

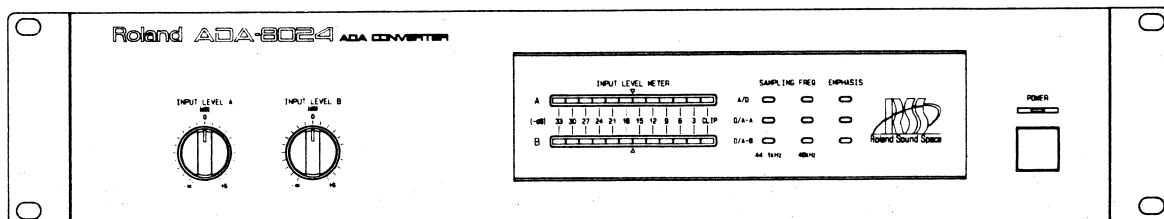
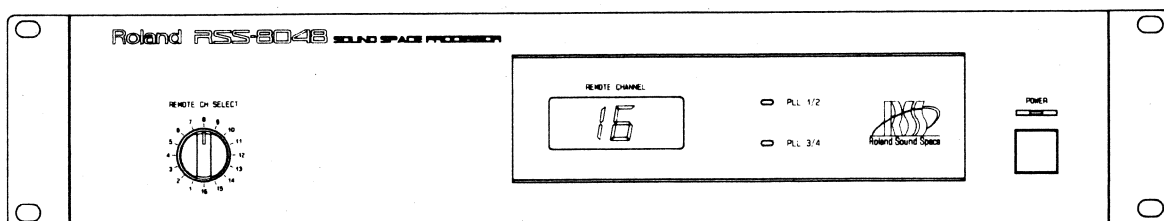
Roland





SOUND SPACE PROCESSOR ADA CONVERTER

RSS-8048 ADA-8024

OWNER'S MANUAL



	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
ATTENTION : RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR		
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS

WARNING — When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.
2. Do not use this product near water — for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
7. Avoid using the product where it may be affected by dust.
8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
9. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
10. Do not tread on the power-supply cord.
11. Do not pull the cord but hold the plug when unplugging.
12. When setting up with any other instruments, the procedure should be followed in accordance with instruction manual.
13. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
14. The product should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the product; or
 - C. The product has been exposed to rain; or
 - D. The product does not appear to operate normally or exhibits a marked change in performance; or
 - E. The product has been dropped, or the enclosure damaged.
15. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

For the USA

GROUNDING INSTRUCTIONS

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product — if it will not fit the outlet, have a proper outlet installed by a qualified electrician.


SAVE THESE INSTRUCTIONS

For the U.K.

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.
GREEN-AND-YELLOW: EARTH, BLUE: NEUTRAL, BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings indentifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

The product which is equipped with a THREE WIRE GROUNDING TYPE AC PLUG must be grounded.

SOUND SPACE PROCESSOR
RSS-8048
ADA CONVERTER
ADA-8024

OWNER'S MANUAL

Thank you and congratulations on your choice of the Roland Sound Space Processing System.

To become familiar with all the functions and features of this system, and to ensure your satisfaction for years to come, please take the time to read this manual in its entirety before starting out.

© Copyright 1991 by ROLAND CORPORATION
All rights reserved. No part of this publication may be reproduced in any form without the permission of ROLAND CORPORATION.

■ RSS Processing System Overview

The RSS process represents a new concept in sound processing, one which allows true three-dimensional sound to be enjoyed from conventional stereo systems.

Sources that have been processed by the RSS system can easily be reproduced on all ordinary units capable of stereo reproduction (home stereos, stereo-equipped televisions, radio-cassette players etc.). There is no need for additional speakers or any other special equipment. The result is a three-dimensional sound field with distinct front/rear, left/right, and above/below sound localization.

Developed as a result of Roland's expertise in signal processing technology, this system can be used in a wide variety of applications: stereo mixdown of recorded music, AV post production, television and FM stereo broadcasting, film post production etc.

*** For further details and technical information about the RSS process, please refer to the Owner's Manual for the SSC-8004 Sound Space Controller.**

[TABLE OF CONTENTS]

■RSS Processing System Overview	4
■Important Notes	5
■RSS Processing System Configuration	6
■Signal Flow	7
■Panel Descriptions	8
■Making the Connections	12
■Making the Settings	13
■Digital Input/Output	14
■Specifications	16
■Information	19

■ Important Notes

In addition to the items listed under Safety Precautions on inside front cover, please read and observe the following:

[Power Supply]

- Before connecting this unit to other devices, turn off the power to all units; this will help prevent damage or malfunction.
- Do not use this unit on the same power circuit with any device that will generate line noise; an electric motor or variable lighting system for example.
- Avoid damaging the power cord: do not step on it, place heavy objects on it, etc.

[Placement]

- Do not subject the unit to temperature extremes (eg. direct sunlight in an enclosed vehicle). Avoid using or storing the unit in dusty or humid areas or areas that are subject to high vibration levels.
- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum.
- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.

