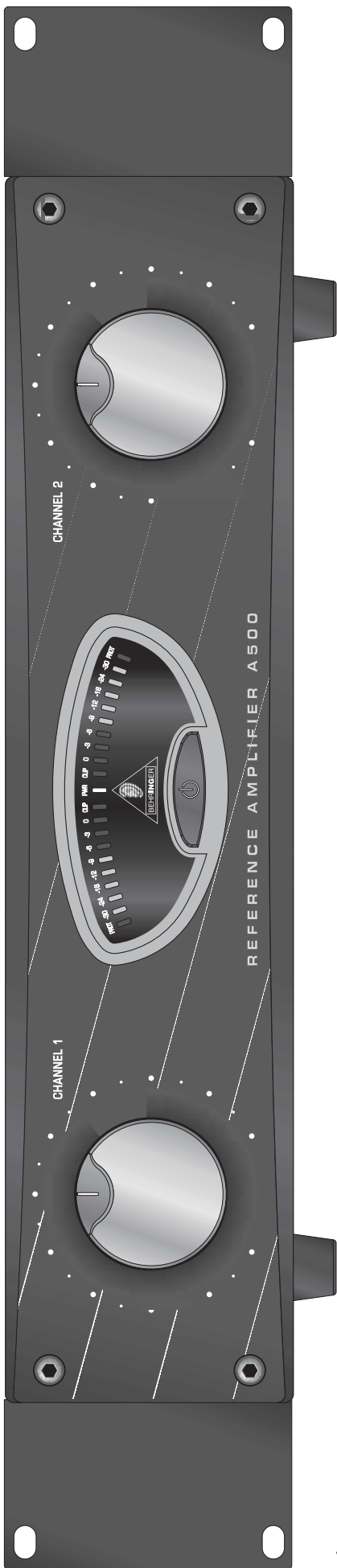


REFERENCE AMPLIFIER A500



User's manual

Version 1.0 March 2005

ENGLISH

www.behringer.com



IMPORTANT SAFETY INSTRUCTIONS



CAUTION: To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside; refer servicing to qualified personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure—voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

DETAILED SAFETY INSTRUCTIONS:

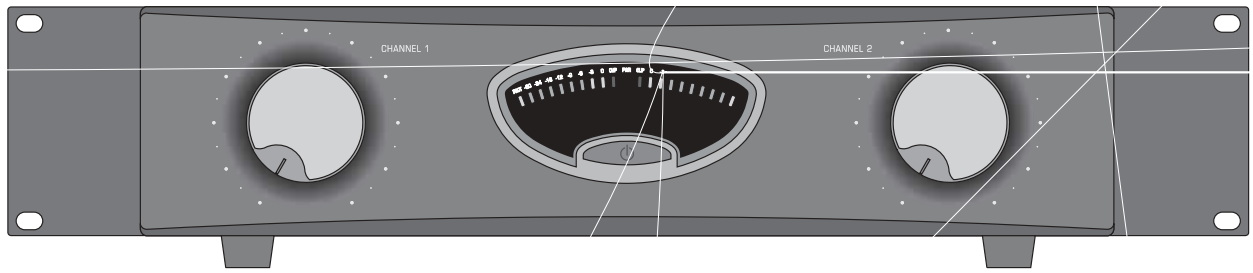
- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do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



- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) 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.
- 15) **CAUTION** - These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions unless you are qualified to do so.

REFERENCE AMPLIFIER A500

Professional 500-Watt Reference-Class Studio Power Amplifier



A500

FOREWORD

Dear Customer,

welcome to the team of BEHRINGER users, and thank you very much for expressing your confidence in us by purchasing this power amplifier.

Writing this foreword for you gives me great pleasure, because it represents the culmination of many months of hard work delivered by our engineering team to achieve a very ambitious goal: to develop a studio power amplifier, whose sound and fetures leave no wishes open, delivering a product that

is suitable for nearly all applications, from the recording studio to setting up a P.A. system for small live events.

The task of designing the A500 certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. Meeting your expectations also meant a lot of work and night shifts. But it was fun, too. Developing a product usually brings a lot of people together, and what a great feeling it is when all who participated in such a project can be proud of what they've achieved.

It is our philosophy to share our enjoyment with you, because you are the most important member of the BEHRINGER team. With your highly competent suggestions for new products you've made a significant contribution to shaping our company and making it successful. In return, we guarantee you uncompromising quality as well as excellent technical and audio properties at an extremely reasonable price. All of this will enable you to give free rein to your creativity without being hampered by budget constraints.

