



μPRE MKII

Portable battery powered stereo microphone preamp with AES/SPDIF digital output

Thank you for buying our μPRE MKII microphone preamp. We hope our device will become an essential companion for your sound recordings. This preamp has been designed and manufactured on the basis of extensive and detailed technical and audio considerations.

The Audioroot μPRE MKII is a high quality microphone preamplifier of yet very simple use. This unit benefits from the best components available in a very small package. The μPRE MKII has excellent technical and audio characteristics that make it compatible with the best microphones available. The μPRE MKII was specially designed to be used as an add-on to your favorite analog mixer, digital audio recorder or any other pro audio equipment.

The μPRE MKII is an autonomous device that can be powered using 2 x 9V batteries or an external power source (wall adapter or external Audioroot eSmart Lithium battery).

Warning

Do not try to repair this product or replace any of its elements if this user manual does not give specific instructions on how to do so. This equipment was built with surface mount components and needs special tooling for repair. The removal of the electronic PCB needs special technical skills.

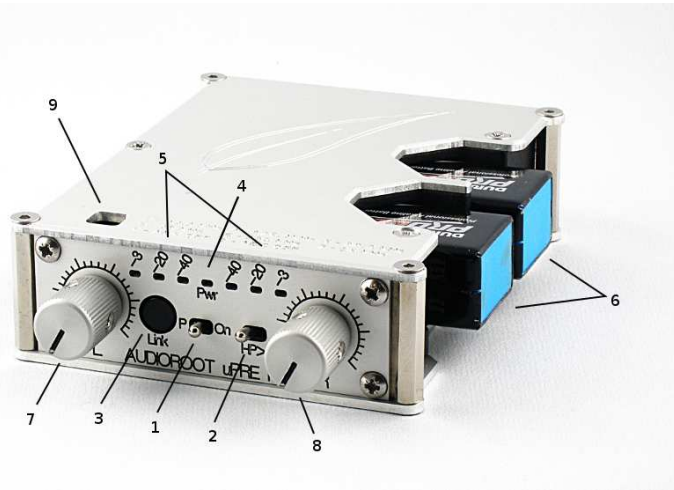
Identification and warranty

The unit's serial number is written on the silver sticker at the bottom of the battery compartment. Never modify, remove or damage this sticker. The unit has a one year warranty from date of purchase. Only officially appointed dealers or Audioroot are allowed to warranty repair of Audioroot products. Any damage caused by tampering, misuse or dismantling of the instrument will not be covered by the warranty and could be considered a reason for rendering the warranty null and void. Return shipping fees are always at the customer's charge.

UNPACKING AND INSPECTION

The μPRE preamplifier products are carefully checked for good condition before being shipped from the factory. Despite the protective carton and rugged design, shipping may damage the unit. Check for possible carton damage when unpacking the unit. Please save the carton for return shipment if required. AUDIOROOT does not warrant against damage caused by returning products in other cartons than the original ones or improperly packing the products. If shipping damage is evident, notify the transportation company immediately. Only the consignee can file a claim with the carrier for shipping damage. AUDIOROOT will fully co-operate in such an event. Be sure to save the carton for the shipper to inspect.

UNIT CONNECTIONS AND CONTROLS:



1. Power supply selection switch.
 - **Central** position : power off
 - **On** position (to the right): preamp on, 48V phantom power off
 - **P** position (to the left): preamp on, 48V phantom power on
2. Low cut filter selection switch.
 - **HP** position: filter in line
 - **Left** position: filter off line

3. Push button link selection switch.
 - Switch **engaged** : button link is not active ; each potentiometer controls the preamplification level of each mic input
 - Switch **disengaged** : button link is active ; the right potentiometer controls the audio level of both mic inputs. The left potentiometer is dis-activated.

4. Pwr/low battery level LED indicator. This LED blinks every 750ms when the unit is connected to an external power supply thru the Hirose input connector. When the unit is powered from the internal batteries this LED will turn on. The LED will start to blink every 300ms when the battery voltage is too low. The user should then replace the batteries as soon as possible. The low voltage threshold is set to 13V (2 x 6.5V). This threshold is compatible with iPOWERUS 9V rechargeable Lipo batteries.

