THANK YOU!

Thank you for purchasing the Warm Audio WA-87 ‘classic’ large diaphragm condenser microphone. We feel this product offers the best in terms of sound, function, and vibe from the classic era of analog recording. We don’t cut corners when it comes to what goes into our products, and the WA-87 is no exception. The WA-87 employs tantalum, polystyrene, and WIMA film capacitors, Fairchild FET’s, and a custom K87 capsule reproduction by our own capsule imprint, Lens Kondensator. The WA-87 also uses a high quality, custom output transformer by CineMag USA, and employs an all discrete signal path using only top quality through-hole components on PCBs that are assembled by hand. We believe the WA-87 represents an unprecedented value and should provide a lifetime of quality recordings, and are honored to have our WA-87 added to your mic locker.

Bryce Young
President
Warm Audio
Liberty Hill, Texas USA

CHAPTER 5: ILLUSTRATIONS

In this image, a vocalist performs into the WA-87’s at a distance of 12”, in cardioid pattern.

In this image, two vocalist perform at the same time on either side of the WA-87 using a figure-of-eight pattern.
CHAPTER 1: WARRANTY STATEMENT

Warm Audio warrants this product to be free from defect in materials and workmanship for one year from the date of purchase, for the original purchaser to whom this equipment is registered. This warranty is non-transferrable.

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NON-WARRANTY SERVICE

If you have a defective unit that is outside of our warranty period or conditions; we are still here for you and can get your unit working again for a modest service fee. Please visit us at www.warmaudio.com to contact us about setting up a repair or for more information.

With the proper care, your Warm Audio gear should last a lifetime and provide a lifetime of enjoyment. We believe the best advertisement we can have is a properly working unit being put to great use. Let’s work together to make it happen.
CHAPTER 2: NOW LET’S GET STARTED!

INTRODUCTION
The WA-87 was created to offer a classic microphone design to a new generation of recording artists at an affordable price. We spent a great deal of time looking at the various incarnations of this classic FET microphone design to determine what people liked about them and why, how various styles of components impact the final signal, and lastly how to give this microphone its own signature that both pays homage to the past but also stands out on its own in a bold and pleasing way.

FEATURES
1. Pattern Select Switch
This switch selects the polar pattern for the WA-87’s capsule. The three polar pattern options are (from left to right) Omnidirectional, Cardioid, and Figure-Of-Eight.

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The WA-87’s output is a balanced, gold-contact 3-pin XLR which accepts a standard XLR to XLR shielded microphone cable.

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This switch engages an 80hz high pass filter for reducing rumble and other subsonic information. To engage the high pass filter, flip the switch to the left. For a flat response, flip the switch to the right.

4. -10dB Pad Switch
This switch engages a -10dB pad within the active circuitry. To engage the pad, flip the switch to the right. For normal output level, flip the switch to the left.

CHAPTER 4: TIPS AND INSTRUCTIONS

Signal Integrity
In professional audio a chain is only as strong as its weakest link. When it comes to microphone cable, a quality cable can make a difference. Though not as critical as with instruments or dynamic microphones, a thin, poor quality, or worn XLR cable can affect the sound of a microphone. With extreme age or wear, gaps can form in the foil or spiral shield of a microphone cable, allowing RFI and EMI to leak through, or shield wiring can begin to make intermittent contact with the signal wire. XLR pins can corrode after many years of exposure, or solder joints break at the stress points inside an XLR barrel. Occasional cable testing and maintenance is good practice, and worn XLR pins can often be given new life (if not past the point of no return) by spraying liberally with a contact cleaner such as DeOxit and worked through several insertions. It is good practice to not use a cable much longer than what is needed for the job at hand; if a 20 ft. cable will work, little good can come from using a 35 ft. cable. Though condenser microphones are far better equipped to survive longer or lesser quality cable runs than dynamic and ribbon mics, audio can begin to attenuate or become contaminated beyond a certain threshold.

Not all phantom power is created equal. Though practically all preamps, mixers, and interfaces on the market today conform to the +48v/10ma industry standard; phantom power, traditionally, has been set as low as 10v on some legacy devices. If in doubt, check the literature of your preamp to ensure proper phantom power is being provided. The classic ’87 style microphone is one that is historically known to demand more than most microphones from a good phantom power supply; and our WA-87 is no different in this regard. Another point worth considering is that phantom power, being DC, can have the tendency to attenuate over extremely long cable runs. Some engineers have observed that some demanding condenser microphones appear to perform better when a quality phantom power source is moved closer to the microphone. If, for example, you find you are recording the WA-87 across multiple cables or over 200 + ft. of audio snake; investing in a quality external phantom power supply to keep closer to the microphone’s side can be a worthy addition to your engineering toolkit. To protect the WA-87, always connect all microphone cables before engaging phantom power; and for best results, give the WA-87 about two minutes after engaging phantom power to fully optimize, in order to get the highest quality sound. Always disengage phantom power and allow the microphone to discharge for several moments before disconnecting the microphone from its XLR cable and preamp.
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It's generally good advice to place a microphone about 12 inches from a source, and to fine-tune it from there until you have exactly what you are looking for. When recording vocals, it's a good idea to use the nicest pop filter you can afford. This not only protects the microphone; it protects the recorded tracks by keeping plosives (a clipping that occurs from sudden air pressure on the capsule) to a minimum. Pop filters can also be creatively used in other situations where sudden air pressure changes can occur, which include large loudspeaker movement, the sound hole of a kick drum, or the gap between the two brass pieces of a hi-hat cymbal. As a general rule, a higher quality pop filter will have less audible impact on the sounds passing through them; while less expensive, improvised, or foam windscreen type filters can sometimes have a muffling effect on high frequencies.

