

Digital Snake

REAC OPTICAL CONVERTER **S-OPT**

Owner's Manual

Main Specifications

S-OPT is a REAC optical converter that converts RSS Digital Snake System REAC signals to and from optical signals for long-distance digital audio transmission. By using this REAC optical converter and optical cables (sold separately), the REAC transmission distance can be extended to a maximum of 2 kilometers.

S-OPT has the following properties:

- The S-OPT optical connectors are Neutrik OpticalCon connectors and support Mobile Fiber Cable from Neutrik. This optical interface provides for transmitting sound over long distances via optical cables while still taking advantage of the RSS Digital Snake System's mobility.
- Because the OpticalCon connector also provides a Dual LC optical connector (standard LC-Duplex connector, IEC 61754-20), less expensive optical cables can be used for permanent installations of the RSS Digital Snake System.
- Two S-OPT units can be connected using the proprietary POWER LINK cable (ARC-15, sold separately) so that redundant power can be supplied from one unit to the other. If power to a single unit is interrupted due to some situation or is damaged, both units will still continue to operate.



Before using this unit, carefully read the sections entitled: "IMPORTANT SAFETY INSTRUCTIONS" (p. 2), "USING THE UNIT SAFELY" (p. 3-4), and "IMPORTANT NOTES" (p. 5). These sections provide important information concerning the proper operation of the unit. Additionally, in order to ensure that you have gained a good grasp of every feature provided by your new unit, the 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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07-10-1N

04785567

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR		
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.		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "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

SAVE THESE INSTRUCTIONS

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

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as 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.

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 identifying 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.

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. 
- Connect mains plug of this model to a mains socket outlet with a protective earthing connection. 
- 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.
- Make sure you always have the unit placed so it is level and sure to remain stable. Never place it on stands that could wobble, or on inclined surfaces. 

⚠ WARNING

- The unit should be connected to a power supply only of the type described in the operating instructions, or as marked on the rear side of unit. 
- Connect only the specified device (S-OPT) to the POWER LINK (which provide a supply of power). And use the proprietary POWER LINK cable (ARC-15, sold separately). 
- Use only the attached power-supply cord. Also, the supplied power cord must not be used with any other device. 
- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards! 
- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit. 


USING THE UNIT SAFELY

WARNING

- Immediately remove the power cord from the outlet, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the “Information” page when:
 - The power-supply cord or the plug has been damaged; or
 - If smoke or unusual odor occurs
 - 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. 
- Protect the unit from strong impact. (Do not drop it!) 
- Do not force the unit’s power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord’s outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through. 
- Before using the unit in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the “Information” page. 
- Do not put anything that contains water (e.g., flower vases) on this unit. Also, avoid the use of insecticides, perfumes, alcohol, nail polish, spray cans, etc., near the unit. Swiftly wipe away any liquid that spills on the unit using a dry, soft cloth. 

CAUTION

- The unit should be located so that its location or position does not interfere with its proper ventilation. 
- Always grasp only the plug on the power-supply cord when plugging into, or unplugging from, an outlet or this unit. 
- At regular intervals, you should unplug the power plug and clean it by using a dry cloth to wipe all dust and other accumulations away from its prongs. Also, disconnect the power plug from the power outlet whenever the unit is to remain unused for an extended period of time. Any accumulation of dust between the power plug and the power outlet can result in poor insulation and lead to fire. 
- 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. 
- Never handle the power cord or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit. 
- Before moving the unit, disconnect the power plug from the outlet, and pull out all cords from external devices. 
- Before cleaning the unit, unplug the power cord from the outlet. 
- Whenever you suspect the possibility of lightning in your area, pull the plug on the power cord out of the outlet. 
- Keep any ferrite core, POWER LINK cable clamp, and screws (for the POWER LINK cable clamp and grounding terminal) you may remove, and the included rubber feet, REAC connector cover and screws in a safe place out of children’s reach, so there is no chance of them being swallowed accidentally. 

Important Notes

In addition to the items listed under “IMPORTANT SAFETY INSTRUCTIONS” and “USING THE UNIT SAFELY” on pages 2 and 3–4, please read and observe the following:

Power Supply

- 301**
 - Do not connect this unit to the same electrical outlet that is being used by an electrical appliance that is controlled by an inverter (such as a refrigerator, washing machine, microwave oven, or air conditioner), or that contains a motor. Depending on the way in which the electrical appliance is used, power supply noise may cause this unit to malfunction or may produce audible noise. If it is not practical to use a separate electrical outlet, connect a power supply noise filter between this unit and the electrical outlet.
- 307**
 - 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.
- 308**
 - This device has no power switch. Disconnect the plug from the power outlet whenever shutdown of power is required. The power cord’s plug should be connected to the closest available power outlet to the device; this should be within immediate reach during use.

Placement

- 352a**
 - This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- 352b**
 - Noise may be produced if wireless communications devices, such as cell phones, are operated in the vicinity of this unit. Such noise could occur when receiving or initiating a call, or while conversing. Should you experience such problems, you should relocate such wireless devices so they are at a greater distance from this unit, or switch them off.
- 355b**
 - When moved from one location to another where the temperature and/or humidity is very different, water droplets (condensation) may form inside the unit. Damage or malfunction may result if you attempt to use the unit in this condition. Therefore, before using the unit, you must allow it to stand for several hours, until the condensation has completely evaporated.
- 360**
 - Depending on the material and temperature of the surface on which you place the unit, its rubber feet may discolor or mar the surface.
You can place a piece of felt or cloth under the rubber feet to prevent this from happening. If you do so, please make sure that the unit will not slip or move accidentally.

