Protoboards

User Manual

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Contents

Limited Warranty:

CubuSynth

1. Introduction

Prototype PCBs for Professional looking Eurorack DIY projects.

Create your own Eurorack Modules from your Ideas faster than ever with our high quality PCBs and Aluminium Front panels.

The Main PCB is used To place and connect the ICs, Power connector and other components, while the Control Board is used for Potentiometers, Switches, Jacks and more.

The Aluminium Front Panels have markings on the Back, making it easy to drill your own layout.

You can easily build passive modules with only a control PCB and Front Panel.

The Layout of the Control PCBs can support Vertical Potentiometers (RK09....) or Tall Trimmers, Mini Toggle switches, 3.5mm PJ-301 Jacks (Thonkiconns) and more.

2. Specifications

- Size: 10 hp – 50 x 110 mm
          4 hp – 19 x 110 mm
- Aluminum Panels with 1.6mm thickness
- Eurorack 10-pin or 16-pin Power connections on Main-Board
- Tri-Pad Stripboard / Breadboard combo design
- 10hp and 4hp Control-Boards with Combo-sockets for Jacks, Potentiometers and Switches.
- Rapid prototyping: Construct your own Eurorack modules quickly and efficiently, thanks to our high-quality Veroboard PCBs.
- Modular design: Mix and match Main-Boards and Control-Boards to create modules tailored to your specific needs.
- Endless possibilities: From oscillators and filters to sequencers and effects units, the only limit is your creativity.
- Professional finish: Aluminum blank panels with pre-marked drill positions ensure a polished, professional look for your custom modules.
- Versatile control options: Choose from a range of control components, including potentiometers, switches, and jacks, to suit your module's functionality.

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3. Getting Started

Are you ready to take your Eurorack modular synthesizer to the next level?
With the CubuSynth ProtoBoards, the possibilities are endless, whether you're a beginner
exploring the basics or a seasoned pro pushing the boundaries of electronic innovation.

3.1 Power connectors

Whether you want to use standard 10-pin, 16-pin Eurorack Power Headers or normal
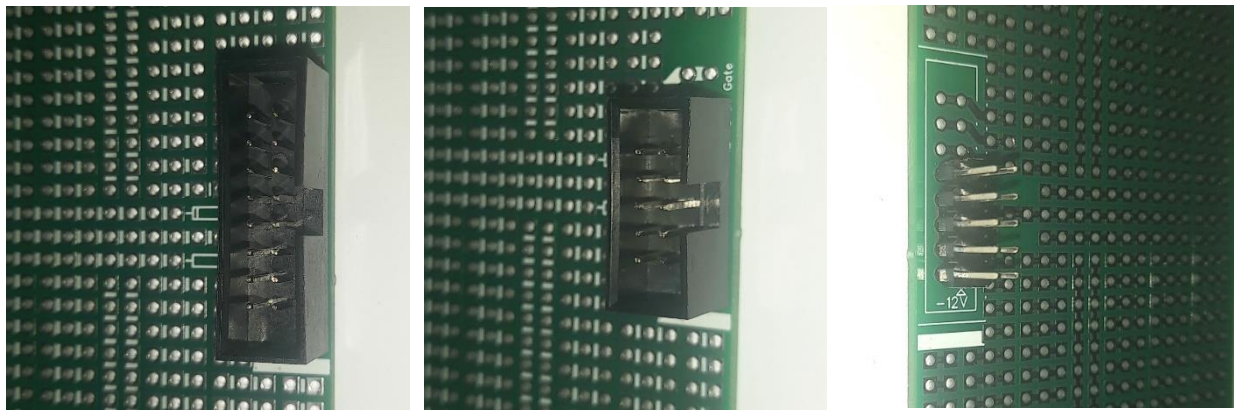
3.2 Power protection

