Roland®

AES/EBU Interface

AE-7000

Owner's Manual

Thank you for purchasing the Roland AE-7000 AES/EBU Interface. By connecting the AE-7000 to a mixer or recorder that has an R-BUS connector, you can add eight channels of digital input/output.

The AE-7000 does not contain a sampling rate converter.

The AE-7000 has four sets of digital inputs, and all these digital inputs must be synchronized with sampling clock precision. In order for two devices to be synchronized with sampling clock precision, **WORD CLOCK** or **digital audio signals** must be used for synchronization.

Before using this unit, carefully read the sections entitled: "USING THE UNIT SAFELY" and "IMPORTANT NOTES" (p. 3; p. 4). These sections provide important information concerning the proper operation of the unit. Additionally, in order to feel assured that you have gained a good grasp of every feature provided by your new unit, Owner's Manual should be read in its entirety. The manual should be saved and kept on hand as a convenient reference.

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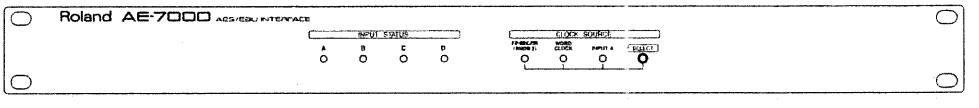


Roland Web site: http://www.roland.co.jp/

USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠WARNING and ⚠CAUTION Notices

⚠WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

⚠	The △ symbol alerts the user to important instructions or warnings.The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
⃠	The ⃠ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
●	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠WARNING

- Before using this unit, make sure to read the instructions below, and the Owner's Manual.
- Do not open or perform any internal modifications on the unit.
- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.
- Never use or store the unit in places that are:
  - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are
  - Damp (e.g., baths, washrooms, on wet floors); or are
  - Humid; or are
  - Exposed to rain; or are
  - Dusty; or are
  - Subject to high levels of vibration.
- This unit should be used only with a rack or stand that is recommended by Roland.

⚠WARNING

- When using the unit with a rack or stand recommended by Roland, the rack or stand must be carefully placed so it is level and sure to remain stable. If not using a rack or stand, you still need to make sure that any location you choose for placing the unit provides a level surface that will properly support the unit, and keep it from wobbling.
- This unit, 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 immediately stop using the unit, and consult an audiologist.
- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.

⚠WARNING

- Immediately turn the power off, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page when:
  - Objects have fallen into, or liquid has been spilled onto the unit; or
  - The unit has been exposed to rain (or otherwise has become wet); or
  - The unit does not appear to operate normally or exhibits a marked change in performance.
- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.

⚠WARNING

- Protect the unit from strong impact. (Do not drop it!)

⚠CAUTION

- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children.
- Never climb on top of, nor place heavy objects on the unit.
- Disconnect all cords coming from external devices before moving the unit.

IMPORTANT NOTES

In addition to the items listed under "USING THE UNIT SAFELY" on page 3, 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 malfunctions and/or damage to speakers or other devices.

Placement

- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- To avoid possible breakdown, do not use the unit in a wet area, such as an area exposed to rain or other moisture.

Maintenance

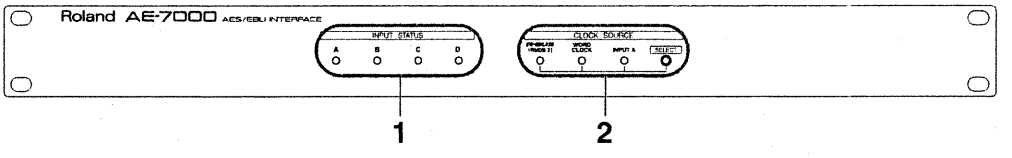
- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a cloth impregnated with a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzine, thinners,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

Additional Precautions

- Use a reasonable amount of care when using the unit's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- When connecting / disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- To avoid disturbing your neighbors, try to keep the unit's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially when it is late at night).
- When you need to transport the unit, package it in the box (including padding) that it came in, if possible. Otherwise, you will need to use equivalent packaging materials.

Front and Rear Panels

Front Panel



1 INPUT STATUS A–D

The status of the AES/EBU input of each channel is shown by the indicator.

Dark: No AES/EBU signal is being input.

Blinking: An AES/EBU signal is being input, but the sampling clock selected by the CLOCK SOURCE SELECT button does not match the frequency of the AES/EBU signal. The sound that is output from the R-BUS connector will be intermittent.

Lit: An AES/EBU signal is being received correctly. Audio will be output from the R-BUS connector.

2 CLOCK SOURCE SELECT Button

Selects the source from which the sampling clock will be supplied.

NOTE Turn down the volume on all devices connected to the R-BUS (RMDB2) connector and XLR output connectors (on the rear panel) before operating this button.

