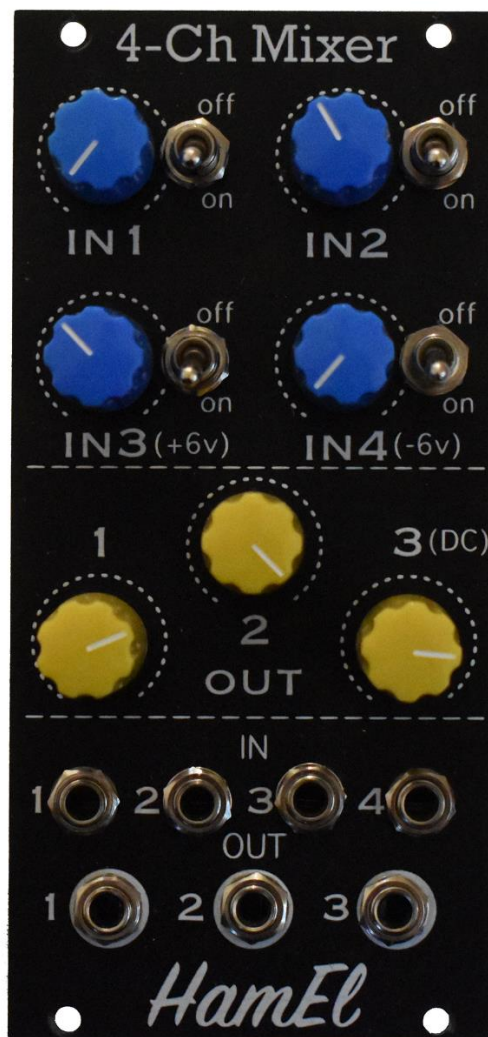# Hampshire Electronics

4-Channel Analogue Mixer in Eurorack Format

Instructions and Details

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Overview

The Hampshire Electronics 4-Channel Mixer is a 100% analogue 4 into 3 mixer in the popular Eurorack format.

The mixer features four attenuating inputs with mute / unmute switches and three independent volume controllable outputs. The mixer is suitable for mixing both audio and control voltage signals.

Outputs 1 and 2 are AC coupled, with the 3rd being DC coupled for control voltages. Inputs 3 and 4 can also be used as voltage sources when they are not receiving an input, defaulting to a 0v to +6v and 0v to -6v output respectively.

The key details of the 4-Channel Mixer are:

- 12HP Wide Eurorack module with thin profile (20mm deep from faceplate)
- Controls designed and laid-out with performance in mind
- 100% analogue circuitry
- Tough yet light composite faceplate
- Provides 4 into 3 mixing capability
- Each of the four inputs features a volume level and mute switch
- The three outputs are all independently volume controlled
- Outputs 1 and 2 are AC coupled for audio signals
- Output 3 is DC coupled to allow mixing of control voltage signals
- Input 3 defaults to 0v to +6v when no signal is present, enabling it to be used as a controllable voltage source
- Input 4 defaults to 0v to -6v when no signal is present, enabling it to be used as a controllable voltage source
- Diode protected power input
- 15ma @ +12v
- 15ma @ -12v

Installation

Power Availability

The 4 Channel Mixer module draws the following current from your power supply:

15ma @ +12v

15ma @ -12v

You should first ensure that your power system has enough power capacity to drive the module before considering installation. If you are in doubt, please consult with your power supply manufacturer.

Connecting the Power

Refer to the writing on the back of the module next to the 16-pin power connector to ensure that you connect the power supply correctly. The +12v, -12v and ground (GND) pins will be clearly marked.

The power inputs are diode protected but damage may occur if the unit is connected incorrectly.

Fitment

Use the screws provided to firmly fit the module into your case. You should make sure that the module does not move when you insert and remove patch cables.

Using the 4 Channel Mixer Module

The 4 Channel Mixer module enables up to 4 independent signals to be mixed together, each input having its own dedicated level knob and mute switch.

Using the Inputs

Inserting a signal into one of the four input jack sockets will enable that particular mixer channel.

Turning the level knob of the channel fully counter-clockwise will silence the input signal. Turning clockwise will increase the input level – at the fully clockwise position the signal will be complete unattenuated.

The mute switch next to each level knob, labelled **on** and **off**, can be used to instantly mute the input signal. In the **off** position the signal will be muted and in the **on** position will be governed by the level knob.

Using the Outputs

The three outputs can be used completely independently of each other and feature individual level knobs.

When a signal is present at one of the inputs, is un-muted and has the level knob turned fully clockwise, any of the output jacks can be used to output the signal. The level of the output signal can be controlled by the level knob. Turning the level knob fully counter-clockwise will mute the output and fully clockwise will allow the full signal to pass unattenuated.

The three outputs can be used simultaneously with independent output levels.

Audio Signals and Control Voltages

Audio signals are AC signals, in that they constantly fluctuate. Control voltages are generally DC signals as they do not vary constantly.

The 4 Channel Mixer can be used to mix both AC and DC signals but it is necessary that you use the correct output for your needs. The inputs can accept both AC and DC signals.

Outputs 1 and 2 are AC coupled. This means that they will block DC signals. This is useful for removing stray voltage offsets from your audio signal. The outputs will not pass DC signals.

Output 3 is DC coupled and will allow DC signals to pass. This output should be used when mixing control voltages. This output can also be used for audio signals but DC offsets will not be removed as they are by outputs 1 and 2.

Voltage Sources

Inputs 3 and 4 are internally connected to a +6v and -6v source respectively. This connection is present until a signal is inserted into the input jack, at which point the fixed voltage is disconnected.

This feature means that inputs 3 and 4 can be used as voltage sources.

If no signal is inserted into input jacks 3 and 4 and they are NOT be used as a voltage source then inputs 3 and 4 should be muted by switching them to the off position.

Using the +6v Voltage Source

To use the +6v voltage source, the mute switch of input 3 should be set to **on** and the mute switch of input 4 should be set to **off**.

Output 3 should be used for the voltage source output as it is DC coupled. Outputs 1 and 2 will block DC and cannot be used for this purpose.

Turn the output 3 level knob fully clockwise – this will ensure the voltage source is unattenuated on output. You can now use the input 3 level knob to vary the output voltage between 0v (counter-clockwise) and +6v (clockwise).

Using the -6v Voltage Source

To use the -6v voltage source, the mute switch of input 3 should be set to **off** and the mute switch of input 4 should be set to **on**.

Output 3 should be used for the voltage source output as it is DC coupled. Outputs 1 and 2 will block DC and cannot be used for this purpose.

Turn the output 3 level knob fully clockwise – this will ensure the voltage source is unattenuated on output. You can now use the input 4 level knob to vary the output voltage between 0v (counter-clockwise) and -6v (clockwise).