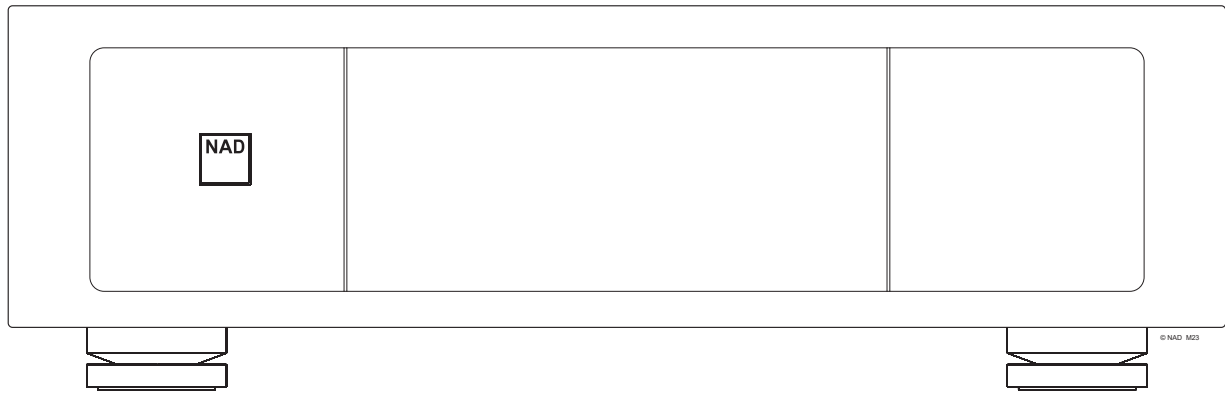




M23

Stereo Power Amplifier




Owner's Manual

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS FOR LATER USE.

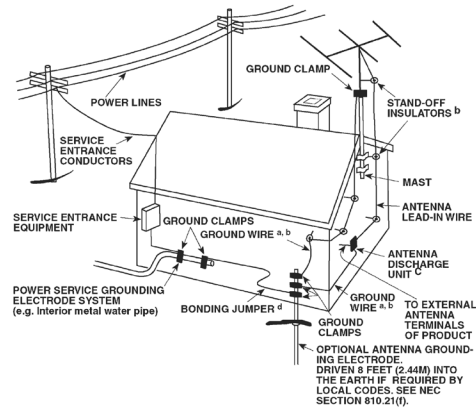
FOLLOW ALL WARNINGS AND INSTRUCTIONS MARKED ON THE AUDIO EQUIPMENT.

- 1 Read instructions** - All the safety and operating instructions should be read before the product is operated.
- 2 Retain instructions** - The safety and operating instructions should be retained for future reference.
- 3 Heed Warnings** - All warnings on the product and in the operating instructions should be adhered to.
- 4 Follow Instructions** - All operating and use instructions should be followed.
- 5 Cleaning** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 6 Attachments** - Do not use attachments not recommended by the product manufacturer as they may cause hazards.
- 7 Water and Moisture** - Do not use this product near water—for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
- 8 Accessories** - Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
- 9**  A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
- 10 Ventilation** - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
- 11 Power Sources** - This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.
The primary method of isolating the amplifier from the mains supply is to disconnect the mains plug. Ensure that the mains plug remains accessible at all times. Unplug the AC power cord from the AC outlet if the unit will not be used for several months or more.
- 12 Grounding or Polarization** - This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- 13 Power Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

- 14 Outdoor Antenna Grounding** - If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer's attention to Section 820-40 of the NEC which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



- 15 Lightning** - For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
- 16 Power Lines** - An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
- 17 Overloading** - Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
- 18 Object and Liquid Entry** - Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

WARNING: THE APPARATUS SHOULD NOT BE EXPOSED TO DRIPPING OR SPLASHING, AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THE APPARATUS. AS WITH ANY ELECTRONIC PRODUCTS, USE CARE NOT TO SPILL LIQUIDS INTO ANY PART OF THE SYSTEM. LIQUIDS CAN CAUSE A FAILURE AND/OR A FIRE HAZARD.

