

Octopus FV-1 Platform

Based on:

Spin FV-1

Effect type:

Multi-platform

Build difficult:

Advanced

Amount of parts:

Medium, total 61 components

Technology:

Spin FV-1

Power consumption:

50mA (9v)

Enclosure type:

1590BB

Get your board at:

[Octopus Platform](#)

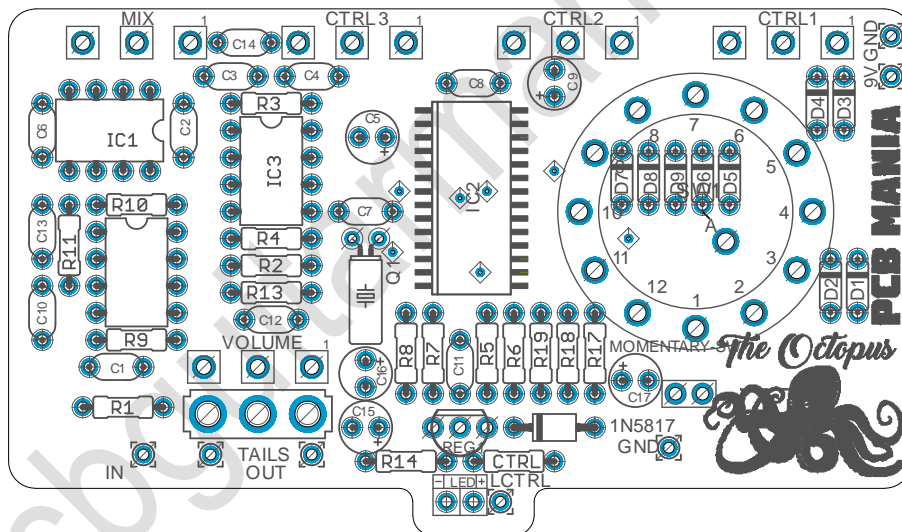
Get your kit at:

[Das Musikding \(Europe\)](#)

Project overview:

PCB Guitar Mania Octopus Platform is a powerful device to run up to 8 different modulation patches (Reverbs, delays, octavers, phasers, pitch shifters, etc) through the powerful Spin FV-1 IC, just by replacing the provided Eeprom memory ICs.

This technology is the responsible of feeding crazy projects such as the Earthquaker devices Rainbow Machine, Avalanche Run, and more.



Real measures are:

85mm width x 49.5mm height

3.34" width x 1.94" height

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Introduction

The Octopus Platform is much more than just another simple board to build a single effect, is analogue platform based around the digital Spin FV-1, that allows you to run multiple different effects with the same box.

This circuit has been developed to be the ultimate Spin FV-1 platform, integrating this digital IC as any other analog component of the signal path.

The Trinity platform can read up to three different programs by using the provided EEPROM memory IC. You can select in between 3 totally different programs just by the flip of the toggle **SW1**.

But the magic of this platform is that just by replacing the memory IC you can change totally the effects on the pedal. Let's say for example, you have two EEPROMS, **EEPROM-A** (Shimmer, spring reverb, modulated reverb) and **EEPROM-B** (Flanger, pitch shifter, octaver), just by removing the first one and placing the second one instead of you'd a completely different set of effects out of it.

With 3 potentiometer inputs, programs may have real time variable parameters such as decay time in a reverb, rate and depth in a chorus or frequency in a filter. These inputs are available as coefficients to your program and may be used independently of each other.

We have Schedule the release of more and more patches to take out all the juice out of this powerful platform.

Controls

The controls of the Octopus varies according to the program running on. However it has some common controls from the analogue path that applies to any patch running on.

- Ctrl1, Ctrl, 2, Ctrl3: Control different parameters according to the patch running on, like decay, delay time, repeats, feedback, and more.
- Mix: Regulates the mix of the dry signal and the wet.
- Level: Output level of the effect.
- Sw1: This is the program selector, just by changing rotary's switch position it you'll access to a totally different patch.
- Tails: Tails on/off selector.

