

AEA TRP³

OWNER'S MANUAL



THE ORIGINAL 2-CHANNEL RIBBON PREAMP

But it's great on every mic

WELCOME

Congratulations on your purchase of the AEA TRP3 microphone preamplifier, AEA's third iteration of our low noise, ultra-high gain and impedance architecture. Inspired by its older siblings the TRP and the TRP2, the TRP3 improves upon a trusted blueprint using the most up-to-date technology available. At AEA, we put the same thought and care into our preamps as we put into the development of our microphones: sonic quality comes first.

Since 2006, AEA's preamps have surpassed the limitations of 20th century electronics, allowing you to fully appreciate the sonic complexities of your microphone. The TRP3 leans on the side of neutral but is unlike other "clean" preamps because of its rich and musical tonality. It offers up to 85 dB of effortless gain for any microphone and sonics that invite hearts to listen deeper.

Your TRP3 is 100 percent handcrafted in Pasadena, California. AEA is a family-owned company with a small crew of skilled technicians, many of whom are musicians themselves. Proudly independent, we still manufacture all our ribbon microphones and preamps by hand, in-house, from locally sourced parts. We hope the TRP3 helps capture many magical musical performances. Read this manual thoroughly to make sure 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 TRP3 via email, phone, or our social media channels.

The AEA Team

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INTRODUCTION

The TRP3 is a half-rack, two-channel, high gain and high impedance microphone preamp. Specifically designed for ribbon microphones, the TRP3 (The Ribbon Preamp) excels at drawing out the warmth and lush sound ribbons are uniquely known for. However, when a preamp works well with a passive ribbon microphone, it will excel on every microphone. With 85 dB of sweet JFET gain, the TRP3 delivers the quietness and headroom needed for today's high-resolution recordings. The TRP3 is a cost-effective, high-quality solution providing a pure and transparent signal path for all ribbons, condensers, and moving coil microphones. The TRP3's combination of ultra-low noise, low-distortion op-amps, ultra-high 68 k Ω input impedance, and 85 dB of clean gain provides all the dynamics, subwoofer bass, and fast transients that your microphones can deliver. As with all AEA electronics, the circuit in the TRP3 was designed by Fred Forssell.

WARRANTY

Your TRP3 comes with a one-year limited warranty on parts and labor*. **Registering your preamp within 90 days will extend the warranty to three (3) years.** Scan the QR code or visit our website to register.

*AEA is not responsible for shipping costs

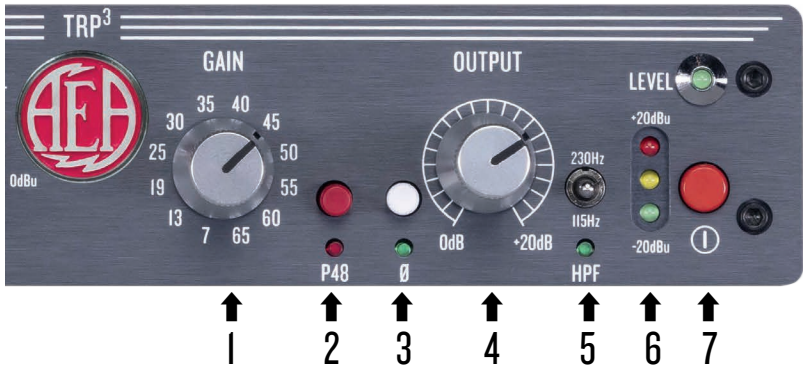


SUPPORT

If you should encounter any problems with your preamp or have questions regarding using the TRP3 in specific application, please contact our customer support team at support@ribbonmics.com.

To contact us by phone, please call 626-798-9128 from 9:00 a.m.-5:00 p.m. PST Monday-Friday. AEA's repair center is located at 1029 N. Allen Ave, Pasadena, CA 91104, U.S.A.

GENERAL GUIDELINES



FRONT PANEL GUIDE

1 - Mic Gain rotary switch:

This twelve-position switch selects from +7 dB to +65 dB of preamplifier gain.

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 +20 dB additional output gain following the optional CurveShaper™ EQ circuitry. Fully counter-clockwise -- 0 dB -- indicates unity.

