

# INSTALLATION AND CONFIGURATION MANUAL

CDV29

REFERENCE DISTRIBUTION  
AMPLIFIER(S )



**SYNAPSE** ///



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- 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 EVS 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

EVS Broadcast Equipment  
CDV29



Tested To Comply  
With FCC Standards

FOR HOME OR OFFICE USE

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



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# 1 Introduction to Synapse

## An Introduction to Synapse

Synapse is a modular system designed for the broadcast industry. High density, intuitive operation and high quality processing are key features of this system. Synapse offers a full range of converters and processing modules. Please visit the EVS Broadcast Equipment SA Website at <http://www.evs.com> 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, RRS4, RRS18 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/RRS04/RRS18) manual. The method of connection to a computer using Ethernet is described in the RRC manual.



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

Although not required to use Synapse Cortex, 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 EVS Synapse card must be unpacked in an anti-static environment. Care must be taken to NOT touch component 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 receive 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

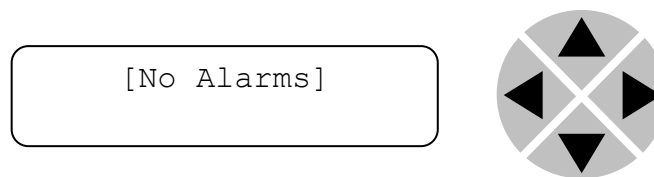
In its default condition, the CDV29 will act as a Reference distribution amplifier.

#### Changing parameters and settings

The front panel controls or the Synapse Cortex Software can be used to change settings. An overview of the settings can be found in chapter 5, 6 and 7 of this manual.

#### Front Panel Control

Front Panel Display and Cursor



Settings are displayed and changed as follows;

Use the cursor 'arrows' on the front panel to select the menu and parameter to be displayed and/or changed.

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

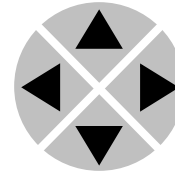
**REMARK:** Whilst editing a setting, pressing ► twice will reset the value to its default.



## Example of changing parameters using front panel control

With the display as shown below

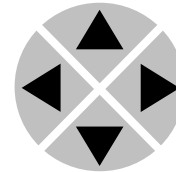
```
RRC18 [Select Card]
>S01=SFS10
```



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
```

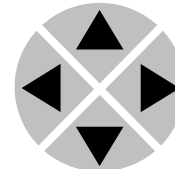


Pressing the ► selects the menu item shown, in this example Settings.

(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
```

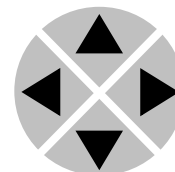


Pressing the ► selects the settings item shown, in this example SDI-Format.

(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  
Software**

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

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

A description of how Cortex works can be found in the Cortex manual, which is downloadable via our website.

**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 Synapse Cortex Software can be obtained from the RRC18, RRC10, RRC04, RRS04, RRS18 and Cortex operational manuals.

## 4 The CDV29 Card

<b>Introduction</b>	The EVS CDV29 is an analog reference distribution amplifier providing a low loss electronically balanced input.
<b>Back planes</b>	The CDV29 can be used with a BPL01 back plane. If the BPL01 is used then the CDV29 have nine outputs.
<b>Miscellaneous</b>	<p>The CDV29 cards fit into the EVS SFR18 or SFR04 rack.</p> <p>LEDs at the front of the board indicate the presence of power and input signal.</p> <p>The CDV29 can be controlled by EVS Synapse Cortex software. Refer to menu structure for control.</p>



## 5 Settings Menu

### Introduction

The settings menu displays the current state of each setting within the CDV29 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 Cortex software.

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

### Input\_sel

This setting allows the user to determine which reference input is distributed to the outputs. Choices are Ref1 or Ref2. Input 1 is the uppermost input of the RRC18 rack controller connection panel at the rear of the SFR18; 2 is the bottom input. The SFR04 has only one reference input, so the input selection has no influence on the outputs of the card when using an SFR04.