Bill of materials

Resistors	
Part	Value
R1	1M
R2	100K
R3	1K
R4	100K
R5	10K
R6	100r
R7	100K
R8	100K
R9	10K
R10	100K
R11	100r
R13	10K
R14	10K
R17	22k
R18	22k
R19	22k
CTRL	4K7

Capacitors	
Part	Value
C1	100n
C2	220n
C3	220n
C4	1n
C5	10uf
C6	220n
C7	15p
C8	220n
C9	1uf
C10	220n
C11	2n2
C12	220n
C13	120p
C14	220n
C15	100uf
C16	47uf
C17	47uf

Diodes	
Part	Value
D1	1N4148
D2	1N4148
D3	1N4148
D4	1N4148
D5	1N4148
D6	1N4148
D7	1N4148
D8	1N4148
D9	1N4148
LED	3mm red LED
1N5817	1N5817

Switches	
Part	Value
SW1	1P12T
TAILS	SPDT ON-ON

Potentiometers	
Part	Value
CTRL1	100K-B
CTRL2	100K-B
CTRL3	100K-B
VOLUME	100K-B
MIX	100K-B

Semiconductors	
Part	Value
IC1	TL072
IC2	FV-1
IC3	24LC32 (EEPROM)
IC4	TL072
REG1	L78L33

Crystal	
Part	Value
Q1	32.768KHz Crystal AB38T-32.768KHZ

Shopping list

Resistors		
Qty	Value	Parts
4	100K	R2, R4, R7, R8
1	22K	R10
3	22k	R17, R18, R19
1	1K	R3
1	1M	R1
4	10K	R5, R9, R13, R14
2	100r	R6, R11
1	4k7	CTRL

Capacitors		
Qty	Value	Parts
2	47uf	C16, C17
1	100n	C1
1	10uf	C5
1	120p	C13
1	15p	C7
1	2n2	C11
1	100uf	C15
1	1n	C4
1	1uf	C9
7	220n	C2, C3, C6, C8, C10, C12, C14

Semiconductors		
Qty	Value	Parts
1	FV1	IC2
1	24LC32	IC3
2	TL072	IC1, IC4
1	L78L33	REG1

Diodes		
Qty	Value	Parts
1	1N5817	1N5817
1	3mm red LED	LED
9	1n4148	D1, D2, D3, D4, D5, D6, D7, D8, D9

Potentiometers		
Qty	Value	Parts
5	100K-B	CTRL1, CTRL2, CTRL3, MIX, VOLUME

Switches		
Qty	Value	Parts
1	1P12T Rotary	SW1
1	SPDT ON-ON	TAILS

Crystal		
Qty	Value	Parts
1	32.768KHz Crystal AB38T-32.768KHZ	Q1

Components Recommendations

For this project is a must to use **FV-1*** from a trusted source such as Das Musikding, Small bear, and many other pedal related suppliers. We sell each individual board including the One **EEPROM** with the algorithms pre-loaded, the **crystal oscillator** and the voltage regulator **L78L33**.

On this document many parts aren't populated due most of it corresponds to a future tap tempo patches that we are going to release in the following weeks.

This board has been tested using Film box capacitors for most of the values over 1nf, and ceramics discs for the ones under 1nf. However, high quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

The BOM and Shopping list are exclusively regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

