

Thank you for choosing the MCAudioLab PE1 analog recording channel. This manual reports important information regarding the use of PE1 and we suggest you read it before using the unit to become familiar with all the controls it features. If after unpacking the PE1 you find any damage, please immediately contact your dealer or supplier. We also suggest you retain the original packaging at least during the warranty period in case you need to return the unit for service.

**MCAudioLab** 

⊖ VOLTAGE  ⊖

MODEL

SERIAL #

## IMPORTANT

Fill in the boxes above with voltage, model and your serial number to personalize your unit . The informations and serial number can be found on the back of the product.

The serial number must be quoted in all communication in order to obtain technical support and spare parts. Please register your new MCAudioLab product on “product registration” section in [www.mcaudiolab.com](http://www.mcaudiolab.com) web site

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## INTRODUCTION

The MCAudioLab recording channel PE1 is a combined microphone and DI preamplifier with passive equalizer in one box intended for recording directly to any recording such as tape or hard disk.

The DI can handle pickups, keyboards, or line-level signals.

We have combined these two elements into an integrated package. The PE1 uses a modern tube, class A high voltage circuit topology that meets the requirements of the most demanding recording applications. Excellent audio performances deliver extremely wide bandwidth, low noise, and high headroom.

The PE1 is designed to offer the user a high flexibility; the unit can be used as a microphone-line preamp / DI or as recording channel (preamp+eq) at the same time.

The output stage utilizes Lundahl transformer.

Each unit is built for a great and to last. All power supplies are fully regulated for long hum-free operation and highly filtered to avoid disturbances from the electricity mains.. Each unit is hand-built and meticulously tested and listened before shipment to the customer.

## WARNING!

Before you start your new MCAudioLab Tube PE1, please read the following:

Any tube product is sensitive to a high sound pressure level environment. This may cause microphonics in a recording situation. Make sure you are able to fit shock mount and place the unit in isolation if necessary. Direct light will also effect tubes as well.

PLEASE be sure to have enough space between any stuff; this will ensure your tube unit will not be over heat. Over heating will cause damage to the tubes and shorten their life span.

Included in the box:

- The PE1 Tube Recording Channel
- Power cord
- This instruction manual





## FEATURES

All vacuum-tube class A design  
Master Output level control  
EQ Bypass switch  
TrueLED signal level indicator  
XLR female Input connector  
XLR male Output connector  
Lundahl Input and Output transformers  
Ground lift switch (output only)  
Earth lift switch  
External plug earth connector

## UNIT SIZE:

Width: Standard 19 inches for rack mount installation.  
Height: Standard 3.50 inches or 2U rack space.  
Dimensions (W x H x D) 19" x 3.5" x 12.2"  
Weight: 5 kg - 13.2 lbs.

## TECHNICAL DATA - PE1 specifications

Input line Impedance >10k Ohm  
Balanced XLR Output (line level);  
Recommended minimum load output Impedance: 600 Ohm  
Maximum output Level +22 dBu  
Output Low-Z, transformer-balanced

Power Requirements:  
230 Vac - 160 Watts

### PE1 filter characteristics:

Low Boost/Cut at 20, 30, 60, 90, 120, 150Hz;  
Shelving; 0 to 14dB Boost; 0 to 12dB Cut

High Cut at 4, 6, 8, 10, 12, 16, 20KHz  
Shelving; 0 to 10dB

High Boost at 0.6, 1, 1.5, 2, 3, 4, 5, 8, 10, 12, 14, 16KHz;  
0 to 24dB (sharp Q)  
0 to 16dB (broad Q)

High Bandwidth "Q"  
Sharp: 0.8 to 4 dep. on frequencies  
Broad 0.2 to 1.2 dep. on frequencies

Adjustable output from - to 0 (atten. control)

*In line with our company policy of continuous development, the above specifications are subject to change without notice*

## INPUTS and CONTROLS

### Microphone input:

On the rear panel is the XLR input socket for the Microphone. This female XLR connector is a transformer-balanced input. Connect microphones to this input using standard balanced XLR mic cables. Pin 1 = ground; Pin 2 = + (positive phase); Pin 3 = - (negative phase).

This input may be +48v phantom powered, as selected by the '+48V' switches on the front panel.

**Note:** Do not use phantom power on a microphone that does not require it. Make all mic connections before applying phantom power.

### High impedance input:

On the front panel is the 6.3mm jack input for instruments. The input impedance of this jack is 1M. Set to "Hi-Z" the 'input' switch to activate the high impedance input.