[Maintenance]

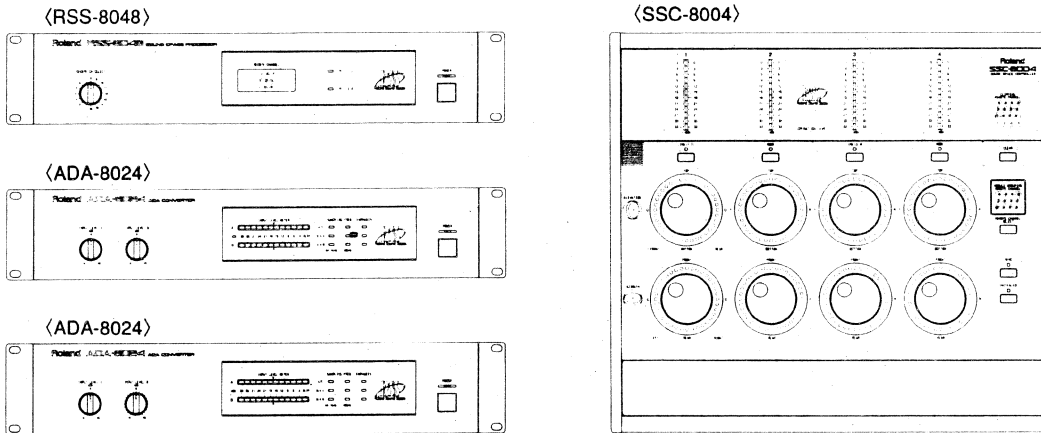
- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a mild, neutral, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzine, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

[Additional Precautions]

- Protect the unit from strong impact.
- Do not allow objects or liquids of any kind to penetrate the unit. In the event of such an occurrence, discontinue use immediately. Contact qualified service personnel as soon as possible.
- Never strike or apply strong pressure to the display.
- A small amount of heat will radiate from the unit, and thus should be considered normal.
- To prevent the risk of electric shock, do not open the unit.
- Before using the unit in a foreign country, consult with qualified service personnel.
- Should a malfunction occur, or if you suspect there is a problem, discontinue use immediately. Contact qualified service personnel as soon as possible.

■ RSS Processing System Configuration

The RSS Processing System is composed of the RSS-8048, ADA-8024, and the SSC-8004.

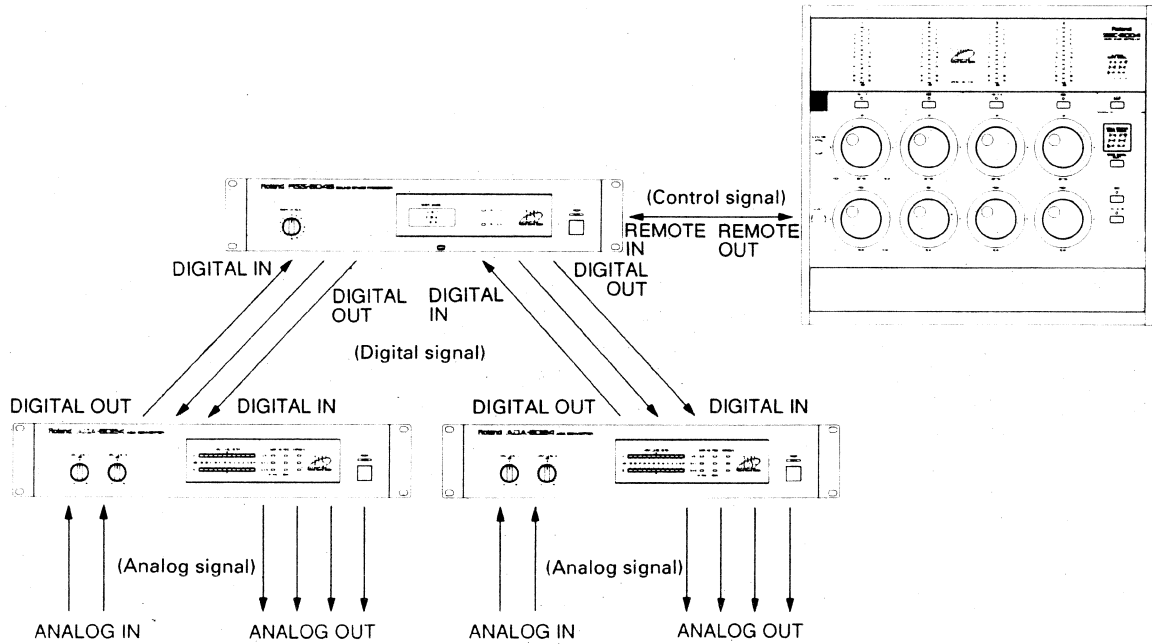


RSS-8048 : The sound processing unit forming the core of the RSS Processing System. Consists of four channels which create the three-dimensional sound field.

ADA-8024 : An A/D/A converter designed specially for the RSS Processing System. Provides two input channels and 4 output channels. Two units make up one set.

SSC-8004 : The controller unit; dedicated for use with the RSS Processing System. One controller can be used to control a maximum of 16 RSS-8048s.