We are often asked how we manage to produce such high-quality devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Many satisfied customers mean large sales volumes enabling us to get better purchasing terms for components, etc. Isn't it only fair to pass this benefit on to you? Because we know that your success is our success too!

I would like to thank all of you who have made the A500 possible. You have all made your own personal contributions, from the developers to the many other employees at this company, and to you, the BEHRINGER user.

My friends, it's been worth the effort!

Thank you very much,



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1.1 Before you get started

☞ If the unit is damaged, please do NOT return it to BEHRINGER. Instead, notify your dealer and the shipping company immediately. Otherwise, claims for damage or replacement may not be honored.

☞ Always use the original packaging to prevent damage during storage or transport.

☞ Make sure that no children are left unsupervised with the A500 or its packaging.

☞ Please ensure proper disposal of all packing materials.

1.1.2 Initial operation

Make sure there is enough space around the unit for cooling. To avoid overheating, please do not place your amplifier near radiators and other equipment emitting heat.

☞ Before plugging the unit into a power socket, please make sure you have selected the correct voltage!

The fuse compartment near the power plug socket contains three triangular markings. Two of these triangles are opposite one another. The voltage indicated adjacent to these markings is the voltage to which your unit has been set up, and can be altered by rotating the fuse compartment by 180°. **ATTENTION: This does not apply to export models that were manufactured only for use with 120 V, for example!**

☞ If you alter the unit's voltage, you must change the fuse accordingly. The correct value of the fuse needed can be found in the chapter "SPECIFICATIONS."

☞ Faulty fuses must be replaced with fuses of appropriate rating only! The correct value of the fuses needed can be found in the chapter "SPECIFICATIONS."

Power is delivered via the cable enclosed with the unit. All required safety precautions have been adhered to.

☞ Please keep in mind that all your equipment has to be grounded at all times. For your own protection, never change or disable the grounding on your equipment or on the cables! The unit should always be connected to the mains socket outlet with a protective earthing connection.

ATTENTION!

☞ High volume levels can damage your hearing and your speakers. Please turn down both volume controls to the minimum (all the way to the left) before you power up the amp. Always make sure you use appropriate volume levels.

1.1.3 Online registration

Please do remember to register your new BEHRINGER equipment right after your purchase by visiting www.behringer.com (alternatively www.behringer.de) and kindly read the terms and conditions of our warranty carefully.

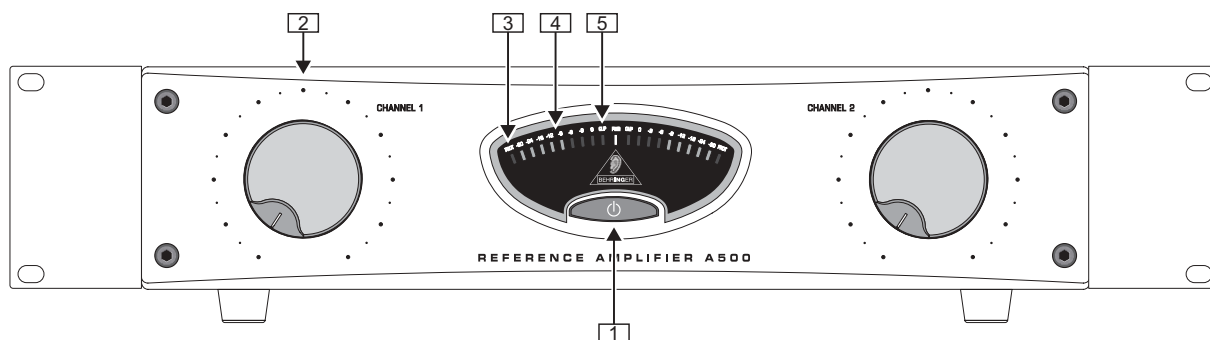
Should your BEHRINGER product malfunction, our goal is to have it repaired as quickly as possible. To arrange for warranty service, please contact the retailer from whom the equipment was purchased. Should your BEHRINGER dealer not be located in your vicinity, you may directly contact one of our subsidiaries. Corresponding contact information is included in the original equipment packaging (Global Contact Information/European Contact Information). Should your country not be listed, please contact the distributor nearest you. A list of distributors can be found in the support area of our website (www.behringer.com/support).

Registering your purchase and equipment with us helps us process your repair claims quicker and more efficiently.

Thank you for your cooperation!

