

M-3XE User Guide

MONOBLOCK POWER AMPLIFIER

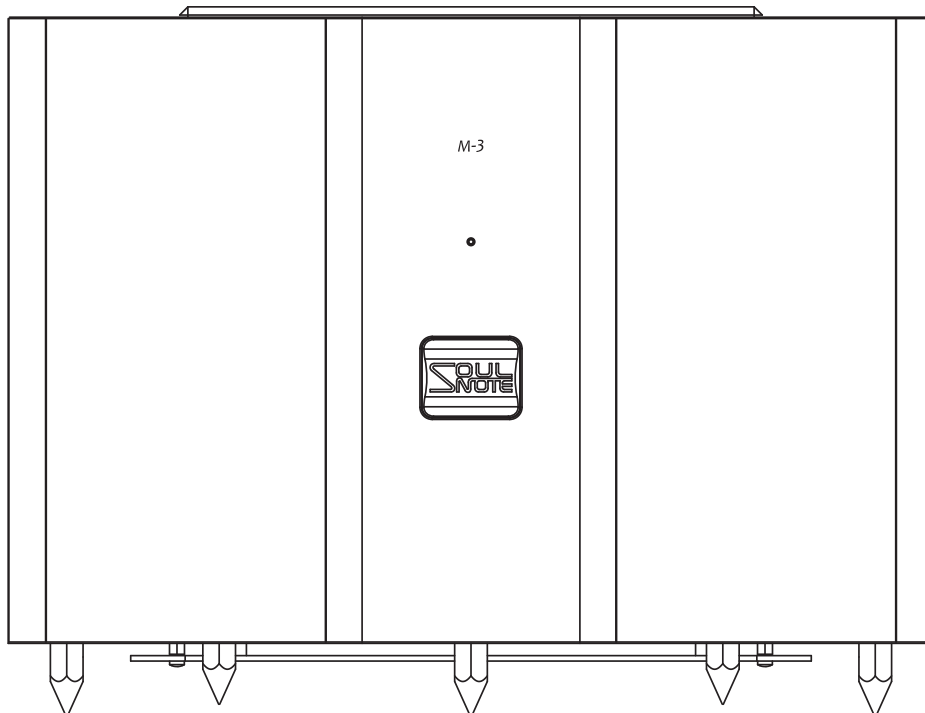


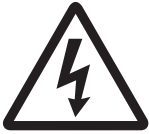
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Supplied Accessories

• Power cable	1	• Hex wrench (for special rack).....	1
• Speaker cables	2	• Spike pins (for special rack)	3
• Special rack.....	1	• Hex wrench (for spike pins).....	1
• Poles (for special rack).....	3	• Installation plate*	1
• Fixing washers (for special rack).....	3	• Plate fixing tape*	6
• Fixing screws (for special rack).....	3	* This is supplied only with products whose serial number ends with "A".	
		• User Guide (this manual)	1

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 product.

WARNING

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

A warning that an apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.

IMPORTANT SAFETY INSTRUCTIONS

READ BEFORE OPERATING EQUIPMENT

This product was designed and manufactured to meet strict quality and safety standards. There are, however, some installation and operation precautions which you should be particularly aware of.

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.



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.
- Never use the unit with any other cord except the supplied power cord.

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.
- When the switch is in the OFF position, the equipment is not completely switched off from MAINS.
- The equipment shall be installed near the power supply so that the power supply is easily accessible.

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.

Following the provisions of Low Voltage Directive 2014/35/EU and EMC Directive 2014/30/EU.

A NOTE ABOUT RECYCLING:

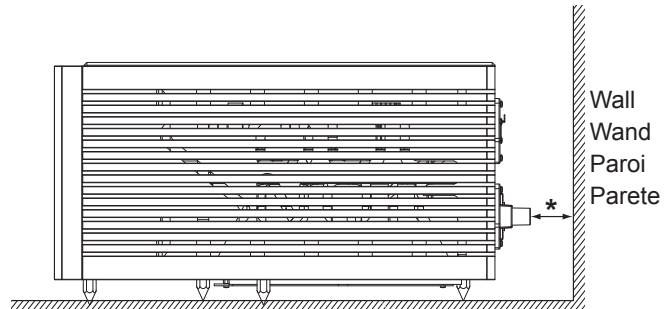
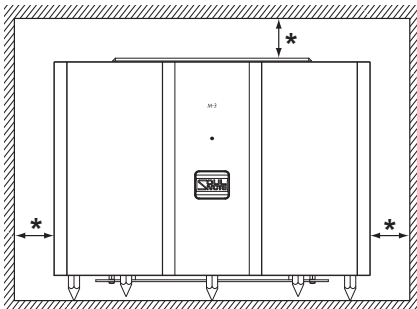
This product's packaging materials are recyclable and can be reused. Please dispose of any materials in accordance with the local recycling regulations. When discarding the unit, comply with local rules or regulations.

