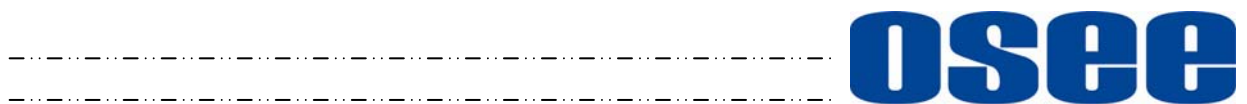


SDX6810N Analog Audio De-embedding Module

USER MANUAL



Product Information

Model: SDX6810N Analog Audio De-embedding Module
Version: V010000
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Company

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Chapter 1 Introduction

Overview

The SDX6810N is an analog audio de-embedding module which de-embedded 4 channels of analog audio from SD-SDI signal. It supports re-clocked SDI output. The user can choose any channel out of 4 embedded audio groups as audio output; or choose synthesized audio as output signal.

The module has its own features stated as Tab. 1-1:

Tab. 1-1 SDX6810N Analog Audio De-embedding Module

Module	Description
SDX6810N	One channel SDI input, Three channels re-clocked SDI outputs, One channel SD-SDI/CVBS output, four channels analog audio outputs

Features

The SDX6810N offers the following features:

- ✓ De-embedding audio from SD-SDI signal; supporting 4 channels of audio outputs
- ✓ De-embedding in 525/625 video standard
- ✓ SDI output with equalization and re-clocking
- ✓ One channel analog composite output monitoring
- ✓ 27 available signal sources for each audio output
- ✓ SD-SDI video input auto-detect and input status feedback
- ✓ Supporting 16-bit, 20-bit and 24-bit audio processing
- ✓ Supporting 4-channel audio metering display
- ✓ Generating Tone signal at fixed frequency rate
- ✓ Supporting maximum 1.3 seconds audio delay, invert and mute
- ✓ EDH Monitoring
- ✓ Freeze frame, black field and video loss detection
- ✓ Audio loss and audio overload monitoring

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Module Descriptions

The Front Part of Module

Figure 1-1 shows the board of SDX6810N

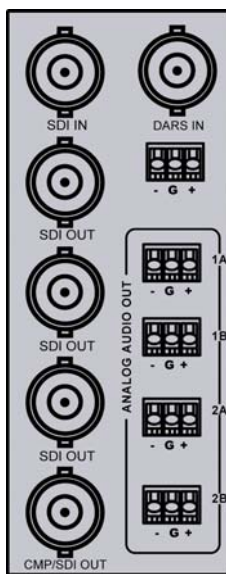


Fig. 1-1 The board of SDX6810N

Back Connector



SDX6810N



SDX6810N

Fig.1-2 Back Connector of SDX6810N

Tab. 1-2 description of SDX6810N Back Connector

Item	Description
SDI IN	SDI input
SDI OUT	Re-clocked SDI output
CMP/SDI OUT	Analog Composite Video or re-clocked SDI output (select one by setting the corresponding jumper). For analog Composite output, it adds the audio meter and the OSD menu. The default factory value is CMP.
DARS IN	Reserved.
ANALOG AUDIO OUT:1A, 1B, 2A, 2B	Analog audio out.

Signal Flow

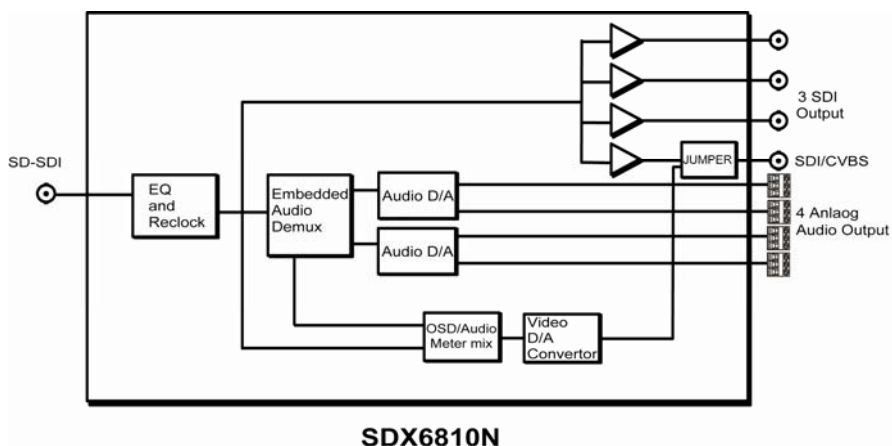


Fig. 1-3 Signal Flow of SDX6810N

Chapter 2 Installation

Overview

The power consumption for module and the maximum power ratings that frame can sustain have to be confirmed before installing the module.