R-BUS (RMDB2):

The AE-7000 will operate according to the sampling clock of the device (digital mixer or digital recorder) connected to the rear panel R-BUS connector. When a clock is input from the R-BUS connector, the R-BUS indicator will **light**. If no clock is being input from the R-BUS connector, the R-BUS indicator will **blink**. If you select "R-BUS (RMDB2)" as the sampling clock of the AE-7000, you must set the master clock of the connected device to **other than the R-BUS to which that AE-7000 is connected**.

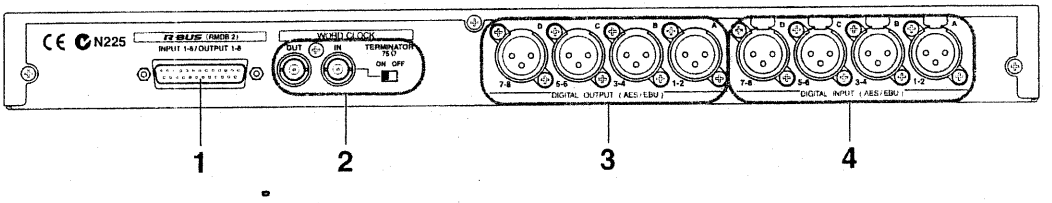
WORD CLOCK:

The AE-7000 will operate according to the word clock that is connected to the rear panel WORD CLOCK connector. If a clock is being input from the WORD CLOCK connector, the WORD CLOCK indicator will **light**. If no clock is being input from the WORD CLOCK connector, the WORD CLOCK indicator will **blink**. If you have selected "WORD CLOCK" as the sampling clock of the AE-7000, you must set the master clock of the connected device to **the R-BUS to which that AE-7000 is connected**.

INPUT A:

The AE-7000 will operate according to the sampling clock of the device connected to the rear panel INPUT A (1/2) connector. If a digital audio signal is being input from the INPUT A connector, the INPUT A indicator will **light**. If no digital audio signal is being input from the INPUT A connector, the INPUT A indicator will **blink**. If you select "INPUT A" as the sampling clock of the AE-7000, you must set the master clock of the connected device to **the R-BUS that is connected to that AE-7000**.

Rear Panel



1 R-BUS (RMDB2) Connector

This is an 8-in/8-out 24 bit digital audio connector. Connect it to a device that has an R-BUS connector (e.g., Roland digital mixer or Roland digital recorder).

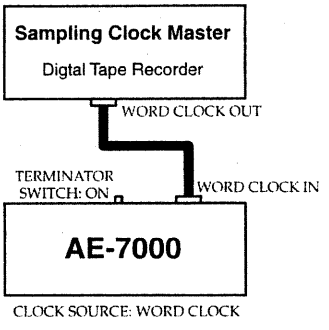
NOTE Connect the R-BUS (RMDB2) connector only to an R-BUS equipped device. To avoid malfunctions, **never connect it to a SCSI connector, an RS-232C connector, or a parallel connector, even if the connector has the same shape. Use a special R-BUS (RMDB2) cable to make connections.**

MEMO RMDB II, RMDB2 and R-BUS are the same standard of Roland corporation.

2 WORD CLOCK IN/OUT Connectors

IN:

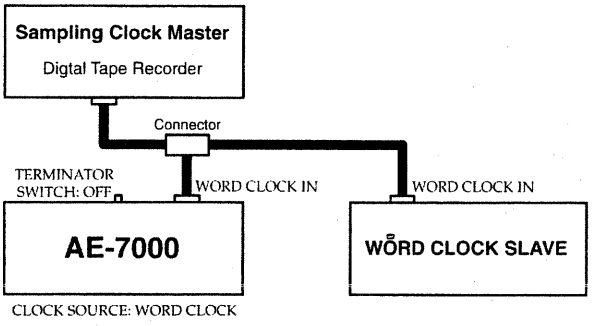
When supplying a sampling clock from an external device to the AE-7000, input the word clock signal here. Use this when you want the reference clock to be another device that outputs a high-precision sampling clock, or when synchronizing to a device that has only a WORD CLOCK OUT connector.



- If you have selected "WORD CLOCK" as the sampling clock of the AE-7000, you must set the master clock of the device connected to the R-BUS connector to **the R-BUS to which that AE-7000 is connected.**
- If word clock is selected as the master clock of the device connected to the R-BUS connector, you must select "R-BUS" as the sampling clock of the AE-7000.

TERMINATOR Switch

Turn this on if the AE-7000 is connected at the end of the cable chain supplying the word clock signal. Normally you will leave this turned on. Turn this off only if you are using a relay connector to distribute the word clock signal to other devices.