Batteries should never be thrown away or incinerated but disposed of in accordance with the local regulations concerning battery disposal. This product and the supplied accessories, excluding the batteries, constitute the applicable product according to the WEEE directive.



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CAUTIONS ON INSTALLATION



*** For proper heat dispersal, do not install this unit in a confined space, such as a bookcase or similar enclosure.**

- Leave sufficient clearance (at least 10 cm) from the wall, (at least 5 cm) from top surface of the unit.
- Do not place any other equipment on this unit.

Features of This Product

Newly developed transistor pairing method

We have developed a new precise pairing method to match the fluctuation rate of hfe (current amplification factor), which consistently changes on the time axis due to transistor current changes during music playback. This method involves inputting hfe measurement data for a large number of transistors at various current values, calculating the Euclidean distance for all combinations, and then selecting transistor pairs that are within the standard value (a level that can be called identical if measurement errors are taken into account). Doing so has enabled us to achieve a “blur-free parallel push-pull” comparable to a single push-pull. The output stage transistors are a pair of industrial TO3 (metal can), the same type used in the M-3. The driver stage also incorporates the TO3P transistors to easily drive these two TO3 transistors for a total of four Darlingtons construction stages.

Bus bar and copper plate heat sink integrated design

For the main heat sink, a copper plate heat sink that is lightweight and compact to an extent not possible in conventional high output amplifiers was adopted. This heat sink also functions as a bus bar to power the can-type transistor. The terminals of the can-type transistor are mounted directly to the circuit board provided underneath and pass through the bus bars. This eliminates the need for wiring—a drawback of conventional can-type transistors, and removes instability otherwise caused by inductance components while also eliminating any deterioration in sound quality otherwise caused by insulating sheets used to dampen the device. Further, the sound quality aspects such as transparency and the feeling of openness are greatly improved owing to the heat sink being physically separated from the chassis. We proudly call this heat sink “a kill three birds with one stone” design. Furthermore, by eliminating the insulating sheet, the temperature coupling of the transistor pair has been increased, and the blurring of the time axis due to temperature changes has been eliminated.

Voltage amplification stage employs a non-negative feedback (NFB) differential circuit (new Type-R circuit) redesigned specifically for power amplifiers

This product is equipped with a differential circuit without any gain, an emitter follower, and a single transistor that provides full voltage swing amplification. The load resistance in this transistor is a “ground one-stage amplification single-ended non-NFB circuit” that connects only to the ground. This new type-R circuit was created using only four bipolar transistors and ten resistors to extract ideal full swing output across a wide spectrum, even though this configuration is substantially the same as that used for single ended tube amplifiers. This ideal non-NFB circuit is the benchmark that all other such hi-end products will be measured against.

Extremely simple configuration

The M-3 was born from our realization that large current power amplifiers should be dedicated to a single function. The M-3 features just one input terminal and one pair of speaker terminals. This product is a single-function monoblock power amplifier and is free of selectors and attenuators, in effect achieving a virtually switch-free design. The signals input from the XLR terminal travel directly to the base of the first stage transistor, undergo single stage amplification, and then are output via a single push-pull circuit. The only component to be operated is the power switch. Rest assured, this product contains no unnecessary circuits or components whatsoever, such as a microcontroller.

Ultra-low copper loss 1600 VA non-epoxy resin-filling toroidal power transformer

We developed a large power transformer that is carryable by one person alone. This massive power transformer is mounted vertically to the front panel so that any leakage flux travels parallel to the circuit board, and the power transformer is both suspended on titanium washers and grounded by a single spike pin located directly underneath, thereby ensuring that harmful vibrations do not get transmitted to the chassis.

High-speed non-NFB power supply

For the commutating capacitors, specially selected and nominal 470 uF high resistance, small capacity, and low magnification foil-type filter capacitors are adopted. By optimizing capacity in accordance with the number of capacitors used and minimizing the load of the power transformer, regulation in this extremely powerful power transformer is further improved in real-terms. The rectifier diode uses newly adopted SiC diodes with the latest specs in which the allowable inrush current value has been bolstered. The result of this is an unimaginably powerful and fast power supply configuration.

