

AEA R84 SERIES

OWNER'S MANUAL



CLASSIC RIBBON MIC INSPIRED BY THE R44

WELCOME

Congratulations on your purchase of an AEA R84 series microphone. R84 series mics are flexible and practical in a myriad of recording settings. Developed to have a classic sound from the same family as the R44, R84 series microphones deliver exceptional headroom while maintaining an intimate performance quality with smooth highs and extended lows. These aspects, combined with the milder proximity effect, make R84 series mics incredibly well suited for both close-up and ambient mic applications. It's just as versatile as an R44, flattering voice, strings, brass and drums alike. Protect it from puffs of air, phantom power, and tramp iron, and it is nearly invulnerable. Treat it well, and it will last decades.

Your R84 series microphone 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 your microphone will capture many magical performances that touch the heart. This manual will help ensure that you get the best sound and longevity from your new microphone. Please become part of the AEA community by sharing your experiences via e-mail, phone or social media.

Wes Dooley

Founder of AEA

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INTRODUCTION

The R84 and the R84A are pill-shaped, side-address, ribbon microphones with a bidirectional pickup pattern. They are assembled with the same Big Ribbon™ tuning (16.5 Hz) as the AEA/RCA R44 and share many of the unique sound characteristics with their historic predecessor. Designed to accommodate distant and medium miking duties, they exhibit a flat frequency response when placed 3 feet (1 meter) away from the source. As a result, the mic performs well on a variety of recording applications including vocals, brass, strings, woodwinds, guitars, and drums. R84 series microphones continue to gain followers with their natural sound, articulate midrange and forgiving nature. Whether used on vocals or instruments, their performance is intimate, warm and detailed, yet never harsh.

WARRANTY

Your R84 comes with a one-year limited warranty on parts and labor.* **Registering your product 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 R84 microphone or have questions regarding specific applications, please contact our customer support team at support@ribbonmics.com for the quickest response.

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

Your microphone is a valuable and important investment. Like most recording equipment or musical instruments, it requires common sense and basic care to keep it functioning properly. Given care, your new microphone will perform dependably for decades.

PHANTOM POWER

R84 Passive Microphone

Phantom power is not required or recommended for the passive R84. With a correctly wired cable and a properly working phantom power supply, there is actually little danger of damaging the microphone with phantom power. However, passive ribbons such as the R84 can be damaged if ground (Pin 1) is accidentally shorted, mis-wired, or hot patched in a patch bay to (Pin 2) or (Pin 3). Using phantom power with a faulty or mis-wired cable or a defective supply can severely stretch or break a ribbon.

AEA strongly recommends against using TRS or TT mic-level patch bays. The patching process shorts (Pin 2) and/or (Pin 3) of the cable to ground. Sometimes, even with phantom power off, equipment can be damaged due to phantom power supply voltage bleed, which varies. For mic-level patching we suggest always using an XLR patch bay.

R84A Phantom-Powered Microphone

The R84A, as with all AEA active ribbon mics, requires a current draw of 7 milliamps. Some USB and battery-powered audio interfaces will not deliver the IEC-specified 10 milliamps per input. To ensure optimal performance, please verify that your unit can deliver at least 7, but preferably 10, milliamps.

Although the R84A needs a phantom power source to operate, we recommend making a habit of disengaging phantom-power before plugging and unplugging the microphone.

MICROPHONE STORAGE

Keep the microphone covered when it is not in use. This will reduce the damage that may result from a gust of air. Place the supplied protective bag over the microphone when it is not in use. For long-term storage, keep the microphone in its protective case. An unprotected ribbon microphone can attract minute iron particles, sometimes known as "tramp iron". If allowed, tramp iron can penetrate the screen of a ribbon mic, sufficiently build up in the magnetic gap and rub against the ribbon, causing distortion, electrical shorts or tearing of the ribbon.

