

Rodyweil RO-04

Rodyweil RO-04 Pro Mic Preamp Instruction Manual

Model: RO-04

1. INTRODUCTION

The Rodyweil RO-04 Pro Mic Preamp is a versatile audio device designed to amplify and condition signals from various microphones and instruments. It provides up to 72dB of clean gain, ensuring optimal signal levels for recording and live sound applications. This manual outlines the proper setup, operation, and maintenance procedures to ensure the RO-04 performs as intended.



The Rodyweil RO-04 Pro Mic Preamp, shown with an included XLR cable, ready for connection.

2. SAFETY INFORMATION

Please read and understand the following safety precautions before operating the Rodyweil RO-04 Pro Mic Preamp:

- Do not expose the unit to water or excessive moisture.
- Avoid placing the unit near heat sources or in direct sunlight.
- Use only the specified 5V 1A USB-C power supply.
- Do not attempt to open or service the unit. Refer all servicing to qualified personnel.
- Ensure proper ventilation around the unit during operation.

3. PACKAGE CONTENTS

Verify that all items are present in the package:

- Rodyweil RO-04 Pro Mic Preamp Unit
- USB-C Power Cable

- XLR Cable
- Instruction Manual (this document)

4. PRODUCT OVERVIEW

4.1. Front Panel Controls

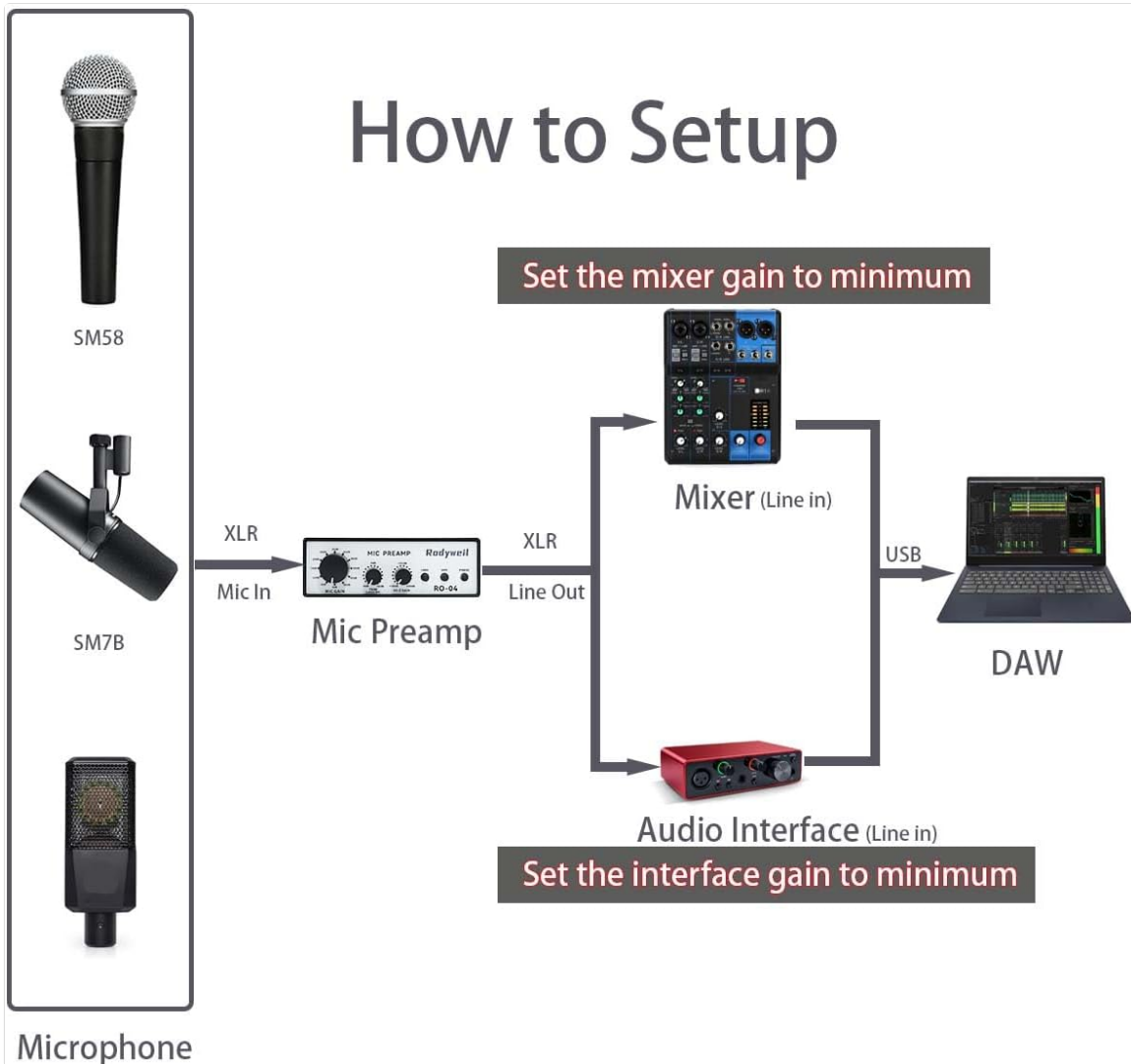


Front panel of the Rodyweil RO-04 Pro Mic Preamp, showing the MIC GAIN, TRIM (LAVALIER), HI-Z GAIN knobs, and the +48V, HPF, and PHASE buttons.

- **MIC GAIN Knob:** Adjusts the gain level for the XLR microphone input from 0dB to 66dB in stepped increments.
- **TRIM (LAVALIER) Knob:** Provides fine-tuning of the microphone gain (-6dB to +6dB) and controls the gain for the lavalier input (0-50dB).
- **HI-Z GAIN Knob:** Adjusts the gain level for the 1/4" instrument input from +10dB to +50dB.
- **+48V Button:** Activates 48V phantom power for condenser microphones. An indicator light confirms activation.
- **HPF Button:** Engages a High-Pass Filter at 100Hz to reduce low-frequency rumble and unwanted noise. An indicator light confirms activation.
- **PHASE Button:** Inverts the phase of the input signal by 180 degrees, useful for correcting phase issues. An indicator light confirms activation.

4.2. Rear Panel Connections

How to Setup



Microphone

Rear panel of the Rodyweil RO-04 Pro Mic Preamp, illustrating the power switch, USB-C power input, XLR and 1/8-inch line outputs, Hi-Z input, lavalier input, and XLR microphone input.

- **ON/OFF Switch:** Powers the unit on or off.
- **POWER (5V 1A) USB-C Port:** Connects to a 5V 1A USB-C power source.
