

Digital Audio Distribution Products

- AESx4** • Distribution Amplifier
- SPDIFx7** • Distribution Amplifier
- CLKx6** • Audio Clock Distribution Amplifier
- GENx6** • Word/Superlock Generator
- GENx6-96** • Word/Superlock Generator



WHAT'S INSIDE

- 2** What 's Included in the Box
- 2** Operator Safety Instructions
- 3** **AESx4** Distribution Amplifier
- 4** **SPDIFx7** Distribution Amplifier
- 5** **CLKx6** Audio Clock Distribution Amplifier
- 6** **GENx6** Word/Superlock Generator
- 7** **GENx6-96** Word/Superlock Generator
- 8** Warranty
- 9** Repair Services
- 10** Declaration of Conformity

Digital Audio Distribution Products User's Guide
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Digital Audio Distribution Products

What's Included in the Box

- The Lucid Hardware Product
- A PS-3, PS-3E, or PS-3J power supply
- This User's Guide

Getting Help

If you have questions beyond the scope of the guide we offer two suggestions:

- 1) Visit the Lucid web site at www.lucidaudio.com. The site hosts a forum called LUC (Lucid User's Conference) where you can browse or join discussions among Lucid user's and Lucid technical support personnel.
- 2) Contact our Technical Services Group directly in the following ways:

Tel (425) 778-7728
8:00 am to 4:30 pm
Monday through Friday,
Pacific Time

Fax (425) 778-7727

Email tech@lucidaudio.com

Web www.lucidaudio.com

Notational Conventions in this Quick Start Guide

NOTE Identifies information that needs extra emphasis. Generally supplies extra information to help you to better use the Lucid product.

CAUTION Identifies information that, if ignored, may cause damage to the Lucid product or other equipment in your system.

WARNING Identifies information that, if ignored, may be hazardous to your health or that of others.

CAPS Controls, switches or other markings on the chassis of the Lucid product.

Operator Safety Instructions

- **Read these instructions**
- **Keep these instructions**
- **Heed all warnings**
- **Follow all instructions**
- **Clean only with dry cloth**
- **Use only accessories and attachments specified by the manufacturer.**
- **Unplug this apparatus during lightning storms or when unused for long periods of time.**
- **This apparatus shall not be exposed to dripping or splashing and objects filled with liquids, such as vases, shall not be placed on the apparatus.**

Power Source. This product is intended to operate from a Lucid PS-3, PS-3E, or PS-3J power supply only.

Grounding. The chassis of this product is grounded through the grounding conductor of the PS-3, PS-3E, or PS-3J power cord. To avoid electric shock, plug the power cord into a properly wired receptacle before making any connections to the product. A protective ground connection, by way of the grounding conductor in the power cord, is essential for safe operation. Do not defeat the safety purpose of the grounding plug. The three-pronged grounded plug is provided for your safety. When the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Danger from Loss of Ground. If the protective ground connection is lost, all accessible conductive parts, including knobs and controls that may appear to be insulated, can render an electric shock.

Proper Power Cord. Use only the power cord and connector specified for the product and your operating locale. Use only a cord that is in good condition. Protect the power cord from being

walked on or pinched, particularly at the plug, convenience receptacle, and the point where the cord exits from the apparatus.

Operating Location. Do not operate this equipment under any of the following conditions: explosive atmospheres, in wet locations, in inclement weather, improper or unknown AC mains voltage, or if improperly fused. Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Unplug this device during lightning storms or when unused for long periods of time.

Stay Out of the Box. To avoid personal injury, do not remove the product covers or panels. Do not operate the product without the covers and panels properly installed. Only use accessories specified by the manufacturer. Clean only with a dry cloth.

User-Serviceable Parts. There are no user serviceable parts inside any of these Lucid products. In case of failure, refer all servicing to the factory. Servicing is required when the product has been damaged in any way, such as when a power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

CAUTION

To prevent electric shock, do not use the polarized plug supplied with the unit with any extension cord, receptacle, or other outlet unless the prongs can be fully inserted.

Digital Audio Distribution Products

AESx4 • Distribution Amplifier

Description

The AESx4 is used to distribute AES3 (2-channel digital audio) or AES11 (digital audio clock) between equipment using standard 3-pin XLR connectors. A switch on the front panel allows you to select between a word clock and an AES input. When the AES input is selected, either AES3 or AES11 can be buffered then distributed to the outputs. When the WORD CLOCK input is selected only, AES11 is generated based on the sample rate of the word clock.

