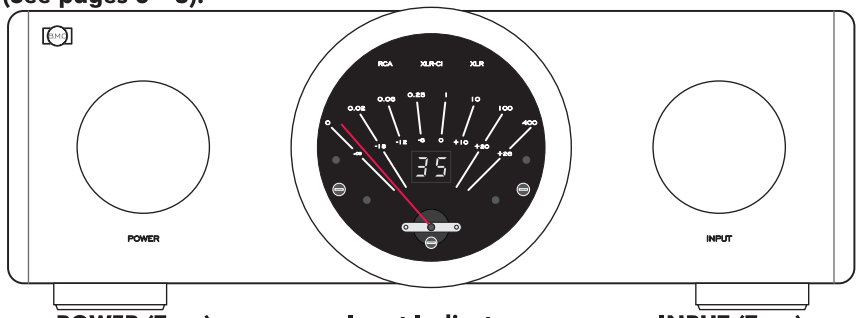
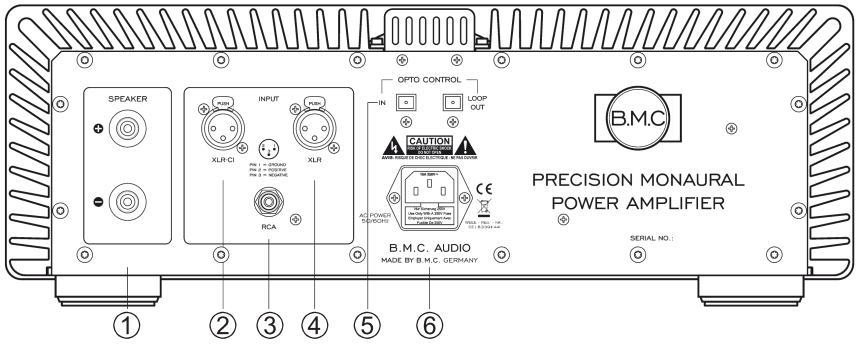
B.M.C. Audio AMP M1
Quick Start Guide

Attention! The AMP M1 has two different modes of operation, depending on whether an optical DIGM signal is present or not: It features adjustable gain in DIGM mode, or maximum gain, which is typical for traditional power amplifiers! The latter gain is usually too much if the signal comes from a fixed level output source. The XLR-CI input is only activated if an optical DIGM signal is present. This is the safest mode of DIGM operation (See pages 6 – 8).



POWER (Turn) **Input Indicator Power Meter DIGM Display** **INPUT (Turn)**



Traditional Power Amplifier Mode

① **Speaker Binding Post**
④ **XLR Input**
③ **RCA Input**
⑥ **AC Power Input**

Without active optical DIGM signal the AMP M1 is a traditional power amplifier with typical power amplifier gain, which equals the AMP M1's maximal amplification (DIGM 66).

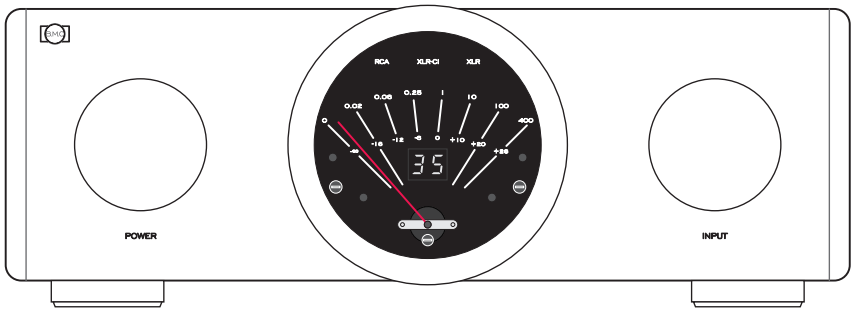
DIGM Mode

① **Speaker Binding Post**
② **XLR-CI Input**
⑤ **Optical DIGM Input**
⑥ **AC Power Input**

To work in DIGM Mode the AMP M1 needs an optical waveguide connection to a B.M.C. Audio unit with DIGM control, such as the DAC1, and this unit must be switched on!

You will find detailed descriptions and illustrations in this manual.

