



RB-DDA6A-2P 6 Way Stereo  
AES/EBU Digital Distribution  
Amplifier with Dual Power  
Supplies

## User Handbook



# RB-DDA6A-2P USER HANDBOOK



## RB-DDA6A-2P USER HANDBOOK

This handbook is for use with the following product:

Redbox RB-DDA6A-2P 6 Way Stereo AES/EBU Digital Distribution Amplifier with Dual Power Supplies

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## Warranty

### Warranty and Liability

**Important: the purchaser is advised to read this clause**

- (a) The Company agrees to repair or (at its discretion) replace Goods which are found to be defective (fair wear and tear excepted) and which are returned to the Company within 12 months of the date of despatch provided that each of the following are satisfied:
- (i) notification of any defect is given to the Company immediately upon its becoming apparent to the Purchaser;
  - (ii) the Goods have only been operated under normal operating conditions and have only been subject to normal use (and in particular the Goods must have been correctly connected and must not have been subject to high voltage or to ionising radiation and must not have been used contrary to the Company's technical recommendations);
  - (iii) the Goods are returned to the Company's premises at the Purchaser's expense;
  - (iv) any Goods or parts of Goods replaced shall become the property of the Company;
  - (v) no work whatsoever (other than normal and proper maintenance) has been carried out to the Goods or any part of the Goods without the Company's prior written consent;
  - (vi) the defect has not arisen from a design made, furnished or specified by the Purchaser;
  - (vii) the Goods have been assembled or incorporated into other goods only in accordance with any instructions issued by the Company;
  - (viii) the defect has not arisen from a design modified by the Purchaser;
  - (ix) the defect has not arisen from an item manufactured by a person other than the Company.

In respect of any item manufactured by a person other than the Company, the Purchaser shall only be entitled to the benefit of any warranty or guarantee provided by such manufacturer to the Company.

- (b) In respect of computer software supplied by the Company the Company does not warrant that the use of the software will be uninterrupted or error free.



**WARRANTY**

## WARRANTY



## WARRANTY

- (c) The Company accepts liability:
- (i) for death or personal injury to the extent that it results from the negligence of the Company, its employees (whilst in the course of their employment) or its agents (in the course of the agency);
  - (ii) for any breach by the Company of any statutory undertaking as to title, quiet possession and freedom from encumbrance.
- (d) Subject to conditions (a) and (c) from the time of despatch of the Goods from the Company's premises the Purchaser shall be responsible for any defect in the Goods or loss, damage, nuisance or interference whatsoever consequential economic or otherwise or wastage of material resulting from or caused by or to the Goods. In particular the Company shall not be liable for any loss of profits or other economic losses. The Company accordingly excludes all liability for the same.
- (e) At the request and expense of the Purchaser the Company will test the Goods to ascertain performance levels and provide a report of the results of that test. The report will be accurate at the time of the test, to the best of the belief and knowledge of the Company, and the Company accepts no liability in respect of its accuracy beyond that set out in Condition (a).
- (f) Subject to Condition (e) no representation, condition, warranty or other term, express or implied (by statute or otherwise) is given by the Company that the Goods are of any particular quality or standard or will enable the Purchaser to attain any particular performance or result, or will be suitable for any particular purpose or use under specific conditions or will provide any particular capacity, notwithstanding that the requirement for such performance, result or capacity or that such particular purpose or conditions may have been known (or ought to have been known) to the Company, its employees or agents.
- (g)
- (i) To the extent that the Company is held legally liable to the Purchaser for any single breach of contract, tort, representation or other act or default, the Company's liability for the same shall not exceed the Price of the Goods.
  - (ii) The restriction of liability in Condition (g)(i) shall not apply to any liability accepted by the Seller in Condition (c).
- (h) Where the Goods are sold under a consumer transaction (as defined by the Consumer Transactions (Restrictions on Statements) Order 1976) the statutory rights of the Purchaser are not affected by these Conditions of Sale.



### Unpacking the RB-DDA6A-2P

The RB-DDA6A-2P are shipped with the following equipment. Please check your packaging to ensure that you have all of the items below. If anything is missing, please contact the supplier of your equipment immediately.

Item	Quantity
RB-DDA6A-2P	1
IEC Mains lead fitted with moulded mains plug	1
Handbook and warranty card	1

Fig A: Packing List.

