DAC6820N (4) Balanced/unbalanced

AES to Analog Audio Converter

USER MANUAL

OSEE TECHNOLOGY CO., LTD.

Product Information

Model: DAC6820N Balanced/unbalanced AES to Analog Audio Converter
DAC6820N4 Balanced/unbalanced AES to Analog Audio Converter
Version: V010001
Release Date: March 12th, 2015

Company

OSEE TECHNOLOGY CO., LTD.

Contact Information

Address: No.22 Building, No.68 zone, Beiqing Road, Haidian District, Beijing, China
Post Code: 100094
Tel: (+86) 010-62434168
Fax: (+86) 010-62434169
Web: http://www.osee-dig.com/
E-mail: sales@osee-dig.com

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DAC6820N (4) Balanced/unbalanced AES to Analog Audio Converter

Chapter 1 Introduction

Overview

The DAC6820N/DAC6820N4 is the converter module that can convert Digital audio to Analog audio. It provides one/two balanced or unbalanced AES audio inputs and two/four balanced analog audio outputs. The two modules both have status indicator.
The module has its own features stated as Tab. 1-1:

Tab. 1-1 DAC6820N (4) Balanced/unbalanced AES to Analog Audio Converter

Module	Input	output
DAC6820N	One balanced or unbalanced AES audio inputs	Two balanced analog audio outputs
DAC6820N4	Two balanced or unbalanced AES audio inputs	Four balanced analog audio outputs

Features

The DAC6820N (4) offers the following features:

- ✓ One/two balanced and unbalanced AES inputs
- ✓ Two/four balanced analog audio outputs
- ✓ 32KHz~96KHz sampling frequency
- ✓ 16, 20, 24-bit audio processing
- ✓ Selectable analog audio output level
- ✓ Status indicator
- ✓ Local/remote control and 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.

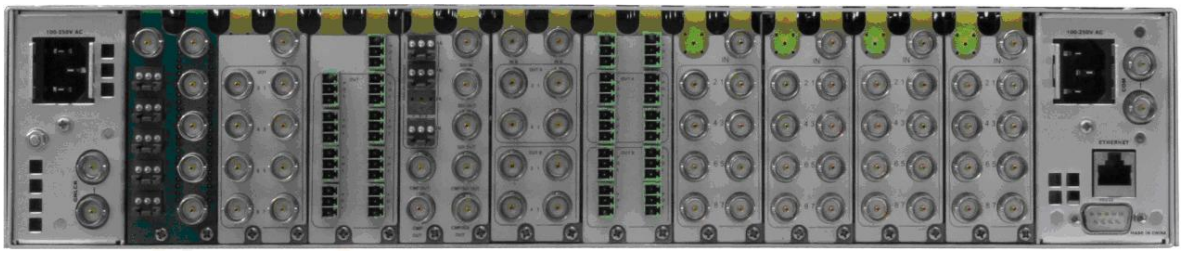
Module Descriptions

The Front Part of Module

Figure 1-1 shows the board of DAC6820N (4)

Fig. 1-1 The board of DAC6820N (4)

Back Connector



DAC6820N (4)

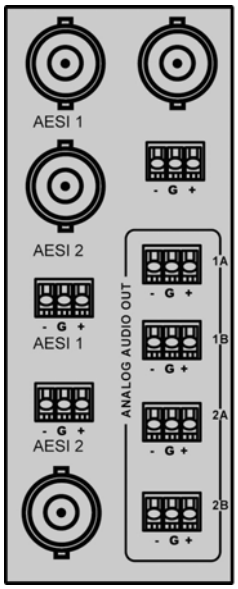


Fig.1-2 Back Connector of DAC6820N (4)

Tab. 1-2 description of DAC6820N (4) Back Connector

Item	Description
AESI 1,AESI 2	Balanced or unbalanced AES audio inputs. For DAC6820N, AESI 2 is invalid.
ANALOG AUDIO OUT 1A,1B,2A,2B	Balanced analog audio outputs. For DAC6820N, 2A and 2B are invalid.