Switches

The AESx4 has one switch placed on the front panel that selects either the WORD CLOCK or AES input.

LEDS

SIGNAL PRESENT: In AES mode, the signal present detector drives an LED when there is activity on the AES input. In word clock mode, the signal present detector is driven only when the WORD CLOCK input is valid.

POWER LED indicates AC power is present.

Connectors

WORD CLOCK Input: Is a coaxial BNC connector with nominal input impedance of 75 Ohms. Internal termination is provided with a jumper.

AES Input: Is a 3-pin XLR connector with nominal input impedance of 110 Ohms. Internal termination is provided, as per the AES3 spec. The data can be either AES3 or AES11 (AES3 with no audio data).

POWER: Supplied by external Lucid PS-3, PS-3E, or PS-3J.

AES Outputs: Are 3-pin XLR connectors with nominal impedance of 110 Ohms.

Jumper Settings

·J1 is used to control the AES input pin 1 ground. The default setting connects pin 1 of the connector straight to chassis ground. The other position BYPASS has a capacitor between pin 1 and chassis ground.

·J4 with positions HIGH or LOW determines the WORD CLOCK input range. The HIGH range (default) accepts word clock frequencies between 44.1 kHz to 96 kHz whereas the LOW range accepts word clock frequencies between 32 kHz to 48 kHz.

·J6 sets the WORD CLOCK input to either TERMINATED or OPEN (default). If the jumper is set to TERMINATED, the driver's source impedance should be 75 Ohms to match the AESx4's BNC input impedance.

Specifications

Electrical

Input impedance: AES: 110 Ohms, Word Clock: 75 Ohms

Output impedance: AES: 110 Ohms

External sync range: 32 kHz to 96 kHz

Connectors

AES input: Balanced XLR

AES outputs: 4 x XLR

Word Clock input: BNC

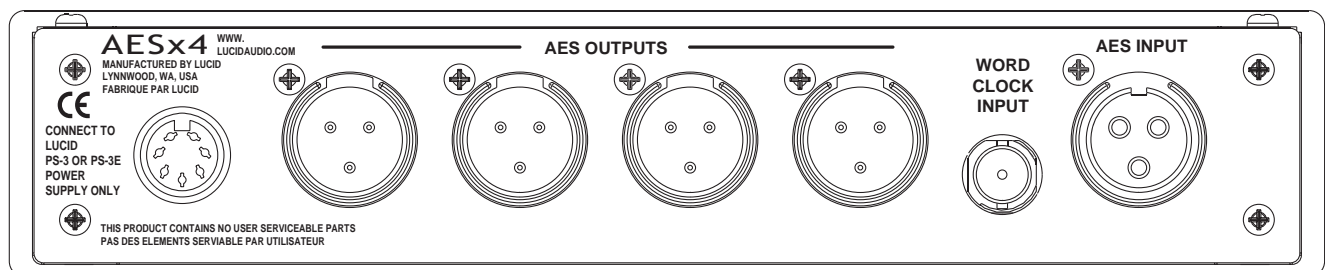
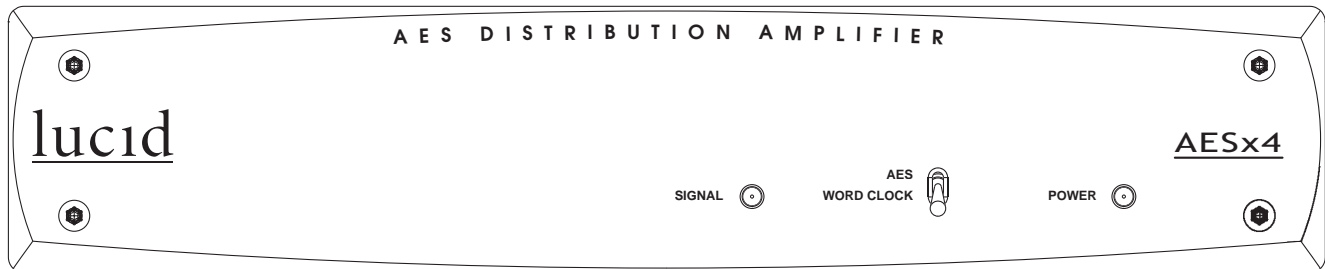
Power supply: External AC (Lucid PS-3, PS-3E, or PS-3J) using 7-pin DIN connector

Physical

1/2 U Chassis (HxWxD): 1.72 in. x 8.5 in. x 8 in.