■ Signal Flow

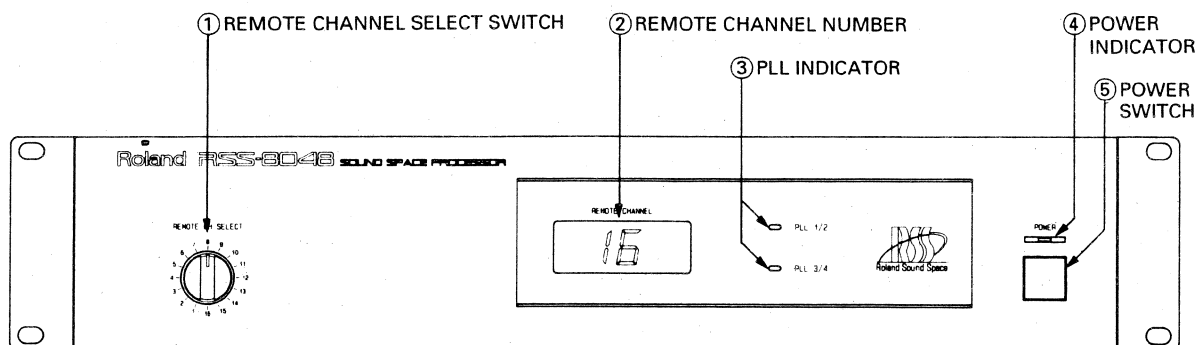


The ADA-8024 U/s analog input signals are converted to digital audio signals (AES/EBU format), and then sent to the RSS-8048. After the RSS-8048 has performed the signal processing necessary for creation of the three-dimensional sound field, the signals are once again sent to the ADA-8024 as digital audio signals. After arriving back at the ADA-8024, the signals are converted to analog and then output. The system is capable of processing enough signals for four audio channels. By operating the SSC-8004, sounds are localized (placed) in the sound field.

■ Panel Descriptions

●RSS-8048

<< Front Panel >>



① REMOTE CHANNEL SELECT SWITCH

This switch is used to set the RSS-8048's Remote Channel Number to match that of the SSC-8004 ( p. 13).

* When using one SSC-8004 to control several RSS-8048s, you must set each RSS-8048 to a different number.

* Remote Channels 13 to 15 are reserved for the Binaural Mode, and Remote Channel 16 is reserved for the Transaural Mode. For information about these Modes, refer to the Owner's Manual for the SSC-8004.

② REMOTE CHANNEL NUMBER

Displays the currently selected Remote Channel Number ( p. 13).

* If some RSS-8048s are set to the same Remote Channel Number, this display will flash.

③ PLL INDICATORS

These indicators light when digital audio signals are properly received. PLL 1/2 monitors the digital audio signals received on channels 1 and 2 (rear panel input). PLL 3/4 monitors the digital signals received on channels 3 and 4.

④ POWER INDICATOR

This indicator lights when the power is turned ON (the unit is ready for operation).

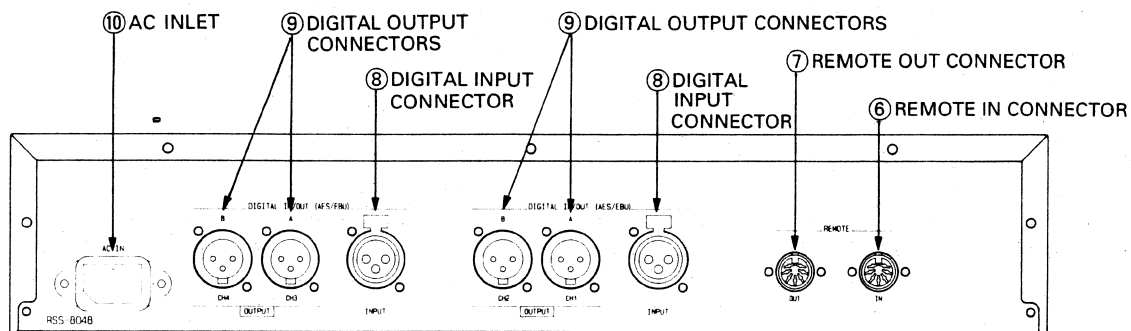
⑤ POWER SWITCH

Press this switch to turn the unit ON, and press it again to turn it OFF.

Caution!!:

Make sure to turn the volume all the way down on the device into which you are plugging the RSS System when turning the RSS-8048 ON or OFF. Because this unit produces some noise when turning the RSS-8048 ON or OFF.

<< Rear Panel >>



⑥ REMOTE IN CONNECTOR Accepts connection from the SSC-8004 U/s REMOTE OUT connector.

⑦ REMOTE OUT CONNECTOR

When using one SSC-8004 to control several RSS-8048s, connect a Remote cable so it runs from this connector to the REMOTE IN connector on the next RSS-8048.

*** If using one SSC-8004 to control several RSS-8048s:**

Starting with the second RSS-8048 in the chain, connect a Remote cable between its REMOTE OUT and the REMOTE IN connector on the third unit. Duplicate this connection throughout the chain.

⑧ DIGITAL INPUT CONNECTORS

These connectors accept the digital audio signals coming from the ADA-8024.

⑨ DIGITAL OUTPUT CONNECTORS

These connectors are used to send digital audio signals to the ADA-8024.