5 - High Pass Filter (HPF):

3-position switch provides a gentle 6 dB per octave with a choice of -3 dB points at 115 Hz or 230 Hz.

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 +20 dBu to warn of approaching signal overload.

7 - Power Switch:

OUT is off; IN powers on unit.

Green LED above the switch will indicate that the unit is on.

To maintain the best performance from your new AEA TRP3 preamp, take note of these two requirements:

1) Never place preamp in close proximity to electromagnetic 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 and Output Level 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 TRP3'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 TRP3 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 +27 dBu; when unbalanced, the maximum level is +21 dBu. (These are as measured into a 600 Ω load; the recommended load is > 10 k Ω ; 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 TRP3.

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

The TRP3's minimalist JFET circuit design delivers up to 85 dB of clean, quiet gain. With extended bandwidth from below 10 Hz to beyond 200 kHz, it delivers effortless dynamic range and transient response that complements all microphones.

As with any piece of audio equipment, setting and maintaining proper signal levels is critical to obtaining optimum performance. If the level is set too low, noise performance is sacrificed; if the level is too high, there's a risk of overload distortion.

Setting the AEA TRP3 gain begins by setting the first stage GAIN and second stage OUTPUT knobs fully counterclockwise. The first stage GAIN control has 12 precision steps from +7 dB to +65 dB. The second stage OUTPUT potentiometer knob when all the way down (counterclockwise) adds no gain, and all the way up adds +20 dB. The three LEDs: green, yellow and red (ref.#6) snap on at -20, 0, and +20 dBu to indicate signal activity.

First Stage GAIN Control Adjustment

Connect the microphone and then, if needed, turn on phantom power. Have the performer(s) play a louder section and click up the GAIN (ref.#2) until the yellow LED usually lights and the red LED rarely lights.

Second Stage OUTPUT Gain Trim

The OUTPUT Control (ref.#4) potentiometer adjusts gain from 0 dB (unity gain) at the bottom to +20 dB gain when fully turned up. Like the 12-step GAIN control, the 0 dB and +20 dB OUTPUT positions are accurate and repeatable. Approximate OUTPUT gain at 9, 12, and 3 o'clock are +3 dB, +7 dB, and +17 dB. The red LED lights 7 dB before clipping with a balanced load, so listen carefully to see how it sounds when the red LED lights up more often.

We actively encourage users to visit [AEAribbonmics.com](https://www.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

INPUT IMPEDANCE

Passive ribbon microphones and numerous moving coil dynamic microphones are very particular about how they interact with preamps and their respective impedances play an important part in this. Since passive ribbon microphones and some dynamic microphones generally have a very high impedance, they are sensitive to what is referred to as "loading." The lower impedance a mic must drive, the harder the mic has to work. If the input impedance of a preamp is too close to the impedance of the microphone, it may exhibit increased distortion, decreased headroom, poor transient response, and less overall frequency response. There are no negative consequences to using high input impedance preamps.

The ultra-high gain JFET circuit has two input impedances: 11.3 k Ω with phantom power "ON" and 68 k Ω with phantom power "OFF." The 68 k Ω brings out the best in passive ribbons and tube mics, and also provides a unique balanced input for vintage, high-impedance dynamic mics. This versatility ensures the highest sensitivity, bandwidth, transient response, and clarity possible for a wide variety of microphones.

LOW CUT FREQUENCY FILTER

The TRP3's Low-Frequency filter (ref.#5) features two 6 dB per octave slopes at 115 Hz and 230 Hz. 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 becomes more pronounced the closer the distance. With some Big Ribbon™ mics, 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 TRP3's high-pass filter helps diminish this low frequency energy. The frequencies of the TRP3's high-pass-filter were specifically chosen to tame the proximity on a variety of microphones in a variety of configurations, especially AEA ribbon mics.

