

# MM 200

## Monte Montgomery Signature Amp



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# MM 200

## user manual

Contents	Page
1. Introduction	2
1.1 Monte's needs	3
2. Important safety instructions	4
3. Controls and connections	5
3.1 Front side	5
3.2 Rear side	6
4. Starting up	7
4.1 Cabling and switching-on	7
4.2 Level adjustment	7
5. Functional Characteristics	8
5.1 Equalization	8
5.2 Effects	8
5.3 Footswitch	8
5.4 Mute	8
5.5 Phantom power	9
5.5.1 9V-Phantom power	9
5.5.2 48V-Phantom power	9
6. Technical Specifications	10
7. Circuit Diagram	11

## 1. Introduction

Welcome to *AER*!

Thank you for choosing the **MM 200**, the AER Monte Montgomery Signature amp.

A pleasure and a challenge to team up with Monte and meet his requirements for power and dynamics - he just needs it all: percussiveness, edge, speed, bite but at the same time a tone full, distinct and clear - this hard-core troubadour with his wild-mild, melodic power-rock needs serious gear ... serious!

All AER-systems are subtly dynamically controlled, which ensures absolute reliability in full load operation despite strikingly small sizes and little weight.

Read on carefully and have fun using your **MM 200**!

# AER The Acoustic People



MM200  
Monte Montgomery  
Signature Amp



- **Needs:**
- **Monte's playing is more than powerful**, loud and dynamic - he is making use of a lot of effect pedals - a rather electric/acoustic than acoustic/electric sound - Monte's sound!
- **The volume, as such, the percussiveness** and the almost physical attack of the instrument within his style needs a relaxed amp, with lot's of headroom, effective but "understated" dynamic control and a sound reproduction that that blends the directness and attack with a mild and melodic character.
- **A live amp, made for the stage** (sic!) that works for Monte as a Soloist, as well as with the Band, that supports him with punch and intelligibility.
- **Easy to operate, with the sound right there** - without tweaking and bending - and all the time. Ruggedness and reliability match perfectly to Monte's needs.
- **Besides that a valuable additional source** for recording especially due to superb preamps and audio-circuits along the signal pass. Line and DI-out deliver the sound at full.
- **Last, but not least, the Mute-Switch**, the "Monte Mute", a feature indispensable for Monte's needs. Push a button and the amp is completely quiet!
- **Thus:**
- **First, the speaker:** we decided for enough and appropriate speakers with equivalent sensitivity and fast response. The AER dual-cone 8", (200mm) is perfect for that! Two of them, diagonal, upright on the baffle board bundle the power. They offer a power handling of 200 Watts at 93dB @1W/1m each and qualify by a strong defined mid-range and a tight low end well capable of live sound pressure levels.
- **Second**, the engine: driven by AER's UNIV-250 Class A/B Power amp-module used in 2 x 100 W mode to drive each speaker separately. Specially designed to handle high impulses the amp handles multiples of his stated power over the first decisive milliseconds to allow the signal, the impulse, to pass without distortion.
- **Third**, features: the classic AER „singer-song-writer“ - setup with two separate channels (instrument and voice), separate gains and very musical eq's, 4 effects, effect pan, aux in, effects loop, line and DI ...
- **Fourth**, a power package, still pretty small and handy in classic AER look.

## 2. Important Safety Instructions

The following guidelines shall help minimize the risk of injury through fire or electric shock.



The lightning flash with the arrow head symbol within an equilateral triangle is intended to alert the user to the presence of unisolated 'dangerous voltage' within this product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

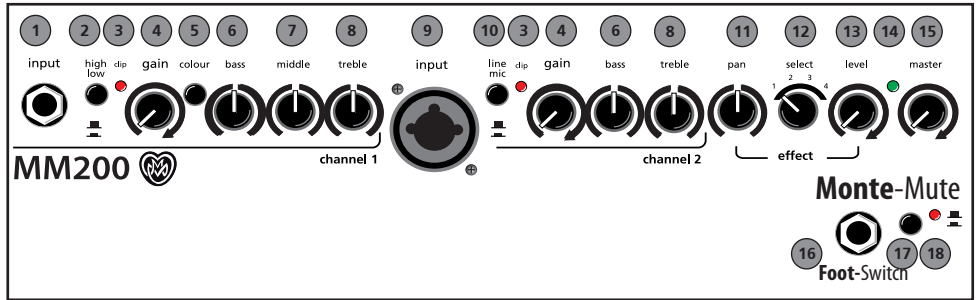


The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.