(4.37 cm x 21.59 cm x 20.32 cm)

Net Weight: 2.5 lb. (1.1 kg)



Digital Audio Distribution Products

SPDIFx7 ● Distribution Amplifier

Description

The SPDIFx7 is used to distribute S/PDIF (2-channel digital audio) between equipment using standard RCA, XLR, and TOSLINK connectors. It has one S/PDIF input on an RCA and distributes the input digital audio to 4 RCA outputs, 2 TOSLINK outputs and 1 AES3 (XLR) output.

LEDS

SIGNAL PRESENT: In AES mode, the signal present detector drives an LED when there is activity on the S/PDIF input.

POWER LED indicates AC power is present.

Connectors

S/PDIF INPUT is an RCA, and accepts S/PDIF formatted electrical signals, with nominal impedances of 75 Ohms. The S/PDIF INPUT provides internal termination of this signal, as per the S/PDIF (IEC958) spec.

POWER: Supplied by external Lucid PS-3, PS-3E, or PS-3J.

S/PDIF OUTPUTS are standard RCA connectors with nominal impedance of 75 Ohms.

AES OUTPUT is a 3-pin XLR connector with nominal impedance of 110 Ohms.

TOSLINK Outputs: Are optical and designed to run over plastic optical cable up to approximately 30 feet.

Jumper Settings

J1 is used to control the RCA input grounding. The default setting connects the shield of the connector straight to chassis ground. The other setting, BYPASS, has a capacitor between the shield and chassis ground.

Specifications

Electrical

Input impedance: S/PDIF:75 Ohms

Output impedance: S/PDIF:75 Ohms

AES: 110 Ohms

External sync range: 32 kHz to 96 kHz

Connectors

S/PDIF INPUT: RCA (coaxial)

S/PDIF OUTPUTS: 4 x RCA (coaxial)

AES OUTPUT: Balanced XLR

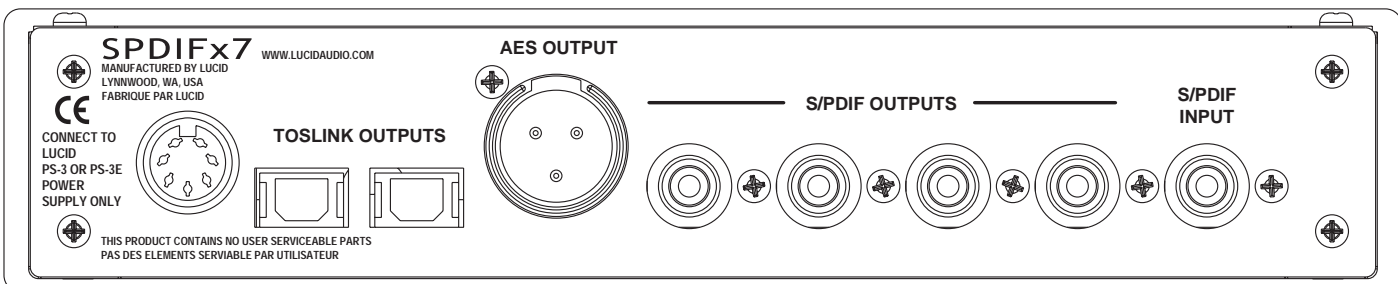
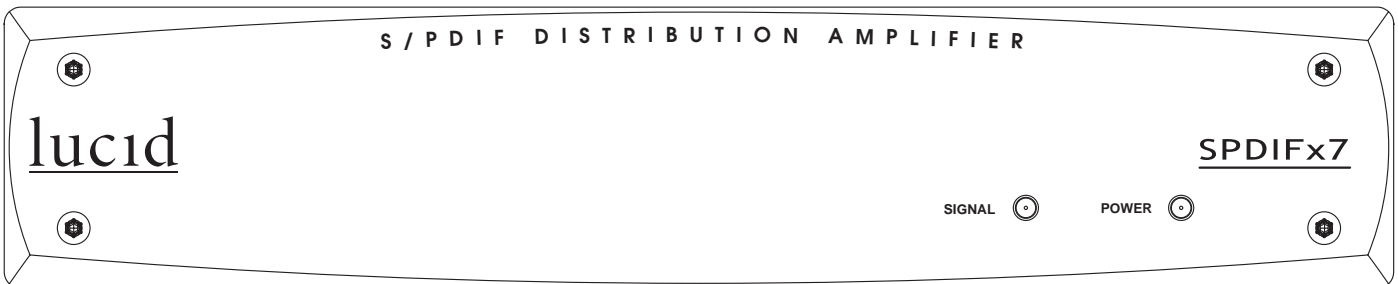
TOSLINK output: 2 x TOSLINK optical