AMP M1
Owner's Manual



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Technical Specifications

Output Power	200 Watt / 8 Ohm, 380 Watt / 4 Ohm
Frequency Response 20Hz – 20kHz, 1W (DIGM Mode)	-0.08dB
Bandwidth 1W / -3dB (DIGM Mode)	2Hz – 180kHz
Signal/Noise in Power-Amplifier-Mode (rel. Pmax)	101dB
The following Signal/Noise Ration can be achieved in DIGM Mode only	
Signal/Noise at DIGM 57 (relative to Pmax)	110dB
Signal/Noise at DIGM 40 (relative to Pmax)	125dB
Signal/Noise at DIGM 40 (relative to 1W)	105dB
THD+N at 1 Watt, 1kHz	0.01%
THD+N from 50mW to 50W, 1kHz	under 0.02%
THD+N under 0,1%	from 0.3 mW to 150 Watt
Damping Factor (8 Ohm, 10W)	250
Inputs balanced	Balanced XLR and Balanced Current Injection XLR-CI
Input unbalanced	Unbalanced RCA
Input Impedance	50kOhm to ground, 100kOhm differential at XLR,
Input Impedance, CI Current Injection Input	1.5kOhm serial at XLR-CI
Input Sensivity	max. 750mV/RCA, 1.5V/XLR
Volume Adjustment (with external DIGM Control)	DIGM in 66 precise 1dB increments
Speaker Output	1 Stereo-Pair with gold plated binding posts
AC Voltage	AC 100V, 115V or 230V, 50/60 Hz
Power Consumption	110W – 800W
Dimensions Enclosure (W x D x H)	435 × 405 × 138 mm
Dimensions incl. Legs, Knobs and Terminals	435 × 450 × 150 mm
Weight	40kg
Note: Technical specifications and design are subject to change without notification. All specifications without warranty.	

Content of Packing

- AMP M1
- Power Cable
- Optical DIGM Waveguide
- Owner's Manual

Please keep the packing for eventual later transportation.

Volume, Power and dB

DIGM volume setting

DIGM = Discrete Intelligent Gain Management
The AMP M1's amplification (gain) can be adjusted by an external DIGM controlling device (f.i. the DAC1). This, however, is not done in the traditional way by attenuating the input level, but by losslessly adjusting the gain to the actual requirements. The gain adjustment is done in precise 1 dB steps, which are indicated by the LED display: 00 - 66.
At DIGM 39 the gain is approximately 1:1.
At DIGM 57 the gain is so high that a full scale signal from a digital device with standard level output (f.i. BMC DAC1) will bring the AMP M1 close to its maximum, without pushing it into clipping.
(For analog devices, there is unfortunately no well-defined limit.)
At DIGM 00 the input is switched off in order to suspend any signal.

Power Meter in Watt and dB

The Power Meter displays the output power in Watt, with 4-Ohm speakers, and in dB, relative to 1 Watt.

Since these electromechanical instruments are innately too slow for musical impulses, an electronic circuit analyzes the signal at the speaker output, and memorizes the result until the needle has been able to display it.

The dB level indicator refers to 0dB = 1 Watt.

Decibels (dB) is related logarithmically to power in the following way:

-30dB = one thousandth of the power

-20dB = one hundredth of the power

-10 dB = one tenth of the power

-6dB = a quarter of the power

-3 dB = half the power

+3 dB = twice the power

+6 dB = fourfold the power

+10 dB = tenfold the power

+20 dB = hundredfold the power

+26 dB = fourhundredfold the power

+30 dB = thousandfold the power

Introduction

Congratulations on the purchase of this exceptional Mono LEF-power amplifier! We would like to say thank you for supporting our concept of a very short signal path, for a consistent BMC chain has the advantage of being able to select just the required gain. In addition, the unique XLR-CI-input offers extreme sound purity which is a crucial step closer to the intense experience of music.

The great power supply with 2kW toroid transformer, Balanced-Current Capacitors and complete stabilization, for the power section as well, is laid-out unusually eleborate and sophisticated. Its unwavering silence is the ideal basis for explosive power outbursts as well as for the playback of the very finest details.

