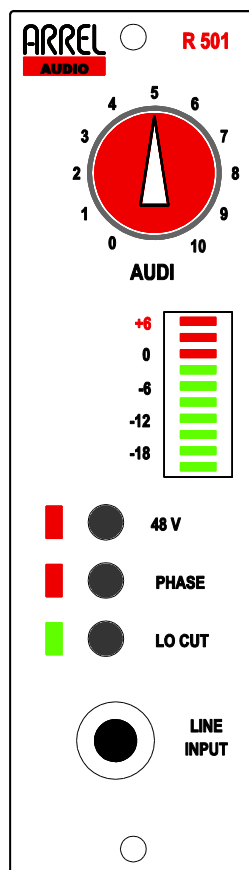




R-501 Mic-Line Preamplifier



User Manual

Issue 0.2

SAFETY INSTRUCTIONS



WARNING

Always follow the precautions listed below to avoid any possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

- Do not expose the instrument to liquids and rain. Do not use it near water or in damp or wet conditions, or place containers on it containing liquids. If any liquid seeps turn off the power and unplug the power cord from the AC outlet.
- Do not put burning items, such as candles, on the unit. A burning item may fall over and cause a fire.
- This instrument contains no user-serviceable parts. Do not open the instrument or attempt to disassemble or modify the internal circuit.
- Never insert or remove an electric plug with wet hands.
- Check the electric plug periodically and remove any dirt or dust which may have accumulated on it.
- Do not place the power cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.



CAUTION

Always follow the precautions listed below to avoid any possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

- Do not connect the instrument to an electrical outlet using a multiple-connector. Doing so can result in lower sound quality, or possibly cause overheating in the outlet itself.
- When removing the electric plug from the instrument or an outlet, hold the plug itself and not the cord. Pulling by the cord can damage it.
- Remove the electric plug from the outlet when the instrument is not to be used for extended periods of time, or during electrical storms.
- Do not place the instrument in an unstable position where it might accidentally fall over.
- Before moving the instrument, remove all connected cables.
- When setting up the product, make sure that the AC outlet you are using is easily accessible. If some trouble or malfunction occurs, immediately turn off the power switch and disconnect the plug from the outlet. Even when the power switch is turned off, electricity is still flowing to the product at the minimum level.
- When you are not using the product for a long time, make sure to unplug the power cord from the wall AC outlet.
- Use only the stand/rack specified for the instrument. When attaching the stand or rack, use the provided screws only. Failure to do so could cause damage to the internal components or result in the instrument falling over.



Information for Users on Collection and Disposal of Old Equipment

This special symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC.

By disposing of these products correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

[For business users in the European Union]

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]

This symbol is only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

ARREL Audio Contacts

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ARREL Audio is continuously working to the improvement of its systems and related documentation.
In any case, we reserve the right to change the specifications without notice but in the respect to the current legislation.

Disclaimer:

The information contained in this manual has been carefully checked and we believed is accurate at the time of publication.
In any case, we do not assume any responsibility for inaccuracies, errors or omissions nor any liability for any loss or damage resulting either directly or indirectly from use of the information contained in this manual.

TABLE OF CONTENTS

SAFETY INSTRUCTIONS	2
ARREL Audio Contacts	3
TABLE OF CONTENTS	4
INTRODUCTION	5
Housing.....	6
Installation Instructions	6
R-501 Front Panel Controls and Operations.....	7
Input Source selection.....	7
Phantom-Power switch.....	7
Gain Control knob	7
LO-CUT switch	7
Phase switch	7
Level Indicator	7
APPENDIX A: Connections.....	8
APPENDIX B: 500 series module edge connector	9
APPENDIX C: Front Panel.....	10
TECHNICAL SPECIFICATIONS	11

INTRODUCTION

ARREL Audio R-501 Mic-Line Preamplifier has been conceived to offer to the 500 series user the superior audio performance of the ARREL audio higher level products. The unit offers to the 500 user high reliability, rugged design, outstanding audio quality, versatility and ease of use typical of the tradition of ARREL Audio products.

R-501 is perfect for recording every kind of music from classic, pop/rock, electronic and in all the situations (live and recording studio) where maximum sound quality and special attention to dynamic range and signal to noise ratio is needed.

The **R-501** technical specification shows that it is the perfect audio unit also for actual digital recording 24bit/192kHz environments where superior performance is required.

R-501 is based on the use of the latest circuit topologies, characterized by very low distortion, ultra-low noise and very wide frequency response. The amplifier architecture is based on two high dynamic range gain stages in order to avoid any saturation.

Even if the input stage of the R-501 could accept input signals up to +20 dBu, a special protection circuit limits the input level at +12 dBu in order to prevent any damage. The R-501 extended input dynamic range avoids the necessity of the input pad and the gain is controlled by a single large knob. The absence of the input pad means better sonic performances. In fact the pad degrades sound quality and affects signal to noise ratio.

