Q163++ Eurorack Adapter Module

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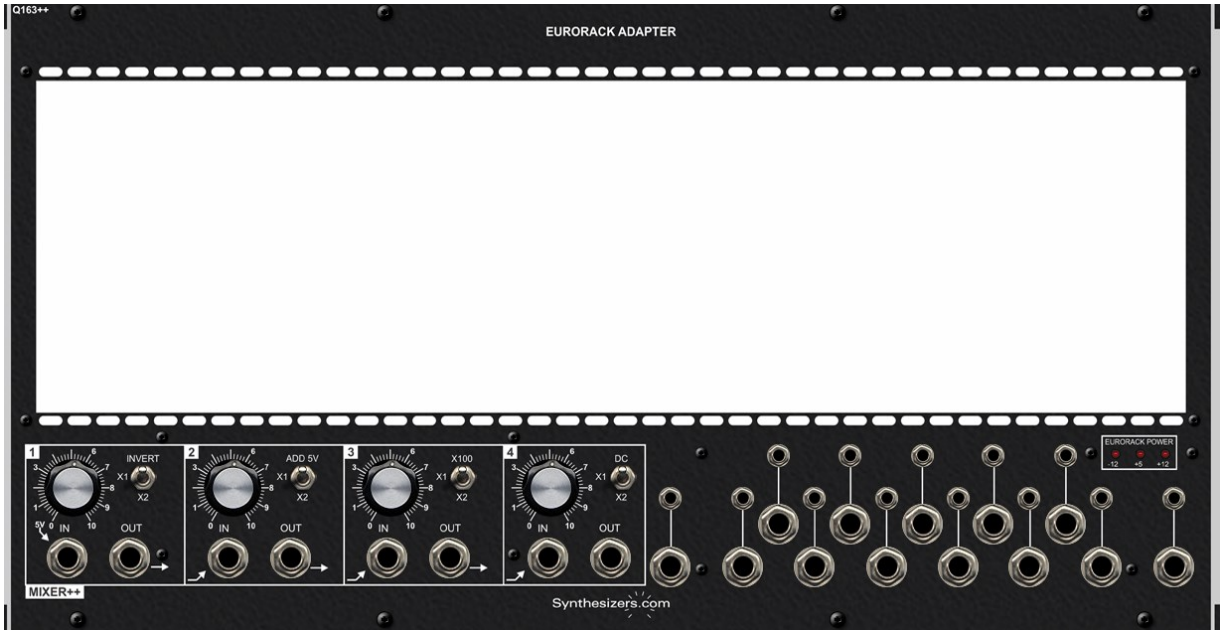
The Q163++ Eurorack adapter module provides mounting space, power distribution, and a patch bay for using Eurorack modules in a 5U Synthesizers.com system.

The Q163++ panel consumes four 5U spaces and provides an opening for 80HP of Eurorack modules. An array of slotted holes at the top and bottom provide mounting for modules of various widths and hole spacings. Thirteen patch points convert Eurorack's 3.5mm connectors to the 1/4" standard used in 5U systems. A Mixer++ section provides signal process right on the panel.

Eurorack +12 and -12 volt power rails are generated from the 5U system's +/-15 volt rails. The 5 volt power rail is also included. Seven Eurorack power headers are available for module power. LED's indicate the status of the Eurorack power.

Blank panels are not included.



Q163++ Eurorack Adapter Module Specifications

Panel Size: Quad Width 8.5"w x 17" 5U (Moog Unit Format).
Eurorack Spaces: 80HP with M3 mounting holes on .2" (5.08mm) centers. 24 M3 screws are provided.
Jack Conversion: 13 total, 3.5mm to 1/4.
Power Input: +15V, -15V, +5V Synthesizers.com standard 6-pin MTA.
Only one power connector required
Power Output: +12V @ 1000ma, -12V @ 1000ma, +5V @ power supply. 7 Eurorack 16-pin headers.

