

X-Altra MC/MM RIAA Phono EQ Preamp Specifications

January 2021

Moving Magnet Input

Topology	All-active feedback, single EQ stage
Input impedance DIP switch selectable	26k, 31k, 35k or 47 k Ω
Gain – 4 levels DIP switch selectable	36 dB (~63x), 39 dB (89x), 43 dB (141x), 45 dB (179) *
Output in mV for 5mV input at 1 kHz low to high gain	315, 445, 705, 895
Distortion	< 0.003 % at 1 kHz and 1V RMS output <0.005% at 8 V RMS Output
IMD 2 x 880 mV 19+20 kHz for 8 V RMS Output	1 kHz harmonic at -90 dB ref peak output For 1 V output, 1 kHz harmonic at -105 dBV
Overload margin at 3mV/5mV 36 dB gain setting	36dB/31.5 dB from 20Hz to 50 kHz
RIAA conformance 20 Hz to 20 kHz	Typically ± 0.15 dB (see measurements in Part 2)
Frequency response(-3dB)	17 Hz to 135 kHz; -20 dB at 1.35 MHz (Acoustic rumble filter OFF)
Rumble filter	-40dB/decade below 20 Hz (Acoustic rumble filter OFF) -40 dB/decade below 45 Hz (Acoustic rumble filter ON)
Thermal noise floor input shorted ref 315mV output	-87 dB unwt'd; -94 dB 'A' wtd 20 Hz -20 kHz
Thermal spot noise** floor at 1kHz, input shorted	c. -135 dBV
SNR with 1350 Ω s + 500 mH + 200 pF source	77 dB ref 5 mV unwt'd; 80 dB 'A' wtd
Output impedance	47 Ω in parallel with 3.3 nF
Recommended max output load impedance	>2k Ω and not more than 2 nF capacitance
Peak mains noise component with input shorted	< -105 dBV unwt'd; < -121 dBV 'A' wtd

Moving Coil Input

Topology	Bipolar DC coupled current injection input (aka Transimpedance stage) after Marshall Leach
Input impedance	c. 3.25 Ω
Gain – DIP switch selectable on rear of unit	3 Ω through 50 Ω generator coil resistance, 100 μ V to 500 μ V generator output for 3 - 5 mV MC preamp output
Distortion (full MC + MM signal chain)	< 0.005% at 1 kHz with 47 Ω 500 μ V input for 1 VRMS output < 0.01% at 8 VRMS output
Thermal noise floor of MC + MM signal chain	< 250pV/ $\sqrt{\text{Hz}}$ equivalent input noise at MC input
Peak mains noise component input open circuit	< -96 dBV; -121 dBV 'A' wtd

* These gain adjustments can also be used in conjunction with the MC gain setting facilities since the MC amp feeds into the MM stage.

** In this document, any noise level expressed at a specific frequency is 'spot noise'. It may be expressed in 'volts per root Hz' or in dBV