1. Carefully read these safety notes before you use the device!
2. Keep these safety notes in a safe place.
3. Pay attention to all warnings, instructions and additional texts on the unit.
4. This device was only designed for operation under normal climatic conditions (temperate climate).
5. Do not install or use your amp in close proximity to water or if you are wet yourself.
6. Do not subject your device to sudden and severe temperature changes. This could cause moisture condensation inside the unit, which could damage it. In the event of moisture condensation allow the device to dry out completely before use.
7. Use your amp in a safe place where nobody can step on cables or trip over and damage them.
8. Pay attention to an unhindered air circulation around the amp, never obstruct the air vents or grilles.
9. Always pull the mains plug before cleaning your amp or when left unused for a long period of time. Use only a dry cloth for cleaning. Avoid the use of detergents and do not let any liquids seep into the unit.
10. Use only the right fuses with the same current rating and trigger characteristic as replacements. Never mend fuses! Pull the mains plug before replacing a fuse. Should a fuse blow again after a short while, the device needs to be checked.
11. Never install your amp close to devices with strong electromagnetic fields such as large mains transformers, revolving machines, neon illumination etc. Do not lay signal cables parallel to power current cables.
12. There are no user-serviceable components inside the unit. To avoid the risk of an electric shock, the unit must not be opened. All maintenance, adjustment and repair works should be carried out by qualified staff only. Any unauthorized tampering will void the 2-year warranty.
13. In keeping with the EMV regulations screened cables with correctly fitted connectors must be used for all signal connections.
14. Always use an earthed power supply with the correct mains voltage. If you are in doubt about the power outlet ground, have it checked by a qualified technician.
15. Cable up your amp only when it is powered off.
16. This device should be installed near the socket outlet and disconnection of the device should be easily accessible. The mains plug of the power supply shall remain readily operable. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
17. This product may cause permanent hearing loss. Do not operate for long periods of time at a high volume level or at any level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
18. The product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
19. Do not place any open sources of fire, like candles, on the device.
20. Care should be taken so that objects do not fall onto the device and liquids are not spilled into the enclosure through openings. Ensure that no objects filled with liquids, such as vases, are placed on the device.
21. Do not place this device on an unstable cart, stand, tripod, bracket or table. The device may fall, causing serious injury to you and serious damage to the device itself.

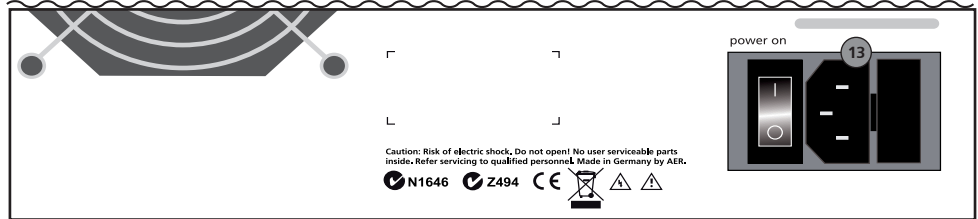
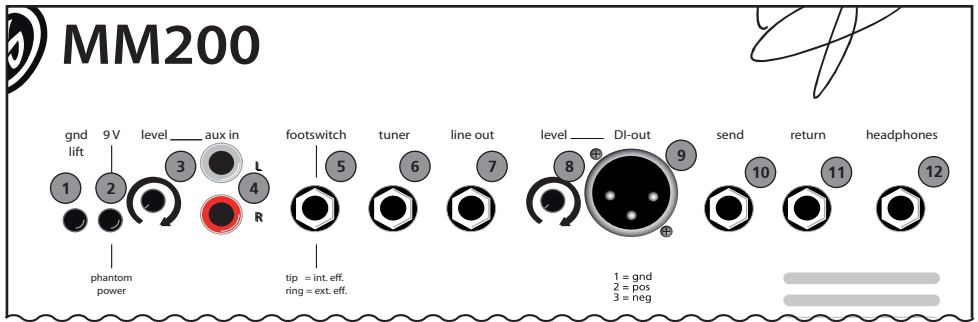


