

# ADR/FOLEY PROCESSOR LP-22

## User's Manual



**LAFONT AUDIO LABS**

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# **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-22.

We encourage you to read and make use of the material contained in this manual.

Installation and operating of the LP-22 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-22 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-22

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-22 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-22 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.

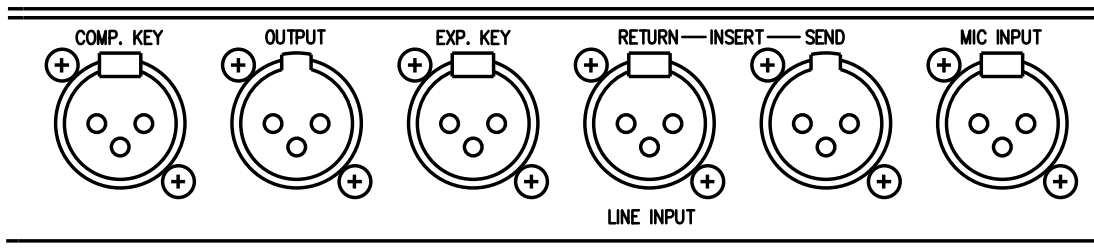
Lafont Audio Labs shall not be responsible for any incidental or consequential damages sustained by any customer as a result of or any cause associated with products including without the limitation the delivery or non-delivery thereof or the performance or non-performance thereof.

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

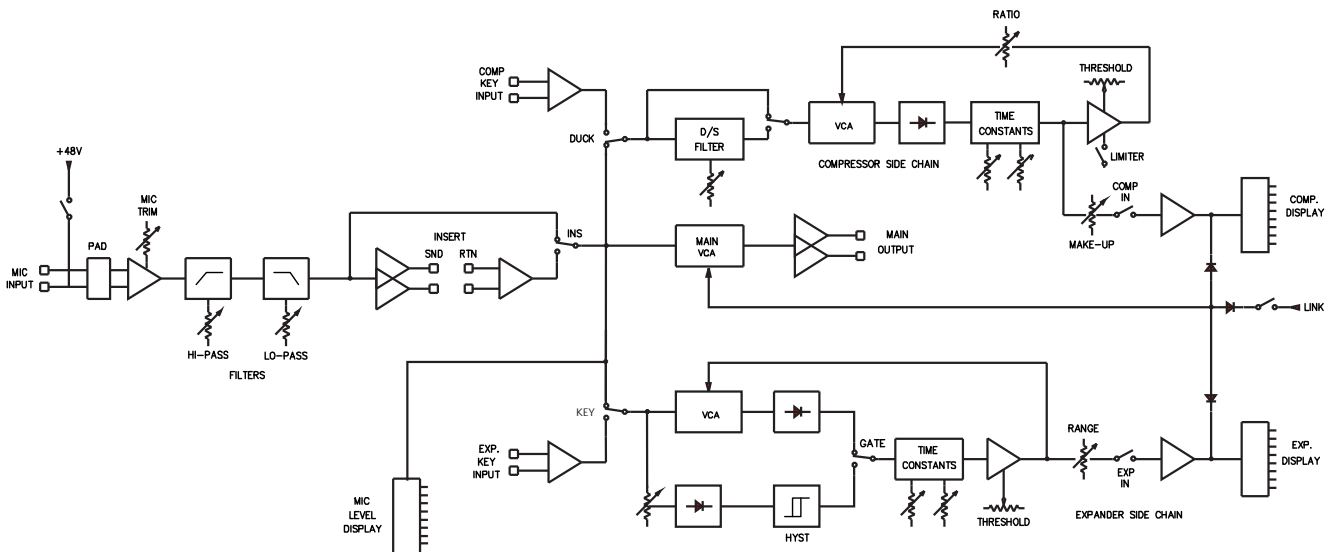
## SIGNAL CONNECTIONS

The inputs and the outputs of the LP-22 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-22 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.

