WARM AUDIO WA-87R2 Multipattern Condenser Microphone User Manual

Contents

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Specifications

- **Model:** WA-8 7R2
- **Type:** Nickel Condenser Microphone
- **Languages:** English, French, Spanish, German

Product Information

- The WA-8 7R2 Nickel Condenser Microphone is a high-quality microphone designed for professional audio recording.
- It offers clear and crisp sound reproduction, making it ideal for studio recordings, live performances, podcasts, and more. The microphone is versatile and suitable for a wide range of applications.

Product Usage Instructions

Setting Up the Microphone

1. Connect the microphone to your audio interface or recording device using an XLR cable.
2. Position the microphone according to your recording needs, ensuring it is securely mounted on a stand or shock mount.

Adjusting Microphone Settings

1. Set the microphone gain level on your audio interface to achieve the desired input volume.

2. Experiment with the microphone's polar patterns (if applicable) to optimize sound capture based on your recording environment.

Recording with the Microphone

1. Start your recording software and ensure the microphone input is selected.
2. Perform sound checks to confirm audio levels and quality before starting your recording session.

Maintenance and Care

1. Store the microphone in a protective case when not in use to prevent damage.
2. Clean the microphone grill and body regularly with a soft cloth to remove dust and debris.

FAQ

- **Q: How do I connect the WA-8 7R2 microphone to my computer?**
  - **A:** You can connect the microphone to your computer using an audio interface or a USB audio adapter, depending on the available ports on your computer.
- **Q: Can I use the WA-8 7R2 microphone for live performances?**
  - **A:** Yes, the WA-8 7R2 microphone is suitable for live performances due to its high-quality sound reproduction and durability.

INTRODUCTION

THANK YOU!

Updated and Upgraded

- In 2016, we at Warm Audio introduced one of the most talked-about 87-style FET condenser microphones in the industry with the release of the WA-87, and at just USD 599 it made the looks and authentic vintage sonics of this style of mic affordable to customers for the very first time. Simply put, the release of the WA-87 changed the industry's perception of what could be achieved at an affordable price.
- Based on classic '60s circuitry, the WA-87's rich sound became a favorite of countless producers, engineers, and home recordists everywhere.
- It was our first microphone and a verifiable hit, and in recent years we've followed it with many other successful and ground-breaking designs.
- Since the release of the WA-87 in 2016 we've learned a bunch more about microphone manufacturing, and we've proven that we can shatter the industry's quality expectations at affordable prices.
- That experience drove us to see if we could improve the WA-87 in tangible ways without having to raise the price, and the result is the new WA-87 R2 (Revision 2).
- We've used everything we've learned about recreating vintage microphones in the last five years to bring it even closer to the sound, vibe, and performance of the original 60s classic we all know and love.
- We're ecstatic to bring you the result – in short, the new WA-87 R2 is bigger, bolder, and just plain better!

Bryce Young

- President
- Warm Audio
- Liberty Hill, Texas USA

REGISTER YOUR WA-87 R2!

- Before we begin, please take the time to visit **www.warmaudio.com** to register your product. To ensure you receive proper and uninterrupted warranty support for your product, please register your unit within 14 days from purchase.

WARRANTY STATEMENT

- Warm Audio warranties this product to be free from defects 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-transferable.
- This warranty is void in the event of damage incurred from unauthorized service to this unit, or from electrical or mechanical modification to this unit.
- This warranty does not cover damage resulting from abuse, accidental damage, misuse, improper electrical conditions such as Mis-wiring, incorrect voltage or frequency, unstable power, disconnection from earth ground (for products requiring a 3-pin, grounded power cable), or exposure to hostile environmental conditions such as moisture, humidity, smoke, fire, sand or other debris, and extreme temperatures.
- Warm Audio will, at its sole discretion, repair or replace this product promptly.
- This limited warranty extends only to products determined to be defective and does not cover incidental costs such as equipment rental, loss of revenue, etc.
- Please visit us at **www.warmaudio.com** for more information on your warranty, or to request warranty service.
- This warranty applies to products sold in the United States of America. For warranty information in any other country, please refer to your local Warm Audio distributor.
- This warranty provides specific legal rights, which may vary from state to state. Depending on the state in which you live, you may have rights in addition to those covered in this statement.
- Please refer to your state laws or see your local Warm Audio retailer for more information.

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.

NOW LET'S GET STARTED

A FAITHFUL REPRODUCTION WITH TOP-SHELF COMPONENTS

- The WA-87 is based on a classic 60s circuit that is widely considered to be one of the greatest studio microphones ever designed.
- We spent countless hours trying to get even closer to the sound of the vintage version than we had with the WA-87, so the new WA-87 R2 uses top-quality components like a NOS Fairchild transistor and high-bandwidth polystyrene and film capacitors from Wima.
- The WA-87 R2 uses a custom-wound Cinemag USA output transformer like the original WA-87 did, with the new version providing a slightly increased output level and improved frequency response.
- We also employed the same capsule the WA-87 uses, which was designed to the exact specifications of the ones found in the vintage mics.
- The result is an incredibly accurate sonic replica of arguably the widest-used studio microphone in popular recording history!

STUNNING IN SOUND AND APPEARANCE

- The WA-87 R2 is now encased in a heavier, stronger, and larger nickel-plated brass body, and the new rounded head basket shape adds additional space around the capsule for a more pleasing sonic signature.
- With authentic vintage warmth and a smooth detailed top end, we truly believe this mic performs on par with microphones costing five times as much or more.
- No matter what else you've got in your mic locker, the WA-87 R2 is sure to become one of your favorite go-to microphones!