AIR TURBULENCE

Avoid exposing the microphone to strong air turbulence. Ribbon microphones can withstand very high SPL (Sound Pressure Level), but can be damaged by a strong gust of air or high levels of very low frequency sound waves (from a kick drum or bass cabinet). This can stretch the ribbon, reducing overall output, especially at high frequencies.

Take precautions when recording any source that moves air. To avoid damage, follow "The Hand Test": put the back of your hand where the mic will be positioned; if you can feel the moving air, place a pop-filter between the microphone and the source or simply pull the mic farther back. When recording kick drums or bass guitar cabinets, angle the microphone so that no air blasts the microphone directly on-axis from the front or back.

Never blow directly into any microphone to test it. Not only does this force moisture and dirt into the microphone, strong air movement also can stretch the ribbon and while it may not break, it nonetheless could significantly degrade the microphone's performance. Though the ribbon in your R84 is protected by multilayer screens and acoustic cloths which provides reasonable wind protection while still allowing good high-end response, take care to avoid high-wind outdoor environments.

STRAY MAGNETIC FIELDS

Ribbon microphones are fundamentally prone to picking up strong external magnetic fields caused by light dimmers or nearby power transformers. Guitar players will know this phenomenon from single-coil pickups. Even though much attention was paid to suppressing such sensitivity to external magnetic fields in the design of your microphone, it is still possible that you might encounter this problem. If you should pick up a hum, try rotating or moving the microphone to find a spot where the hum disappears, and try eliminating potential sources of stray magnetic fields. You can use the microphone to find where hum is originating. Rotate the mic for maximum interference and move it back and forth to sense its direction.

The high-performance magnets used in AEA microphones are incredibly strong, and a significant amount of stray magnetic field lines surround the microphone. Avoid placing the microphone in close proximity to hard drives, credit cards, analog tape, or any other magnetically sensitive items to prevent any data loss.

MICROPHONE POSITIONING

Always use a sturdy microphone stand. While the R84 series was designed to work well with all standard microphone stands, a high-quality boom stand will make your life a little bit easier. Mounting the microphone on a strong, sturdy microphone stand with a heavy base (or tripod) is essential. If you are using a boom, make sure that it is properly balanced and that the tripod legs are positioned appropriately to prevent tipping.

WHICH PREAMP SHOULD I USE?

In the case of the passive R84, the preamp is critical for optimum performance. Passive ribbon microphones generally have low output level and require preamps that supply a high level of gain. If the preamp you use doesn't have enough gain, the signal might seem too soft or noisy. We recommend using a preamp with high input impedance and gain of at least +60dB or higher.

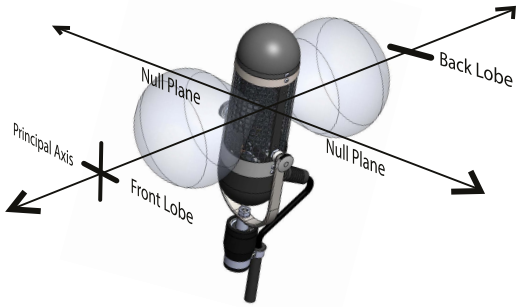
To guarantee consistent, full-range ribbon sound, we recommend AEA's RPO, TRP and 500 series preamps, which were specially designed for ribbon microphones. On quiet sound sources or for distance recording, an AEA preamp is highly recommended.

APPLICATIONS ADVICE

We actively encourage users to visit [AEARibbonmics.com](https://www.aeribbonmics.com) to access our comprehensive collection of in-depth articles and tutorials featuring the R84 series microphone, along with a library of audio and video demonstrations of the R84 series in action.

A FIGURE-OF-8 MICROPHONE

Figure-of-8 microphones are constructed with positive polarity on the front and negative polarity on the back. Positive pressure on the front side of the ribbon produces a positive voltage on (Pin-2), with respect to (Pin-3) on the output connector.