Amplifier container totally separated from the main chassis, the amplifier container and the main chassis each being supported by three spike pins

Three spike pins support the main body and another three spike pins support the amplifier container for a total of six spike pins in the M-3/M-3X. While keeping the amplifier container and the main chassis completely physically separated from each other, the power supply line from the power transformer has been shortened to eliminate any negative impact related to vibrations or leakage from the transformer. The breathtaking sound quality achievable by this ideal construction can be experienced by removing the transportation screws. Rest assured, the top cover, AC adapter, speaker terminals, input terminal, and bottom cover are all non-rigid parts.

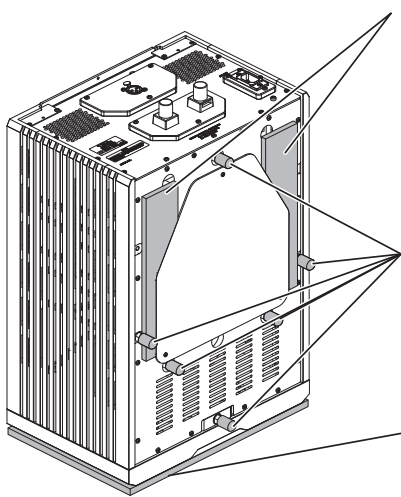
- For more detailed information, refer to our website or Facebook page.
https://www.kcsr.co.jp/eu_soulnote.html

Before Installation

■ Removing transport cushions

When unboxing this product, be sure to remove the transport cushions.

With the pads left attached, the intended audio quality of this product cannot be fully enjoyed.



(2) Remove the rear cover cushion (red) by pulling the rear cover cushion towards the rear panel side.

(3) Remove the spike pin protective caps. (two rubber caps per spike pin).

Note: After removing the caps, be sure to handle this product with extreme care. The tips of the spike pins are extremely sharp and can cause unexpected bodily harm and damage to your surroundings such as shelving, floors, and so on.

(1) In order to prevent damage to your surroundings, stand this product upright with the cushion plate for protecting the front panel during unboxing left attached.

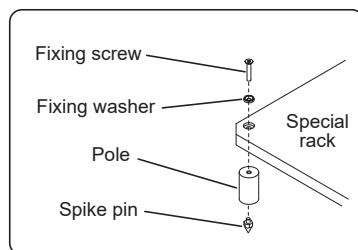
⚠ Cautions

- In interest of placing the utmost priority on the sound quality of this product, the top cover, the bottom cover, and the rear terminal panel are intentionally left unsecured.
- This product may make a noise when it is picked up but rest assured, this is not an abnormality.
- When transporting this product, reinsert the transport cushions into their original locations and put this product back into the box.
- The tips of the spike pins are extremely sharp. After removing the transport caps, exercise sufficient caution to prevent bodily harm. Also, be sure to use the special rack that comes with this product to prevent the spikes from damaging the surfaces of your surroundings such as tables, shelving, floors, and so on.

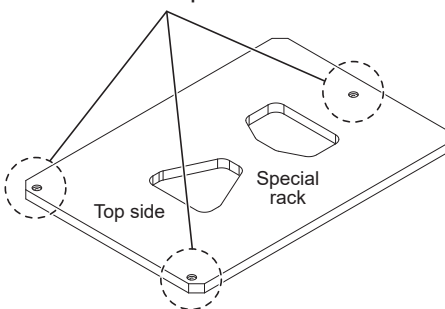
■ Special rack assembly

Attach poles to the supplied special rack (three locations).

- Attach the poles to the flat surface side.
- The side on which the area around the holes is recessed is the top side (the side on which you install this product). Attach the fixing washers and the fixing screws from this side.



Attach the poles at three locations.



Note: To avoid a situation where the spike pins cause deep scratching to a surface where this product is installed, use this product with the spikes removed. Be aware that the poles are made of aluminum and can cause damage to the floor even if the spike pins are removed.

Installation Procedure

First, place the special rack and adjust the position and orientation. After placing the special rack, place this product on the special rack.

Note: Regarding the orientation of the special rack, the side where the two poles are located is the front side.

(1) Place the installation plate on the special rack.

Notes:

- The installation plate is supplied with a serial number that ends in the letter "A".
 - Set down the special rack and the installation plate together in an aligned state (front surface and side surfaces) and then secure them together with the supplied plate fixing tape.
- (2) Align this product with the cushions that are affixed to the installation plate and then set this product down directly from above.
- (3) In a top-down view, adjust the position of this product such that the outer circumference of the recessed hole of the screw located on the rear side of the special rack aligns with the position of the tip of the speaker terminal.

