MCN AUDIO

U1127

STEREO MICROPHONE PREAMPLIFIER

USER'S MANUAL

OPTIONS

Standard	Oscillator 1000 Hz
Standard	Oscillator -12 dB
Option 01	Oscillator 800 Hz
Option 02	Oscillator 0 dB

ACCESSORIES

U8111	External Power Block 12 V / 1 A

SERIAL NUMBER

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Due to permanent technical improvements, specifications listed here can change without prior notification.

GENERAL

The **U112**7 is a high quality, compact microphone preamplifier designed for professional use.

It can handle dynamic or electrostatic microphone level signals. For the later a 12 V or 48 V phantom power can be supplied. The low impedance of the floating balanced outputs allows the use of long cables without signal loss.

This unit is the ideal complement of a DAT recorder or a Betacam camera for which it is an alternative to high performance input stages. The extended bandwidth, the high signal to noise ratio and the precision of the calibrated gain make it useful for acoustic measurements.

WARRANTY

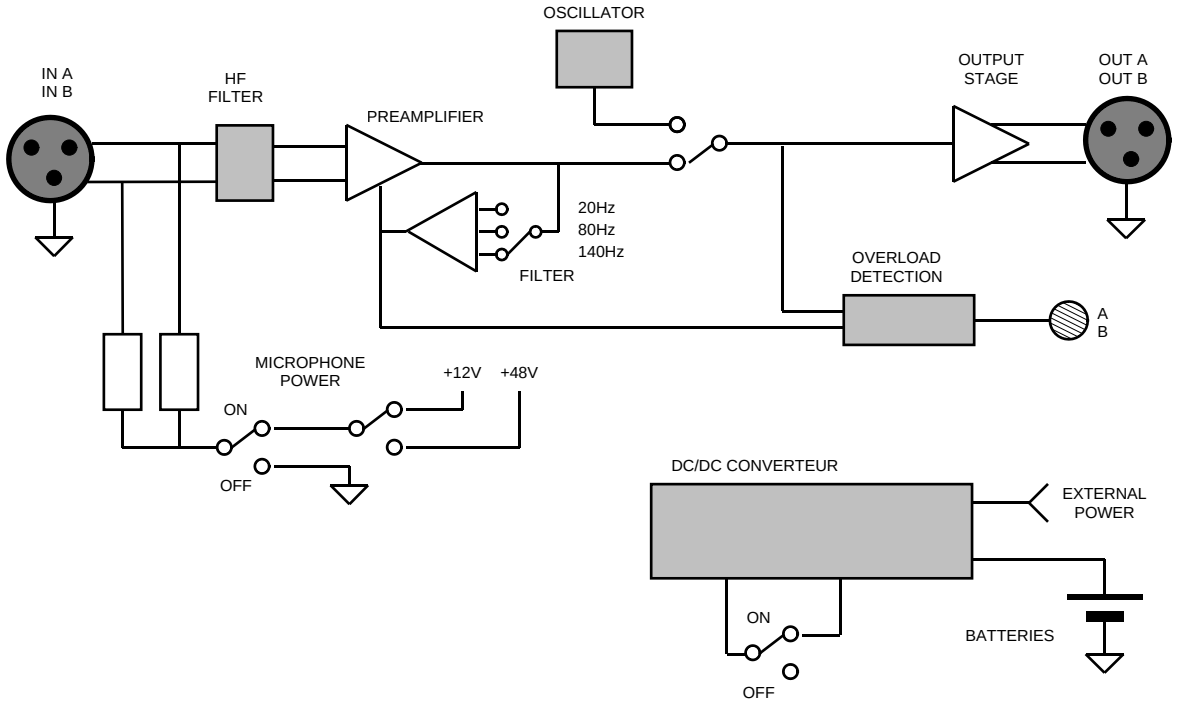
This equipment is warranted against defects in material and workmanship for a period of five (5) years from date of delivery.

The warranty will be voided if the unit is tampered with or serviced by unauthorized personnel.