## 3. Controls and Connections



### 3.1 Front side

- |                         |   |                           |
|-------------------------|---|---------------------------|
| 1) <b>input (ch. 1)</b> | signal input, socket for 6,3 mm mono jackplug   |                           |
| 2) <b>high/low</b>      | input sensitivity switch, attenuator <input type="checkbox"/> = off <input type="checkbox"/> = on   |                           |
| 3) <b>clip</b>          | overload indicator  |                           |
| 4) <b>gain</b>          | input level control   |                           |
| 5) <b>colour</b>        | tone colour filter activation switch <input type="checkbox"/> = not active <input type="checkbox"/> = active  |                           |
| 6) <b>bass</b>          | bass frequency level control  |                           |
| 7) <b>middle</b>        | middle frequency level control  | <b>channels 1 + 2</b>     |
| 8) <b>treble</b>        | treble frequency level control  |                           |
| 9) <b>input (ch. 2)</b> | signal input, combo-socket for 6,3 mm mono jackplug and XLR-male-connectors   |                           |
| 10) <b>line/mic</b>     | signal source selector switch (combo-socket):<br><input type="checkbox"/> <b>line</b> (only via jackplug) for instruments (pickup) and other line level sources<br><input type="checkbox"/> <b>mic</b> (only via XLR-connector) for microphones |                           |
| 11) <b>pan</b>          | effect signal distribution control  |                           |
| 12) <b>select</b>       | effect select switch  | <b>efx</b>                |
| 13) <b>level</b>        | level control internal effect   |                           |
| 14) <b>power-led</b>    | on/off status indicator   |                           |
| 15) <b>master</b>       | master level control  | <b>mains &amp; master</b> |
| 16) <b>footswitch</b>   | mute footswitch input socket 6,3mm, mono, on-off  |                           |
| 17)                     | mute on-off switch  |                           |
| 18)                     | mute on-off indicator <input type="checkbox"/> = off <input type="checkbox"/> = on  | <b>mute</b>               |



### 3.2 Rear side

- 1) **gnd lift:** Signal ground/protective ground disconnecting switch to prevent hum caused by ground-loops: **off = not pressed.**
- 2) **9 V phantom power:** On/off-switch for 9 Volt phantom power (**channel 1, off = not pressed, see para. 5.4.1 on page 9.**)
- 3) **level:** Aux signal level control
- 4) **aux in L/R:** Stereo input for additional signal sources, e.g. CD-player, Cinch/RCA-sockets (**white = left channel, red = right channel.**)
- 5) **footswitch:** Stereo connection socket for a double-footswitch (**on-/off-switch, tip = internal effect/ring = external effect on/off.**)
- 6) **tuner:** The **tuner** output supplies a **pre-master signal** (mono jack socket, -10 dBV) to connect an external tuner to the **MM 200.**
- 7) **line out:** The **line out** supplies a pre-amp signal taken after tone-control, effects and **master** for forwarding to other appliances.
- 8) **level:** DI-signal level control
- 9) **DI-out:** Preamp-output (XLR male socket) with symmetrical signal, after tone-control, pre master, without effects.

**10) send:** **Send** is an output (mono jack socket) to connect the **MM 200** to an external effect device and in conjunction with **return** (input) forms a loop here designed as external effect loop. The effect can be switched on or off via footswitch.

**11) return:** **Return** (mono jack socket) as part of the effect loop operates as signal input from an external effect device (from output of the effect device). The effect can be switched on or off via footswitch. **Return** on its own can also be used as quasi auxiliary signal input (-10 dBV).