19 Damage Requiring Service - Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a) When the power-supply cord or plug is damaged.
- b) If liquid has been spilled, or objects have fallen into the product.
- c) If the product has been exposed to rain or water.
- d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- e) If the product has been dropped or damaged in any way.
- f) when the product exhibits a distinct change in performance-this indicates a need for service.

20 Replacement Parts - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

21 Safety Check - Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

22 Wall or Ceiling Mounting - The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

23 Heat - The product should be situated away from heat sources such as radiators, heat registers, stoves or other products (including amplifiers) that produce heat.

WARNING

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

CAUTION

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.



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 MAYBE 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.



The equipment draws its nominal non-operational power from the AC outlet with its POWER switch at the ON position.

The socket-outlet shall be installed near the apparatus and shall be easily accessible.

CAUTION

Changes or modifications to this equipment not expressly approved by NAD Electronics for compliance could void the user's authority to operate this equipment.

CAUTION REGARDING PLACEMENT

To maintain proper ventilation, be sure to leave a space around the unit (from the largest outer dimensions including projections) that is equal to or greater than shown below.

- Left and Right Panels: 10 cm
- Rear Panel: 10 cm
- Top Panel: 10 cm

IMPORTANT SAFETY INSTRUCTIONS

NOTES ON ENVIRONMENTAL PROTECTION



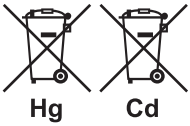
At the end of its useful life, this product must not be disposed of with regular household waste but must be returned to a collection point for the recycling of electrical and electronic equipment. The symbol on the product, user's manual and packaging, point this out.

The materials can be reused in accordance with their markings. Through re-use, recycling of raw materials or other forms of recycling of old products, you are making an important contribution to the protection of our environment. Your local administrative office can advise you of the responsible waste disposal point.

INFORMATION ABOUT COLLECTION AND DISPOSAL OF WASTE BATTERIES (DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF EUROPEAN UNION) (FOR EUROPEAN CUSTOMERS ONLY)



Batteries bearing any of these symbols indicate that they should be treated as "separate collection" and not as municipal waste. It is encouraged that necessary measures are implemented to maximize the separate collection of waste batteries and to minimize the disposal of batteries as mixed municipal waste.



End-users are exhorted not to dispose waste batteries as unsorted municipal waste. In order to achieve

a high level of recycling waste batteries, discard waste batteries separately and properly through an accessible collection point in your vicinity. For more information about collection and recycling of waste batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

By ensuring compliance and conformance to proper disposal of waste batteries, potential hazardous effects on human health is prevented and the negative impact of batteries and waste batteries on the environment is minimized, thus contributing to the protection, preservation and quality improvement of the environment.

RECORD YOUR MODEL NUMBER (NOW, WHILE YOU CAN SEE IT)

The model and serial number of your new M23 are located on the back of the cabinet. For your future convenience, we suggest that you record these numbers here:

Model no.:
Serial no.:

WHAT'S IN THE BOX

Packed with your M23 you will find

- A detachable mains power cord
- Four pieces of magnetic feet
- USB flash drive
- Cleaning cloth
- Quick Setup Guide

QUICK SETUP GUIDE

In case you simply cannot wait to experience the performance of your new M23, the following QUICK SETUP GUIDE is recommended to help you get started.

Ensure that the M23 is unplugged before making any connections. It is also advisable to power-down or unplug all associated components while making or breaking any signal or AC power connections. Set the external source's volume control to minimum level. External source can be a preamplifier, processor, amplifier or any applicable device.

