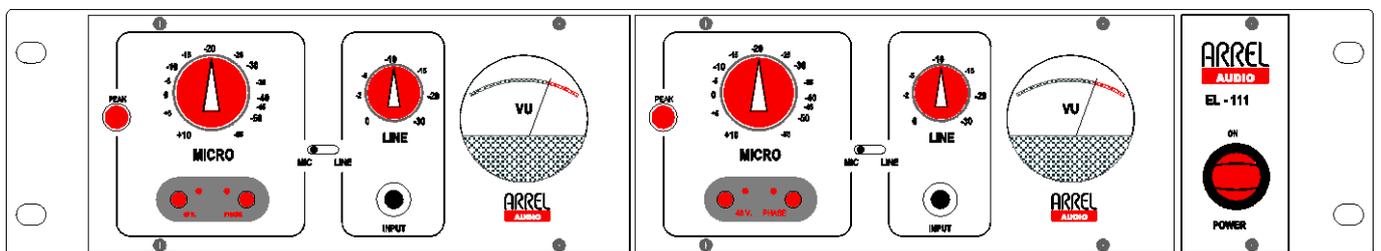




EL-111

Dual Mic-Line Preamplifier



User Manual

Issue 0.3

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 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

The **ARREL Audio EL-111** modular mic-line preamplifier, conceived for professional user, combines high reliability, rugged design, audio quality, versatility and ease of use. **EL-111** is perfect for recording every kind of music from classic, pop/rock, electronic, and in all the situations where the maximum sound quality and special attention to dynamic range and signal to noise ratio is needed.

The **EL-111** technical specification shows that it is the perfect audio system for actual digital recording 24bit/192kHz environments where superior performance is required.

EL-111 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 saturation.

Even if the input stage of the EL-111 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 EL-111 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 being it an attenuator it deteriorates the sound quality and reduces the signal to noise ratio. In the EL-111, the two buttons for phantom power and phase inversion are mounted on a recessed panel in order to avoid accidental operations.

The **EL-111** 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. A switch selects mic or line input. A separated knob is provided for the line-in gain. If a balanced line is connected to the line Input, it will be automatically unbalanced (cold connected to ground).

The two signal paths, mic-in and line-in, are equipped with two independent amplifiers.

To obtain an outstanding audio quality, no servo amplifiers are used in the **EL-111** so

IT IS NOT POSSIBLE TO UNBALANCE THE LINE OUT OF THE EL-111.

If you need an unbalanced connection for the line out there is a bal/unbal switch on the back panel of the EL-111 (follow the instructions in APPENDIX A).

The **EL-111** 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.

The **EL-111** is composed by a 2U rack module equipped with the power supply and two mic-line preamplifier modules. Each module is completely independent and can be inspected separately; four screws are used to fix the modules. A chassis of the Classic Series can be configured with different modules of the Classic Series (for example a unit composed by a mic-preamplifier and a single equalizer to implement an advanced channel strip).

ARREL Audio products are designed and manufactured in Italy.

Housing and Rack Mounting

The EL-111 has been designed to be compliant with a 2U rack. No specific air conditioning is required for the racks, provided that there is a free flow of air through the rack from front to back and the temperature is maintained in the operating range. Consequently the racks may be stacked.



Fig. 1 Power Supply switch

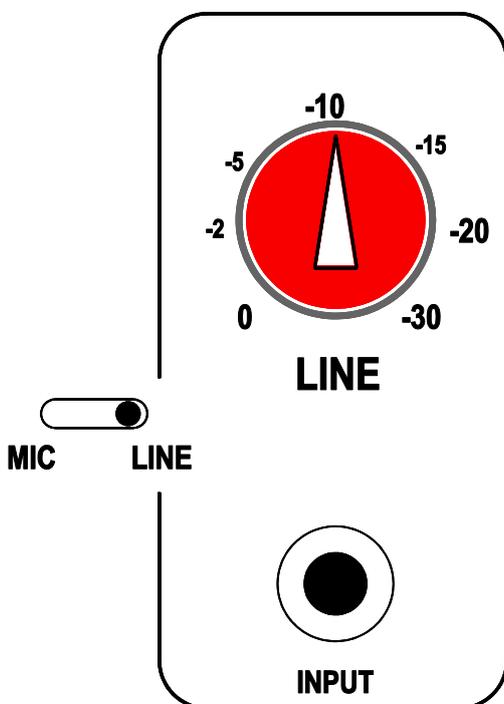


Fig. 2 Line-in section

EL-111 Front Panel Controls and Operations

POWER SUPPLY SWITCH

The EL-111 power-on switch is located in the right part of the front panel. The power on state is indicated by the illumination of the switch (Fig. 1).