Some Examples of commonly used Power protection methods:
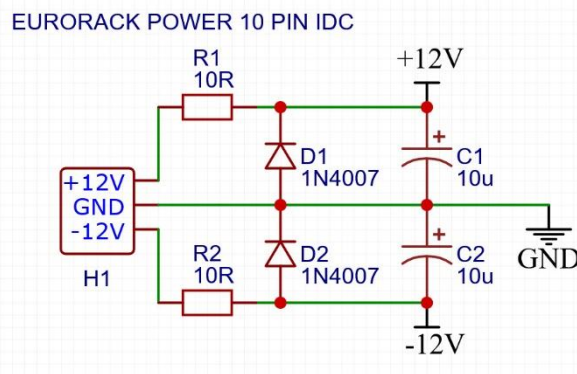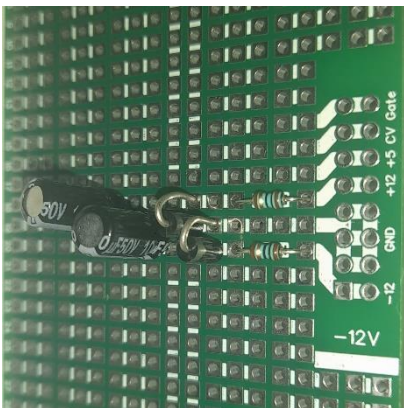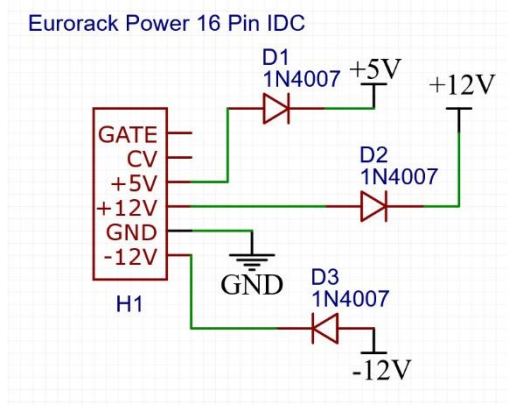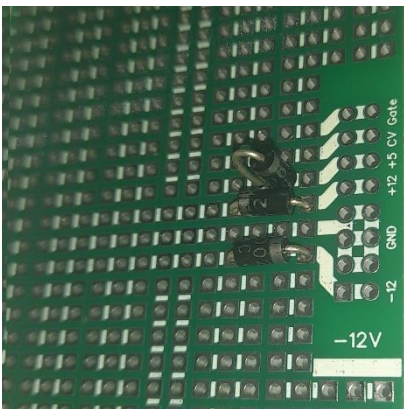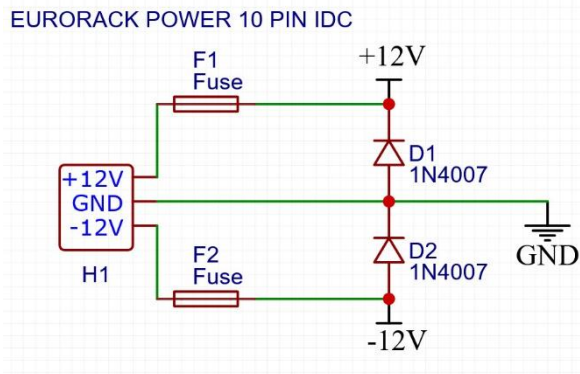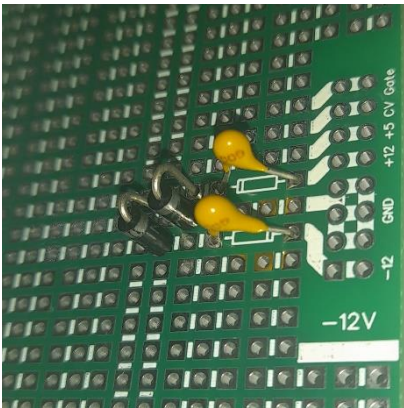
4. Construction

4hp Module:

10hp Module:

