

System HD Dual Channel HD-SDI Distribution Amplifier Operation Manual

CONTENTS

INTRODUCTION TO THIS OPERATION MANUAL	2
SCOPE OF THIS OPERATION MANUAL.....	3
MODULE DESCRIPTION	3
FEATURES	4
TECHNICAL PROFILE	5
INPUT (CHANNELS 1 AND 2).....	5
OUTPUTS (CHANNELS 1 AND 2).....	5
INDICATOR LEADS	5
Enhanced Monitoring Option.....	5
ROLLCALL™	5
OPTIONS	5
REAR INTERFACE CONNECTIONS	7
REAR INTERFACE NOTATION GUIDE.....	7
STANDARD INPUTS	7
STANDARD OUTPUTS	8
ROLLCALL MENU SYSTEM.....	9
ROLLCALL MONITORING FEATURES	10

Introduction to this Operation Manual

This manual covers the operation and use of the modules described below.

WARNING...

THE FRONT PANEL OF THE UNIT MUST NOT BE OPENED BY THE OPERATOR. ACCESS IS ONLY PERMITTED TO FULLY QUALIFIED INSTALLATION ENGINEERS.

System HD Modules must only be installed and/or replaced by qualified service personnel, with reference to the System HD Installation guide. Refer all installation and servicing to qualified personnel only.

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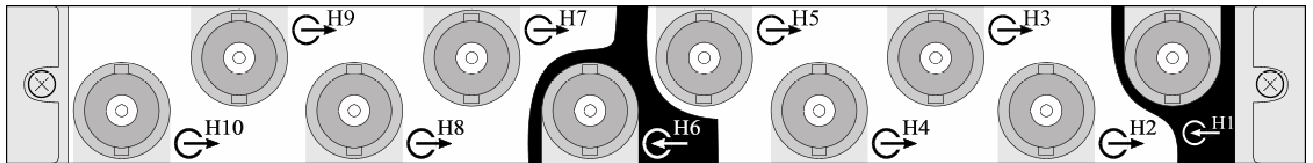
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Scope of this Operation Manual

This is the operation manual for the System HD Distribution Amplifier module. It covers the modules ordered under the following codes :

SHDSDA2S-S1 – Standard dual channel distribution amplifier with 4 outputs per channel

SHDSDA2E-S1 – Dual channel distribution amplifier with 4 outputs per channel and enhanced reporting capabilities



SHDSDA2S and SHDSDA2E Dual Channel Distribution Amplifiers, Rear Panel View

Module Description

The Dual Channel HD-SDI Distribution Amplifier provides up to four electrical HD-SDI outputs from each of two independent HD-SDI bitstream inputs.

Each electrical high definition serial digital (HD-SDI) bitstream is input into the distribution amplifier main board via a 75Ω BNC connector on a rear panel interface card. Each HD-SDI input signal is then equalised and re-clocked before being split to provide four electrical HD-SDI outputs via 75Ω BNC connectors on the same interface card.

Two levels of monitoring sophistication are available to the user. A standard operational level is available on all boards, covering parameters ranging from voltage supply status to the presence of input signals. The optional enhanced monitoring level provides a comprehensive analysis of the incoming HD-SDI signals such as CRC error detection, line standard and frame rate identification.

Detailed performance information can be obtained via the RollCall interface.

WARNING...

THE FRONT PANEL OF THE UNIT MUST NOT BE OPENED BY THE OPERATOR. ACCESS IS ONLY PERMITTED TO FULLY QUALIFIED INSTALLATION ENGINEERS.

It is recommended you write the System HD Order Code of the board this manual accompanied in the table on the following page. This will allow easy identification of the monitoring level of the main board when referring to this manual at a later date.

Quick guide to order codes:

SHD SDA2 S

Dist. Amplifier Code	Properties
S	Standard reporting
E	Enhanced reporting

Interface card option code	Interface card supplied with main amplifier board
2	10 BNC labelled for dual ch.

Codes other than those listed refer to custom options.

Features

- Dual channel capability
- Four equalised and reclocked data outputs from each input
- SMPTE292M 1.485Gbit/s HD-SDI data rate supported
- Can equalise over 100m of cable
- Alarm functions for poor quality input signals and device malfunction
- Stand-alone or RollCall operation
- Incoming signal analysis available as an option, it includes:
 - CRC status
 - Line standard
 - Frame Rate
 - Error rate

Note:

RollCall™ enabled for remote system control & monitoring.

