



ROTEL®

RA-10

Stereo Integrated Amplifier

Amplificateur Intégré Stéréophonique

Stereo-Vollverstärker

Amplificatore Integrato Estereofonico

Amplificador Integrado Estereofónico

Geïntegreerde Stereo Versterker

Integrerad Stereoförstärkare

Стереointегрированный усилитель

Owner's Manual

Manuel d'utilisation

Bedienungsanleitung

Manual de Instrucciones

Manuale di istruzioni

Gebruiksaanwijzing

Instruktionsbok

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Register your product at
www.Rotel.com/register

Important Safety Instructions

WARNING: There are no user serviceable parts inside. Refer all servicing to qualified service personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose the unit to moisture or water. Do not expose the unit to dripping or splashing. Do not place objects filled with liquids, such as vases, on the unit. Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.

Read all the instructions before connecting or operating the component.

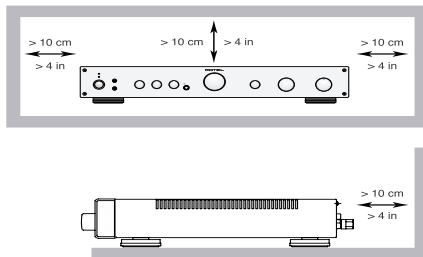
Keep this manual so you can refer to these safety instructions.

Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.

Clean the enclosure only with a dry cloth or a vacuum cleaner.

Do not use this unit near water.

You must allow a minimum 10 cm or 4 inches of unobstructed clearance around the unit.



Do not place the unit on a bed, sofa, rug, or similar surface that could block the ventilation openings. If the unit is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling.

Keep the component away from radiators, heat registers, stoves, or any other appliance that produces heat.

The unit must be connected to a power supply only of the type and voltage specified on the rear panel. (USA: 120 V/60Hz, EC: 230V/50Hz)

Connect the component to the power outlet only with the supplied power supply cable or an exact equivalent. Do not modify the supplied cable. A polarized plug has two blades, with one wider than the other. A grounding plug has two blades plus a third grounding prong. These are provided for your safety. Do not defeat grounding and/or polarization safety provisions. If the supplied plug does not fit your outlet, please consult an electrician for replacement of the obsolete outlet. Do not use extension cords.

The main plug of the power cordset is a disconnect device of the apparatus. In order to completely disconnect the apparatus from the supply mains, the main plug of the power cordset should be unplugged from the mains (AC) outlet. The stand-by LED indicator will not be lit up to show the power cord is unplugged. The disconnect device shall remain readily operable.

Do not route the power cord where it will be crushed, pinched, bent, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where the cord exits the back of the unit.

The power cord should be unplugged from the wall outlet during a lightning storm or if the unit is to be left unused for a long period of time.

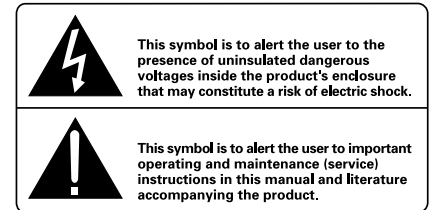
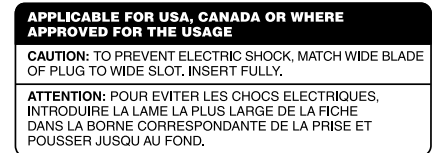
Use only accessories specified by the manufacturer.

Use only with a cart, stand, rack, bracket or shelf system recommended by Rotel. Use caution when moving the unit in a stand or rack to avoid injury from a tip-over.

Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

- The power supply cord or plug has been damaged
- Objects have fallen or liquid has been spilled into the unit
- The unit has been exposed to rain
- The unit shows signs of improper operation
- The unit has been dropped or damaged in any way

Please use Class 2 Wiring when connecting the speaker terminals of the unit to ensure proper insulation and minimize the risk of electrical shock.



