

*Synapse*

**INS21**

**VBI Line inserter/swapper (Data Bridge)**

*Synapse*

**TECHNICAL MANUAL**

**VBI Line inserter/swapper (Data Bridge)**



**Lange Wagenstraat 55**

**NL-5126 BB Gilze**

**The Netherlands**

**Phone: +31 161 850 450**

**Fax: +31 161 850 499**

**E-mail: [Info@axon.tv](mailto:Info@axon.tv)**

**Web: [www.axon.tv](http://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.

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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

<p>Axon Digital Design    INS21</p> <p>    Tested To Comply With FCC Standards</p> <p>FOR HOME OR OFFICE USE</p>	<p>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.</p>
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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](http://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 manual. The method of connection to a computer using Ethernet is also described in the RRC/RRS manual.



**CHECK-OUT: “SYNAPSE 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 the Synapse Cortex software 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.

### 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.

REMARK: On power up all LEDs 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 LEDs will light during this process. After initialisation, several LEDs will remain lit – the exact number and configuration is dependant upon the number of inputs connected and the status of the inputs.

#### Default settings

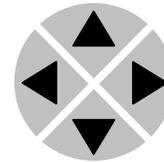
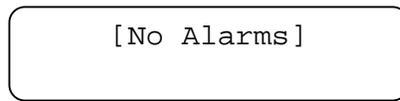
In its default condition, the INS21 will act as a VBI inserter, inserting data that is placed in the VBI of a composite video source into an SDI signal. For example this data could be Teletext.

#### Changing settings and parameters

The front panel controls or Synapse 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.

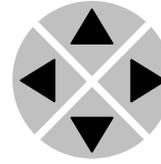
- Press ► To go forward through the menu structure.
- Press ◀ To go back through the menu structure.
- Press ▲ To move up within a menu or increase the value of a parameter.
- Press ▼ To move down through a menu or decrease the value of a parameter.

REMARK: 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

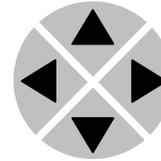
```
RRC18 [Select Card]
>S01=SFS10
```



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
```

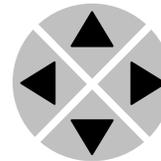


Pressing the ► selects the menu item shown, in this example Settings.

(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
```

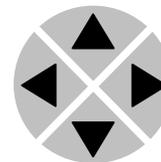


Pressing the ► selects the settings item shown, in this example SDI-Format.

