

# Calibrating the SPL Listening Level

The TMC-1 has 3 level display formats, SPL, Gain and Dolby, only Gain is absolute, SPL and Dolby level are relative and calibrated by the user. The object of the calibration is to adjust the output and speaker amplifier gain so that the monitor gain at the required listening level is as close to 0dB as possible.

To optimise the signal to noise the TMC-1 only provides +/- 4dB of gain adjustment in 1/2dB steps. These are individually adjusted for each speaker set. The Amplifier gain controls should be used for coarse adjustments.

- 1) Decide on the listening level – for Film Dolby specify a SPL of 85dBA other applications vary from 72dBA to 82dBA
- 2) Adv. Menu 2 - Enable Calibration mode on the TMC-1 (Unlock All)
- 3) Adv Menu 3 – Set the SPL Level Required +/-1dB
- 4) Menu 14 – Set the Display mode to dB
- 5) TMC-1-Penta Only if using analog outputs – Adv menu 22 – Set the Line level for 0dBFS (Studio Dependant)
- 6) Exit menu and enable Speaker Solo, whilst holding the speaker key depressed adjust all the speaker trims to 0dB
- 7) Select a Pink Noise Source to all channels and set up a SPL meter
- 8) Adjust the amplifier gain so that when the TMC-1 the gain display is approximately 0dB for the required SPL level. Switch to SPL display mode and use the TMC-1 speaker trim to make fine adjustments.
- 9) Repeat for each Speaker

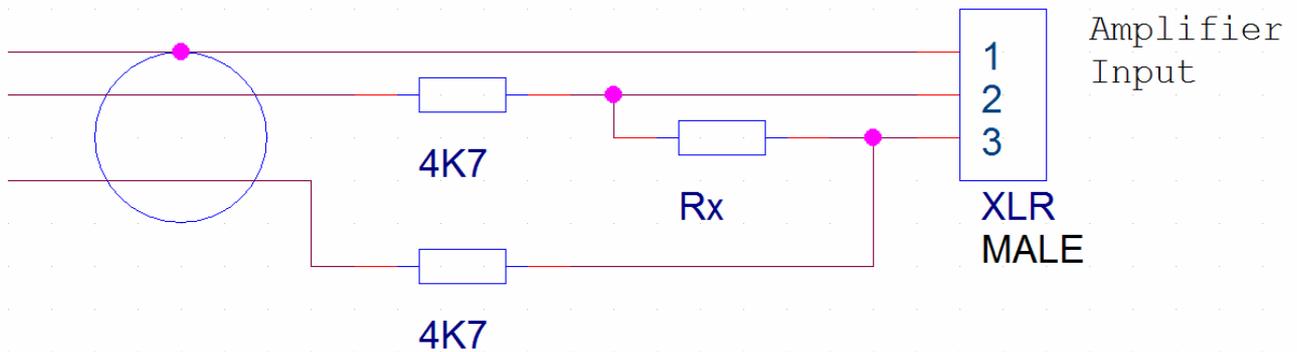
## Why is there no overall output level adjustment for the speaker sets?

In general amplifiers have too much gain, turning down the output on both analogue and digital monitor systems would cause a reduction in the dynamic range, as this attenuates the signal but not the noise. The optimum solution is to turn down the signal at the input of the power amp, this will attenuate both the signal and any noise from the monitor system. Where this is not possible use input pads on the input of the power amp as detailed below.

A detailed analysis of optimizing the XMon dynamic range can be found in this document

### Power Amplifier Input Pad

Where there is a input potentiometer on the amplifier you can use this as a coarse gain adjustment. Where there is none then you need to add a suitable attenuator. Below is a design for a simple attenuator with appropriate values. The attenuator can be built into the amplifier input connector.



Attenuation	Rx
-9.5dB	4K7
-11.7 dB	3K3
-14.4 dB	2K2
-17.2 dB	1K5
-20.3 dB	1K