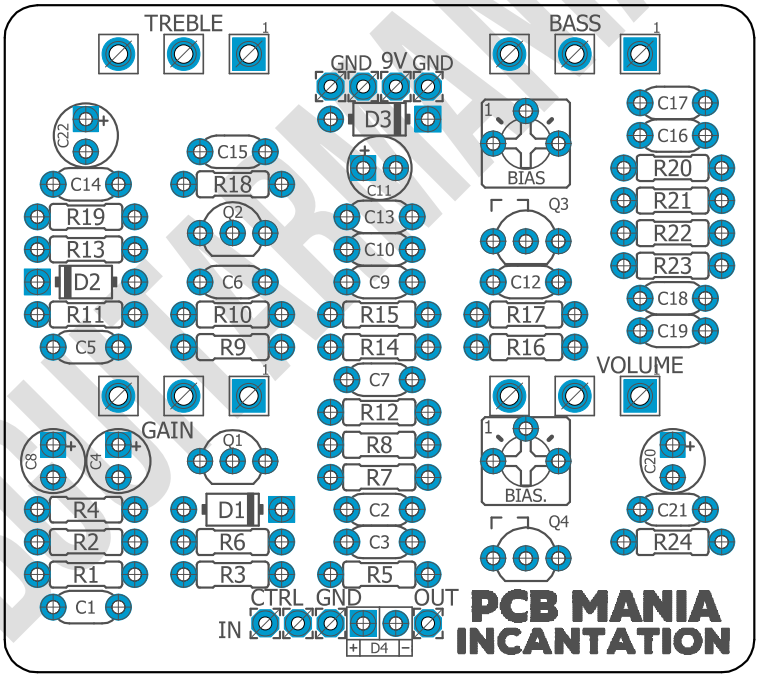
Incantation

Based on:
Blackout Effectors Mantra Overdrive
Effect type:
Versatile Overdrive
Build difficult:
Intermediate

Number of parts:
Average, total 60 components
Technology:
MOSFET and JFET transistors
Power consumption:
9V

Enclosure type:
125b
Get your board at:
Incantation
Get your kit at:
Das Musikding (Europe)

Project overview:
Incantation conjures an immense display of overdrive tones, perhaps more than you're used to. Subtle and complex or filthy and crunchy, playing blues or rock, this board fits the bill for anything you'd want to play. Become the wizard of all the overdrive soundings!



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Introduction

There is a secret invoking ritual that will grant you all the overdrive tones you were looking for. You will not need to draw a pentagram on your living room floor or set your best amp on fire under the moonlight. The secret formula is much simpler and effective: build your own Incantation pedal, plug it in and enjoy a myriad of unprecedented tones.

The circuit of Incantation has an amp-like circuit architecture, with multiple cascaded MOSFET and JFET gain stages to guarantee the most natural, touch-sensitive overdrive conditions possible and a seemingly endless range of clean-up with your guitar's volume knob. From smoothly fingerpicked melodic phrases to striking riffs and everything in between, Incantation will grant you all.

Controls

Potentiometers:

- Bass
- Gain
- Treble
- Volume

Bill of materials

Resistors	
Part	**Value**
R1	1m
R2	10k
R3	2m2
R4	2m2
R5	10k
R6	10k
R7	100k
R8	10k
R9	390k
R10	2m2
R11	2m2
R12	10k
R13	10k
R14	470k
R15	2m2
R16	10k
R17	470k
R18	100k
R19	100k
R20	10k
R21	470k
R22	2m2
R23	10k
R24	4k7

Capacitors	
Part	**Value**
C1	10n
C2	47p
C3	100n
C5	470p
C6	10n
C7	100n
C9	10n
C10	47p
C12	100n
C13	47p
C14	680p
C15	3n3
C16	1n
C17	3n3
C18	10n
C19	47p
C21	100n

Electrolytics Capacitors	
Part	**Value**
C4	10u
C8	10u
C11	10u
C20	22u
C22	100u

Potentiometers	
Part	**Value**
BASS	100K A
GAIN	100K A
TREBLE	100K A
VOLUME	100K A

Trimpots	
Part	**Value**
BIAS	150k
BIAS.	150k

Transistors	
Part	**Value**
Q1	2N7000
Q2	2N7000
Q3	J201
Q4	J201

Diodes	
Part	**Value**
D1	9v1
D2	9v1
D3	1N5817
D4	3mm red LED

Shopping list

Resistors		
Qty	**Value**	**Parts**
3	100k	R7, R18, R19
9	10k	R2, R5, R6, R8, R12, R13, R16, R20, R23
1	1m	R1
6	2m2	R3, R4, R10, R11, R15, R22
1	390k	R9
3	470k	R14, R17, R21
1	4k7	R24

Capacitors		
Qty	**Value**	**Parts**
4	100n	C3, C7, C12, C21
4	10n	C1, C6, C9, C18
1	1n	C16
2	3n3	C15, C17
1	470p	C5
4	47p	C2, C10, C13, C19
1	680p	C14

Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	100u	C22
3	10u	C4, C8, C11
1	22u	C20