**12) headphones:** This output enables you to connect **stereo** headphones and mutes the loudspeaker. **!!! Warning: Only use headphones with stereo jackplugs in this output socket!!**

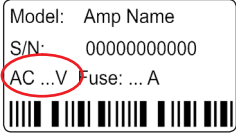


**13) power on:** Combined mains switch with mains socket and fuse holder to switch the **MM 200** on or off.

# 4. Starting up

## 4.1 Cabling and switching on

Before connecting to mains, please ensure that your local mains voltage is suitable for the voltage of the device (e.g. 120V in the USA, 230V in Europe). The relevant specs and safety symbols are printed on the rear side of the unit.



**Master-, gain- and level-control** should be **zeroed** (over to far left), **all other control** should be in **center** position, the **switches** should be **off = not pressed**.

Connect all cables according to your application and switch the amplifier on. The green power control LED indicates operational readiness.

## 4.2 Level adjustment

### Note: Level adjustment

By setting the level correctly we mean the signal level in one or several devices in a signal chain is neither too high nor too low. This applies equally to all circuits in a complete circuit design (EQs, preamps etc.)

Consequently, care must be taken that no part of the circuit is overloaded or that distortion is unintentionally added to the signal.

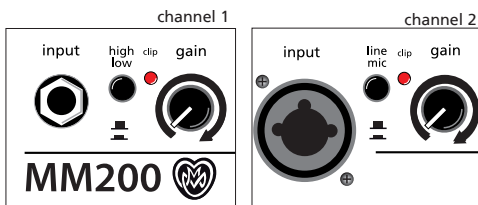
We have carefully designed the circuit to achieve this objective whilst also providing controls for „manual“ intervention.

First ensure, that the master level control is zeroed (over to far left), so that when you are setting the sound level, the signal passes through the electronics only and does not reach the loudspeaker. By pressing the **high-/low-** (attn.) resp. **line-/mic-** switches you can adapt the amplifier to your signal sources (guitar pickups, microphone etc).

Turn the **gain** control clockwise until the red **clip** indicator flashes momentarily when playing with a strong attack. Thus you make sure that your signal source (e.g. instrument) provides the input-stage of the amplifier with the necessary input.

The **clip**-LED indicates an overload. A short flicker is of no danger to AER devices. During operation a short flicker can be accepted, to be on the safe side you should reduce the **gain** slightly to achieve an optimal and distortion-free performance.

Finally set the desired overall volume level with the **master** level control.



# 5. Functional Characteristics

## 5.1 Equalization

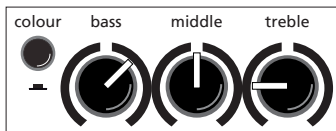
**Note:** The active equalization of the **MM 200** effects the signal adjustment. If you spot an intensified flickering of the clip indicator, level the signal level with the **gain control** (see para. 4.2 Level adjustment).

The triple-/dual-band equalizer of your **MM 200** provides you with an active and high quality sound interaction tool that supports the natural tone of instruments and voice whilst simultaneously offering you the possibility of a controlled accentuation.

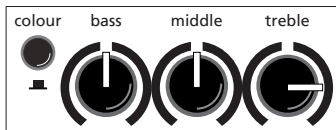
With all controls in mid position the filters are set to produce a very pleasing and natural sound impression that you can „colour up“ by using the **colour filter** with the effect of lowering the mids and lifting the trebles. The tone becomes more open and light and is especially suited for fingerpicking techniques.

The equalization can support or soften the effect of the **colour filter** and allows a differentiated mid-accentuation (see fig. below).

**A: with colour-filter** (switch pressed)  
reduce **treble** to soften possible sharpness



**B: without colour-filter** (switch not pressed)  
boost **treble** to brighten the sound



## 5.2 Effects

The **MM 200** has a built-in (internal) digital effect processor, with the **select-switch** you can choose between **4 different effects**:

- 1 = reverb 1 (short)
- 2 = reverb 2 (long)
- 3 = delay (320 ms)
- 4 = chorus

The **efx-level-control** determines the intensity of the internal effects (**left stop = no effect**).

Furthermore an additional effects unit (external effect) may be connected to the **MM 200**. For this purpose use the **send** and **return** sockets on the rear side of the amplifier (**send goes to input, return to the output** of the external effects device). The intensity of the effect is adjusted at the external effects unit.