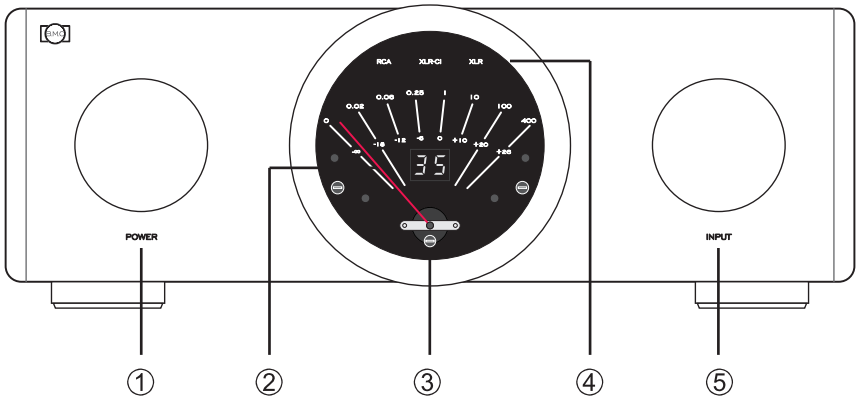
B.M.C. AMP M1 can be used as a classical power amplifier, with an unbalanced RCA input and a balanced XLR input. (The low-impedance XLR-CI input is reserved for a consistent BMC chain with optical DIGM control.) If there is no active optical DIGM control, the internal gain setting slowly increases to full amplifier sensitivity after switching on or after each input change. This is meant as a precaution to avoid unwantedly high volume levels.

B.M.C. AMP M1 can be gain-adjusted from a distance in a B.M.C.-chain with optical DIGM control, for example by the DAC1. This avoids both unnecessary high gain and
attenuation of the input signal, which can occur with traditional solutions, because the gain required for the desired sound level is set in the final amplifier stage only.

The low-impedance XLR-CI (Current-Injection) input with its outstanding tonal qualities can only be selected as a proprietary BMC solution if the optical DIGM control is active. The amplifier will be muted when there is no DIGM signal.

Please note: These two different operation modes may result in maloperation. At each start-up and each input selection the presence of an active optical DIGM control signal will be checked. If a valid optical signal is present, the AMP M1 will switch to DIGM mode, meaning the gain can be adjusted externally (f.i. by the DAC1). Loss of this signal during operation (e.g. by accidental removal of the optical wave guide or by turning off the DAC1) will mute the unit, for safety reasons.

Front Panel Functions



① POWER
Turn to switch the unit ON and OFF

② DIGM Display
Shows the selected DIGM Gain (00-66)
DIGM mode is only possible with an optical DIGM signal from a B.M.C. Audio unit with DIGM Gain Control, such as the DAC1.
Attention: When this display goes out, the AMP M1 is in Power Amplifier Mode and gain is set to maximum, that means DIGM 66!
Maximum gain is intended for classical Pre-Amplifier / Power-Amplifier use.
Never use the AMP M1 in Power Amplifier Mode with a fixed level output source!

③ POWER Meter
Shows actual power in WATT (at 4 Ohm)
Level indicator in dB, reference level 0 dB equals 1 W

④ INPUT Indicator
Shows the selected INPUT
Attention: The XLR-CI can only be selected, if an active optical DIGM signal is present!

⑤ INPUT Selector
Turn for changing INPUT.
Attention: The XLR-CI can only be selected, if an active optical DIGM signal is present!

Remote Control

The AMP M1 does not come with a remote control, so it does not have a remote control receiver. MUTE and VOLUME can be controlled via an external B.M.C. Audio DIGM control unit, such as the DAC1, if an optical fiber connection between the two is established.

NOT FOR AMP M1!

When using the shown remote control RC-1 and trying to change VOLUME or MUTE, please apply the DAC section, not the AMP section.
Aiming the remote control RC1 at the AMP M1 does not work, so please aim at the DAC1 (or some other B.M.C. Audio unit intended for controlling DIGM).

VOLUME + Up

VOLUME - Down

MUTE
Mutes the signal. (Displayed on the DAC1)
Unmute by pressing MUTE again.
Changing the volume will not unmute the signal, that can only be done by pressing MUTE again!

