AEA TRP²

OWNER'S MANUAL

THE ORIGINAL 2-CHANNEL RIBBON PREAMP

WELCOME

Congratulations on your purchase of the TRP2 preamp and welcome to the AEA family. AEA takes sonic integrity seriously and have created preamps that have been specially designed to meet the particular challenges of ribbon mics and to bring out their full potential. Building on the obstacles identified when designing preamps in the 50's, we now use tools like quiet JFETs and transformer-less designs to construct clean, high gain, high impedance preamps. A passive ribbon mic is only as good as the preamp you match it with. Whether you are using an AEA ribbon or any other passive ribbon mic, we understand how much you can enhance the sound of your ribbons with the right preamp. The TRP2 is the perfect companion for any and all ribbons, condensers, and moving-coil microphones – whenever a true and pristine signal path is desired.

Your TRP2 is 100% handcrafted in Pasadena, CA. AEA is a family owned company with a small crew of skilled technicians – most of them being musicians themselves. Proudly independent, we still manufacture all our ribbon microphones and preamps by hand from locally sourced parts.

We hope that the TRP2 will help you capture many magical performances that touch the heart. Please read this manual thoroughly to make sure that you get the best sound and longevity from your new preamp. We invite you to become part of the AEA community by sharing your experiences with the TRP2 via e-mail, phone or our social media.

Wes Dooley
Founder of AEA

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INTRODUCTION

The TRP2 is a half-rack, two-channel, high gain and high impedance microphone preamp. Specifically designed for ribbon microphones, the TRP2 (The Ribbon Preamp) excels at drawing out the warmth and lush sound ribbons are uniquely known for. With 85dB of sweet JFET gain, the TRP2 delivers the quietness, and headroom needed for today's high-resolution recordings. The TRP2 is a cost-effective, high-quality solution providing a pure and transparent signal path for all ribbons, condensers, and moving coil microphones that do not need or do not want phantom power. The TRP2's exceptionally high input impedance of 63,000 Ohms means it will not load down a mic and change its sound. The JFET discrete front end provides all the dynamics, subwoofer bass, and fast transients that your microphones can deliver.

WARRANTY

Your TRP2 comes with a one-year limited warranty on parts and labor, shipping not included. **Registering your preamp with AEA will extend the warranty to a full three years.**

Scan the QR code or visit our website to register.

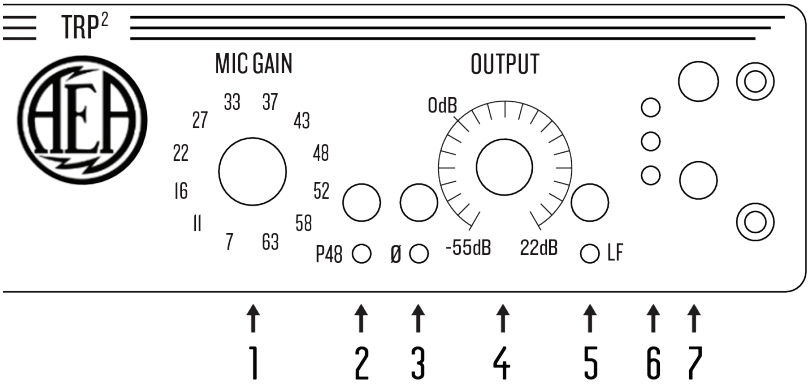
SUPPORT

If you should encounter any problems with your preamp or have questions regarding using the TRP2 in specific application, please contact our customer support team at **support@ribbonmics.com**.

To talk to a live human being, call +1 (800) 798-9127, between 9:00 A.M.- 5:00 P.M. PT Monday through Friday.

GENERAL GUIDELINES

FRONT PANEL GUIDE



1- Input Gain rotary switch
12 position Grayhill switch ranging from +7 to +63 dB.

2 - Phantom Power (P48) switch
OUT is off; IN applies full-spec P48 phantom power to the input. The red LED below the switch will indicate when P48 phantom power is engaged.

3 - Polarity Invert switch
OUT is normal; IN is inverted.

4 - Output Level control
This continuously variable control provides up to +19dB additional output gain.

5 - Low-Cut Filter In switch
OUT is bypass; IN inserts 100 Hz, 12 dB per octave high pass filter.

6 - Audio Signal Level indicators
The green LED snaps on at -20 dBu to indicate the presence of signal; the yellow LED snaps on at 0 dBu; the red LED snaps on at +24 dBu to warn of approaching signal overload.

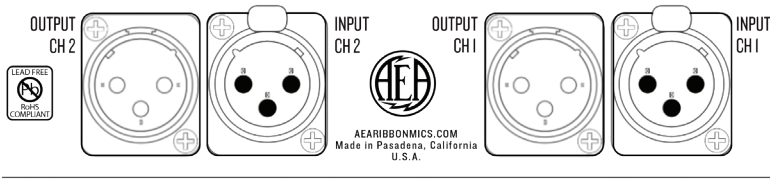
7 - Power switch
OUT is off; IN powers on unit. Green LED above switch will indicate if unit is on.