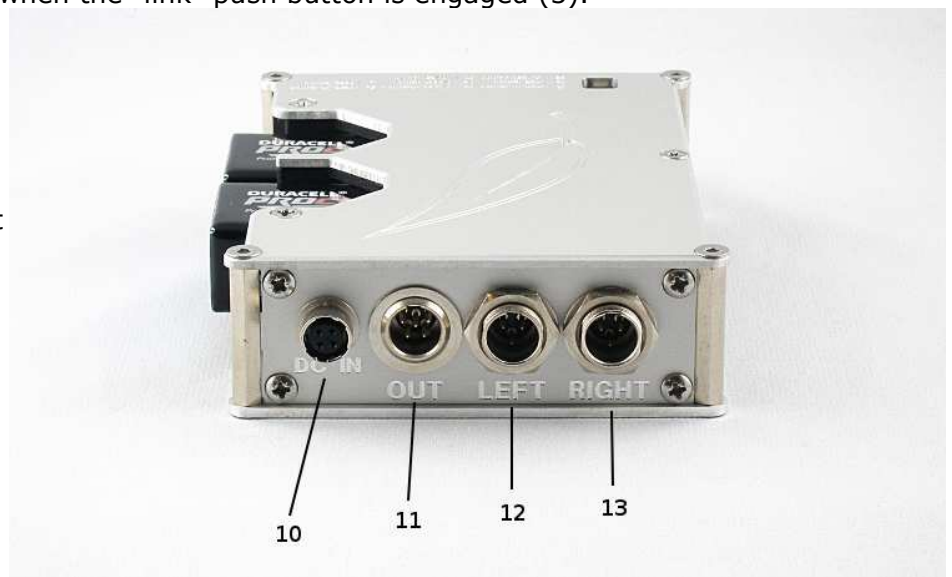
5. Audio modulation LED indicators.

6. Batteries compartment. This compartment is designed to receive 9V 6LR61 or PP3 batteries. Audioroot recommends using alkaline or high power rechargeable lipo batteries. Please respect the + and - polarities. Never leave batteries in the unit during storage. Use only first choice alkaline or rechargeable batteries.

7. **Left** input gain level adjustment potentiometer. Gain can be adjusted from -50dB to +80dB. This potentiometer is deactivated when the "link" push button is engaged (3).

8. **Right** input gain level adjustment potentiometer. Gain can be adjusted from -50dB to +80dB. This potentiometer also controls the gain level of the left input when the link function is activated for stereo operation.(3).

9. **ADC sample rate selector.** Sample rate of the digital output can be selected from 44.1 to 192kHz with the rotary encoder. The ADC can also be shut down to save battery power.



10. External power input. The mating connector reference is Hirose HR10-7P-4P or HR10A-7P-4P (crimp style connector). The µPRE MKII can be externally powered thru this connector with a DC power source ranging from 9 to 18V. Batteries are automatically disconnected when a external power source is connected. The DC IN input is protected against polarity reversal.

Connector wiring :

Pin #1 : GND

Pin #4 : DC+

11. **Output** connector. Mating connector : Switchcraft TA5F. This connector has the following pinout :

Pin #1 : GND (analog and digital ground)

Pin #2 : Analog left (unbalanced)

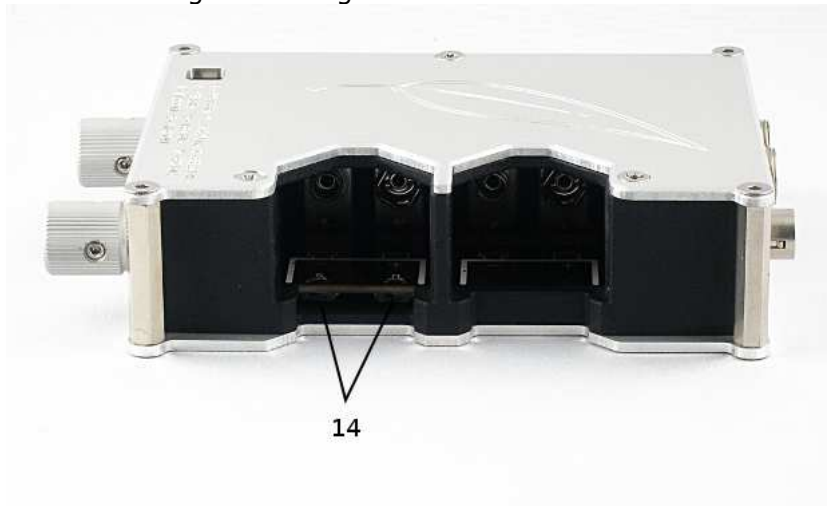
Pin #3 : Analog right (unbalanced)

Pin #4 : AES+

Pin #5 : AES-

12. **Left mic input** connector. This connector has the following pinout : 1-ground, 2-hot signal, 3-cold signal. Mating connector : Switchcraft TA3F.