Each RB-DDA6A-2P is shipped in protective packaging and should be inspected for damage before use. Where an item is found to have transit damage, notify the carrier immediately with all the relevant details of the shipment. Packing materials should be kept for inspection and also for if the product needs to be returned.

### Returning the Warranty Card

In order to register the date of purchase so that we can keep you informed of any design improvements or modifications, it is important to complete the warranty registration document that is enclosed and return it to Sonifex Ltd in the UK.

For your own records you should write down the serial number (which can be found on the rear of the RB-DDA6A-2P).

Serial Number	.....
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WARRANTY

# SAFETY INFORMATION



SAFETY INFORMATION

## Safety Information

### Safety of Mains Operated Equipment



This equipment has been designed to meet the safety regulations currently advised in the country of purchase and it conforms to the safety regulations specified by use of the CE Mark.

**Warning :** There are no user serviceable parts inside the equipment. If you should ever need to look inside the unit, always disconnect the mains supply before removing the equipment covers.

### Voltage Setting Checks

Ensure that the machine operating voltage is correct for your mains power supply by checking the box in which your Redbox was supplied. The voltage is shown on the box label. The available voltage settings are 115V, or 230V. Please note that all Redboxes are either switchable between 115V and 230V, or have a universal power supply.

### Fuse Rating

The RB-DDA6A-2P are supplied with a single fuse in the live conducting path of the mains power input. For reasons of safety it is important that the correct rating and type of fuse is used. Incorrectly rated fuses could present a possible fire hazard, under equipment fault conditions. The fuse rating for the RB-DDA6A-2P is:

230 or 115 V operation - 1A 5 x 20mm SB

The active fuse is fitted on the outside rear panel of the unit.

### Power Cable and Connection

An IEC power connector is supplied with the RB-DDA6A-2P which has a moulded plug attached – this is a legal requirement. If no moulded plug has been supplied with your RB-DDA6A-2P, please contact your supplier, because an IEC connector is always supplied from the Sonifex factory.

If for any reason, you need to use the RB-DDA6A-2P with a different power cable, you should use the following wiring guidelines.

Wire Colour	Connection
Green, or green and yellow	Earth (E)
Blue, or Black	Neutral (N)
Brown, or Red	Live (L)

*Fig B: Power Connections.*

Connect the equipment in accordance with the connection details and before applying power to the unit, check that the machine has the correct operating voltage for your mains power supply.

**Important Note :** The terminal marked on the rear panel must be earthed.



### Ordering the Correct Mains Lead

When ordering a Redbox from Sonifex, it is helpful if you can specify your required operating voltage and mains lead. After the product code add:

UK, for 230V, UK 3 pin to IEC lead	
EC, for 230V, European Schuko 2 pin to IEC lead	
US, for 115V, 3 pin to IEC lead	
AU for 230V, Australasian 3 pin to IEC lead	

Fig C: Mains Lead Table.

E.g. order RB-DA6P UK for a UK IEC lead to be supplied.

## Installation Information

### Atmosphere

The units should be installed in an area that is not subject to excessive temperature variation (<0°C, >50°C), moisture, dust or vibration.

### Electromagnetic Radiation

The cover is connected to earth by means of the fixing screws. It is essential to maintain this earth ground connection to ensure a safe operating environment and provide electromagnetic shielding.

### Fitting Redboxes

Redboxes can be fixed to the underside of a mixing desk, or other surfaces using 4.2mm holes in the sides and fixed with 2 x M4 screws or 2 x No. 6 countersink wood screws.

They can also be rack-mounted, with either the front, or rear of the Redbox positioned at the front of the rack:

**Rear Mounting The RB-DDA6A-2P:** The **RB-RK3** 1U rear panel rack kit can be used for large Redboxes such as the RB-DDA-2P.



Fig D: RB-RK3 Large Redbox Rear Rack-mount Kit.

**Note:** When fitting the rear-mounting rack-kits, a notch has been left on the inside of the right-hand rack-piece for the mains cable to pass through. Make sure that the mains cable has been put through the notch before attaching the right hand rack-piece.



SAFETY INFORMATION

# WEEE & ROHS INFORMATION



## WEEE & ROHS INFORMATION

### WEEE & RoHS Directives - Sonifex Statement



The Waste Electrical and Electronic Equipment (WEEE) Directive was agreed on 13 February 2003, along with the related Directive 2002/95/EC on Restrictions of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS).