FEATURES

1. **Pattern Select Switch**
    - This switch selects the polar pattern for the WA-87 R2's capsule. The three polar pattern options are (from left to right) Omnidirectional, Cardioid, and Figure-Of-Eight.
2. **XLR Output**
    - The WA-87 R2's output is a balanced, gold-contact 3-pin XLR which accepts a standard XLR to XLR shielded microphone cable.
3. **High Pass Filter Switch**
    - 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 -lOdB pad within the active circuitry. To engage the pad, flip the switch to the right. For a normal output level, flip the switch to the left.

TECHNICAL SPECIFICATIONS

- Large diaphragm studio condenser microphone, with a faithful reproduction of the original vintage 87-style circuit.
- All discrete premium components, including NOS Fairchild transistors and WIMA/Nichicon capacitors.
- Custom Cinemag USA output transformer.
- WA-87-B-5OV capsule-reproduction of classic dual backplate (four-wire termination) K87 capsule.
- Nickel-plated brass body.
- **Three polar patterns:** cardioid, figure-of-eight, and omnidirectional.
- -10dB pad and 80Hz high pass filter.
- **Frequency response**: 20Hz – 20kHz.
- **SPL:** 5% THD @ 125dB (without pad), 132 dB.
- **Diaphragm:** 6 micron thickness, 1-inch diameter, gold-sputtered membrane, NOS mylar (PET film).
- **Noise:** -117dB.
- **Included accessories:** wooden storage case, hard mount, and shock mount. (Optional flight case available.)

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 R2 microphone.
- We will begin with what the WA-87 R2 is and is not, and then briefly discuss different applications and ways to get the best results from your WA-87 R2.
- The WA-87 R2 is primarily a studio condenser, which is to say it is a microphone that requires +48v phantom power 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 many reasons which include its relative size and its relative sensitivity compared to most live performance dynamic microphones.

- Though its capsule is electrically isolated, it is not internally shock mounted as most live performance microphones are, utilizing some form of internal suspension mechanism.
- The WA-87 R2 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 R2 is considered a side-address microphone in the sense that its capsule is mounted upright, projecting outward from either side of the microphone when the microphone is standing upright or suspended upside down.
- The front face of the microphone body is the side that 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 ‘backside’.

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 micing’ 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 micing also tends to capture fewer reflections and other unwanted information.

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 an acoustic guitar, into one side of the microphone while a partner sings into the other side.

USES IN OMNIDIRECTIONAL MODE

- The 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 instruments.
- 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 the 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 the original sound source to reflections and acoustic space.
- The closer to the source, the less space and ambiance will be captured. In some cases, this is fully desirable; and ambiance 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 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. 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.

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 counter the sound you are recording.
- Just because a microphone is set to a 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 a demo quality and a professional quality recording.
- Likewise, when recording combo amps and other instruments, using gobos or other acoustic isolation products can be hugely beneficial.
- Getting proper isolation and just the right amount but not too much room ambiance 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.

SIGNAL INTEGRITY

- In professional audio, a chain is only as strong as its weakest link. When it comes to microphone cables, 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 working 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.
- If 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 1Ov 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 historically known to demand more than most microphones from a good phantom power supply, and our WA-87 R2 is no different in this regard. Another point worth considering is that phantom power, being DC, can tend 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 R2 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 R2, always connect all microphone cables before engaging phantom power; and for best results, give the WA-87 R2 about two minutes after engaging phantom power to fully optimize, 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.
- 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 it; while less expensive, improvised, or foam windscreen-type filters can sometimes have a muffling effect on high frequencies.
- Microphone placement is as much an art as it is a science, and takes a great deal of patience, attentive listening, and trial and error.
- The more music you record the greater instinct you will have for knowing which microphones to first try for given situations, and how to place them.
- One thing to keep in mind is that what a microphone hears will often be radically different from what a casual

observer hears when standing several feet back from where a microphone is. It’s good practice to get down and put one’s ear close to a speaker cabinet or right in front of a bass drum’s resonator head and hear what that microphone is hearing from its position. Get a sense of how different your source sounds close up, farther back, and from different angles.

- Begin to move a microphone around very slowly and listen for the changes in sound that you get. Notice how a small change in mic position can make an under-snare microphone go from bad to good.
- Notice how moving a guitar cabinet mic further to the side of the center cone, or further off axis will affect the sound.

ILLUSTRATIONS

- In this diagram, two WA-87 R2s are used in a spaced pair configuration to record stereo drum overheads, maintaining an equal distance from the snare drum for proper phase.

- In this diagram, two WA-87 R2s are used in a coincident pair, also known as XY configuration, to record stereo drum overheads.

- In this image, a vocalist performs into the WA-87 R2 at a distance of 12″, in a cardioid pattern.

- In this image, two vocalists perform at the same time on either side of the WA-87 R2 using a figure-of-eight pattern.
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- **Liberty Hill, Texas USA**
- **www.warmaudio.com**
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Documents / Resources

	WARM AUDIO WA-87R2 Multipattern Condenser Microphone [pdf] User Manual WA-87R2, WA-87R2 Multipattern Condenser Microphone, WA-87R2, Multipattern Condenser Microphone, Condenser Microphone

References

- One moment, please...
- User Manual