Signal Flow

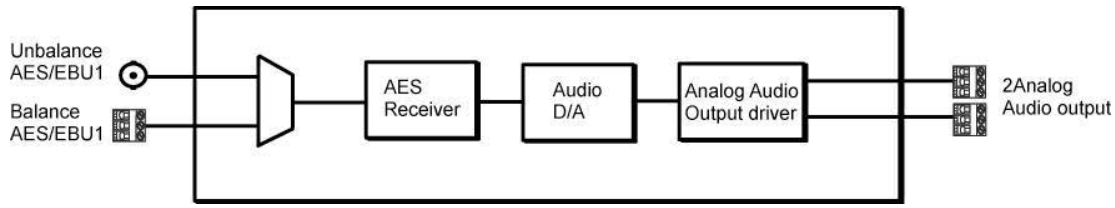


Fig. 1-3 Signal Flow of DAC6820N

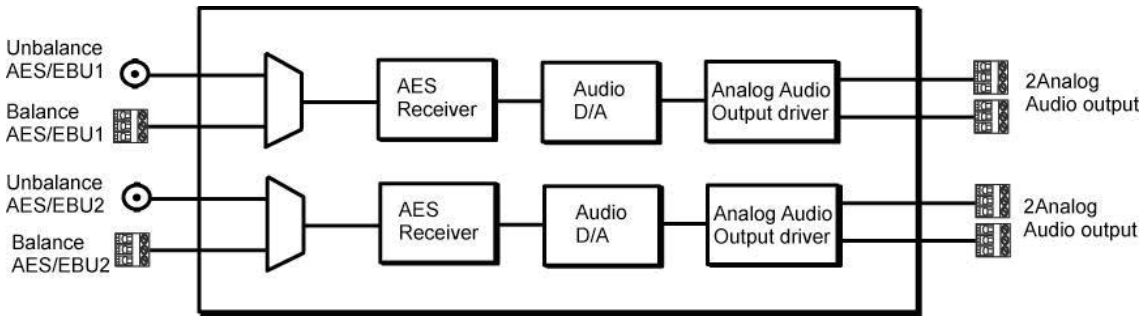


Fig. 1-4 Signal Flow of DAC6820N4

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 DAC6820N (4) are discussed below:

- Unpacking the module
- 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

Check the Packing List

Tab. 2-2 Packed Components

Model Name	Description
DAC6820N (4)	DAC6820N (4) module (1pc); back connector (1pc), and other accessories

Preparing the Product for Installation

Contact your dealer right now if any items are missing.

Follow the procedures below before installing the module:

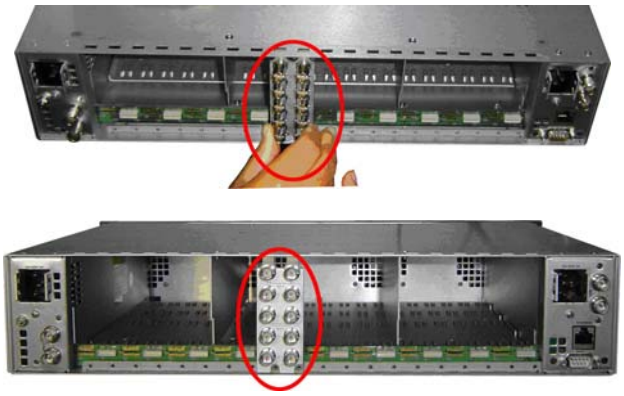
- Check the equipment for any invisible damage that may have occurred during transit.
- Confirm all the items listed on the packing list have been received.
- Remove all the packing material including electrostatic-resistant packing.
- Retain these packing for future use.

Installing the Module

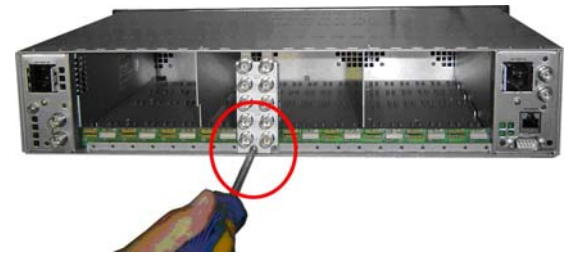
Caution: Static electricity may cause sensitive semiconductor out of order. Avoid installing or removing the module in the electrostatic-induced environment.