Maintenance

- 401a**
 - 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.
- 402**
 - Never use benzine, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Additional Precautions

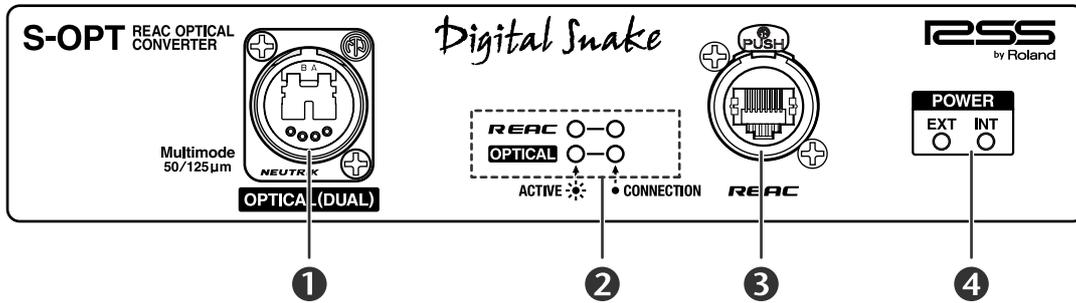
- 553**
 - Use a reasonable amount of care when using the unit’s buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- 556**
 - When connecting / disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable’s internal elements.
- 557**
 - A small amount of heat will radiate from the unit during normal operation.
- 558b**
 - To avoid disturbing your neighbors, try to keep the unit’s volume at reasonable levels (especially when it is late at night).
- 559a**
 - 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.

* Neutrik, EtherCon and OpticalCon are registered trademarks of Neutrik, Inc.

* All product names mentioned in this document are trademarks or registered trademarks of their respective owners.

Panel Descriptions

Front Panel



1 Optical Port

This port is used to connect optical cables or optical cords. Two-core multimode, 50/125 micrometer core diameter optical fibers are supported.

- Please use one of the following models of Neutrik’s Mobile Fiber Cable for the optical cable.
 - NKO2M-xxx(*): A 1-system cable that uses one pair of S-OPT units.
 - NKO4MY-xxx(*): A 2-system cable that uses two pairs of S-OPT units. Convenient when using redundant (MAIN/BACKUP) REAC.
- (*) The cable model number is determined by specifications such as the cable length. Contact Neutrik for further details.
- Please use an optical cord equipped with a Dual LC connector (standard LC-Duplex connector, IEC 61754-20) for optical cords.

2 Status Indicators

These indicators display the status of the REAC or optical signal. The indicators operate as shown below.

	ACTIVE	CONNECTION
REAC	Blinking: Communicating with the REAC device	
	On: Not communicating with a REAC device	On: Communication with a REAC device is possible
	Off: No REAC device is connected	Off: No REAC device is connected
OPTICAL	Blinking: Communicating with partner S-OPT	
	On: Not communicating with partner S-OPT	On: Communication with partner S-OPT is possible
	Off: No partner S-OPT is connected	Off: No partner S-OPT is connected

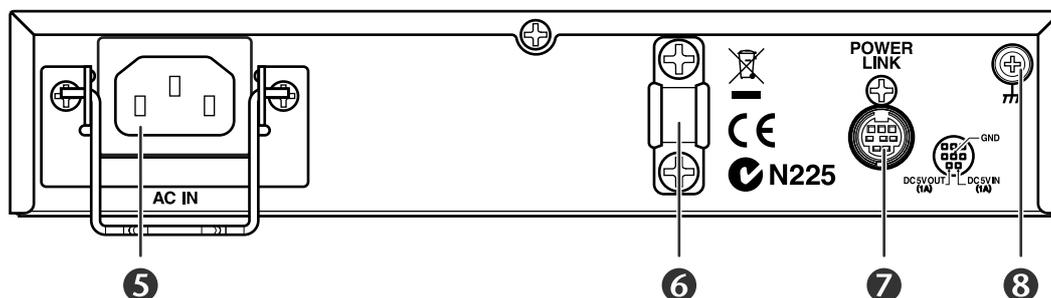
3 REAC Port

This port is used to connect REAC devices and REAC cables. Connect to a REAC device using the REAC cable which comes with the S-OPT, a SC-W100S REAC cable, or a Cat5e Ethernet cable equipped with an RJ45 plug.

4 POWER Indicator EXT, INT

This indicator displays the power supply status. When power is supplied from AC IN on the rear panel, the INT LED lights blue. In addition, if another S-OPT is connected to the POWER LINK connector with a proprietary POWER LINK cable (ARC-15, sold separately) and power is supplied from the other S-OPT, then the EXT LED lights blue.

Rear Panel



5 AC IN

Connect the included power cord.

Please use the cord clamp (p. 9) to fix the power cord and prevent it from being unplugged accidentally.

6 POWER LINK Cable Clamp

Clamp and fix the proprietary POWER LINK cable (ARC-15, sold separately). (p. 9)

7 POWER LINK Connector

Connect two S-OPT units using the proprietary POWER LINK cable (ARC-15, sold separately). By sharing the power supply, the power supply can be backed up.

8 Grounding Terminal

If necessary, use this terminal to connect the S-OPT chassis to an external grounding source.



Never attempt to use the following sources for an external ground connection:

- Water pipes (may result in shock or electrocution).
- Gas pipes (may result in fire or explosion).
- Telephone line ground or lightning rod (may be dangerous in the event of lightning).

Turning the Power On and Off

This device has no power switch.

Power is switched on by plugging the power cord into a power outlet; remove the plug from the outlet to switch power off. When powering up, first connect any peripheral devices, then plug in the power to the S-OPT before turning on the power to the connected devices.



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.



Once the connections have been completed, 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.



Be sure to use the included power cord when connecting to the power supply.