Rotel products are designed to comply with international directives on the Restriction of Hazardous Substances (RoHS) in electrical and electronic equipment and the disposal of Waste Electrical and Electronic Equipment (WEEE). The crossed wheeler bin symbol indicates compliance and that the products must be appropriately recycled or processed in accordance with these directives.



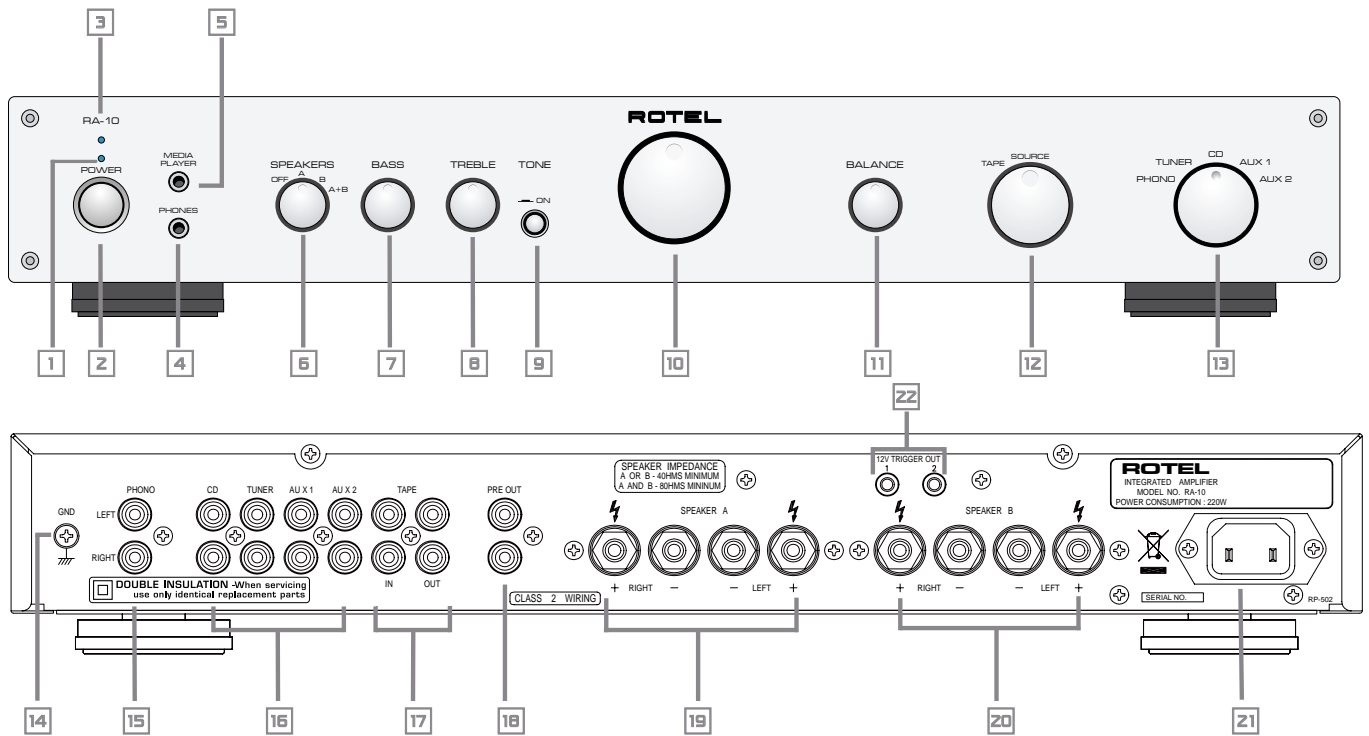
This symbol means that this unit is double insulated. An earth connection is not required.



Place the unit on a fixed, level surface strong enough to support its weight. Do not place it on a moveable cart that could tip over.