Follow the following steps to install the module:

Step 1：Locate the position for back connector and insert the back connector



Step2：Fasten the screw to fix the back connector.



Step3：Locate the slot for module.

Step 4：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.

✓ Step5：Install the front panel.

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

Install the front panel. Making the Connections

Please connect signals based on Fig. 1-2.

Removing the Module

Follow the following steps to remove DAC6820N (4) 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.

Chapter 3 Operation and Control

Control

Directly turn the switch up for one second. Set “error is masked”. Here, it indicates that the module **can** still receive data when the errors of QCRC, CCRC, UNLOCK, V, CONF, BIP and PAR appear in the receiver port.

Turn the switch down for one second. Set “error is unmasked”. Here, it indicates that the module **can not** receive data when the errors of QCRC, CCRC, UNLOCK, V, CONF, BIP and PAR appear in the receiver port.

The definitions of seven types of errors in the receiver port are as follows.

1. QCRC – CRC error in Q subcode data.
2. CCRC – CRC error in channel status data.
3. UNLOCK – PLL is not locked to incoming data stream.
4. V – Data Validity bit is set.
5. CONF – The logical OR of UNLOCK and BIP. The input data stream may be near error condition due to jitter degradation.
6. BIP – Biphase encoding error.
7. PAR – Parity error in incoming data.

Setting Jumper

- Set the jumpers, which are JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10, JP11 and JP12, to adjust the analog audio output level values from 16dB to 28dB.
- Set the corresponding position of the jumpers, which are JP21, JP22, JP23 and JP24, to set the balanced or unbalanced input of digital audio. The position of the jumper must be corresponding to the real input audio.

LED Indicator

Table 2-4 LED Indicator Function

Item	**Description**		
POWER	On: Power is supplied.		
AUD1	1A	green	• For the status of “unmasked”, the indicator lights, when the input data is correct. • For the status of “unmasked”, the indicator goes out, when the input data is error. • For the status of “masked”, the indicator goes out.
AUD2	1B	green	
AUD3	2A (only for DAC6820N4)	green	• For the status of “unmasked”, the indicator lights, when the input data is correct. • For the status of “unmasked”, the indicator goes out, when the input data is error. • For the status of “masked”, the indicator goes out.
AUD4	2B(only for DAC6820N4)	green	

Chapter 4 Specifications

➢ Balanced AES Inputs

Number of inputs	DAC6820N: 1; DAC6820N4:2
Standard	AES3- 1992 (r1997)
Connector	3-pin connector (male)
Impedance	110 Ω+/-20%
Signal level	2 to 7 V pk-to-pk
Minimum signal level	200 mV as per AES3
Sampling frequency	Supports 32 kHz to 96 kHz
CMR Ratio	Up to 7 V pk-to-pk, from DC to 20 kHz

➢ Unbalanced AES Inputs

Standard	AES3-1992 (r1997), AES3-id-2001, SMPTE276M
Connector	BNC(IEC169-8)
Number of inputs	DAC6820N:1 DAC6820N4: 2
Impedance	75 Ω
Signal level	1 V pk-to-pk, +/-10%
Minimum signal level	100 mV as per SMPTE276M
Return loss	>25 dB, 0.1 to 6 MHz
Sampling frequency	Supports 32 kHz to 96 kHz

➢ Balanced Analog Audio Outputs

Type	Electronic, balanced
Connector	3-pin connector (male)
Output level setting range	+16 dBu to +28 dBu
Maximum output level	0 dBFS = +28 dBu
Output impedance	66 Ω
THD + N	<-85 dB@ 1 kHz, -1 dBFS = +23 dBu
Crosstalk	<-95 dB, 20 Hz to 20 kHz, typical
SNR	>100 dB @ 0dBFS

➢ Power Consumption

Power	2.3W
Positive rail	350mA
Negative rail	10mA

Note: Specifications are subject to change without notice

Chapter 5 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 years 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.