OUT:

This outputs the sampling clock on which the AE-7000 is operating. Use this when you wish to synchronize another device to the operating clock of the AE-7000.

3 DIGITAL OUTPUT (AES/EBU) Connectors (A–D)

These output AES/EBU digital audio signals.

MEMO The AE-7000 outputs a broadcast device channel status. The AE-7000 always outputs 0 as the CRC bit of the channel status. When connected to a device that performs CRC checking, a CRC check error will be displayed on the connected device, but this is not a malfunction.

4 DIGITAL INPUT (AES/EBU) Conncetors (A–D)

These input AES/EBU digital audio signals.

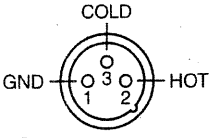
NOTE The AE-7000 does not contain a deemphasis filter. If the device outputting the AES/EBU signal is able to switch emphasis on/off, please turn emphasis off.

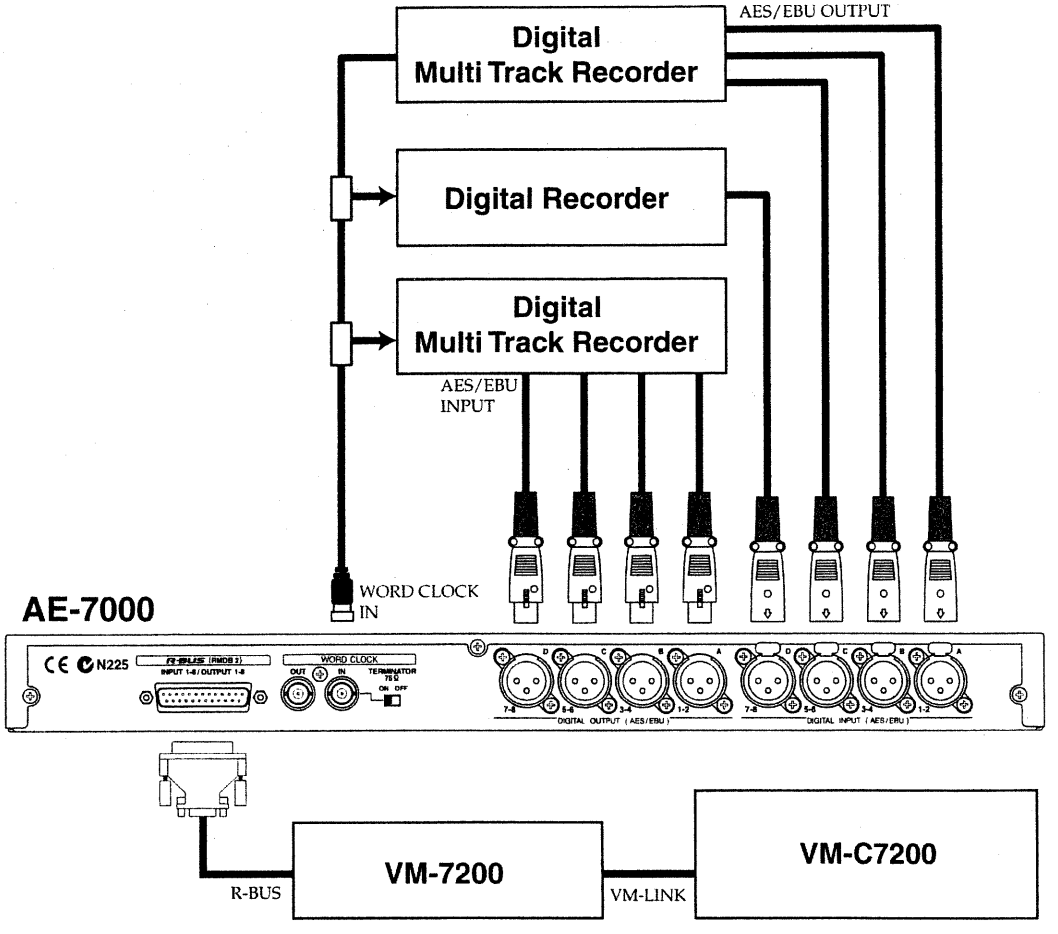
An Example of Connection

As an example, we will explain how to connect a Roland **VM-7200** mixing processor.