POWER supply: External AC (Lucid PS-3, PS-3E, or PS-3J) using 7-pin DIN connector

Physical

1/2 U Chassis (HxWxD): 1.72 in.x 8.5 in.x 8 in. (4.37 cm x 21.59 cm x 20.32 cm)

Net Weight: 2.5 lb (1.1 kg)



Digital Audio Distribution Products

CLKx6 • Audio Clock Distribution Amplifier

Description

The CLKx6 is used to distribute sync information. In AES mode the unit can provide a word clock or super clock format to the 6 parallel outputs. In word clock mode, the input signal is mapped directly to the outputs through a series of buffers.

Switches

The CLKx6 has one switch placed on the front panel that selects either the WORD/SUPER clock or AES input.

LEDS

SIGNAL: In AES mode, the signal present detector drives an LED when there is a lock on the AES input. In word clock mode, the signal present detector is driven when there is activity on the WORD CLOCK input.

POWER LED indicates AC power is present.

Connectors

WORD/SUPER CLOCK INPUT is a coaxial BNC connector with nominal input impedance of 75 Ohms. Internal termination is provided with a jumper.

AES INPUT is a 3-pin XLR connector with nominal input impedance of 110 Ohms. Internal termination is provided, as per the AES3 spec. The data can be either AES3 or AES11 (AES3 with no audio data).

POWER: Supplied by external Lucid PS-3, PS-3E, or PS-3J.

CLOCK OUTPUTS are coaxial BNC connectors with nominal impedance of 20 Ohms.

Jumper Settings

J3 is used to select a word clock or super clock output format derived from the AES input signal.

Specifications

Electrical

Input impedance: AES: 110 Ohms, Clock: 75 Ohms or Hi-Z, jumper selectable.

Output impedance: 20 Ohms.

External sync range: 32 kHz to 96 kHz.

Connectors

AES INPUT: Balanced XLR

WORD/SUPER CLOCK INPUT: BNC

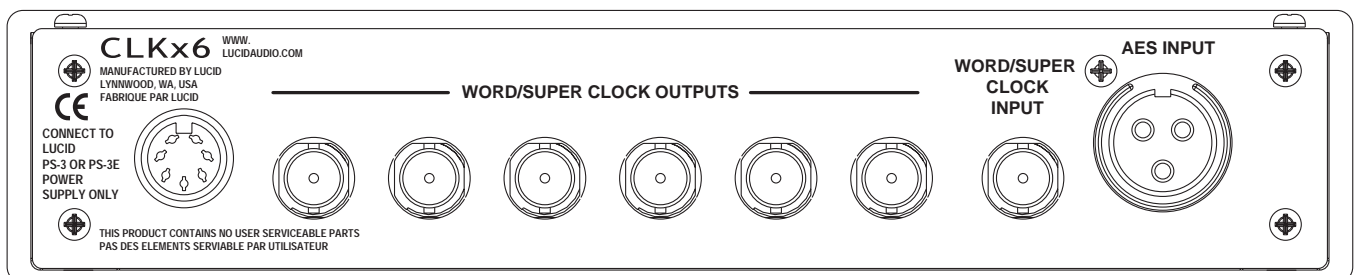
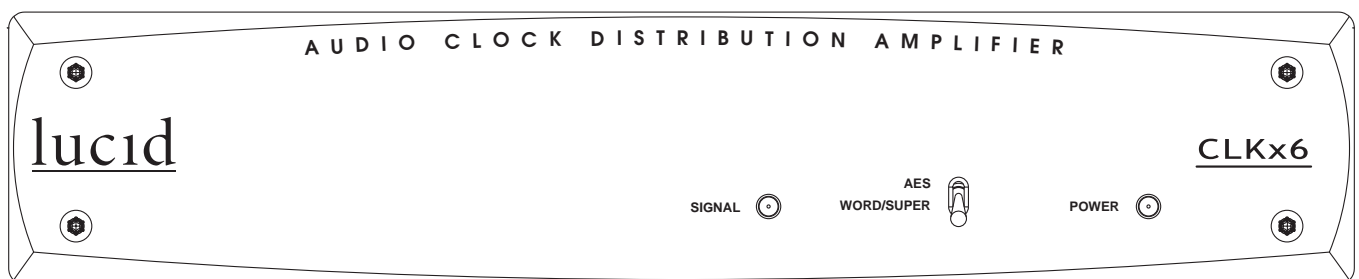
WORD/SUPER CLOCK OUTPUTS: 6 x BNC

