

M115A Multi Effects I (100 presets)



FUNCTION DESCRIPTION

The M115A Multi effects module is based on the DSP module available from Aliexpress.com
It's a DSP based Effects Board made primarily for Karaoke uses.

It contains 100 presets (0-99) listed here:

- REVERB
- DELAY
- CHORUS
- FLANGER
- PHASE SHIFT
- TONE (Whammy effect)

Some presets have a mix of these effects like:

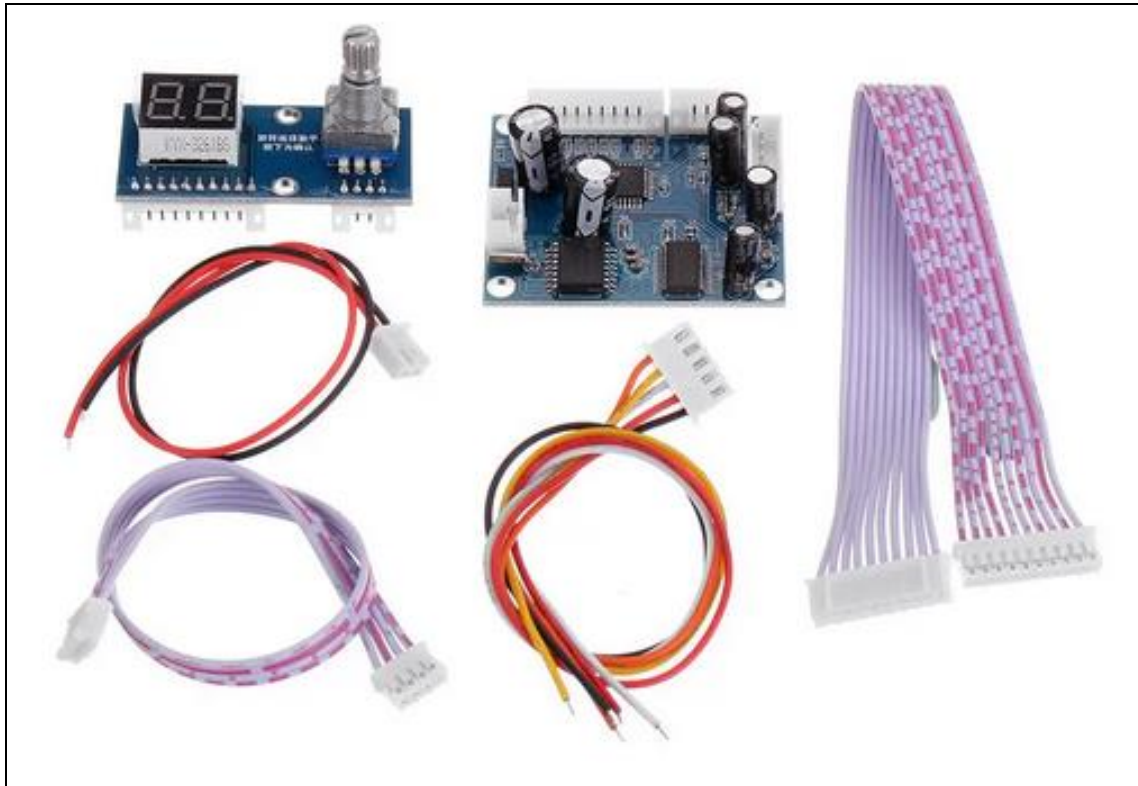
- REVERB-CHORUS
- REVERB-PHASE-SHIFT
- REVERB-TONE
- DELAY-REVERB
- DELAY-REVERB-GATE
- DELAY-CHORUS
- DELAY-PHASE-SHIFT
- DELAY-TRANPOSE

The printed circuit board

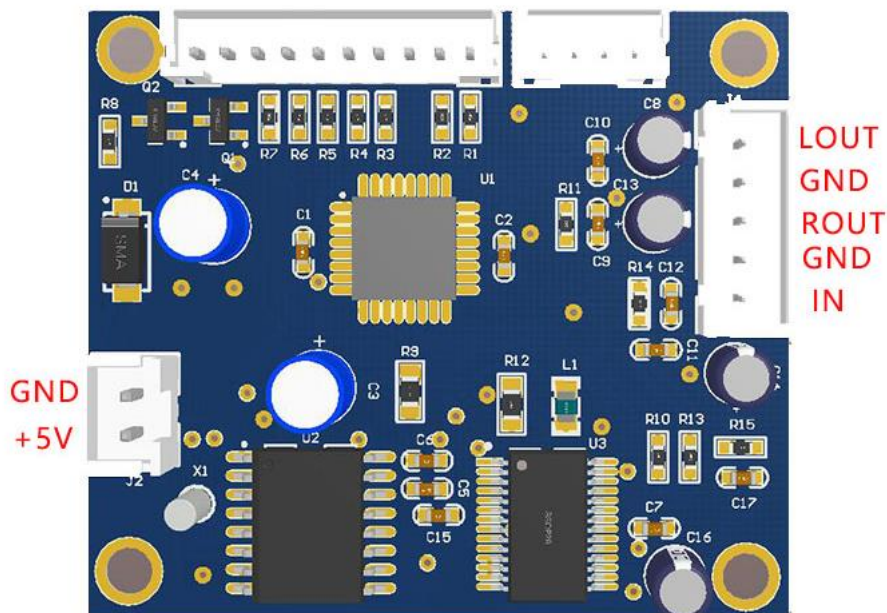
The PCB has been designed to fit behind a 1U Moog style front panel. It is a double side board 5.5" X 2.6" and is mounted using 4-40 0.25" round standoffs. All the parts are through hole types. Power is connected by use of a 6 pins 0.156" Molex type connector. The PCB has 4 mounting holes, one on each corner.