(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]
```



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 Cortex

Synapse 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 Cortex 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. 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 Cortex, please refer to the Cortex manual.

## Menu Structure Example

Slot	Module	Item	Parameter	Setting
▲				
▲				
S02		Identity		
▲				
S01	SFS10	Settings	SDI-Format	Auto
▼				
S00	RRC18	Status	Mode	625
		▼		
		Events	Ref-Input	525
			▼	
			H-Delay	
			▼	
			▼	

REMARK: Further information about Front Panel Control and Cortex can be obtained from the rack controller and Cortex operational manuals.

## 4 The INS21 Card

<b>Introduction</b>	<p>The AXON INS21 is a vertical interval (Vertical Blanking) inserter with a composite input and an SDI input and output. VBI (for example Teletext) information present in the composite signal can be inserted in to the SDI signal.</p> <p>The INS21 can swap any TV line between line 7 – 22 and line 320 – 335 from the composite signal to any line between line 7 – 22 and line 320 – 335 in the SDI signal.</p>
<b>Line swapping of vertical interval VBI</b>	<p>Any TV line between line 7 and 22 (Field 1) and 320 and 335 (Field 2) can be swapped with any line in that range. For example, line 7 can be swapped with line 335 of the SDI signal.</p>
<b>SDI Input</b>	<p>An SDI input is provided for the signal into which VBI will be inserted.</p>
<b>Four Serial Digital Outputs</b>	<p>Four SDI outputs are available, reducing the need for distribution amplifiers.</p>
<b>Composite Input</b>	<p>The INS21 has a composite video input with 8bit processing to provide the source of the VBI to be swapped/inserted.</p>
<b>Back planes</b>	<p>The INS21 can be used with the BPL12, BPL12T_fc/pc, BPL12T_sc, BPL12R_fc/pc, BPL12R_sc back plane2.</p>
<b>Miscellaneous</b>	<p>The INS21 cards fit into the Axon SFR04 &amp; SFR18 rack.</p> <p>LEDs on the front of the board indicate the presence Video Reference, Input signal, Connection &amp; Processor Errors.</p> <p>The INS21 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 INS21 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.

### F1\_7

The setting menu item F1\_7 is used to insert data that is present in the incoming composite video into Field 1, Line 7 of the output SDI video. The settings of F1\_7 are as follows:

SDI: Transparent for SDI-input

Blnk: Blanked

Line 7 to 22: Choice of VBI line from field one

Line 320 to 335: Choice of VBI line from field two

The default setting is Line 7.

### F1\_8

The setting menu item F1\_8 is used to insert data that is present in the incoming composite video into Field 1, Line 8 of the output SDI video. The settings of F1\_8 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 8.

### F1\_9

The setting menu item F1\_9 is used to insert data that is present in the incoming composite video into Field 1, Line 9 of the output SDI video. The settings of F1\_9 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 9.

### F1\_10

The setting menu item F1\_10 is used to insert data that is present in the incoming composite video into Field 1, Line 10 of the output SDI video. The settings of F1\_10 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 10.

- F1\_11** The setting menu item F1\_11 is used to insert data that is present in the incoming composite video into Field 1, Line 11 of the output SDI video. The settings of F1\_11 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 11.
- F1\_12** The setting menu item F1\_12 is used to insert data that is present in the incoming composite video into Field 1, Line 12 of the output SDI video. The settings of F1\_12 are SDI Bln, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 12.
- F1\_13** The setting menu item F1\_13 is used to insert data that is present in the incoming composite video into Field 1, Line 13 of the output SDI video. The settings of F1\_13 are SDI Bln, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 13.
- F1\_14** The setting menu item F1\_14 is used to insert data that is present in the incoming composite video into Field 1, Line 14 of the output SDI video. The settings of F1\_14 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 14.