2. CONTROL ELEMENTS

2.1 The front

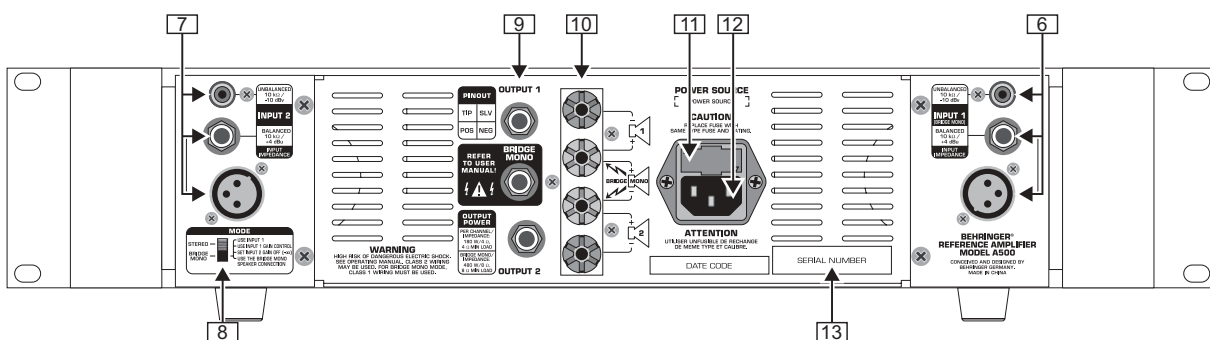


1

- ☞ Your power amp should always be the last device you power up, since some equipment in the signal path creates strong impulses which are then amplified in the amp and are passed onto the loudspeakers, possibly damaging them. Consequently, always let your power amp be the first device you power down.
- 2 Each channel features a volume control. Use it to adjust gain on your A500. Both volume controls should be turned all the way to the left whenever you power the unit up or down. If an active signal is present on the input, turning the volume down will protect your speakers and your ears from unwanted “pops” or transients.
- 3 The LED lights up whenever the protective circuitry mutes the speaker output. Please turn your A500 off immediately whenever this LED is lit.

- ☞ The protective circuitry is activated if the amp gets too hot. Let your A500 cool down a little before you turn it on again. Besides, check if the heat sink has enough space around it to perform its job.
- 4 The high-precision power indicator gives out current signal strength.
- 5 The LED lights up when the signal is distorted. Should distortion occur, reduce the input level, so that the CLIP LED no longer lights up.
- ☞ If the CLIP LED remains being lit, check the cable connection to the speakers because there might be a short on the speaker output.

2.2 The back




- 6 Connect the signal source whose output needs to be amplified.
- ☞ Please use only one of the three input connectors per channel at any one time!
Here you will connect an output of your mixing console, your HiFi preamp or another signal source.
Our rack mixing console EURORACK PRO RX1602, with its eight mono-usable balanced stereo channels, is an ideal choice for signal processing and source selection.
The connections for both channels are laid out as RCA, XLR and 1/4" TRS stereo connectors. The cinch inputs are intended for use with outputs laid out as unbalanced signals with a -10 dBV line signal level. Because these inputs are more sensitive than others, you can directly connect a CD player or a DAT recorder. Of course this input can also be used for connecting mixing consoles and similar equipment.
The XLR and 1/4" TRS stereo connectors are laid out balanced, but they too can of course be used to connect unbalanced signals. Their sensitivity is +4 dBu (also see ch. 4).
Generally speaking, you should choose balanced over unbalanced signals in order to guarantee the highest noise protection.
Due to safety considerations, the inputs can not be used in parallel. However, if you are using cinch and XLR or 1/4" TRS connectors simultaneously, the cinch input is given preference, and the other signal is muted.
- ☞ If you wish to use the A500 in mono-bridged mode, please only use one of the channel 1 inputs!
- 7 These are the inputs for channel 2.

- 8 The switch is used to toggle between the two operating modes of your A500.
- ☞ Please power the A500 down using the POWER switch each time you change the operating mode. Similarly, only connect/disconnect speaker connectors if the A500 has first been powered off!
- 9 and : These are the speaker connectors of your A500 laid out as 1/4" TS mono connectors. When in mono-bridged mode, only use the BRIDGED MONO output.
- ☞ Keep in mind the minimum power impedance of 4 Ohms per channel in stereo mode. When in mono-bridged mode, a loudspeaker whose impedance is at least 8 Ohms must be used.
- 10 In addition to XLR or 1/4" TRS connectors, you can also use binding posts for connecting speaker cables. When in mono-bridged mode, make sure to connect your cables to both middle connectors—as shown on the unit itself.
- 11 Before connecting the unit to the mains, please check if the voltage selector corresponds to your local voltage. When replacing fuses, you should only use fuses of the same type and rating. With some units, the fuse switch can be put into two different positions in order to select between 230 V and 120 V operation. Please bear in mind: If you wish to use your equipment outside of Europe running on 120 V, you will have to use a fuse with a higher Ampere value.
- 12 The mains connection is made via a standard . A matching cable is enclosed.
- 13