- **LINE OUT (XLR):** Balanced XLR output for connecting to audio interfaces, mixers, or other line-level equipment. Output level: +4dBu.
- **LINE OUT (1/8"):** Unbalanced 1/8" (3.5mm) output for connecting to consumer-level audio equipment. Output level: -10dBV.
- **HI-Z (1/4") Input:** 1/4" TS input for connecting high-impedance instruments like guitars and basses.
- **LAVALIER IN (1/8") Input:** 1/8" (3.5mm) input for connecting unbalanced lavalier microphones. A +10dB button is available for additional gain.
- **MIC IN (XLR) Input:** Balanced XLR input for connecting dynamic, condenser, or ribbon microphones.

5. FEATURES

- **72dB Clean Gain:** The RO-04 provides up to 72dB of amplification, making it suitable for low-output microphones such as dynamic and ribbon types, ensuring a strong and clear signal.
- **Ultra-Low Noise Performance:** With an Equivalent Input Noise (EIN) as low as -120dB, the preamp maintains a clean and hiss-free signal, preserving audio clarity even at high gain settings.
- **High Fidelity Audio:** A Total Harmonic Distortion (THD) of 0.0035% at 1kHz ensures accurate and transparent audio reproduction without unwanted coloration.
- **Independent Inputs:** Dedicated high-impedance (Hi-Z) and microphone input stages allow for simultaneous connection and independent gain control of instruments and microphones.
- **Precise Gain Control:** The 11-step detented gain switch combined with a trim control offers smooth and accurate gain adjustments across the entire range, minimizing noise spikes.
- **Portable Power:** The unit can be powered via a standard USB-C (5V 1A) connection, enabling use with power banks for mobile recording setups.



A digital audio workstation display illustrating the ultra-low noise performance of the Rodyweil RO-04, with an EIN of -120dB.

Works with Power Banks, Record Anywhere



The Rodyweil RO-04 Pro Mic Preamp shown in a portable recording setup, powered by a power bank, highlighting its versatility for recording anywhere.

6. SETUP

Follow these steps to set up your Rodyweil RO-04 Pro Mic Preamp:

1. Connect Input Source:

- For microphones, connect an XLR cable from your microphone to the **MIC IN (XLR)** port on the rear panel.
- For instruments (e.g., guitar, bass), connect a 1/4" TS cable from your instrument to the **HI-Z (1/4")** port.
- For lavalier microphones, connect a 1/8" TS/TRS cable to the **LAVALIER IN (1/8")** port.

2. **Connect Output:** Connect an XLR cable from the **LINE OUT (XLR)** port or a 1/8" cable from the **LINE OUT (1/8")** port to the line input of your audio interface, mixer, or recording device.