*** DIGITAL OUT channels 1-4 on the RSS-8048 correspond with channels 1-4 on the SSC-8004.**

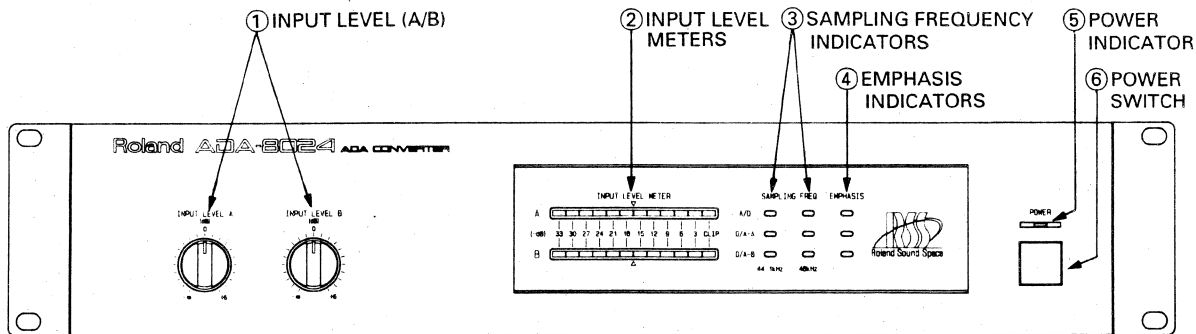
*** The digital audio signals are in the AES/EBU format (2-channel mode). For details, see "Digital Input/Output" (p. 14).**

⑩ AC INLET

Accepts connection of the supplied power cord.

● ADA-8024

<< Front Panel >>



① INPUT LEVEL (A/B)

These knobs adjust the input level of incoming analog signals.

② INPUT LEVEL METERS

These meters indicate the input level (immediately before A/D conversion) and peak levels.

They are accurate within the range of -18 dB to 0 dB. Always adjust the level so that the highest input peaks do not cause the CLIP segments to light.

* When the CLIP segments light, signals may not be properly processed.

③ SAMPLING FREQUENCY INDICATORS

Indicates the currently selected sampling frequency.

The A/D indicator lights to correspond with the selected sampling frequency (selected with the SAMPLING FREQ switch on the rear panel).

The D/A indicators (A and B) light when the digital audio signals have been properly received. The sampling frequency automatically shifts to match that of the input signal.

④ EMPHASIS INDICATORS

These indicators light when Emphasis is turned ON.

The A/D indicator lights when the EMPHASIS switch on the rear panel is ON.

The D/A indicators light when EMPHASIS is ON for the digital audio signals that have been received.

⑤ POWER INDICATOR

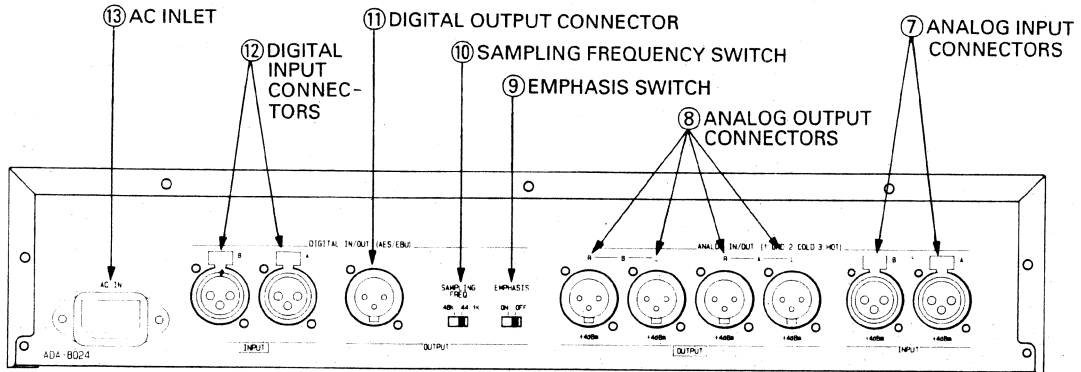
This indicator lights when the power is turned ON (the unit is ready for operation).

⑥ POWER SWITCH

Press this switch to turn the unit ON, and press it again to turn it OFF.

* This unit is equipped with a circuit protection device. A brief interval after power up is required before the unit will operate.

<< Rear Panel >>



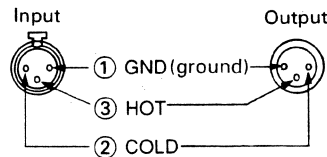
⑦ ANALOG INPUT CONNECTORS

These connectors accept analog audio signals. They are configured for balanced input.

⑧ ANALOG OUTPUT CONNECTORS

These connectors provide output of analog audio signals. They are configured for balanced output.

The pin assignments for the XLR connectors are as follows: Before making any connections, confirm pin assignment compatibility with all other devices.



⑨ EMPHASIS SWITCH

Turn this switch ON when you wish to apply Emphasis to the digital output.

⑩ SAMPLING FREQUENCY SWITCH

Provides selection for the sampling frequency used for the unit's digital output.

Caution!!:

Make sure to turn the volume all the way down on the device into which you are plugging the RSS System when changing this switch. Because this unit produces some noise when changing this switch.

⑪ DIGITAL OUTPUT CONNECTOR

Provides output of the digital audio signals.

⑫ DIGITAL INPUT CONNECTORS

Accept input of digital audio signals.