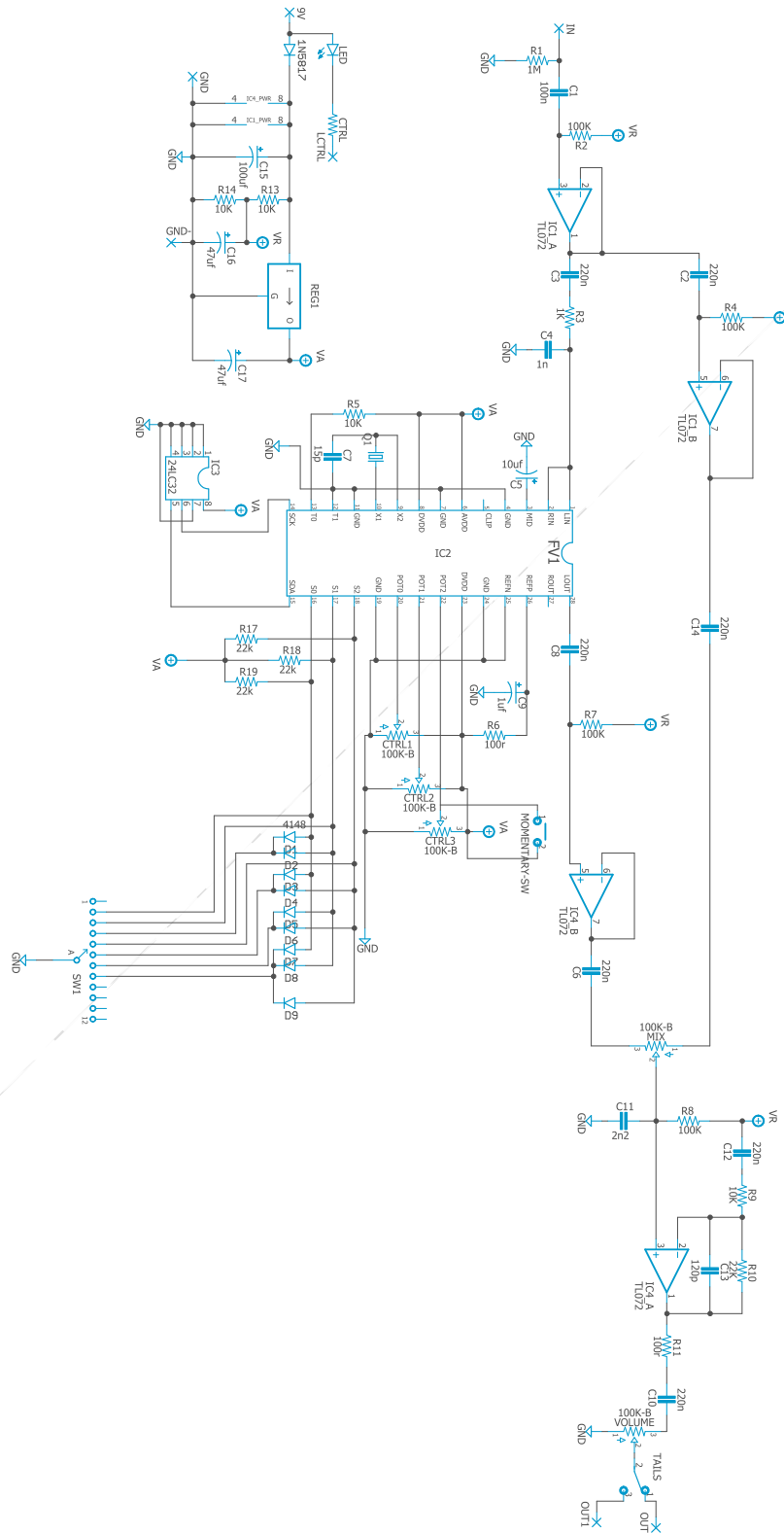
Build Notes

If this is one of your first projects I recommend you to take a look on our [Pedal Building Guide](#)

For a successful and tidy build it's recommended the following order:

1. SMD Transistors
2. Resistors & diodes
3. Capacitors, starting with the smaller ones and the ceramic ones.
4. Electrolytic capacitors (always check the polarity)
5. Transistors
6. Wires
7. Potentiometers and switches
8. Off board wiring
9. Transistor bias