SPECIFICATIONS

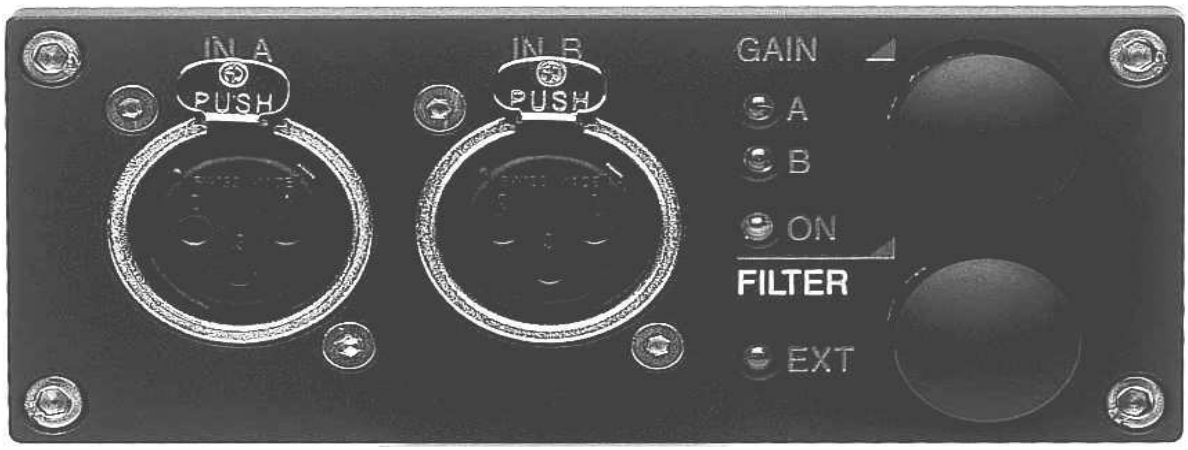
INPUTS	Transformerless electronically balanced.
Impedance	7710 Ohms // 220pF (differential).
RF Filter	included.
Gain	+10 / +20 / +30 / +40 / +50 / +60 dB.
Maximum level	+20.8 dBm, 12 Volts peak.
Supply	phantom 48 V or 12 V switchable.
Connector	XLR female.
OUTPUTS	Transformerless electronically balanced.
Impedance	600 Ohms minimum.
Protection	against phantom power. short-circuit to ground.
Nominal level	+4 dBm.
Maximum level	+25 dBm under 600 Ohms.
Connector	XLR male.
TRANSFER	
Crosstalk A/B	> 85 dB from 0 to 20 kHz.
Gain mismatch A/B	< 0.2 dB from 20 Hz to 20 kHz.
Bandwidth	10 Hz to 30 kHz +/- 0.1 dB. 0.7 Hz to 70 kHz +/- 3 dB.
Low-cut filter	selectable 20 Hz / 80 Hz / 140 Hz. (first order)
Phase roll off	< 1° from 20 Hz to 20 kHz (no filter selected).
Common mode rejection	> 60 dB at 20 kHz / gain 10 dB. > 88 dB at 20 kHz / gain 30 dB.
Input noise	-112 dB / gain 10 dB / source 150 Ohms. -130 dB / gain 30 dB / source 150 Ohms.
Distortion	typical 0.0007 % at 1 kHz, nominal level.
OSCILLATOR	
Frequency	standard : 1000 Hz +/- 3 Hz. option 01 : 800 Hz +/- 3 Hz.
Level	standard : -12 dBm. option 02 : 0 dBm.
Distortion	typical 0.5 %
GENERAL	
Power supply	8 alkaline battery 1.5 V AA/LR6. External 12 V / 400 mA on LEMO connector.
Battery life expectancy	minimum 8 hours permanent use. (according to the type of the microphones connected and temperature)
Pilot lights	ON EXT / external supply. PEAK / -6 dB before saturation. BATTERY LOW / battery exhausted.
Temperature	-30 °C / +60 °C.
Case size	105 x 45 x 205 mm.
Weight	1150 g batteries included.

SCHEMATIC



A and B channels are identical.

FRONT PANEL



IN A Channel A input
3 pin XLR connector
Pin 1 is connected to the metallic frame

1 Ground
2 Hot +
3 Cold -

IN B Channel B input
3 pin XLR connector
Pin 1 is connected to the metallic frame

1 Ground
2 Hot +
3 Cold -

GAIN Gain selection applied to the input signal.

ON
FILTER Rotary selector : **ON**/ **OFF**/ **OSCillator**
On the **OFF** position the unit is turned off.
On the **ON** position is turned on.
Microphone power is active.
No filter is active.
On the **20 Hz** position, the 20 Hz filter is active.
On the **80 Hz** position, the 80 Hz filter is active.
On the **130 Hz** position, the 130 Hz filter is active.
On the **OSC** position, the signal of the oscillator is present at the output of the preamplifier at the reference level.
The input signal is disconnected from the outputs. The Microphone power is still active.
The blue **ON** pilot light is lit when the unit is ON. It flashes when power is low.
The green **EXT** pilot light lights when the preamplifier is powered by an external power source through the connector on the rear panel.

A Channel A overload pilot light
This led lights when the signal is 6dB below clipping, that is 14 dB at the output, or when the signal of the internal filter is 6 dB below clipping.