Power supply: External AC (Lucid PS-3, PS-3E, or PS-3J) using 7-pin DIN connector

Physical

1/2 U Chassis (HxWxD): 1.72 in.x 8.5 in.x 8 in. (4.37 cm x 21.59 cm x 20.32 cm)

Net Weight: 2.5 lb.(1.1 kg)



Digital Audio Distribution Products

GENx6 ● Word/Superclck Generator

Description

The GENx6 is used to distribute word clock and super clock, and also act as a generator device with its internal 2 clocks. It provides 6 clock outputs that may be internally generated to either word or super clock, or clocked from an external source. The device can also synthesize a word clock or super clock output derived from the word clock, super clock or AES input.

Controls

The GENx6 has 3 switches located on its front panel.

- One 3-way toggle switch selects between internal 44.1 kHz sample rate, internal 48 kHz sample rate, or external sample rate.
- One 3-way toggle switch selects between the external sync sources of AES, WORD, or SUPER(256X) clocks.
- One 2-way toggle switch determines if the output is WORD CLOCK (x1 sample rate) or SUPER CLOCK (256 x sample rate).

LEDS

3 LOCK LEDs (a stack of 3):

- The upper LOCK LED, labeled AES, indicates the AES input PLL has locked to an AES3 or AES11 input.
- The middle LOCK LED, labeled WORD, indicates the word-clock PLL has locked to a word clock input.
- The bottom LOCK LED, labeled SUPER(256X), indicates the input PLL has locked to a super clock input.

POWER LED indicates AC power is present.

Connectors

WORD/SUPER CLOCK INPUT is a coaxial BNC female connector with nominal input impedance of 75 Ohms. Internal termination is provided with a jumper.

AES INPUT is a 3-pin XLR connector with nominal input impedance of 110 Ohms. Internal termination is provided, as per the AES3 spec. The data can be either AES3 or AES11 (AES3 with

no audio data).

POWER: Supplied by external Lucid PS-3, PS-3E, or PS-3J. WORD/SUPER CLOCK OUTPUTS are coaxial BNC connectors, with nominal source impedance of 20 Ohms.

Jumper Settings

- J3 with positions HIGH or LOW determines the WORD CLOCK input range. The HIGH range (default) accepts word clock frequencies between 44.1 kHz and 96 kHz whereas the LOW range accepts word clock frequencies between 32 kHz and 48 kHz.
- J5 sets the WORD CLOCK input to either TERMINATED or OPEN (default). If the jumper is set to TERMINATED, the driver's source impedance should be 75 Ohms to match the GENx6's BNC input impedance.

Specifications

Electrical

Input impedance: AES:110 Ohms; Clock: 75 Ohms or Hi-Z, jumper selectable.

Output impedance: 20 Ohms

External sync range: 32 kHz to 96 kHz

Internal sample rates: 44.1 kHz, 48 kHz

Connectors

AES input: Balanced XLR3

WORD/SUPER CLOCK INPUT: BNC

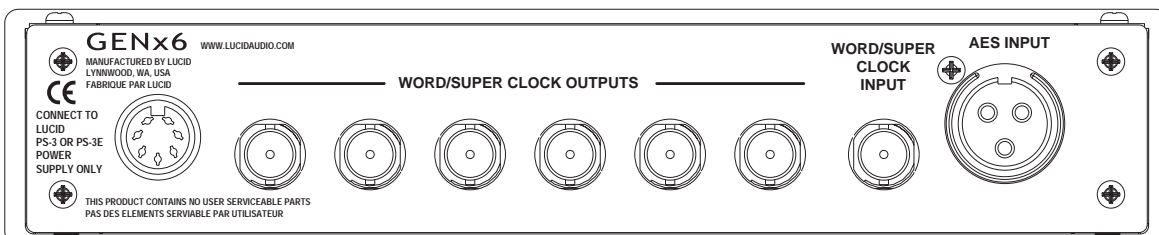
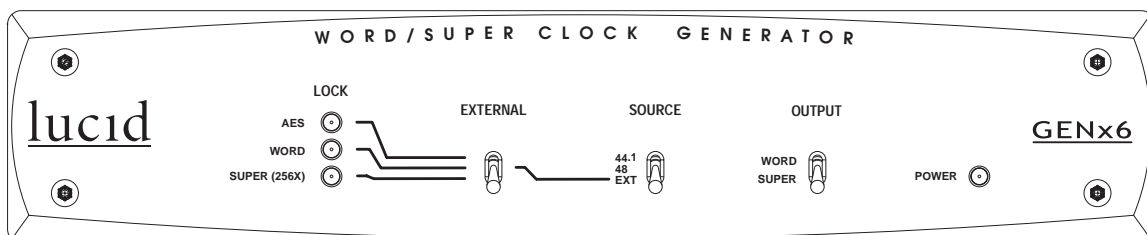
WORD/SUPER CLOCK OUTPUTS: 6 x BNC

