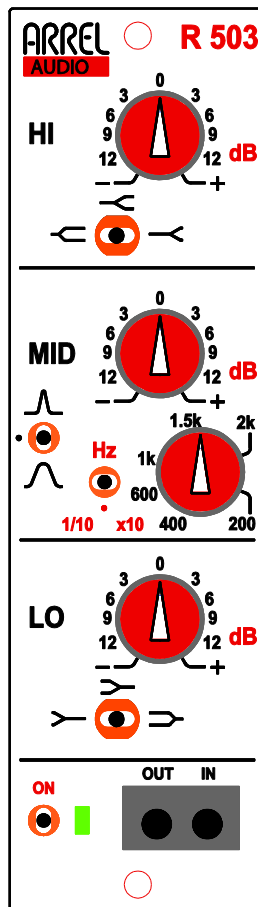




R-503

Parametric Equalizer + 2 Shelf Baxandall (BAX) bands



User Manual

Issue 0.4

SAFETY INSTRUCTIONS



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.



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.

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INTRODUCTION

ARREL Audio R-503 is an advanced parametric equalizer + 2 Shelf Baxandall (BAX) bands to offer to the 500 series user the superior audio performance of the ARREL audio high level products. The R-503 is characterized by high reliability, rugged design, outstanding audio quality, versatility and ease of use typical of the tradition of ARREL Audio products.

Due to the presence of front panel IN OUT BANTAM connectors the R-503 can be easily "patched" with other modules of the R-500 series (R-501 ELITE, R-509 or other units) without the needs to access to the back panel.

The **R-503** equalizer is based on the Livio Agentini's "Single-Stage Parallel Configuration" patented design. This innovative phase coherent EQ design offers the lowest distortion/noise specifications, not available in other products.

The **R-503** filtering section offers three bands LO, Parametric, HI. The emphasis/de-emphasis control range is ± 12 dB for the parametric section and ± 14 dB for the shelving sections.

The HI and LO are shelving Baxandall filters, three position switches are used to implement three different shelving frequency responses.

The parametric filter a bell shaped filter, with continuous control of the central frequency, three possible bands are switchable (F/10, F x 1, F x 10) for a total control in the range 20 Hz, 20KHz. The Q control value (narrow, mid, large) is switchable.

A bypass switch is used for a true analog by-pass function (LED).

To obtain an outstanding audio quality, no servo amplifiers are used in the **R-503** so If you need an unbalanced connection for the **SEND** out follow the indications shown in APPENDIX B.

R-503 is one of the models of the series of equalizers that ARREL Audio conceived for the 500 series (the other models are R-502, R-504, R-505) in order to give to the user the best choice for its application.

The **R-503**, offers a very cool satin finish stainless steel front panel and a semi closed stainless steel enclosure.

R-503 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.

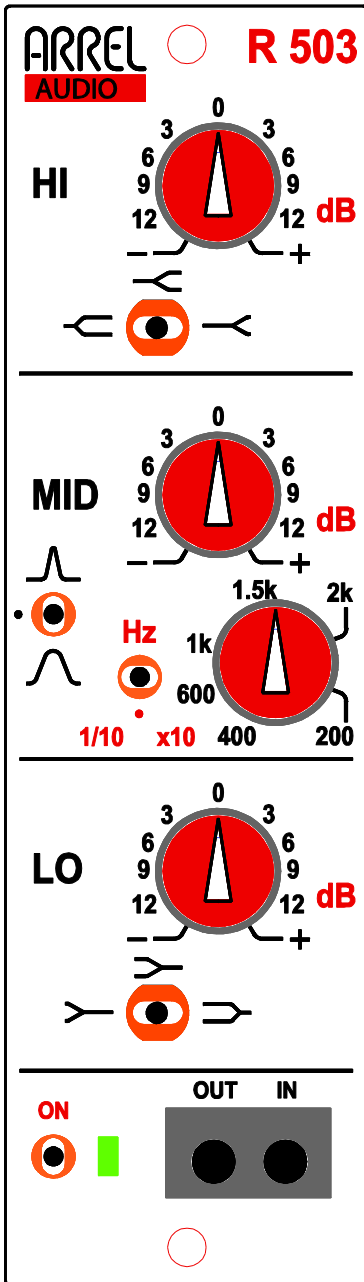
ARREL Audio products are designed and manufactured in Italy.

Housing

The **R-503** single band parametric equalizer + 2 Shelf Baxandall (Bax) bands module has been designed to be compliant with the 500-series standard.

Installation Instructions

- Remove the R-503 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-503 into the empty slot in the 500-series enclosure, Be sure that the rear edge connector on the R-503 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-503 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-503 Front Panel Controls and Operations

SHELVING SHAPES FOR HI AND LO

The shape of the shelving curves for the HI and LO bands are controlled by a switch. Three positions are available.

