THEATER
SPEAKER SILENCER

LP-28

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-28.
We encourage you to read and make use of the material contained in this manual.
Installation and operating of the LP-28 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-28 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-28
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.

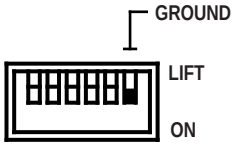
1.4 Power connection

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. 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-28 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.
To avoid electrical shock, do not remove cover. Refer servicing to qualified personnel only.
The LP-28 should not induce hum by ground loop or mains interference as the audio path have a separate ground circuit and is not referenced to the chassis or logic ground. Nevertheless if such noise should occur, the ground lift dip-switch at the rear of the unit will isolate the logic ground from the chassis.



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.

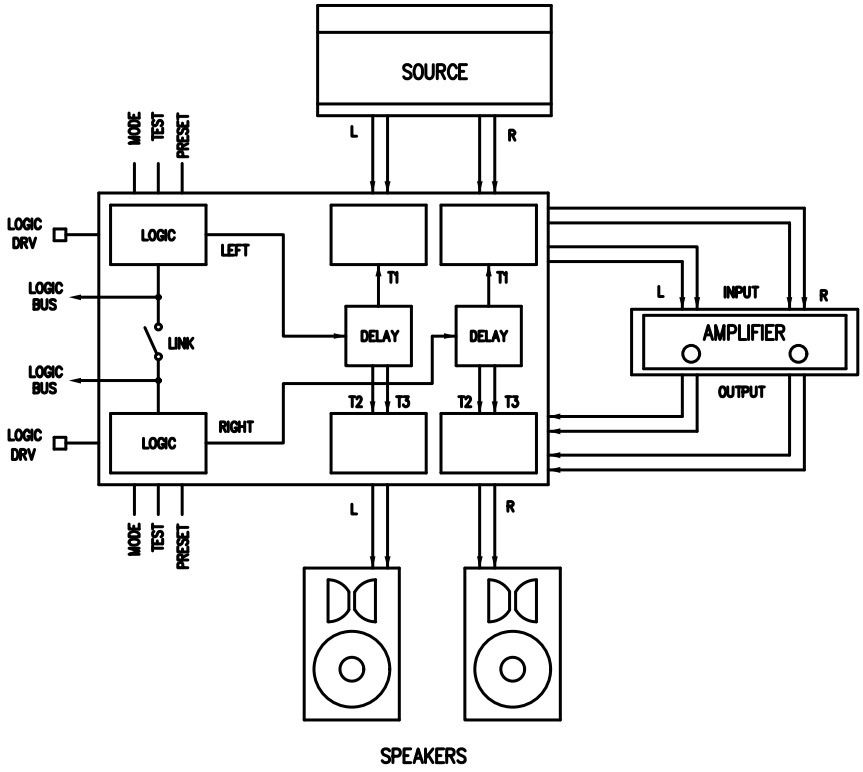
Lafont Audio Labs will at his option, repair or replace any equipment covered by this warranty, which becomes defective, malfunctions or otherwise fails to conform with this warranty under normal use and service during the term of this warranty, at no charge for parts and labor.

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 THEORY of OPERATION



3.1 Signal from the program source is muted by a dual reed relay. Output of the program source is left open while the input of the power amplifier is loaded with a low impedance RC network. From that point forward, there is no audio signal at the output of the power amplifier.

3.2 Ten to 15 milliseconds later, a 15 ohms power resistor is connected in parallel with the speakers in order to avoid an open circuit at the speaker output of the power amplifier.

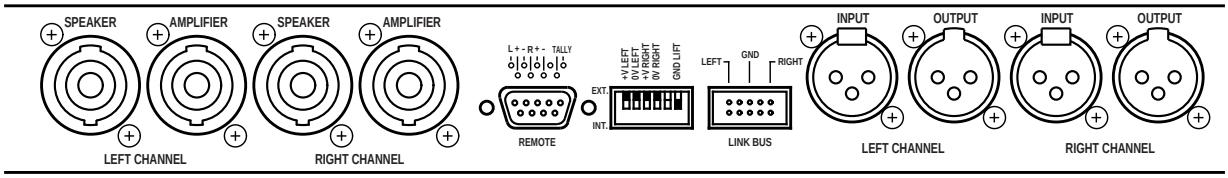
3.3 Another 10 to 15 milliseconds later the speaker output is opened thus creating a totally silent speaker environment.
The complete sequence takes 25 to 35 milliseconds.