With the **efx-pan** control the different effects are blended with the original signal. The **efx-pan** works as follows:

- left stop:** internal effect on channel 1  
external effect on channel 2
- mid position:** internal effects on channels 1 + 2  
external effects on channels 1 + 2
- right stop:** internal effects on channel 2  
external effects on channel 1

## 5.3 Footswitch

A standard double-footswitch (on-/off-switch) can be plugged into the **footswitch-socket** on the rear side of the amplifier via stereo cable. By this footswitch the internal and external effects can be switched on and off.

## 5.4 Mute Function

A standard mono-footswitch (on-/off-switch) can be connected to the **mute foot-switch-socket** on the top side of the amplifier. By this footswitch the amp can be muted (headphones, tuner and effect send are not effected). The footswitch sets the mute push button out of function.



## 5.5 Phantom power

### 5.5.1 9V Phantom power

**Channel 1** of the **MM 200** is equipped with 9V phantom power as current supply for external devices, e.g. active guitar electronics. A **stereo**-jack-cable is required for this purpose, phantom power is switched on by the **9V**-switch on the rear side of the **MM 200** and is connected to the **ring**-contact of the jack plug. Signal sources which don't require phantom power may as usual be connected via **mono** jack cable, please ensure that phantom power is switched off in that case.

**Note:** Wrong use of phantom power may damage your pickup or additional equipment. To avoid harm, please regard the following hints:

⇒ Only units which are explicitly designed for this operation purpose should be provided with 9V phantom power. In all other cases (as well if you are in doubt) keep the switch **off = not pressed**.

⇒ To be on the safe side always use **mono** jack cable, when **no phantom power is needed**.

⇒ Make sure that cables are plugged-in completely, avoid leaving the plug halfway pulled out.

### 5.5.2 48V Phantom power

The XLR-socket of **channel 2** is equipped with 48V-phantom power for microphones that require this (e.g. condenser microphones).

P.S. For further questions or suggestions contact us: [tachauch@aer-amps.com](mailto:tachauch@aer-amps.com)

### General Note: Use of 48V or 24V phantom power

(Phantom power = remote supply, here: powering an audio device via the connected audio line)

Turn on the phantom power only if the unit connected to an XLR socket is designed to handle it!

In general, suitable units are e.g. condenser microphones, active DI-boxes and other special audio devices, whose power supply is drawn from the phantom power. Such devices are also labelled accordingly; please heed the permissible power consumption (max.10mA).

High-quality dynamic microphones with a balanced signal need no phantom power, but can handle it anyway.

Other devices, which have not been designed explicitly for phantom power operation, can suffer from considerable malfunctions and damage may result as well.

**Examples of devices that may be damaged by incorrect application of phantom power include:**

Low-cost dynamic microphones with a mono jack-plug (unbalanced signal) that were fitted afterwards with an XLR connector.

Audio devices with a balanced XLR output (e.g. DI-boxes, effects devices, instrument preamps with a DI output etc.) which are not protected against phantom power applied to their XLR output. (The DI connectors on AER products are protected against applied phantom power.)

Other audio devices (such as preamps, effects pedals etc.) whose unbalanced line output was replaced by an XLR socket.

**If in doubt please consult the manufacturer of the device you are using.**

## 6. Technical Data MM 200

### Inputs (note 1)

**Channel 1** Jack 1/4" (6.35 mm), unbalanced input  
Sensitivity: 38 mV (-28 dBV)  
Impedance: 2.2 Megohm  
Noise (note 3): 1.8 µV (-115 dBV),  
A-weighted

---

Phantom power:  
9 V at 'ring' terminal (max. 100 mA).  
Switchable.