* *To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.*

* *The pin assignment for the XLR type connectors is as shown below. Before making any connections, make sure that this pin assignment is compatible with that of all your other devices.*





Turning the Power On

* *Once the connections have been completed (p. 8), turn on power to your various devices in the order specified. By turning on devices in the wrong order, you risk causing malfunction and/or damage to speakers and other devices.*
* *Always make sure to have the volume level turned down before switching on power. Even with the volume all the way down, you may still hear some sound when the power is switched on, but this is normal, and does not indicate a malfunction.*

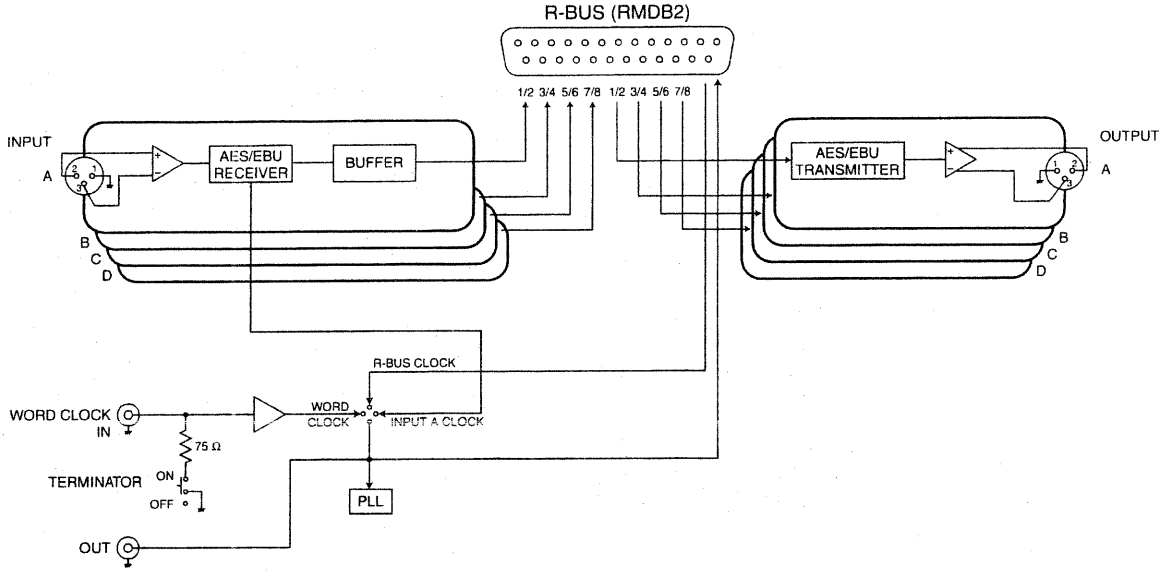
1. **Make sure that the volume of the audio devices have been turned down.**

2. **Turn on the power of the devices connected to the R-BUS connector.**

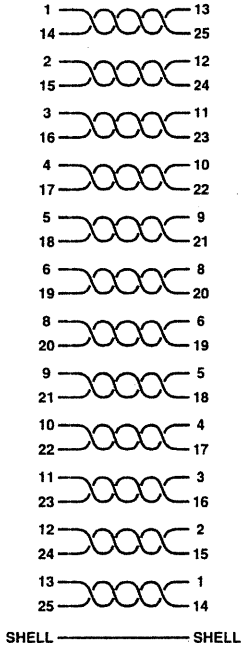
3. **Set the master clock (sampling clock) of the AE-7000 and of the devices connected to the R-BUS connector of the AE-7000.**

4. **Raise the volume of the audio equipments.**

Block Diagram



R-BUS (RMDB2) Circuit Connection



Concerning Copyright

The law prohibits the unauthorized recording, public performance, broadcast, sale, or distribution etc. of a work (CD recording, video recording, broadcast, etc.) whose copyright is owned by a third party.
Roland will take no responsibility for any infringement of copyright that you may commit in using the AE-7000.

About SCMS

When transferring audio signals with an external device via a digital connection, the AE-7000 allows you to record without being restricted by SCMS (Serial Copy Management System). This is because the AE-7000 is intended for purposes of music production, and is designed to allow unrestricted recording of works (i.e., original works) that do not infringe on the copyright of another. SCMS is a function that restricts second-generation and subsequent copies made via a digital connection. It is built into consumer digital audio devices such as MD recorders for the purpose of copyright protection.

Disclaimer of liability

Roland will take no responsibility for any "direct damages," "consequential damages," or "any other damages" which may result from your use of the AE-7000. These damages may include but are not limited to the following events which can occur when using the AE-7000.

- Any loss of profit that may occur to you
- Permanent loss of your music or data
- Inability to continue using the AE-7000 itself or a connected device

About the License Agreement

The AE-7000 and its CD-R capability are designed to allow you to reproduce material to which you have copyright, or material which the copyright owner has granted you permission to copy. Accordingly, reproduction of music CDs or other copyrighted material without the permission of the copyright owner, other than for your own personal use and enjoyment (private use) constitutes copyright infringement, which may incur penalties. Consult a copyright specialist or special publications for more detailed information on obtaining such permission from copyright holders.

Troubleshooting

If the AE-7000 does not function correctly, please check the following points before you suspect a malfunction.