The circuit description (DSP board)

The **DSP module** main board is mounted over the main M115A board using four 4-40 0.25" round standoffs to keep it from touching the mother board parts and connections. The DSP kit contains 2 PCBs linked with 2 flat cables. The first PCB contains both rotary switch and a double 7 segments display. The second PCB contains the DSP digital stuff with the flat cable connectors and the 2 harnesses for +5vdc power and the audio input/output.



DSP kit

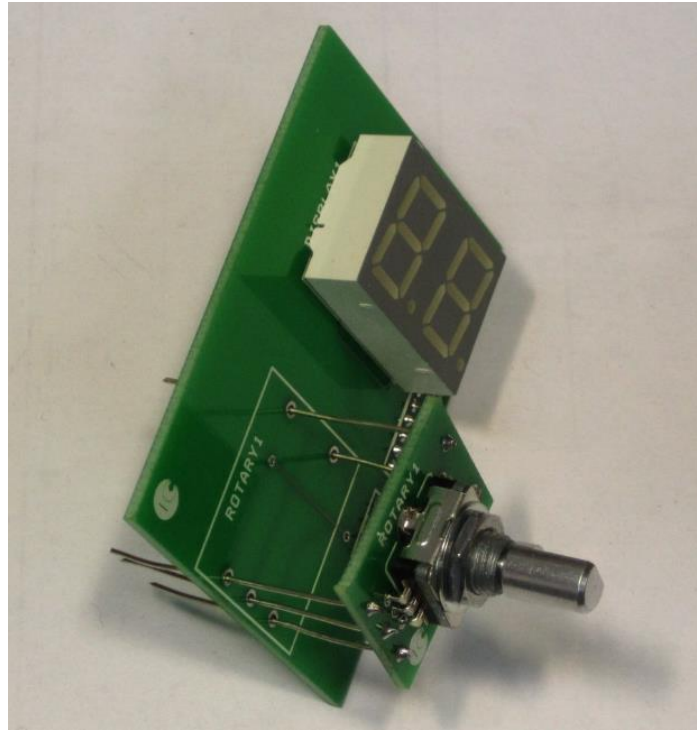


DSP digital board

Playing with the rotary encoder brings 100 presets (0-99). Selection is made by rotating the control to the needed preset number then pushing it to accept the selection.

Since the original DSP kit had horizontal aligned rotary/displays and I needed these parts vertically aligned I had to 'reverse engineer' the original control pcb and design a newer with vertically aligned parts.

The final result gave this:



The circuit description (M115A main board)

U1A receives the external audio signal and put it available through the J2 **OUT DRY** jack. **U1A** pin#1 drives both sides of the P1 **FX Balance** potentiometer. This control makes a **balance** of both DRY and FX signals together. The 'dialed' **DRY** signal is available on **U1B** pin#7 while the 'dialed' mix **FX** signal is available on **U2A** pin#1 to feed the **DSP module** input.

The **DSP** board has stereo outputs.

Each of these outputs are mixed with the dialed **DRY** signal to their final jack outputs (**OUT LEFT**, **OUT RIGHT**).

For instance **U3A** and **U4A** buffer the DSP's stereo outputs then feed their outputs to both mixers opamps **U3B** and **U4B**. Both **LEFT** and **RIGHT** are then mixed together by the mixing opamp **U2B** and the mix is available on J4 **OUT MONO** jack.

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PRESET LISTING:

00 - 02	SMALL HALL
03 - 05	MEDIUM HALL
06 - 08	LARGE HALL
09	CHURCH
10 - 12	SMALL ROOM
13 - 15	MEDIUM ROOM
16 - 18	LARGE ROOM
19	HALL
20 - 26	METAL ACC. REV.
27 - 29	SPRING REVERB
30 - 35	REVERB DOOR
36 - 39	REVERSE REVERB
40 - 43	EARLY REFLECTION
44 - 47	ATMOSPHERE EFF.
48	STADIUM
49	AMBIENT FX
50 - 58	DELAY
59	ECHO
60 - 65	CHORUS
66 - 69	FLANGER
70 - 73	PHASE SHIFT
74 - 79	TONE
80 - 81	REVERB + CHORUS
82 - 83	REVERB + CHROME
84 - 85	REVERB + PHASESHIFT
86 - 87	REVERB + TONE
88 - 89	DELAY + REVERB
90	DELAY + REVERB GATE
91	DELAY + REVERSED REVERB
92 - 93	DELAY + CHORUS
94 - 95	DELAY + CHROME
96 - 97	DELAY + PHASE SHIFT
98 - 99	DELAY + TRANSPOSITION

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.

Controls:

Preset rotary encoder: preset setting 0-99

Level: Mix of both DRY and FX signals

Waveform input levels: 10V peak to peak

Waveform output levels: 10V peak to peak

Input impedance: 100k ohms, nom.

All output impedances: 1000 ohms, nom.

Waveform outputs:

Dry, Eff. MONO, Eff. LEFT, Eff. RIGHT

Power:

+15V @ 150mA,

-15V @ 16mA,

+5V @ 0mA.

