Proton Blue

Based on:
Protein Pedal, Blue Channel side

Amount of parts:
Average, total 41 components

Enclosure type:
125b

Effect type:
Classic Overdrive

Technology:
Op Amp

Get your board at:
Proton Blue

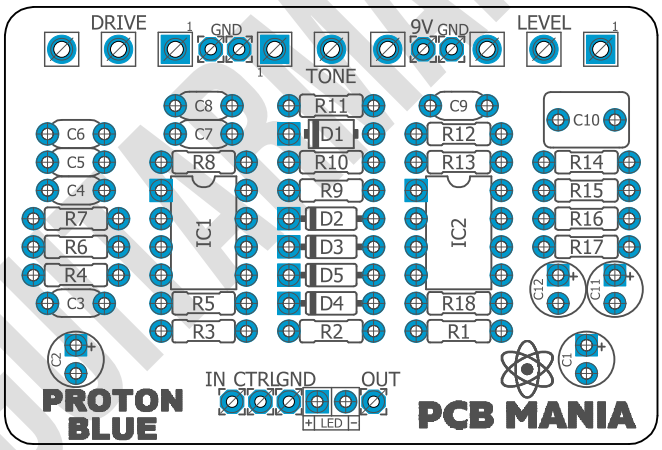
Build difficult:
Intermediate

Power consumption:
9V

Get your kit at:
Das Musikding (Europe)

Project overview:

We took each side of the amazing Protein Drive Overdrive and made two independent pedals. The Blue Side is a modernized version of the classic OD originally used by countless guitar players worldwide but perhaps most famously by John Mayer on his "Continuum" album.



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Introduction

The Protein was years in development and road testing before it ever made its way into the hands of the public; each side was carefully recrafted, and that's what makes the Blue Side so dam good. Dave addressed issues of the original, like the lack of output, tweaked the tone control, and experimented to find the perfect circuit while still being true to its roots.

Protein Blue is an almost HD take on the old 1990s Marshall Bluesbreaker. It is a smooth, rich boost and low-gain overdrive with a lower-mid boost that particularly flatters vintage Strats.

You can have the classic Blue Side or Green Side as separated pedals or build the Protein Dual Overdrive and stack them together in every possible way!

Controls

Potentiometers

- Gain
- Level
- Tone

Bill of materials

Resistors	
Part	**Value**
R1	6k8
R2	47k
R3	47k
R4	2M2
R5	1M
R6	3k3
R7	4k7
R8	10k
R9	220k
R10	6k8
R11	1k
R12	6k8
R13	100k
R14	10k
R15	1M
R16	1M
R17	2k4
R18	6k8

Capacitors	
Part	**Value**
C3	47n
C4	56p
C5	10n
C6	10n
C7	220n
C8	10n
C9	10n
C10	1u

Electrolytic Capacitors	
Part	**Value**
C1	100u
C2	100u
C11	10u
C12	4u7

Potentiometers	
Part	**Value**
DRIVE	B100k
LEVEL	A5k
TONE	B25k

Trimpots	
Part	**Value**
IC1	TL072
IC2	TL071

Diodes	
Part	**Value**
D1	1N5817
D2	1N4148
D3	1N4148
D4	1N4148
D5	1N4148
LED	3mm red LED

Shopping list

Resistors		
Qty	**Value**	**Parts**
1	100k	R13
2	10k	R8, R14
3	1M	R5, R15, R16
1	1k	R11
1	220k	R9
1	2M2	R4
1	3k3	R6
2	47k	R2, R3
1	4k7	R7
4	6k8	R1, R10, R12, R18
1	2k4	R17

Capacitors		
Qty	**Value**	**Parts**
4	10n	C5, C6, C8, C9
1	1u	C10
1	220n	C7
1	47n	C3
1	56p	C4

Electrolytic Capacitors		
Qty	**Value**	**Parts**
2	100u	C1, C2
1	10u	C11
1	4u7	C12