The CLOCK SOUCE R-BUS (RMDB2) indicator is blinking.

No sampling clock is being input to the AE-7000's R-BUS connector. Please make the correct master clock setting on the device that is connected to the R-BUS connector (p. 5). Alternatively, select a different sampling clock.

The CLOCK SOURCE WORD CLOCK indicator is blinking.

The word clock signal is not being input correctly. Check that the device supplying the word clock has been connected correctly (p. 6). Alternatively, select a different sampling clock.

The sound that is input from AES/EBU is continuously interrupted, or noisy.

Is INPUT STATUS blinking?
If it is blinking, the AES/EBU input signal is not synchronized to the sampling clock selected by the CLOCK SOURCE SELECT buttons. Check that the connections are correct, or that the correct sampling clock has been selected.

Specifications

AES/EBU Interface AE-7000

Sample Rate

48.0 kHz, 44.1 kHz, 32.0 kHz

Indicators

INPUT STATUS Indicators
CLOCK SOURCE Indicators

Connectors and Jacks

Digital Input A–D (XLR type, AES/EBU)
Digital Output A–D (XLR type, AES/EBU)
R-BUS (RMDB2) Connector (DB-25 type)
Word Clock In (BNC type, with terminator switch)
Word Clock In (BNC type)

Power Supply

Supplied from connected device.
(VM-7200, VM-7100, VM-3100Pro or VSR-880 etc.; through the RMDB2 cable)

Dimensions

482.0 (W) x 204.8 (D) x 45.8 (H) mm
19 (W) x 8-1/16 (D) x 1-13/16 (H) inches

Weight

2.2 kg
41 lbs 14 oz

Accessories

Owner's Manual
R-BUS cable (1 m)

Options

V-Mixing Station:	VM-3100Pro
V-Mixing Consoles:	VM-C7200, VM-C7100
V-Mixing Processors:	VM-7200, VM-7100
Digital Studio Recorder:	VSR-880

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

Information

When you need repair service, call your nearest Roland Service Center or authorized Roland distributor in your country as shown below.

AFRICA

EGYPT
Al Fanny Trading Office
P.O. Box 2904,
El Horrieh Heliopolos, Cairo,
EGYPT
TEL: (02) 4185531

REUNION
Maison FO - YAM Marcel
25 Rue Jules MermanZL
Chaudron - BP79 97491
Ste Clotilde REUNION
TEL: 28 29 16

SOUTH AFRICA
That Other Music Shop (PTY) Ltd.
11 Melle Street (Cnr Melle and Juta Street)
Braamfontein 2001
Republic of SOUTH AFRICA
TEL: (011) 403 4105

Paul Bothner (PTY) Ltd.
17 Werdmuller Centre Claremont 7700
Republic of SOUTH AFRICA

P.O. Box 23032
Claremont, Cape Town
SOUTH AFRICA, 7735
TEL: (021) 64 4030

ASIA

CHINA
Beijing Xinghai Musical Instruments Co., Ltd.
6 Huangmuchang Chao Yang District, Beijing, CHINA
TEL: (010) 6774 7491

HONG KONG
Tom Lee Music Co., Ltd. Service Division
22-32 Pun Shan Street, Tsuen Wan, New Territories,
HONG KONG
TEL: 2415 0911

INDIA
Rivera Digitec (India) Pvt. Ltd.
409, Nirman Kendra Mahalaxmi Flats Compound Off. Dr. Edwin Moses Road, Mumbai-400011,
INDIA
TEL: (022) 498 3079

INDONESIA
PT Citra Inti Rama
Jl. Cideng Timur No. 15J-150
Jakarta Pusat
INDONESIA
TEL: (021) 6324170

KOREA
Cosmos Corporation Service Station
261 2nd Floor Nak-Won Arcade Jong-Ro ku, Seoul, KOREA
TEL: (02) 742 8844

MALAYSIA
Bentley Music SDN BHD
140 & 142, Jalan Bukit Bintang
55100 Kuala Lumpur,MALAYSIA
TEL: (03) 2443333

PHILIPPINES
G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue
Makati, Metro Manila 1200,
PHILIPPINES
TEL: (02) 899 9801

SINGAPORE
Swee Lee Company
150 Sims Drive,
SINGAPORE 387381
TEL: 748-1669

CRISTOFORI MUSIC PTE LTD
Blk 3014, Bedok Industrial Park E,
#02-2148, SINGAPORE 489980
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ROLAND TAIWAN ENTERPRISE CO., LTD.
Room 5, 9fl. No. 112 Chung Shan N.Road Sec.2, Taipei, TAIWAN, R.O.C.
TEL: (02) 2561 3339

THAILAND
Theera Music Co. , Ltd.
330 Verng NakornKasem, Soi 2,
Bangkok 10100, THAILAND
TEL: (02) 2248821