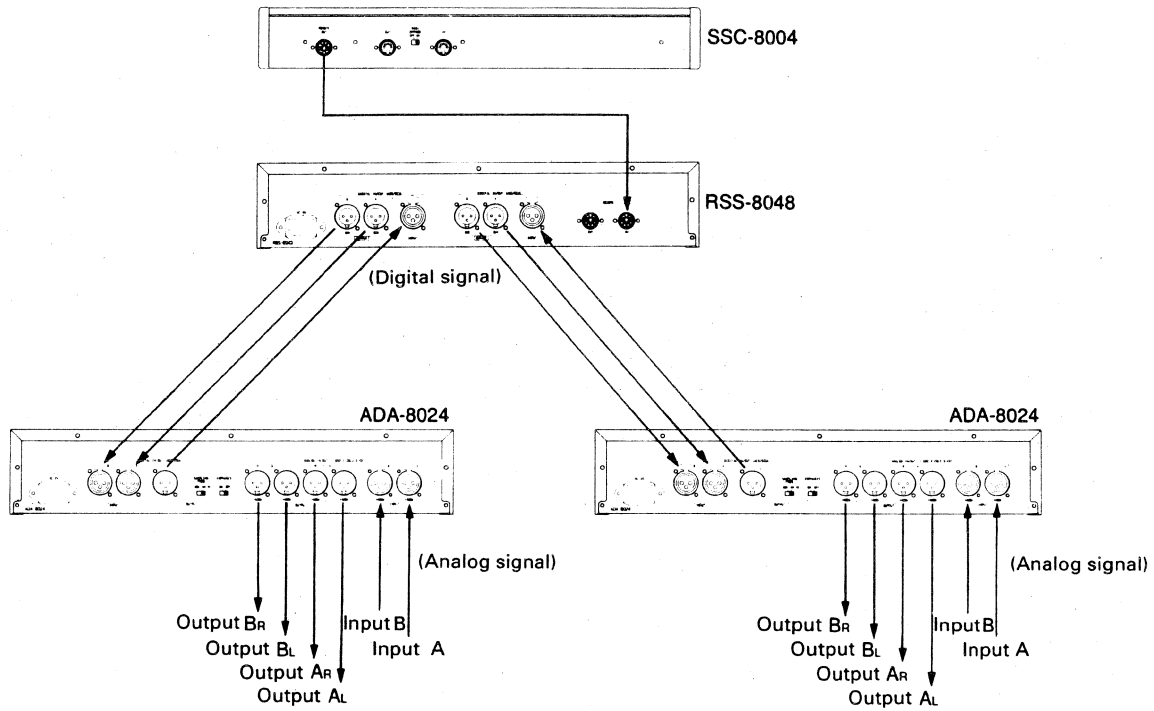
* The AES/EBU format (2-channel mode) is employed for digital audio signals. For details, refer to "■ Digital Input/Output" (p. 14).

⑬ AC INLET

Accepts connection of the supplied power cord.

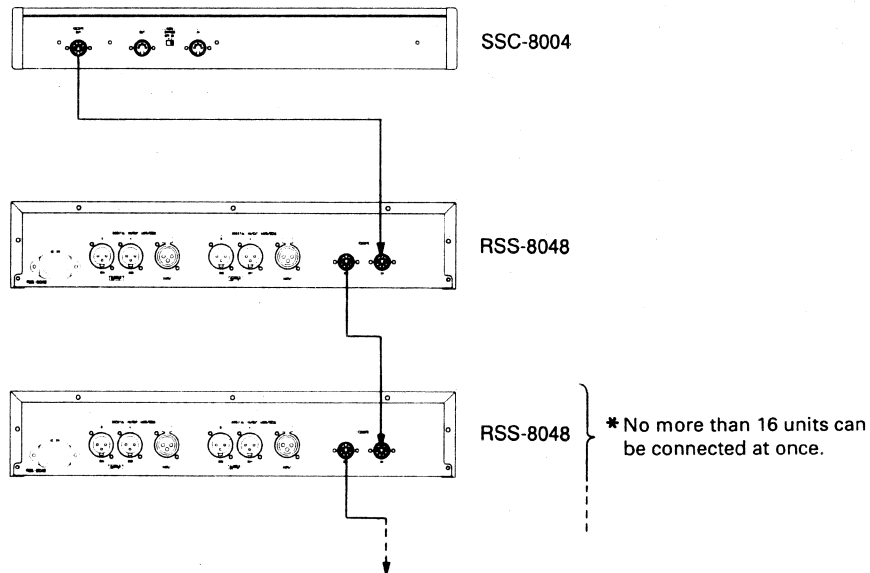
■ Making the Connections

Make connections as described in the following:



* DIGITAL OUT channels 1-4 on the RSS-8048 correspond with channels 1-4 on the SSC-8004.

When using several RSS-8048s, connect them as described in the following:

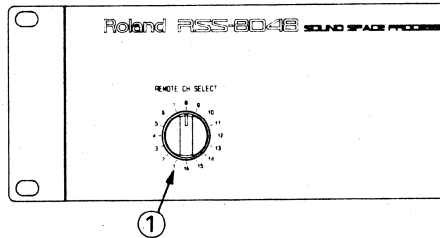


■ Making the Settings

① Using the REMOTE CH SELECT switch, select the Remote Channel.

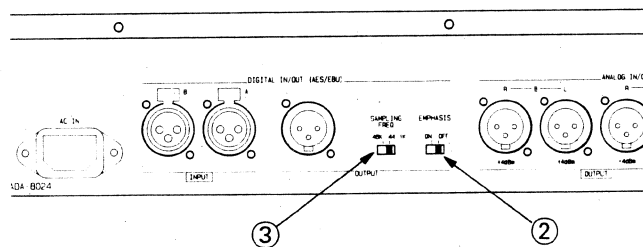
* When using several RSS-8048s, each RSS-8048 must have a different Remote Channel.

* Remote Channels 13 to 15 are reserved for the Binaural Mode, and Remote Channel 16 is reserved for the Transaural Mode. For information about these Modes, refer to the Owner's Manual for the SSC-8004.