Figure 1: Controls and Connections
 Commandes et branchements
 Bedienelemente und Anschlüsse
 Controles y Conexiones
 De bedieningsorganen en de aansluitingen
 Controlli e collegamenti
 Kontroller och anslutningar
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The diagram illustrates the connection of a Rotel RA-10 integrated amplifier to various audio components and speakers. The amplifier is shown with its front panel controls and inputs. The connections are as follows:

- Speakers:** Two speakers are connected to the amplifier's output terminals. The left speaker is connected to the 'SPEAKER A' terminals (left and right), and the right speaker is connected to the 'SPEAKER B' terminals (left and right).
- Recorder:** The recorder is connected to the amplifier's 'PHONO' input (left and right) and 'TUNER' input (left and right).
- CD Player:** The CD player is connected to the amplifier's 'CD' input (left and right) and 'TUNER' input (left and right).
- Phono:** The phono is connected to the amplifier's 'PHONO' input (left and right) and 'TUNER' input (left and right).
- Other Inputs:** The amplifier also features 'AU X 1', 'AU X 2', 'TAPE', 'PRE OUT', and 'SPEAKER A' and 'SPEAKER B' inputs.

The diagram includes labels for the components and their connections, such as 'RECORDER', 'CD PLAYER', 'PHONO', 'SPEAKERS', and 'ROTOL INTEGRATED AMPLIFIER MODEL NO. RA-10 POWER CONSUMPTION: 220W'.

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About Rotel

Our story began 50 years ago. Over the decades, we have received hundreds of awards for our products and satisfied hundreds of thousands of people who take their entertainment seriously – like you.

Rotel was founded by a family whose passionate interest in music led them to manufacture high-fidelity components of uncompromising quality.

Through the years, that passion has remained undiminished and the family goal of providing exceptional value for audiophiles and music lovers, regardless of their budget, is shared by all Rotel employees.

Rotel's engineers work as a close team, listening to, and fine tuning, each new product until it reaches their exacting musical standards. They are free to choose components from around the world in order to make that product the best they can. You are likely to find capacitors from the United Kingdom and Germany, semiconductors from Japan or the United States, while toroidal power transformers are manufactured in Rotel's own factory.

We all have concerns about our environment. And, as more and more electronics are produced and later discarded, it is especially important for a manufacturer to do all it can to engineer products that have a minimum negative impact on landfill sites and water tables.

At Rotel, we are proud to do our part. We have reduced the lead content in our electronics by using special ROHS solder, while our new Class D (not digital) amplifiers are up to five times more efficient than our legacy designs and still deliver power and performance. These products run cool, give minimum wasted energy, are good for the environment and give better sound too.

Finally, we have printed this brochure on recycled paper stock.

While we understand that these are small first steps, they are still important ones. And we continue to pursue new methods and materials for a cleaner and greener manufacturing process.

All of us at Rotel thank you for buying this product. We are sure it will bring you many years of enjoyment.

Getting Started

Thank you for purchasing the Rotel RA-10 Stereo Integrated Amplifier. When used in a high-quality music audio system, it will provide years of musical enjoyment.

The RA-10 is a full featured, high performance component. All aspects of the design have been optimized to retain the full dynamic range and subtle nuances of your music. The RA-10 has a highly regulated power supply incorporating a Rotel custom-designed toroidal power transformer. This low impedance power supply has ample power reserves, which enables the RA-10 to easily reproduce the most demanding audio signals. This type of design is more expensive to manufacture, but it is better for the music.

The printed circuit boards (PCB) are designed with Symmetrical Circuit Traces. This insures that the precise timing of the music is maintained and faithfully recreated. The RA-10 circuitry uses metal film resistors and polystyrene or polypropylene capacitors in important signal paths. All aspects of this design have been examined to ensure the most faithful music reproduction.

The main functions of the RA-10 are easy to install and use. If you have experience with other stereo systems, you shouldn't find anything perplexing. Simply plug in the associated components and enjoy.