There are two ways to input a power supply to this device: "AC IN" and "POWER LINK." By connecting two S-OPT units using a proprietary POWER LINK cable (ARC-15, sold separately), power can be supplied to both S-OPT units from a single unit. By doing so, if the power supplied to the AC IN of one unit is interrupted, both S-OPT units can continued to be used. In addition to circuit redundancy using the S-4000 series REAC MAIN and BACKUP, the power supply can also be backed up.

Backing up the power supply (when connecting 2 S-OPT units with POWER LINK)

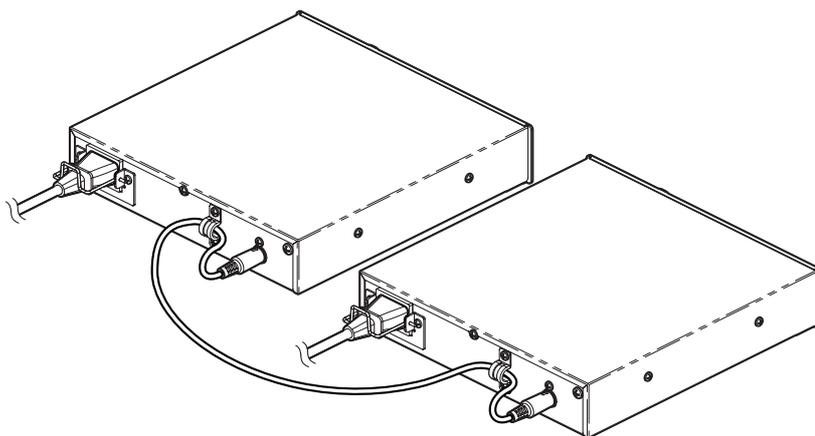
- **When there is no external backup power supply, such as a UPS**

Connect each "AC IN" of two S-OPT units to a normal outlet.

(Although both S-OPT units will operate if one of the two S-OPT units has power supplied to its "AC IN," it is recommended that power be connected and supplied to AC IN of both units to improve system reliability.)

- **When there is an external backup power supply separate from the normal power supply, such as UPS**

Connect "AC IN" of one S-OPT unit to the normal outlet, and connect the "AC IN" of the other S-OPT unit to the external backup power supply.



To completely shut off the power to the unit, disconnect the power cords from the "AC IN" sockets of the both units.

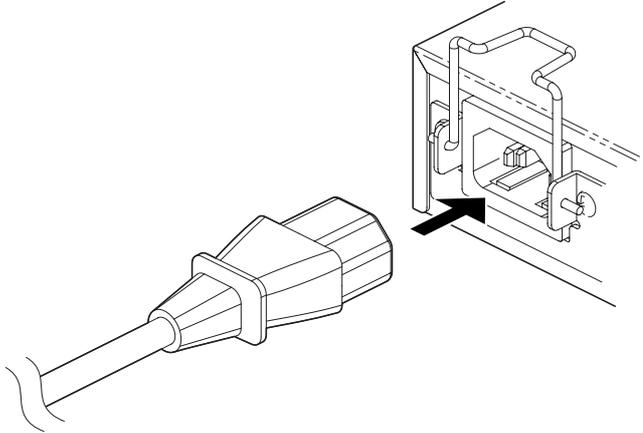


UPS:
Uninterruptible Power Supply

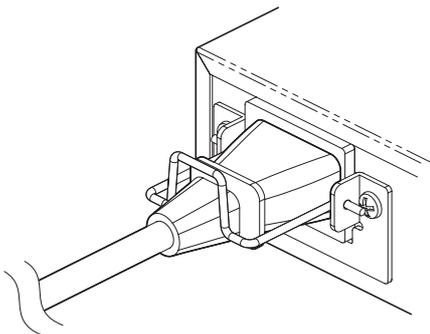
How to Use the Power Cord Clamps

Use the following procedure to secure the power plugs.

1. Insert the power cord into the AC INPUT on the rear panel.



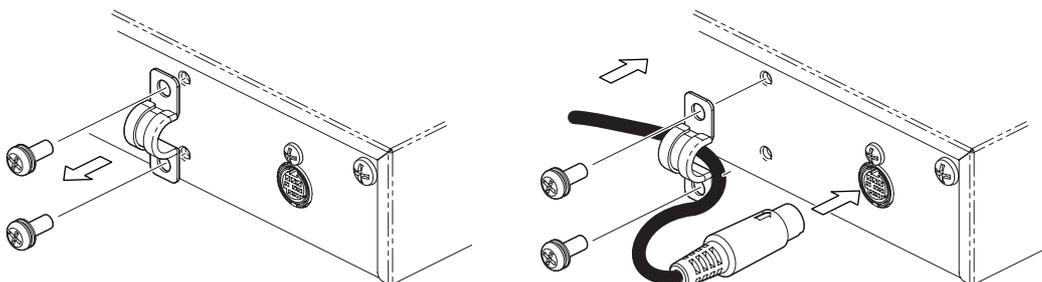
2. Lower the power cord clamp to secure the power cord plug.



Using the POWER LINK Cable Clamp

When backing up the power supply using the POWER LINK cable (ARC-15, sold separately), prevent the cable from being unplugged by fixing it using the following procedure.

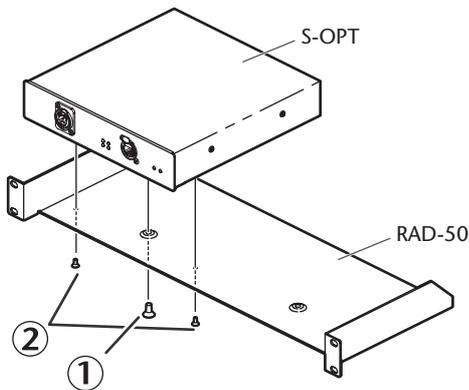
1. Remove the clamp screws (2) specified in the diagram, and remove the POWER LINK cable clamp.
2. As shown in the figure, clamp the POWER LINK cable using the cable clamp, and secure with the screws (2) removed in Step 1.