Power supply: External AC (Lucid PS-3, PS-3E, or PS-3J) using 7-pin DIN connector

Physical

1/2 U Chassis (HxWxD): 1.72 in.x 8.5 in.x 8 in. (4.37 cm x 21.59 cm x 20.32 cm)

Net Weight: 2.5 lb (1.1 kg)



Digital Audio Distribution Products

GENx6-96 • Word/Superclock Generator

Description

The GENx6-96 is used to distribute word clock and super clock, and also act as a clock generator with its four internal clocks (44.1, 48, 88.2 and 96kHz). It provides 6 buffered clock outputs. Each output can be either word or superclock. The outputs may sync to the internal frequencies or to external word, superclock, or AES3/11 clocks.

Controls

The GENx6-96 has 8 switches located on its front panel.

- One 3-way toggle switch selects between three possible external sync sources: AES, WORD CLOCK or SUPER CLOCK.
- One momentary toggle switch selects between four internal sample rates or the chosen external sample rate.
- Six 2-way toggle switches determines if the corresponding output is WORD CLOCK (x1 sample rate) or SUPER CLOCK (x256 sample rate).

LEDS

LOCK (a stack of 3):

- The upper LOCK LED, labeled AES, indicates if the AES input PLL has locked to an AES3 or AES11 input.
- The middle LOCK LED, labeled WORD indicates if the word-clock PLL has locked to a word clock input.
- The bottom LOCK LED, labeled SUPER (256x), indicates if the input PLL has locked to a superclock input.

Connectors

WORD/SUPER CLOCK INPUT is a coaxial BNC female connector with nominal input impedance of 75 Ohms. Internal termination is provided with a jumper.

AES INPUT is a 3-pin XLR connector with nominal input impedance of 110 Ohms. Internal termination is provided, as per the AES3 spec. The data can be either AES3 or AES11 (AES3 with

no audio data).

POWER Supplied by external Lucid PS-3, PS-3E, or PS-3-J 'power supply.

WORD/SUPER CLOCK OUTPUTS are coaxial BNC connectors, with nominal source impedance of 20 Ohms.

Jumper Settings

- J5 with positions HIGH or LOW determines the WORD CLOCK input range. The HIGH range (default) accepts word clock frequencies from 40 kHz to 100 kHz whereas the LOW range accepts word clock frequencies between 30 kHz and 50 kHz.
- J4 sets the WORD CLOCK input to either TERMINATED or OPEN (default). If the jumper is set to TERMINATED, the driver's source impedance should be 75 Ohms to match the GENx6-96's input impedance.

Specifications

Electrical

Input impedance: AES:110 Ohms, Clock: 75 Ohms or Hi-Z, jumper selectable.

Output impedance: 20 Ohms.

External sync range: 32 kHz to 96 kHz.

Internal sample rates: 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz.