3.4 Reverse sequence results in de-muting.
Although there is no a.c. signal at the power amplifier output during the switching sequence, steps 2 and 3 uses heavy-duty 30 amperes relays for noise free and long life operation.

Note
Muting : signal is muted after 3 to 5 milliseconds.
De-muting : signal is released after 25 to 35 milliseconds.

Section 4 SIGNAL CONNECTIONS

The LP-28 Theater Speaker System model is inserted twice in the audio monitoring chain. The first insertion is made between the output of the program source such as a mixing console, graphic equalizer or active crossover and the input of the power amplifier.
The second insertion lies between the speaker output of the power amplifier and the input of the speaker cabinet. All connectors are accessible from the rear panel of the unit.



4.1 Pre-amplifier signal connections

Both inputs and outputs are fully balanced and floating on XLR connectors. The audio path is not referenced to the chassis ground of the LP-28. 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-28 maintains phase. Should inputs and/or outputs be unbalanced, it is not important which of the two signal pin is grounded, so long as it is consistent on all inputs and outputs. Nevertheless, in the interest 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).

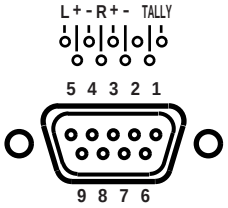
4.2 Post-amplifier connections

Connection between the amplifier output and the speaker cabinet is unbalanced but it is also floating-i.e. not referenced to the input circuit or to the LP-28 chassis ground. This path uses Speakon NL4 type of connectors or equivalent. Mating connectors are supplied with the unit.
Use pin 1+ for high/hot and pin 1- for signal return - the standard code for monophonic signal.
The LP-28 can accept high currents - up to 30 amperes. Depending on your installation it is advisable to check for correct cable gauge. 12 AWG is recommended for optimum performance.

Section 5 REMOTE CONTROL CONNECTIONS

The LP-28 can be controlled remotely from a switch or a logic level. A special port is provided for connection to the remote controller.
Use off a screened cable is recommended to reduce the risk of radio interference.

9 pin sub-D connector pin-out:
1 : tally output - collector
2 : n.c.
3 : right channel high ref (logic positive supply)
4 : left channel low ref (logic ground)
5 : left channel logic drive
6 : tally output - emitter
7 : right channel low ref (logic ground)
8 : right channel logic drive
9 : left channel high ref (logic positive supply)

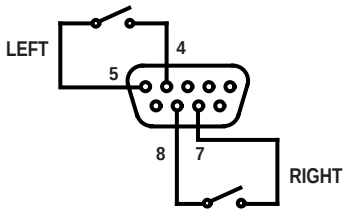


Remote switching mode is independent between left and right channel. For example the left channel port may be driven from a latched switch while the right channel port is controlled from an open collector logic pulse.

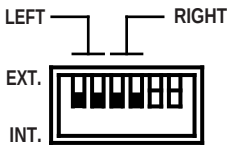
5.1 Remote control from a switch

A momentary or latching single pole switch (not supplied) is suitable. The contacts of the switch should be isolated from any other application. Several switches may be paralleled. Connection to the LP-28 should be made on the 9 pin D connector as follows :

Left channel : use pins 4 and 5
Right channel : use pins 7 and 8



Dip switch setting :



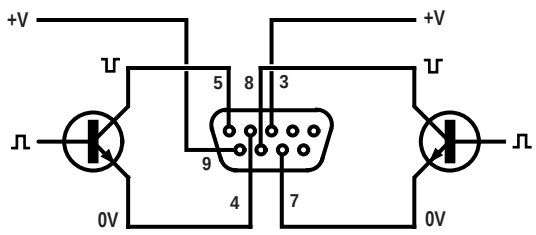
5.2 Open collector logic

The LP-28 remote control can be driven from an open collector circuit with external or internal pull-up voltage.

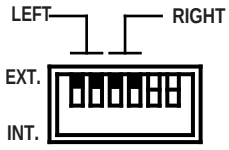
5.2.1 External pull-up

Supply voltage should be maintained in a range between a minimum of 5 volts and a maximum of 28 volts.

Connect the positive rail of the power supply to pin 9 (left) or pin 3 (right).
Connect the negative rail to pin 4 (left) or pin 7 (right).
Connect the collector output to pin 5 (left) or 8 (right).