The R-501 contains a special circuit that allows the connection of microphones even if the unit is turned on with the Phantom Power activated (in any case we do not recommend this practice in order to protect your microphones).

The Line Input (unbalanced) is easily accessible from the front panel by a 1/4" TRS jack, the jack insertion excludes the mic input. If a balanced line is connected to the Line Input, it will be automatically unbalanced (cold connected to ground).

To obtain an outstanding audio quality, no servo amplifiers are used in the **R-501** so

IT IS NOT POSSIBLE TO UNBALANCE THE LINE-OUT OF THE R-501.

If you need an unbalanced connection for the line out follow the indications shown in APPENDIX A.

Three illuminated buttons are provided for Phantom Power, Phase inversion, LO-CUT filtering.

A LED bargraph (10 LEDs) is used to display the output level.

The **R-501**, offers a very cool satin finish stainless steel front panel and a semi closed stainless steel enclosure.

R-501 is dedicated (due to his absolute sonic level quality) to high professional vocal recordings, classical instruments, high dynamic range instruments such as drums and percussions.

ARREL Audio products are designed and manufactured in Italy.

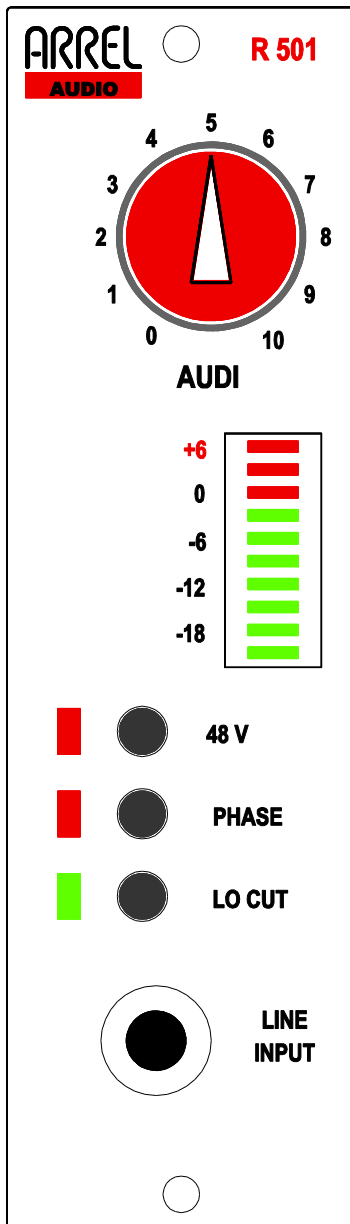
Housing

The R-501 Mic-Line Preamp Module has been designed to be compliant with the 500-series standard.

Installation Instructions

- Remove the R-505 module from the packaging.
- Turn off the 500-series enclosure and remove mains power.
- Find an empty slot in the 500-series rack and remove the 2 fastening screws, positioned one on the top of the enclosure and one the the bottom of the enclosure.
- Insert the R-505 into the empty slot in the 500-series enclosure, Be sure that the rear edge connector on the R-505 module mates correctly with the edge connector of the 500-series enclosure.
- Replace the 2 fastening screws through the top & bottom holes in the R-505 module and screw into the 500-series enclosure. The module must be secured into the enclosure before turning the mains on.
- Apply mains power into the 500-series enclosure and turn on.
- Connect the microphone, audio source or instrument and select the correct settings.
- The module is not designed to be hot-plugged, so please ensure the power to the 500-series enclosure is OFF before inserting or removing a module (this recommendation is useful in order to protect the 500 enclosure circuits, our product due to a very robust construction could be hot-plugged without problems).

R-501 Front Panel Controls and Operations



INPUT SOURCE SELECTION

The R-501 input stage is based on a differential amplifier so it is “electronically balanced”. If the Line-In 1/4" jack is not inserted on the housing on the front panel the mic input is activated, the insertion of the Line In jack disconnects the mic input. Due to its very high dynamic range, the ARREL Audio R-501 does not require any input PAD switch.

PHANTOM-POWER SWITCH

Press the button to activate the +48 V Phantom Power (red LED on). To deselect the Phantom Power press again the button (red LED off).

A special circuit allows the connection of microphones even if the unit is turned on with the Phantom Power activated.

GAIN CONTROL KNOB

Turn the gain knob in order to select the required amount of gain for either the mic input or the Line input.

The gain range if the mic input is activated is 66 dB. If Line input is activated the range is 30 dB.

LO-CUT SWITCH

Push the button to activate the high pass filter (green LED on). The filter cut-off frequency is 80 Hz with 12 dB / Oct. slope. Press again to switch off the filter (green LED on).