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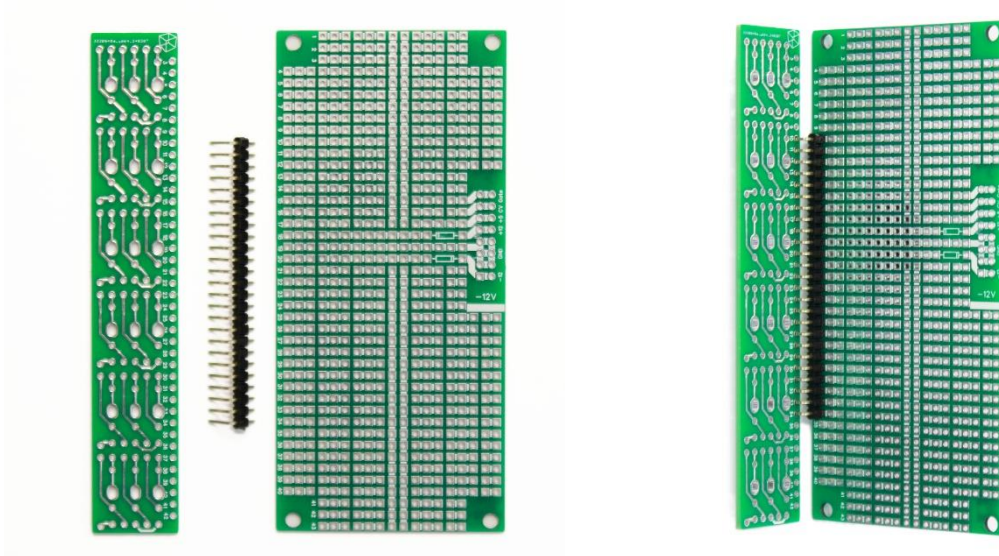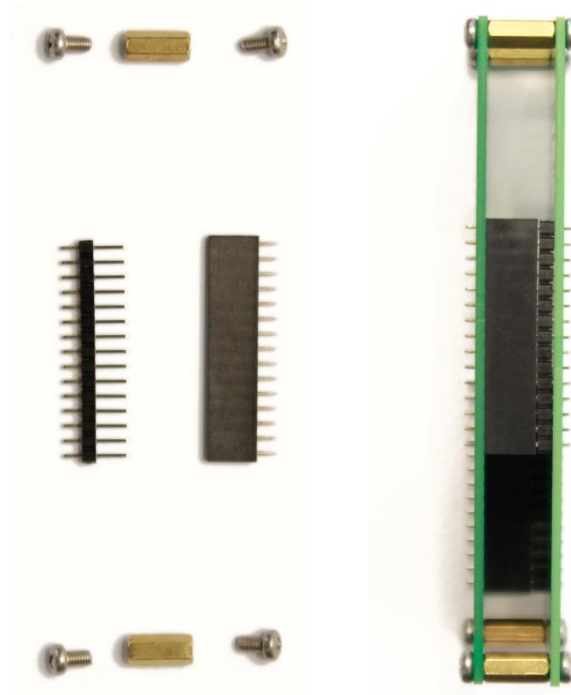
5. Layouts

Pink: Board Outline
Yellow: Silkscreen (Print)
White: Copper connections
Grey: Solder Pads

Some Examples of possible component Placements and Layouts
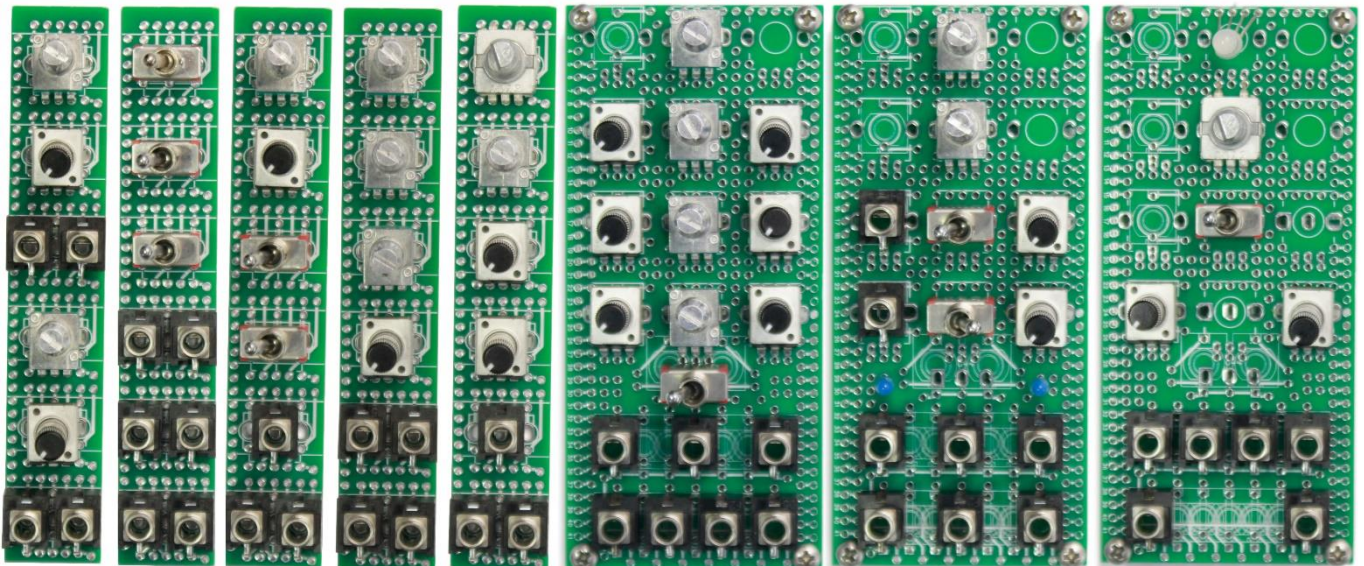
6. Inspirational Front panel Layouts