To maintain the best performance from your new AEA TRP2, take note of these two requirements:

1) Never place preamp on or close proximity to electro-magnetic fields or hot surfaces. Electromagnetic fields created by power transformers, motors, or RF transmitters can potentially damage or interfere with the preamp functionality. Make sure to keep your preamp away from these sources in addition to hot surfaces.

2) Before turning on the power, all connections to the preamp should be made and the gain controls set at their minimum settings. Be sure to examine your signal chain before powering up the preamp to ensure sudden loud noises are not emitted which could damage your system or hearing.

CONNECTIONS GUIDE



The TRP2's rear panel supplies one Neutrik 3-pin XLR input per channel. Microphone input connections are made via female XLR connectors with Pin-2 + or high, Pin-3 – or low, and Pin-1 ground.

The XLR Input routes through the preamp gain stage, high-pass filter EQ, and Output Level control to the XLR output.

The output of the TRP2 emulates a transformer-coupled output and can be used as either a balanced or unbalanced signal (depending on how your cable/system is configured).

When balanced, the maximum output level is +28 dBu; when unbalanced, the maximum level is +22 dBu. (These are as measured into a 600 Ohm load; the recommended load is > 10K Ohms; 0 dBu = 0.7746 V rms.)

When unbalancing the XLR Output, pin-3 must be tied to ground at the receiving end (i.e. the input of the following device). Do not tie pin-3 to ground directly at the output of the TRP2.

To prevent damaging the equipment in your system, it is a good idea to test your microphone cables regularly to determine whether they have any open, shorted, reversed, or intermittent connections.

SETTING THE GAIN

Despite the small half-rack footprint, the TRP2 packs several key features that are critical for professional recording. Designed by Fred Forssell to handle extreme dynamics, the TRP2 recovers instantaneously from unexpected "solid red" overloads. The gain structure of the 2-channel (dual mono) preamp consists of an input gain control and an output level control.

The TRP2's JFET circuit design generates up to 85dB of clean and quiet gain, with extended bandwidth from below 1 Hz to beyond 200 kHz, for dynamic range and transient response that complements all microphones.

As with any piece of audio equipment, setting and maintaining proper signal levels are critical to obtaining optimum performance: if the level is too low, you sacrifice noise performance; if too high, you risk overload distortion. The AEA TRP2 provides an easy method for setting and monitoring the system gain.

The Mic Gain control (ref. #1) provides from about +7dB to +63dB of gain for the preamp input stage. The Output Level control (ref. #4) adds another +22dB of output gain for a total of +85dB of gain.

Start with the Output Level control (ref. #4) pointing at the 0dB indicator and the Mic Gain control fully counterclockwise. Then, with the microphone in position increase the Mic Gain control until you are happy with the input level in your DAW, console, or tape machine. On the TRP2, if the red LED is illuminated too often or too long, reduce the Mic Gain control one step at a time until it illuminates only briefly at the loudest peaks. The red LED is only triggered when the input level is 4dB or less away from clipping the preamps output. If the red LED occasionally flashes while recording, it does not necessarily mean that the preamp is clipping.

The Output Level control can apply up to +22dB of gain in the full clockwise position, or it can attenuate the signal as much as -55dB just like a fader on a console. Though the optimum position of the Output Level control is unity at 0dB, the Output Level control may be used to fine tune the overall output level.

Also remember, the energy and excitement generated during a performance guarantees that it will always be louder than the rehearsal, so after determining the gain during the sound-check it is a good idea to set the Mic Gain control one or two clicks lower for the performance to allow yet a little more margin for headroom.

We actively encourage users to visit **AEAribbonmics.com** to access our comprehensive collection of in-depth articles and tutorials featuring AEA preamps, along with a library of audio and video demonstrations of the preamps in action.

OTHER FEATURES

Internal audio switching for polarity reversal and Low-Frequency filters are handled by gold-contact relays. These high-end components help keep the audio patch short and simple for best sound.

Low-Cut Frequency Filter

The TRP2's Low-Frequency filter (ref. 5) features a 12dB per octave slope from 100Hz. This Low-Frequency filter is intended to moderate the bass boost "proximity effect" inherent with a ribbon microphone when used up close.

Directional microphones when moved closer on-axis to a sound source become more sensitive to low frequencies. This proximity effect, otherwise known as "bass tip-up," becomes more

pronounced the closer the distance. With some large transducer microphones such as the AEA R44C proximity effect begins at six feet and is extremely pronounced at a distance of one inch. However, sometimes such strong low frequency content can mask high frequency intelligibility. The TRP2's high-pass filter helps diminish this low frequency energy.

Polarity

All inputs and outputs maintain proper polarity with each other and international standards. The 3 pin balanced mic input and line output connectors are wired Pin-2 + or high, and Pin-3 – or low.

As noted before, to prevent damaging the equipment in your system, it is a good idea to test your microphone cables regularly to determine whether they have any reversed connections.

Power Supply

An external switching power supply with a grounded AC plug is used with the TRP2 so hum fields can be kept away from the high-gain electronics. The power supply allows the TRP2 to be used in any country without any modifications made to the unit.