- 1 Set SELECT switch to BALANCED or SINGLE-ENDED. It is important that the selection for AUDIO INPUT must be the same for both L (left) and R (right) channels.
- 2 Connect the analog audio output of your external source to the M23 rear panel's BALANCED or SINGLE-ENDED audio input.
- 3 Connect your speakers to the LEFT and RIGHT SPEAKERS terminals of M23.
- 4 Ensure that the supplied power cord's female connector end is firmly secured to M23's AC Mains input socket and the male plug connected to the mains power source.
- 5 Power up the external source ahead of the M23.
- 6 Set to ON the rear panel POWER switch of M23. The M23 goes to standby mode as shown by the amber status condition of the Power indicator.
- 7 Press **⏻** (Standby) button for the M23 to be powered up from standby mode. The Power indicator will turn from amber to bright/white color. The M23 is ready for operation.
- 8 Adjust the external source's volume control according to desired listening level.

SAVE THE PACKAGING

Please save the box and all of the packaging in which your M23 arrived. Should you move or otherwise need to transport your M23, this is by far the safest container in which to do so. We've seen too many otherwise perfect components damaged in transit for lack of a proper shipping carton, so please: Save that box!

NOTES ON INSTALLATION

- Your unit should be placed on a firm, level surface.
- Avoid placing the unit inside a closed cabinet that is not well ventilated as this may compromise the M23's performance and reliability.
- Avoid placing the unit in direct sunlight or near sources of heat and damp.
- Allow adequate ventilation.
- Do not place the unit on a soft surface like a carpet.
- For best performance, use quality speaker leads of 16-gauge (1.5mm²) thickness or more.
- If the unit is not going to be used for some time, disconnect the plug from the mains power source.
- Use a dry cloth for cleaning.

DO NOT REMOVE THE COVER; THERE ARE NO USER-SERVICEABLE PARTS INSIDE.

BARE WIRES AND PIN CONNECTORS

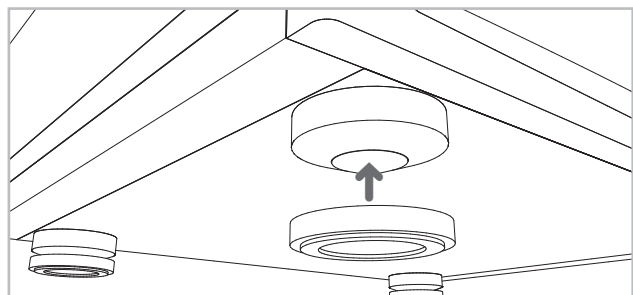


WARNING: The terminals marked with this symbol are hazardous live. External wiring connected to these terminals requires installation by an instructed person or the use of ready-made leads or cords.

Bare wires and pin sockets should be inserted into the hole in the shaft of the terminal. Unscrew the speaker terminal's bushing until the hole in the screw shaft is revealed. Insert the pin or bare cable end into the hole and secure the cable by tightening down the terminal's bushing. Ensure bare wire from the speaker cables does not touch the back panel or another socket. Ensure that there is only 1/2" (1cm) of bare cable or pin and no loose strands of speakers wire.