CE / FCC declaration, Recycling

CE Declaration of Conformity
B.M.C. AUDIO GmbH declares that this product meets the requirements of the Low Voltage Directive 73/23/EEC and Electromagnetic Compatibility 89/336/EEC as amended by 92/31/EEC and 93/68/EEC.
The conformity of this product with the regulations of Directive number 73/23/EEC (LVD) has been proven by its full compliance with the following standards:

Standard number	Date of issue	Test type
EN60065	2002	General requirements
		Marking
		Hazardous radiation
		Heating under normal conditions
		Shock hazards under normal operating conditions
		Insulation requirements
		Fault conditions
		Mechanical strength
		Parts connected to the mains supply
		Components
		Terminal devices
		External flexible cords
		Electrical connections and mechanical fixings
		Protection against electric shock
		Stability and mechanical hazards
		Resistance to fire

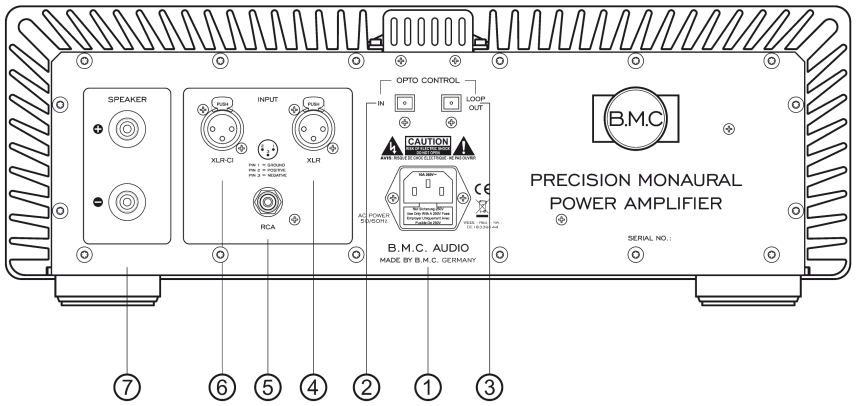
The conformity of this product with the regulations of Directive number 89/336/EEC (EMC) have been proven by its full compliance with the following standards:

Standard number	Date of issue	Test type
EN55013	2001	Conducted emissions
EN55013	2001	Absorbed emissions
EN55020	2002	Immunity

FCC notice
Note: This equipment has been tested and found to comply with the limits for Class B devices, according to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and may radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Connect this unit to a different outlet than the receiver.
Relocate or reorient the receiving antenna.
Increase space between this equipment and receiver.
Consult your HiFi dealer or an experienced radio/TV technician.

Waste Electrical and Electronic Equipment (WEEE) Directive
Waste Electrical and Electronic Equipment Directive Directive 2002/96/EC of the European Parliament and of the Council.
The bin symbol is shown on this product. It indicates that the product should not be disposed of with regular household waste, but should be disposed of separately.
Electrical and electronic equipment may contain materials that are hazardous to the environment or human health and therefore should be disposed of at a designated waste facility or returned to your retailer for appropriate recycling.
If you wish to dispose of this unit and it still functions, please consider recycling/reusing it by selling it, trading it in at your HiFi dealer for new equipment, giving it away to friends or donating it to a charity shop.

Rear Panel Functions



POWER SUPPLY

① AC LINE
Power Jack for connecting the AC power line. Your local voltage should fit to the specified voltage on the back panel.

OPTICAL DIGM CONNECTION

② DIGM OPTO CONTROL IN
Input for optical waveguide for DIGM Control

③ DIGM OPTO CONTROL LOOP OUT
Output (loop through) for optical waveguide for DIGM Control

ANALOG INPUT

④ XLR
Balanced 50 kOhm Input

⑤ RCA
Coaxial 50 kOhm Input

⑥ XLR CI
Balanced Current Injection Input, Low Impedance (1.5kOhm)
Attention: The XLR CI Input is only enabled if an optical DIGM Signal is active!