- F1\_15** The setting menu item F1\_15 is used to insert data that is present in the incoming composite video into Field 1, Line 15 of the output SDI video. The settings of F1\_15 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 15.
- F1\_16** The setting menu item F1\_16 is used to insert data that is present in the incoming composite video into Field 1, Line 16 of the output SDI video. The settings of F1\_16 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 16.
- F1\_17** The setting menu item F1\_17 is used to insert data that is present in the incoming composite video into Field 1, Line 17 of the output SDI video. The settings of F1\_17 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 17.

**F1\_18** The setting menu item F1\_18 is used to insert data that is present in the incoming composite video into Field 1, Line 18 of the output SDI video. The settings of F1\_18 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 18.

**F1\_19** The setting menu item F1\_19 is used to insert data that is present in the incoming composite video into Field 1, Line 19 of the output SDI video. The settings of F1\_19 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 19.

**F1\_20** The setting menu item F1\_20 is used to insert data that is present in the incoming composite video into Field 1, Line 20 of the output SDI video. The settings of F1\_20 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 20.

**F1\_21** The setting menu item F1\_21 is used to insert data that is present in the incoming composite video into Field 1, Line 21 of the output SDI video. The settings of F1\_21 are SDI Bln, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 21.

**F1\_22** The setting menu item F1\_22 is used to insert data that is present in the incoming composite video into Field 1, Line 22 of the output SDI video. The settings of F1\_22 are SDI Bln, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 22.

**F2\_320** The setting menu item F2\_320 is used to insert data that is present in the incoming composite video into Field 2, Line 320 of the output SDI video. The settings of F2\_320 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).

The default setting is Line 320.

- F2\_321** The setting menu item F2\_321 is used to insert data that is present in the incoming composite video into Field 2, Line 321 of the output SDI video. The settings of F2\_321 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 321.
- F2\_322** The setting menu item F2\_322 is used to insert data that is present in the incoming composite video into Field 2, Line 322 of the output SDI video. The settings of F2\_322 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 322.
- F2\_323** The setting menu item F2\_323 is used to insert data that is present in the incoming composite video into Field 2, Line 323 of the output SDI video. The settings of F2\_323 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 323.
- F2\_324** The setting menu item F2\_324 is used to insert data that is present in the incoming composite video into Field 2, Line 324 of the output SDI video. The settings of F2\_324 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 324.
- F2\_325** The setting menu item F2\_325 is used to insert data that is present in the incoming composite video into Field 2, Line 325 of the output SDI video. The settings of F2\_325 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 325.
- F2\_326** The setting menu item F2\_326 is used to insert data that is present in the incoming composite video into Field 2, Line 326 of the output SDI video. The settings of F2\_326 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 326.

- F2\_327** The setting menu item F2\_327 is used to insert data that is present in the incoming composite video into Field 2, Line 327 of the output SDI video. The settings of F2\_327 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 327.
- F2\_328** The setting menu item F2\_328 is used to insert data that is present in the incoming composite video into Field 2, Line 328 of the output SDI video. The settings of F2\_328 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 328.