B Channel B overload pilot light
This led lights when the signal is 6 dB below clipping, that is 14 dB at the output, or wher the signal of the internal filter is 6 dB below clipping.

REAR PANEL

OUT A	Channel A output 3-pin male XLR connector Pin 1 is connected to the metallic frame.	1 Ground 2 Hot + 3 Cold -
OUT B	Channel B output 3-pin male XLR connector Pin 1 is connected to the metallic frame.	1 Ground 2 Hot + 3 Cold -
EXTERNAL POWER	External power-supply connector Connects to the **U8111** power-supply.	

INPUT AND OUTPUT LEVELS

The maximum input level is 20.8 dBm. Above this level the input-protection-system limits the signal. In this mode the input impedance drops to about 200 Ohms. This system is designed to limit the transient that is cause when the microphones are connected or disconnected while the phantom power is active.

The output nominal level of the preamplifier is +4 dBm (0 dBm = 0.775 V)
The maximum output level is +20 dBm and clipping occurs at about +25 dBm. The overload led light 6 dB before maximum output level, that is +14 dBm. Thus, the headroom before clipping is 11 dB.

GAIN

The nominal output level of the preamplifier is +4 dBm. The real gain value is the value shown on the gain selector plus 4 dB.

Switch Position	**Actual Gain**
10 dB	14 dB
15 dB	19 dB
20 dB	24 dB
25 dB	29 dB
30 dB	34 dB
35 dB	39 dB
40 dB	44 dB
45 dB	49 dB
50 dB	54 dB
55 dB	59 dB
60 dB	64 dB

The gains are adjusted to a +/- 0.3 dB tolerance. The gain difference between channel **A** and **B** is less than 0.2 dB.

OSCILLATOR

The frequency of the oscillator is adjusted to a +/- 3 Hz tolerance. The nominal output level of the preamplifier being +4 dBm, the output level of the oscillator is increased by 4 dB. A 1.5% distortion is normal.

Frequency :

standard	1000 Hz +/- 3Hz
option 01	800 Hz +/- 3Hz

Output Level :

standard	-12 dBm	(actual level -8 dBm)
option 02	0 dBm	(actual level +4 dBm)

BANDWIDTH

ON Position

When no low-cut filter is active, the bandwidth of the U1127 is deliberately very large, so as to minimize gain differences, phase rotations which normally occur at the end of the audible range. In this mode between 20 Hz and 20 kHz, gain remains constant with a +/- 0.005 dB tolerance and phase remains constant with a +/- 1 ° tolerance.

When omnidirectional microphones are used, the extent of the bandwidth allows a pick up of infra-bass sounds generally produced by air conditioning of large halls or by wind during outdoor recording.
Even though these sounds are outside the audible range, they can overload the input stage of the preamplifier or the equipment to which it is connected.

Whatever the frequency of these signals, the overload led lights up at least 6 dB before overload of the preamplifier. But they are no use to detect overload of equipment connected after the preamplifier.

Thus is may be necessary to use a low-cut filter, or to use pressure gradient microphones which hardly transcribe bass signals carried directly through the air. However these transducers are very sensitive to both low frequency mechanical vibrations transmitted by contact and to air turbulence.

20 Hz, 80 Hz, 140 Hz Positions

In order to attenuate low frequencies, three low cut filters can be used. Depending on the position of the selector, frequencies below 20 Hz, 80 Hz or 130 Hz are attenuated by a first order filter.

This filter uses an active electronic circuit and is based on a substractive principle.
This system keeps a very high signal to noise ratio even when a filter is activated. Overload led may light up if the signal at the output of the filter is great, even in the absence of a signal at the output of the preamplifier. These led light up 6 dB before the active filter maximal output level.

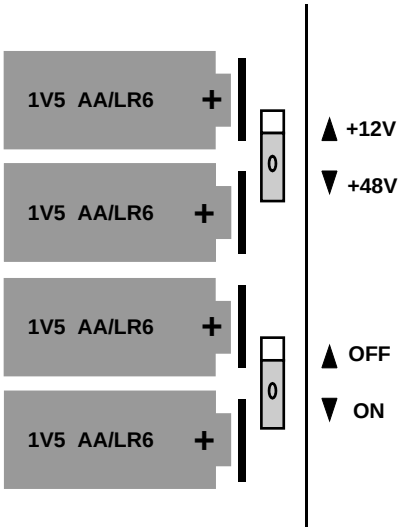
PHANTOM POWER

Phantom power integrated in the **U1127** preamplifier can be switched to either 12 V or 48 V depending on the microphone used, or switched off altogether.

The factory default is phantom power active and set to 48 V.

Make sure that the phantom power voltage value is compatible with your microphones before connecting them to the preamplifier.