PHASE SWITCH

Push the button to invert the phase of the audio signal by 180 degrees (red LED on). Press again to switch off the phase inversion (red LED off).

LEVEL INDICATOR

The output level Indicator is based on a 10-LED Bargraph (7 x green LEDs and 3 x red LEDs) that measures in the range +6/-21 dBu, The resolution

in 1.5 dB per step.

APPENDIX A: Connections

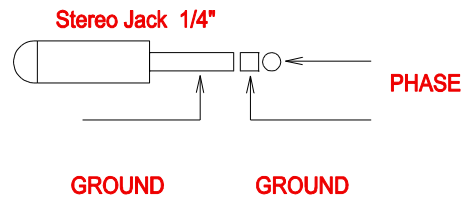
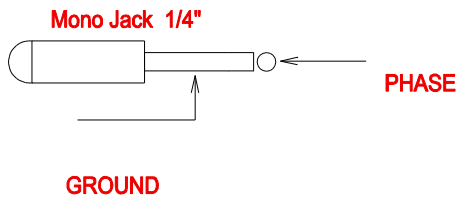


WIRING R - 501

LINE INPUT

Mono Jack 1/4"

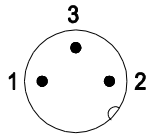
Can be used Stereo Jack instead



MICROPHONE INPUT

XLR

On the back



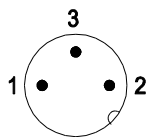
- 1 = Ground
- 2 = PHASE +
- 3 = PHASE -