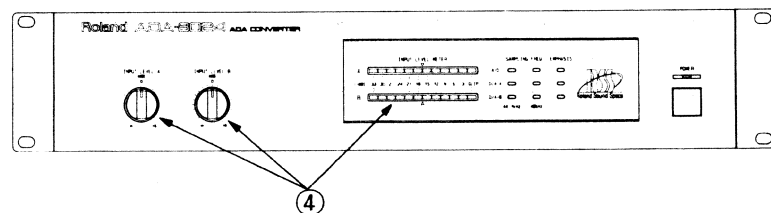
② Should you notice unsatisfactory noise in the upper range, turn Emphasis ON.

③ Select the Sampling Frequency using the SAMPLING FREQ switch.



④ While watching the INPUT LEVEL METER, adjust the level of the incoming analog audio signals.

NOTE: The adjustment of input signal levels is crucial to the quality of digital conversion. If the signal level is too low, unwanted noise will be present. If the input signal is too high, digital distortion will be painfully audible. Adjust the input level so that the meter reads well above -18 dB but also so the CLIP segments do not light.



* For information on the how to make settings for the controller, refer to the Owner's Manual for the SSC-8004.

■ Digital Input/Output

The digital audio signals handled by this system are in the AES/EBU format, and the following types are employed:

- ◇ Professional-use
- ◇ Audio Signals
- ◇ Emphasis Specification: 50 μsec / 15 μsec
- ◇ Sampling Frequency: 44.1 kHz/48 kHz
- ◇ Two-channel Mode

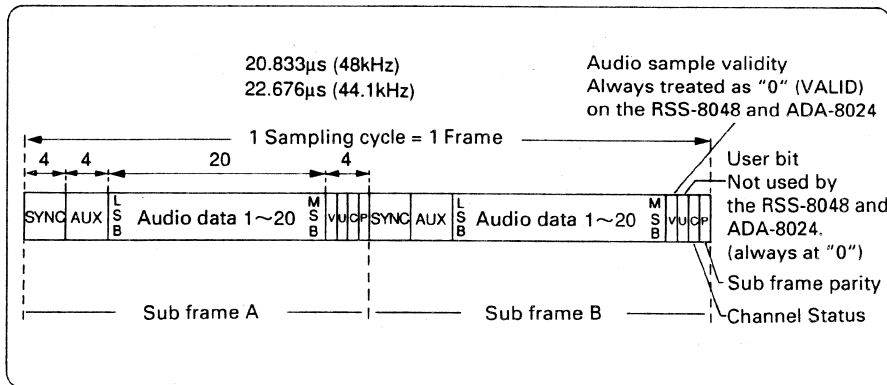
	Format	Connector	Electrical Characteristics	Impedance	Transfer Rate
Digital Input	AES/EBU Professional-use	XLR-3-31 type	RS-422A	250 ohm (balanced)	3.072 M bit/sec fs=48 kHz
Digital Output	AES/EBU Professional-use	XLR-3-32 type	RS-422A	110 ohm (balanced)	3.072 M bit/sec fs=48 kHz

● The Digital I/O Format of the AES/EBU Format

○ The frame format of the AES/EBU digital audio interface

Since the RSS-8048 and ADA-8024 employ the two-channel mode, CH-A (or L) is assigned to sub-frame A, and CH-B (or R) is assigned to sub-frame B.

The composition of a sub-frame is as shown below.