About Placement

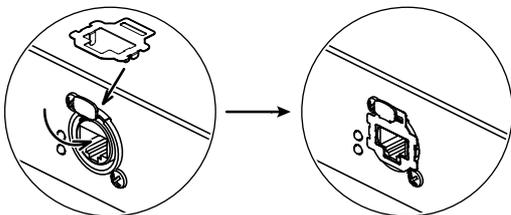
Using the Unit While Mounted in a Rack

If you want to mount the S-OPT in a rack, make sure to use only the BOSS RAD-50 Rack Mount Adaptor (sold separately). To install, secure the S-OPT to the RAD-50 with three screws, one is screw ① supplied with the RAD-50 and another two screws ② are supplied with the S-OPT.



Using the REAC Connector Cover

If using commercially available Cat5e Ethernet cables, attach the supplied REAC connector cover to the connector.



* Remove the REAC connector covers if you are using REAC cables with EtherCon type connectors (the REAC cable which comes with the S-OPT or SC-W100S). Take care not to lose the REAC connector covers removed at this time.

Attaching the Rubber Feet

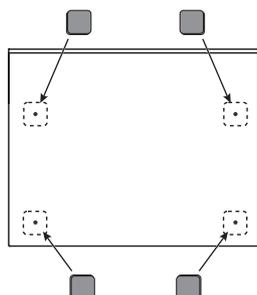
Attach the rubber feet when not rack mounting the unit.

Peel off the backing from the double-sided adhesive tape on the rubber feet and attach the feet at the points indicated in the figure below.



When turning the S-OPT upside down, place stacks of newspapers or magazines to support the four corners (or two sides) so that stress is not placed on the S-OPT itself. Also, handle the S-OPT with care, and avoid dropping it.

bottom of the unit



Notes to Observe in Using the REAC System

Use and Handling of REAC Systems

The REAC cable connected to the REAC port used by the REAC system to transmit sound can transmit multi-channel audio signals by using network technology.

In very rare cases, noise may be generated when these systems are used in certain environments. If noise is present, check the following points.

About REAC Cables

As REAC cables use computer network technology, you should pay attention to the following points regarding wiring with network cables.

- Ensure that cables used for REAC connections conform to the Cat5e (Enhanced Category 5) standard.
- No single cable should be longer than 100 meters.
- Do not use cables with cut or torn coverings.
- Do not subject cables to undue stress.
- Do not wind or bend cables such that the radius of the turn is 25 mm or less, and do not double cables over.
- Do not bind cables tightly into bundles.

Notes to Observe When Producing REAC Cables

If you are making your own REAC cables, note the following precautions in addition to those above.

- Use plugs (RJ-45) conforming to high reliability standards.
- Do not separate the wires (twisted pairs) within the cables.

Understanding Cables and Connections

Cat5e Ethernet Cable Types

There are two different types of Cat5e Ethernet cables that you can use with the REAC System. Though the cables look the same on the outside, the RJ45 plugs are wired in different ways. With a:

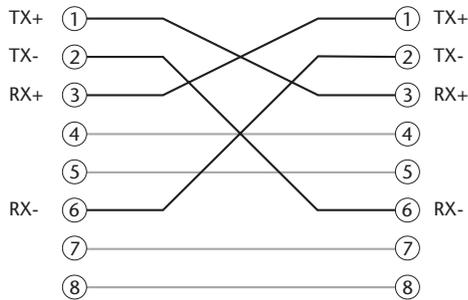
- *crossover cable*—some of the wires inside the cable are “crossed over” at each RJ45 plug. As a result, the two RJ45 plugs on each end of a single cable are wired differently.
- *straight-through cable*—the wires inside the cable are connected to each RJ45 plug in the same arrangement (each plug is wired the same).



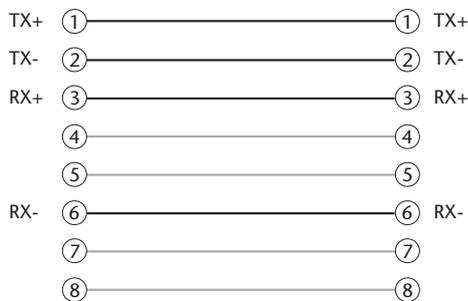
Either a crossover cable or a straight cable can be used for direct REAC connection of the S-OPT to another REAC device.

Cat5e Ethernet Cable Pin Connection Diagram (RJ45-type Connectors)

Cat5e Crossover Wiring (REAC cable: SC-W100S)



Cat5e Straight-Through Wiring



Ethernet Connectors

As mentioned previously, Cat5e Ethernet cables use RJ45 plugs. Each REAC device provides an RJ45 receptacle for its REAC ports.



RJ45 plug



REAC RJ45 receptacle

Though the standard RJ45 connection is very reliable, in high-traffic installations you may want to protect the connection between the RJ45 plug and its receptacle. To this end, REAC RJ45 receptacles utilize rugged Neutrik® EtherCon® connectors. When used with RJ45 plugs housed in EtherCon connectors, this provides a robust latching connection similar to that provided by an XLR connector.

Neutrik offers EtherCon connectors for the fabrication of new cables (models NE8MC-1 and NE8MC-1-B), and EtherCon connectors that can be added to a pre-made Ethernet cable (models NE8MC and NE8MC-B).



A REAC port's RJ45 receptacle can accept either a regular RJ45 plug or one housed in an EtherCon connector.