Should an electronic circuit be connected to the inputs of the preamplifier, it will probably be necessary to switch off the phantom power to prevent damage at the output stage of this equipment.



The phantom power switches are located inside the battery compartment.

To change the switches settings, use a small screwdriver or a small metallic pin, such as a straightened paperclip.

It is best to change these settings with the power turned off or when the microphones are not connected to the preamplifier.

When the phantom power is activated, the connection or disconnexion of a microphone will cause a transient as high as 30 volts at the output of the preamplifier.
This phenomenon is normal and unavoidable. It is harmless for the preamplifier itself. Make sure that the equipment connected to the preamplifier can handle this transient.

BATTERIES

To replace batteries:

- Open the battery compartment using a coin to turn the lock.
- Remove the compartment lid.
- Insert 8 1.5 Volt-LR6/AA/AM3-alkalin-batteries in the compartment. Place the ribbon beneath the batteries, it will aid the easy removal of the batteries.
- Put the lid back on the compartment using gentle pressure and turn the lock.

To remove the batteries, use the ribbon to extract the first ones.

Replace the 8 batteries at the same time.

Do not use Nickel-Cadmium or Lithium batteries if their nominal voltage is different to 1.5 V.

Observe batteries polarity. However, inverting the polarity of a battery will not cause any damage to the preamplifier.

When the preamplifier is not going to be used for a long period, or if it is run on an external power source, remove the batteries.

It is advisable to remove the batteries to keep them from discharging, or to avoid electrolyte leakage which could corrode the electronic circuits.

BATTERY LIFE

A set of 8 alkaline batteries should last a minimum of 8 hours of continuous use at a 20˚C room temperature. If used one hour a day, the cumulative battery life is of 9 hours.

Should the battery voltage be insufficient, the **ON** led will flash on the front panel of the preamplifier. When this led starts flashing, there are 15 minutes of power left.

Using the preamplifier in very cold conditions reduces battery life.

Using Zinc-Carbone batteries instead of alkaline batteries significantly reduces the autonomy of the preamplifier. NiCad rechargeable batteries which have a 1.25 V voltage per cell have a short life expectancy. Note that using the **U8111** external power adapter does not recharge the batteries placed in the battery compartment.

The power converter circuit inside the **U1127** preamplifier has been designed to run normally until the batteries are completely drained. Thus, used batteries should not be left inside the preamplifier as the could leak and greatly damage the circuits of the preamplifier.

Life expectancy is determined by the type of the microphones connected to the preamplifier. Therefore the higher the microphone consumption, the shorter the battery life expectancy. Values are given for two 48 V / 4 mA microphones.

The power converter circuit inside the U1127 preamplifier has been design to run normally until the batteries are completely drained. Thus, used batteries should not be left inside the preamplifier, as they could leak and greatly damage the circuits of the preamplifier.

When replacing the batteries, please dispose of the used batteries in appropriate waste bins. Even discharged batteries can be partially recycled. Respect the environment. Do not throw away batteries in the country side whatever their type.

U8111 POWER ADAPTER

The **U8111** power adapter allows use of a **U1127** preamplifier with an external power source.
It is connected to the **EXTERNAL POWER** inlet on the preamplifier rear panel.

It is not necessary to remove the batteries when the preamplifier is run on external power. However, if run for prolonged periods or exclusively on external power, it is preferable to remove used batteries from their compartment, as they may leak and greatly damage the preamplifier's circuit.

Connecting or disconnecting the power adapter may be done even with the preamplifier running. This does not lead to any audible noise at the preamplifier output.

The **U8111** power adapter delivers a constant, filtered and stabilized voltage of 12 V/ 1 A. A slight increase in the temperature of the unit when operating is normal.

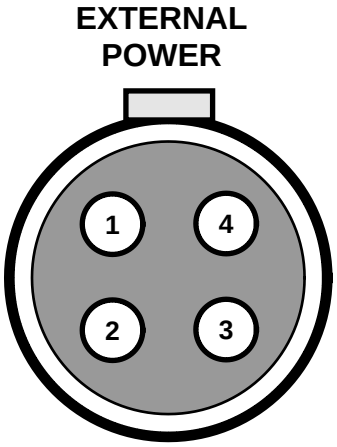
If the preamplifier is connected to a different power adapter, it should strictly comply to the **U8111** specification. A polarity inversion is harmless to the preamplifier.

The male connector used is of the following type : LEMO FGG1B304CLAD52

Connector Pinout
(Rear view)

1	0 V
2	Reserved (Do not connect)
3	Reserved (Do not connect
4	+12 V DC / 1 A

Pins 1, 2, 3 or 4 must not be connected to the ground of the preamplifier, as such connection is made internally.



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