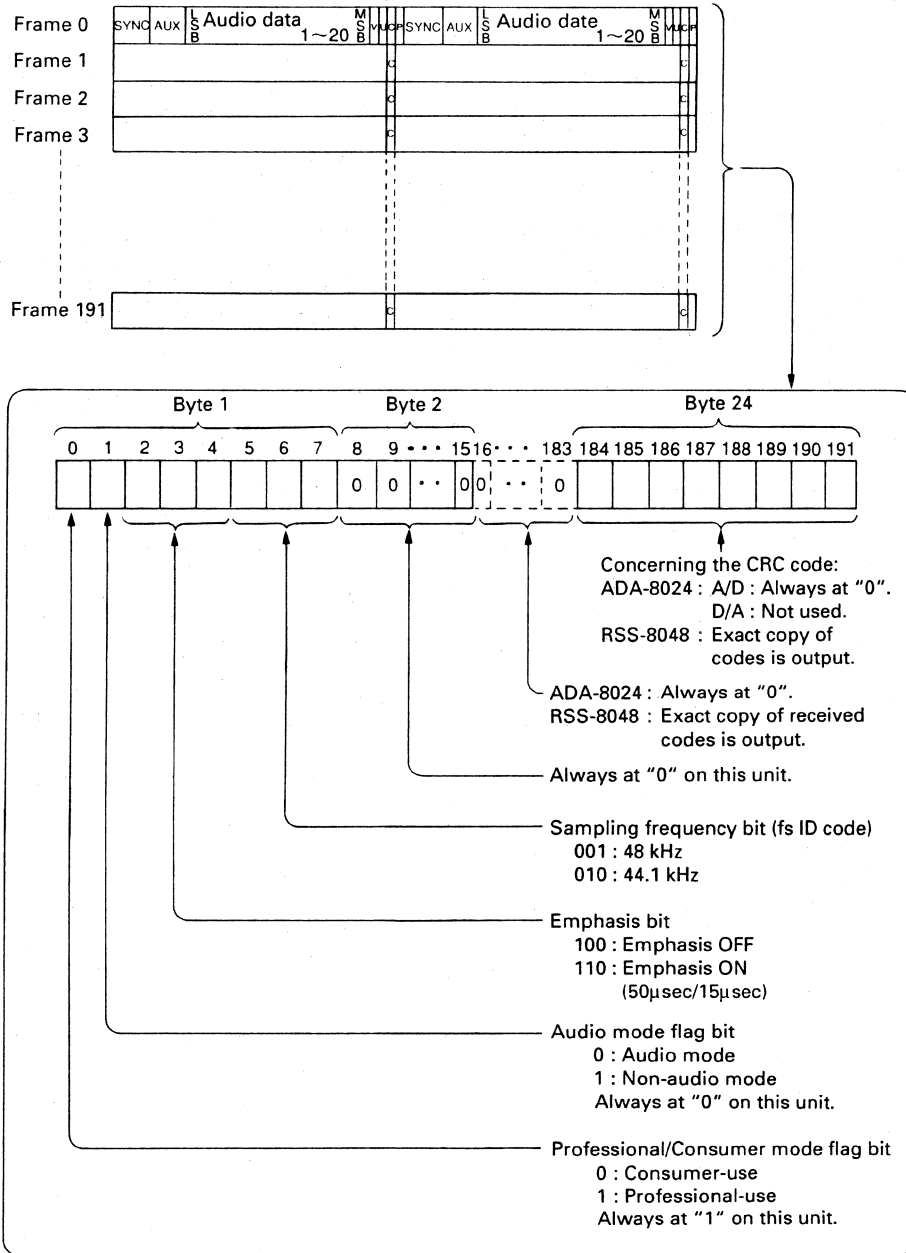


Channel Status accumulates 24 bytes as a result of 192 frames (192 sampling cycles), and is concluded as one block. (192 frames is referred to as one block.)

○Channel Status

Of the 24 bytes used for Channel Status with the RSS-8048 and ADA-8024, data is written into the first byte.

The Channel Status data written by the RSS-8048/ADA-8024 is as shown in the diagram below.



IMPORTANT : In this system the last byte (24) of the Channel Status (CRC code) is not generated. Should you ever need to connect external equipment that "looks" for the CRC code, you must first turn off that function on that unit.

■ Specifications

<< RSS-8048 >>

- **Signal Processing**
24 bit
- **Sampling Frequency**
44.1 kHz/48 kHz (automatically selected)
- **Controls/Switches**
Remote Channel Select Switch × 1
Power Switch × 1
- **Displays/Indicators**
Remote Channel Number × 1
PLL Indicators × 2
Power Indicator × 1
- **Connectors**
Remote In Connector × 1
Remote Out Connector × 1
Digital Input Connectors × 2
Digital Output Connectors × 4
- **Digital Audio Signal**
AES/EBU Format (professional-use)
- **Power Supply**
AC 117V/230V/240V (50/60 Hz)
- **Power Consumption**
25 W (117V/230V/240V)
- **Dimensions**
482 (W) × 400 (D) × 88 (H) mm
19" (W) × 15-3/4" (D) × 3-1/2" (H) inches
(Mounts on EIA-2U rack)
- **Weight**
6.4 kg
14.1 lbs.
- **Accessories**
Remote Cable; 7P DIN × 1
Power Cord × 1
Owner's Manual

<< ADA-8024 >>

● **Signal Processing**

A/D Conversion: 18-bit linear
D/A Conversion: 20-bit linear

● **Sampling Frequency**

44.1 kHz/48 kHz;
A/D Conversion : Manually selected
D/A Conversion : Automatically selected

● **Frequency Response**

20 Hz to 20 kHz (+0.2 / -3 dB)

● **Nominal Input Level**

+4 dBm

@ 0 dBm=0.775 Vrms

● **Input Impedance**

20 k Ω

● **Output Impedance**

200 Ω

● **Total Harmonic Distortion**

0.015% or less (1 kHz, at nominal input/output level)

● **S/N Ratio (Typical)**

86 dB (IHF-A)

● **Dynamic Range (Typical)**

100 dB

● **Controls/Switches**

Input Levels \times 2
Emphasis Switch \times 1
Sampling Frequency Switch \times 1
Power Switch \times 1

● **Displays/Indicators**

Input Level Meters \times 2
Sampling Frequency Indicators \times 6
Emphasis Indicators \times 3
Power Indicator \times 1

● **Connectors**

Analog Input Connectors \times 2 (XLR type)
Analog Output Connectors \times 4 (XLR type)
Digital Input Connectors \times 2
(AES/EBU format; professional-use)
Digital Output Connector \times 1
(AES/EBU format; professional-use)

● **Power Supply**

AC 117V/230V/240V (50/60 Hz)

● **Power Consumption**

38 W (117V/230V/240V)

● **Dimensions**

482 (W) \times 400 (D) \times 88 (H) mm
19" (W) \times 15-3/4" (D) \times 3-1/2" (H) inches
(Mounts on EIA-2U rack)

● **Weight**

7.7 kg
17.0 lbs.

● **Accessories**

Connecting Cables; XLR type \times 3
Power Cord \times 1
Owner's Manual

* In the interest of product development, the specifications and/or appearance of this unit are subject to change without prior notice.