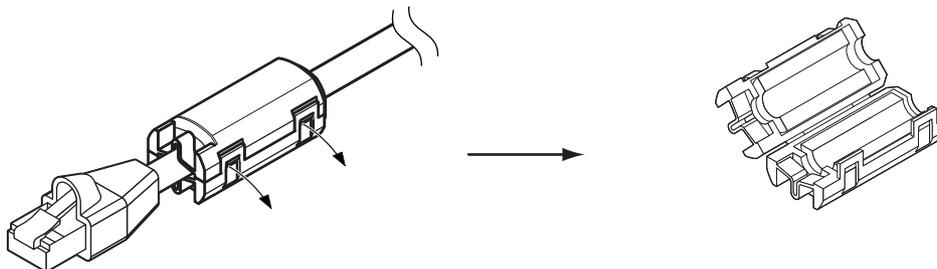
Installing the Ferrite Core on Ethernet Cables

For REAC connections, make sure to attach ferrite cores to your cables.

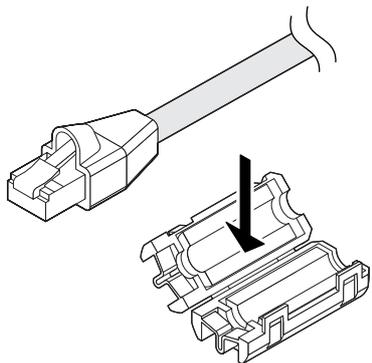
If you want to use REAC cable SC-W100S (sold separately) or Cat5e cable instead of the included REAC cable with the S-OPT, please remove the Ferrite Core from the included REAC cable, then install the ferrite core on the SC-100S or the Cat5e cable near the RJ45 plug that will be connected to the REAC port.

Use the following procedure to install a ferrite core on an Ethernet cable.

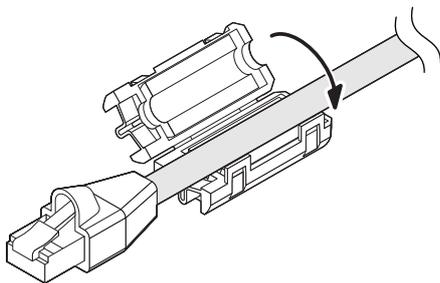
1. Lift up the ferrite core's tabs and open the ferrite core.



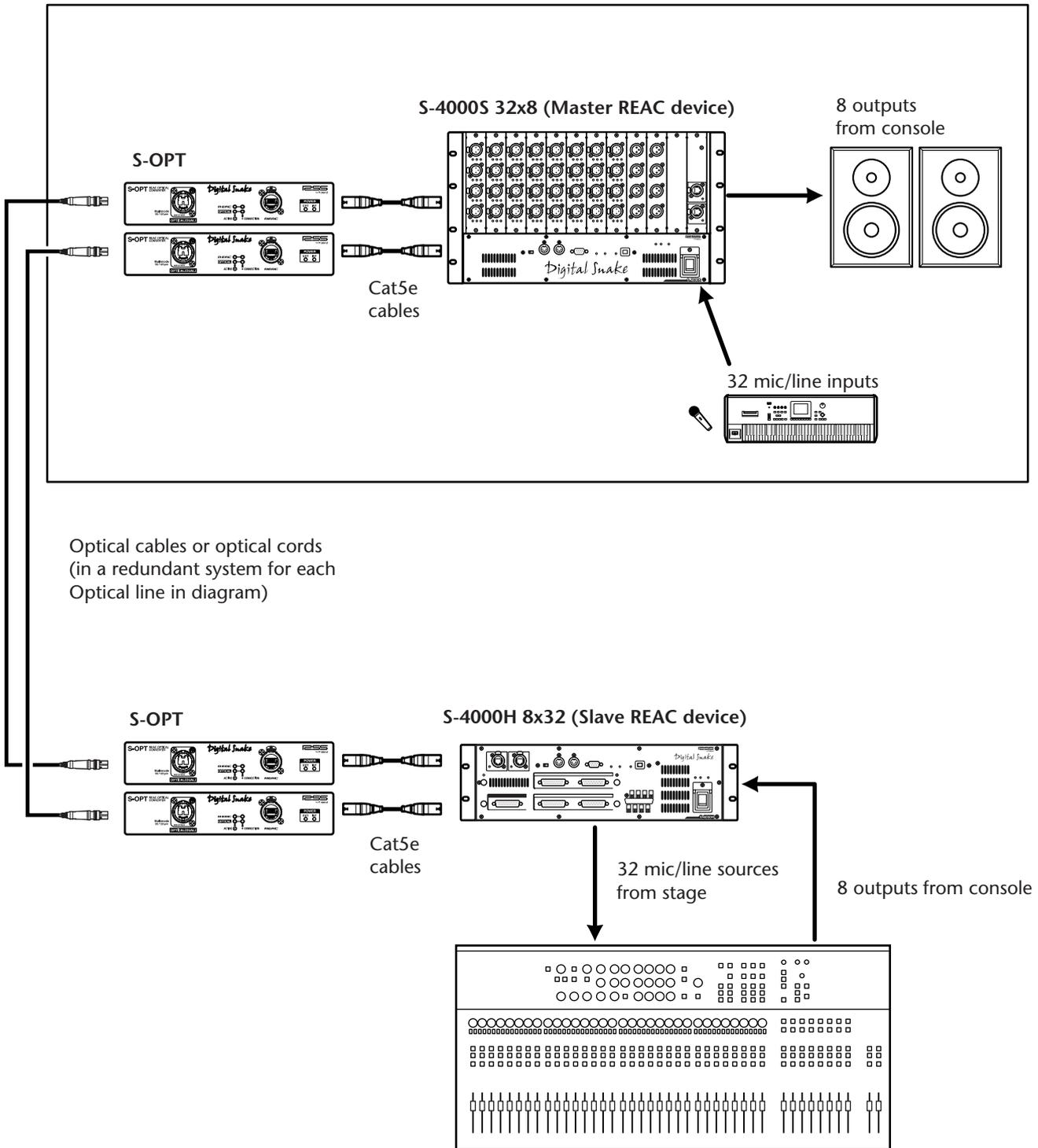
2. Place the REAC cable SC-W100S or Ethernet cable in the ferrite core so that the core abuts the base of the cable's connector.