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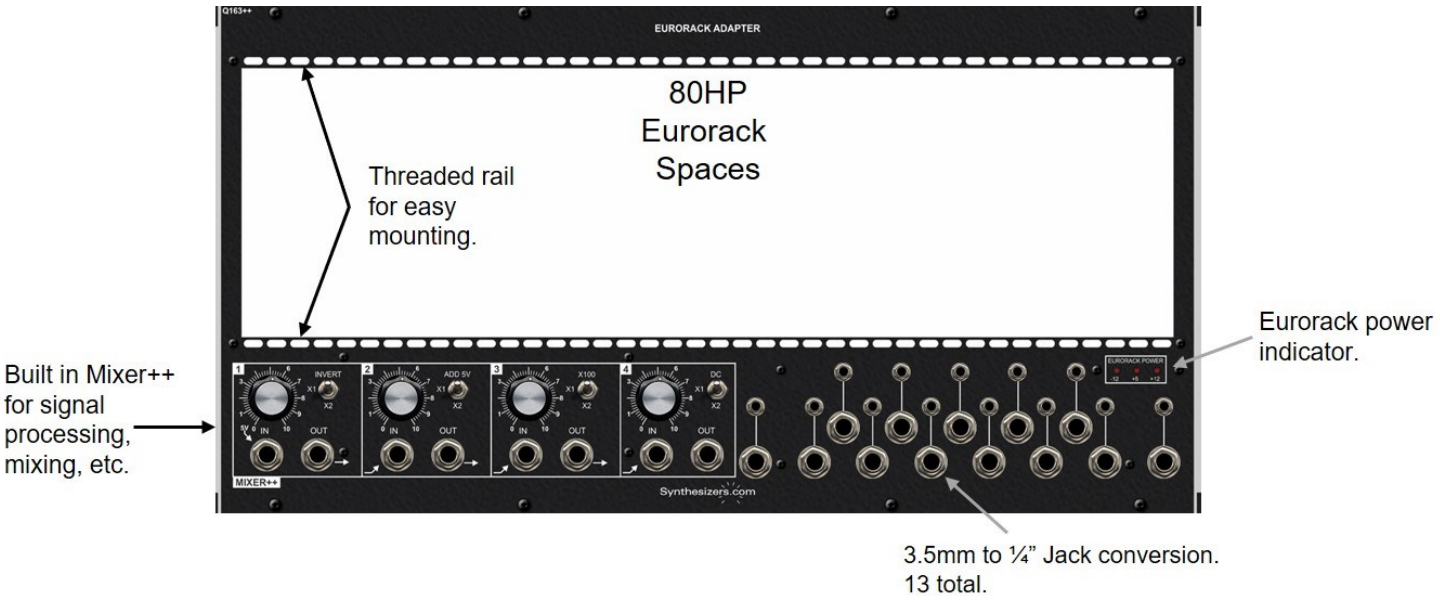
Q163++ Panel Layout

The Q163++ panel provides spaces for 80HP of Eurorack modules. Mounting holes along the top and bottom of the opening land on .2" (5.08mm) centers. Use M3 screws for mounting (provided).

A built in Mixer++ section provides easy access to signal processing, mixing, etc.



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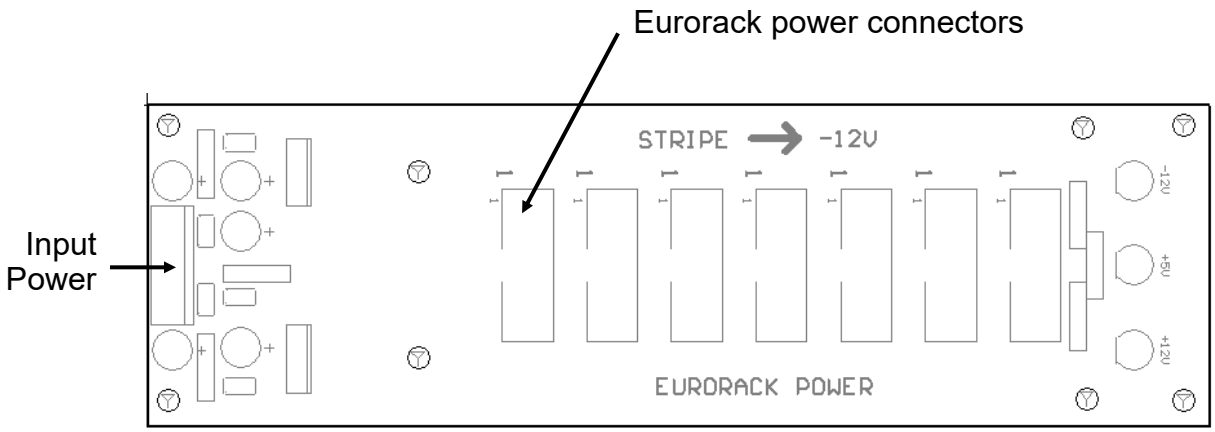
Q163++ Printed Circuit Board Layout