For West Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das
SOUND SPACE PROCESSOR RSS-804B
ADA CONVERTER ADA-8024

(Gerät. Typ. Bezeichnung)

in Übereinstimmung mit den Bestimmungen der
Amtsbl. Vfg 1046/1984

(Amtsblattverfügung)

funk-enstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka/Japan

Name des Herstellers/Importeurs

For the USA

RADIO AND TELEVISION INTERFERENCE

WARNING — This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception.

The equipment described in this manual generates and uses radio frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules. These rules are designed to provide reasonable protection against such a interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

- Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable. These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.

If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures.

- Turn the TV or radio antenna until the interference stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment farther away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV. If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission:

"How to Identify and Resolve Radio — TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402. Stock No. 004-000-00345-4.

For Canada

CLASS B

NOTICE

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B

AVIS

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Règlement des signaux parasites par le ministère canadien des Communications.

Information

● When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

U. S. A.

Roland Corp US
7200 Dominion Circle
Los Angeles, CA. 90040 - 3647
U. S. A.
☎ (213)685 - 5141

CANADA

Roland Canada Music Ltd.
(Head Office)
13880 Mayfield Place
Richmond B. C., V6V 2E4
CANADA
☎ (604)270 - 6626

Roland Canada Music Ltd.
9425 Transcanadienne
Service Rd. N.,
St Laurent, Quebec H4S 1V3
CANADA
☎ (514)335 - 2009

Roland Canada Music Ltd.
346 Watline Avenue,
Mississauga, Ontario L4Z 1X2
CANADA
☎ (416)890 - 6488

AUSTRALIA

Roland Corporation
(Australia) Pty. Ltd.
(Head Office)
38 Campbell Avenue
Dee Why West. NSW 2099
AUSTRALIA
☎ (02)982 - 8266

Roland Corporation
(Australia) Pty. Ltd.
(Melbourne Office)
50 Garden Street
South Yarra, Victoria 3141
AUSTRALIA
☎ (03)241 - 1254

NEW ZEALAND

Roland Corporation (NZ) Ltd.
97 Mt. Eden Road, Mt. Eden,
Auckland 3
NEW ZEALAND
☎ (09)398 - 715

UNITED KINGDOM

Roland(UK)Ltd.
Amalgamated Drive
West Cross Centre, Brentford,
Middlesex TW8 9EZ,
UNITED KINGDOM
☎ (81)568 - 4578

GERMANY

Roland Elektronische
Musikinstrumente
Handelsgesellschaft mbH.
Oststrasse 96,
2000 Norderstedt
GERMANY
☎ 040/52 60 090

BELGIUM/HOLLAND/ LUXEMBOURG

Roland Benelux N. V.
Houtstraat 1
B - 2431 Oevel - Westerlo
BELGIUM
☎ (0032)14 - 575811

DENMARK

Roland Scandinavia as
Langebrogade 6
Box 1937
DK - 1023 Copenhagen K.
DENMARK
☎ 31 - 95 31 11

SWEDEN

Roland Scandinavia as
DanvikCenter 28 A, 2 tr.
S - 131 30 Nacka,
SWEDEN
☎ 08 - 702 00 20

NORWAY

Roland Scandinavia
Avd. Norge
Lilleakerveien 2
Postboks 95 Lilleaker
N - 0216 Oslo 2
NORWAY
☎ 02 - 73 00 74

FINLAND

Fazer Musik Inc.
Länsituulentie
POB 169
SF - 02101 Espoo
FINLAND
☎ 0 - 43 50 11

ITALY

Roland Italy S. p. A.
Viale delle Industrie 8
20020 ARESE MILANO
ITALY
☎ 02 - 93581311

SPAIN

Roland Electronics
de España, S. A.
Bolivia 239
08020 Barcelona
SPAIN
☎ 93 - 308 - 1000

SWITZERLAND

Musitronic AG
Gerberstrasse 5, CH - 4410
Lieštal
SWITZERLAND
☎ 061/921 16 15

Roland CK (Switzerland) AG
Hauptstrasse 21/Postfach
CH - 4456 Tenniken
SWITZERLAND
☎ 061/98 60 55
Repair Service by Musitronic AG

FRANCE

Musikengro
102 Avenue Jean - Jaures
69007 Lyon Cedex 07
FRANCE
☎ (7)858 - 54 60

Musikengro
(Paris Office)
Centre Region Parisienne
41 rue Charles - Fourier,
94400 Vitry s/Seine
FRANCE
☎ (1)4680 86 62

AUSTRIA

E. Dematte & Co.
Neu - Rum Siemens - Strasse 4
A - 6021 Innsbruck Box 591
AUSTRIA
☎ (0512)63 451

GREECE

V. Dimitriadis & Co. Ltd.
2 Phidiou Str., GR 106 78
Athens
GREECE
☎ 1 - 3620130

PORTUGAL

Casa Caius Instrumentos
Musicais Lda.
Rua de Santa Catarina 131
Porto
PORTUGAL
☎ 02 - 38 44 56

HUNGARY

Intermusica Ltd.
Warehouse Area 'DEPO'
Budapest. P.O. Box 3,
2045 Torokbalint
HUNGARY
☎ (1)1868905

BRAZIL

Foresight Corporation
Rua Coronel Octaviano
da Silveira
136 05522 Sao Paulo, SP
BRAZIL
☎ (011)843 - 9377

Roland®

26045592

UPC

26045592



18981

Roland®