X-Altra MC/MM Phono Preamplifier – User Instructions

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Please Read These Important Points

1. Do NOT make 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. The gains involved are very high, so you are likely to generate large noises if you do not turn the volume to minimum.
2. Note, that during power up and power down, peak offsets of up to 100-300mV can appear at the inputs of the MC amplifier stage and take up to a minute or two to settle zero whilst the input offset servo settles. It is therefore recommended that you power the X-Altra MC/MM up for 5 minutes *before* connecting your MC input. Likewise, disconnect your MC input before powering the unit down. Once the servo settles, the input offset is typically < +-6uV, maximum +-25uV which will not affect the MC transducer at all.
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

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

Where

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

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

Use the following formulas to determine the required gain

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

Step 2 $1/R_{switch} = 1/R_{Ltot} - 1/494$ *(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 it 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.

System Gain Adjustment

Switch positions 9 through 12 allow the overall gain of the amplifier chain (MC + MM or just MM) to be adjusted to 0, +3.9dB, +6.9 dB or +8.9dB. For legacy input level preamplifiers that accept 200-300mV line inputs with 5mV MM source signals, the normal setting will be 0 dB (switches 9-12 OFF). For modern preamplifiers with 1 V input sensitivity inputs, set the gain to +6.9 or +8.9 dB.

When used with MC inputs, try to set the MC gain as high as practicable consistent with >20 dB overload margins and then make up any shortfall in gain for the line level input requirement using the system gain adjustment switches.

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 MC/MM 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 by up to +- 0.6V and is ground referenced to the receiving amplifier 0V via the interconnect cable. 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. Note that in most well set up systems, you should not hear any hum from the speakers with the volume control at maximum.

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, you can 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.

Always strictly follow the wiring regulations and conventions applicable in your country of use.