The 1/4" jack connector accepts unbalanced input signal only with:

Tip = + phase and Ring + Sleeve = ground.

### LED-Meter:

The LED level meter consists of three L.E.D. peak program meter and monitors the output signal. It is calibrated in dBu with fast attack and decay time.

The OVR red LED will light if the output level exceeds the +10dB.

The 0dB orange LED will light if the output level is +4dB.

The SGN green LED will light if the output level reaches -20dB.

### Main Output:

The male XLR connector on the rear is a 3 pin transformer-balanced output, with Pin 1 = ground; Pin 2 = + phase, Pin 3 = - phase. Connect this output to 3 pin balanced console, converter, or tape input. When connecting to a balanced patch bay, be sure that Pin 2 = Tip. If you encounter ground loop hum when connecting to active-balanced or transformer-balanced inputs, lift the ground at the Pin 1 on XLR by the switch next to the connector (switch down: ground lift on).

## MIC PREAMP

The microphone preamplifier consists of a microphone input transformer stage with a step-up of +5 dB stepped gain switch, giving a total gain amount of +75dB.

The microphone input is provided with a switchable -20dB attenuation (PAD), switchable +48V phantom-power, phase reverse and a switchable input between the microphone and the DI input.

The microphone input is capable of accepting mic levels. With the PAD switched on, the PE1 can be used as a line amplifier accepting line levels.

The high impedance DI input is unbalanced and placed in the circuit directly after the input transformer. The gain range for this input is from +10dB to +65dB. When in use, the microphone input is disabled.

## MIC PREAMP CONTROLS

### GAIN:

The gain switch has a range from +20dB to +75dB in steps of 5dB if input switch is set on mic; +10dB to +65dB in steps of 5dB if input switch is set on "Hi-Z".

### PAD:

This switch selects -20dB attenuation in front of the microphone transformer input. Use the pad when the XLR input is used with +4dBu line-level balanced sources.

**Note:** the attenuation affects only the XLR input signal and has no effects on the Hi-Z front input source.

### PHANTOM:

The +48V switch turns the phantom +48V DC power on and off. When the +48V switch is on, 48 volts is supplied to pins 2 and 3 of the XLR input.

### Phase reverse:

This switch is used to invert (180°) the polarity (or phase) of the output signal.

### Hi-Z (D.I. input):

The Direct Input is an unbalanced, high impedance input intended for electric instruments. It goes directly into the preamplifier.

### OUT:

The "OUT" knob is the master volume control.

It determines the amount of signal sent to the output stage. The range is from - (knob hard left) to the maximum amount of gain stage (knob hard right).

## EQUALIZER

The three band tube EQ in the PE1 is a passive, RC and LRC inductor-based EQ network followed by an all-tube pure class A line-driver/make-up-gain stage.

It features simultaneous low shelf boost and cut on low frequencies, a high shelf cut frequencies and mid-high bell boost frequencies with variable "Q".

**Note:** The equalizer has not a separate input and cannot be used as stand-alone unit.

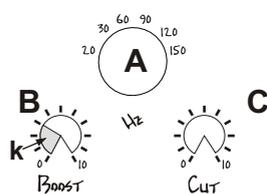
### EQUALIZER CONTROLS

#### LOW FREQ.

Rotary switch selector (A)(20, 30, 60, 90, 120, 150Hz). Use it to select low frequencies

*Low Boost (B)* knob controls the amount of gain on selected freq. The Low Boost is a shelf filter with 14dB max of gain.

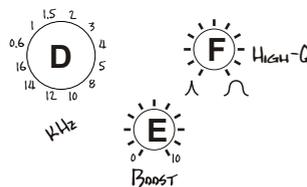
*Low Cut (C)* knob controls the amount of attenuation on selected freq. The Low Cut is a shelf filter with 12dB max of attenuation. Boost and Cut controls may be used at the same time; the cut filter action is reduced if used with boost control trim exceedind the first quarter (K).



#### MID./HIGH FREQ.

Rotary switch (D) (12 steps) selector for Mid-/High freq. (600Hz; 1, 1.5, 2, 3, 4, 5, 8, 10, 12, 14, 16KHz)

*Boost pot. knob (E)* controls the amount of gain on selected freq. by stepped rotary switch. The Boost is a peak parametric filter with 20dB max of gain. The maximum gain depends on the parametric "Q" knob control position.