3. **Connect Power:** Connect the supplied USB-C power cable to the **POWER (5V 1A)** port on the rear panel and plug the other end into a compatible USB power adapter or power bank.

4. **Power On:** Flip the **ON/OFF** switch on the rear panel to the 'ON' position.

5. **Initial Gain Settings:** Before adjusting the RO-04's gain, ensure that the input gain on your connected audio interface or mixer is set to its minimum level. This prevents signal clipping and allows for precise gain staging with the RO-04.

Rodyweil

RO-03 VS RO-04

Continuous control

Upgraded to

11-step detented control

+

Trim control



High gain can be hard to control, risking overload of the audio interface.

Precise control at both low and high gain levels.

Can loosen over time and cause noise

More durable & stable with no noise.

Diagram illustrating the setup of the Rodyweil RO-04 Pro Mic Preamp, showing connections from various microphones and instruments to the preamp, then to an audio interface or mixer, and finally to a Digital Audio Workstation (DAW).

7. OPERATING INSTRUCTIONS

Once the RO-04 is set up, follow these guidelines for operation:

- **Adjusting Microphone Gain:** Use the **MIC GAIN** knob to set the primary gain level for your microphone. For fine adjustments, use the **TRIM (LAVALIER)** knob. Aim for a strong signal without clipping.
- **Adjusting Instrument Gain:** Use the **HI-Z GAIN** knob to set the appropriate gain level for your instrument.
- **Phantom Power (+48V):** If using a condenser microphone, press the **+48V** button to supply phantom power. Ensure dynamic and ribbon microphones do not receive phantom power unless specifically designed to handle it.
- **High-Pass Filter (HPF):** Press the **HPF** button to activate the 100Hz high-pass filter. This is useful for reducing low-frequency rumble from stages, air conditioning, or vocal plosives.
- **Phase Inversion:** If you encounter phase cancellation issues when combining multiple microphones or signals, press the **PHASE** button to invert the signal's polarity.

Max Gain: 72dB



Microphone 0 ~ 72db (Master gain knob + Trim)

Instrument 10 ~ 50db (Hi-Z gain knob)

Lavalier mic 0 ~ 50db (Trim knob)

An illustration of the Rodyweil RO-04 Pro Mic Preamp's front panel, detailing the gain ranges for Microphone (0-72dB), Instrument (10-50dB), and Lavalier mic (0-50dB).

8. USAGE CONSIDERATIONS

8.1. Compatible Input Devices

0 ~ 72db Gain



Visual representation of the Rodyweil RO-04 Pro Mic Preamp's input capabilities, showing compatibility with dynamic, ribbon, and condenser microphones, as well as instruments and lavalier microphones.

The Rodyweil RO-04 is designed to work with a variety of audio input sources:

- Dynamic Microphones (e.g., Shure SM58, SM7B)
- Condenser Microphones (requires +48V phantom power)
- Ribbon Microphones
- Electric Guitars and Basses (via Hi-Z input)
- Lavalier Microphones

8.2. Incompatible Output Devices

Devices That Cannot Be Used



Why ?

RO-04 is Line out only

these devices lack Line input.

A diagram illustrating devices that are not compatible with the Rodyweil RO-04 Pro Mic Preamp, such as guitar amplifiers, audio amplifiers, speakers, and mobile interfaces, explaining that the RO-04 is line-out only and these

devices lack line input.

The RO-04 provides a line-level output. It is not designed to directly drive devices that require a speaker-level or instrument-level input. Therefore, it should **not** be connected directly to:

- Guitar Amplifiers
- Audio Amplifiers (without a line-level input)
- Passive Speakers
- Interfaces designed exclusively for mobile phones (unless they specifically accept line-level input)

Always connect the RO-04's line output to a device with a dedicated line input, such as an audio interface or mixer.

9. MAINTENANCE

To ensure the longevity and optimal performance of your Rodyweil RO-04:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the unit. Do not use liquid cleaners or solvents.
- **Storage:** Store the unit in a cool, dry place away from direct sunlight and extreme temperatures.
- **Cable Care:** Handle cables carefully. Avoid sharp bends or excessive pulling that could damage connectors or wiring.

10. TROUBLESHOOTING

If you encounter issues with your Rodyweil RO-04, refer to the following common problems and solutions:

- **No Power:**
 - Ensure the USB-C power cable is securely connected to both the unit and the power source.
 - Verify that the power source (USB adapter or power bank) is functioning correctly and providing 5V 1A.
 - Check that the ON/OFF switch on the rear panel is in the 'ON' position.
- **No Sound Output:**
 - Confirm that the input source (microphone/instrument) is properly connected and functioning.
 - Check all cable connections between the RO-04 and your audio interface/mixer.
 - Ensure the MIC GAIN, TRIM, or HI-Z GAIN knobs are not set to minimum.
 - If using a condenser microphone, verify that +48V phantom power is activated.