The Q163++ PCB converts the +/-15 volt power rails from a standard 5U Synthesizers.com system to +/-12 volts used by Eurorack modules. There are 7 Eurorack power connectors provided. Power cables can be 10-pin or 16-pin depending on what your modules need.

Notice the "1" indicator for each connector. Pin 1 typically aligns with the red stripe on a Eurorack power cable. Incorrect connection may damage your module and/or the Q163++ board. If your modules or cables are not typical, refer to the pinouts below for proper connection.

There is a limit to the amount of current that can be drawn from the Q163++ power regulators. Check the manufacturers specifications for the Eurorack modules against the maximum current capacity of the Q163++ board shown on page 1 of this data sheet. The more current drawn, the more heat the regulators will produce.



5U/Synthesizers.com
Power Pinout
6-pin .1 MTA connector

1 = +15 volts
2 = Key (pin removed)
3 = +5 volts
4 = Ground
5 = -15 volts
6 = unused

Eurorack Power Pinout
10 or 16-pin header connector

1,2 = -12 volts
3,4,5,6,7,8 Ground
9,10 = +12 volts
11,12 = +5 volts
13,14 = CV
15,16 = Gate

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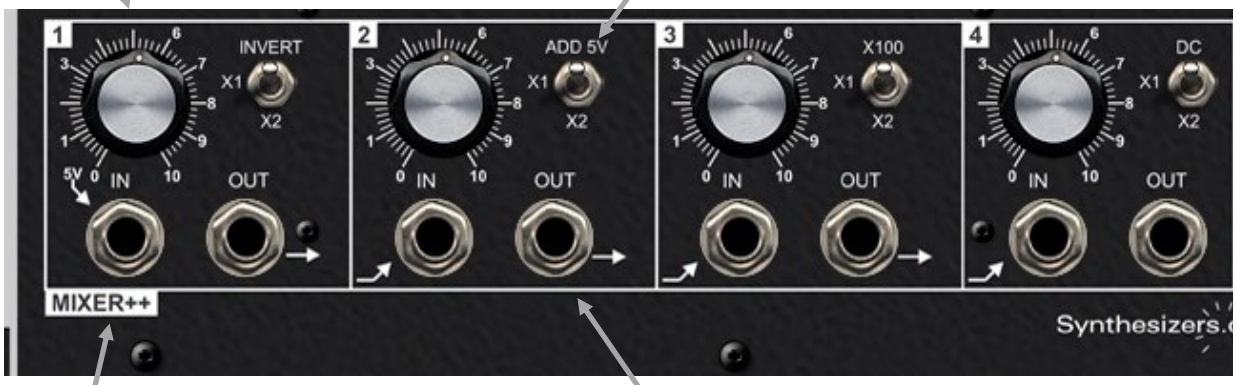
MIXER++ Section

The Q163++ has a Mixer++ section that operations the same as our Q114 Mixer++ Module.

The Mixer++ section has 4 channels with each channel connected to the one above until plugs are inserted. Each channel has a switch offering 3 different functions. This combination of functions provides an incredible amount of signal processing options.

The knob attenuates the input jack's signal 0% to 100%.

The switch determines the function of each channel. 3 options.



Signal Input for each channel. If no plug is inserted, the signal comes from the input jack of the previous channel. Inserting a plug breaks the chain.

The output jack for this channel's function. If no plug is inserted, the signal is mixed down to the channel below. Inserting a plug breaks the chain.

With no plug in channel 1, its input is 5 volts. This creates variable voltage sources.

Switch functions can be changed with jumpers on the circuit board.