The option Auto makes the input selection automatically with Ref1 as priority (so when there is a reference on both inputs, Ref1 will be selected). Whenever Ref1 is lost, Ref2 is automatically selected.

When the input which you selected with Input\_sel is lost, the CDV29 will automatically use the other input.

### Switch-Back

Switch-Back can be set On or Off.

When Switch-Back is set to On and Input\_sel is set auto, and a change over to channel 2 has occurred (so input 1 was lost), the card will immediately switch back to Ref1 when Ref1 is OK again.

When Switch-Back is set to Off and a change over to Ref2 has occurred, the input\_sel will stay on Ref2 no matter if Ref1 is back up again, so in this state the card will always stay on Ref2 when a switch-over has occurred (unless Ref2 is lost).

The default setting is Off.

### InputGain

With GainCtrl set to manual InputGain allows the signal present at the input to be amplified or attenuated within the range -6dB to 6dB. The default setting is 0dB.

## 6 Status Menu

<b>Introduction</b>	The status menu indicates the current status of each item listed below
<b>Analog-Inp1</b>	This status item displays if there is a signal present or not (NA) on reference input 1.
<b>Analog-Inp2</b>	This status item displays if there is a signal present or not (NA) on reference input 2.
<b>Active-Inp</b>	This status item displays the currently used reference input (Ref1 or Ref2). This status will display NA shortly after the start-up of the card, shortly after the correct reference input will be indicated.

## 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?</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>CDV29 Events</b>	The events reported by the CDV29 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>Analog_Inp1</b>	Analog_Inp1 can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.
<b>Analog_Inp2</b>	Analog_Inp2 can be selected between 0 .. 255. 0= no event, 1..255 is the priority setting.
<b>What information is available in an event?</b>	<p>The message consists of the following items;</p> <ol style="list-style-type: none"><li>1) A message string to show what has happened in text, for example: “INP_LOSS”, “REF_LOSS”, “INP_RETURN”.</li><li>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.</li><li>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.</li><li>4) A slot number of the source of this event.</li></ol>
<b>The Message String</b>	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 are:

Event Menu Item	Tag		Description
Announcements	0 or NA	0 or NA	Announcing of report and control values
Input	01 <sub>hex</sub> =INP_LOSS	81 <sub>hex</sub> =INP_RETURN	primary input 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**

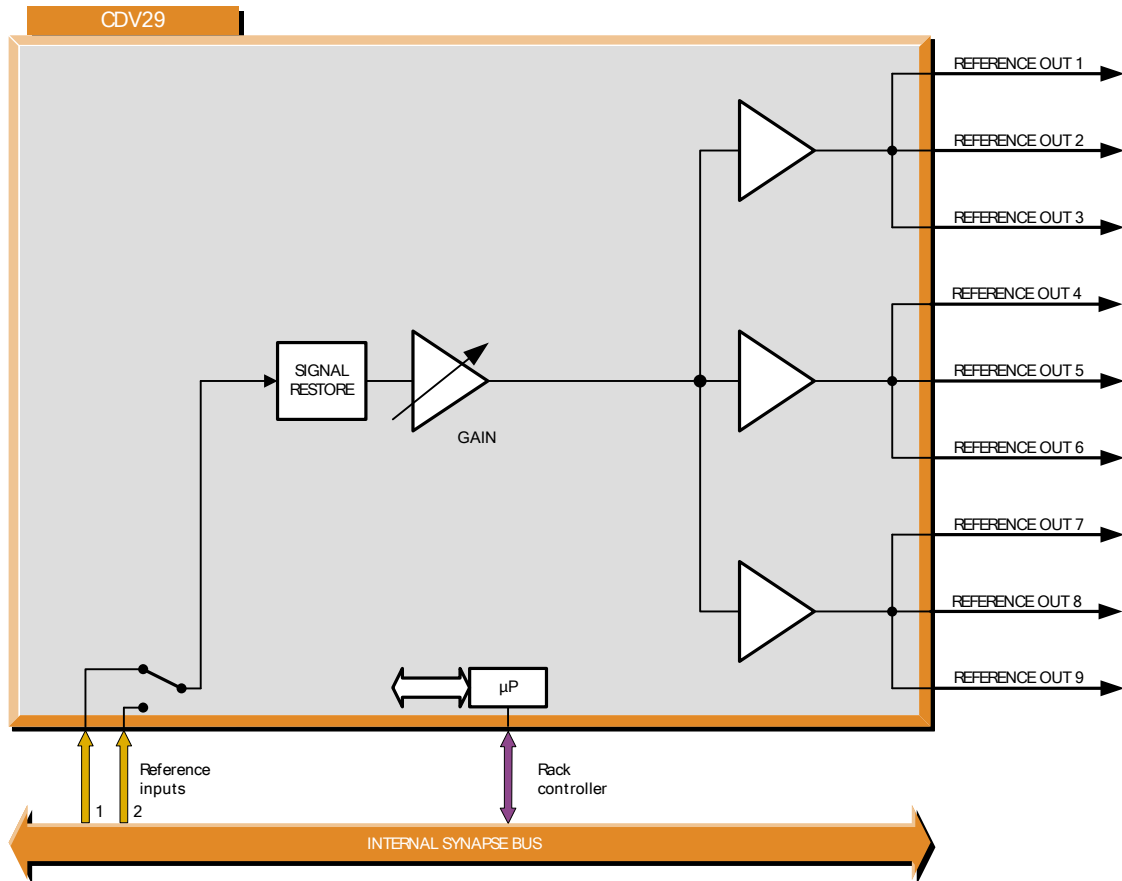
Together with the message string or the tag, the slot number or address of the card is relevant to be able to assign the event to a certain card.