- Check the input selection and gain settings on your audio interface or mixer.
- **Distorted Sound:**
 - Reduce the MIC GAIN, TRIM, or HI-Z GAIN on the RO-04.
 - Reduce the input gain on your connected audio interface or mixer.
 - Ensure that the input signal from your microphone or instrument is not excessively loud.
- **Excessive Noise/Hiss:**
 - Ensure all cables are properly shielded and in good condition.
 - Check for ground loops. Try connecting all audio equipment to the same power strip.
 - Activate the HPF button to reduce low-frequency rumble.
 - Verify that gain levels are set appropriately and not excessively high for the input source.

11. SPECIFICATIONS

Specifications				
	Connector	Impedance	Max Input	Max Gain
Mic In	3 Pin XLR	8900 Ω	+24 dBu @ 1KHz	72db
HI-Z In	1/4 inch TS	1 M Ω		40+10 db
Lavalier In	1/8 inch TS/TRS			0-50db
	Connector	Output	Max Output	Output Level
XLR Out	3 Pin XLR	Balanced	+24 dBu @ 1KHz	Line
1/8 inch Out	1/8 inch TS/TRS	Unbalanced	+10 dBu	Line

Frequency Response	10Hz -0.2dB 120KHz -2.9dB	Noise	-104 dBV (22-22KHz Unweighed)
THD	0.0035% @1KHz	EIN	-120 dBV
HPF	100 Hz	Power	5V 1A
Size	143 x 120 x 40 mm	Net Weight	722 g



A detailed table outlining the technical specifications of the Rodyweil RO-04 Pro Mic Preamp, including connector types, impedance, max input/output, gain ranges, frequency response, noise levels, THD, HPF, power requirements, size, and net weight.

Parameter	Value
Item Model Number	RO-04
Mic In Connector	3 Pin XLR
Mic In Impedance	8900 Ω
Mic In Max Input	+24 dBu @ 1KHz

Parameter	Value
Mic In Max Gain	72dB
Hi-Z In Connector	1/4 inch TS
Hi-Z In Impedance	1 MΩ
Hi-Z In Max Gain	40 + 10 dB
Lavalier In Connector	1/8 inch TS/TRS
Lavalier In Max Gain	0~50dB
XLR Out Connector	3 Pin XLR
XLR Out Type	Balanced
XLR Out Max Output	+24 dBu @ 1KHz
XLR Out Level	Line (+4dBu)
1/8 inch Out Connector	1/8 inch TS/TRS
1/8 inch Out Type	Unbalanced
1/8 inch Out Level	+10 dBu
Frequency Response	10Hz -0.2dB, 120KHz -2.9dB
Noise (Unweighted)	-104 dBV (22-22KHz)
THD @ 1KHz	0.0035%
EIN	-120 dBV
HPF	100 Hz
Power	5V 1A
Size	143 x 120 x 40 mm (5.63 x 4.72 x 1.57 inches)
Net Weight	722 g (1.59 lbs)

12. RO-04 vs. RO-03 Comparison

The Rodyweil RO-04 offers several enhancements over its predecessor, the RO-03, providing improved control and performance for professional audio applications.

Find the Right Preamp for You



RO-03



RO-04

Gain Range: 19 – 75dB	Gain Range: 0 – 72dB
Continuous gain knob	11-step detented knob for precise control
Shared circuit for mic & instrument	Independent circuits & impedance for mic and inst
Higher noise floor	Ultra-low noise, professional-grade performance
Powered by 12V-2A	Powered by DC 5V Type-C (works with power banks)
Best for beginners on a budget	Ideal for advanced and professional users

A comparison chart highlighting the differences between the Rodyweil RO-03 and RO-04 preamps, detailing gain range, gain control type, input circuit design, noise performance, power supply, and target user.

Feature	RO-03	RO-04
Gain Range	19 - 75dB	0 - 72dB
Gain Control	Continuous knob	11-step detented knob for precise control + Trim control
Input Circuit	Shared circuit for mic & instrument	Independent circuits & impedance for mic and instrument
Noise Performance	Higher noise floor	Ultra-low noise, professional-grade performance
Power Supply	12V-2A	DC 5V Type-C (works with power banks)
Target User	Best for beginners on a budget	Ideal for advanced and professional users

13. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the Rodyweil official website or contact your authorized dealer. Keep your purchase receipt as proof of purchase for warranty claims.