A Few Precautions

WARNING: *To avoid potential damage to your system, turn off ALL the components in the system when connecting or disconnecting the loudspeakers or any associated components. Do not turn the system components back on until you are sure all the connections are correct and secure. Pay particular attention to the speaker wires. There must be no loose strands that could contact the other speaker wires, or the chassis of the amplifier.*

Please read this manual carefully. It provides information on how to incorporate the RA-10 into your system as well as information that will help you get optimum sound performance. Please contact your authorized Rotel dealer for answers to any questions you might have. In addition, all of us at Rotel welcome your questions and comments.

Save the RA-10 shipping carton and all enclosed packing material for future use. Shipping or moving the RA-10 in anything other than the original packing material may result in severe damage to your amplifier.

Fill out and send in the owner's registration card packed with the RA-10. Also be sure to keep the original sales receipt. It is your best record of the date of purchase, which you will need in the event warranty service is ever required.

Placement

Like all audio components that handle low level signals, the RA-10 can be affected by its environment. Avoid placing the RA-10 on top of other components. Also avoid routing audio signal cables near power cords. This will minimize the chance it will pick up hum or interference.

The RA-10 generates heat as part of its normal operation. The heat sinks and ventilation openings in the amplifier are designed to dissipate this heat. The ventilation slots in the top cover must be open. There should be 10 cm (4 inches) of clearance around the chassis, and reasonable

airflow through the installation location, to prevent the amplifier from overheating.

Remember the weight of the amplifier when you select an installation location. Make sure that the shelf or cabinet can support it. We recommend installing the RA-10 in furniture designed to house audio components. Such furniture is designed to reduce or suppress vibration which can adversely affect sound quality. Ask your authorized Rotel dealer for advice about component furniture and proper installation of audio components.

Cables

Be sure to keep the power cords, digital signal cables and regular audio signal cables in your installation away from each other. This will minimize the chance of the regular audio signal cables picking up noise or interference from the power cords or digital cables. Using only high quality, shielded cables will also help to prevent noise or interference from degrading the sound quality of your system. If you have any questions see your authorized Rotel dealer for advice about the best cable to use with your system.

AC Power and Control

AC Power Input

The RA-10 does not draw high levels of current from the power outlet. However, whenever possible, it should be plugged directly into a 2-pin polarized wall outlet. Do not use an extension cord. A heavy duty multi-tap power outlet strip may be used if it (and the wall outlet) can handle the current demanded by the RA-10 and all the other components connected to it.

Your RA-10 is configured at the factory for the proper AC line voltage in the country where you purchased it (either 120 volts AC or 230 volts AC with a line frequency of either 50 Hz or 60 Hz). The AC line configuration is noted on a decal on the back panel.

NOTE: *Should you move your RA-10 amplifier to another country, it is possible to reconfigure it for use on a different line voltage. Do not attempt to perform this conversion yourself. Opening the enclosure of the RA-10 exposes you to dangerous voltages. Consult a qualified service person or the Rotel factory service department for information.*

NOTE: *Some products are intended for sale in more than one country and as such are supplied with more than one AC cord. Please only use the one appropriate for your country/region.*

If you are going to be away from home for an extended period of time such as a month-long vacation, it is a sensible precaution to unplug your amplifier (as well as other audio and video components) while you are away.

Power Switch and Power Indicator

Press the front panel Power Switch button, to turn the RA-10 on. The Power Indicator light is illuminated when the RA-10 is on. Press Power Switch button again to turn the RA-10 off.

See the "12V Trigger Outlet" section for more information on ways you may be able to turn on and off other components in your system along with the RA-10.

Input Signal Connections

[See Figure 2.]

NOTE: To prevent loud noises that neither you nor your speakers will appreciate, make sure the system is turned off when you make any signal connections.

Phono Input 15 and Ground Connection 14

Plug the cable from the turntable into the appropriate left and right phono inputs. If the turntable has a "ground" wire, connect it to the screw terminal to the left of the Phono inputs. It will help prevent hum and noise.

