

Phasemation

EA-220

PHONO AMPLIFIER

Owner's Manual

Thank you for purchasing Phasemation product. Read your Owner's Manual thoroughly for proper operation before starting to use your equipment. Please keep your Owner's Manual with caution.

Safety Instructions

Before starting to use In this owner's manual and on the product, various pictures are used to show our customers how to use Phasemation EA-220 safely and properly in order to avoid the loss of our customer's assets and to protect our customers from harm.

SAFETY PRECAUTIONS

**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN

**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 appliance.

**WARNING:**  
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT SAFETY INSTRUCTIONS

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 dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use attachments/accessories specified by the manufacturer.
11. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
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.
14. Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.



DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:  
EN60065, EN55032, EN55020, EN61000-3-2 and EN61000-3-3.  
Following the provisions of Low Voltage Directive 2014/35/EU and EMC Directive 2014/30/EU

Care of Equipment

- ☉ If the equipment is covered with dust or dirt, clean it with a soft cloth.
- ☉ If the equipment is very dirty, put detergent which is thinned very well with water on a soft cloth. Wring the cloth and wipe off the dust and dirt. Then clean with a dry soft cloth.
- ☉ Never use chemical agents such as thinner, naphtha or alcohol when cleaning it. If any of them is attached to the equipment, the silk printing can be flaked or the surface can lose metal luster.

Usage Cautions

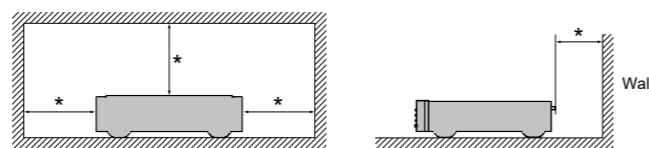
**CAUTION:**  
To completely disconnect this product from the mains, disconnect the plug from the wall socket outlet.  
The mains plug is used to completely interrupt the power supply to the unit and must be within easy access by the user.

**A NOTE ABOUT RECYCLING:**  
This product's packaging materials are recyclable and can be reused. Please dispose of any materials in accordance with the local recycling regulations.  
When discarding the unit, comply with local rules or regulations.

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This product and the supplied accessories constitute the applicable product according to the WEEE directive.

Cautions on installation



- \* For proper heat dispersal, do not install this unit in a confined space, such as a bookcase or similar enclosure.
  - More than 0.1 m is recommended.
  - Do not place any other equipment on this unit.

NOTE ON USE

**WARNINGS**

- Avoid high temperatures. Allow for sufficient heat dispersion when installed in a rack.
- Handle the power cord carefully. Hold the plug when unplugging the cord.
- Keep the unit free from moisture, water, and dust.
- Unplug the power cord when not using the unit for long periods of time.
- Do not obstruct the ventilation holes.
- Do not let foreign objects into the unit.
- Do not let insecticides, benzene, and thinner come in contact with the unit.
- Never disassemble or modify the unit in any way.
- Ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, tablecloths or curtains.
- Naked flame sources such as lighted candles should not be placed on the unit.
- Observe and follow local regulations regarding battery disposal.
- Do not expose the unit to dripping or splashing fluids.
- Do not place objects filled with liquids, such as vases, on the unit.
- Do not handle the mains cord with wet hands.
- The equipment shall be installed near the power supply so that the power supply is easily accessible.
- Do not keep the battery in a place exposed to direct sunlight or in places with extremely high temperatures, such as near a heater.

Main Features

The only equipment among the class with a non-feed back type amplifying circuit composed of only discrete parts.

Aiming for an expansion of music expression, an all-step non-feedback circuit which performs a current-amplifying-operation suiting to the semiconductor is newly developed and adopted. Excellent expressions of uplifting feeling, dynamics, and shading-feeling which are only produced by the non-feedback circuit can be enjoyed.

Only discrete parts are adopted in the circuit, which could be called the only equipment among this class. As a result, all of "rich gradational expression of sound, uplifting feeling, high S/N ratio, and fantastic space representation" are simultaneously achieved at high level, equivalent to an upper class equipment which was difficult on phono amplifiers of this class.