Options are:
x2 amplification
x100 amplification
DC/AC coupling
Inverting
5V offset

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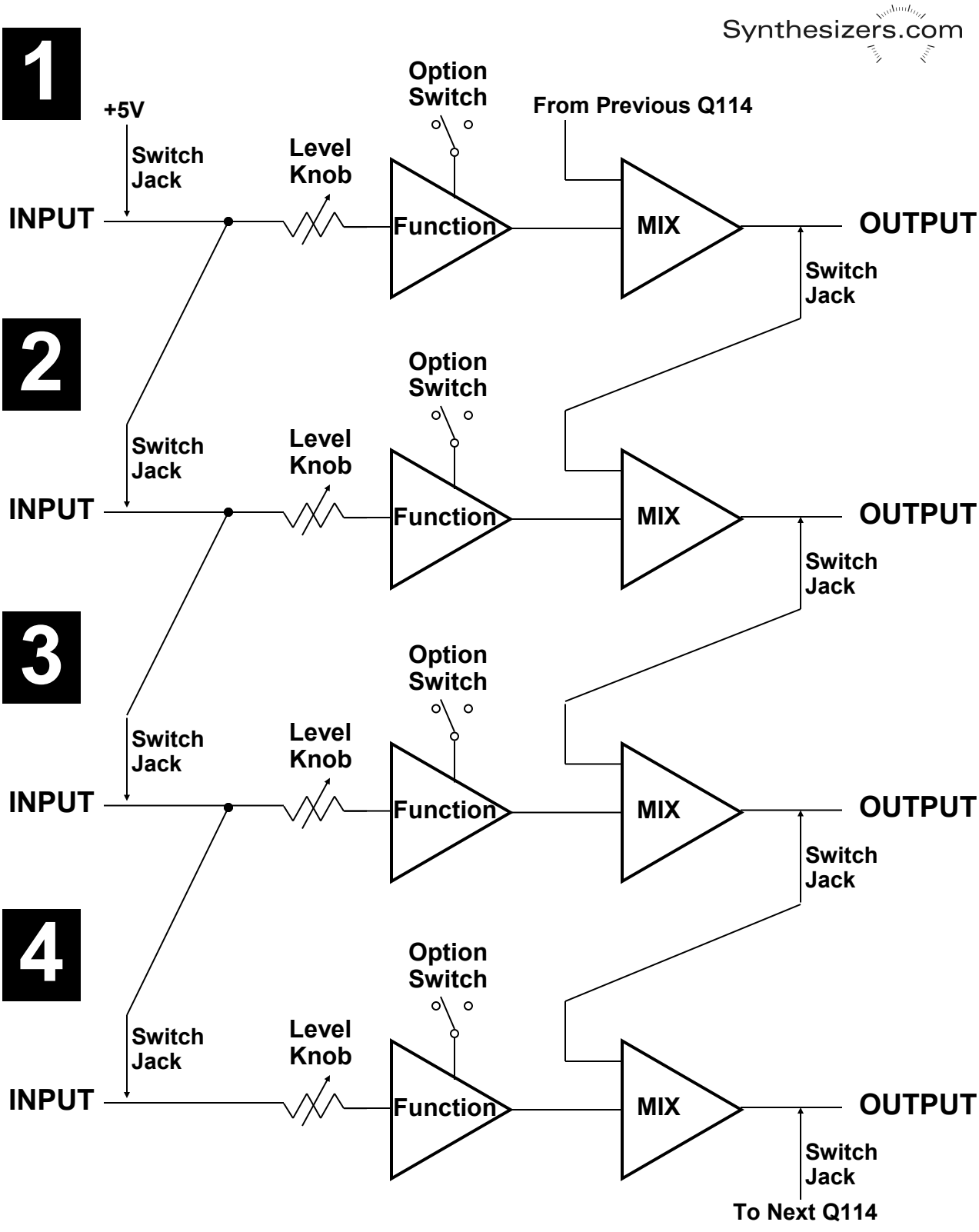
MIXER++ Section Function Diagram

The Q114 Mixer++ is a chain of function blocks and mixers. The blocks are connected together with switching jacks on the inputs and the outputs. Inserting plugs breaks the chain and allows the functions to be used individually or in groups.