VIETNAM
Saigon Music
138 Tran Quang Khai St.,
District 1
Ho Chi Minh City
VIETNAM
TEL: (08) 844-4068

AUSTRALIA/ NEW ZEALAND

AUSTRALIA
Roland Corporation Australia Pty., Ltd.
38 Campbell Avenue
Dee Why West. NSW 2099
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TEL: (02) 9982 8266

NEW ZEALAND
Roland Corporation (NZ) Ltd.
97 Mt. Eden Road, Mt. Eden,
Auckland 3, NEW ZEALAND
TEL: (09) 3098 715

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Providencia Santiago, CHILE
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OMNI MUSIC
75 Avenida Notre y Alameda Juan Pablo 2 No. 4010
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TEL: (503) 262-0788

MEXICO
Casa Veerkamp, s.a. de c.v.
Av. Toluca No. 323 Col. Olivar de los Padres 01780 Mexico D.F.
MEXICO
TEL: (525) 668 04 80

La Casa Wagner de Guadalajara s.a. de c.v.
Av. Corona No. 202 S.J.
Guadalajara, Jalisco Mexico
C.P.44100 MEXICO
TEL: (3) 613 1414

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Productos Superiores, S.A.
Apartado 655 - Panama 1
REP. DE PANAMA
TEL: (507) 270-2200

URUGUAY
Todo Musica
Cuareim 1488, Montevideo,
URUGUAY
TEL: 5982-924-2335

VENEZUELA
Musicland Digital C.A.
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Centro Parque de Cristal, Nivel C2 Local 20 Caracas
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GERMANY
Roland Elektronische Musikinstrumente Handelsgesellschaft mbH.
Oststrasse 96, 22844 Norderstedt, GERMANY
TEL: (040) 52 60090

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155, New National Road
26422 Patras, GREECE
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H-2046 Torokbalint, HUNGARY
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IRELAND
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PL-03664 Warszawa POLAND
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131 - 4000 Porto -PORTUGAL
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Mira Str. 19/108
P.O. Box 180
295400 Munkachevo, UKRAINE
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UNITED KINGDOM
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MIDDLE EAST

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Bab Al Bahrain Road,
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State of BAHRAIN
TEL: 211 005

CYPRUS
Radex Sound Equipment Ltd.
17 Diagorou St., P.O. Box 2046,
Nicosia CYPRUS
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ISRAEL
Halilit P. Greenspoon & Sons Ltd.
8 Retzif Ha'aliya Hashnya St.
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Prince Mohammed St. P.O. Box 825 Amman 11118 JORDAN
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As of June 11, 1999

AE-7000 Caution

Before using the AE-7000, carefully read this leaflet. This leaflet provides **CAUTION** (important information) concerning the proper operation of the AE-7000.

1999. 12, 1st edition

Using the R-BUS (RMDB2) Connector

CAUTION

Connect the R-BUS (RMDB2) connector only to an R-BUS equipped device. To avoid malfunctions, never connect it to a SCSI connector, an RS-232C connector, or a parallel connector, even if the connector has the same shape. Use a special R-BUS (RMDB2) cable to make connections.

AE-7000 Supplementary Notes

How to connect the VM-7000 series and the AE-7000

To connect the VM-7200/7100 and the AE-7000 via R-BUS, VM-24E I/O Expansion Board (sold separately) is needed. By installing the VM-24E to a VM-7200/7100 processor, you can connect up to three AE-7000's.

* *Refer to VM-7200/7100 Owner's Manual p. 14 "Installing R-BUS (RMDB2) Connectors (VM-24E)."*

AE-7000 does not have the sample rate converter.

All the digital signal input into multiple AE-7000's connected to the VM-7200/7100 must be synchronized with sample clock accuracy. To synchronize two digital devices with sample clock accuracy, you need to use word clock signal or digital audio signal.

Connection

Connect the VM-7200/7100 and the AE-7000 with the R-BUS cable attached in the AE-7000 box.

* *Refer to AE-7000 Owner's Manual p. 8 "An Example of Connection."*

Booting up

AE-7000 works with the power supplied via R-BUS. Turn the power on the VM-7200/7100 processor, and the power is supplied to the AE-7000. Then finally turn on the VM-C7200/C7100 console.

Clock source setting

If clock source has not been set, noise may be generated from the audio output on the AE-7000 and the VM-7000. While setting the clock source, please turn down the master and monitor level, and turn up again after the setting is finished.

Clock source setting varies depending on the AES/EBU devices connected to the AE-7000 and other condition. Please set as follows.

If AES/EBU device is synchronized to the word clock from the VM-7000, or to the AES/EBU signal from the AE-7000;

If AES/EBU input on the AE-7000 is not used, and only output is used;

Set the sampling clock on the AE-7000 and the VM-7000 as follows.