---

High/low switch: 10 dB attenuator

**Channel 2** Jack 1/4" (6.35 mm) + XLR combo socket

#### Line mode:

Unbalanced mono jack input only

Sensitivity: 64 mV (-24 dBV)

Impedance: 1 Megohm

Noise (note 3): 2.8 µV (-111 dBV),

A-weighted

#### Mic mode:

XLR (balanced), stereo jack (balanced), or

mono jack (unbalanced) input

Sensitivity: 5.4 mV (-45 dBV)

Impedance: 1.2 k (balanced use),

or 4.2 k (unbalanced use)

Noise (note 3): 2.2 µV (-113 dBV),

A-weighted

Phantom power: 48 V (XLR only)

Voice filter: -10 dB at 270 Hz (referred to 10 kHz)

**Clip indic.** Threshold: 8 dB below actual clipping

(Ch. 1 and 2)

**Aux in** Stereo cinch (RCA), L + R mixed and added  
pre-master. Sensitivity: 2 x 44 mV (-27 dBV),  
adjustable Impedance: 22 k

**Return** Effect return for parallel effect loop. Effect  
signal is added pre-master.

Mono jack, unbalanced

Relative gain of send-return loop: +2 dB

Sensitivity (note 1): 760 mV

Impedance: 20 k

### Outputs (note 2)

**Tuner** Mono jack, unbalanced, 310 mV (-10 dBV),  
post equalizer, pre effects, pre master

**Line out** Mono jack, unbalanced, 1.5 V (+3 dBV),  
post master

**DI out** XLR, balanced, adjustable 0–130 mV (-18 dBV),  
post equalizer, pre effects, pre master

**Send** Mono jack, unbalanced, 1.25 V (+2 dBV)  
if "pan" control is set fully clockwise, post  
equalizer, pre effects, pre master

**Headphones** Stereo jack

Output power: max. 100 mW / 32 ohms

Input sensitivity: 30 mV at channel 1 input for

2 x 50 mW / 32 ohms

Internal speaker is muted while headphones  
are connected.

**For stereo headphones only. You should not  
connect anything with a mono jack plug!**

**Footswitch** Stereo jack,  
tip = internal effect on/off,  
ring = external effect on/off,  
sleeve = ground.

### Mute

**Footswitch** Mono jack, on/off,

**Switch** on/off, no function if Mono jack is connected

### Equalizer

**Channel 1** Colour: -3 dB at 700 Hz,  
and +10 dB at 8 kHz  
Bass: ±8 dB at 100 Hz (shelf type)  
Middle: ±6 dB at 800 Hz  
Treble: ±8 dB at 10 kHz (shelf type)

**Channel 2** Bass: ±8 dB at 100 Hz (shelf type)  
Treble: ±11 dB at 10 kHz (shelf type)

### Effects

**Built-in effects** 1 reverb 1 (short)  
2 reverb 2 (long)  
3 delay (320 ms)  
4 chorus

### Power

**Power amp** 2 x 100 Watt / 4 ohms, (THD < 1%),  
discrete bipolar transistor design. Dynamic  
range: 100 dB (A-weighted, see note 3)

**Limiter threshold** RMS limiter 85 W

**Analog signal processing** Subsonic filter, low distortion RMS limiter

**Speaker** 2-way system, 8" (200 mm) full-range,  
extended mode

**Mains power** AC 100, 120, 230, or 240 V models,  
50–60 Hz, max. 450 W

**Mains fuse** 5 x 20 mm  
slow 3.15 A for 230 and 240 V models  
slow 6.3 A for 100 and 120 V models

### General

**Cabinet** 15 mm (0.6") birch plywood

**Finish** waterbased acrylic, black spatter finish

**Dimensions** Height: 420 mm (16.5")  
Width: 360 mm (14.2")  
Depth: 300 mm (11.8")

**Weight** 15kg (33.1 lbs)

Notes:

1. Input sensitivities refer to 2 x 85 watts into 4 ohms at full gain and volume settings, neutral tone control settings and 1 kHz sine-wave test signal.

2. Output levels refer to 50 mV / 1 kHz input at channel one, unless stated otherwise.

3. Equivalent input noise voltage obtained by measuring noise voltage at the speaker and dividing by the effective voltage gain of the amplifier for the respective input. Full gain and volume settings, neutral tone control settings, input shorted, frequency range 20 Hz – 20 kHz. Dynamic range: Range between output signal at limiter-threshold and A-weighted output noise with master volume in zero position.