Potentiometers		
Qty	**Value**	**Parts**
1	A5k	LEVEL
1	B100k	DRIVE
1	B25k	TONE

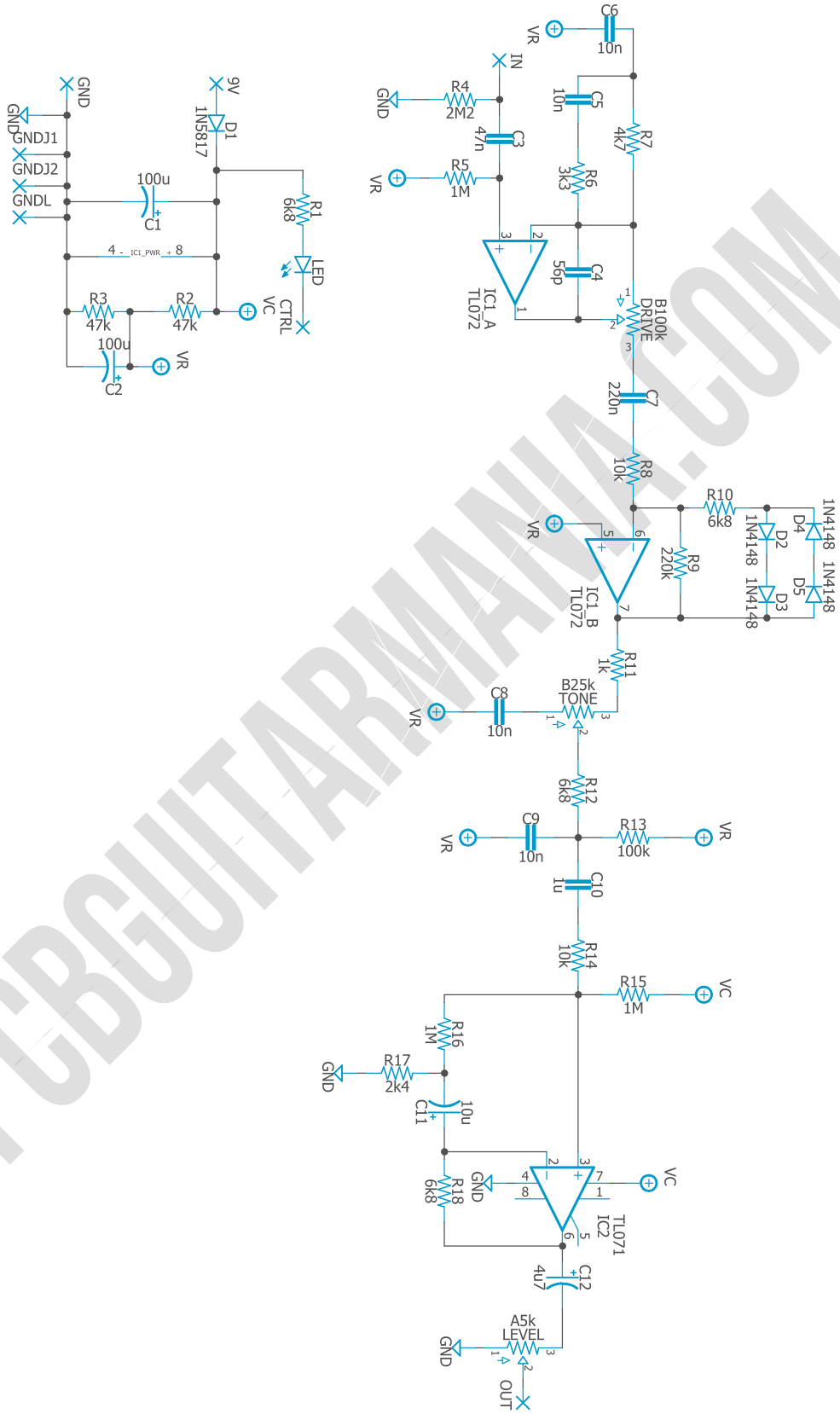
IC		
Qty	**Value**	**Parts**
1	TL071	IC2
1	TL072	IC1

Diodes		
Qty	**Value**	**Parts**
4	1N4148	D2, D3, D4, D5
1	1N5817	D1
1	3mm red LED	LED

Switches		
Qty	**Value**	**Parts**
1	3PDT Stomp foot	-

Jacks		
Qty	**Value**	**Parts**
1	DC JACK	-
2	AUDIO JACK	-

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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