Solid chassis structure and Dual monaural pattern

The chassis base and the top cover using 1.6 mm thick steel plate used with this equipment are treated with copper plate, and furthermore, they are finished with painting to restrain vibration. By synergistic effect with the front panel using 8 mm thick aluminum plate, this equipment achieved reduction of magnetic distortion and securing the strength of rigidity.

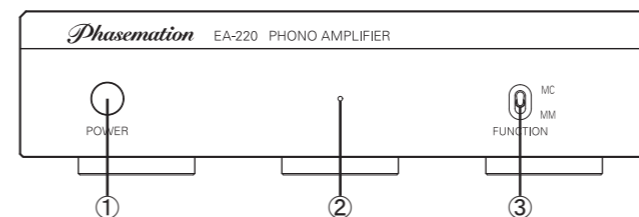
Builds the dual monaural layout of the same pattern of the left and right, and actualizes a uniformity of the left and right channels at a high level. By adopting the large R-core transformer and supplying power without any common power impedance due to left/right individual powers, a channel separation of 90dB or more (20Hz to 20kHz) is accomplished.

Introduction of parts for high sound quality.

For RIAA impedance devices and main parts of the signal line that greatly influence the sound quality, the parts for high sound quality parts such as metal film resistor and high quality film capacitor which are acknowledged are adopted. The power supply circuit is designed to decrease the noise greatly by adopting fast recovery diodes of considerably higher rating and low noise zener diodes, in order to prevent the increase of recovery time in the large current range.

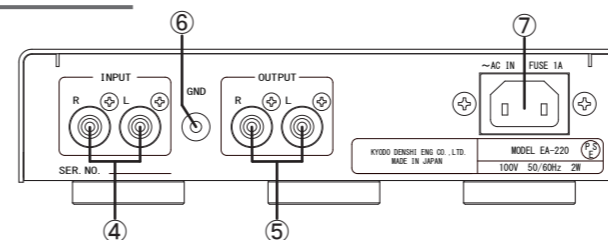
Names and Functions

Front Panel



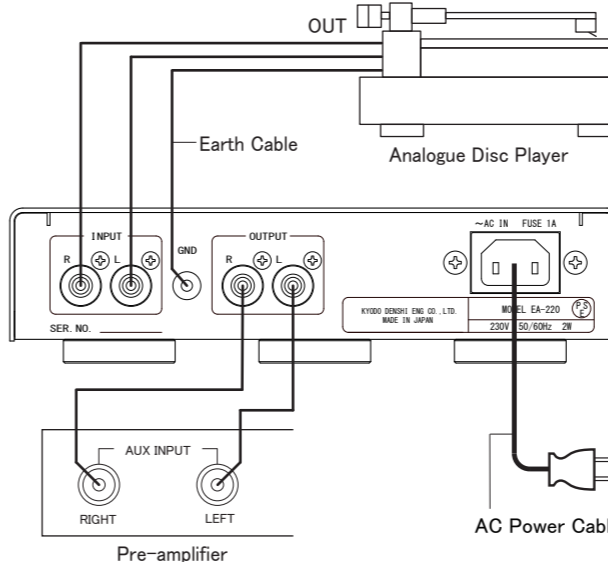
- ① **POWER Switch** Turns the power on or off. If the switch is pressed, the power is turned on.
- ② **POWER Indicator** The power indicator lights up blue when the circuit condition is stabilized. Right after the power switch is turned on or the FUNCTION switch is switched to MM or MC, it lights up red and a sound is not outputted until the circuit condition becomes stabilized.
- ③ **FUNCTION Changeover Switch** Set the FUNCTION switch to the MC position when an MC cartridge is used; set it to the MM position for an MM cartridge or for an MC cartridge with a high output voltage of 1.5mV or more. In order to prevent a noise generation, the equipment is designed so that the sound is not outputted right after switching the FUNCTION switch to MC or MM. (② POWER Indicator: red) The sound is outputted after the ② POWER indicator is changed to blue.

