

# DUAL MIC PREAMP LP-21

## User's Manual



**LAFONT AUDIO LABS**

## Table of contents

Section 1	Introduction and precautions	3
1.1	Preface	3
1.2	Unpacking and inspection	3
1.3	Mounting	3
1.4	Power connection	4
1.5	Safety warning	4
Section 2	Warranty	5
Section 3	Signal connections	6
Section 4	Mic preamp	7
4.1	Gain control	7
4.2	High gain	7
4.3	Pad	7
4.4	Phase	8
4.5	Phantom power	8
4.6	Mute	8
4.7	Filters	8
Section 5	MS method of recording	9
5.1	Operating procedure	10
Section 6	External mute control	11
6.1	Remote switch	11
6.2	Open collector logic	11
6.3	Positive logic	12
Section 7	Specifications	13

## **Section 1. INTRODUCTION and PRECAUTIONS**

### **1.1 Preface**

Thank you for using this LAFONT product.

We have prepared this instruction manual to enable you to achieve optimum utility and performance from your new ADR/Foley processor LP-21.

We encourage you to read and make use of the material contained in this manual. Installation and operating of the LP-21 is not complicated but the flexibility provided by its operating features merits familiarization with its connections and controls. We welcome your suggestions and comments on our products and on this manual.

### **1.2 Unpacking and inspection**

Your new LAFONT LP-21 was carefully packed at the factory. Save all the packing material - they will prove valuable should it become necessary to transport or ship this product.

We recommend careful examination of the shipping carton and its contents for any sign of physical damage which may have occurred during transportation.

If damage is evident, notify the transportation company without delay. Only you, the consignee, may institute a claim against the carrier for damage.

If necessary, contact your supplier or, as last a resort, your LAFONT importing agent who will fully co-operate under such circumstances.

Your shipping carton should contain :

The LP-21

The a/c. power cable.

This instruction manual.

### **1.3 Mounting**

Do not install this unit in a location subjected to rain, moisture, dust or mechanical vibrations. If the unit is installed in an equipment rack, console or other area along with high heat producing equipment, adequate ventilation should be provided to assure longest component life. Also, while internal circuits susceptible to hum pickup is sufficiently shielded from moderate electromagnetic fields, avoid mounting the unit immediately above or below large power transformers or any radiating equipment.

## **1.4 Power connection**

Connection is made by means of an IEC standard power socket. Before connecting the unit to the mains power, ensure that the operating voltage is correct for your local supply.

The rear panel voltage label indicates the voltage required for satisfactory operation of the unit. Mains voltage change should be carried out by a qualified service technician only. To change the mains voltage, please refer to Power supply section.

Should the fuse need replacement, it should be replaced only with the same type and value of fuse.

For 115Vac, use 500mA/250V - 5 x 20mm slow blow fuse.

For 230Vac, use 315mA/250V - 5 x 20mm slow blow fuse.

## **1.5 Safety warning**

For safe operation the LP-21 must be connected to a good mechanical ground. This provides a current path for any voltage which might appear on the chassis due to an electrical fault in the network. Without this path the unit could be an electrical shock hazard. In addition a good quality ground on the chassis provides shielding from external fields and minimizes radiation of internal fields to the outside world.

This unit is fitted with 3-pin power socket. The earth lead should not be disconnected. Do not use a ground-lifting adapter and never cut the ground pin on a three-prong plug.

There are some instances where a hum or buzz will be introduced due to a phenomenon known as a ground loop. This results when there is a significant potential between the audio ground of the previous piece of equipment and the mechanical ground to which the LP-21 has been connected. If you encounter a problem with earth loops, remove the ground-lift link located inside the unit to isolate the signal earth from the chassis earth. Refer to Power supply section.

To prevent shock or fire hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not remove cover. Refer servicing to qualified personnel only.

## **Section 2**

## **WARRANTY**

Lafont Audio Labs warrants to the original purchaser all parts, except front panels, knobs, cases and cabinets of every Lafont product to be free from defects in materials or workmanship, as hereinafter provided, for one year from the original date of purchase.