Clock Source on the AE-7000 connected to the R-BUS (1–8): R-BUS
Clock Source on the AE-7000 connected to the R-BUS (9–16): R-BUS
Clock Source on the AE-7000 connected to the R-BUS (17–24): R-BUS
Master clock on the VM-7000: INTERNAL

AE-7000 setting

Check if the clock source on the AE-7000 is set to R-BUS. When the AE-7000 is booted up, the clock source is set to R-BUS. If you connect multiple AE-7000's, set the clock source on all AE-7000's to R-BUS.

* *Refer to AE-7000 Owner's Manual p. 5 "Clock source Select."*

VM-7000 setting

Set the master clock of the VM-7200/7100 to INTERNAL as follows.

1. Hold down **[SHIFT]**, and press **[PROJECT]**.
2. Press **[DOWN]** cursor, then press **[F1 (DIGITAL I/O)]**.
3. Select "WORD CLOCK SOURCE," and set it to INTERNAL with **V1 knob**, then press **[F1 (SET)]** to activate the result.

* *Refer to VM-C7200/C7100 Owner's Manual p. 32 "Checking the overall system."*

If AES/EBU device outputs the word clock;

Connect the word clock of the AES/EBU device to the VM-7200/7100.

Clock Source on the AE-7000 connected to the R-BUS (1–8): R-BUS
Clock Source on the AE-7000 connected to the R-BUS (9–16): R-BUS
Clock Source on the AE-7000 connected to the R-BUS (17–24): R-BUS
Master clock on the VM-7000: WORD CLOCK

If AES/EBU device does not output the word clock;

Connect the output of the AES/EBU device to the INPUT A of the 1st AE-7000. In this case, please set the clock source on the AE-7000, and then the master clock on the VM-7000.

Clock source on the 1st AE-7000:	INPUT A
Clock source on the 2nd and later AE-7000's:	R-BUS
Master clock on the VM-7000:	R-BUS which the 1st AE-7000 is connected to

* *Please refer to AE-7000 Owner's Manual p. 5 "Clock source select" and VM-C7200/C7100 Owner's Manual p. 31 "About Digital Connections and the Master Clock."*

* *If the system of the VM-C7200/C7100 is version 1.0x, "DIF-AT" is displayed in the R-BUS CONFIG page even though the AE-7000 is connected. This cause no problem for the operation. With the VM-C7200/C7100 version 1.10 or later, you can set the AE-7000 with the R-BUS CONFIG page.*

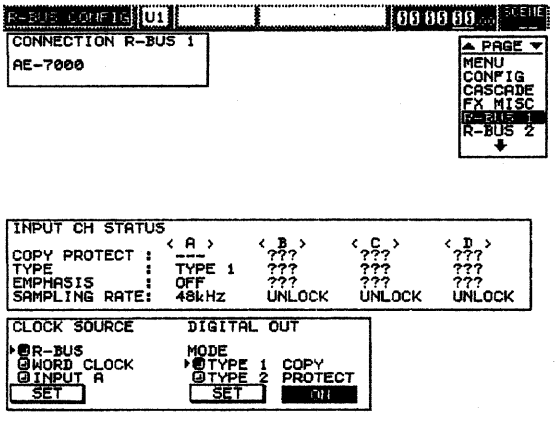
If the system software of the VM-C7200/C7100 is version.1.10 or later;

If the system software of the VM-C7200/C7100 is version 1.10 or later, following functions are supported.

Clock source setting

You can set up the AE-7000's clock source with the VM-C7200/C7100 console.

1. Hold down **[SHIFT]**, and press **[PROJECT]**. SYSTEM menu appears in the display.
2. Select "SYSTEM CONFIG" and go to "R-BUS (1/2/3)" page.
3. Following page appears in the display.



4. Select a desired source with **V1 [CLOCK SOURCE]** knob.
5. Press **[F1 (SET)]** and the clock source you selected is activated.

DIGITAL OUT setting

1. Hold down **[SHIFT]**, and press **[PROJECT]**. SYSTEM menu appears in the display.
2. Select "SYSTEM CONFIG" and go to "R-BUS (1/2/3)" page.
3. Select the TYPE with **V3 [TYPE1/TYPE2]** knob.
   TYPE1: Broadcasting studio
   TYPE2: Consumer digital audio
4. Press **[F3 (SET)]** and the setting is activated.
5. If you set **[F4 (COPY PROTECT)]** to ON, SCMS turns on and you can restrict the digital copy of the output signal.

* *If the TYPE is set to TYPE1 (Broadcasting studio), COPY PROTECT setting is invalid.*

* ***Digital signal status display***
If digital signal is connected into the digital input of the AE-7000, status is shown in the middle of the display.