Technical Profile

INPUT (Channel 1 and 2)

Electrical	1.485Gbit/s HD-SDI
Connector Format	BNC 75ohm panel jack
Input Cable Length	100m
Peak-to-peak signal amplitude	800mV \pm 10%
D.C. offset	0V \pm 0.5V
Rise time (20-80%)	< 270ps
Fall time (20-80%)	< 270ps
Difference	\leq 100ps
Return loss	>15dB

OUTPUTS (Channel 1 and 2)

Electrical	1.485Gbit/s HD-SDI
Connector Format	BNC 75ohm panel jack
Outputs	4
Peak-to-peak signal amplitude	800mV \pm 10%
D.C. offset	0V \pm 0.5V
Rise time (20-80%)	< 270ps
Fall time (20-80%)	< 270ps
Difference	\leq 100ps
Return loss	>15dB

INDICATOR LEDS

Not accessible to the Operator

Standard

Power	Power supplies valid
Fault	Board fault

Enhanced Monitoring Option

CPU	Valid CPU activity
<i>For both data channels</i>	
PLL Lock	Output locked to input standard
CRC Error	Data error
Line	Indicates line standard
Frame	Indicates frame rate
Prog/Int	Indicates progressive or interlaced frames

RollCall™

'Standard' RollCall monitoring options:	General alarm Supply voltage levels Board temperature
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'Enhanced' RollCall monitoring options:	<i>For both data channels</i> CRC status Line standard Frame rate Error rate
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POWER CODE 1

WEIGHT <750gm (Main Board plus Interface Board)

OPTIONS See page 2

**Notes...**

1. The dual channel HD-SDI distribution amplifier (DA) is available with two levels of monitoring sophistication. A standard option which provides board level information such as supply faults and minimum incoming signal analysis. The enhanced monitoring option adds a comprehensive incoming signal analysis capability, including the detection of CRC errors and identification of the line standard/frame rate of the signals being distributed. Refer to the monitor option code on page 2 to identify what monitoring level is fitted to the DA board.
2. The interface card for the dual channel DA contains ten BNC connectors of which all ten are actually required for full operation (two lots of one IN and four OUT). A single channel eight output version of the DA card is also available (order number SHD_SDA1-SX) which provides eight outputs from a signal input signal. A single channel DA also has a 10 BNC rear interface card but only nine BNC connectors are required (one IN, eight OUT). The only difference between the rear interface cards for the two types of DA is in the backpanel labelling. Mechanically these two different types of rear interface card are completely compatible with each other and can be interchanged between the different types of DA board. Refer to the interface card option code on page 2 to identify what interface card has been supplied with the dual channel output DA main board.

CAUTION...

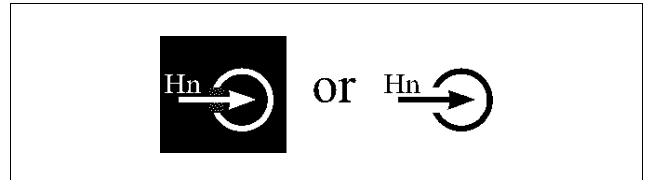
Confusion could arise if single/double channel rear interface cards are assigned to the 'wrong' type of DA board. Though full functionality will be maintained for both types of DA, the difference in labelling could be misleading if all such occurrences are not fully documented at a system level.

Rear Interface Connections

Rear Interface Notation Guide

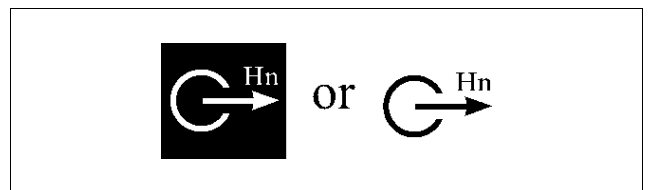
Electrical HD-SDI Input

A High Definition Serial Digital electrical input through a 75Ω BNC connector is denoted in the way shown opposite. The “H” denotes the High Definition element and the “n” is the connection number for that particular rear interface.



Electrical HD-SDI Output

A High Definition Serial Digital electrical output through a 75Ω BNC connector is denoted in the way shown opposite. The “H” denotes the High Definition element and the “n” is the connection number for that particular rear interface.