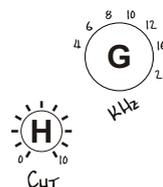
"Q" control knob on mid./high freq. (F)

The "Q" pot. knob control can be used to vary the "Q" factor in mid./high filter section. It acts on boost of mid./high section control only. The "Q" control knob makes peak filter broad or sharp

#### HIGH FREQ.

Rotary switch selector (G) (4, 6, 8, 10, 12, 16, 20KHz). Use it to select high frequencies

*Low Cut (H)* knob controls the amount of attenuation on selected freq. The Low Cut is a shelf filter with 10dB max of attenuation.



#### EQ in:

The saturation of the EQ circuit is controlled by the "EQ in" knob.

Use it to controls the signal amount feeding the input eq stage. Its range goes from - to 0 (no attenuation).

**Note:** The "EQ in" control acts on input eq stage when the eq bypass switch is off; when the eq section is bypassed the EQ input became the master output volume control and the volume knob results cutted away from the signal path.

The PE1 combines these features most often needed when tracking a wide variety of sources and materials.

## Power

Use this switch to turn the unit on and off.

Controls primary AC power to the unit. The primary power is applied to the PE1 circuits when the Power switch is in the up position. The power toggle switch connect or disconnect the phase wire of main AC power supply (IEC connector on the rear). When off, the apparatus is not completely disconnected from AC power source. Detach IEC power cord if the unit is unutilized for a long period.

## GROUND LIFT

When it is activated unlinks pin 1 from signal ground (GND) to avoid hum. Ground lift acts on XLR out connector only.

## EARTH LIFT

The ground switch on the rear panel selects the ground signal path.

In the (1) position the PE1 internal signal ground is connected directly to the mains earth and chassis. In the (2) position the signal ground is lifted from the mains earth.

Normally the switch position should be set on (1); If the output signal is affected with "hum" noise when TP1 is connected to other devices, try the GND lift position (2).

**Note: Chassis is permanently earth connected via central pin of IEC socket. The earth is also connected with a standard plug on the rear of each unit.**

## AC Plug

PE1 uses a standard, detachable IEC power cord. Insert the AC power cord firmly into this socket.

caution: please check to see what voltage your PE1 is set to. The voltage setting is marked on the serial badge on the rear panel. Make sure the voltage is properly set for your area before applying AC power to the unit. Check that this complies with your local supply; if not, please notify MCAudioLab before powering up. Your PE1 has been factory set to the correct mains voltage for your country. If you plan to take the unit to countries with a different mains voltage you will need to send the PE1ch to the MCAudioLab Service Center for the correct transformer primaries wiring conversion and fuse changing.

**Do not attempt to defeat the safety ground connection!**

## Fuse

This unit employs an external AC line fuse (easy access to change your fuse, as necessary ) to help protect it from damages due to overload conditions. If the fuse fails, replace it. If the fuse fails repeatedly, discontinue use of the unit and contact MCAudioLab for service information.

Remove the power cord before checking or changing the fuse.

To avoid any permanent damage replace fuse with the same rate and type only:

### Survival Tips For Tube Equipment:

To prolong tube life, observe these simple recommendations:

After using the equipment, allow sufficient time for it to properly cool down prior to moving it. A properly cooled gear prolongs tube life due to the internal components being less susceptible to the damage caused by vibration.