The sound of your R84 series microphone is slightly different between the front and the back — subtle, but sufficient to offer two “flavors.” In addition to polarity, this is the result of using two wraps of grille cloth on the back and only one on the front. When using the rear lobe, remember to invert the polarity on your preamp or DAW. This ensures your recordings with the back lobe will be in-phase with other microphones.

HOW TO MINIMIZE BLEED

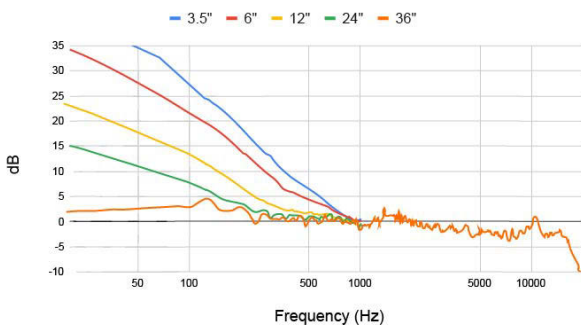
A significant and ever-present challenge in contemporary studio recording is minimizing leakage from nearby instruments into the various microphones. The deep nulls of ribbon microphones provide good rejection of unwanted sounds, which can be beneficial in sound reinforcement situations where feedback is always a threat.

While gobo isolation panels can be effective in isolating performers from each other, they introduce their own set of problems - including reflections close to the performers and/or microphones that result in comb-filter distortions. Because gobos usually are bulky and occupy valuable floor space, they also inhibit the ability of the musicians to hear and see each other easily. Such a setup requires complex and often cumbersome headphone monitor mixes for the musicians.

Since the R84 is bidirectional, it exhibits nulls at right angles to the principal axis. These nulls produce a "plane of rejection" around the sides, top and bottom of the mic that can be used effectively to reduce leakage. Simply arrange the musicians so that nearby instruments are placed in the "null" of their neighbor's microphone, and vice versa. Although this does not entirely eliminate the need for gobos, it can significantly reduce their number.

Keep in mind that a certain degree of bleed is not necessarily bad. For some styles and genres, it can, in fact, be beneficial to embrace a little bit of bleed in order to create cohesive and natural sounding recordings. The important thing to listen for is whether or not other instruments that bleed into a specific instrument microphone still sound natural. You will generally find that well-designed ribbon microphones like the R84 capture a natural off-axis sound, which means that bleed from other instruments can contribute to the overall sound in a pleasing way.

PROXIMITY EFFECT

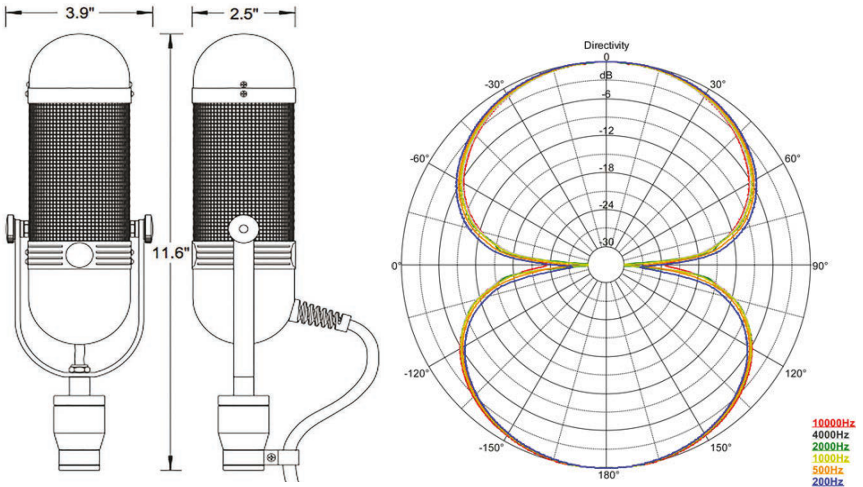


Proximity effect, a characteristic of all directional microphones, is a rise in low-frequency response at closer working distances. This can be used to superb effect, particularly with deeper vocals to