13. **Right mic input** connector. This connector has the following pinout : 1-ground, 2-hot signal, 3-cold signal. Mating connector : Switchcraft TA3F.



14. M/S decoding selection switches.

These 2 switches are purposely difficult to access; they optionally insert an M/S decoder on the path to the unbalanced stereo output

- In **off** position (both switches to the left) no matrixing takes place on the input signals; it is then possible to record either a conventional stereo signal, or to record "M/S" sources "as they are"

- In **on** position (both switches to the right), the "M/S" signal is decoded and converted to

conventional L/R stereo. With M/S decoding on, the μPRE MKII outputs on its left channel a mixed signal of both microphones (1+2 or M+S) and a subtraction of both microphones on the right channel (1-2 or M-S).

TIP: 2 switches are voluntarily used to enable M/S decoding. By switching only the "M" channel, the μPRE MKII will output a mix of microphones 1 and 2 on the left channel but will still output microphone 2 on the right channel. This setup is very useful when a mono mix of both channels is required.

AUTONOMY:

The autonomy of the AUDIOROOT μPRE MKII depends directly from the power source (battery type), ADC sample rate and microphones connected to the unit. Typical autonomy with 2 iPOWERUS 520mAh lithium-polymer batteries and 2 SCHOEPS CMC64Ug microphones is 3-4 hours. This autonomy rises with dynamic microphones, alkaline batteries or an external power source.

AUDIO INPUTS AND OUTPUTS:

The 2 "LEFT" and "RIGHT" mini-XLR input connectors are disposed at the rear of the unit. These inputs are electronically balanced with an input impedance > 5Kohms. Equipment with asymmetrical outputs can be connected to the μPRE MKII by bridging pins 1 and 3 and connecting them to ground.

The preamp's stereo output is also disposed at the rear end of the μPRE MKII. This output features both analog (unbalanced) and digital signals.

Each microphone preamp is provided with 1 μPRE MKII CABLE KIT which includes the following cables :

- 2 XLR mic input cables
- 1 stereo mini-XLR (2 x TA3F) analog output cable
- 1 stereo mini-jack output cable
- 1 AES (XLR3M) digital output cable

Main specifications :

- 2 Electronically balanced mic inputs via Switchcraft mini XLR
- High efficiency 48V Phantom for Mic Power on each channel
- 80 Hz 12dB/Oct LF Cut filter on both channels
- -50dB to +80dB input gain trims
- Stereo Link
- M/S Decoding – can be used as a mono mixer
- Unbalanced outputs via Switchcraft mini XLR5
- AES (default) or SPDIF 24bits/192kHz digital output
- Miniature 3 leds level indicator per channel
- Power / low battery indicator (13V threshold)
- Rugged hybrid polyamid/aluminum housing
- Anodized/engraved face plates
- 2 x 9V batteries or 9 – 18V external power supply (automatically switched)
- 5 hours typical battery autonomy with 2 Schoeps CMC6Ug and ADC ON
- 10 hours battery autonomy with dynamic microphones and ADC OFF
- Compatible with environment friendly iPOWERUS lipo batteries
- Optional 100-240V power supply
- 130 x 85 x 30mm / 255 grams

Technical specifications:

- Input impedance : > 5kohms
- Min gain : -50dB
- Max gain ($Z_{source} = 50R$, $Z_{load} = 600ohms$) : > 80dB
- Distortion : 0.003% < 40dB gain / 0.005% @ 60dB gain
- Equivalent input noise EIN : -128.8dBu @ gain max ($Z_{source} = 200Ohms$)
- Bandwidth (+/- 3 dB) : 10Hz – 70kHz
- Max output level ($Z_{load} = 600R$) : +17dBu
- Power consumption @ V=12V / 48V off / ADC off : 92mA
- Power consumption @ V=12V / 48V on / ADC off : 130mA
- Power consumption @ V=12V / 48V on / ADC on : 155mA
- Power consumption @ V=18V / 48V off / ADC off : 62mA
- Power consumption @ V=18V / 48V on / ADC off : 85mA
- Power consumption @ V=18V / 48V on / ADC on : 100mA
- (power consumption measurements with 48V phantom powering on are given with 2 x Schoeps CMC64Ug connected)