# OPERATING PROCEDURES



## 4. Mic amplifier

As the first stage of the audio chain, the mic preamp is probably the most important.

The LP-22 delivers a clean and smooth signal with a tremendous amount of gain, extremely low noise and distortion, a fast transient response and a wide bandwidth ideal for critical situation encountered in film and television post production.

### 4.1 Trim

The mic trim control adjusts the gain characteristics of the input stage. It 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.

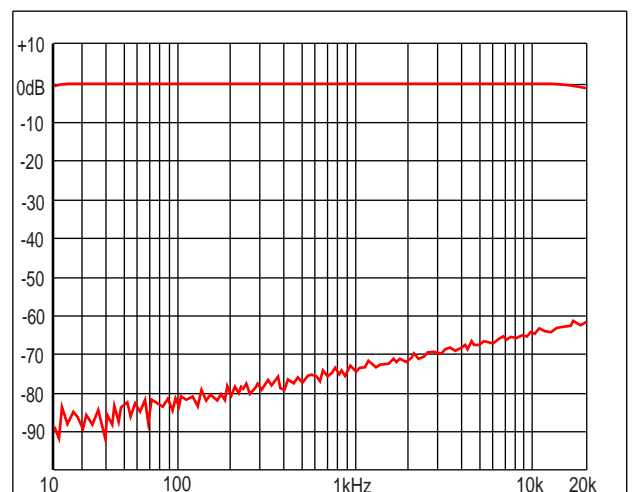
### 4.2 High gain

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.

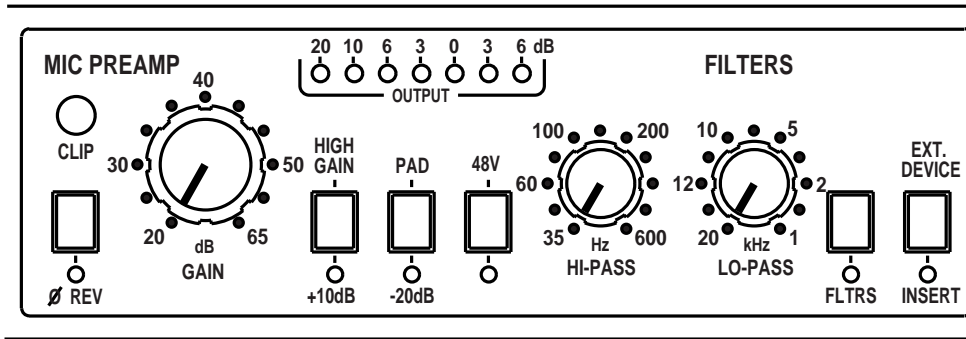
### 4.3 Pad

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 LP-22 and microphones for the same sound source, phase problems may arise. The phase reversal switch corrects for insoluble microphone placements or improperly wired cables.

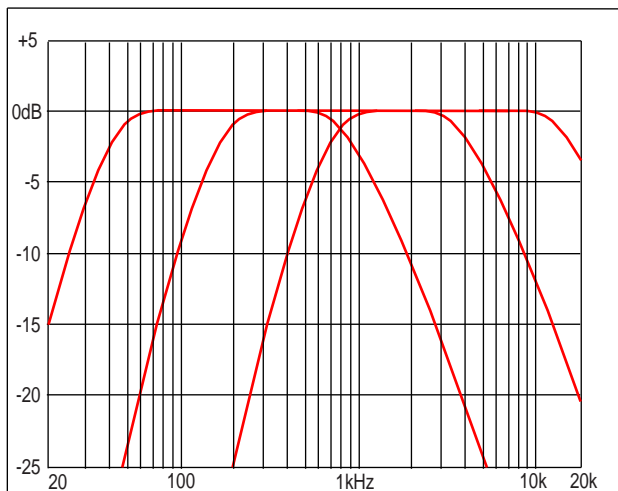
#### 4.5 Phantom power

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

#### 4.7 Insert

The insert switch controls insertion of an external device such as an equalizer or independent use of the mic preamp and dynamics section. Both send and return stages are balanced and have a maximum input/output level of +27dB.