LINE/MIC SELECTION SWITCH

The line-in/mic input between the line-in and mic sections of each channel (Fig. 2).

LINE GAIN CONTROL KNOB

The line-in gain control knob is located in the line-in section of each channel. A continuous level control in the 0/-30 dB range is obtained by rotating the corresponding knob (Fig. 2).

LINE INPUT 1/4" TRS JACK

Insert a 1/4" TRS jack in the female connector on the front panel of the EL-111. The input is unbalanced and the impedance is 47 K Ω (Fig. 2). If a balanced line is connected to the Line Input, it will be automatically unbalanced (cold connected to ground).

MIC GAIN CONTROL KNOB

The mic gain control knob is located in the MIC section of each channel. A continuous level control in the +10/-55 dB range is obtained by rotating the corresponding knob. (Fig. 3).

PHANTOM-POWER BUTTON

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 (Fig. 3).

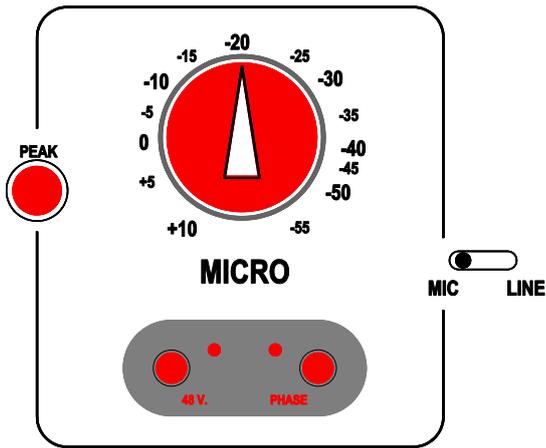


Fig. 3 Mic in section

PHASE BUTTON

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) (Fig. 3).

PEAK INDICATOR

The peak level detector (red LED on) indicates when the output level is -6 dB with respect to the saturation level (Fig. 3). The red LED on do not means saturation but must be interpreted as a warning indicating you reaching the saturation level.

OUTPUT LEVEL VU-METER

The electromechanical output level vu-meter is calibrated in order to indicate 0 dB with a +4 dBu output level. The vu- meter is backlighted.

EL-112 Back Panel Controls and operations

On the back panel of the EL-112 the XLR input and output connectors are located. Moreover each output is equipped with a Bal/Unbal switch (Fig. 4).

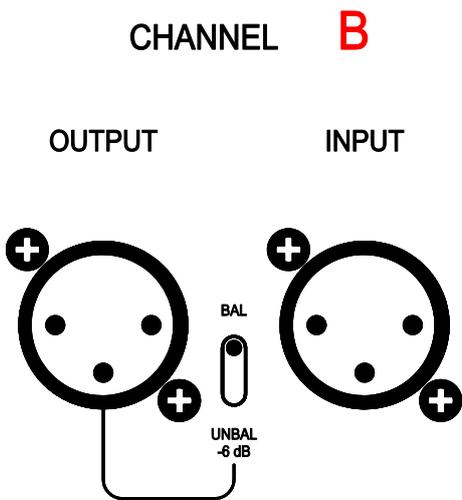


Fig. 4 Bal/Unbal switch

APPENDIX A: External connections

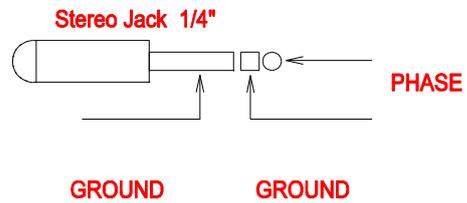
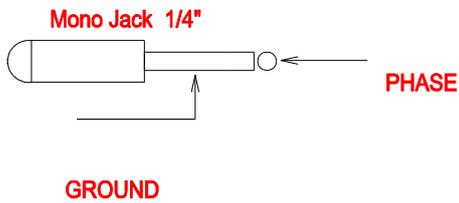


WIRING EL - 111

LINE INPUT

Mono Jack 1/4"

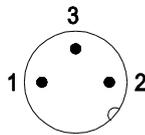
Can be used Stereo Jack instead



MICROPHONE INPUT

XLR

On the back



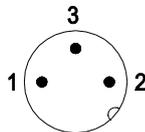
- 1 = Ground
- 2 = PHASE +
- 3 = PHASE -