Rear Panel



- ④ **Phono Amplifier Input Terminal** Connect the signal wires of your analogue disc player with L and R respectively.
- ⑤ **Phono Amplifier Output Terminal** Connect the EA-220 OUTPUT terminals to the input terminals for line level (150 to 250mV) such as AUX terminals of the pre-amplifier. \* Do not connect them to the phono input terminals of a pre-amplifier having a built-in phono amplifier. Due to the excessive input, the sound will be distorted.
- ⑥ **Earth Terminal (GND Terminal)** Connect the earth cable of the analogue disc player with the GND terminal.
- ⑦ **Power Inlet Terminal** Connect the attached AC power cable to the power inlet terminal.

Connection



Trouble Shooting Guide

In case the equipment does not operate properly, check out the followings.

Troubles	Causes	Measures
The power indicator is not lit.	<ul style="list-style-type: none"> <li>● The AC power cable is not plugged in completely.</li> </ul>	<ul style="list-style-type: none"> <li>● Insert the AC power cable into the socket firmly.</li> <li>● Firmly insert the AC power cable into the AC inlet terminal of this equipment.</li> </ul>
The sound does not come out.	<ul style="list-style-type: none"> <li>● The signal wires are not plugged in completely.</li> </ul>	<ul style="list-style-type: none"> <li>● Insert the signal wires completely.</li> </ul>
	<ul style="list-style-type: none"> <li>● The type of cartridge used and the FUNCTION changing switch do not match.</li> </ul>	<ul style="list-style-type: none"> <li>● Match the FUNCTION changing switch (MM/MC) to the cartridge (MM/MC) to be used.</li> </ul>
Sound is distorted.	<ul style="list-style-type: none"> <li>● The OUTPUT terminals of this equipment are connected to the input terminal of the phono of pre-amplifier.</li> </ul>	<ul style="list-style-type: none"> <li>● Connect to the input terminal for line level (such as AUX) of pre-amplifier.</li> </ul>
Hum sound comes out.	<ul style="list-style-type: none"> <li>● Connection of signal wire is not enough.</li> <li>● The earth cable from the analogue disc player is not connected.</li> <li>● A power supply transformer or motor of other electric device is placed nearby.</li> </ul>	<ul style="list-style-type: none"> <li>● Plug in the signal wires completely.</li> <li>● Connect the earth cable completely.</li> <li>● Place this equipment apart from a power supply transformer or the motor of another electric device.</li> </ul>
Sound does not come out immediately after switching on the power supply.	<ul style="list-style-type: none"> <li>● Sound does not come out until the condition of internal circuit is stabilized.</li> </ul>	<ul style="list-style-type: none"> <li>● Wait until the power indicator is changed to blue.</li> </ul>
The power is turned off and a hollow sound comes out after a while.	<ul style="list-style-type: none"> <li>● This is the sound due to a short circuit to be driven in this equipment.</li> </ul>	<ul style="list-style-type: none"> <li>● The sound is normal.</li> </ul>

Specifications

Model	MM/MC Non-Feedback Type Phono Amplifier	
	MM	MC
Function	MM	MC
Input Level	2.5mV	0.12mV
Input Impedance	47k Ohm	470 Ohm
Gain	38dB	64dB
Input Equivalent Noise	-120dBV	-140dBV
Maximum Allowed Input	90mV	4mV
Rated Output Voltage	200mV (1kHz)	
RIAA Curve Deviation	±0.5dB (20 to 20k Hz)	
Power Requirement	AC120V 60Hz (U.S.A) AC230V 50/60Hz (Europe)	
Power Consumption	2W	
Dimensions	W220mm x H57mm x D228mm	
Mass	2.6kg	

Accessories: AC power cable

●Dimensions and specifications are subject to change without notice in order to improve it.

Phasemation

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Phasemation is the original audio brand of Kyodo Denshi Engineering Co., Ltd.