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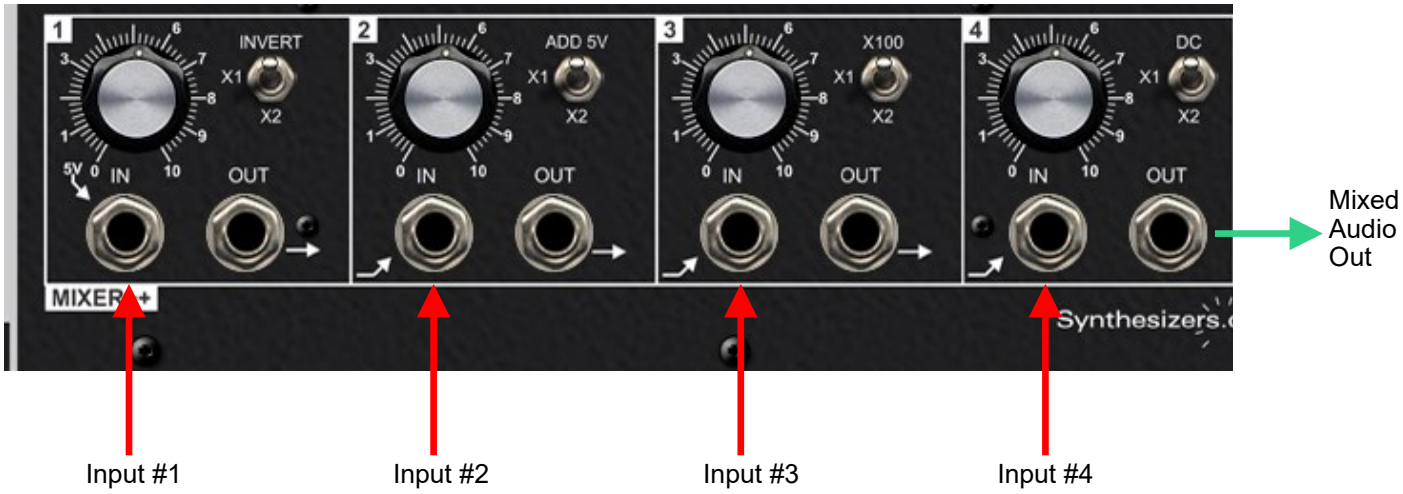
MIXER++ Section Patch Ideas

Basic Mixer Patch
Here's an example of the Q114 being used as a simple multi-channel mixer. Each channel has its own attenuator. The output is at the bottom of the chain.

Normally for mixing you want the option switch in the X1 position.

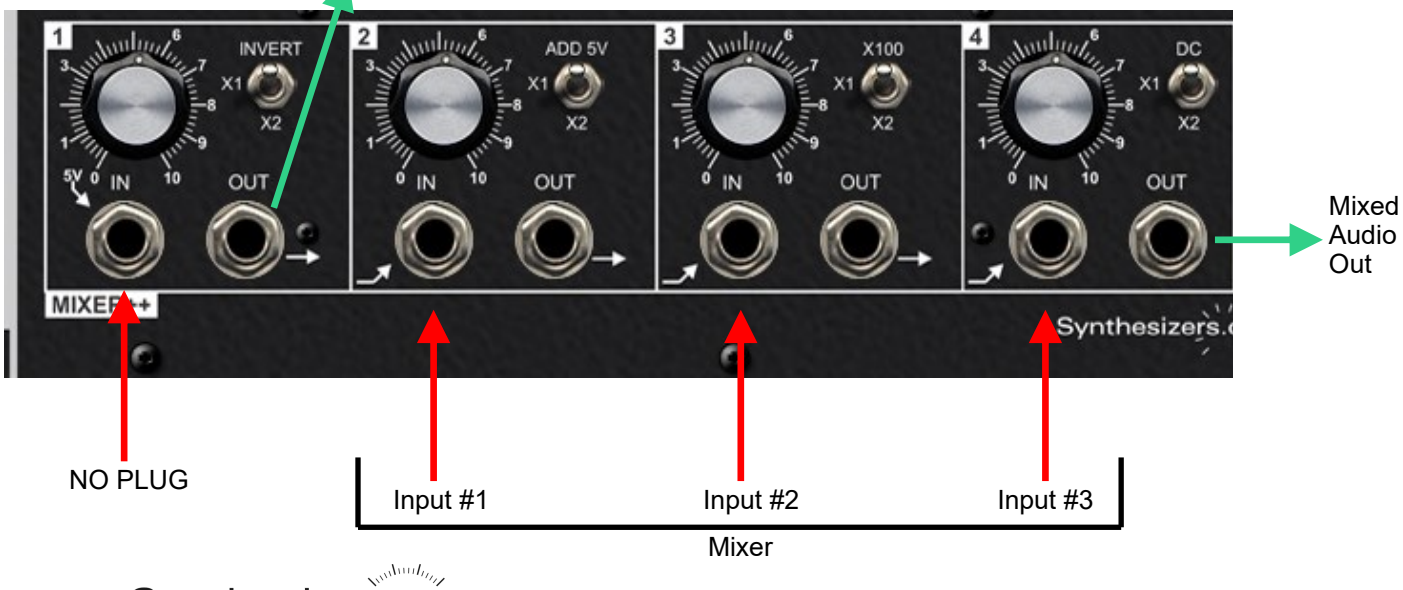
No plugs in Outputs 1,2,3 so the signal gets mixed down to the final output where there is a plug.