Connectors

AES input: Balanced XLR3

WORD/SUPER CLOCK INPUT: BNC

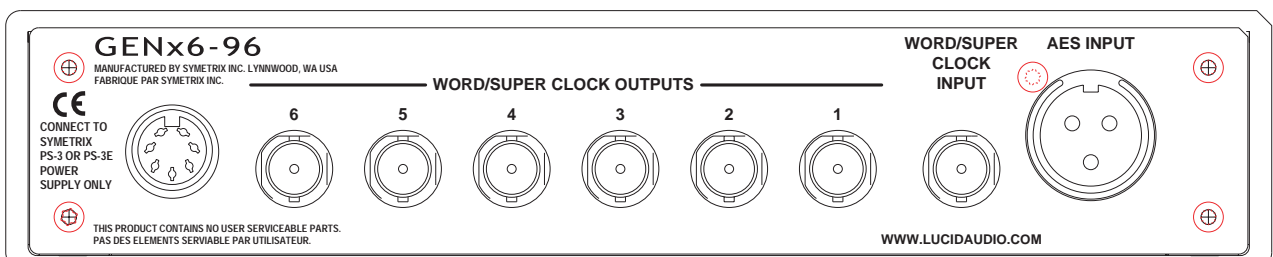
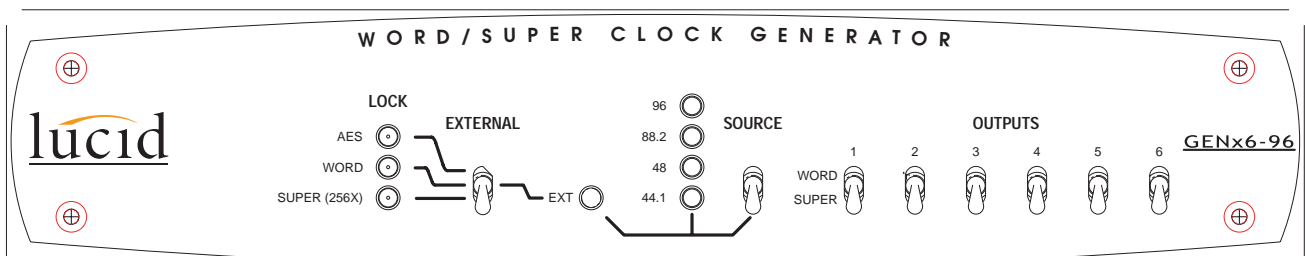
WORD/SUPER CLOCK OUTPUTS: 6 x BNC

Power supply: External AC (Lucid PS-3, PS-3E, or PS-3J) using 7-pin DIN connector

Physical

1/2 U Chassis (HxWxD): 1.72 in.x 8.5 in.x 8 in. (4.37 cm x 21.59 cm x 20.32 cm)

Net Weight: 2.5 lb (1.1 kg)



Digital Audio Distribution Products

WARRANTY

Lucid expressly warrants to the original purchaser (“Buyer”), subject to the terms and conditions set forth below, that the Product will be free from defects in material and workmanship as a result of normal commercial use for one (1) year from the date of purchase. Lucid’s warranty obligation is limited to the repair, replacement, or refund at Lucid’s sole discretion, of the part or parts of the Product which may thus prove defective in materials or workmanship within one year from date of purchase under normal use and which our examination discloses to our satisfaction to be thus defective, provided that Buyer gives Lucid prompt notice of its warranty claim and satisfactory proof thereof.

Lucid will make every reasonable effort to ensure that parts are available to support the repair of our products under warranty. In the event that a product or component part thereof becomes obsolete, unavailable or irreparable, Lucid reserves the right to refund a prorated portion of the purchase price in full satisfaction of all warranty claims. A refund of the purchase price is prorated as follows: 100% through year one, 67% through year two, 33% through year three.

In order to serve you better we request that the Buyer shall, prior to shipping Product to Lucid for warranty service, contact Lucid and secure a Return Authorization Number that shall be included with the returned Product. This will facilitate tracking your Product and processing your warranty repair as quickly as possible. Buyer will prepay all freight charges to ship the Product to Lucid for warranty inspection and service. This warranty is subject to Lucid’s inspection of the Product at its facilities and, upon Lucid’s request, satisfactory proof of purchase (dated copy of original retail dealer’s invoice.)

Lucid reserves the right to effect repairs to the product with reconditioned components/parts. Products once repaired under warranty will be shipped to Buyer freight prepaid by Lucid via United Parcel Service (surface) or any similar shipper, to any location designated by buyer within the Continental United States. At Buyer’s request and expense Product will be returned via airfreight. Outside the continental United States, repaired or replaced products will be returned freight collect.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE (INCLUDING, WITHOUT LIMITATION ANY OBLIGATIONS OF THE SELLER WITH RESPECT TO CONSEQUENTIAL DAMAGES) INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON OUR PART, AND

WE NEITHER ASSUME, NOR AUTHORIZE ANY OTHER PERSON TO ASSUME FOR US, ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. THIS WARRANTY SHALL NOT APPLY TO THIS PRODUCT OR ANY PART THERE OF WHICH HAS BEEN SUBJECT TO ACCIDENT, NEGLIGENCE, ALTERATION, ABUSE, OR MISUSE. WE MAKE NO WARRANTY WHATSOEVER IN RESPECT TO ACCESSORIES OR PARTS NOT SUPPLIED BY US. THE TERM “ORIGINAL PURCHASER,” AS USED IN THIS WARRANTY SHALL BE DEEMED TO MEAN THAT PERSON OR COMPANY THAT ORIGINALLY PURCHASED THE PRODUCT.