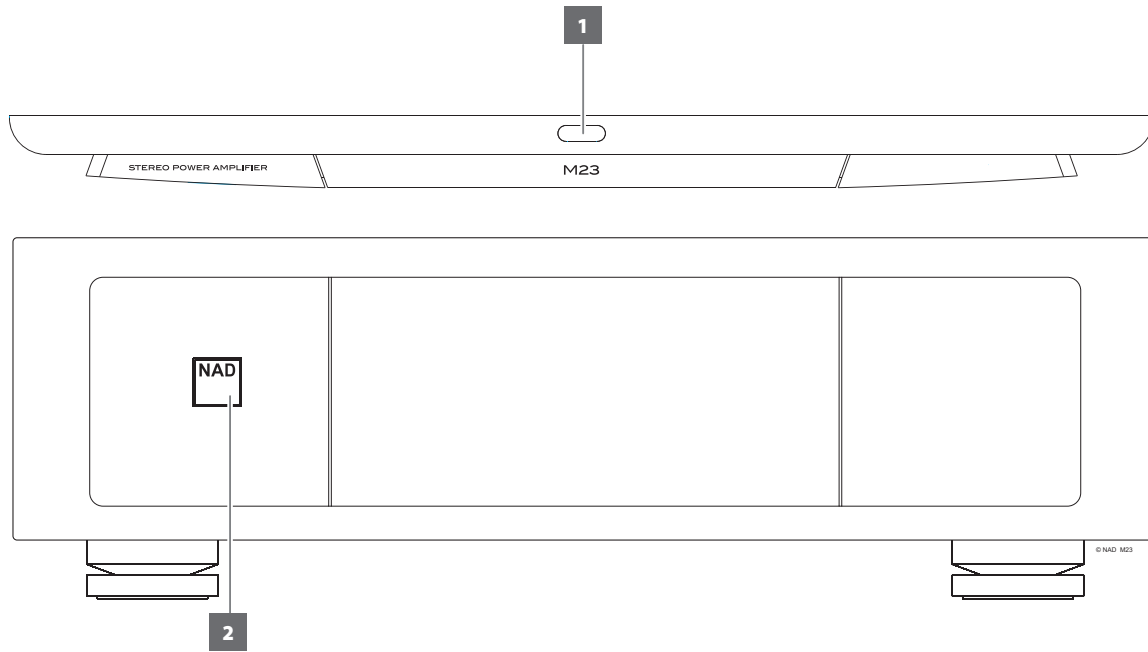
FEET INSTALLATION

The supplied magnetic feet can be easily installed by aligning and attaching them to their corresponding foot shoe. Refer to the illustration below.






IDENTIFICATION OF CONTROLS


FRONT PANEL



1 (STANDBY)

- Press  (Standby) button for the M23 to be powered up from standby mode. The Power indicator will turn from amber to bright/white color.
- Press and hold  (Standby) button until M23 switches back to standby mode. The Power indicator will turn to amber color at standby mode.
- The  (Standby) button cannot activate the M23 with the rear panel POWER switched off.

IMPORTANT NOTE

For the  (Standby) button to activate, two conditions must be completed.

- *Plug-in the supplied mains power cord to a mains power source. Connect corresponding end of the mains power cord to the AC mains input of M23 and the plug connected to a mains power source.*
- *The rear panel POWER switch must be set to ON position.*

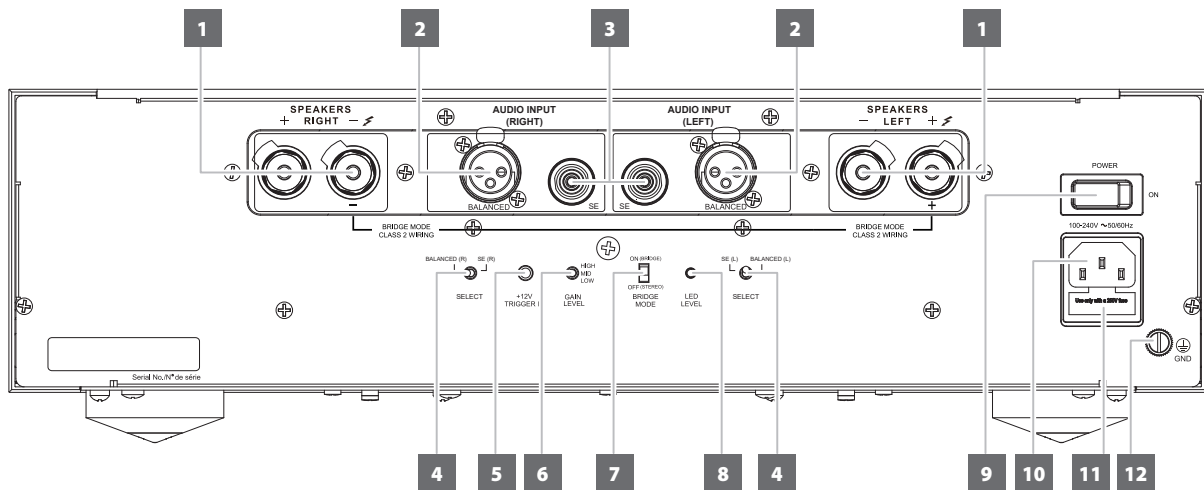
2 POWER INDICATOR (NAD LOGO)

