

## X-Altra MC/MM Phono Preamplifier – User Instructions

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1. Do NOT make any switch adjustments of any description on the X-Altra preamplifier when the power is on without turning the volume on your line preamplifier to minimum beforehand
2. Do not power the X-Altra preamplifier on or off without turning the volume control on your line preamplifier to minimum beforehand
3. Since the power consumption of the unit is very low (< 2 VA) it is recommended that you leave it powered up permanently.

### Moving Coil Inputs.

The X-Altra is best suited to high current output cartridges because it utilizes a ‘current injection’ (aka ‘transimpedance stage’) input circuit. It is not suited to high (e.g. c. 1mV) voltage, low current output cartridges. Ideally, you want the System Gain to be set to 0 dB i.e. switches 9 through 12 in the OFF position with as much of the gain as possible provided by the front-end stage.

Firstly, determine your cartridge output current from the following formula and note it down

$$\text{Step 1} \quad \text{Cartridge output current} = V_{\text{cart}}/R_{\text{cart}} \quad (1)$$

Where

$V_{\text{cart}}$  is the quoted output voltage of your cartridge

$R_{\text{cart}}$  is the quoted output coil resistance of your cartridge

Use the following formulas to determine the required gain

$$\text{Step 1} \quad R_{\text{Ltot}} = (.005/V_{\text{cart}}).(R_{\text{cart}}+R_{\text{in}}) \quad (2)$$

$$\text{Step 2} \quad 1/R_{\text{switch}} = 1/R_{\text{Ltot}} - 1/494 \quad (3)$$

Refer to Table 1 to set the switches to the nearest gain.

If your cartridge output current is less than 20 uA as shown in Step 1 above, you may have to use the System Gain Amplifier settings (these are switches 9 through 12) to raise the overall gain to an acceptable level.

Ensure the push button switch on the rear of the unit is depressed for MC operation. Again, do NOT make any changes without turning the volume control on your line preamplifier to minimum beforehand.

### **Moving Magnet Inputs**

The only user adjustments available on the MM stage are the cartridge loading via switches 5 through 8. Refer to Table 1 for the settings. For most systems, the optimum setting will be with the switches in the OFF position, which will set the load to 47k, recommended for almost all MM cartridges. However, if you have a test record and an oscilloscope, you can optimize the HF response by adjusting the cartridge load. This will help counteract HF peaking which can arise in some combinations of load capacitance due to cabling and, as a separate and unrelated mechanism, stylus tip resonance. If you do not have a test record and an oscilloscope, it is recommended you experiment and simply set the switches to the most pleasing sound.

Rear Panel Switch Position Left to Right											
1	2	3	4	5	6	7	8	9	10	11	12
MC Left Gain		MC Right Gain		Left MM Load		Right MM Load		Left System Gain		Right System Gain	
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
494 Ohms		494 Ohms		47k Ohms		47k Ohms		0 dB		0 dB	
OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
194 Ohms		194 Ohms		35.7k Ohms		35.7k Ohms		+3.9 dB		+3.9 dB	
ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
95 Ohms		95 Ohms		32.9k Ohms		32.9k Ohms		+7 dB		+7 dB	
ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
74 Ohms		74 Ohms		27k Ohms		27k Ohms		+8.9 dB		+8.9 dB	

Table 1 - Loading and Gain Set-up Switch Settings

### **Ground Lifter (GL)**

Ensure your turntable ground wire is securely attached to the 'turntable Ground' thumbscrew located in the top left-hand side of the rear panel. For most set-ups, the GL should be in the DOWN position so that the GL is bypassed and the X-Altra chassis and PCB 0V are shorted together. In some rare cases, you may need to operate the system with the switch in the UP position so that the chassis is earthed (safety grounded) but the 0V on the PCB floats at  $\pm 0.6V$ . To test which is the best position, simply turn the volume up and then switch the GL between the two positions, selecting the quietest position with the least hum as the correct operating mode for your system set-up.

### **Rumble Filter**

When switched to the 'Out' position, the rumble filter attenuates any noise below 20 Hz (-40 dB/decade). If you listen to classical music, you may hear a very low acoustic rumble on some recordings. In this case, switch the rumble filter to the 'In' position, which will attenuate any noise below 45 Hz (-40 dB/decade).

**Never operate the unit without the correct 3 pin IEC cable and never use a ground lifter plug to defeat the chassis earthing (safety ground).**

**Only use the correct fuse to protect the unit. The correct fuse is a 50 mA 'T' type fuse.**

**Do not operate the unit once completed and assembled without the top cover.**