The insert send output is recommended as the main output to shorten the signal path when the dynamics section is not used.



High pass and low pass filters

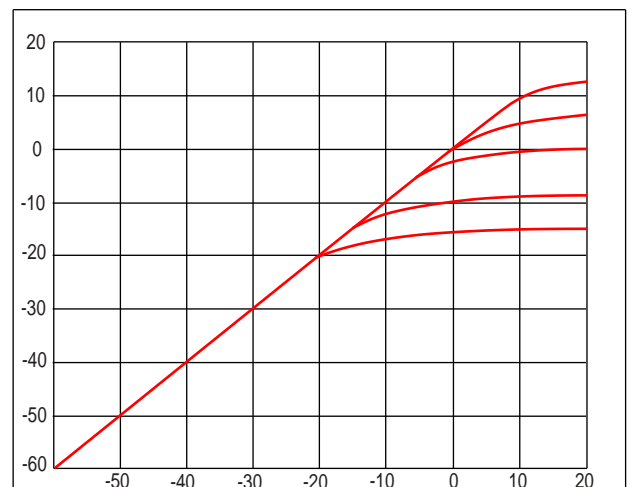
#### 4.6 Filters

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.

### 5. Compressor

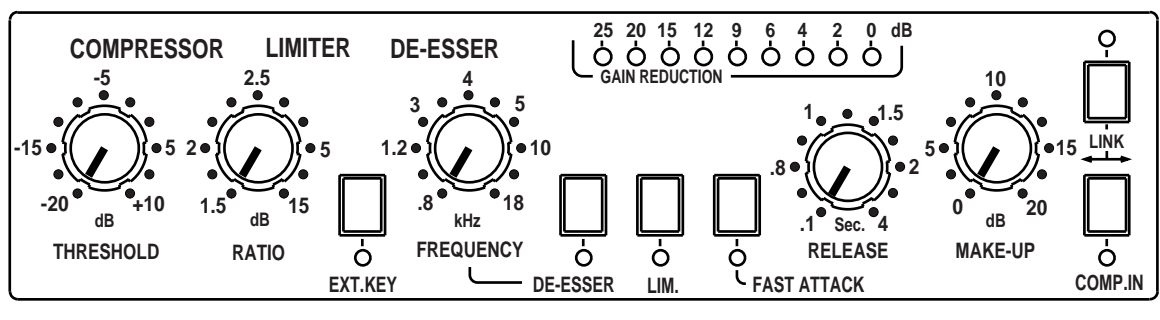
#### 5.1 Threshold

The compressor threshold potentiometer determines when the gain reduction starts. It means that quieter passages will maintain their dynamic range and passages louder than the threshold level will be compressed. Threshold is adjustable from -20dB to +10dB.



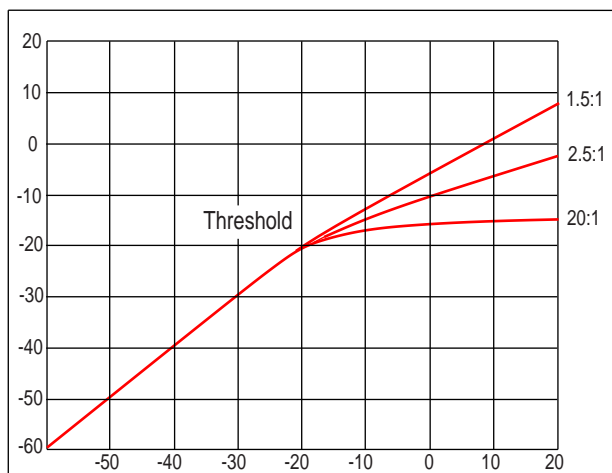
Compression threshold





## 5.2 Ratio

The ratio control sets the amount of compression applied to the signal. This term is used in stating the slope of a compressor. For example, a 3 :1 ratio means that an increase of 3dB at the input (above threshold) will result to an increase of 1dB at the output. As the ratio is increased, the compression becomes more audible.



