

## Quick Start

Sure, you say, “it’s just a three channel amp, I’m in a hurry — I don’t need to read the manual.” But at least read this little section so you really know what to expect, and your installation can go even faster.

Be sure the amplifier is *off* before making any connections. Euroblocks make amplifier connection easy. They are just like “snap on” terminal blocks that take up to 12 guage wire.

Driving the MA 3 from a balanced source is recommended. If you must drive the MA 3 Input with an unbalanced source, we recommend using a cable that has two conductors plus a shield, and be sure to keep cable lengths as short as possible (under 10 feet [3 meters]). See the RaneNote, “Sound System Interconnection” (contained in this booklet).

Nominal speaker loads should be no lower than 4Ω per output. If you are running series or parallel combinations, be sure and *check your total load impedance*.

For constant-voltage distribution, consider using the optional TF 410 or TF 407 transformers with the MT 6 rack panel. Transformers may be used on any number of output channels required, and one MT 6 can be used with two MA 3s. If you intend to use constant-voltage distribution transformers, you may want to read the RaneNote “Constant-Voltage Audio Distribution Systems” (contained in this booklet).

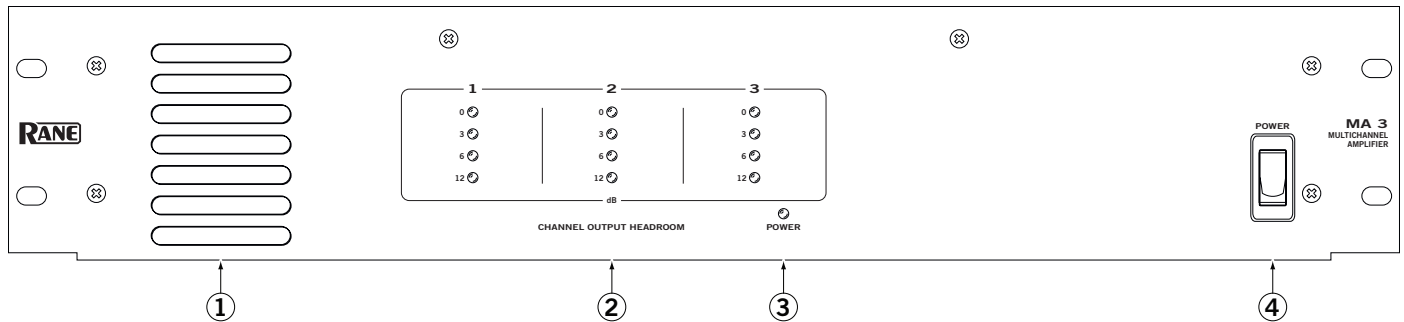
Once Input and Output connections are completed, be sure all rear panel **LEVEL** controls are all the way counterclockwise. Now flip the **POWER** switch on. After a couple of seconds, slowly turn up each channels’ **LEVEL** control to the desired gain. Maximum yields the most effective dynamic range control for the built-in Limiter). If all is well, you will hear something pleasant. If not, re-check connections, put on a better CD, and read more of this manual.

## Speaker Connection

To reduce the risk of fire, follow these instructions:

- Connect speaker wires with the amplifier off.
- Use approved Class 2 Wiring to connect speakers to the output terminals.
- The recommended wire gauge is 12-18 AWG.
- Do not use damaged wires.
- Protect speaker wires from damage.
- Strip wire 0.25 inch (about 6.3 mm).
- Twist the strands together.
- Fully insert the wire into the Euroblock connector.
- Tighten the screw.
- Make certain there are no loose strands of wire.
- Use speakers with a power rating equal to or greater than the rating of the amplifier.
- Connection at the speaker depends on the type of connector. Follow the instructions provided by the speaker manufacturer.

## Front Panel Description



① **Heat tunnel exhaust vents** are located on the left of the unit. Large aperture vent slots are used for low noise. Air is taken in at the back of the unit and exhausts out the front. When installed in a rack, make sure there is ample room for air to exit. The sealed heat tunnel design does not require the use of an air filter.

② **CHANNEL OUTPUT HEADROOM meters** indicate the amount of remaining headroom (how much more signal can be applied before Limiting occurs).

**0 dB** remaining is indicated by a red indicator. When lit, any additional signal causes the Limiter to operate. It is possible to “compress” the signal as much as 20 dB with very little effect on sound quality. This gives the MA 3 the overload characteristics of a much larger amplifier, without the use of external compressors. The MA 3 was designed to be driven hard (heavily compressed signal) so it is not necessary to buy extra power to obtain the headroom required to prevent overload.

**3 dB** remaining is indicated by a yellow indicator. When lit, 3 dB of additional signal may be applied before Limiting.