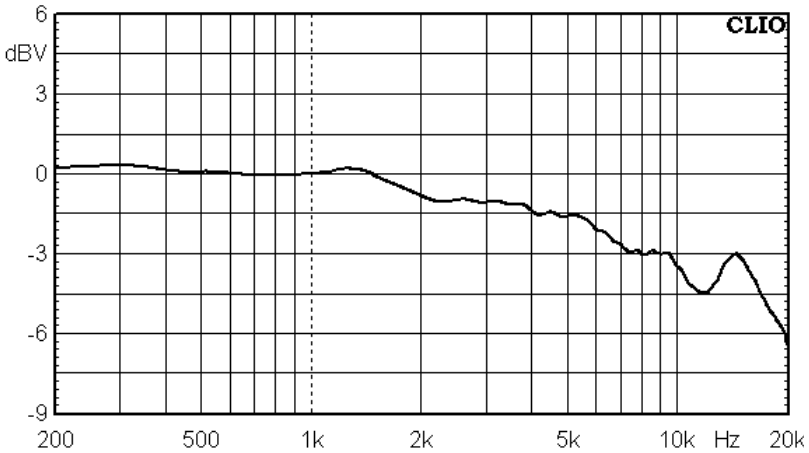
(graph is a visualization, not an exact measurement)

to enhance richness and depth. A potential trade-off is reduced articulation resulting from the masking effect on the treble due to "excessive" bass boost.

R84 series ribbon microphones deliver classic ribbon mic tonality similar to the legendary R44, but engineered with an extended top-end and reduced proximity effect. It is perfect for mid-range and close-range recording. The R84 exhibits a flat frequency response when placed 3 feet (1 meter) away from the source.



FREQUENCY RESPONSE



Data below 200 Hz omitted due to measuring room restrictions.

0 dBV is equivalent to 2.5 mV/Pa (-52 dBV)

Normalized to 0 dB at 1kHz. 1/3 octave smoothing

SPECIFICATIONS

Operating Principle: Pressure gradient transducer
Directional Pattern: Bidirectional
Frequency Range: <20 Hz to >20 kHz
Polarity: Pin 2 high for positive pressure on front of mic

Off-Axis Response

Horizontal: Up to 90 dB rejection at right angles to the front and back axis.

Vertical: Level changes with angle of incidence, but frequency response is consistent.

Transducer Element

Material: Pure aluminum corrugated ribbon
Thickness: 1.8 μm
Width: 0.185 in (4.7 mm)
Length: 2.35 in (59.7 mm)

Microphone Dimensions

Height: 11.4 in (29 cm)
Width: 3.9 in (9.9 cm)
Depth: 2.5 in (6.4 cm)
Weight with cable: 1.8 lb (825 g)
Shipping Weight: 2.4 lb (1.1 kg)
Connector: XLR-3M wired to a 10' (3 m) captive cable

R84 Passive Microphone

Maximum SPL: 165+ dB SPL (1% third harmonic > 1 kHz)
Sensitivity: 2.5 mV/Pa (-52 dBV) into loaded circuit
Output Impedance: 270 Ω nominal
Rec Load Impedance: 1.2K Ω or greater
Phantom Power: Not required or recommended

R84A Phantom-Powered Microphone

Maximum SPL: 141+ dB SPL (1% third harmonic > 1 kHz)
Sensitivity: 6.3 mV/Pa (-44 dBV) into loaded circuit
Output Impedance: 92 Ω nominal
Recommended Load Impedance: 1.0K Ω or greater
Phantom Power: P48 phantom power, 7 mA

Accessories Included Softbag storage case, user manual

*Note: The phantom-powered R84A was previously known as the A840.
In compliance with the following requirements:
RoHS2 Directive: 2011/65/EU*





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