The **Waste Electrical and Electronic Equipment Directive (WEEE)** aims to minimise the impacts of electrical and electronic equipment on the environment during their life times and when they become waste. It applies to a huge spectrum of products. It encourages and sets criteria for the collection, treatment, recycling and recovery of waste electrical and electronic equipment. All products manufactured by Sonifex Ltd have the WEEE directive label placed on the case. It gives a contact for individuals who are unsure about the correct procedure when the product has reached its “end of use”.

Sonifex Ltd will be happy to give you information about local organisations that can reprocess the products, or alternatively all products that have reached “end of use” can be returned to Sonifex and will be reprocessed correctly free of charge.

Sonifex Ltd has phased out the use of certain hazardous substances identified in the European Union's **Restriction of Hazardous Substances (RoHS)** directive. The RoHS directive limits the use of certain hazardous substances currently used in EEE manufacture, including lead, mercury, cadmium, hexavalent chromium, and halide-containing compounds PBB (polybrominated biphenyl) and PBDE (polybrominated diphenyl ether). Elimination of these substances will result in more environmentally friendly recycling of electronic equipment. For the products which Sonifex manufacture, the main area where products were affected was in the use of lead for manufacturing and assembling electronics circuit boards.

Sonifex Ltd practices lead-free (LF) manufacturing processes. LF solder is used on the surface-mount PCB manufacturing processes and for hand soldering. The printed circuit boards (PCBs) used are either gold plated, or immersion tin plated, both of which use no lead. Historically the PCBs were hot air solder levelled (HASL) PCBs which used tin/lead based solder.

The manufacturing processes include the assembly of purchased components from various sources. Product is offered as RoHS compliant, or LF, only after sufficient evidence is received from the component manufacturers that their components are RoHS compliant. Sonifex Ltd relies solely on the distributor, or manufacturer, of the components for identification of RoHS compliance. Thus whilst every effort is made to ensure compliance, Sonifex Ltd makes no warranty, or certification, or declaration of compliance concerning said components.

Sonifex Ltd defines “Lead Free” as pertaining to any product, which has been manufactured by Sonifex Ltd using components which have been declared by the manufacturers as “Lead Free”. All statements by Sonifex Ltd of RoHS compliance are based on component manufacturer documentation.



## RB-DDA6A-2P 6 Way Stereo AES/EBU Digital Distribution Amplifier With Dual Power Supplies

### Introduction



Fig 1-1: RB-DDA6A-2P Front Panel.

The RB-DDA6A-2P digital distribution amplifier is used for distributing digital audio data in AES/EBU format, repeating both the audio data and the status information of the input whilst re-normalising to standard digital audio levels.

It has a single XLR-3 female AES/EBU audio input which is distributed to 6 XLR-3 male AES/EBU outputs.

Applications include distributing audio from a digital mixing desk to multiple digital recorders, or feeding multiple studios with an output from a DAT machine.

It can accept input sample rates in the range of 30kHz - 100kHz, and bit rates of 16, 20 and 24 bit. So, it can be used for standard CD signal distribution at 16 bit 44.1kHz, as well as for high quality 24 bit 96kHz recording.

The unit provides redundancy protection by using two power supply units that can be supplied from separate mains feeds. The unit automatically load shares between the two supplies so that if either supply should fail the unit will continue to work correctly. If both supplies fail the input is connected directly to output 1.

The condition of the two supplies is indicated on the front panel by two red LEDs which illuminate to indicate the correct function of the supply. On the alarm output connector there is a changeover relay to indicate the status of each supply. This is normally closed to indicate power fail and once the supply is working correctly the relay activates to make a normally open contact.