In this chapter, the following topics on installation process for SDX6810N are discussed below:

- Unpacking the module
- Setting Jumper
- Installing the module
- Making the connections
- Removing the module

Maximum Power Ratings for Frame

The maximum power ratings that different types of frames can sustain are listed in the Table 2-1

Tab. 2-1 Maximum Power Consumption

Frame	Maximum Voltage	Redundant Power Supplies	Numbers of Slots
6800N-1U	40W	Yes	4
6800N-2U	60W	Yes	10

Unpacking the Module

Preparing the Product for Installation

Contact your dealer right now if any items are missing.

Follow the procedures below before installing the module:

- Check the equipment for any invisible damage that may have occurred during transit.
- Confirm all the items listed on the packing list have been received.
- Remove all the packing material including electrostatic-resistant packing.
- Retain these packing for future use.

Check the Packing List

Tab. 2-2 Packed Components

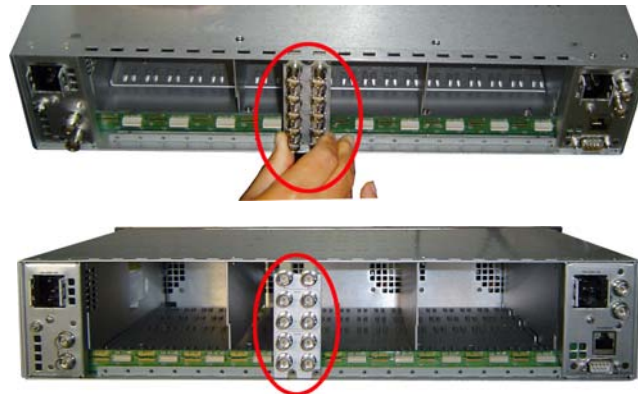
Model Name	Description
SDX6810N	SDX6810N module (1pc); back connector (1pc), and other accessories

Installing the Module

Caution: Static electricity may cause sensitive semiconductor out of order. Avoid installing or removing the module in the electrostatic-induced environment.

Follow the following steps to install the module:

Step 1



Step2



Step3



Step 4



Step 5



Fig. 2-1 Installation of 2U Frame of 6800 Series

- ✓ Locate the position for back connector and insert the back connector
- ✓ Fasten the screw to fix the back connector.
- ✓ Locate the slot for module.
- ✓ Get the module installed in the slot, push the module slightly along the slot, press module again to confirm that the module is installed firmly and then close swivel handle.
- ✓ Install the front panel.

Install the front panel. Making the Connections

Please connect signals based on Fig. 1-2.

Removing the Module

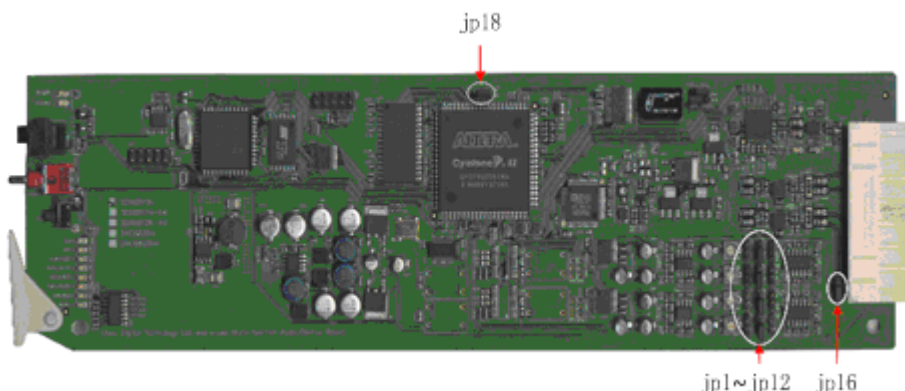
Follow the following steps to remove SDX6810N module:

1. Open the front part of frame.
2. Open the swivel handle to the full.



3. First make sure the frame stands firmly, and then pull the module gently along the slot till out of frame.
4. Install the front panel.