Line Level Inputs 16

The CD, Tuner, and Aux inputs of the RA-10 are "line level" inputs. These are for connecting components such as CD players, Hi Fi or NICAM Stereo video cassette recorders, tuners, Laser Disc players or the analog output from a CD-ROM drive.

The Left and Right channels are labeled and should be connected to the corresponding channels of the source component. The Left connectors are white, the Right connectors are red. Use high quality RCA cables for connecting input source components to the RA-10. Ask your authorized Rotel dealer for advice about cables.

Recorder Connections 17

[See Figure 2.]

The Tape inputs and outputs can be connected to any record playback device that accepts standard line level analog input and output signals. Typically that will be a conventional tape recorder.

When connecting a recorder to the RA-10 remember that the outputs of the recorder must be connected to the tape inputs of the RA-10. Similarly the tape outputs of the RA-10 must be connected to the inputs of the recorder. As with other sources be sure to connect the Left and Right channels of each device to the proper channels on the associated components. Use high quality connecting cables to prevent loss of sound quality.

NOTE: The Tape Outputs are not affected by the Volume, Balance or Tone controls. They receive a fixed level signal.

Preamp Outputs 18

The RA-10 has a set of preamp outputs. The signal from the source selected with the Function Selector is always available from these outputs. Typically these outputs are used to provide a signal to another integrated amplifier or power amplifier, which is used to drive remote speakers

NOTE: Changes to the settings of the Volume, Balance or Tone controls affect the signal from the Preamp Outputs.

Speaker Outputs 19 20

Speaker Selector Switch 6

[See Figure 2.]

The RA-10 has two sets of speaker outputs, labeled "A" 19 and "B" 20. The speaker outputs are controlled by the switch 6 on the front panel.

Speaker Selection

If only one set of speakers will be used at any given time, the speakers may have an impedance as low as 4 ohms. If there are times when both the A and B speakers will be used, all the speakers should have an impedance of 8 ohms or more. Speaker impedance ratings are less than precise. In practice, very few loudspeakers will present any problems for the RA-10. See your authorized Rotel dealer if you have any questions.

Speaker Wire Selection

Use insulated two-conductor stranded wire to connect the RA-10 to the speakers. The size and quality of the wire can have an audible effect on the performance of the system. Standard speaker wire will work, but can result in lower output or diminished bass response, particularly over longer distances. In general, heavier wire will improve the sound. For best performance, you may want to consider special high-quality speaker cables. Your authorized Rotel dealer can help in the selection of cables for your system.

Polarity and Phasing

The polarity – the positive/negative orientation of the connections – for every speaker and amplifier connection must be consistent so all the speakers will be in phase. If the polarity of one connection is reversed, bass output will be very weak and stereo imaging degraded. All wire is marked so you can identify the two conductors. There may be ribs or a stripe on the insulation of one conductor. The wire may have clear insulation with different color conductors (copper and silver). There may be polarity indications printed on the insulation. Identify the positive and negative conductors and be consistent with every speaker and amplifier connection.

Speaker Connection

Turn off all the components in the system before connecting the speakers. The RA-10 has color-coded binding post type speaker connectors on the back panel (except in European Community countries where their use is not permitted). These connectors accept bare wire, connector lugs, or dual banana type connectors.

Route the wire from the RA-10 to the speakers. Give yourself enough slack so you can move the components to allow access to the speaker connectors. If you are using dual banana plugs, connect them to the wires and then plug into the backs of the binding posts. The thumbscrews of the binding posts should be screwed in all the way (clockwise).

If you are using terminal lugs, connect them to the wires. If you are attaching bare wires directly to the binding posts, separate the wire conductors and strip the insulation from the end of each conductor. Be careful not to cut into the wire strands. Unscrew (turn counterclockwise) the binding post thumbscrews. Place the connector lug or wire around the binding post shaft. Turn the thumbscrews clockwise to clamp the connector lug or wire firmly in place.