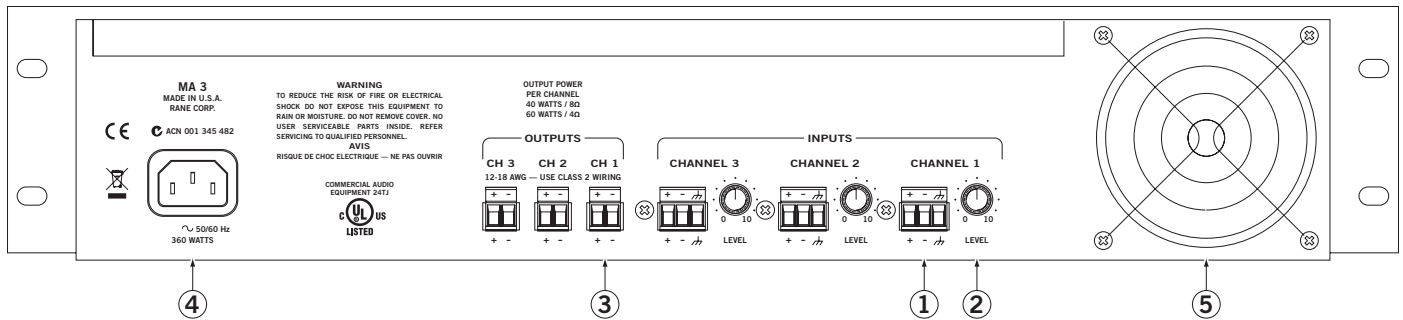
**6 dB** remaining is indicated by a green indicator. When lit, 6 dB of additional signal may be applied before Limiting.

**12 dB** remaining is indicated by a green indicator. When lit, 12 dB of additional signal may be applied before Limiting.

③ **POWER:** This yellow indicator lights when power is applied to the unit. See ④ below.

④ **POWER switch:** This control obediently turns the MA 3 on and off every time you poke it with your finger. Poking the top half of the switch turns the unit *on* when it is off. Poking the bottom portion of the switch turns the unit *off* when it is on. All three channels have turn-on and turn-off muting to reduce switching transients.