## 8 LED Indication

<b>POWER LED</b>	The power LED indicates the presence of power on the CDV29.
<b>INPUT LED 1</b>	This LED indicated the presence of a valid analog video signal on the input 1.
<b>INPUT LED 2</b>	This LED indicated the presence of a valid analog video signal on the input 2.



## 9 Block Schematic





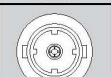
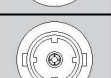
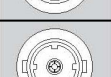
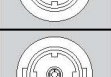

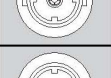
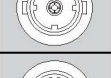
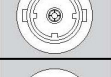



# 10 Connector Panel

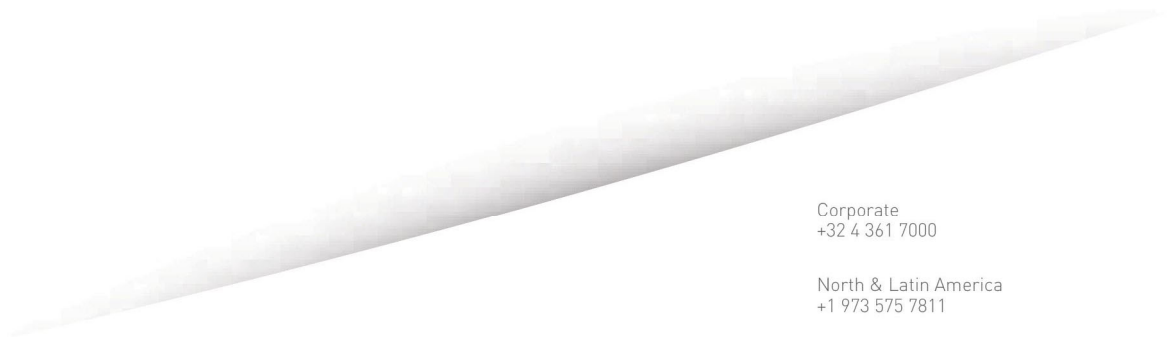
The CDV29 can be used with the following backplanes: BPL01.

**!Unused outputs must be terminated with the correct impedance!**

BPL01

	
	REFERENCE OUTPUT 1
	REFERENCE OUTPUT 2
	REFERENCE OUTPUT 3
	REFERENCE OUTPUT 4
	REFERENCE OUTPUT 5
	REFERENCE OUTPUT 6
	REFERENCE OUTPUT 7
	REFERENCE OUTPUT 8
	REFERENCE OUTPUT 9
	





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