Mixed Audio Out

Input #1 Input #2 Input #3 Input #4

Voltage Source and 3-Channel Mixer
In this example, the top channel is used as a voltage source. Channel #1 has 5 volts at its input if there is no plug inserted into its input. Channel 1's knob sets the output voltage from 0 to 5 volts.



Mixed Audio Out

NO PLUG Input #1 Input #2 Input #3

Mixer

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MIXER++ Section PCB

Configuring Option Switches

Each of the 4 channels has a 3-position toggle switch to select a special function for that channel. In the middle position, the function is X1 meaning that the input signal is equal to the output signal. This is what we want for most mixing situations. The switch has a 2-pin cable for the UP position and the DOWN position. You can place these cables on any option you want for any channel. The options are plainly marked on the circuit board.

Options are:

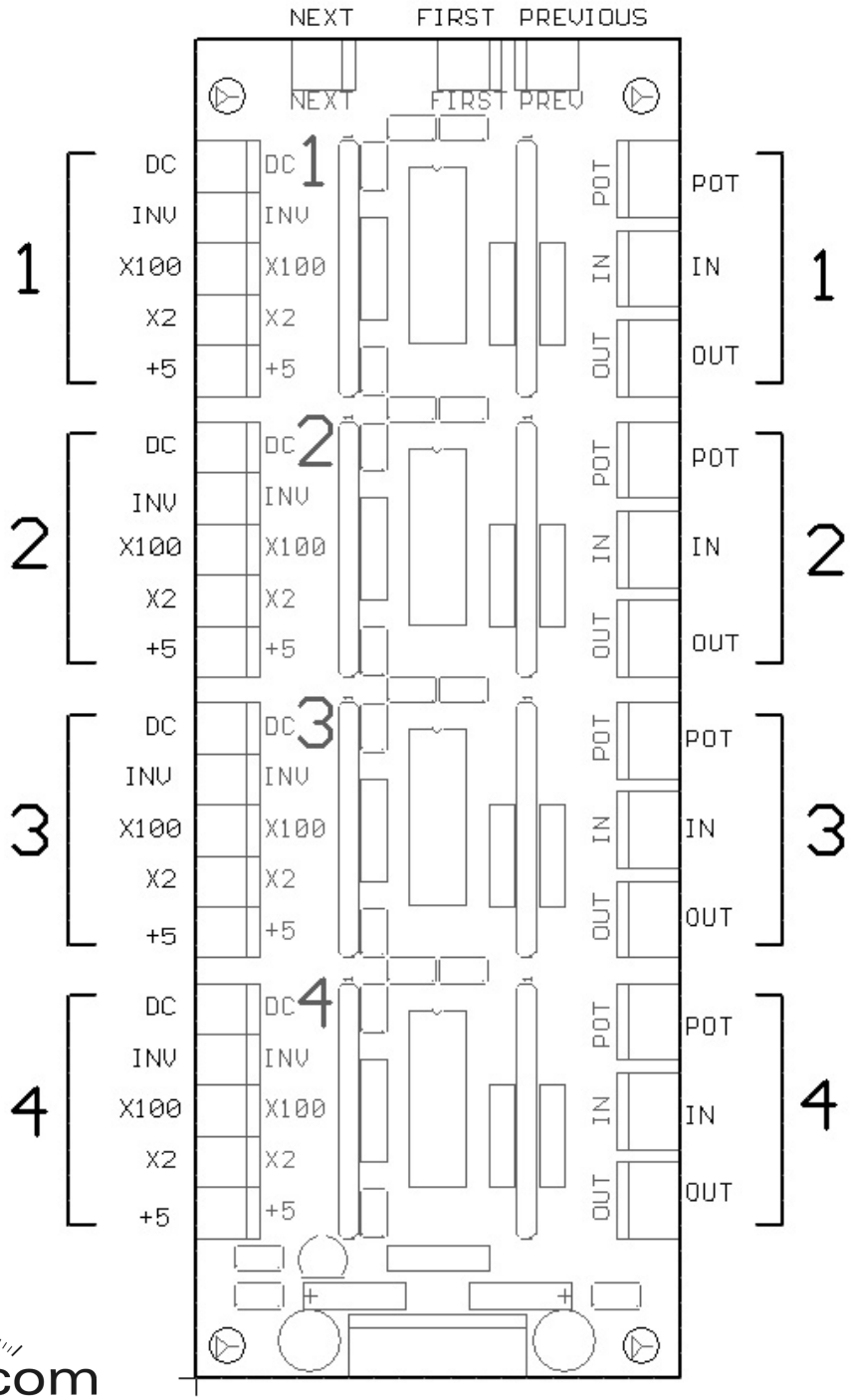
DC
DC coupling, otherwise AC coupling. AC removes any offset voltage a signal might have. Normally you want a jumper on this for DC operation.