- F2\_329** The setting menu item F2\_329 is used to insert data that is present in the incoming composite video into Field 2, Line 329 of the output SDI video. The settings of F2\_329 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 329.
- F2\_330** The setting menu item F2\_330 is used to insert data that is present in the incoming composite video into Field 2, Line 330 of the output SDI video. The settings of F2\_330 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 330.
- F2\_331** The setting menu item F2\_331 is used to insert data that is present in the incoming composite video into Field 2, Line 331 of the output SDI video. The settings of F2\_331 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 331.
- F2\_332** The setting menu item F2\_332 is used to insert data that is present in the incoming composite video into Field 2, Line 332 of the output SDI video. The settings of F2\_332 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F\_7).  
The default setting is Line 332.

<b>F2_333</b>	<p>The setting menu item F2_333 is used to insert data that is present in the incoming composite video into Field 2, Line 333 of the output SDI video. The settings of F2_333 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F_7).</p> <p>The default setting is Line 333.</p>
<b>F2_334</b>	<p>The setting menu item F2_334 is used to insert data that is present in the incoming composite video into Field 2, Line 334 of the output SDI video. The settings of F2_334 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F_7).</p> <p>The default setting is Line 334.</p>
<b>F2_335</b>	<p>The setting menu item F2_335 is used to insert data that is present in the incoming composite video into Field 2, Line 335 of the output SDI video. The settings of F2_335 are SDI Blnk, Line 7 to 22, and Line 320 to 335 (see setting F_7).</p> <p>The default setting is Line 335.</p>
<b>EDH</b>	<p>This setting allows the user to switch the built in EDH generator On and 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>
<b>Y-Black</b>	<p>This item controls the Luminance black level adjustment between -128.....+127bits The black level can be aligned by +/- 100mV(analog video).</p> <p>The default setting is 0 bit.</p>
<b>Cb-Black</b>	<p>This item controls the Colour Difference (Cb) black level adjustment.</p> <p>The default setting is 0 bit</p>
<b>Cr-Black</b>	<p>This item controls the Colour Difference (Cr) black level adjustment.</p> <p>The default setting is 0 bit</p>

<b>Y-Gain</b>	<p>Y-Gain controls the Luminance gain of the built-in processing amplifier. The control range is between 0% and 150%.</p> <p>The default setting is 100%.</p>
<b>Cb-Gain</b>	<p>Cb-Gain controls the Colour Difference gain of the built-in processing amplifier. The control range is between 0% and 150%.</p> <p>The default setting is 100%.</p>
<b>Cr-Gain</b>	<p>Cr-Gain controls the Colour Difference gain of the built-in processing amplifier. The control range is between 0% and 150%.</p> <p>The default setting is 100%.</p>
<b>Line23</b>	<p>WSS data may be present in L23. You can blank this line, make it transparent or copy line 23 out of the CVBS input.</p> <p>The default setting is Blank.</p>
<b>Chroma_Blank</b>	<p>The Chroma_blank item allows you to blank the chrominance of the VBI lines. The settings are ON/OFF. The default setting is ON.</p>
<b>Loss_CVBS</b>	<p>Loss_CVBS indicates that if the Analog input is not present, the SDI VBI signal is active.</p> <p>SDI = transparent; the SDI VBI signal is active if the analog signal is interrupted.</p> <p>Blank = Blank, the SDI VBI signal is blanked, if the analog signal is interrupted.</p> <p>Default setting is SDI</p>
<b>VI_SDI_Pass</b>	<p>If this setting is set to 'on' the chroma information on line 11 (like VI information) of the SDI input is passed through to the output. This is independent of settings: chroma_blank, and F1_11. Default is off.</p>
<b>End_VBI_F1</b>	<p>This gives you the option to end the decoding of the vbi information 1 line early in field 1. Normally vbi ends with with line 23 for PAL, and 21 for NTSC (ITU-R BT.470 Compliant)</p> <p>When set to "-1 Ln" line 22 (PAL), or line 20 (NTSC), is decoded as a normal active video line, Y and C decoded separately. By default it is set to normal.</p>