ANALOG OUTPUT

⑦ SPEAKER
Speaker binding posts for connecting 4-8 Ohm speakers

Traditional Power Amplifier Mode

TRADITIONAL POWER AMPLIFIER MODE is automatically enabled, if there is NO OPTICAL DIGM SIGNAL ACTIVE.
Traditional Power Amplifier Mode means:

- Gain is fixed at its maximum, equal to DIGM 66.
- Volume ist controlled by reducing the input signal with the help of a preamplifier.
- After turning on the AMP M1 or after changing the INPUT, volume is increased slowly from DIGM 10 to 66, so the user can still intervene (in case of maloperation), by turning the unit off, reducing the volume on the preamp, or switching to MUTE or PAUSE.
- After fading in to DIGM 66, the display will be turned off.
- **Attention: Power Amplifier Mode operating at a fixed level output source can easily lead to damaging noise levels!**
- XLR-CI Input without active optical DIGM connection will not be enabled. Thus the XLR-CI Input is very safe, because protected from accidental Power Amplifier operation.

Pictured: Meter in Traditional Power Amplifier Mode

(More about the meter on page 14.)

General Saftey Precautions

1. Read this owner's manual.
2. Keep the owner's manual.
3. Pay attention to all important safety information and warnings.
4. Follow the instructions given in the manual.
5. Never use the unit close to water or in a humid sourrounding, (f.i. near basins, in a humid basement, next to swimming pools...).
6. Only use a dry micro fiber cloth for cleaning the unit.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. If placed in a shelf make sure to keep about 15cm to each side and 30cm to the top. Do not place the unit on any soft surfaces (a sofa, a bed, thick carpets or blankets), these may block the base plate ventilation
8. Do not install the unit near any heat sources, such as radiators, stoves or other devices (including amplifiers) that produce heat.
9. Do not render the earthed AC power cables inoperative! The earthing contact pin serves your safety. If the included cable does not match your power outlet, please ask an electrician to replace the outdated power outlet.
10. Protect the unit's power cable from being walked on or being kinked, especially around the plug and outlet.
11. Only use the attachments or accessories specified by the manufacturer.
12. Only use the unit with a cart, stand, rack, or table specified by the manufacturer or sold with the unit. If using a cart, exercise caution when moving the cart unit combination to avoid injury from it tipping over.
13. Unplug the unit if there is a lightning storm or when you do not intend to use its for an extended period of time.
14. Leave all servicing to qualified service personnel. Servicing is required, if:
    The unit itself, its power cable or plug have been damaged in any way.
    Any liquids have been spilled onto the unit.
    Any objects have fallen into the unit.
    The unit has been exposed to rain or moisture.
    The unit does not operate normally.
    The unit has been dropped.
15. Connect the power cable to an easily accessible power outlet, so it can be quickly unplugged in case of an emergency.
16. Unplug the power cable form the power outlet to disconnect the unit from the power line. The AC plug should always be accessible.
17. Do not expose the unit to drips or splashes. Do not place any liquid-filled containers, such as vases, on top of the unit.
18. Do not place any sources of open fire, such as burning candles, close or on top of the unit.
19. This unit was designed to work in temperatures from 15°C to 30°C, and a maximum humidity of 80%.
20. The AMP M1 is heavy, it weighs 40 kg or about 88 lb. Please handle with care!

Important Safety Information

Explanation of the used symbols:

The lightning flash with an arrowhead, encircled by a triangle, is intended to alert the user to potential hazards of electric shock within the product's enclosure.

The exclamation mark, encircled by a triangle, is intended to point out to the user that there are important operating and maintenance (servicing) instructions in this manual.

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER OR REAR PANEL. THE UNIT DOES NOT CONTAIN ANY USER-SERVICEABLE PARTS. ANY BURNT FUSES INSIDE THIS UNIT SHOULD BE REPLACED BY QUALIFIED SERVICE PERSONNEL ONLY. PLEASE LEAVE SERVICE AND MAINTENANCE TO QUALIFIED SERVICE PERSONNEL. REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER OR REAR PANEL. IT DOES NOT CONTAIN ANY USER-SERVICEABLE PARTS. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING :
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Power Cord
The unit is shipped with a power cable matching the power outlets in the country of sale. Only the included power cable has been approved for use with the AMP M1.
In case of questions please consult an electrician.