INV
Invert input signal. This allows inverting control voltages or gates and can also be used along with 5V inputs to generate -5V.

X100
This multiplies the input signal by 100. This is used for amplifying weak signals. The output will clip at about 14VPP which can provide some useful effects.

X2
This multiplies the input signal by a factor of 2. This allows signals to be boosted relative to each other.

+5
This adds an offset of 5V to the signal. In conjunction with inverting it can be used to modify gate signals or convert audio to gate or vice-versa.



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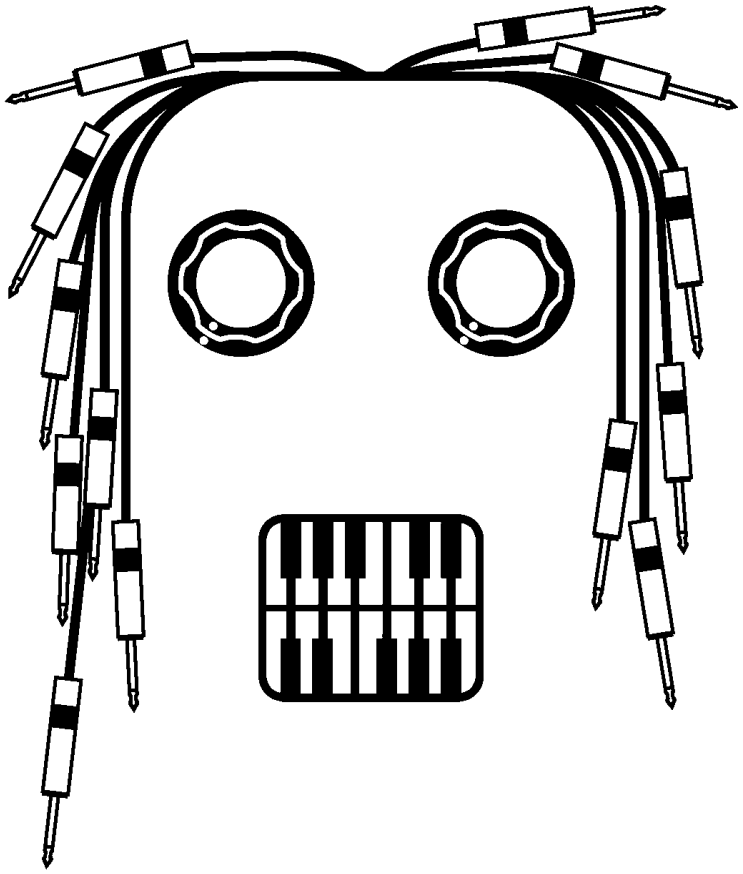
Patcher Jack



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