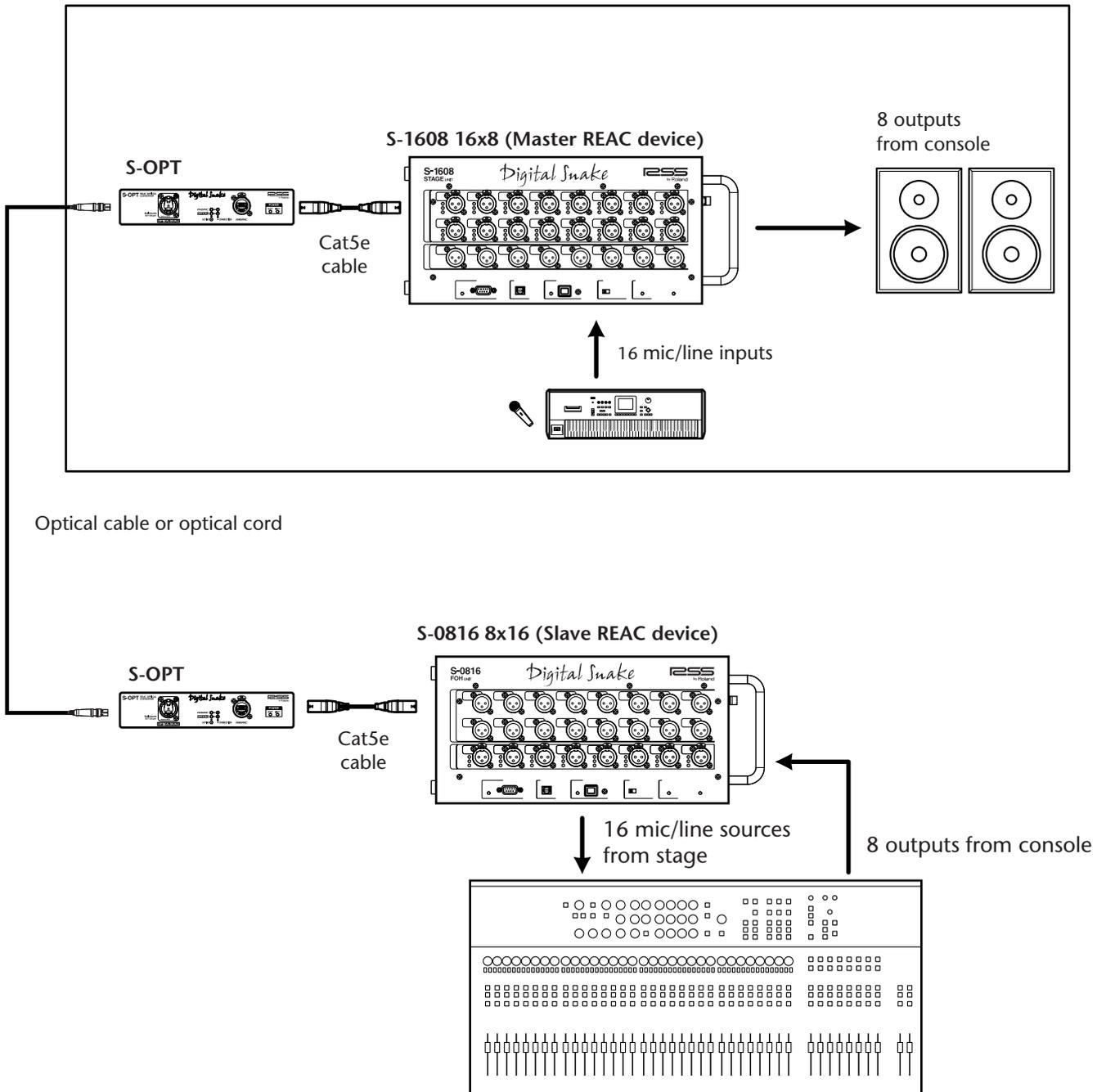


3. Push the tabs until they close securely with a snapping sound.



System Connection Example





Specifications

S-OPT: REAC OPTICAL CONVERTER

Connectors	OPTICAL Port (Dual LC, OpticalCon type) x 1 REAC Port (RJ-45, EtherCon type) x 1 POWER LINK Port (mini-DIN 8-pin type) x 1
Indicators	REAC ACTIVE Indicator: Green x 1 REAC CONNECTION Indicator: Green x 1 OPTICAL ACTIVE Indicator: Orange x 1 OPTICAL CONNECTION Indicator: Orange x 1 POWER EXT Indicator: Blue x 1 POWER INT Indicator: Blue x 1
Power Supply	AC 115 V, AC 117 V, AC 220 V, AC 230 V, AC 240 V (50/60 Hz)
Power Consumption	10 W
Dimensions	218.0 (W) x 239.9 (D) x 46.3 (H) mm 8-5/8 (W) x 9-1/2 (D) x 1-7/8 (H) inches
Weight	1.3 kg 2 lbs 14 oz
Operation Temperature	0 to +40 degrees centigrade +32 to +104 degrees Fahrenheit
Accessories	Power Cord x 1 REAC Cable (5m) x 1 REAC Connector Cover x 1 Rubber Foot x 4 Screw Set x 1 Owner's Manual
Options	REAC Cable (100m): SC-W100S POWER LINK Cable: ARC-15 (AR-LINK CABLE) Rack Mount Adaptor: BOSS RAD-50 Optical Cable: Neutrik NKO2M-xxx (*1), NKO4MY-xxx (*1) (*2) Optical Cord: Two-core multimode, 50/125 micrometer core diameter optical fibers cord with a Dual LC connector (standard LC-Duplex connector, IEC 61754-20) (*2) (*1) The cable model number is determined by specifications such as the cable length. Contact Neutrik for further details. (*2) The maximum length of Optical Cable or Optical Cord is up to 2 kilometers.