DIGM Mode

DIGM Mode will be selected automatically if an optical DIGM signal is present. (DIGM = Discrete Intelligent Gain Management)
DIGM Mode means:

- Gain of the AMP M1 can be controlled without loss by an external DIGM control unit, such as B.M.C DAC1. (DIGM = Disctrete Intelligent Gain Management)
- For reasons of tonal quality the audio input signal should be received directly from a fixed level source like a CD player, a DAC or a Phono Amp, without any further preamplification or signal attenuation.
- AMP M1 shows the selected gain in the DIGM display – 66 steps from 00 to 66, each step equals 1dB.
- AMP M1 switches off in- and outputs, if the optical DIGM signal is lost during DIGM mode. This may happen by inadvertently switching off the DIGM controll unit (e.g. DAC1) or an accidentally disrupting the optical wave guide.
- After disruption and re-establishment of the optical DIGM signal, the AMP M1 can be again set to DIGM operation by turning the input switch.
- **Attention: If there is no optical DIGM signal present after turning the input switch, the AMP M1 will change to Power Amplifier Mode with maximum gain!** As a precaution, set your CD player (or other sources) on PAUSE.
- The AMP M1's XLR-CI input can only be selected in DIGM Mode. This protects the XLR-CI input from unintended usage in Power Amplifier Mode.

Pictured: Meter in DIGM Mode

(More about the meter on page 14.)

Possible Maloperations

Like every other power amplifier AMP M1 is intended for use with ONE source only. Thus it is a no-brainer using the AMP M1 in DIGM mode with XLR-CI input, OR in a traditional Pre / Power-Amplifier constellation with XLR- or RCA-input.
As the AMP M1 allows more exotic combinations, however, heightened attention is required to avoid damages due to excessive power.

Exclusion of liability: B.M.C. Audio GmbH does not accept any liability for damages caused by using a fixed outputlevel source with the AMP M1 in traditional power-amplifier mode.

It is recommended connecting a fixed outputlevel source with the XLR-CI input exclusively. A variable preamp output is the preferred source for XLR and RCA input. Anyway: It is possible (and makes perfect sense soundwise) connecting XLR and RCA to fixed outputlevel sources as well, but requires attention every time you switch on the AMP M1 or change the input: PAUSE your music source and carefully watch the DIGM display to get sure that the AMP M1 is still in DIGM mode.
In less controllable situations, like a party, we strongly recommend wiring your AMP M1 for one of the safer options only.

The logic circuit of the AMP M1 is designed in such a way that the XLR-CI input is activated only when an optical DIGM signal is present. Thus, the XLR-CI input is protected against accidental maximum amplification caused by the absence of an optical DIGM signal.
The use of the AMP M1 in a traditional Pre- / Power-Amplifier setting is as safe as any other Pre- / Power-Amplifier.
Just for mixed operation, however, heightened attention is required.

Troubleshooting

Whenever you suspect a malfunction of the unit, please first check the following list of possible causes before contacting your local HiFi dealer or the B.M.C. Audio service.

No Operation or Display
- Check that the AC-power cable is plugged in.
- Make sure that the wall outlet is live.
- Check the position of the power switch.

ERROR displayed
- An internal error occured. Please switch off the unit, wait at least 1 minute, and switch it on again. If the same error occures again, switch off the unit and contact your HiFi dealer or B.M.C. Audio service centre.

Music playback much too loud
- The AMP M1 probably is in Power Amplifier Mode, but connected to a fixed level output source. (Please read page 8.)

No music playback
- Check the interconnections of the audio system
- Check the input selection and volume level is set correctly.
- The XLR-CI input cannot be selected if there is no optical DIGM signal present.
- When the AMP M1 is in DIGM mode, please check if an optical DIGM signal is present, and whether the volume settings are correct or the unit is set to MUTE.

Remote control not working
- The AMP M1 has no remote control receiver. (See page 13.)

Note: The micro-computer inside the AMP M1 may have a "hang-up" due to electrostatic discharge or other voltage peaks. If you experience such a "hang-up", turn the unit off, and wait for about 1 minute before turning it on again.

Maintainance

- AMP M1 requires no user maintainance.
- Clean the unit with a dry micro-fiber cloth only.
- Take special care not to scratch the acrylic window.

Service

In case you have to contact the B.M.C. Audio Service Centre, please prepare the following information:

- Model-name, serial number and date of purchase.
- Name, tel. and address of the dealer.
- Precise description of the malfunction.