Lafont Audio Labs will at his option, repair or replace any equipment covered by this warranty, which becomes defective, malfunctions or otherwise fails to conform with this warranty under normal use and service during the term of this warranty, at no charge for parts and labor.

This warranty does not cover defects, malfunctions or failures resulting from shipping or transit accidents, abuse, misuse, operation with faulty associated equipment, modification, alteration, tampering or normal wear and tear.

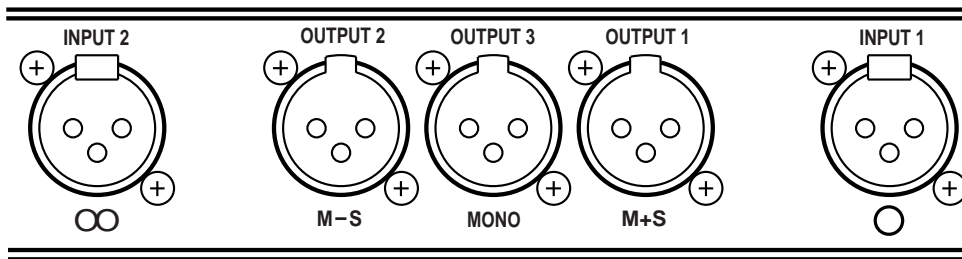
Lafont Audio Labs shall not be responsible for any incidental or consequential damages sustained by any customer as a result of or any cause associated with products including without the limitation the delivery or non-delivery thereof or the performance or non-performance thereof.

This is the only warranty applicable to Lafont products. In the interest of continuous product improvement and development Lafont Audio Labs reserves the right to change and modify any specification or feature whenever in our opinion, such a change produces an advantage mutual to our customers and ourselves without incurring any obligation to change or improve products manufactured prior thereto.

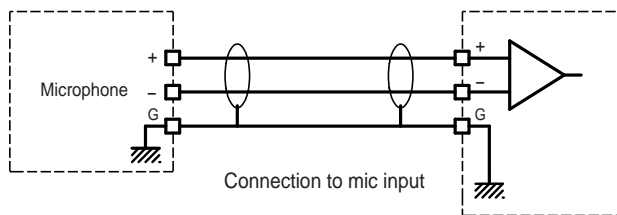
## Section 3

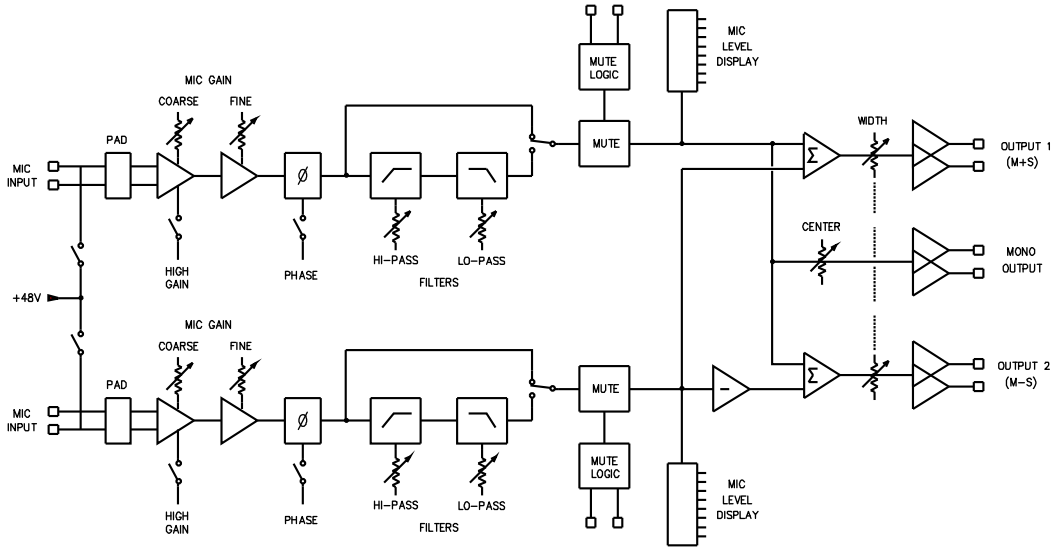
## SIGNAL CONNECTIONS

The inputs and the outputs of the LP-21 are fully balanced on XLR connectors. Current IEC wiring convention calls for pin 2 to be high/hot and pin 3 low/cold. In a balanced system, the distinction is arbitrary provided there are no phase inversions through the unit ; the LP-21 maintains phase. When inputs and/or outputs should be unbalanced, it is unimportant which of the two signal pin is grounded, so long as the same convention is used on all inputs and outputs. Nevertheless, in the interests of maintaining international standardization, we suggest the IEC recommendation is followed.