NOTE: Be sure there are no loose wire strands that could touch adjacent wires or connectors.

Phones Output 4

The Phones output allows you to connect headphones for private listening. This output accommodates standard stereo phone (1/8") plugs. Plugging in a set of headphones does not cut off the signal to the outputs. Use the Speaker Selector to turn off the speakers. The settings of the Function Selector and the Tape Monitor Control determines which source is heard. To listen to or monitor the component connected to the Tape input set the Monitor Control to the Tape position. For all other inputs leave the Monitor Control in the Source position and select the source you want to listen to with the front panel Function Selector.

NOTE: Because the sensitivity of speakers and headphones can vary widely, always reduce the volume level before connecting or disconnecting headphones.

Media Player 5

A 3.5mm (1/8") stereo input socket for a "Media Player" is provided on the front of the amplifier and is selected by setting the function control to (AUX2). Any portable stereo cassette, compact disc player or hard disc playback device can be connected via this input. If the device you are connecting has its output via the headphone socket then note that you must adjust the volume control on the player for sound to be heard. Should the sound be loud and distorted turn down the volume on the player and if it is only just audible through the speakers even when the amplifier volume control is turned up fairly high then adjust the volume control on the player.

NOTE: When the 3.5mm (mini jack) is inserted into the Media Player socket the rear input called AUX2 is disconnected. Removing the 3.5mm plug from the Media player socket will allow the rear AUX2 input to function.

Audio Controls

Volume Control 10

Turn the controls clockwise to increase the volume, or counter clockwise to decrease the volume.

Balance Control 11

The Balance Control adjusts the left-to-right balance of the sound output. Normally the control should be left in the center position. In some situations, typically when the main listening position is not ideally centered between the speakers, it may be necessary to adjust the control to achieve proper left-to-right balance. Turning the control counter-clockwise shifts the sound balance to the left. Turning the control clockwise shifts the sound balance to the right.

Tone On/Off Switch 9

When the Tone Switch is in the Off position the Bass and Treble Control (Tone Control) circuits are bypassed to ensure the purest possible sound. Leave the Tone Switch in the Off position unless you want to use the Tone Controls. Turn the Tone Switch to the On position if you want to adjust the Tone Controls.

Bass and Treble Controls 8 9

When the Tone Switch is in the On position, turning the Bass and Treble Controls adjusts the tone balance of the sound. Turn the Controls clockwise to increase the bass or treble output. Turn the Controls counterclockwise to decrease the bass or treble output.

A properly setup high-performance audio system produces the most natural sound with little or no adjustment of the tone controls. Use these controls sparingly. Be particularly careful when turning the controls up (clockwise). This increases the power output in the bass or treble range, increasing the load on the amplifier and speakers.

Function Control 13

The Function control selects the input signal source. The signal selected by the Function control is the one you hear, as long as the Monitor control is set to the Source position. (See the following section.) The signal selected by the Function control also goes to Preamp Outputs and the Tape Outputs. Turn the front panel Listening Selector to the source you want to listen to.

Monitor Control 12

When the Monitor Control is set to the Source position, the signal you hear, and which goes to the Preamp Outputs, is selected by the Function Control. To listen to the signal from a recorder connected to the Tape Inputs, set the Monitor Control to the Tape position. When the Monitor Control is in the Tape position, the signal from the Tape Input also goes to the Preamp Outputs.

The signal that goes to the Tape Output is always selected by the Function Control. When you are recording with a unit that has monitoring capabilities, you can listen to the sound just recorded by setting the Monitor Control to the Tape position.

12V Trigger Outlet 22

Some audio components can be turned on automatically when they receive a 12V turn on "signal". The two 12V Trigger Outputs of the RA-10 provide the required signal. Connect compatible components to the RA-10 with a conventional 3.5mm mini plug cable. When the RA-10 is in turn off mode, the trigger signal is interrupted, so the components controlled by it are turned off.