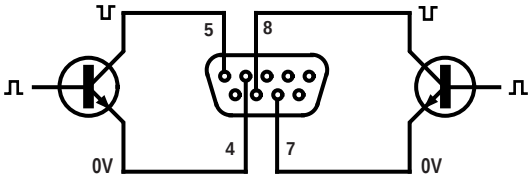
Dip switch setting :



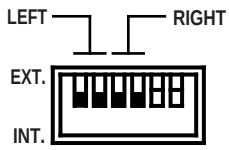
The dip switch setting is important to avoid a conflict between internal and external power supplies.

5.2.2 Internal pull-up

Connect the collector output to pin 5 (left) or 8 (right).
Connect the emitter output to pin 4 (left) or pin 7 (right).

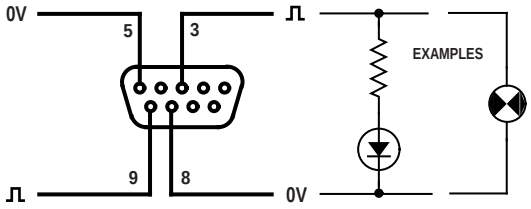


Dip switch setting :

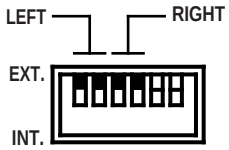


5.3 Positive logic remote switching

This mode enables direct control of the LP-28 from a positive logic circuit. For example the logic signal may be taken across a lamp or an LED circuit. Logic voltage should be maintained between a minimum of 5 volts and a maximum of 24 volts.
Connection should be made as follows :
Connect the logic output to pin 9 (left) or pin 3 (right).
Connect the reference level (ground) to pin 5 (left) or pin 8 (right) :
Pins 4 and 7 are not used.



Dip switch setting :

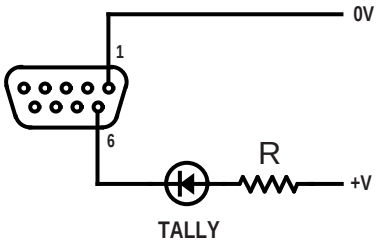


5.4 Tally

Right channel mute information is available on the remote connector.
Output is made via an opto-coupler. The collector-emitter resistance is low when channel is muted. There is no serial resistor. Maximum current rating is 50mA and breakdown voltage is 30 volts.

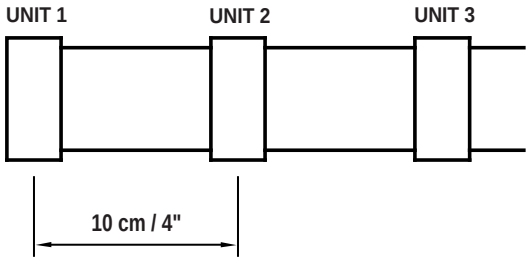
Application example: A mute indicator using an LED with a resistor in series may be connected directly across the tally output.
For a 10 mA LED with a 5 volts supply use a 270 ohms resistor
with 12 volts supply, use a 1 kohm resistor.

Pin out details:
Pin 1: collector
Pin 6: emitter

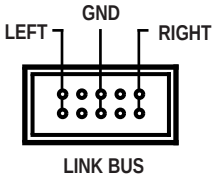


Section 6 LINK CONNECTIONS

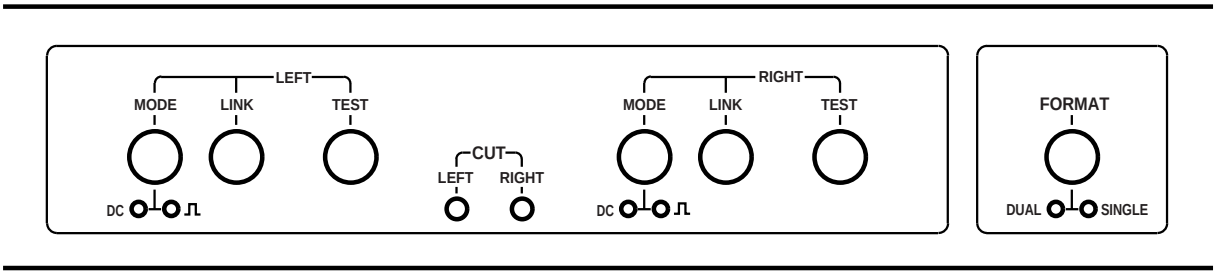
A 10 pin ribbon cable connector is provided to link two or more LP-28s in a multi- amplifier system.
Connectors should be paralleled as shown below :