EMPHASIS/DE-EMPHASIS CONTROL KNOB (HI, PARAMETRIC, LO)

Rotate the emphasis-de-emphasis control knob to change the frequency content in a range of range of ± 12 dB for the parametric section and ± 14 dB.

CENTER FREQUENCY CONTROL SWITCH (PARAMETRIC)

Three possible bands are switchable ($F/10$, $F \times 1$, $F \times 10$) for a total control in the range (20 Hz, 20 kHz).

CENTER FREQUENCY CONTROL KNOB (PARAMETRIC)

Rotate the central frequency knob to change the frequency in a range defined by the control frequency control switch.

Q CONTROL SWITCH FOR THE PARAMETRIC BAND.

Turn the toggle switch to change the Q. Three positions are available: narrow, medium, large.

ON SWITCH

Setting the switch on the ON position will turn ON the equalizer (LED on). Set the switch on the opposite position to turn off the equalizer (LED off).

APPENDIX A: Front Panel

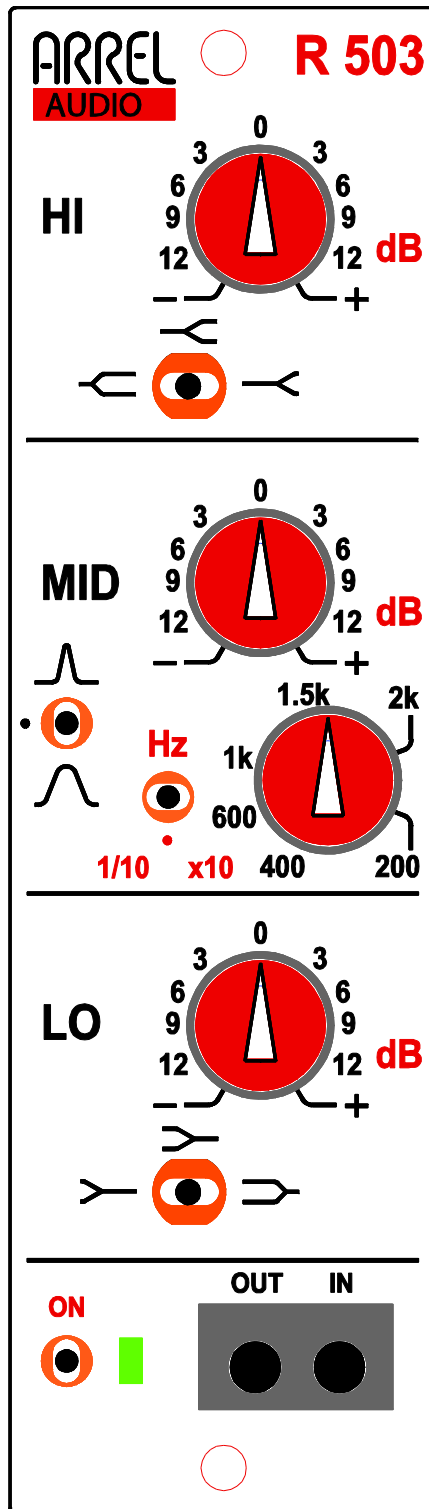


FIG. 1 R-503 Front Panel

APPENDIX B: EXTERNAL CONNECTIONS

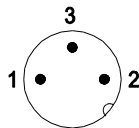


WIRING R - 503

LINE INPUT

XLR

On the back



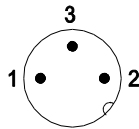
- 1 = Ground
- 2 = PHASE +
- 3 = PHASE -

Balanced line - Can be unbalanced

OUTPUT

XLR

On the back



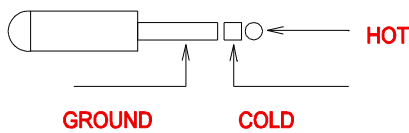
- 1 = Ground
- 2 = PHASE +
- 3 = PHASE -