Setting Jumper



Tab. 2-3 Description of SDX6810N Jumpers

Item	Description
jp1~jp12	Setting the gains of 4-channel audio output. Adjust the jumper to set the value of the board silk. +16/+18/+20/+22/+24/+26/+28dB adjustable. The default setting is +24dB. <ul style="list-style-type: none"> • From jp1, jp2 and jp3, it can adjust the gains of audio 1A output. Adjust the jumper to set the corresponding value of the board. • From jp4, jp5 and jp6, it can adjust the gains of audio 1B output. • From jp7, jp8 and jp9, it can adjust the gains of audio 2A output. • From jp10, jp11 and jp12, it can adjust the gains of audio 2B output.
jp16	COMP/SDI. It is a selectable jumper. The default setting is "COMP". The jumper can be selected from the SDI output to the CMP output. <ul style="list-style-type: none"> • When it is set to "SDI", the port of "CMP/SDI OUT" outputs the SDI with reclocking. • When it is set to "COMP", the port of "CMP/SDI OUT" outputs the analog composite signal with the OSD menu and the audio meter.
jp18 (used to choose control mode)	(LOC/RMT)/LOCAL. It is adjustable. The default setting is LOC/RMT. <ul style="list-style-type: none"> • When the "LOC/RMT" is selected, the module is controlled not only by a variety of switches on the local module card, but also by the remote control network. • When the "LOCAL" is selected, the module is controlled only by the switches on the local module card.

LED Indicator
Table 2-4 LED Indicator Function

Item	Description
POWER (green)	On: Power is supplied.
CONFIG (orange)	On: The device is Initializing.
BS0/BS1 (orange)	On: select BANK. The combination of the two LED lights indicates the present state of Bank. It indicates the Bank number in binary mode. For the details, please see the Tab.3-6.
AUD1 (Mode A)	On: In SDI input, there is right information about Group 1. Flickering: In SDI input, there is wrong information about Group 1. Off: In SDI input, there is no information about Group 1.
AUD2 (Mode A)	On: In SDI input, there is right information about Group 2. Flickering: In SDI input, there is wrong information about Group 2. Off: In SDI input, there is no information about Group 2.
AUD3 (Mode A)	On: In SDI input, there is right information about Group 3. Flickering: In SDI input, there is wrong information about Group 3. Off: In SDI input, there is no information about Group 3.
AUD4 (Mode A)	On: In SDI input, there is right information about Group 4. Flickering: In SDI input, there is wrong information about Group 4. Off: In SDI input, there is no information about Group 4
ERR/EDH	On: In SDI input, there is information about EDH without error. Flickering: In SDI input, there is information about EDH with error. Off: In SDI input, there is no information about EDH.
525 (Mode B)	On: the input conforms to the video format what you have set. Flickering: the input doesn't conform to the video format what you have set Off: no signal input.
Item	Description
AUTO (Mode B)	On: Video standard is set to AUTO, and it can be auto detected.
625 (Mode B)	On: the input conforms to the video format what you have set. Flickering: the input doesn't conform to the video format what you have set. Off: no signal input.
DARS (Mode B)	On: DARS locked and the signal is normal Flickering: DARS locked but the signal is wrong or DARS signal is not available Off: DARS isn't locked
Mode	On: Mode B, Off: Mode A

Note: When the user selects the different LED mode, the LED Indicator displays differently. The LED mode can be set in the "E" item of Bank1.

Tab. 2-5 Description of DBS Indicator

BS0	BS1	Bank Number
off	off	Bank 0
on	off	Bank 1
off	on	Bank 2
on	on	Bank 3

Chapter 3 Operation and Control

Switches and Key

Refer to **Figure 3-1** or **Table 3-1** (BANK 0) or **Table 3-2** (BANK 1) or **Table 3-3** (BANK 2) or **Table 3-4** (BANK 3) to complete control

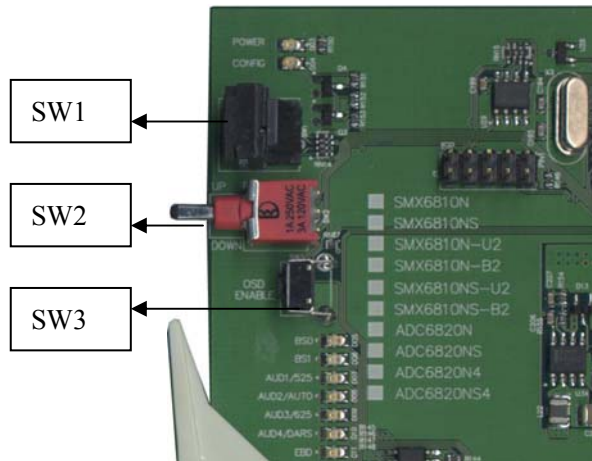


Fig. 3-1 Switches and key

Rotate SW1 at the position of 0, and select the proper BANK by SW2.