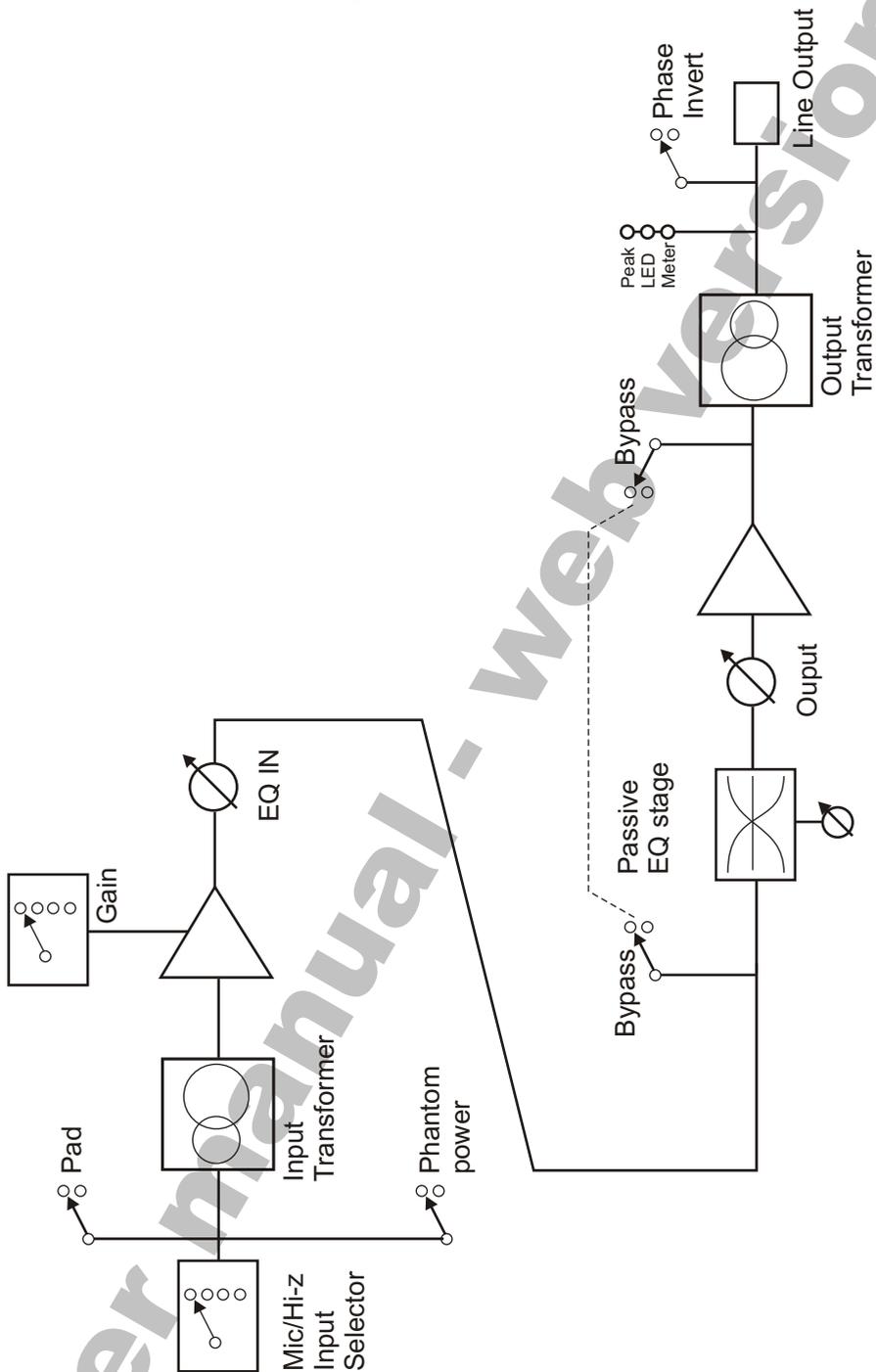
Allow the tube to warm up to room temperature before turning it on. The heat generated by the tube elements can crack a cold glass housing.

Protect the gear from dust and moisture. If liquid gets into, or if the gear is dropped or otherwise mechanically abused, it must be checked out in an authorized service center before using it.

Proper maintenance and cleaning in combination with routine checkups by your authorized service center or dealer, will ensure the best performance and longest life for your tube audio gear.

**CAUTION: Tube replacement should be performed only by qualified service personnel who are familiar with the dangers of hazardous voltages that are present in tube circuitry.**

## PE1 signal flow schematic



All XLR connectors are wired according to AES standard: pin 1 is ground (GND), pin 2 is "high" or "+," and pin 3 is "low" or "-." A positive voltage on pin 2 of the input will result in a positive voltage on pin 2 of the output (with the Phase Reverse switch set to Normal).

### Grounding and Shields:

The Input XLR connector pin 1 (GND) is directly connected to equipment ground. The GND is connected to pin 1 of the output connector and to earth depending on earth-lift switch position.

### **Limited 1 year warranty**

During the warranty period, MCAudioLab will repair or replace defective parts with new ones, at no additional charge.

This warranty does not extend to any equipment that has been damaged or rendered defective as a result of accident, misuse, or abuse; by the use of parts not manufactured or supplied by MCAudioLab or by unauthorized modification of the equipment. Vacuum tubes are excepted from the warranty, but are warranted for 90 days from date of purchase. Except as expressly set forth in this Warranty, MCAudioLab makes no other warranties, express or implied, including any implied warranty of merchantability and fitness for a particular purpose

### **Warranty Repair**

If the PE1 should develop a problem during the warranty period, contact the factory to return shipping instructions. We will repair and return your MCAudioLab equipment quickly.

Note that the warranty does not cover vacuum tubes, which must be periodically replaced.

## **How to contact us**

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