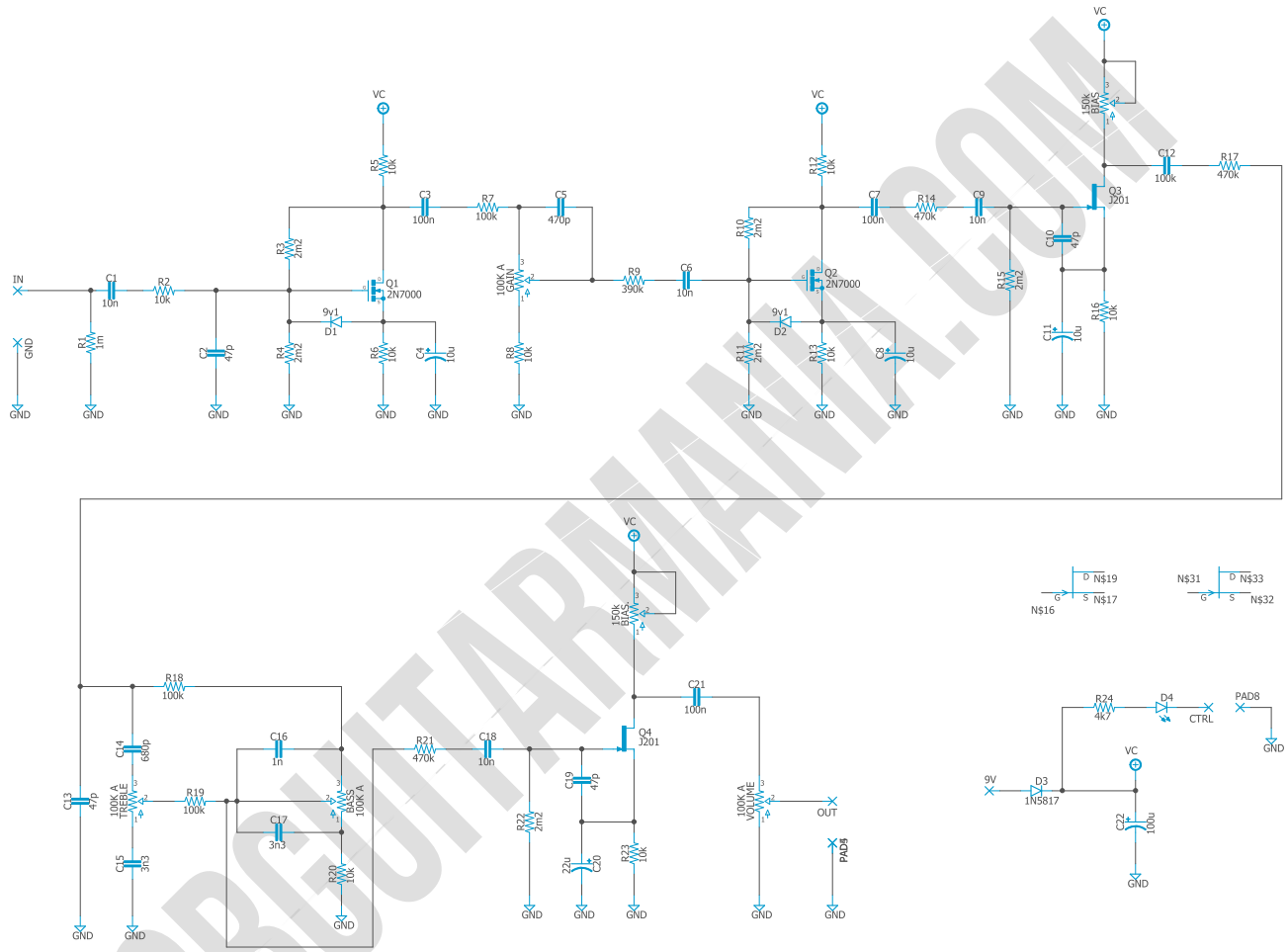
Potentiometers		
Qty	**Value**	**Parts**
4	100K A	BASS, GAIN, TREBLE, VOLUME

Trimpots		
Qty	**Value**	**Parts**
2	150k	BIAS, BIAS.

Transistors		
Qty	**Value**	**Parts**
2	2N7000	Q1, Q2
2	J201	Q3, Q4

Diodes		
Qty	**Value**	**Parts**
1	1N5817	D3
1	3mm red LED	D4
2	9v1	D1, D2

Schematic



Components Recommendations

As many people like to experiment with some pedals with higher voltage, always ensure your **electrolytic capacitors'** max tolerance is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those 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 exclusive 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 at our Pedal Building Guide.

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

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

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 the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it here to access our Pedal Wiring Guide.

Drill Template

This Project has been planned to fit into a 125b enclosure type.

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

Licensing and Usage

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

We try to reply to every question we receive on our email or our social media. Still, we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook to post all your doubts, issues, suggestions, or requests, share your builds, and have some feedback from other fellow builders and us!

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

These boards may be used for commercial endeavors in any quantity unless expressly noted. No attribution is necessary, though accreditation or a link back is always much 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 to 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 silkscreen or other way of trying to hide our logos and the source of the PCBs. Like it's written above, if you want to have your designs with your brand and logo, we could undoubtedly reach an agreement.

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