Compression ratio

The amount of compression to be used is governed by the type of material to be recorded. The ratio control of the LP-22 offers a continuously variable slope from a soft 1.5 :1 to a hard 15 :1.

## 5.3 Limiter

When the slope becomes flat with ratios above 15 :1 we are talking of limiting instead of compression. The LIM switch disables the ratio control and sets the ratio to a fixed 20 :1 value.

## 5.4 Meter

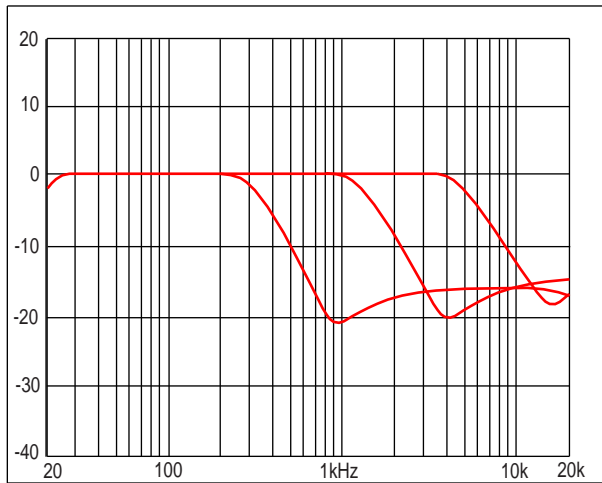
The compressor bargraph displays the amount of gain reduction applied to the signal. Start of compression with a soft ratio is not always audible. The meter is useful to show the start of compression, the changes in ratio and the release time.

## 5.5 De-esser

The DS button inserts a band-pass amplifier that boost sibilant frequencies in the compressor side chain so that gain reduction occurs primarily in the presence of sibilant signal. Note however that gain reduction still occurs over the whole signal bandwidth so this will prove more satisfactory on solo voices or sound effects prior to the overall mix.

The de-esser frequency can be swept from 800Hz to 18kHz with a predominant emphasis at the selected frequency and a consistent detection above it. If external equalization is preferred for a more accurate filtering, use the key function along with the mic insert send and the compressor key input. (no need to press the insert button on the mic section). De-essing provides better results by choosing a tight slope (10 :1 or 15 :1), and a fast attack.

Start with a high level for threshold and then lower the value until the sibilants are compressed and the sound becomes pleasant and natural.



De-esser

### 5.6 Fast attack

The attack time is the duration taken to attenuate an input signal which exceeds the threshold level. It is factory set for maximum transparency and minimum transient distortion but sometimes the program material may require very fast attack time. The fast attack button sets the attack time to 100  $\mu$ s.

### 5.7 Release time.

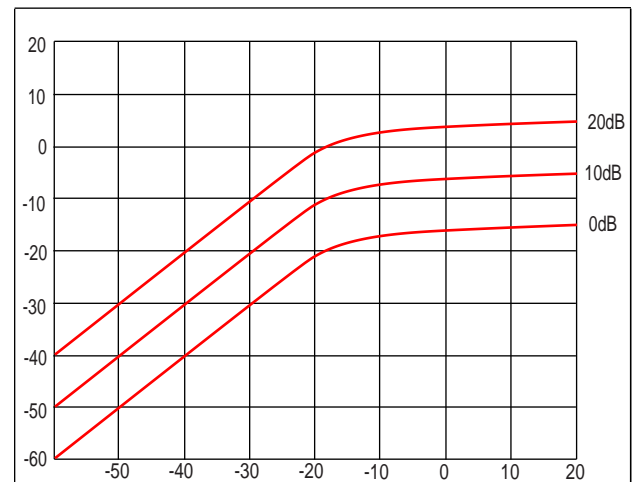
The release time is the duration taken for the device to recover to its original gain slope with no compression occurring. Release time varies with the signal envelope and the period of gain reduction. It should be adjusted for a natural recovery of the signal amplitude when it falls below the threshold level in order to maintain compression in context with the signal. The speed of fall can be monitored with the gain reduction meter.