BANK Selection

The SW1 has four Banks

Rotate the SW1 at the position of “0”. The position of “0” is always used to select BANK.

Turn SW2 up or down to select BANK.

1. SW1 Mode Selection

SW1 is a 16-position rotary switch, which is used to select the specific setting.

The selection range is: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F.

2. SW2 Mode Selection

SW2 is a toggle switch, which is used to decide the concrete figure of the setting made by SW1.

SW2 is a 3-position toggle switch, used to decide the concrete figure of the setting made by SW1.

To keep SW2 at the position of “UP” or “DOWN”, the continuous adjustment can be achieved.

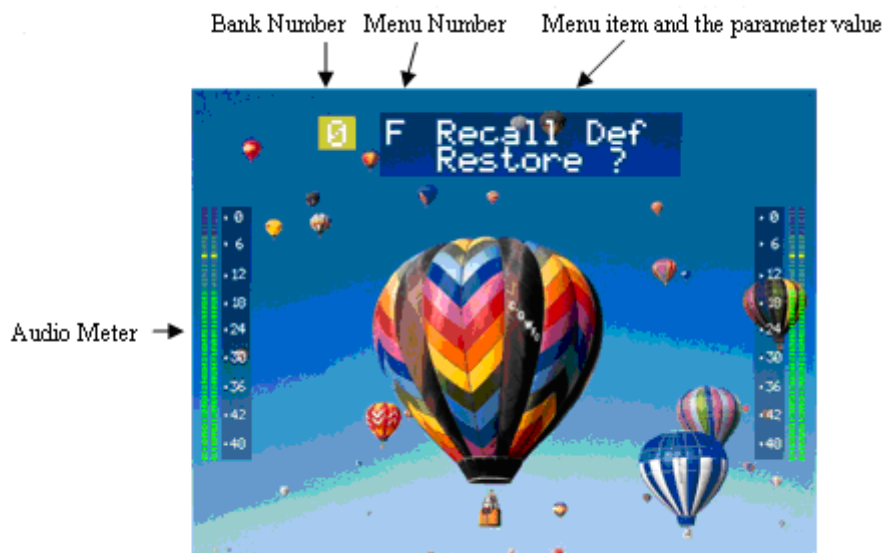
3. SW3

Press the SW3 to activate OSD.

When the user does not operate the board, the OSD menu will disappear after 10 seconds.

For analog Composite output, it adds the audio meter and the OSD menu. To monitor the audio and the menu item, please jump the “CMP/SDI OUT” to port “CMP” (For more information, please see the Tab.2-2), and then use one monitor which supports the analog Composite video input.

The audio meter and the OSD menu are shown as bellow.



Tab. 3-1 BANK 0 Function Setting

SW1	Function	Options	Default
0	Bank Select	Bank 0~Bank 3	Bank 0
1	Vid Std Sel: Select the input video signal standard.	525/625/AUTO	AUTO
2	Out Vid Std: Select the output video signal standard. Only for the input video signal of 525 standard.	NTSC/PAL-M	NTSC
3	Demux Err Ctl: Demux error control. It is the operation for de-embedded audio, while it is demuxing and the errors of checksum, parity and DBN happen.	Mute/Pass	Pass
4	V-bit Mute: The setting for the validity of V-bit.	Enable/Disable	Enable
5	Reserve		
6	AES Bits: The setting for the de-embedded AES	16/20/24	20