The power supply is a universal switching supply, it provided 3 regulated outputs +/-18.5VDC and 52VDC, these voltages are then regulated internally again to provide clean power for the unit.

The power supply is not designed to be used in a wet environment.

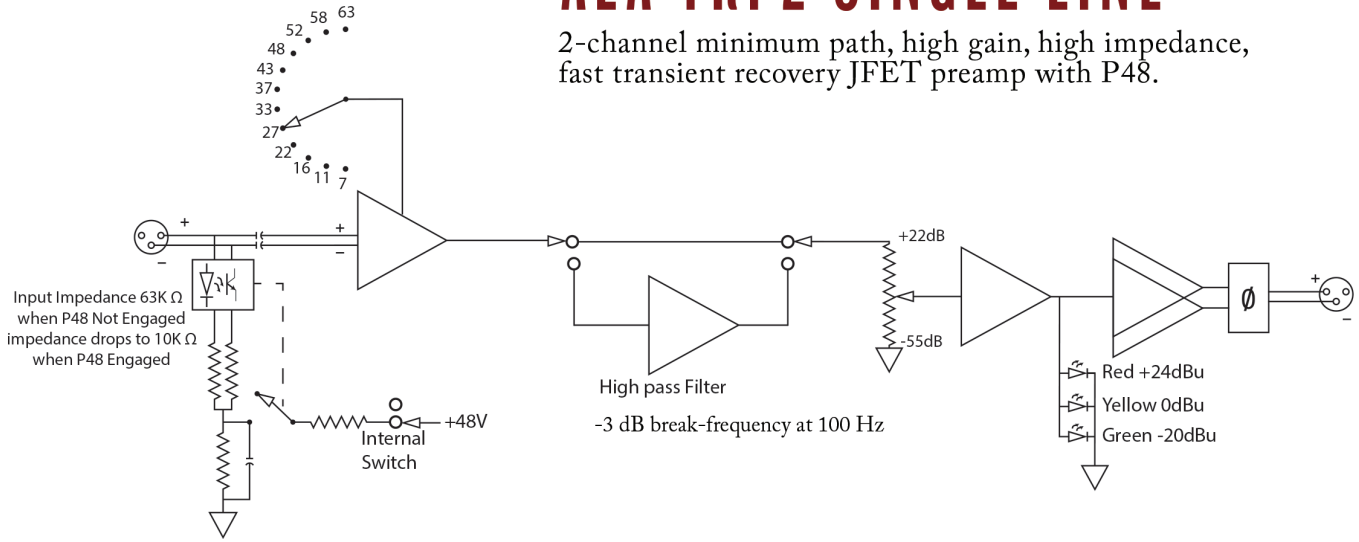
No-Blow Mode

Each channel of the TRP2 is equipped with individual internal phantom power kill switches. Armed in the off position, the internal toggle switch prevents accidental phantom power activation from the P48 buttons on the TRP2 front panel.

Before accessing the internal switches, power down the TRP2 and unplug it from any power sources. To access the internal power switches, simply remove the screws from the top panel of the TRP2 using a screwdriver. Slide the switch to the OFF position to engage No-Blow mode. ON and OFF positions are labeled on the unit.

AEA TRP2 SINGLE LINE

2-channel minimum path, high gain, high impedance, fast transient recovery JFET preamp with P48.



TRP2 Single Line Drawing

SPECIFICATIONS

Gain at 1kHz:	85dB of gain balanced-in to balanced-out in Microphone Input mode
Noise figure, rms A-weighted:	<2dB
Noise figure, rms unweighted:	<3dB, 20 kHz LPF bandwidth
EIN:	<-130 dBu A-weighted, 150 Ohm resistive source
Frequency Response:	-3dB <1Hz and >200 kHz
THD:	<0.02% at 1 kHz
Input Impedance:	63K Ohms
Input Impedance (P48 Engaged):	10K Ohms
Mic Gain Control:	Twelve-position switch provides from +7dB to +63dB of gain for the preamplifier circuit, as measured between the input and the before the output line driver.
Output Level Potentiometer:	25dB
Low-Cut Filter:	12dB per octave from 100 Hz
XLR output maximum level into 600Ω load:	+28 dBu, balanced; 0 dBu = 0.7746 V rms
XLR connectors polarity:	Pin-1 is ground, pin-2 is high, pin-3 is low
LED signal level indicators:	The green LED snaps on at -20 dBu to indicate the presence of signal; the yellow LED snaps on at 0 dBu; the red LED snaps on at +24 dBu to warn of approaching signal overload.
Dimensions:	Half-rack wide, rack unit high (measured with knobs): 8.5” w, 8" d, 1.8” h (21.59 cm x 20.32 cm x 4.6 cm)
Weight:	2.2lbs (1 kg)
Power Supply Weight:	13 oz (0.37 kg)
Power Supply Length:	7 feet 8.5 inches (2.3 m)
	Power supply length may be supplemented with longer IEC cable.

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