Balanced line only - To use unbalanced lines disconnect pin 3

INSERT SEND

BANTAM

On the front panel

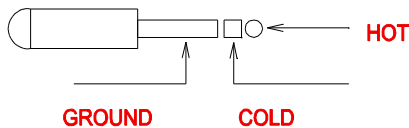


Balanced line only - To use unbalanced lines disconnect RING

INSERT RETURN

BANTAM

On the front panel



Balanced line Can be unbalanced

FIG. 2 External connections

APPENDIX C: 500 series module edge connector

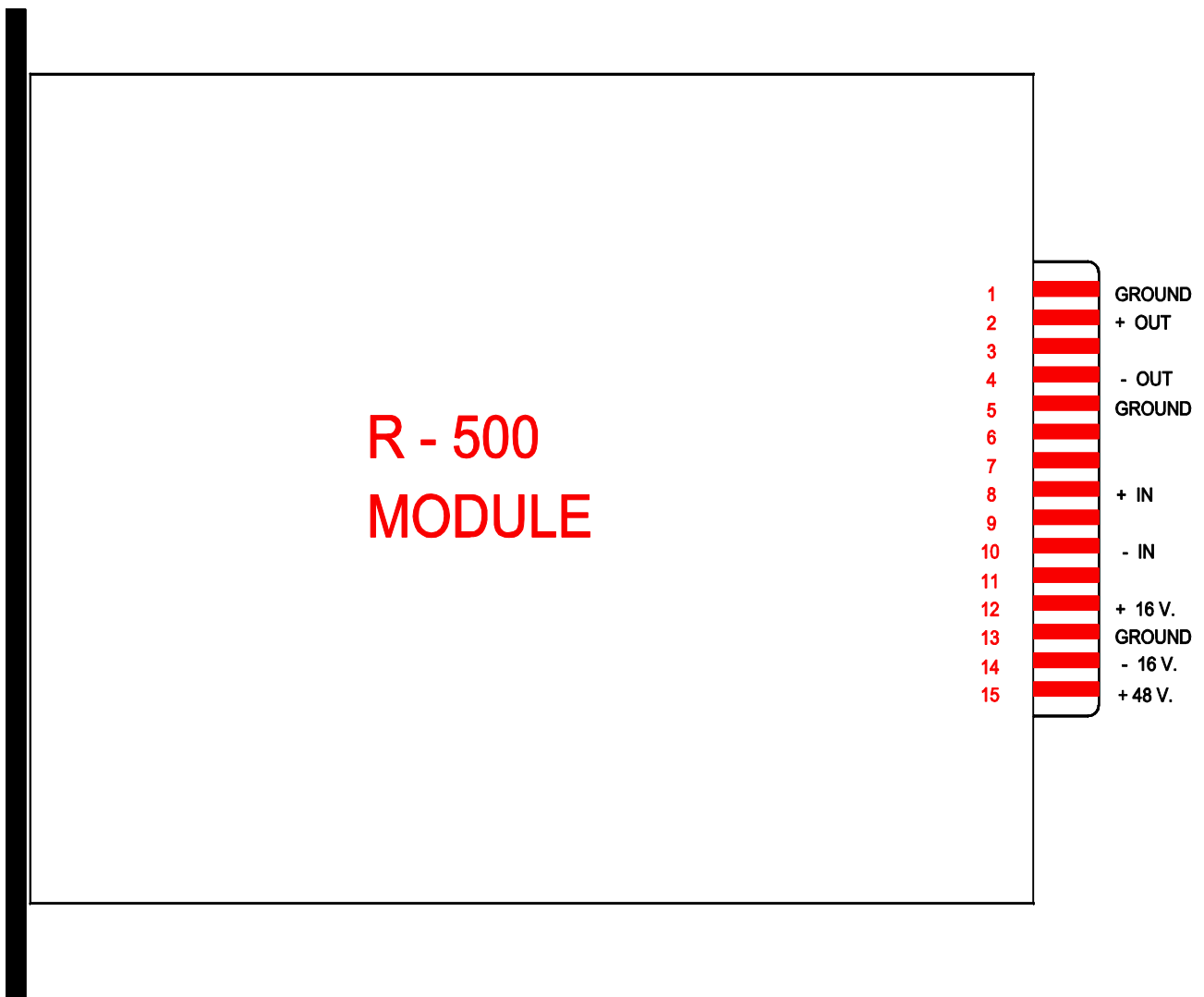


FIG. 3 500 Series module edge connector

TECHNICAL SPECIFICATIONS

Number of Channels:	1
Power Supply	± 16 VDC, very low power supply currents with respect to the 500 series standard
Line Input	Balanced, Impedance 20KΩ, Input Level +4dBu, Max +24 dBu.
Output	Electronically Balanced, Level +4 dBu, Max +28 dBu, Output Impedance 100 Ω
Bandwidth	5 - 150 KHz ±1 dB, perfect square wave up to 20 KHz
Distortion + Noise	<0.003% (typical 0.001%).
Front Panel Controls	True By-Pass button (LED), HI / LO gain (Emphasis/De-Emphasis) pot control, Range ± 14 dB ect (Parametric section, ± 12 dB), center detect. Central Frequency: pot control Frequency band control: three positions switch (Frequency/10, Frequency x 1, Frequency x 10 Q control: three positions switch (narrow , medium, large) BAX Shelving shape control (LO and HI) switchable (3 shapes).

ARREL Audio

Frequency Bands	LO: Baxandall (BAX) Shelf Shape, three position switch (three shapes), PARAMETRIC: Bell Shape, 20/200 Hz (F / 10), 200/2000 Hz (F x 1) or 2000/20000 Hz (F x 10), HI: Baxandall (BAX) Shelf Shape, three position switch (three shapes).
Rear Panel Input Connectors	500 series compatible connector
Front Panel connectors	BANTAM in and out connectors
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 standard
Weight	500 g

Data is subject to change without notice