
HOW TO CONNECT A TURNTABLE TO THE ULTIMATE PREAMPLIFIER

Ultimate-Preamplifier

by

Analog-Precision

<http://www.analog-precision.com/>

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INTRODUCTION

If you have the Analog Combo Board installed in your Ultimate-Preamplifier then it is possible to connect a turntable with a moving magnet cartridge to it. It is also possible to optimize the input impedance of the Preamp to match the recommended settings by the cartridge manufacturer just by setting a number of dip-switches at the back of the unit. If you want to use a moving coil cartridge with the Preamp then you will need to use an external pre-amp or step-up transformer specifically designed for moving coil cartridges in order to step up the output level to a level compatible with the output of a moving magnet cartridge.

To amplify the very small signal that comes from a cartridge a large amount of low noise amplification is required, and to meet the RIAA reciprocal playback response this amplification is also frequency dependent. Because the Preamp uses digital signal processing (DSP) the signal from the cartridge is first amplified by 20dB using a low noise analog pre-amplifier before it is fed to the on-board Analog-to-Digital Converters (ADC). There-after the DSP provides a further 40dB gain at 1KHz and also implements the reciprocal RIAA playback curve using low noise IIR digital filters that run at 192KHz. Because the ADC is already synced to the DSP and runs at the same rate, the on-chip Sample Rate Converter (SRC) is bypassed in this mode.

The Moving Magnet Phono Preamp mode is only available in the 2-Channel and Multi-Channel preamp modes since it requires the use of the DSP to provide the RIAA playback EQ.



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CONNECTING A TURNTABLE TO THE ULTIMATE-PREAMP

The turntable is connected to Input number 3 on the Analog-Combo board at the back of the unit. This input is multifunctional and can be switched between line-input and phono-input via the front panel menu. Be careful that no high-level source unit is connected to this input when switching the input for phono operation otherwise damage to your speakers may occur !

You should also connect the separate turntable chassis connection to the Ground terminal on the preamp to avoid noise and hum.



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SETTING THE CARTRIDGE LOADING IMPEDANCE

In between the Phono Input RCA connectors on the back of the Preamp is a set of piano key style dip-switches used to set the cartridge loading impedance. The switches are defined in the following tables. Note that the switch settings for both channels mirror each other.

CARTRIDGE RESISTANCE LOADING DIP SWITCH SETTINGS

Right Channel Resistance	Dip-Switch 5	Dip-Switch 6
Left Channel Resistance	Dip-Switch 8	Dip-Switch 7
160 K Ω	OFF	OFF
68 K Ω	ON	OFF
47 K Ω	OFF	ON
34 K Ω	ON	ON

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CARTRIDGE CAPACITANCE LOADING DIP SWITCH SETTINGS

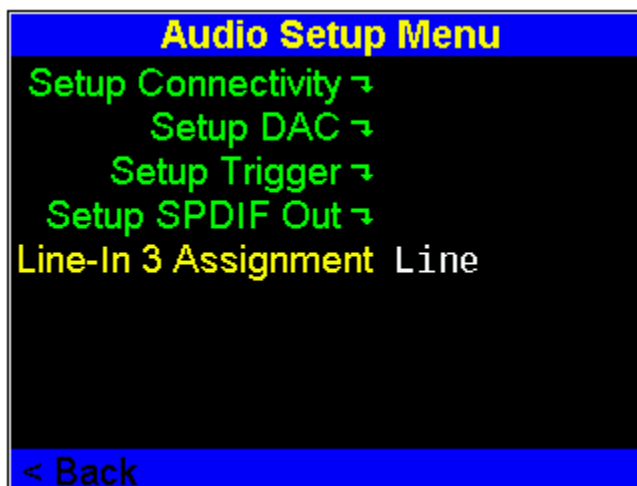
Right Channel Capacitance	Dip-Switch 1	Dip-Switch 2	Dip-Switch 3	Dip-Switch 4
Left Channel Capacitance	Dip-Switch 12	Dip-Switch 11	Dip-Switch 10	Dip-Switch 9
50 pF	OFF	OFF	OFF	OFF
100 pF	OFF	OFF	OFF	ON
150 pF	OFF	OFF	ON	OFF
200 pF	OFF	OFF	ON	ON
250 pF	OFF	ON	OFF	OFF
300 pF	OFF	ON	OFF	ON
350 pF	OFF	ON	ON	OFF
400 pF	OFF	ON	ON	ON
450 pF	ON	OFF	OFF	OFF
500 pF	ON	OFF	OFF	ON
550 pF	ON	OFF	ON	OFF
600 pF	ON	OFF	ON	ON
650 pF	ON	ON	OFF	OFF
700 pF	ON	ON	OFF	ON

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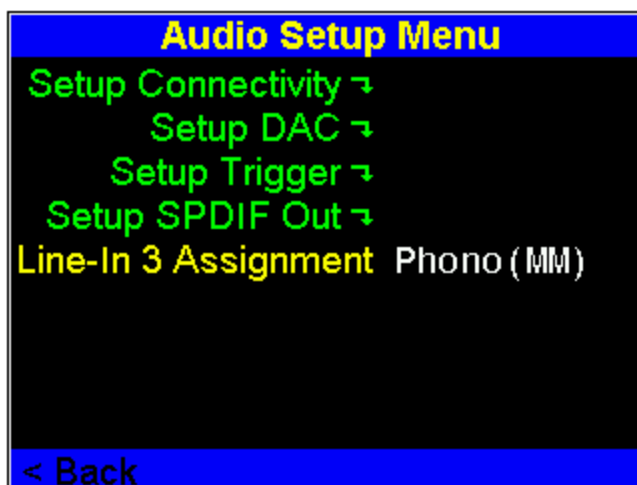
750 pF	ON	ON	ON	OFF
800 pF	ON	ON	ON	ON

ENABLING THE PHONO PREAMPLIFIER

From the front panel controls click the Center Button to invoke the Main-Menu. From the Main-Menu → Setup → Setup Audio. The menu screen should look like the following. Select the 'Line-In 3' Assignment by navigating with the Up/Down menu buttons.

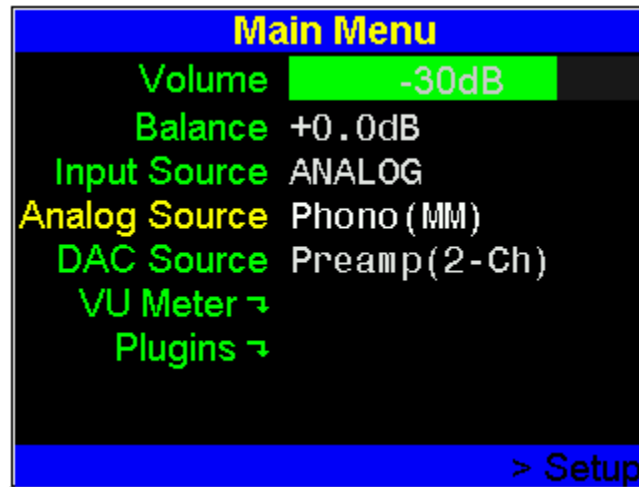


Using the left/right menu buttons change it to 'Phono(MM)'.



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Go back to the Main-Menu and set the 'Input Source' to 'Analog' and 'Analog Source' to 'Phono(MM)'. Note that by switching to phono input mode that the 'Line-3' Analog Source has been replaced by 'Phono(MM)'.



Enjoy !