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**A Brief Word On Room Treatment**

Room acoustics can be just as important as the microphone you choose. Even the best microphone won’t sound great if you are picking up unwanted reflections that can smear or color the sound you are recording. Just because a microphone is set to cardioid pattern will not always mean that it is not picking up unwanted room reflections or outside noises such as street traffic, footsteps, or air condition vents. Though a walk-in vocal booth is hardly necessary for most situations; a good quality ‘vocal shield’ type of product can make an enormous difference, often making the difference between demo quality and a professional quality recording. Likewise, when recording combo amps and other instruments, using gobo’s or other acoustic isolation products can be hugely beneficial. Getting proper isolation and just the right amount but no too much room ambience is one thing that really cannot be effectively corrected later in the process. It is of the utmost importance to put in the extra time to set things up well in the beginning.

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CHAPTER 3: TECHNICAL SPECS

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**FREQUENCY RESPONSE GRAPH**

- **Cardioid**
- **Figure-8**
- **Omni**
CHAPTER 4: TIPS AND INSTRUCTIONS

MICROPHONES: IN THEORY AND PRACTICE

In this chapter, we will go over some general descriptions and advice on how to use your WA-87 microphone. We will begin with what the WA-87 is and is not, and then briefly discuss different applications and ways to get the best results from your WA-87.

The WA-87 is primarily a studio condenser, which is to say it is a microphone that requires +48v phantom power and a balanced XLR to XLR microphone cable, and a preamp with a 3 pin XLR microphone input. It is not a live stage microphone, for a number of reasons which include its relative size and its relative sensitivity compared to most live performance dynamic microphones. Though it’s capsule is electrically isolated, it is not internally shockmounted as most live performance microphones are, utilizing some form of internal suspension mechanism. The WA-87 is capable of delivering three polar patterns: omnidirectional, cardioid, and figure of eight. We will go into the benefits of each pattern in greater detail shortly. The WA-87 is considered a side-address microphone in the sense that it’s capsule is mounted upright, projecting outward from either side of the microphone when the microphone is stood upright or suspended upside down. The front face of the microphone body is the side which bears the Warm Audio (WA) badge, and this is considered the ‘front side’ of the capsule, with the opposite side of the microphone being the ‘back side’.

General Uses In Cardioid Mode

The classic ‘87-style microphone is known first and foremost as a lead and backing vocal microphone. It has been used to capture powerful vocal performances in rock, country, hip-hop, gospel, blues, metal, voiceover/spoken word, and just about every other genre out there. Two ‘87-style microphones for drum overhead recording, either in an X-Y configuration, or as a spaced pair, is a classic choice. Likewise, a pair of ‘87-style microphones in an X-Y configuration is a great way to achieve a big acoustic guitar sound. A single ‘87-style microphone is a good choice for capturing many guitar amps, either alone or in conjunction with additional dynamic or ribbon microphones. Since the pioneering days of Joe Meek, ‘close mic’ing’ a sound source has become the norm in most genres outside of classical music. This has made near cardioid pattern-only recording a fairly common practice. The downside to this technique is an exaggerated proximity effect and lack of perceived space to an instrument; the advantage is much greater isolation and control of individual instruments in a mix. Close cardioid ‘mic’ing also tends to capture less reflections and other unwanted information.

CHAPTER 4: TIPS AND INSTRUCTIONS

Uses In Figure-Of-Eight Mode

Figure of eight pattern recording is often used with pairs of the same microphone for advanced recording techniques such as the Blumlein Pair array; but has several more common practical applications as well, some of which only require a single microphone. One figure of eight application is to record a ‘duet’ or group vocal with a single microphone. Two or even four vocalists can stand on either side of the microphone, each getting the full attention of one side of the mic capsule. A variant of the duet application is when someone plays an instrument, such as acoustic guitar, into one side of the microphone while a partner sings into the other side.

Uses In Omnidirectional Mode

Omnidirectional pattern is most often associated with room mic recording, be it a room mic on a drum kit or an ambiance mic placed farther out from a guitar or bass cabinet, or other instrument. Omnidirectional stereo recording is also sometimes associated with ‘live’ recording techniques and classical recording. Additionally, an omnidirectional mic can be one ingredient, along with a figure-of-eight microphone, in creating a Mid/Side stereo recording array. It is also worth noting that most condenser microphone capsules are, by nature, designed to be omnidirectional devices. For this reason, omnidirectional patterns tend to yield the most linear frequency response and suffer the least from proximity effect.

Microphone Placement & Spacing

When it comes to distancing a microphone from its sound source, one may think of this process, among other things, as choosing a desired ratio of original sound source to reflections and acoustic space. The closer to the source, the less space and ambience will be captured. In some cases, this is fully desirable; and ambience will be added in later via the magic of digital delay and reverb. In other cases, natural acoustics are critical. A great illustration of this is the recording of a gunshot or cannon fire: at very close range, the sound is surprisingly thin; however, at a distance, the sound becomes more full and explosive. This is a great reference to keep in mind; because to some degree, this phenomenon holds true with anything where natural acoustics is an important part of the sound, most notably with percussion. Beware that all processes do have boundaries and microphones do have a maximum SPL level they can be subjected to without distortion. Both microphones and preamps have a signal to noise ratio that tends to get poor in cases where more gain is required to make up for a distant signal.
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CHAPTER 5: ILLUSTRATIONS

In this diagram, two WA-87's are used in a spaced pair configuration to record stereo drum overheads, maintaining equal distance from the snare drum for proper phase.

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either side of the WA-87 using a figure-of-eight pattern.
WA-87
CONDENSER MICROPHONE