INTRODUCTION



## System Block Diagram

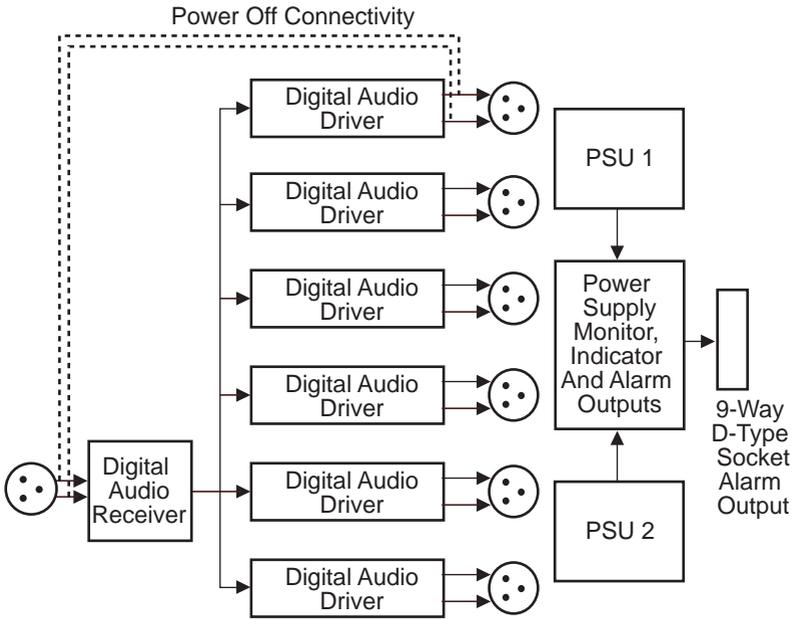


Fig 1-2: RB-DDA6A-2P System Block Diagram.

## Rear Panel Connections and Operations

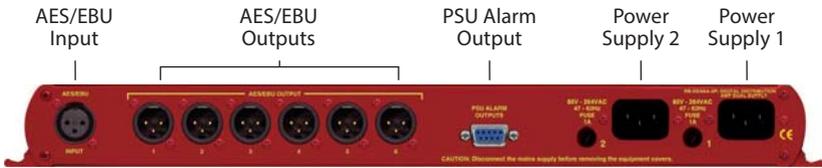


Fig 1-3: RB-DDA6A-2P Rear panel.

**AES/EBU Input**

The XLR 3 pin socket has an impedance of 110Ω. It has the following connections:

- Pin 1: Screen
- Pin 2: Phase
- Pin 3: Non-phase

**AES/EBU Outputs**

The XLR 3 pin sockets have an impedance of 110Ω. They have the following connections:

- Pin 1: Screen
- Pin 2: Phase
- Pin 3: Non-phase

**Alarm Connector**

- Pin 1: Power Supply 1 Common
- Pin 2: Power Supply 1 Normally Open
- Pin 3: Ground
- Pin 4: Power Supply 2 Common
- Pin 5: Power Supply 2 Normally Open
- Pin 6: Power Supply 1 Normally Closed (indicates supply inactive)
- Pin 7: Ground
- Pin 8: Ground
- Pin 9: Power Supply 2 Normally Closed (indicates supply inactive)

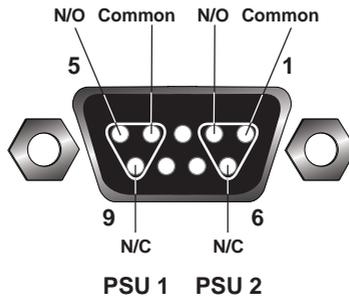


Fig 1-4: RB-DDA6A-2P Alarm Connector Diagram.



## Technical Specification

### Audio Specifications

Input Impedance:	110Ω ± 20% balanced
Output Impedance:	110Ω ± 20% balanced
Sample Freq Range:	30-100kHz (i.e. including 32kHz, 44.1kHz, 48kHz, 64kHz, 88.2kHz and 96kHz)
Signal Level:	2V/7V peak to peak min/max

### Connections

Audio Input:	1 x AES/EBU XLR 3 pin female (balanced)
Audio Outputs:	6 x AES/EBU XLR 3 pin male (balanced)
Alarm Outputs:	2 x Relay output indicators on 1 x 9 pin D-Type socket
Mains Inputs:	2 x Filtered IEC, 85-264V switchable, fused, 6W max
Fuse Ratings:	2 x Anti-surge fuse 1A 20 x 5mm

### Equipment Type

RB-DDA6A-2P:	6 way AES/EBU stereo digital distribution amplifier with dual power supplies
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### Physical Specifications

Dimensions (Raw):	48cm (W) x 10.8cm (D) x 4.2cm (H) (1U) 19" (W) x 4.3" (D) x 1.7" (H) (1U)
Dimensions (Boxed):	58.5cm (W) x 22.5cm (D) x 7cm (H) 23" (W) x 8.9" (D) x 2.8" (H)
Weight:	Nett: 1.5kg    Gross: 2.0kg Nett: 3.3lbs    Gross: 4.4lbs



**NOTES**

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