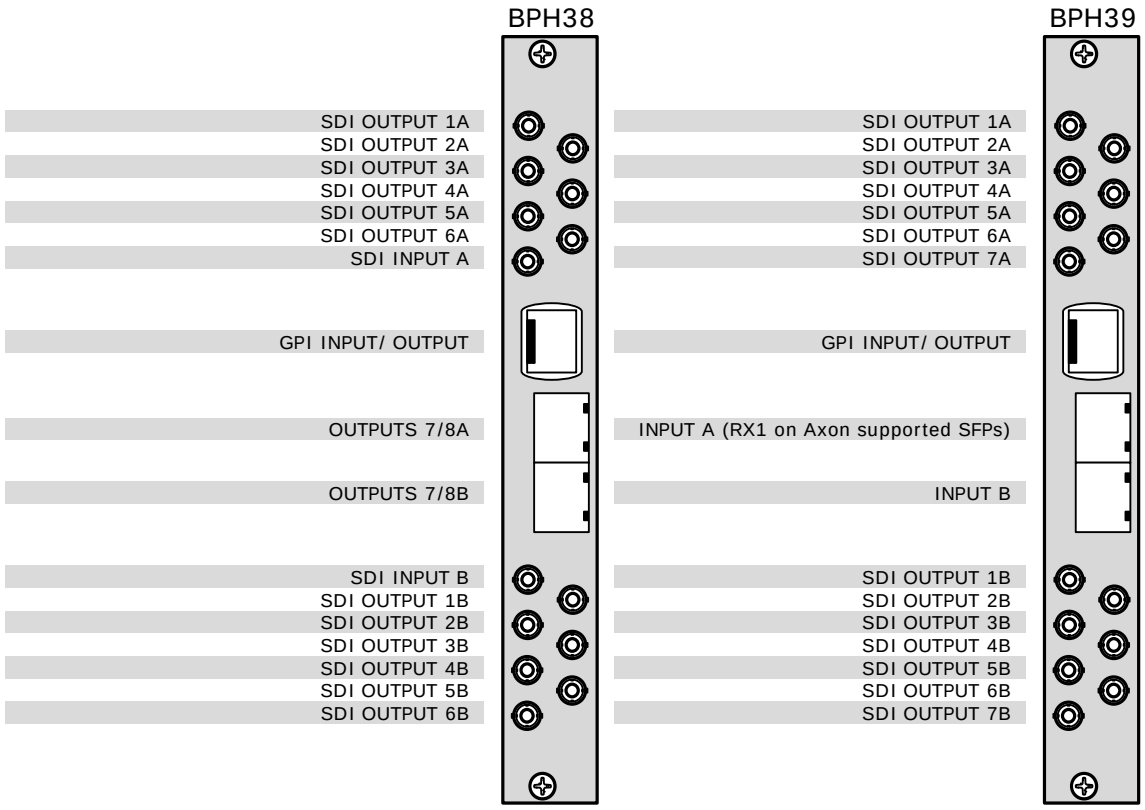
BPH38: SFP option IO panel Transmitter

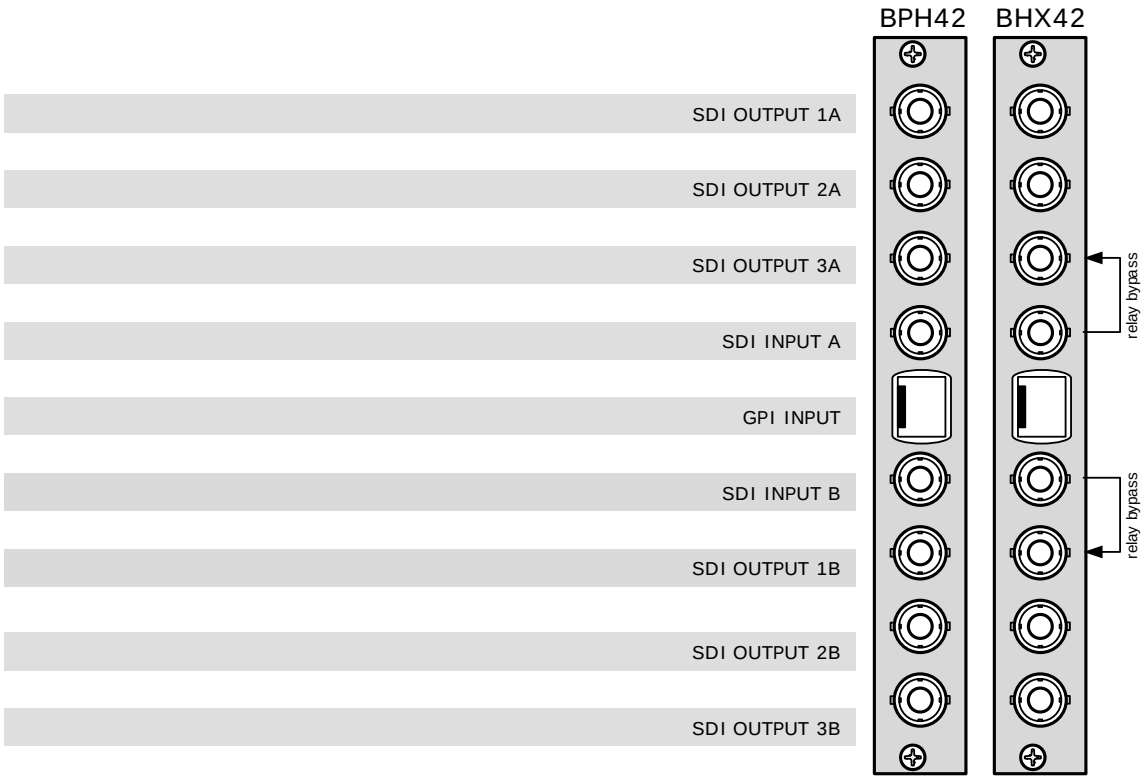
BPH38: SFP option IO panel Receiver

BPH42: Standard IO panel 8 output, 2 input

BHX42: Bypass IO panel 8 output, 2 input



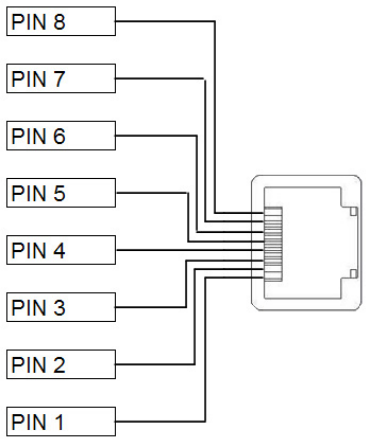


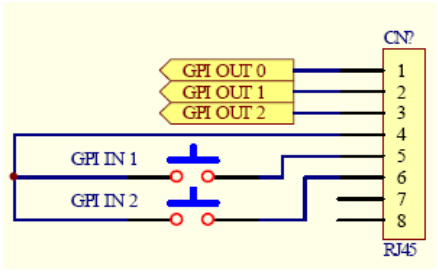


Unused inputs and outputs must be terminated with the correct impedance! If the outputs are not correctly terminated, the resulting eye patterns and cable lengths will be seriously decreased.

GPI I/O

RJ45 connector with the following pinning:





RJ 45

PIN 1	GPO 0
PIN 2	GPO 1
PIN 3	GPO 2
PIN 4	GND
PIN 5	GPI 1
PIN 6	GPI 2
PIN 7	NC
PIN 8	NC