Schematic

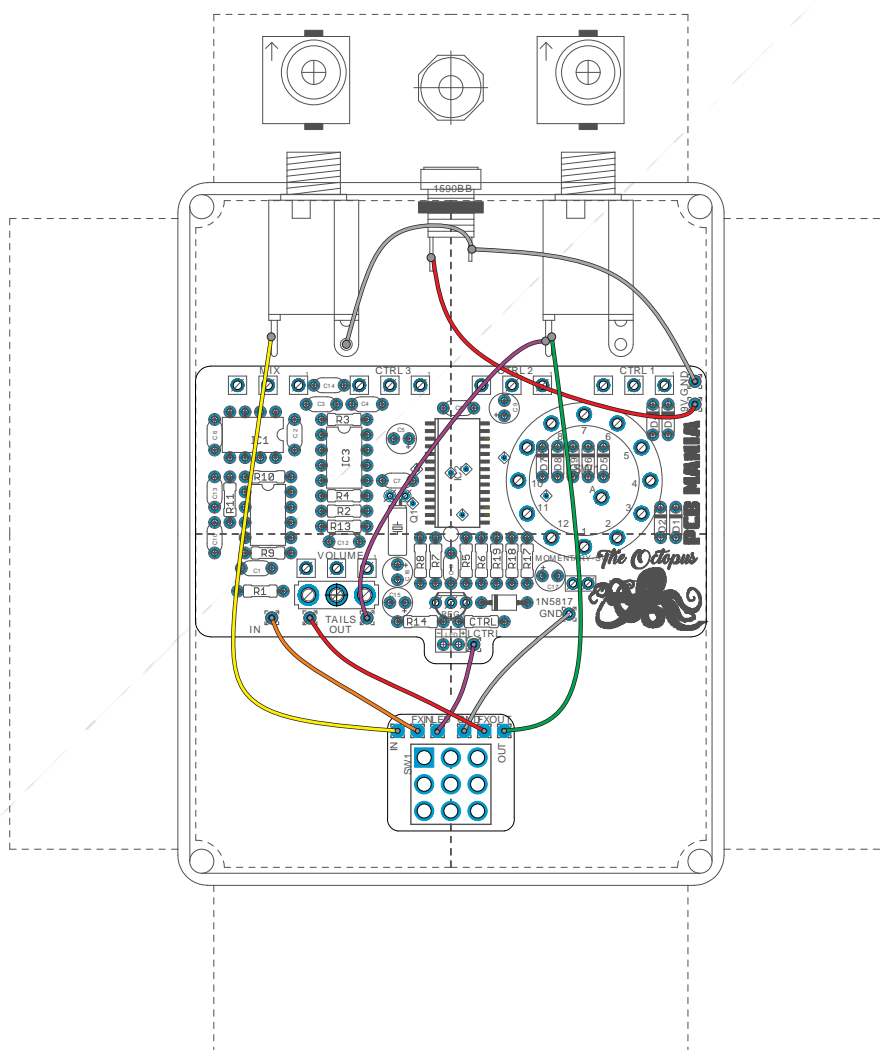


Wiring Diagram

All our projects include a **free 3PDT** Board to make the wiring easier and tidier. Also all of our PCBs feature the status LED on board.

The pad named “Ctrl” or “LED” is the one that controls the status of the led, wire it to the “LED”pad on the 3PDT board, or in control slug of your 3PDT.

You can take a look on the following diagram to understand the general connections. For further information check our [Pedal Wiring guide](#).



Drill Template

This Project has been planned to fit into a 1590BB enclosure type (122mm x 67mm x 35mm.)

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print in a A4 page.

Licensing and Usage

We really appreciate your trust and support buying this PCB, as well as your will to dive into the DIY electronics world. That’s why for us is really important that you can make this project work properly and to enjoy not only the building process, but also to experiment and play with it on your rig.

We try to reply to every question we receive on our email or in our social media, but we try to encourage all our customers to join our [PCB Guitar Mania – Builders Grup](#) on Facebook, in order to post all your doubts, issues, suggestions or request, as well to share your builds and have some feedback from us and other fellow builders!

All of our projects have been tested following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been tested. These are suggestions based on the schematic analysis, and on the experiences and opinions of others. Feel free to share with us your opinions and suggestions regarding the mods our your own personal experimentation.

These boards may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though accreditation or a link back is always greatly appreciated.

If you are a builder planning to make your own run of pedals we also offer the service of custom made boards with your brand and logo, design according your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silk screen, or other way of trying to hide our logos and the source of the PCBs. Like its written above, if you want to have your own designs, with your brand and logo we could certainly reach an agreement.

Follow us on [Instagram](#) and [Facebook](#) to stay in tune with the latest projects!