Different Front panel Layouts for Modules based on the Protoboards.
The circuit behind, you will need to come up with or find schematics online.

First row of modules

VCO — Tune, Fine Tune, Pulse Width, FM, FM Pulse, 1V/o Saw
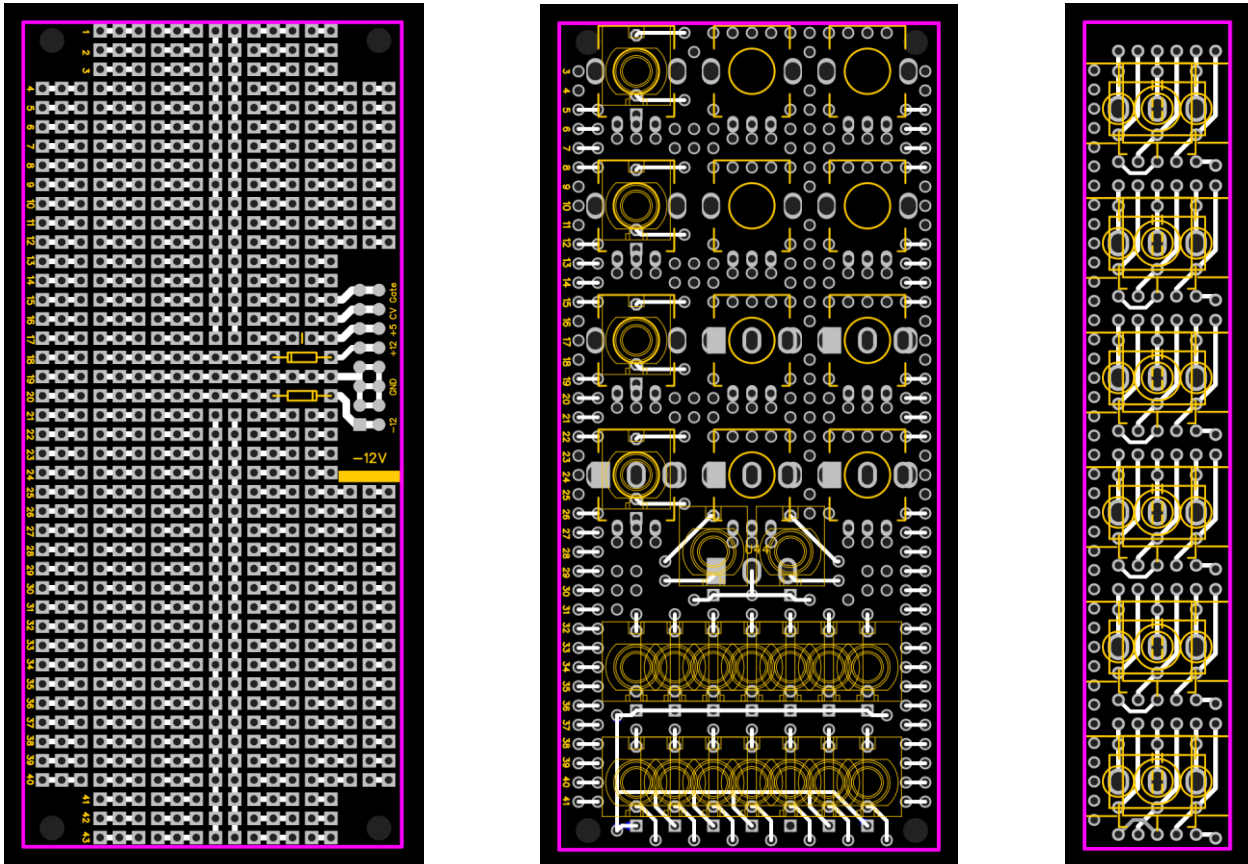
Utility — Level, Offset, IN OUT, Level, Offset, IN OUT