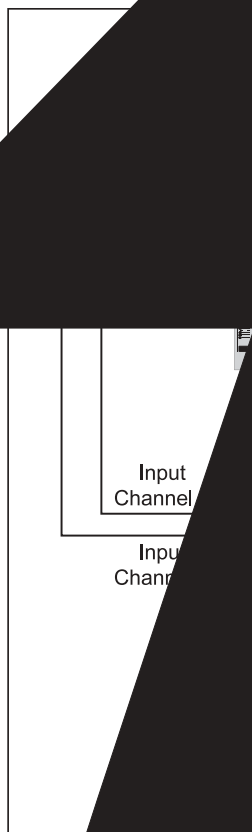
3. APPLICATION

3.1 Stereo

In this mode, both channels run the same input signal. Connect passive or active quality studio monitors, such as the JBL A500. Set the STEREO/BRIDGED MODE selector to enable stereo mode.

 Please use the POWER button on the JBL A500 before making mode settings.

 Keep in mind that the JBL A500 is a 4 Ohms per channel speaker.



☞ The A500 has massive heat sinks on its side frame that guarantee reliable operation. Never block air supply to these heat sinks because excessive heat may damage the components inside your amp. Even though the protective circuitry guards the inside components from damage caused by excessive internal temperatures, you should still double-check where the amp is placed and inspect cable connections if you are experiencing thermal protection dropouts.

4.2 Connections

Inputs

If you wish to use XLR connections for unbalanced input signals, connect the unused pin on the XLR connector (pin 3) with the ground. No modification is needed if using mono jacks (also see ch. 4.3).

☞ Should you register distracting signals such as noise or hissing, we recommend separating the amp input from the signal source. This way, you can quickly determine if the noise originates in the equipment connected to the amp. Always make sure to completely lower amplification of both

4.3 Audio connections

Various cables are needed for different types of applications. The following illustrations show the correct wiring. Always use high-grade cables.



1 = ground
2 = hot



5. SPECIFICATIONS

OUTPUT POWER

Both channels running:
4 Ω per channel 230 W
8 Ω per channel 160 W

Mono-bridged operation:
8 Ω 500 W

DISTORTION < 0.01%

FREQUENCY RANGE 10 Hz - 25 kHz, +0/-1 dB

CROSSTALK typically 85 dB @ 1 kHz

NOISE -100 dB, 20 Hz - 20 kHz, unweighted

AMPLIFICATION 25x (28 dB)

CONTROLS Gain controls (channels 1 and 2)

SWITCHES POWER switch;
STEREO/BRIDGED
MONO switch

INDICATORS

Rejection display -30 to 0 dB, clip

Protective circuitry PROT LED, yellow

AUDIO INPUTS

Type Balanced XLR and
1/4" TRS stereo connectors,
cinch connectors

Impedance 10 k Ω (unbalanced),
10 k Ω (balanced)

INPUT SENSITIVITY

V RMS (@ 4 Ω) XLR and 1/4" TRS stereo
connectors:
1.3 V (+4.5 dBu)
Cinch connectors:
320 mV (-10 dBV)

AUDIO OUTPUTS

Type 1/4" TS mono connectors
and "touch-proof" binding posts

COOLING Convection-type cooling

PROTECTIVE CIRCUITRY against: short circuit and
thermal overload

OUTPUT CIRCUIT TYPE Push-pull Class AB

POWER SUPPLY

Voltage USA/Canada
120 V~, 60 Hz
China 220 V~, 50 Hz
Europe/U.K./Australia
230 V~, 50 Hz
Japan 100 V~, 50 - 60 Hz
general export model
120 V/230 V~, 50 - 60 Hz

Power consumption max. 3.6 A 230 V / 6.5 A 120 V

Breaker 100 - 120 V~: T 10 A H 250 V
200 - 240 V~: T 5 A H 250 V

Mains connector Standard IEC receptacle

DIMENSIONS/WEIGHT

Dimensions (H x W x D) approx. 19" (482.6 mm) x 10.85"
(257.5 mm) x 4" (101.6 mm)

Weight approx. 18.5 lbs (8.4 kg)

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