How to connect the VM-3100Pro and the AE-7000

Connection

Connect the VM-3100Pro and the AE-7000 with the R-BUS cable attached in the AE-7000 box.

Booting up

AE-7000 works with the power supplied via R-BUS. Turn the power on the VM-3100Pro, and the power is supplied to the AE-7000.

Clock source setting

If clock source has not been set, noise may be generated from the audio output on the AE-7000 and the VM-3100Pro. While setting the clock source, please turn down the master and monitor level, and turn up again after the setting is finished.

Clock source setting varies depending on the AES/EBU devices connected to the AE-7000 and other condition. Please set as follows.

If AES/EBU device is synchronized to the word clock or the AES/EBU signal from the AE-7000;

If AES/EBU input on the AE-7000 is not used, and only output is used;

Set the sampling clock of the AE-7000 and the VM-3100Pro as follows.

Clock Source on the AE-7000: R-BUS

Master clock on the VM-3100Pro: INTERNAL

AE-7000 setting

Check if the clock source on the AE-7000 is set to R-BUS. When the AE-7000 is booted up, the clock source is set to R-BUS. If you connect multiple AE-7000, set the clock source on all AE-7000 to R-BUS.

* *Refer to AE-7000 Owner's Manual p. 5 "Clock source select."*

VM-3100Pro setting

Set the master clock of the VM-3100Pro to INTERNAL as follows.

1. Hold down **[SHIFT]**, and press **[DIGITAL IN]**. M.CLOCK SELECT page appears in the display.
2. Press **[F1 (→INT)]**.

If AES/EBU device is set to the master of the clock;

Connect the output of the AES/EBU device to INPUT A on the AE-7000. In this case, please set the clock source on the AE-7000, and then the master clock on the VM-3100Pro.

Clock Source on the AE-7000: INPUT A

Master clock on the VM-3100Pro: R-BUS

* *Please refer to AE-7000 Owner's Manual p. 5 "Clock source select" and VM-3100Pro Owner's Manual p. 58 "Using the RMDB II connector for input of digital signals."*

* *Sample rate of the VM-3100Pro is fixed to 44.1kHz. If you use the VM-3100Pro and the AE-7000 in combination, the AE-7000 only handles the digital signals 44.1kHz sample rate.*

How to connect the VSR-880 and the AE-7000

Connection

Connect the VSR-880 and the AE-7000 with the R-BUS cable attached in the AE-7000 box.

Booting up

AE-7000 works with the power supplied via R-BUS. Turn the power on the VSR-880, and the power is supplied to the AE-7000.

Clock source setting

If clock source has not been set, noise may be generated from the audio output on the AE-7000 and the VSR-880. While setting the clock source, please turn down the master and monitor level, and turn up again after the setting is finished.

Clock source setting varies depending on the AES/EBU devices connected to the AE-7000 and other condition. Please set as follows.

If AES/EBU device is synchronized to the word clock or the AES/EBU signal from the AE-7000;

If AES/EBU input on the AE-7000 is not used, and only output is used;

Set the sampling clock of the AE-7000 and the VSR-880 as follows.

Clock Source on the AE-7000: R-BUS

Master clock on the VSR-880: INTERNAL

AE-7000 setting

Check if the clock source on the AE-7000 is set to R-BUS. When the AE-7000 is booted up, the clock source is set to R-BUS.

* *Refer to AE-7000 Owner's Manual p. 5 "Clock source select."*

VSR-880 setting

Set the master clock of the VSR-880 to INTERNAL as follows.

1. Hold down **[SHIFT]**, and press **[SYSTEM]**. "SYS System PRM?" appears in the display.
2. Press **[ENT/YES]**.

3. Select "SYS MasterClk= INT" with TIME/VALUE dial, then press **[ENT/YES]**.

* *Refer to VSR-880 Owner's Manual p. 108 "Select the Master Clock."*

If AES/EBU device is set to the master of the clock;

Connect the output of the AES/EBU device to INPUT A on the AE-7000. In this case, please set the clock source on the AE-7000, and then the master clock on the VM-3100Pro.

Clock Source on the AE-7000: INPUT A

Master clock on the VM-3100Pro: R-BUS

* *Refer to AE-7000 Owner's Manual p. 5 "Clock source select" and VSR-880 Owner's Manual p. 108 "Select the Master Clock."*

Note

* *DIF-AT Interface Box cannot be used even if connected to the AE-7000 via R-BUS.*

Roland International Website http://www.roland.co.jp/

40346434 1999. 12, 1st edition, REC

For EU Countries

CE This product complies with the requirements of European Directive 89/336/EEC.

For the USA

FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE STATEMENT

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.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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