- The NAD logo in the front panel also serves as a Power indicator.
- Power indicator colors
 - Bright/white: Normal operating mode
 - Amber: Standby mode
 - Red: Protect mode

PROTECT MODE

If the POWER INDICATOR turns red, this indicates that the protection circuitry of the M23 had been engaged. Immediately press the Standby button, turn off Power switch and then unplug the power cord from the mains power source. Undertake the following

- Check if all speaker wires are connected correctly and that none of the wires are damaged, causing a short circuit.
- Another cause may be excessive heat build-up inside the amplifier. Make sure there is adequate ventilation around the amplifier and that none of its ventilation slots, top or bottom are blocked. After the amplifier has cooled down, it will function normally again.
- Do not attempt to use M23 if the Power indicator remained illuminated in red despite the checks mentioned above. Bring the M23 to an authorized NAD service center for proper inspection, testing and consequent repair if necessary.



ATTENTION!

Ensure that the M23 is unplugged before making any connections. It is also advisable to power-down or unplug all associated components while making or breaking any signal or AC power connections.

1 RIGHT SPEAKERS, LEFT SPEAKERS

- M23 is equipped with gold-plated, color-coded, transparent and special high-current binding-post speaker terminals.
- Connect RIGHT SPEAKERS and LEFT SPEAKERS terminals to corresponding speakers. Make sure the "+" (red) terminal and "-" (black) terminal are connected to the corresponding "+" and "-" terminals of the speaker. Use extra care to ensure that no stray wires or strands cross between posts or terminals at either end.
- M23 is designed to produce optimum sound quality when connected to speakers with impedances within its operating range. Make sure that all the speakers are rated 4 ohms minimum per speaker.

NOTE

Use stranded wire of at least 16 gauge (AWG). Connections to M23 can be made with banana plugs or by using bare wire or pins. Use the transverse hole through the post for bare-wire or pin connections. By loosening the terminal's nut, make a clean, neat connection and re-tighten carefully. To minimize the danger of short circuit, ensure that only 1/2-inch of exposed wire or pin is employed when connecting.

2 BALANCED

- Use BALANCED audio input for external sources that are equipped with BALANCED audio output. Superior audio quality is ensured with the distinctive noise reduction capability of BALANCED connection with XLR jacks.
- If BALANCED is the selected audio input, ensure that the SELECT switches for both L (Left) and R (Right) channels of AUDIO INPUT are set or switched to the direction of BALANCED.

PIN CONFIGURATION OF BALANCED XLR JACK

- Pin 1: Ground
- Pin 2: Positive (signal live)
- Pin 3: Negative (signal return)

IMPORTANT NOTES

- Always power down M23 and other components in the system before connecting or disconnecting anything to the BALANCED audio input jacks.
- Before powering up M23 from standby mode for the first time, make sure that the volume control of the external source is set to minimum level position. This prevents inadvertently beginning a session at excessive volume.

3 SINGLE-ENDED

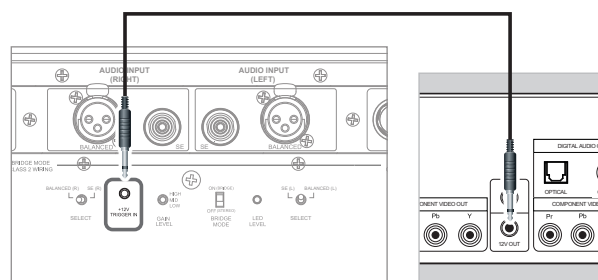
- Use SINGLE-ENDED audio input for sources (preamplifiers or processors) that are not equipped with BALANCED analog audio output.
- If SINGLE-ENDED is the selected audio input, ensure that the SELECT switches for both L (Left) and R (Right) channels of AUDIO INPUT are set or switched to the direction of SINGLE-ENDED.

4 SELECT

- Use this switch to select the type of audio input.
- If SINGLE-ENDED is the selected audio input, ensure that the SELECT switches for both L (Left) and R (Right) channels of AUDIO INPUT are set or switched to the direction of SINGLE-ENDED.
- If BALANCED is the selected audio input, ensure that the SELECT switches for both L (Left) and R (Right) channels of AUDIO INPUT are set or switched to the direction of BALANCED.