Connector pin-out (pins are internally connected in pairs) :
1-2 : right channel link
3-4 : n.c.
5-6 : logic ground link
7-8 : n.c.
9-10 : left channel link



Section 7 OPERATING PROCEDURES



7.1 Logic mode

Any of the three remote control circuits described above may present a momentary (pulse) or a steady (latched) logic level. The LP-28 can accept both. Referring to the front panel, the MODE switch allows selection of the dc/steady mode (red indicator) or the pulse mode (yellow indicator). Each channel is equipped with a MODE switch for an independent channel selection.

7.2 Format

The two channels can operate independently or can be coupled for use as a stereo pair. The FORMAT switch changes from single channel format to dual channel format. When the dual format is selected (red indicator), the logic command applied to either of the two remote ports will drive both channels. As an example, the left channel port may be controlled from the mixing console mute switch while the right channel is controlled from the record or rewind command of a tape recorder.

7.3 Link

Two or more LP-28 may be linked together in a multi-channel installation. Each section (left and right) has its own link bus. The LINK switch routes the logic signal to the corresponding link bus. If at least one unit is in dual format, all channels will be linked together.

7.4 Test

The test switch may be used for channel test during installation check or maintenance or whenever speaker muting should be made from the amplifiers location.
This function is very useful to freeze a channel when the studio/theater is used with a monitoring format not requiring this speaker.
The test function is independent from link and format switch settings.

7.5 Summary of switch functions

MODE : selects latched or pulse mode logic at the remote input.

FORMAT : logic coupling of the two channels.

LINK : enables coupling of logic circuits between several units.

TEST : activates local muting for channel check.

8 Warning : DC offset

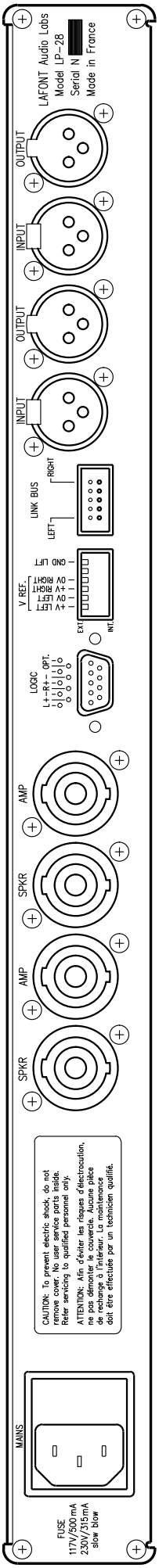
Any d.c. voltage present at either input or output of the power amplifier will result in an audible transient when switching.

8.1 Input d.c. voltage may be produced by either the program source equipment or the input stage of the power amplifier.
In both cases the solution is to insert two non-polarized electrolytic capacitors in series with the input of the power amplifier (100µf - 25V).

8.2 D.C. coming from the output stage of the power amplifier is more critical. It should normally not exceed 3mV to 5mV for a good quality amplifier but it may vary with load or temperature. Some amplifiers have a d.c. offset auto-compensation or a preset potentiometer. If the d.c. offset voltage is too high, large capacitors should be inserted in series with the speakers. This solution is suitable for speakers with an impedance greater than 4 ohms only.
A d.c. isolation kit is available from Lafont Audio Labs. Part ref : LP-282.

Section 9 : Service and calibration

Timing of the LP-28 switching sequence is calibrated at the factory and require no further calibration. No special preventive maintenance is required. There are no user serviceable part inside the unit. Servicing should be performed by a qualified technician. Special parts and components are available from Lafont Audio Labs. See schematics for part reference.



10. Specifications:

Maximum power: 1000 watts per channel.
Logic input: opto-isolated.
Logic level: 5V to 28V pulse or DC.
Logic voltage reference: internal or external.
Power requirements: 115VAC/60Hz, 240VAC/50Hz.
Physical size: 19"x1U rack cabinet (483x44.5x225mm).

In the interest of continuous product improvement and development LAFONT Audio Labs reserves the right to change and modify any of the above specification or feature whenever, in our opinion, such a change produces an advantage mutual to our customers and ourselves.

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