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

For EU Countries



- UK** This symbol indicates that in EU countries, this product must be collected separately from household waste, as defined in each region. Products bearing this symbol must not be discarded together with household waste.
- DE** Dieses Symbol bedeutet, dass dieses Produkt in EU-Ländern getrennt vom Hausmüll gesammelt werden muss gemäß den regionalen Bestimmungen. Mit diesem Symbol gekennzeichnete Produkte dürfen nicht zusammen mit dem Hausmüll entsorgt werden.
- FR** Ce symbole indique que dans les pays de l'Union européenne, ce produit doit être collecté séparément des ordures ménagères selon les directives en vigueur dans chacun de ces pays. Les produits portant ce symbole ne doivent pas être mis au rebut avec les ordures ménagères.
- IT** Questo simbolo indica che nei paesi della Comunità europea questo prodotto deve essere smaltito separatamente dai normali rifiuti domestici, secondo la legislazione in vigore in ciascun paese. I prodotti che riportano questo simbolo non devono essere smaltiti insieme ai rifiuti domestici. Ai sensi dell'art. 13 del D.Lgs. 25 luglio 2005 n. 151.
- ES** Este símbolo indica que en los países de la Unión Europea este producto debe recogerse aparte de los residuos domésticos, tal como está regulado en cada zona. Los productos con este símbolo no se deben depositar con los residuos domésticos.
- PT** Este símbolo indica que nos países da UE, a recolha deste produto deverá ser feita separadamente do lixo doméstico, de acordo com os regulamentos de cada região. Os produtos que apresentem este símbolo não deverão ser eliminados juntamente com o lixo doméstico.
- NL** Dit symbool geeft aan dat in landen van de EU dit product gescheiden van huishoudelijk afval moet worden aangeboden, zoals bepaald per gemeente of regio. Producten die van dit symbool zijn voorzien, mogen niet samen met huishoudelijk afval worden verwijderd.
- DK** Dette symbol angiver, at i EU-lande skal dette produkt opsamles adskilt fra husholdningsaffald, som defineret i hver enkelte region. Produkter med dette symbol må ikke smides ud sammen med husholdningsaffald.
- NO** Dette symbolet indikerer at produktet må behandles som spesialavfall i EU-land, iht. til retningslinjer for den enkelte regionen, og ikke kastes sammen med vanlig husholdningsavfall. Produkter som er merket med dette symbolet, må ikke kastes sammen med vanlig husholdningsavfall.

- SE** Symbolen anger att i EU-länder måste den här produkten kasseras separat från hushållsavfall, i enlighet med varje regions bestämmelser. Produkter med den här symbolen får inte kasseras tillsammans med hushållsavfall.
- FI** Tämä merkintä ilmaisee, että tuote on EU-maissa kerättävä erillään kotitalousjätteistä kunkin alueen voimassa olevien määräysten mukaisesti. Tällä merkinnällä varustettuja tuotteita ei saa hävittää kotitalousjätteiden mukana.
- HU** Ez a szimbólum azt jelenti, hogy az Európai Unióban ezt a terméket a háztartási hulladéktól elkülönítve, az adott régióban érvényes szabályozás szerint kell gyűjteni. Az ezzel a szimbóllal ellátott termékeket nem szabad a háztartási hulladék közé dobni.
- PL** Symbol oznacza, że zgodnie z regulacjami w odpowiednim regionie, w krajach UE produktu nie należy wyrzucać z odpadami domowymi. Produktów opatrzonych tym symbolem nie można utylizować razem z odpadami domowymi.
- CZ** Tento symbol udává, že v zemích EU musí být tento výrobek sbírán odděleně od domácího odpadu, jak je určeno pro každý region. Výrobky nesoucí tento symbol se nesmí vyhazovat spolu s domácím odpadem.
- SK** Tento symbol vyjadruje, že v krajinách EÚ sa musí zber tohto produktu vykonávať oddelene od domového odpadu, podľa nariadení platných v konkrétnej krajine. Produkty s týmto symbolom sa nesmú vyhazovať spolu s domovým odpadom.
- EE** See sümbol näitab, et EL-i maades tuleb see toode olemprügist eraldi koguda, nii nagu on igas piirkonnas määratletud. Selle sümboliga märgitud tooteid ei tohi ära visata koos olmeprügiga.
- LT** Šis simbolis rodo, kad ES šalyse šis produktas turi būti surenkamas atskirai nuo buitinių atliekų, kaip nustatyta kiekvienoje regione. Šiuo simboliu paženklinėti produktai neturi būti išmetami kartu su buitinių atliekomis.
- LV** Šis simbols norāda, ka ES valstīs šo produktu jāievāc atsevišķi no mājsaimniecības atkritumiem, kā noteikts katrā reģionā. Produktaus ar šo simbolu nedrīkst izmest kopā ar mājsaimniecības atkritumiem.
- SI** Ta simbol označuje, da je treba proizvod v državah EU zbirati ločeno od gospodinskih odpadkov, tako kot je določeno v vsaki regiji. Proizvoda s tem znakom ni dovoljeno odlagati skupaj z gospodinskimi odpadki.
- GR** Το σύμβολο αυτό υποδηλώνει ότι στις χώρες της Ε.Ε. το συγκεκριμένο προϊόν πρέπει να συλλέγεται χωριστά από τα υπόλοιπα οικιακά απορρίμματα, σύμφωνα με όσα προβλέπονται σε κάθε περιοχή. Τα προϊόντα που φέρουν το συγκεκριμένο σύμβολο δεν πρέπει να απορρίπτονται μαζί με τα οικιακά απορρίμματα.