5 +12V TRIGGER IN



- The +12V Trigger input allows the M23 to be switched remotely from standby to operating mode and vice-versa by an ancillary equipment such as a preamplifier, AV processor, etc. The controlling device must be equipped with a 12V trigger output to use this feature.



IDENTIFICATION OF CONTROLS

REAR PANEL

WARNING

The front panel  (Standby) button is disabled as long as the male plug of the mono cable (with or without +12V DC) is connected to M23's +12V TRIGGER IN. Unplug the mono cable for the M23 to be powered up from standby mode to operating mode and vice-versa using the front panel  (Standby) button.

6 GAIN LEVEL (LOW/MID/HIGH)

- Gain level adjustment allows the source to be played back at the same volume level so you don't need to adjust the volume every time you change to a new source.
- The Gain Level of the M23 can be set to any of the following - LOW (19dB), MEDIUM (24dB) and HIGH (29dB).

7 BRIDGE MODE



M23 can be configured to be MONO (ON/BRIDGE), more than doubling its output power. This way, M23 can be used as part of a high power stereo or home-theatre system, by connecting additional power amplifiers.

- In BRIDGED MODE (switch at ON/BRIDGE setting), M23 will produce approximately 700W into an 8 ohm loudspeaker. In this mode, the amplifier sections will react as though the speaker impedance has been halved. Low impedance speakers (under 8 ohms) are not recommended when using Bridge Mode as these may cause the amplifier's thermal cut-out to operate if played at high levels.
- Set the BRIDGE MODE switch to ON/BRIDGE position and connect the speaker to the terminals marked "L +" and "R-" ensuring that the "L+" is connected to the "+" terminal of your speaker and the "R-" is connected to the speaker's "-" terminal.
- Connect the source to Left Audio Input ports only. Do not connect anything to Right Audio Input ports when Bridge Mode is selected.
- Set BRIDGE MODE switch to OFF/STEREO for normal operation.

8 LED LEVEL (DIMMER)

- Press repeatedly to turn off or adjust the brightness level of the Power indicator.

9 POWER

- The AC mains power to M23 is regulated by the POWER switch. When the POWER switch is set to ON position, M23 goes to standby mode as shown by the amber status condition of the Power indicator. Press  (Standby) button to power up M23 from standby mode.
- If you intend not to use the M23 for long periods of time (such as when on vacation), switch off the POWER switch.
- The  (Standby) button cannot activate M23 with the rear panel POWER switched off.

10 AC MAINS INPUT

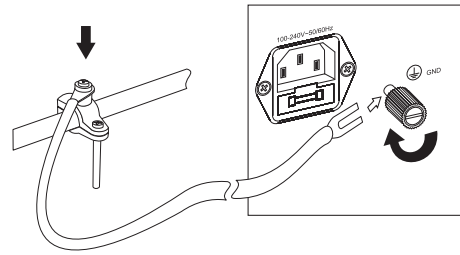
- M23 comes supplied with a detachable power cord.
- Ensure that the supplied power cord's female connector end is firmly secured to M23's AC Mains input socket and the male plug connected to the mains power source.
- Always unplug first the power cord from the mains power source before disconnecting the female connector end from M23's AC Mains input socket.

11 FUSE HOLDER

- Only qualified NAD service technicians can have access to this fuse holder. Opening this fuse holder may cause damage thus voiding the warranty of your M23.

12 GROUND TERMINAL


- Ensure M23 is plugged-in to a grounded AC wall outlet.
- If a separate earth ground is necessary, use this terminal to ground your M23.
- M23 can be connected to ground by connecting a ground lead wire or similar to this terminal. After insertion, tighten the terminal to secure the lead.





AUTO STANDBY

The M23 can be setup to automatically go to standby mode if there is no active source input within 30 minutes. Auto standby mode can be enabled or disabled by the following steps.