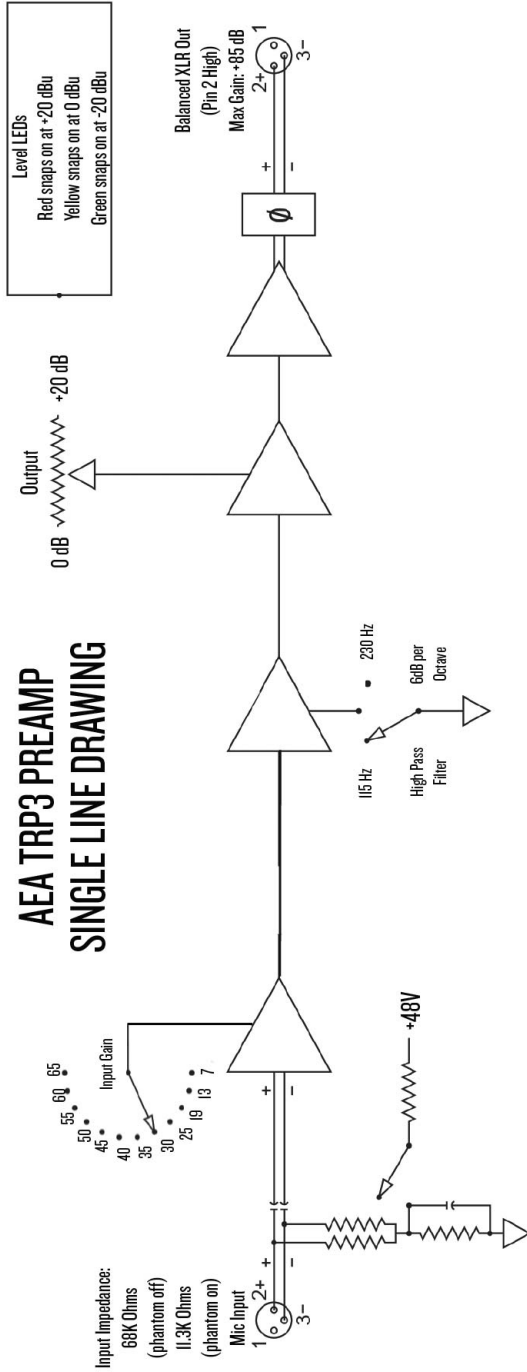
POWER SUPPLY

An external switching power supply with a grounded AC plug is used with the TRP3 so hum fields can be kept away from the high-gain electronics. The power supply allows the TRP3 to be used in any country without any modifications made to the unit.

The power supply is a universal switching supply. It provides 3 regulated outputs +/-18.5 VDC and 52 VDC; 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.

AEA TRP3 PREAMP SINGLE LINE DRAWING



TRP3 Single Line Drawing

SPECIFICATIONS

- Max Gain at 1kHz:** 85 dB
- EIN (Max Gain 22 Hz to 22 kHz):** 130 dBu (typical), 40 Ω source unweighted
128 dBu (typical), 150 Ω source unweighted
- Frequency Response:** 30 dB gain: (-0.5 dB from <10 Hz to 200 kHz)
85 dB gain: (-3 dB 9Hz to >200 kHz)
- THD+N:** 0.0015% (1 kHz, 22 Hz-22 kHz @30 dB Gain
+4 dBu output)
- XLR Output Maximum Level:** +27 dBu into 600 Ω load
- Input Impedance:** 68 k Ω
Input Impedance (P48 Engaged): 11.3 k Ω
Output Impedance: 50 Ω
- Max Input Signal Level:** +20 dBu (minimum gain)
Mic Gain Control: 12-position switch from +7 dB to +65 dB
Output Trim: Continuously variable from 0 dB to +20 dB
- High Pass Filter:** Switchable, passive first-order high-pass filter
Selectable frequencies (-3 dB) at either 115 Hz or 230 Hz
- Input and Output XLR Polarity:** Pin-2 is high
- LED Signal Level Indicators:** Green LED \cong -20 dBu;
Yellow LED = 0 dBu;
Red LED \cong +20 dBu (clipping +27 dBu)
- Dimensions:** Half-rack wide (8.5 in), 1 rack unit high (1.8 in)
8 in deep (measured with knobs)
(21.59 cm x 20.32 cm x 4.6 cm)
- Weight:** 2 lb (0.894 kg)
- Power Supply Weight:** 1 lbs 1 oz (0.483 kg)
- Power Supply Length:** 7 feet 8.5 inches (2.3 m)
Power supply length may be supplemented with longer IEC cable.

In compliance with the following requirements: RoHS2 Directive: 2011/65/EU





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