This Lucid product has been designed and manufactured for use in professional and studio audio systems and is not intended for other usage. This warranty only applies to Buyers using the Product in professional and studio audio systems. With respect to others, including but not limited to consumers for personal, family, or household use, Lucid expressly disclaims all warranties, including but not limited to warranties of merchantability and fitness for a particular purpose and the express warranties as otherwise provided herein.

Lucid reserves the right to modify the design or make additions to, or improvements to, its product lines without making similar upgrades to Product purchased by Buyer. Lucid does not authorize any third party, including any dealer or sales representative, to assume any liability, effect any repairs or modifications to the Product, or make any additional warranties or representation regarding the Product or Product information on behalf of Lucid.

Lucid’s total liability on any claim, whether in contract, tort (including negligence) or otherwise arising out of, connected with, or resulting from the manufacture, sale, delivery, resale, repair, replacement or use of Product will not exceed the purchase price of the Product or any part thereof which gives rise to the claim. In no event will Lucid be liable for any incidental or consequential damages including but not limited to damage for lost revenue, cost of capital, claims of customers for service interruptions or failure to supply, and costs and expenses incurred in connection with labor, overhead, transportation, installation or removal of products or substitute facilities or supply houses as a result of Product failure.

This limited warranty gives Buyer certain rights. Buyer may have additional rights under applicable law.

Digital Audio Distribution Products

Repair Services

Where to Get Service

If outside of the USA

If it has been determined that your Lucid product requires repair services and you live outside of the United States, please contact your local Lucid dealer or distributor for instructions on how to obtain service.

If inside the USA

Lucid will perform in-warranty or out-of-warranty service on any product it has manufactured for a period of three years from date of manufacture. If you reside in the USA, then proceed as follows:

In-Warranty Repairs

Repairs made in-warranty will cost you only one-way freight charges. We'll prepay the return (surface) freight. Of course, if the repair is due to operator error, parts and labor will be charged. If there are charges for the repair costs, you will pay for the return freight. All charges will be COD unless you have made other arrangements (prepaid, Visa, or MasterCard).

Out-of-Warranty Repairs

If the warranty period has passed, you'll be billed for all necessary parts, labor, packaging materials, and freight charges.

To Get Your Lucid Unit Repaired (USA Customers Only)

1. Call our Technical Services Group for a return authorization (RA) number.
(425) 778-7728
Monday through Friday
8:00 am to 4:30 pm Pacific Time

2. Have your serial number ready to give to the service representative.
3. Pack the unit in its original packaging materials.
4. Include your name, address, daytime telephone number, and a brief statement of the problem.
5. Write the RA number on the outside of the box.
6. Ship the unit to Lucid, freight prepaid. We do *not* accept freight collect shipments.

Lucid
6408 216th St. SW
Mountlake Terrace, WA 98043
(425) 778-7728

If You Don't Have Factory Packaging Materials

If you send us your product in substandard packaging, we will charge you for factory shipping materials. If you don't have the factory packaging materials, do the following:

1. Select an oversized carton.
2. Wrap the unit in a plastic bag, and surround it with bubble-wrap.
3. Pack the box full of Styrofoam peanuts. Be sure there is enough clearance in the carton to protect the rack ears. We will return the unit in Lucid packaging.

Digital Audio Distribution Products

DECLARATION of CONFORMITY

We, Lucid, a division of Symetrix, Inc.
6408 216th St. SW, Mountlake Terrace, Washington, USA,
declare under our sole responsibility that the products:

AESx4, CLKx6, GENx6, GENx6-96 are in conformity with the standard:
EN55103-1

Electromagnetic compatibility—Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use.
Part 1: Emission

Furthermore, we declare that the products:

AESx4, SPDIFx7, CLKx6, GENx6, GENx6-96 are in conformity with the standard:
EN 55103-2

Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use.
Part 2: Immunity

Furthermore, we declare that the product:
PS-3E Power Supply

is in conformance with the standard:
EN 60950

Safety of Information Technology Equipment.

The technical construction file is maintained at:

Lucid, a division of Symetrix, Inc.
6408 216th St. SW
Mountlake Terrace, WA 98043
USA

The authorized representative located within the European Community is:

World Marketing Associates
P.O. Box 100
St. Austell, Cornwall, PL26 6YU, U.K.

Date of issue: May 2001

Place of issue: Mountlake Terrace, Washington USA

Authorized signature:

Dane Butcher
President
Symetrix, Inc.