Note:

- When doing so, exercise care because if this product is moved in a dragging fashion, this will cause the installation plate to move.
- (4) Minutely adjust the position of this product such that the notches of the installation plate and the position of the spike pins of this product are aligned.
- (5) Remove the plate fixing tape affixed to the installation plate and pull the installation plate toward the front panel side.

Notes:

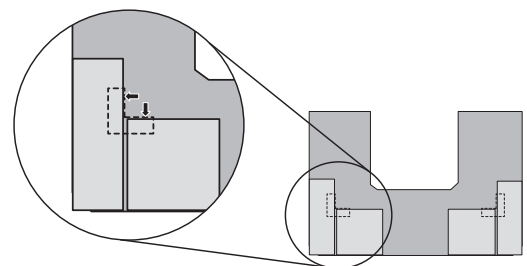
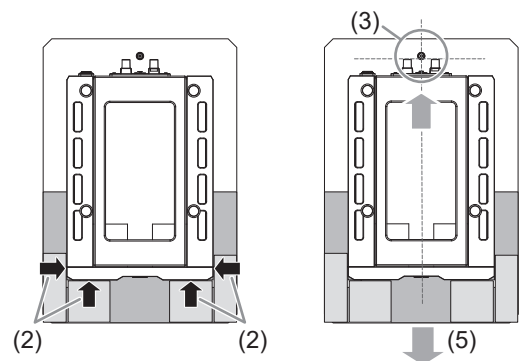
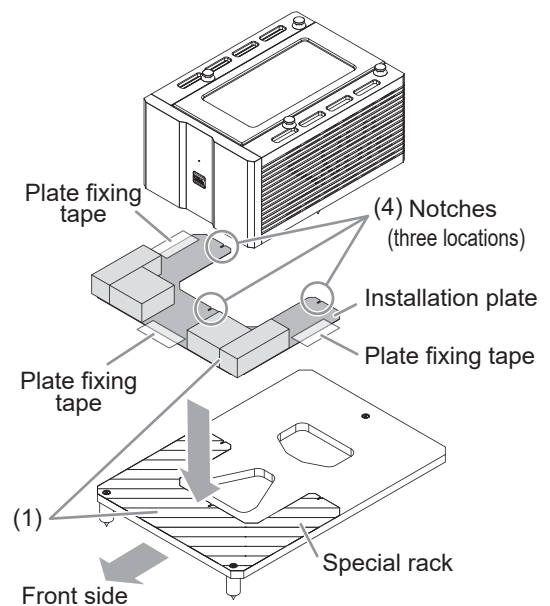
- The tips of the spikes of this product and the special rack are extremely sharp. Exercise extreme caution to prevent bodily harm or damage to your surroundings.
- This product is extremely heavy so exercise extreme caution when installing this product. Failure to do so may cause unexpected bodily harm or damage to your surroundings.

Note:

- If the positions of this product and the special rack become greatly misaligned, the spike pins of the amplifier container may slide off the special rack. Should this happen, you will be unable to enjoy the intended sound quality of this product.

Note:

- If you find that the cushions are in a detached state when unboxing this product, please reattach the cushions in accordance with the L-shaped holes on the special rack.



■ Amplifier container

⚠ Cautions

- At the time of purchase, the amplifier container is hung from the top surface of this product. Remove the screws from the top surface to let down the internal amplifier container, thereby physically separating the amplifier container from this product.

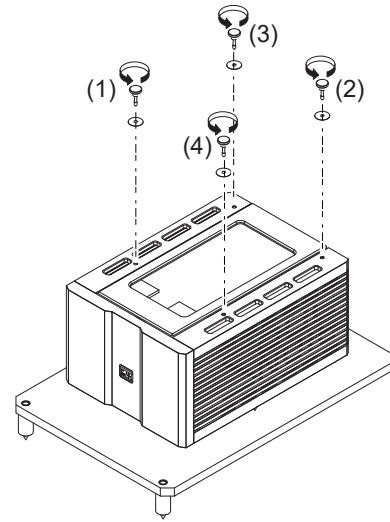
Installation procedure of the amplifier container

As shown on the right, turn the screws (1) and (2) (or (3) and (4)) in the direction of the arrows to remove them.