SW1	Function	Options	Default
	audio bits.		
7	Out Ch1A Sel: Select the channel 1A of analog audio output.	CH 1, CH 2, CH 3, CH 4, CH 5, CH 6, CH 7, CH 8, CH 9, CH 10, CH 11, CH 12, CH 13, CH14, CH 15, CH 16, 1&2 sum, 3&4 sum, 5&6 sum,7&8 sum, 9&10 sum, 11&12 sum, 13&14 sum, 15&16 sum, tone 1, tone 2, mute	CH 1
8	Out Ch1B Sel: Select the channel 1B of analog audio output	The same as Ch1A	CH 2
9	Out Ch2A Sel: Select the channel 2A of analog audio output	The same as Ch1A	CH 3
A	Out Ch2B Sel: Select the channel 2B of analog audio output	The same as Ch1A	CH 4
B	Out Ch1A Lev: Adjust the level of analog audio channel 1A output.	-96 to +12dB in 0.5dB step	+0.0dB
C	Out Ch1B Lev: Adjust the level of analog audio channel 1B output.	-96 to +12dB in 0.5dB step	+0.0dB
D	Out Ch2A Lev: Adjust the level of analog audio channel 2A output.	-96 to +12dB in 0.5dB step	+0.0dB
E	Out Ch2B Lev: Adjust the level of analog audio channel 2B output.	-96 to +12dB in 0.5dB step	+0.0dB
F	Recall def Recall the default setting.	Restore ?/Restored	

Note: For Bank 0 "7" ~ "A",

- CH1~CH16: Four groups of embedded audio, a total of 16 channels embedded audio sources.
- 1&2 sum ~15&16 sum: The component audio source with the average level of two-way of 16-channel audio sources.
- Tone1, tone2: Issued for the module fixed frequency, fixed amplitude of the audio source
- Mute: mute for output audio.

Users can select any of more than 27 roads as output.

Tab. 3-2 BANK 1 Function Setting

SW1	Function	Options	Default
0	Bank Select	Bank 0~Bank 3	Bank 0
1	Ch1A Delay: Adjust the delay of analog audio channel 1A output.	0 to 1320ms in 1ms step	0ms
2	Ch1B Delay: Adjust the delay of analog audio channel 1B output.	0 to 1320ms in 1ms step	0ms
3	Ch2A Delay: Adjust the delay of analog audio channel 2A output.	0 to 1320ms in 1ms step	0ms
4	Ch2B Delay: Adjust the delay of analog audio channel 2B output.	0 to 1320ms in 1ms step	0ms
5	Out Ch1A Inv: Adjust the output audio CH 1A to invert.	On/Off	Off
6	Out Ch1B Inv: Adjust the output audio CH 1B to invert.	On/Off	Off
7	Out Ch2A Inv: Adjust the output audio CH 2A to invert.	On/Off	Off
8	Out Ch2B Inv: Adjust the output audio CH 2B to invert.	On/Off	Off
9	Meter1 Type: Select the display type of meter1(CH1A, CH1B)	Off/VU/ PPM/VU+PPM	VU+PPM
A	Meter2 Type: Select the display type of meter2(CH2A, CH2B)	Off/VU/ PPM/VU+PPM	VU+PPM
B	Meter1 H Pos: Select the horizontal position of Meter1 (CH1A, CH1B)	1 to 168	7
C	Meter2 H Pos: Select the horizontal position of Meter2	6 to 174	168

SW1	Function	Options	Default
	(CH2A, CH2B)		
D	Test Level: Select the test level of audio meter.	-18dB/-20dB	-18dB
E	Led Mode: Select the LED mode	Mode A/Mode B	Mode A
F	Reserve		

Tab. 3-3 BANK 2 Function Setting

SW1	Function	Options	Default
0	Bank Select	Bank 0~Bank 3	Bank 0
1	Black Thd: The threshold of Black burst triggering.	1 to 255 in 1 step	30
2	Freeze Delay: The delay of Freeze detected	1 to 255 in 1 step	30
3	Freeze Thd: The threshold of Freeze triggering.	1 to 255 in 1 step	30
4	No Aud Delay: The delay of no audio detected	1 to 255 in 1 step	30
5	No Audio Thd: The threshold of no audio detected.	-72 dB, -66 dB, -60 dB, -54 dB, -48dB	-60dB
6~F	Reserve		

Tab. 3-4 BANK 3 Function Setting

SW1	Function	Options	Default
0	Bank Select	Bank 0~Bank 3	Bank 0
1	Video Std: Display the input video standard.	525/ Auto 525 625/ Auto 625	Read only
2	In vid status: Display the input video status	Loss , Black , Freeze , Normal	Read only
3	Group Pres: Display the audio group	-----/G1----- /--G2----/G1G2----	Read only

