M107 Control Voltages Mixer

FUNCTION DESCRIPTION

The M107 Control Voltages Mixer is one the most usefull module in the family. It features 3 channels of DC coupled circuits which give the possibility to mix any control voltages such as ADSR, LFO, S/H, DC waveforms, etc used for any voltage Controled modules such as VCO, VCF, VCLFO, etc ...

The final mix goes to 3 separate outputs.
Output+ mixed CVs are available on 2 output jacks.
They give 0 to +5v max.
Output- mixed CVs is of reversed type which gives 0 to -5v max.

The printed circuit board

The module uses a 2U Moog style front panel. The PCB is a double side board, 2.6" X 5.5", has 4 mounting holes, one on each corner and is mounted on 4 x 4-40 1/4" "standoffs. All the parts are through hole types.
Connectors P1 to P3 are positioned to be adjacents to their dedicated pots.
100kB lin potentiometers are used for smooth response.
Power is connected by use of a 6 pins 0.156" Molex type connector.
All the wiring cables are hookup wires type.

The circuit description

The M107 Control Voltage Mixer circuitry is straight forward.
First all the 3 channels Inputs are connected to switchcraft 1/4" jacks to be then routed to their 3 respective 100kB level pots. All the resulting pots values are mixed using R1 to R3 then amplified using U1A that has a precise unity gain.
A normal (non-reversed) output signal mix going from 0 to +5v max is available on J4 and J5 output jacks. Opamp U2B reverses the normal output voltage going from 0 to -5v max and feeds it to jack J6.
R9 300k 1% resistor is optional if the user wants the reverse output to go from +5v to 0v (+5v being the '0' front pot level position) instead of 0 to -5v max. This resistor has not been installed.

No Adjustments or trimmings required.

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ELECTRONIC SPECIFICATIONS

POWER CONNECTOR PIN ASSIGNMENTS

1	-15V
2	A GND
3	A GND
4	+15V
5	D GND
6	+5V

Panel Size: Single width 2.125"w x 8.75"h..
Volume control inputs: 3 summed
Channels input impedance: 100k +/-1%
Channels level response: Linear
3 mixed outputs: 2 normal, 0 to +5v max
1 reversed, 0 to –5v max
All output impedances: 100ohms +/-5%

Power:
+15V @ 8.5mA,
-15V @ 8.5mA,
+5V @ 0mA.

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