Next, simultaneously turn the screws (3) and (4) (or (1) and (2)) in the direction of the arrows to let down the amplifier container.

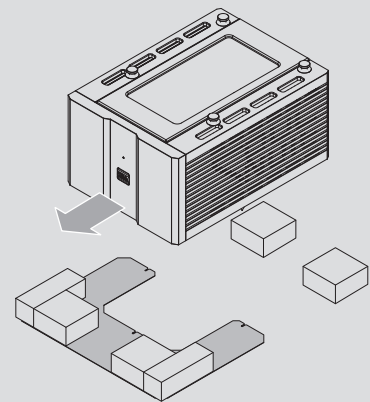
Notes:

- After removing the screws, check the four screw holes from directly above. If the screw holes inside are greatly misaligned with the ones on the top surface, the amplifier container might have gone down diagonally. In such a case, the spike pins might touch the base plate, preventing this product from operating sufficiently. To solve this problem, lift up this product and then put it straight down. By lifting up this product, the placement of the amplifier container can be corrected. After putting down this product, check the screw holes from directly above. If the screw holes are still misaligned, repeat the procedure above.
- When lifting up this product, use the installation plate to protect this product and the surrounding area.

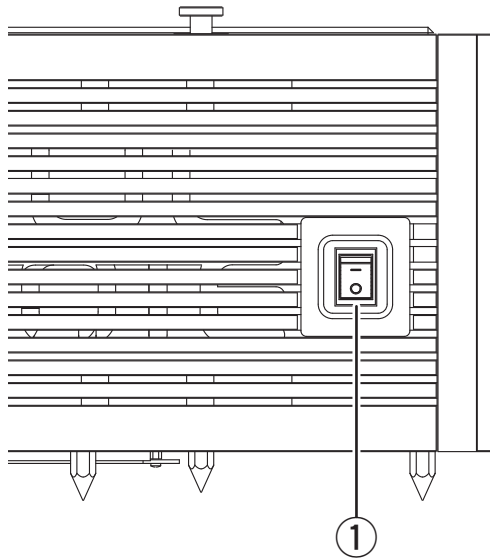


Note:

- When transporting this product, to secure the amplifier container, perform the procedure above in reverse and tighten the screws all the way. Place the installation plate and the supplied cushions such that you can put down this product on them. Put down the front panel side of this product on the installation plate and the corners of the rear panel side on the cushions. By doing so, the spike pins can be arranged in a raised state, thereby correcting the placement of the amplifier container. This will help you tighten screws easily.