**End\_VBI\_F2**

This gives you the option to end the decoding of the vbi information 1 line early in field 2. Normally vbi ends with with line 336 for PAL, and 284 for NTSC (ITU-R BT.470 Compliant) When set to "-1 Ln" line 335 (PAL), or line 283 (NTSC), is decoded as a normal active video line, Y and C decoded separately. By default it is set to normal.

## 6 Status Menu

<b>Introduction</b>	The status menu indicates the current status of each item listed below.
<b>SDI-Input</b>	This status item indicates the presence of a valid Serial video signal at the SDI input. <code>SDI-Input</code> indicates if an input signal is <code>NA</code> (not available) or <code>Present</code> .
<b>Analog-Inp</b>	This status item indicates the presence of a valid analog video signal at the input. <code>Analog-Inp</code> indicates if an input signal is <code>NA</code> (not available) or <code>Present</code> .
<b>EDH-Stat</b>	<p><code>EDH-Stat</code>, indicates the status of the EDH within the incoming SDI signal.</p> <p><code>OK</code> is indicated if the status of the detected EDH does not indicate errors.</p> <p><code>UES</code> is shown if an EDH data block is not present.</p> <p><code>EDA</code> is displayed if an EDH error has previously been detected by another card in the SDI chain.</p> <p><code>EDH</code> is displayed if a previously undetected EDH error is detected by this device.</p>
<b>FPGA-Stat</b>	<code>FPGA-Stat</code> displays the status of the internal processor of the INS21. The status is indicated as <code>Ok</code> or <code>Error</code> .

## 7 Events Menu

<b>Introduction</b>	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.
<b>What is the Goal of an event?</b>	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.
<b>Events</b>	The events reported by the INS21 are as follows;
<b>Announcements</b>	Announcements is not an event. This item is only used for switching the announcement of status changes on/off. 0=off, other =on
<b>Input_CVBS</b>	Input_CVBS 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.
<b>Input_SDI</b>	Input_SDI 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.
<b>EDH-Status</b>	EDH status can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.

**What information is available in an event?**

The message consists of the following items;

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

**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<sub>hex</sub>) (e.g. 129 (81<sub>hex</sub>) for Return of Input).

**Defining Tags**

The tags defined for the INS21 are:

Event Item	Menu	Tag		Description
Announcements	0 or NA		0 or NA	Announcing of report and control values
Input_CVBS		01 <sub>hex</sub> =INP_LOSS	81 <sub>hex</sub> =INP_RETURN	primary input lost or returned
Input_SDI		01 <sub>hex</sub> =INP_LOSS	81 <sub>hex</sub> =INP_RETURN	primary input lost or returned
EDH-Status		03 <sub>hex</sub> =EDH_ERROR	83 <sub>hex</sub> =EDH_OK	EDH error occurred

**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.

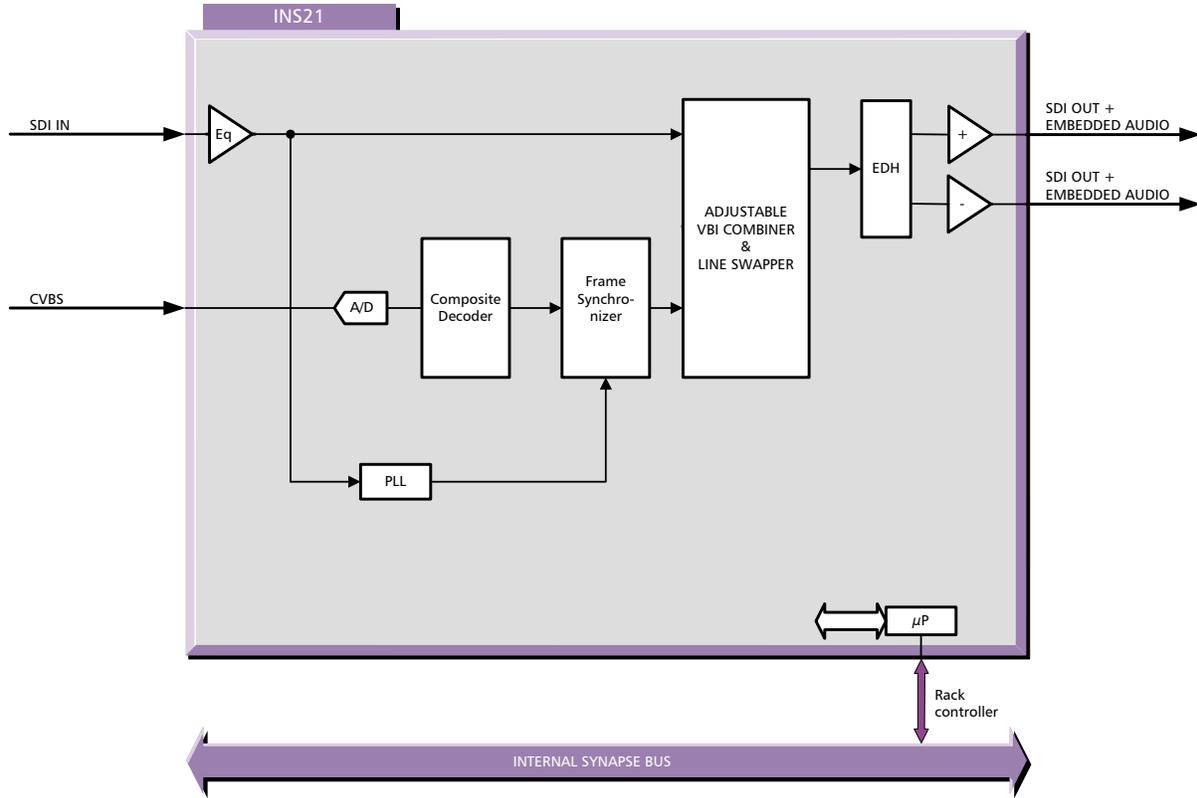
**The Address**

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

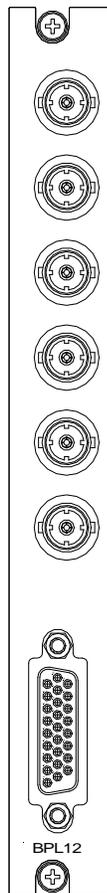
<b>Error LED</b>	The error LED indicates an error if the internal logic of the INS21 card is not configured correctly or has a hardware failure.
<b>Input LED</b>	This LED indicated the presence of a valid video signal on the input.
<b>Reference LED</b>	Indicated the presence of a valid reference signal on the selected reference input connector (ref-1 or ref-2). See section 5 Ref Input.
<b>ANC Data LED</b>	This led indicates the presence of embedded audio in the serial digital video signal.
<b>Data Error LED</b>	This led indicates three different types of errors: <ul style="list-style-type: none"><li>- Audio signal 1, 2, 3 or 4 of the local output is clipped.</li><li>- ANC Error.</li><li>- EHD Error.</li></ul>
<b>Connection LED</b>	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 Panel

The INS21 can be used with the following backplanes: BPL12  
BPL12T\_fc/pc, BPL12T\_sc, BPL12R\_fc/pc, BPL12R\_sc.



- J1 = SDI\_Input
- J2 = SDI\_processed output
- J3 = SDI\_processed output
- J4 = Composite Input
- J5 = Not used
- J6 = Not used
- J7 = Not used!

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