## Rear Panel Description

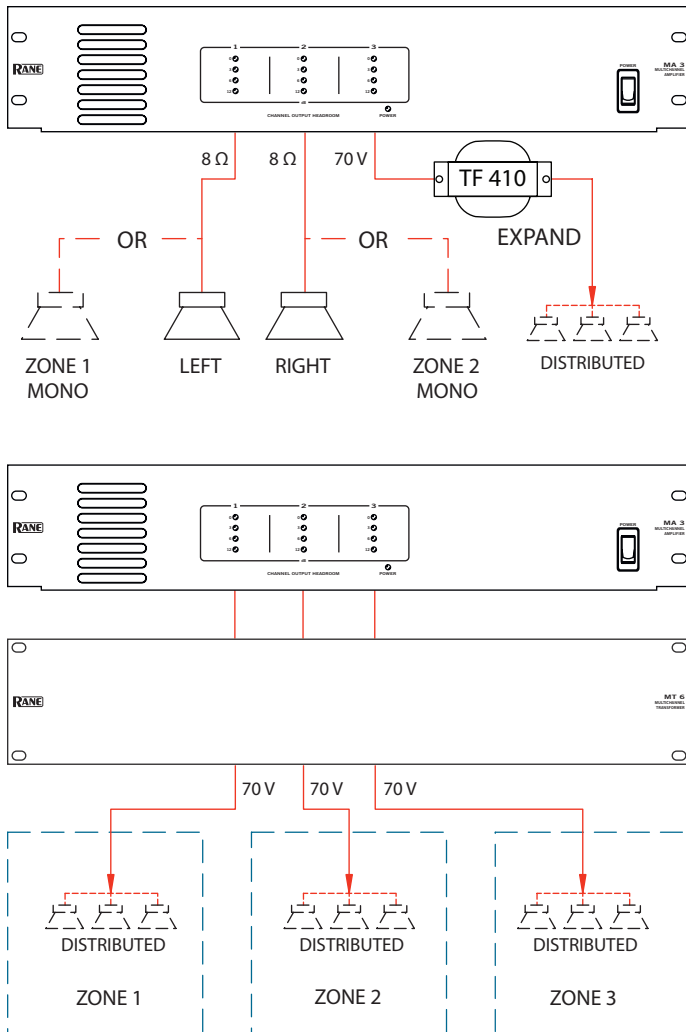


- ① **INPUTS** are balanced Euroblock connectors, one for each channel. We recommend the use of at least 18 AWG wire for reliability. Driving the MA 3 from a balanced source is recommended. If you must drive the MA 3 Input with an unbalanced source, use a cable that has two conductors plus a shield. Connect the (+) or “hot” source to the MA 3 (+) Input, the ground to the MA 3 (–) Input and connect the shield to the MA 3 shield input. Do *not* connect the shield on the source end. Shield connections go directly to chassis ground and should not be used as signal ground. Shield connection to chassis occurs via the screw found between the Input and Output connectors—keep this screw tight for improved EMI protection. When operating the MA 3 with unbalanced Inputs, be sure to keep cable lengths as short as possible. Refer to the RaneNote “*Sound System Interconnection*” (included in this booklet) for additional information.
- ② **LEVEL** controls adjust the input sensitivity for each of the three Amplifiers. The internal Limiters have maximum operating range (most amount of limiting before input overload) when the LEVEL controls are set to maximum. For best *system* noise performance, the input sensitivity may be reduced to send a “hotter” signal to the Amplifier. Here we go again! You get nothing for free. There are always tradeoffs to be made (better overdrive capability *or* lower system noise). The choice depends on your application. For additional information see the RaneNote “*Setting Sound System Level Controls*” available in the Library on our website.
- ③ **OUTPUTS:** Connect the speaker(s) or transformer(s) to each of the three channels by means of the Euroblock connectors with 12 to 18 AWG wire. See Speaker Connection on page Manual-1.
- ④ **IEC cord socket:** This connector accepts a standard IEC 3-conductor line cord (included with 120V domestic units). Plug this into a *grounded* 3-prong AC outlet of 120 VAC (or 230 VAC if the MA 3 is internally wired for 230V operation).
- ⑤ **Heat tunnel air intake:** The fan draws air in through the finger guard on the rear of the unit. The air flow is directed down a sealed heat tunnel and exhausts through front panel vents. No filter is required as air flow is directed through an unobstructed sealed tunnel and will not contaminate internal circuitry.

## TF 410 & 407 Transformers

The MT 6 rack panel holds up to six transformers installed on the back, in any combination. Transformers are sold individually:

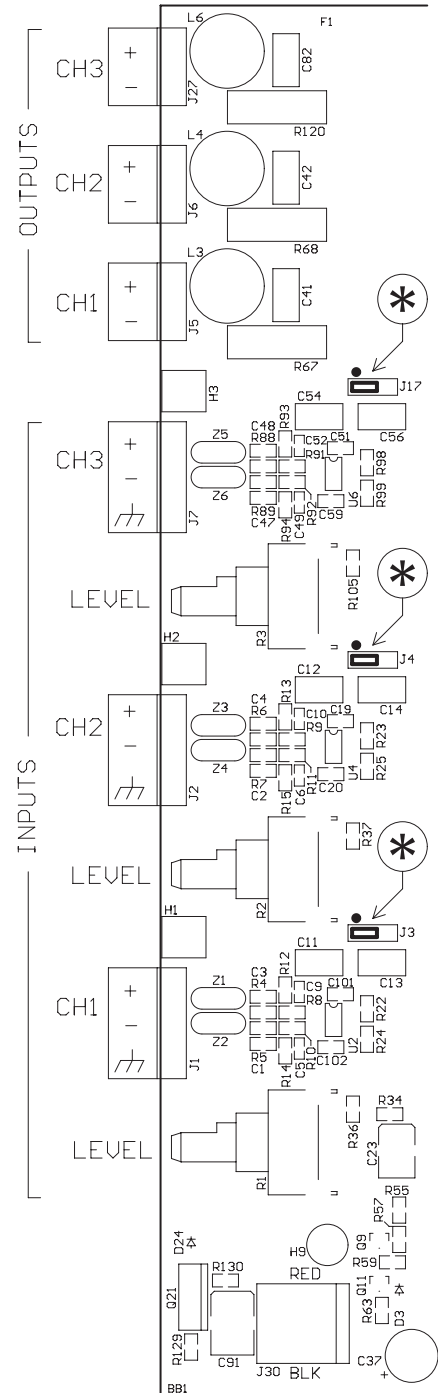
- The **TF 407** is a 40W, 70.7 V transformer with 0.5 dB insertion loss at rated power and a frequency response of 50 Hz to 15 kHz,  $\pm 1$  dB.
- The **TF 410** is a 40W, 100 V transformer with 0.5 dB insertion loss at rated power and a frequency response of 50 Hz to 15 kHz,  $\pm 1$  dB.



## 80 Hz Highpass Filters

Internal jumpers allow independently selecting 80 Hz, 2<sup>nd</sup>-order Butterworth Filters for each channel. These Filters are useful when using small bookshelf speakers or small constant-voltage distribution transformers.

The MA 3 is shipped from the factory with the jumpers in the “no filter” position, as shown in the diagram below. Moving the jumper to the other position activates the 80 Hz filter. This operation requires removing the top cover and should only be done by qualified service personnel.



**The MA 3 is shipped with the internal 80 Hz Highpass filters in the bypassed position**