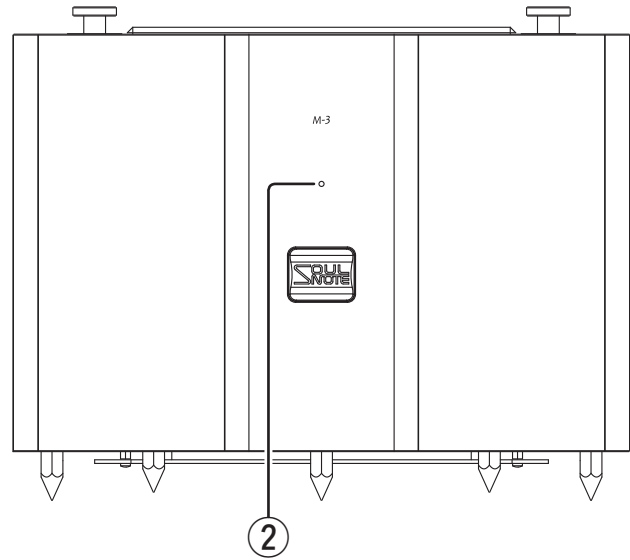


Front Panel Names and Functions



① Power Switch

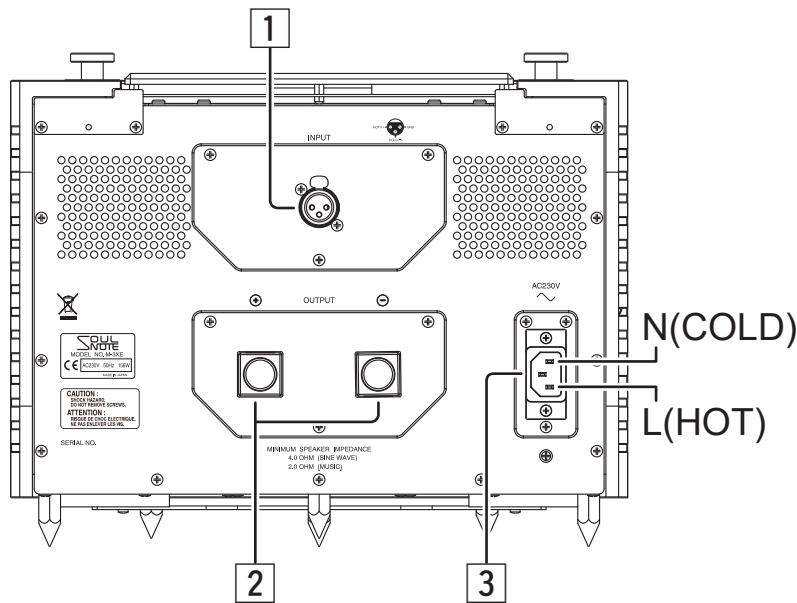
Press the “-” side to turn on the power and press the “o” side to turn off the power.



② Power Indicator

Lights yellow when the power is on. Lights white when unmuted.

Rear Panel Names and Functions



1 Input Terminals (XLR)

These terminals are used to input balanced audio signals via an XLR connector cable. Pin 2 is HOT and pin 3 is COLD.

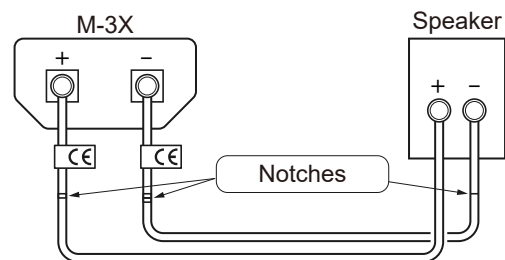
2 Speaker Terminals

These terminals are used for speaker connections. To each of these speaker terminals, 2.7-ohm or higher speakers can be connected.

Notes:

- Turn off the power before connecting a cable to the input terminal or the speaker terminal, or before reconnecting speakers that are connected via speaker cables.
- Due to the superior frequency characteristic of the main unit, DO NOT connect any devices other than speakers. Connecting a speaker selector or measuring equipment causes a high-frequency connection of the input GND and the output GND, which may result in protection circuit activation or malfunction of the main unit.
- Whenever possible, keep the speaker cables and input cable apart from each other.
- While each of output terminals consist of the ⊕ (red) and ⊖ (black) polarities, speaker systems also have the ⊕ and ⊖ polarities. Be sure to connect ⊕ to ⊕ and ⊖ to ⊖ (except for BTL connections).
- **Use the supplied speaker cables to achieve higher audio quality.**

- Notes on the supplied speaker cables
Pay attention to the polarity of the speaker cables. Connect the side with the CE label to the speaker terminal of this product.



Notches

- None : Connect to the + terminal of the speaker.
- 1 : Connect to the – terminal of the speaker.
- 2 : Connect to the + terminal of the amplifier.
- 3 : Connect to the – terminal of the amplifier.

3 AC Inlet

Connect to a 230 V AC wall outlet (mains) with the supplied power cable.

Notes:

- The ground terminal and the housing are not connected.
- **Use the supplied power cable to achieve higher audio quality.**

Note:

- When connecting the power cable to the AC inlet, securely hold the front panel and insert the plug all the way.

Troubleshooting

No sound is output.

- Check that the power of the main unit is on.
- Check the connections of the external devices.
- Check that the power of the external devices is on.
- Check that the operations and settings on the external devices are correct.
- Check the connections of the speaker system.

Maintenance

When the equipment has become dirty, wipe it clean using a soft cloth. To remove stubborn stains, dilute some dish-washing liquid in 5 or 6 times as much water, soak a soft cloth in the solution, wring it out well, wipe away the stains, and then wipe the surfaces dry with a dry cloth.

Never use alcohol, paint thinners, benzine, insecticides or other volatile substances since they may mar or remove the surface gloss.

Bear in mind that rubbing surfaces with a chemical cleaning cloth or leaving such a cloth in contact with a surface for an extended time may result in deterioration.

Specifications

Maximum output.....	240 W (2.7 ohm)
Total harmonic distortion	0.1% (1 W)
Frequency characteristic	2 Hz to 200 kHz (±1dB)
Input sensitivity/Impedance	2 V/25 kohm
Gain.....	22dB
Power voltage.....	230 VAC, 50 Hz
Power consumption.....	156 W
	38 W (when no sound)
Maximum external dimensions	
.....	340 mm (W) x 251 mm (H) x 512 mm (D)
Weight	31 kg



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