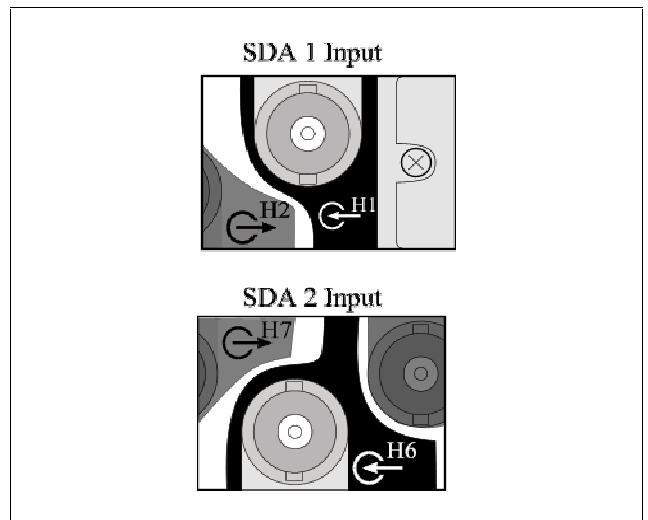


Standard Inputs (Channel 1 and 2)

Electrical HD-SDI

Used On : SHDSDA2S-S2
SHDSDA2E-S2

Each high definition serial digital electrical input is connected to a 75Ω BNC connector. These connectors are shown opposite and are labelled **H1** and **H6** on the rear panel.

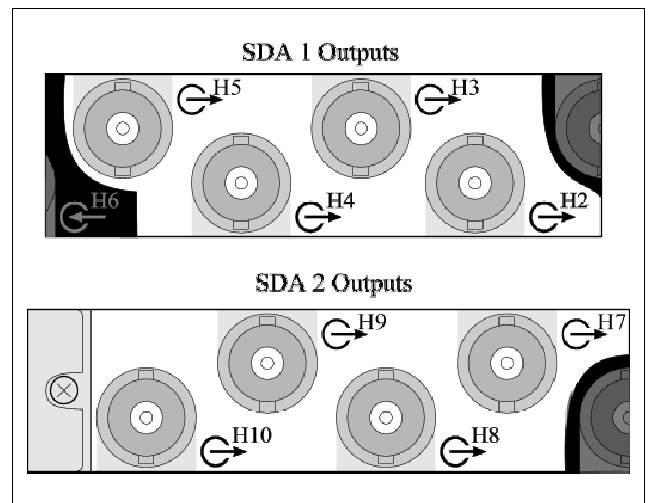


Standard Outputs (Channel 1 and 2)

Electrical HD-SDI

Used On : SHDSDA2S-S2
SHDSDA2E-S2

For each channel, the high definition serial digital electrical output is available from four 75Ω BNC connectors, each providing identical outputs. These connectors are shown opposite and for a 2-channel system are labelled **H2**, **H3**, **H4** and **H5** for channel 1 and **H7**, **H8**, **H9** and **H10** for channel 2



Rollcall Menu System

When a System HD Control and Monitor board is fitted in the enclosure a range of monitoring information is available to RollCall™

External Monitoring	Description
General alarm	Input power fault or overcurrent trip or system failure
Supply voltage levels	Actual voltage levels
Board temperature	Actual board temperature
<i>With Enhanced Reporting Distribution Amplifier</i>	
<i>For both data channels</i>	
CRC Status	
Line Standard	
Frame Rate	
Bit error rate	Error rate over defined time period

Rollcall Monitoring Features

- Module Infrastructure:
 - General Alarm
 - Supply Voltage Levels
 - Board Temperature
- Incoming Signal analysis:
 - Input Status.
 - Line Standard
 - Frame Type
 - Frame Rate
- CRC Error analysis:
 - CRC Error Count
 - CRC Error Total
 - CRC Reset
- Bias/EQ – The value in this field is a guide to the strength of equalisation that is being applied to the input signal for longer cable runs. The lower the value, the less equalisation is being employed. It is intended as a guide for troubleshooting the system. It should be noted that when an equalisation of 100% is shown, it doesn't necessarily mean that the maximum input cable length has been reached. As soon as CRC errors are being reported then the input cable length should be decreased until an error free signal can be received.