SW1	Function	Options	Default
	embedded in input video.	/---G3--/G1--G3-- /--G2G3--/G1G2G3-- /-----G4/G1----G4 /--G2--G4/G1G2--G4 /---G3G4/G1--G3G4 /--G2G3G4/G1G2G3G4	
4	Out Aud status: Display the four channels out audio status	O: overload/ V: normal , /X:no audio	Read only
5	DBN Error: Display the DBN Error Status	V: normal/ X: error, / -: disappear	Read only
6	Checksum Err: Display the Checksum Status	V: normal/ X: error, / -: disappear	Read only
7	Parity Err: Display the parity error status	V: normal/ X: error, / -: disappear	Read only
8	EDH Status: Display the EDH Status	no EDH/Detect EDH /EDH Err	Read only
9	EDH Err Num: The sum of EDH error numbers.(Clear the counter by the toggle switch up or down)	0 to 32767	
A~C	Reserve		
D	Modular mod: Display the modular mode.	SDX6810N	Read only
E	Version info: Version information.	Display the version of hardware and software.	Read only
F	Hardware sta: Hardware status	Correct/Error	Read only

Note: the Bank 3 is used to display the status.

“3 ” Group Pres: Display the audio group embedded in input video. For example, the “G1--G3--” indicates that there are audio Group 1 and Group 3 embedded in input video.

Chapter 4 Specifications

In this chapter, the specifications of SDM6810N on the following subjects are introduced:

- ✓ SDI Video Input
- ✓ SDI Video Output
- ✓ Analog Composite Video Output
- ✓ Analog Audio Output

SDI Video Input

Table 4-1 SDI Video Input Specifications

Item	Parameter
Standards	SMPTE 259M-C, 270 Mbps, 525/625 SDI Component
Impedance	75Ω termination
Return Loss	>18dB to 360MHz
Connector	BNC (IEC169-8)
Equalization	Auto to 30dB@270 Mbps

SDI Video Output

Table 4-2 SDI Video Output Specifications

Item	Parameter
Standards	SMPTE 259M-C, 270 Mbps, 525/625 SDI component
Connector	BNC (IEC169-8)
Impedance	75Ω
Return Loss	>18dB to 270MHz
Signal Level	800 mV ± 10%
DC Offset	0 V ± 0.5 V
Rise/Fall Time	400 to 1500ps (20% to 80% of amplitude)
Overshoot	<10%
Jitter	<0.2 UI (740ps) Peak

Analog Video Output

Tab. 4-3 Analog Video Output Specifications

Item	Parameter
Standard	NTSC, PAL or PAL-M
Level	1Vp-p +/-3dB
Impedance	75 Ω
Return loss	>40 dB to 5 MHz
DC offset	0V \pm 0.05 V
Frequency response	\pm 0.2 dB to 5 MHz
Differential gain	<1%
Differential phase	<1.5°
Propagation delay	+/-10ns to 5 MHz

Analog Audio Output

Tab. 4-6 Analog Audio Output Specifications

Item	Parameter
Standard	Electronic, balanced
connector	3-pin connector (male)
Level range	+16 dBu to +28 dBu
Maximum level	0 dBFS = +28 dBu
Impedance	66 Ω
THD+N	<-85 dB@ 1 kHz, -1 dBFS = +23 dBu
Cross talk	<-95 dB, 20 Hz to 20 kHz, typical
SNR	>100 dB @ 0dBFS

Power Consumption

Power	3.25W
Positive Rail	500 mA
Negative Rail	10 mA

Note: Specifications are subject to change without notice

Warranty for osee product

What the warranty covers:

osee warrants its products to be free from defects in material and workmanship during the warranty period of two year from purchase date. If a product proves to be defective in material or workmanship during the warranty period, osee will, at its sole option, repair or replace the product with a similar product. The replacement unit will be covered by the balance of the time remaining on the customer's original limited warranty.

No sales personnel of the seller or any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties on behalf of osee, beyond the time period describe above.

This warranty is extended to the first consumer only, and proof of purchase is necessary to honor the warranty. If there is no proof of purchase provided with a warranty claim, osee reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to the consumer.

What the warranty does not cover:

1. Any product, on which the serial number has been defaced, modified or removed.
2. Damage, deterioration or malfunction resulting from:
 - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product
 - Repair or attempted repair by anyone not authorized by osee
 - Any damage of the product due to shipment.
 - Removal or installation of the product.
 - Causes external to the product, such as electric power fluctuations or failure.
 - Use of supplies or parts not meeting osee product's specifications.
 - Normal wear and tear.
 - Any other cause which does not relate to a product defect.