### 5.8 Make-up gain.

Hard compression or limiting may reduce the output signal to an unacceptable level. Use the make-up control to restore the signal to the desired volume. Boost ranges from 0dB to 20dB. Caution : heavy use of make-up gain may introduce hiss to the signal. Use the make-up control only when necessary.

### 5.9 Ext. key

The ext. key (duck) button allows insertion of an external signal to the side chain. A rear panel connector with a balanced input is provided. Compression starts when the external signal exceeds the threshold level. Therefore the main signal compression is dependent of the external signal only. This is known as a ducking or voice-over function.



Make up gain

### 5.10 Link.

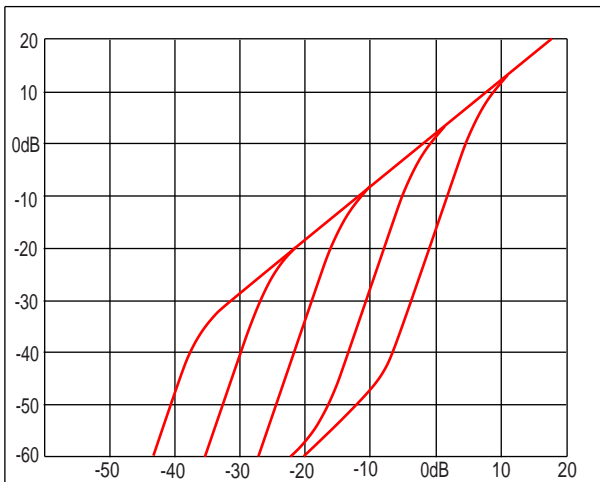
Several units may be linked together for stereo or multi-channel operation. The LINK switch links the relative control voltages so that gain reduction is identical on all channels thus obviating any image shift. It is best to set-up controls identically on all units, setting each channel prior to throwing the link switch IN. The bargraph meter shows only local settings and will not display the linking effect.

Linking requires the connection of a mono  $\frac{1}{4}$  jack in a daisy chain between units. A rear panel jack socket is provided.

# Expander

An expander works like a compressor where gain reduction takes place at low levels, increasing in attenuation as the input level reduces. The most common use is that of eliminating unwanted noise during pauses in program signal.

The expander is also often used to increase the dynamic range by lowering the noise floor. The soft knee characteristics of the VCA controlled side chain give transparent fade of signals below a determined threshold, and so improves signal to noise ratio during quiet passages. The Expander is invaluable for reducing background noise or studio ambiance. The EXP.IN button routes the expander/gate side chain to the main processor.



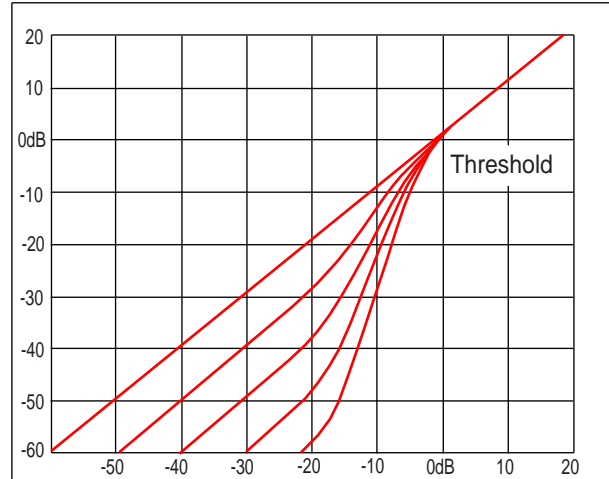
Expansion threshold

## Threshold

The threshold control determines the level below which signal is compressed.