Balanced line only - dont' connect unbalanced lines

MAIN OUTPUT

XLR

On the back



- 1 = Ground
- 2 = PHASE +
- 3 = PHASE -

Balanced line only - To use unbalanced lines
disconnect pin 3

FIG. 1 R-501 Connections

APPENDIX B: 500 series module edge connector

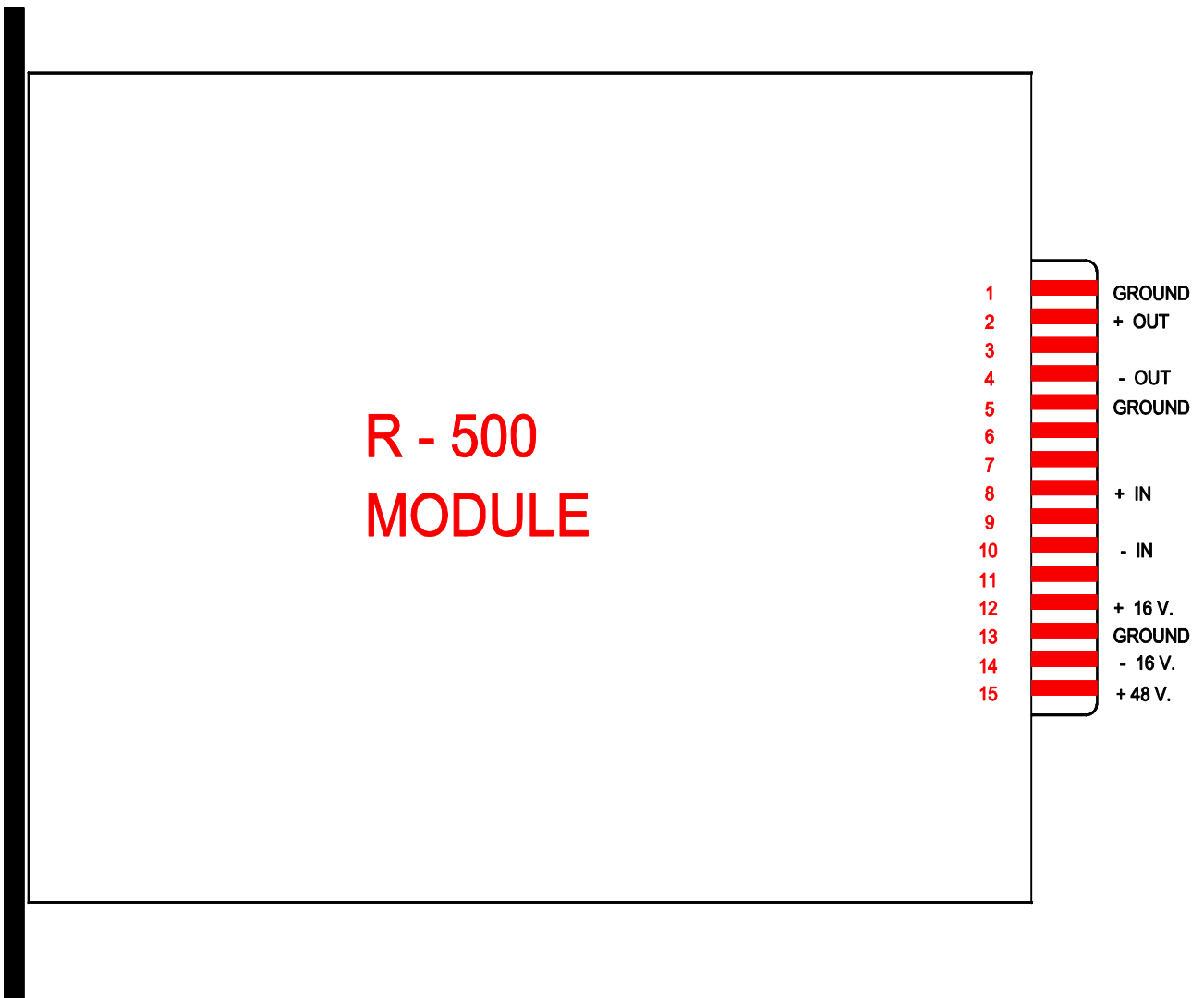


FIG. 2 500 Series module edge connector

APPENDIX C: Front Panel

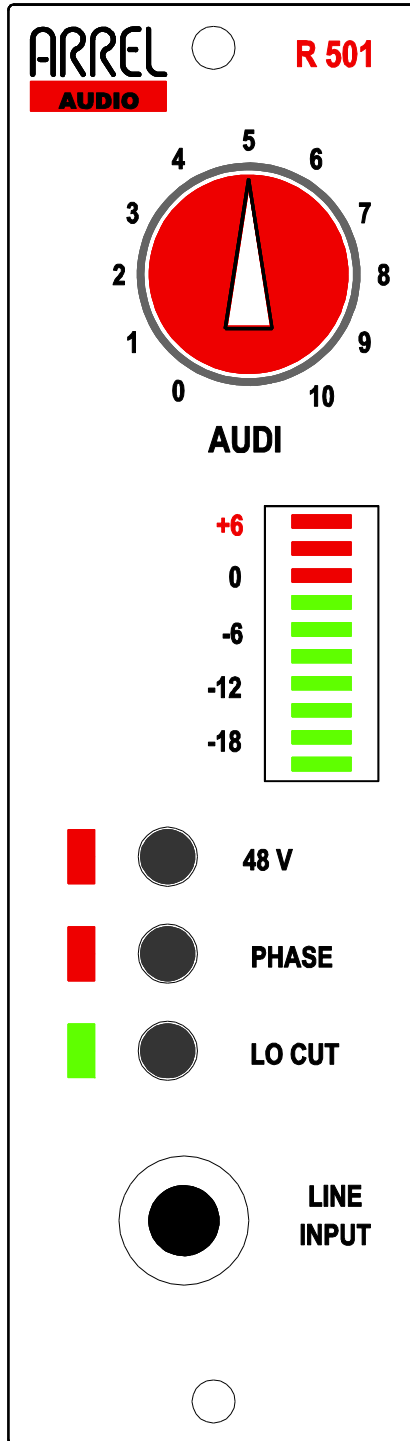


FIG. 3 R-501 Front Panel

TECHNICAL SPECIFICATIONS

Number of Channels:	1
Power Supply	± 16 V DC, 48 V DC, very low power supply currents with respect to the 500 series standard
Microphone Input	Electronically Balanced, Phantom Power switch (LED), Input Level +10 dBu/-56 dBu, Max input level +20 dBu (internal limited to +12 dBu), Input Impedance 4 KΩ
Microphone Gain	66 dB range with a continuous potentiometer control.
Line Input	Unbalanced, Impedance 47 KΩ, Line level 0/-30 dBu, Max +20 dBu.
Line Gain	30 dB range with a continuous potentiometer control.
Bandwidth	5 - 150 KHz ± dB, perfect square wave up to 20 KHz
Distortion + Noise	<0.003% (typical 0.001%).
Low Cut Filter	80 Hz. 12 dB / oct., selected by a button (LED)
Output Level	Electronically Balanced, Level +4 dBu, Max +25 dBu.
Front Panel Controls	48V Phantom Power button, Lo-Cut button, Phase Reverse button.
Front Panel Input Connectors	1/4" TRS jack, Line-Mic switch by line jack insertion
Front Panel Indicators	Level Indicator 10-LED Bargraph (7x green, 3x red), 1.5 dB step, Range +6/-21 dBu, 3 x red LEDs (48V Phantom Power, Lo-Cut, Phase).
Rear Panel Input Connectors	Series 500 compatible connector
Construction	Compliant 500-series rack with PSU and external audio connections, Single 500-series rack slot required for each R-501 module.
Dimensions	Series 500 compatible module
Weight	500 g