For China

有关产品中所含有害物质的说明

本资料就本公司产品中所含的特定有害物质及其安全性予以说明。
本资料适用于 2007 年 3 月 1 日以后本公司所制造的产品。

环保使用期限



此标志适用于在中国国内销售的电子信息产品，表示环保使用期限的年数。所谓环保使用期限是指在自制造日起的定期限内，产品中所含的有害物质不致引起环境污染，不会对人身、财产造成严重的不良影响。环保使用期限仅在遵照产品使用说明书，正确使用产品的条件下才有效。不当的使用，将会导致有害物质泄漏的危险。

产品中有毒有害物质或元素的名称及含量

部件名称	有毒有害物质或元素					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
外壳(壳体)	×	○	○	○	○	○
电子部件(印刷电路板等)	×	○	×	○	○	○
附件(电源线、交流适配器等)	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。
×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。
因根据现有的技术水平，还没有什么物质能够代替它。

Information

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

ASIA

INDONESIA

PT. Citra IntiRama
JL. Cideng Timur No. 15J-15O
Jakarta Pusat
INDONESIA
TEL: (021) 632-4170

TAIWAN

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

SINGAPORE/ MALAYSIA

Roland Asia Pacific Sdn.
Bhd.
45-1, Block C2, Jalan PJU 1/39,
Dataran Prima, 47301 Petaling
Jaya, Selangor, MALAYSIA
TEL: 3-7805-3263

CENTRAL/LATIN AMERICA BRAZIL

Roland Brasil Ltda.
Rua San Jose, 780 Sala B
Parque Industrial San Jose
Cotia - Sao Paulo - SP, BRAZIL
TEL: (011) 4615 5666

Other CENTRAL/ LATIN AMERICA

Roland Systems Group U.S.
425 Sequoia Drive Suite 114,
Bellingham, Washington,
98226 USA
TEL: 360-594-4282

EUROPE

AUSTRIA/BELGIUM/ FRANCE/GERMANY/ HOLLAND/ LUXEMBOURG/ PORTUGAL/SPAIN/ SWITZERLAND

Roland Iberia, S.L.
Paseo García Faria, 33-35
08005 Barcelona SPAIN
TEL: 93 493 91 00

CROATIA

ART-CENTAR
Degenova 3.
HR - 10000 Zagreb
TEL: (1) 466 8493

CZECH REP.

CZECH REPUBLIC
DISTRIBUTOR s.r.o.
Vocáárova 247/16
CZ - 180 00 PRAHA 8,
CZECH REP.
TEL: (2) 830 20270

DENMARK

Roland Scandinavia A/S
Nordhavnsvej 7, Postbox 880,
DK-2100 Copenhagen
DENMARK
TEL: 3916 6200

FINLAND

Roland Scandinavia As,
Filial Finland
Elannontie 5
FIN-01510 Vantaa, FINLAND
TEL: (0)9 68 24 020

HUNGARY

Roland East Europe Ltd.
Warehouse Area 'DEPO' Pf.83
H-2046 Torokbalint, HUNGARY
TEL: (23) 511011

NORWAY

Roland Scandinavia Avd.
Kontor Norge
Lilleakerveien 2 Postboks 95
Lilleaker N-0216 Oslo
NORWAY
TEL: 2273 0074

POLAND

ROLAND POLSKA SP. Z O.O.
UL. Gibraltarska 4.
PL-03664 Warszawa POLAND
TEL: (022) 679 44 19

ROMANIA

FBS LINES
Piata Libertatii 1,
535500 Gheorgheni, ROMANIA
TEL: (266) 364 609

RUSSIA

MuTek
Dorozhnaya ul.3.korp.6
117 545 Moscow, RUSSIA
TEL: (095) 981-4967

SLOVAKIA

DAN Acoustic s.r.o.
Povazská 18.
SK - 940 01 Nové Zámky
TEL: (035) 6424 330

SWEDEN

Roland Scandinavia A/S
SWEDISH SALES OFFICE
Danvik Center 28, 2 tr.
S-131 30 Nacka SWEDEN
TEL: (0)8 702 00 20

UKRAINE

EURHYTHMICS Ltd.
P.O.Box: 37-a.
Nedecey Str. 30
UA - 89600 Mukachevo,
UKRAINE
TEL: (03131) 414-40

UNITED KINGDOM/ IRELAND

Roland (U.K.) Ltd.
Atlantic Close, Swansea
Enterprise Park, Swansea
SA7 9FJ,
UNITED KINGDOM
TEL: (01792) 702701

OCEANIA

Roland Corporation
Australia Pty.,Ltd.
38 Campbell Avenue
Dee Why West, NSW 2099
AUSTRALIA

For Australia
TEL: (02) 9982 8266
For New Zealand
TEL: (09) 3098 715

NORTH AMERICA

CANADA

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(Head Office)
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TEL: (905) 362 9707

U. S. A.

Roland Systems Group U.S.
425 Sequoia Drive Suite 114,
Bellingham, Washington,
98226 USA
TEL: 360-594-4282

As of May 1, 2007 (RSS)



This product complies with the requirements of European Directives EMC 89/336/EEC and LVD 73/23/EEC.

For EU Countries

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

For the USA

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.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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.