Triple Switch

Triple LFO — Frequency, Squ. Saw, Frequency, Squ. Saw, Frequency, Squ. Saw

Multiple

LP/HP VCF — Frequency, Resonance, CV amount, LP HP, F CV, IN OUT

Dual VCA — GAIN, CV, IN OUT, GAIN, CV, IN OUT

Clock + Div — Clock Speed, IN OUT, /2 /4, /8 /16, /32 /64, /128 /256

Envelope — A, D, S, R, Lin Exp, GATE OUT

3ch Mixer — 1, 2, 3, 1, 2 OUT -, 3 OUT +

Second row of modules

Multimode VCF — CV amount Frequency, CV amount Resonance, CV amount Level, CV amount Drive, IN, LP HP BP

Dual VCF — Cutoff, Resonance, Cutoff CV, Resonance CV, Serial Parallel, F CV R CV F CV R CV, IN OUT IN OUT

Dual Env / LFO — Rise, Rise, Fall, Fall, CV Rise, CV Rise, CV Fall, CV Fall, Loop Off On, Rise Fall Rise Fall, Gate Out Gate Out

Benjolin — CV A, Rungler A Freq A, CV B, Rungler B Freq B, CV F, Rungler F Freq VCF, Ext In, Loop Resonance, ON OFF, Tri A Pulse A PWM Rung, Tri B Pulse B XOR OUT

Quad VCA Mixer — CV amount Level, 1, 2, 3, 4, IN 1 IN 2 IN 3 IN 4, Mix - Mix +

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Triple DCO

Tune
Prog 1   Prog 2
Mode
CV 1   CV 2
1V/oct   Level CV   OUT

Stereo Delay

Mix
Dry Wet   Dry Wet
Time
Feedback
CV 1   CV 2
IN 1   CV 1   OUT 1
IN 2   CV 2   OUT 2

Standard VCO

Tune
Fine Tune   Pulse Width
Exp FM   Lin FM   PWM
Sync
Hard   Soft
1V/oct   ExFM   LFM   PWM
Sync   Tri   Saw   Pulse

VC ADSR

CV   amount   Attack
CV   amount   Decay
CV   amount   Sustain
CV   amount   Release
Level CV   Time CV   Inv.Out
Gate   Re-Trig   Out

Sequencer

1   5
2   6
3   7
4   8
Clock CV Out
Gates
1   2   3   4
5   6   7   8

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7. Online sources for DIY Synth schematics

http://sdiy.org/

http://yusynth.net/index_en.php?&arg=1

https://www.schmitzbits.de/

https://web.archive.org/web/20190321185820/http://familjenronnberg.se/~niklas/diy.php

https://musicfromouterspace.com/index.php?MAINTAB=SYNTHDIY

https://www.haraldswerk.de/

https://www.eddybergman.com/

http://jhaible.com/

http://modular.fonik.de/index.html

https://modularsynthesis.com/

https://www.lookmumnocomputer.com/projects

https://benjiaomodular.com/

https://analogoutputblog.wordpress.com/synth-diy-repositories/

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https://www.instagram.com/cubusynth_modular/

https://www.youtube.com/@cubusynth

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