Protection Indicator 3

The RA-10 has both thermal and over-current protection circuitry that protects the amplifier against damage in the event of extreme or faulty operating conditions. The protection circuits are independent of the audio signal and have no impact on sonic performance. Instead, the protection

circuits monitor the temperature of the output devices and shut down the amplifier if temperatures exceed safe limits.

Most likely, you will never see this protection circuitry in action. However, should a faulty condition arise, the amplifier will stop playing and the LED indicator on the front panel will light up.

If this happens, turn the amplifier off. Let it cool down for several minutes, and attempt to identify and correct the problem that caused the protection circuitry to engage. When you turn the amplifier back on, the protection circuit will automatically reset and the indicator LED should go out.

In most cases, the protection circuitry activates because of a fault condition such as shorted speaker wires, or inadequate ventilation leading to an overheating condition. In very rare cases, highly reactive or extremely low impedance speaker loads could cause the protection circuit to engage.

If the protection circuitry triggers repeatedly and you are unable to isolate and correct the faulty condition, contact your authorized Rotel dealer for assistance in troubleshooting.

Troubleshooting

Most difficulties in audio systems are the result of incorrect connections, or improper control settings. If you encounter problems, isolate the area of the difficulty, check the control settings, determine the cause of the fault and make the necessary changes. If you are unable to get sound from the RA-10, refer to the suggestions for the following conditions:

Power Indicator Is Not Lit

The Power Indicator and the basic items in the Display window should be lit whenever the RA-10 is plugged into the wall power outlet and the Power button is pushed in. If it does not light, test the power outlet with another electrical device, such as a lamp. Be sure the power outlet being used is not controlled by a switch that has been turned off.

Fuse Replacement

If another electrical device works when plugged into the power outlet, but the Power Indicator of the RA-10 does not light when plugged into the same outlet and the Power Switch is pushed in, it indicates that the internal power fuse may have blown. If you believe this has happened, contact your authorized Rotel dealer to get the fuse replaced.

NO SOUND

Check the signal source to see if it is functioning properly. Make sure the cables from the signal source to the RA-10 inputs are connected properly. Be sure the Listening Selector is set to the proper input. Check the wiring between the RA-10 and the speakers.

Specifications

Continuous Power Output (20-20 kHz, < 0.03%, 8 ohms)	40 watts/ch
Total Harmonic Distortion (20Hz-20kHz)	< 0.03% at rated power, 1/2 power or 1 watt
Intermodulation Distortion (60 Hz : 7 kHz, 4:1)	< 0.03% at rated power, 1/2 power or 1 watt
Frequency Response	
Phone input	20Hz-15kHz, ± 0.3 dB
Line Level Inputs	10Hz-40kHz, ± 1 dB
Damping Factor (20-20,000 Hz, 8 ohms)	180
Input Sensitivity / Impedance	
Phone input	2.5mV / 47 kOhms
Line Level Inputs	150 mV / 24 kOhms
Input Overload	
Phone input	180mV
Line Level Inputs	5V
Premp Output / Impedance	1V / 470 Ohms
Tone Controls - Bass / Treble	± 6 dB at 100Hz / 10kHz
Signal to Noise Ratio (IHF "A" weighted)	
Phone input	80 dB
Line Level Inputs	100 dB
Power Requirements	120V, 60 Hz (USA) 230V, 50 Hz (Europe)
Power Consumption	220 Watts
Dimensions (W, H, D)	17" x 2 ⁷ / ₈ " x 13 ¹ / ₂ " 430 x 72 x 342 mm
Panel Height	60 mm / 2 ³ / ₈ ".
Weight (net)	5.9 kg, 13lbs.

All specifications are accurate at the time of printing.
Rotel reserves the right to make improvements without notice.

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