## Range

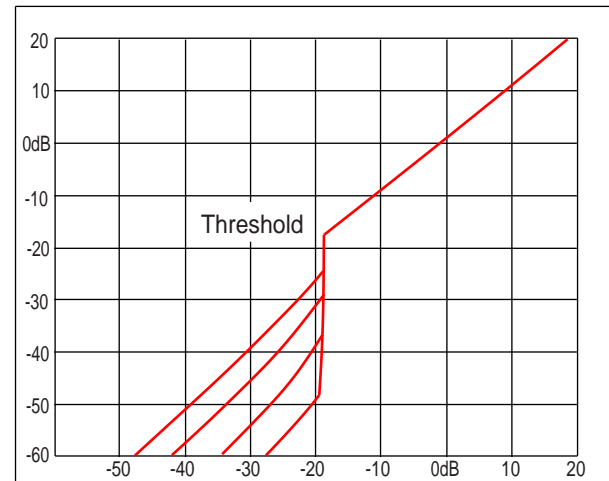
The RANGE control determines the depth of maximum attenuation. As shown on the graph below, the slope is dependent of the amount of attenuation. With a heavy slope the signal may die away unnaturally while a softer slope would produce a more subtle effect. The range of attenuation is adjustable from 0dB to 50dB.



Expansion range

## Gate

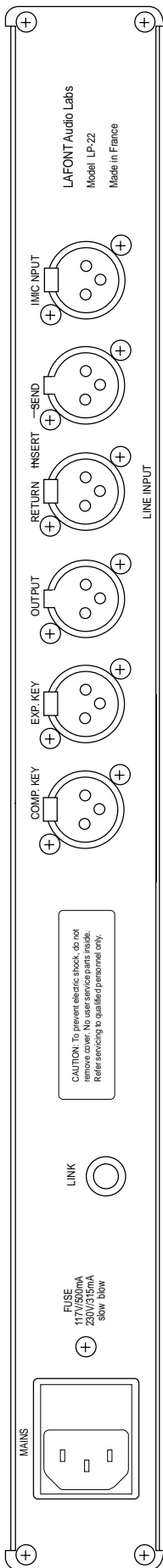
The gate works like an expander with an infinite slope. It will attenuate its full range for a very small change in input level at the threshold point whilst the expander slope needs a greater input change to effect a comparable amount of low level attenuation. Adjust the threshold along with the attack and release controls so that it is closing quickly on noise, yet fully open in the presence of wanted signal.



Noise gate range

## Release time

The Release time starts when the signal reaches the threshold level and full recovery occurs after the selected time is elapsed. As the gate action is similar to a switch, release time may seem delayed if the amount of



## SPECIFICATIONS:

Mic gain: adjustable from 0 to 75dB  
 Signal to noise ratio: (EIN/150 ohms) 128dB  
 Frequency response -3dB : 7Hz to 46 kHz  
 Mic preamp distortion at 1kHz : 0,001%  
 Input impedance: 1.3 kohm (constant impedance).  
 High pass filter: 35Hz-600Hz @ 12dB/oct.  
 Low pass filter: 1kHz-18kHz @ 12dB/oct.  
 Compressor threshold: -20/+10dBu  
 Compression ratio: 1.5:1 to 15:1  
 Release time: 0.1 to 4sec.  
 Make up gain: 0 to +20dB  
 De-esser frequency: 800Hz-18kHz  
 Expander threshold: -30/+8dBu  
 Range: 0 to 50dB  
 Release time: 0.1 to 4sec.  
 Line or key input level: +4dBu nominal, balanced  
 Max input level: +22.5dBu  
 Output level : +4dBu nominal, + 27dBu max, balanced  
 Power requirements: 115VAC/60Hz, 240VAC/50Hz.  
 Physical size: 19"x1U rack cabinet (483x44.5x225mm).

## Warranty

Lafont Audio Labs warrants its products to be free from defects in workmanship and material under normal use and service. Said warranty is to extend for a period of twelve months after date of purchase. LAFONT Audio Labs shall not be liable or responsible for any incidental or consequential damages sustained by any customer as a result of or any cause associated with products including without limitation the delivery or non-delivery thereof or the performance or non-performance thereof.

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