We recommend that two conductor shielded cable be used even in an installation using unbalanced wiring. This takes advantage of the ability of the input to reject common-mode noise (hum) and reduces the possibility of radio interference (RFI). Do not depend on the shield wire itself to complete the signal connection.





## 4. Mic amplifier

The LP-21 is intended for stereo or dual mono recording. It has two identical sections each delivering a clean and detailed sound with a tremendous amount of gain, a very low noise and distortion, a fast transient response and a wide bandwidth as required in film post production and acoustic music recording.

### 4.1 Gain control

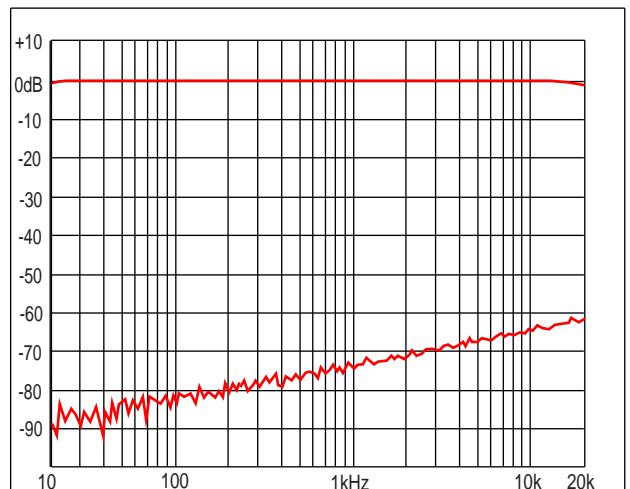
Each section has a shared gain structure with two gain potentiometers provided for accuracy and easy level matching. The coarse potentiometer sets the gain range for the current application, while the fine trim allows fine tuning of mic input for perfect level matching. These controls should be used in conjunction with the bargraph meter to match the incoming signal with the internal operating level. Normal operating level is obtained when the amplified signal reaches 0dB on the bargraph, leaving a comfortable 23 to 25dB of headroom for sudden increases of program level. The standard gain setting ranges from 20dB to 65dB.

### 4.2 High gain

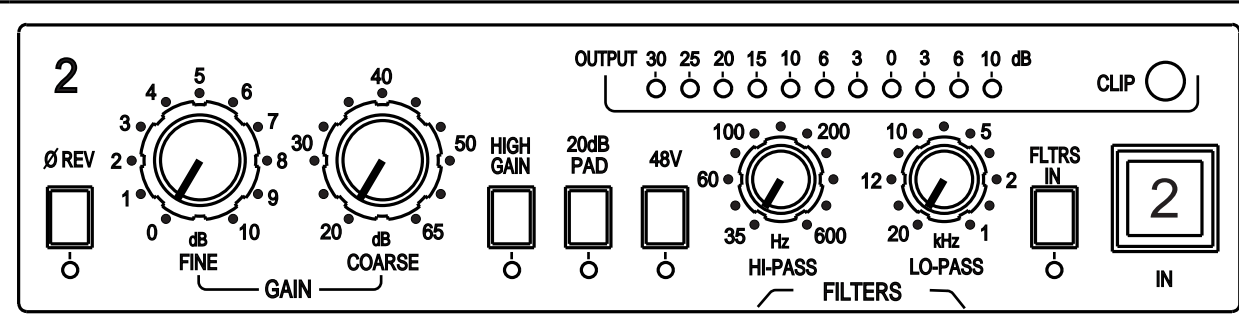
When the high gain switch is engaged the gain setting ranges from 20dB to 75dB. In order to maintain minimum residual noise, use the High Gain function only when necessary.