Balanced line only - dont' connect unbalanced lines

MAIN OUTPUT

XLR

On the back



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

Balanced line only - Switch for unbalanced lines

FIG. 5 EL-111 external connections

APPENDIX B: Half Front Panel

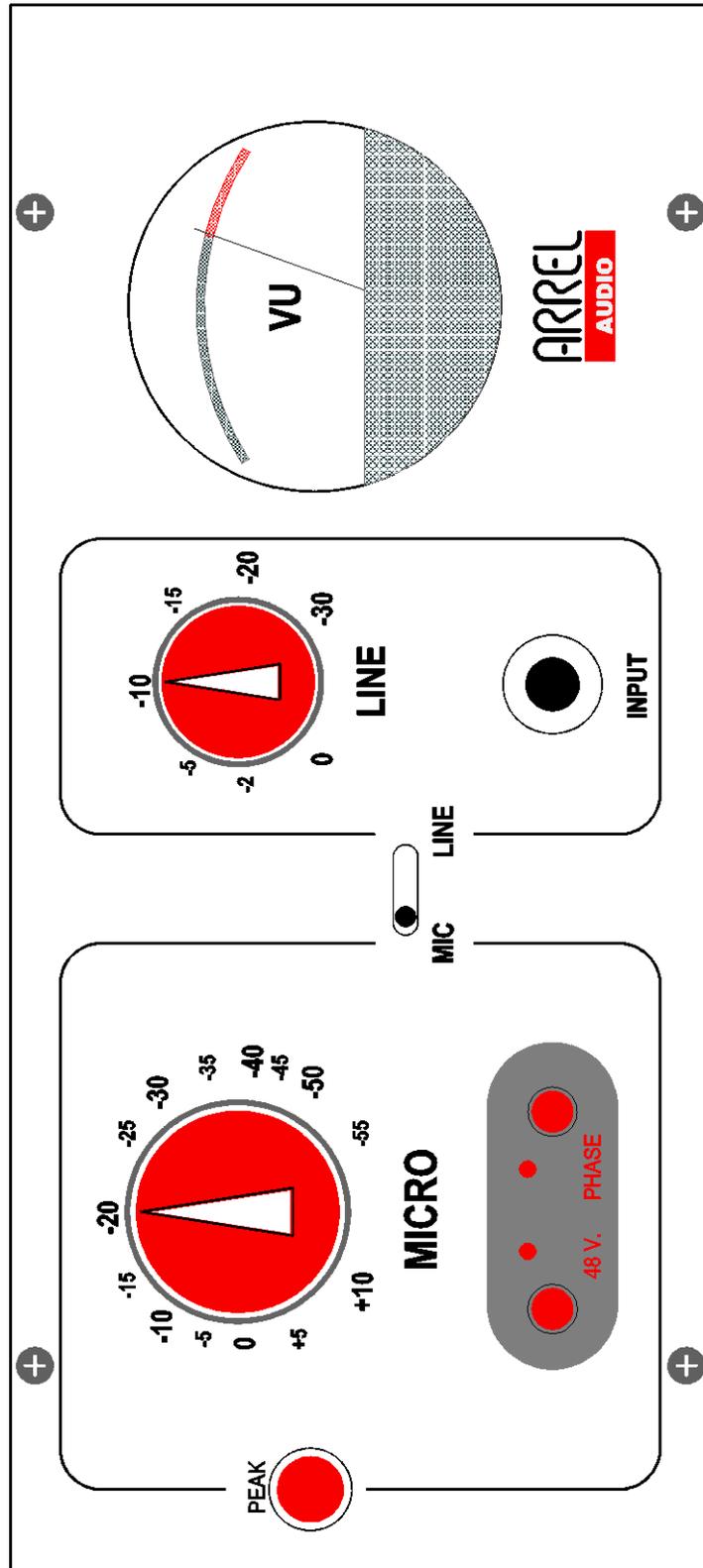


FIG. 6 EL-111 half front Panel

APPENDIX C: Front Panel

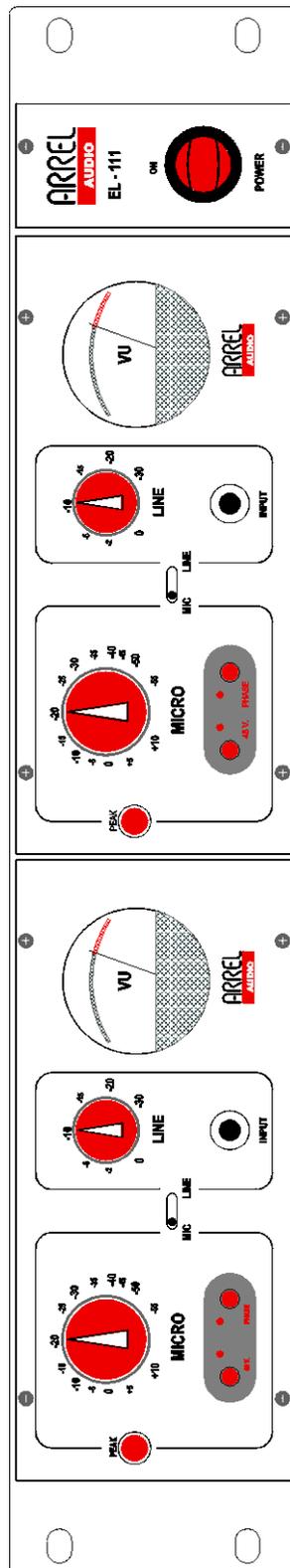


FIG.7 EL-111 front Panel

APPENDIX D: Back Panel

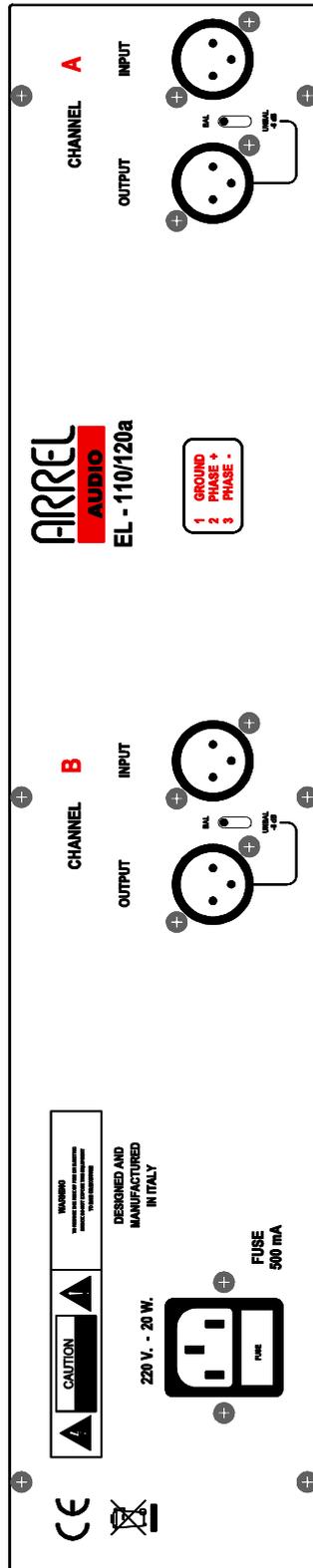


FIG.8 EL-111 Back Panel

TECHNICAL SPECIFICATIONS

| ELITE SERIES MODULAR CABINET SPECIFICATION | |
|---|---|
| MECHANICAL SPECIFICATION | |
| Construction | 19" 2U rack mount metal box |
| Number of Modules | The Elite Series unit can be factory assembled with one or two Elite Series modules |
| Dimensions | W 483 mm / 19", H 88.9 mm/1.75" (1 RU), D 225 mm / 8.86" |
| Weight | 2.8 kg |
| POWER SUPPLY | |
| Power Supply | Linear Regulator (Toroidal Transformer) |
| Operating Voltage | 220V 50 Hz / 110V 60 Hz on request 110 V |
| Power Consumption | 20 W |
| Rear Panel AC mains | IEC C13 16 A connector, AC mains cord with IEC Schuko 16A |
| Output | ± 24 VDC 300 mA, 48 VDC 25 mA |
| Power switch | Front panel backlighted switch |