Enable Auto Standby mode

- At operating mode, press and hold  (Standby) button for greater than 15 seconds and release. The Power indicator (NAD logo) flashes three times.
- With Auto Standby enabled and unit at operating mode, the M23 will automatically go to standby mode if there is no active source input within 30 minutes.


Disable Auto Standby mode

- At operating mode, press and hold  (Standby) button for greater than 15 seconds and release. The Power indicator (NAD logo) flashes two times.
- With Auto Standby disabled and unit at operating mode, the M23 will not automatically go to standby mode even if there is no active source input within 30 minutes. Press  (Standby) to switch M23 from operating mode to standby mode.


AUTO SENSE

Auto Sense feature instantaneously turns the M23 to operating mode from standby mode if it senses input signal (minimum 20mV RMS input) applied to either the BALANCED or SINGLE-ENDED sockets.

Enable Auto Sense mode

- At operating mode, press and hold  Standby button for 10 to 15 seconds and release. The Power indicator (NAD logo) flashes three times.
- With Auto Sense enabled, the M23 will wake up from standby mode if it senses input signal applied to either the BALANCED or SINGLE-ENDED sockets.

Disable Auto Sense mode

- At operating mode, press and hold  Standby button for 10 to 15 seconds and release. The Power indicator (NAD logo) flashes two times.
- With Auto Sense disabled, the M23 will not wake up from standby mode even if it senses input signal applied to either the BALANCED or SINGLE-ENDED sockets.

Both Auto Standby and Auto Sense are defaulted to disabled mode.

REFERENCE

SPECIFICATIONS

All specs are measured according to IHF 202 CEA 490-AR-2008 standard.

AUDIO SPECIFICATIONS

Continuous output power into 8 ohms and 4 ohms (Stereo mode)	>200 W into 8 ohms >400 W into 4 ohms (20 Hz-20 kHz at 0.005% THD, both channels driven)
Continuous output power into 8 ohms (Bridge mode)	>700 W into 8 ohms (20 Hz – 20 kHz at 0.005% THD)
THD+N (20 Hz – 20 kHz, CCIF IMD, SMPTE IMD, DIM 100)	<0.005 % (100 mW to 200W, 8 ohms and 4 ohms)
Signal-to-Noise Ratio	>99 dB (A-weighted, ref. 1 W in 8 ohms) - High Gain >103 dB (A-weighted, ref. 1 W in 8 ohms) - Mid Gain >105 dB (A-weighted, ref. 1 W in 8 ohms) - Low Gain
Clipping power (Stereo mode, at 1 kHz 8 ohms 0.1 % THD)	>210 W
Clipping power (Bridge mode, at 1 kHz 8 ohms 0.1 % THD)	>700 W
IHF dynamic power (Stereo mode, at 1 kHz 1 % THD)	8 ohms: 260 W 4 ohms: 520 W
Damping factor	>800 (ref. 8 ohms)
Frequency response	±0.3 dB (20 Hz - 20 kHz)
Input sensitivity (for 200W in 8 ohms)	1.42 V High Gain level 2.53 V Mid Gain level 4.50 V Low Gain level
Gain level	Low: 19 dB Medium: 24 dB High: 29 dB
Minimum input level for Auto Trigger	3 mV at 1 kHz
Standby power	<0.5 W

DIMENSION AND WEIGHT

Gross dimensions (W x H x D)	580 x 280 x 530 mm 22 7/8 x 11 1/16 x 20 7/8 inches
Net weight	10.5 kg (23.1 lbs)
Shipping weight	17.2 kg (37.9 lbs)

* - Gross dimension includes feet and extended rear panel terminals.

NAD SHALL NOT BE HELD LIABLE FOR ANY TECHNICAL OR USER INTERFACE DISCREPANCIES IN THIS MANUAL. THE M23 OWNER'S MANUAL MAY BE SUBJECT TO CHANGE WITHOUT NOTICE. CHECK OUT WWW.NADELECTRONICS.COM FOR THE LATEST VERSION OF THE M23 OWNER'S MANUAL.



www.NADelectronics.com

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