### 4.3 Pad

The pad circuit attenuates the signal present at the input by 20dB. Using the pad attenuator does not increase the input impedance of the amplifier. The gain control ranges from 0dB to 45dB.



Mic preamp residual noise @ 75dB gain



#### 4.4 Phase

When using two of the two sections with the same sound source, phase problems may arise. The phase reversal switch corrects for insoluble microphone placements or improperly wired cables.

#### 4.5 Phantom power supply

The 48V button provides phantom power when using a condenser microphone.

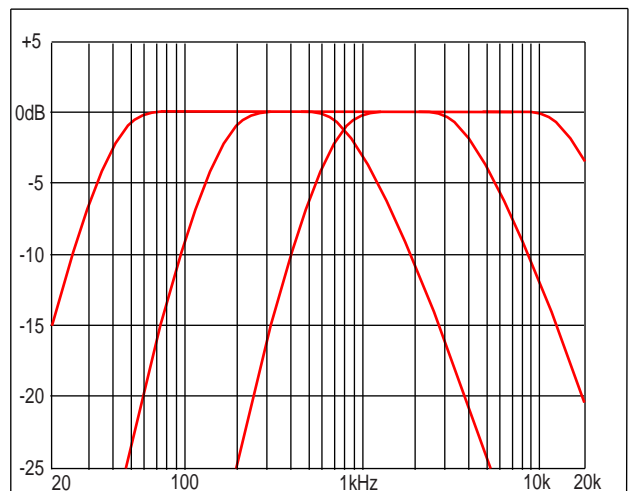
#### 4.6 Mute

A green illuminated push button activates silent muting of the mic channel. The mute push button lights also when external muting is triggered.

(Refer to section 6 for details).

#### 4.7 Filters

The FLTRS button inserts or removes the low-pass and the high-pass filter section from the signal path. Both filters have a fixed slope of 12dB/octave. The high-pass is continuously variable from 35Hz to 600Hz and is used to remove the bass lift due to the proximity effect of cardioid microphones or any rumble. The low-pass filter ranges from 1kHz to 20kHz.



High pass and low pass filters



## Section 5 MS method of recording stereophonic sound.

Today recording techniques tends to create stereo by careful track laying and mixing, rather than by original stereo dialogue and effects recording. The spot effects are often in mono as are other simple sound sources sounds, which moved to position across the sound field by panning, but atmospheres and other multi source sound effects sound much better when recorded in stereo.

Among different techniques, the MS method, also called Midside Stereophony is favored as it enables a large degree of control to be exercised over the apparent width of the stereo image.

This method requires two condenser microphones with similar frequency and transient characteristics but with different polar patterns. A cardioid microphone supplies a complete sound pickup, facing straight ahead to the sound source. The second microphone having a bidirectional polar pattern is placed either above or below the cardioid and rotated to where its null point meets the axis in the polar pattern of the cardioid microphone. A stereo microphone with a rotating upper capsule is preferable as this reduces phasing problems since both capsules occupy nearly the same space with respect to the source of sound pickup.

The output of the two microphones are interconnected by means of differential amplifiers to form a sum signal (1+2) and a difference signal (1-2). Relying on the fact that the two axes of the bidirectional microphone corresponds to signals of opposite polarity, sound sources coming from the left of the central axis will give rise to a voltage at the left of the loudspeaker (1+2), and a smaller voltage at the right loudspeaker (1-2). In a condition where the voltage from microphone 1 and 2 are equal, the system will produce no signal to the right (1-2=0) and the sound will appear at the left loudspeaker only. similar sound sources coming from the right of the central axis will follow the same rule and appear to be louder at the right speaker.

The main advantage of the MS method is that the width of the stereo image can be varied to match the picture by the ratio of the two mic signals. Reducing the output from the forward facing microphone (cardioid) has the effect of increasing the width scale, and reducing the output of the sideways microphone (bidirectional) will make the sound appear across a narrower front.

Note: Care should be taken that the voltage coming from the sideways microphone do not predominate the cardioid as the loudspeakers will be driven in opposite phase, resulting in a loss of direction to listeners.