| EL-111 AUDIO SPECIFICATION | |
|-----------------------------------|--|
| Number of Channels: | 2 |
| Microphone Input | Electronically balanced, Input Impedance > 4 K Ω |
| Microphone Gain | 66 dB range with a continuous rotary knob Maximum input level +20 dBu (internally limited to +12 dBu) |
| Line Input | Unbalanced, Impedance 47 K Ω |
| Line Gain | 30 dB range with a continuous rotary knob Level 0/-30 dBu, Max +23 dBu |
| Bandwidth | 5 - 200.000 Hz -1dB, perfect square wave up to 20 KHz |
| Distortion + Noise | <0.003% (typical 0.001 %) |
| Output | Electronically Balanced, Level +4 dBu, Max +30 dBu (Unbalanced -6 dB), Output Impedance 100 Ω (minimum external load 600 Ω) |
| Front Panel Controls | Line Gain Pot Microphone Gain Pot 48V Phantom Power button Phase Reverse button Mic-Line switch |
| Front Panel Input Connectors | 1/4" TRS jack |
| Front Panel Indicators | Electromechanical VU meters with LED backlighting 3 x red LEDs (48V Phantom Power, Phase Reverse ,Peak Level set to 6dB below clipping) |
| Rear Panel Controls | BAL/UNBAL switches on each output channel |
| Rear Panel Input Connectors | Balanced XLR female (Mic input) |
| Rear Panel Output Connectors | Balanced XLR male (Line Output) |