4. Options: Gain of channel 2 in mic mode can be decreased by 4.6 dB by internal jumper. 48V phantom power can be deactivated by internal jumper.

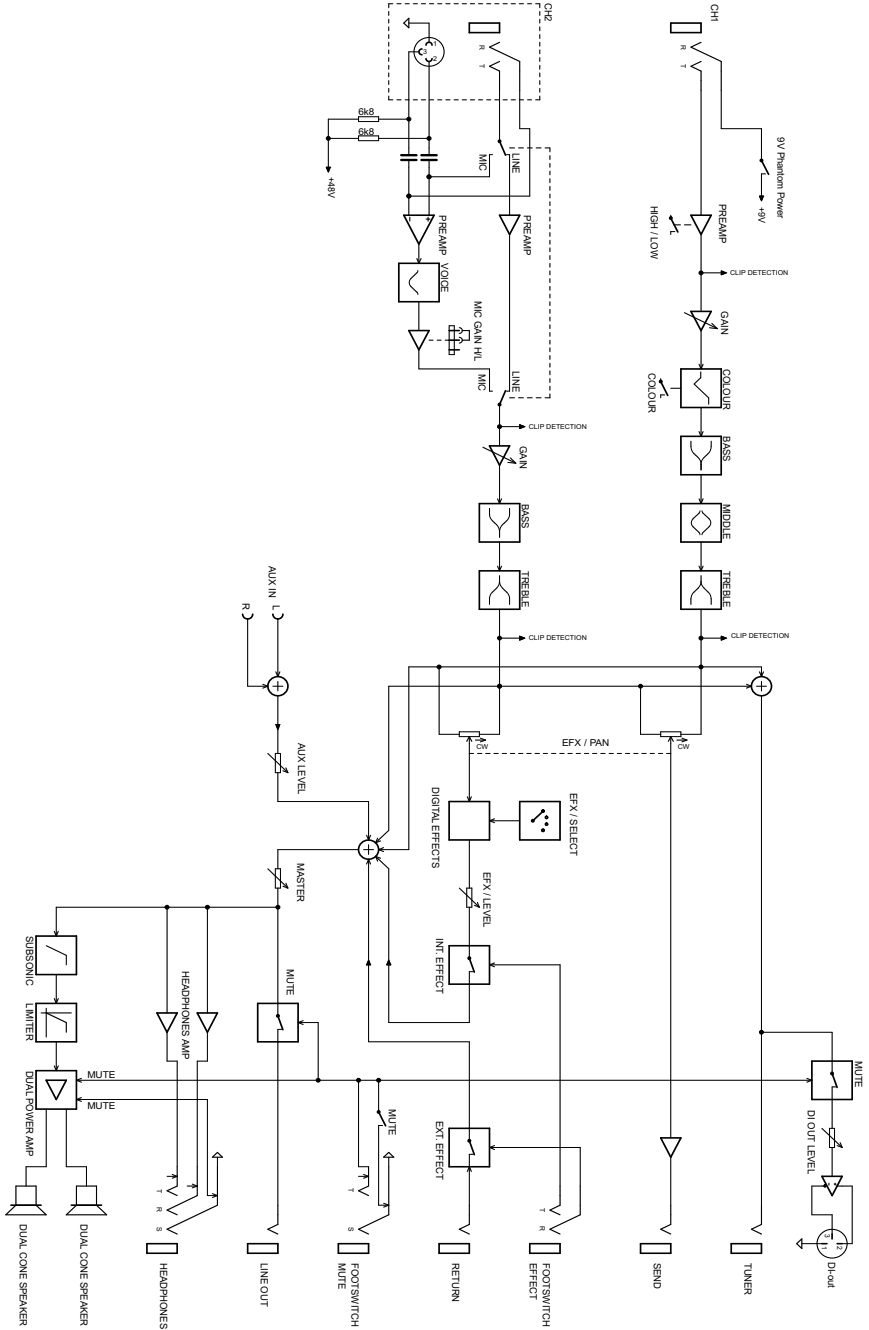
0 dBV = 1 V

Specifications and appearance subject to change  
without notice.



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# 7. Circuit Diagram MM 200



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