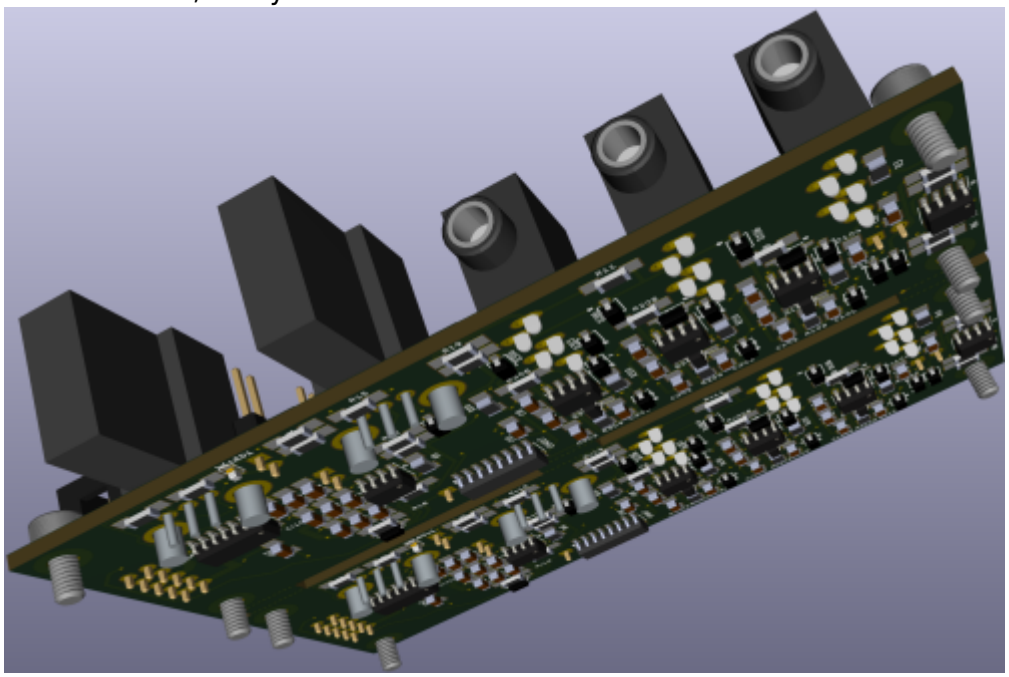
Envelope Follower

based on Harry Bissel
a SMD Variant, ready for Pick and Place



–shown 2 identical boards on one pcb - to save money..

Features

* audio in * Envelope out * Gate out + Gate Threshold-Poti
* Full-wave rectifier
* 3 identical Peakdetectors which are Reseted from a “stepper”
* a Osciallator with tunable Frequency to drive the stepper
* Smoothingcap set via Jumper
* Debugging Jumpers
* PTC and Diode Polarity Protection on the Supply-side

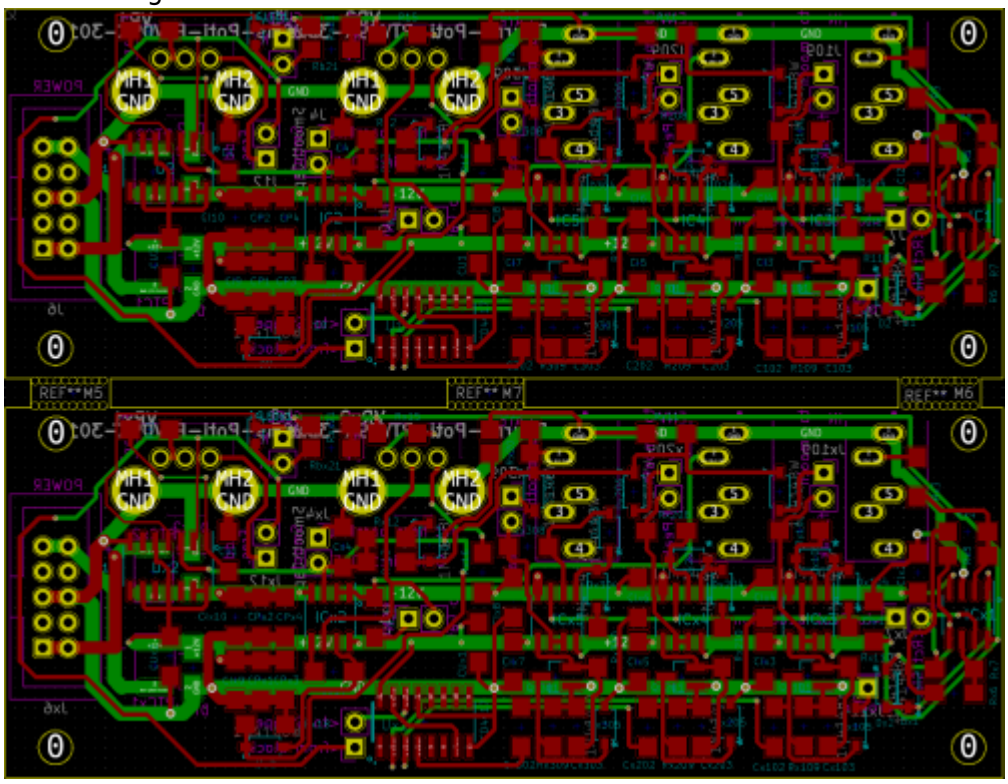
Hardware Requirements

- This Device i build as input module for my CV1 Project, but can be used for other things too
- Soldering Iron - with a Dip that can Handle SMD-Parts, Wires, solder Paste...
- Eurorack Power Source +-12V!

Building

The Design is optimized for Pick and Place most SMD Parts are on the Top-PCB

i ordered 5 PCBs from JLCPCP with almost all SMD Parts presoldered(except 2 SOIC chips PTC and Protection Diode)
now waiting for Presoldered PCBs



Frontpanel



- Eurorack Alu-Plate

BOM LCSC

these are the parts which are presoldered by the Pick and Place Machine, these are “Basic” Parts
the values with a “x” in it, like Dx1 — are because there are 2 Identical Parts on 1 PCB, because there 2PCBs on 1PCB…. so Dx1 is the same like D1, but its position is on the second board.

Value	Designator	Footprint	LCSC Part Number	Library-Type
100nF	C1,CU1,CI1,CIx1,CUx1,Cx1,CU2,CI2,CIx2,CUx2,CP3,CI3,CIx3,CPx3,CP4,CI4,CIx4,CPx4,C4,Cx4,CI5,CIx5,CI6,CIx6,CI7,CIx7,CI8,CIx8,CI9,CIx9,CI10,CIx10	1206	C24497	
1nF	C102,Cx102,C103,Cx103,C202,Cx202,C203,Cx203,C302,Cx302,C303,Cx303	1206	C35216	
47uF	CP1,CPx1,CP2,CPx2	1206	C96123	
1N4148W	D1,Dx1,D2,Dx2,D7,Dx7,D8,Dx8,D103,Dx103,D104,Dx104,D105,Dx105,D106,Dx106,D203,Dx203,D204,Dx204,D205,Dx205,D206,Dx206,D303,Dx303,D304,Dx304,D305,Dx305,D306,Dx306	SOD123	C81598	
TL072	IC1,ICx1,IC2,ICx2,IC3,ICx3,IC4,ICx4,IC5,ICx5	SOIC-8	C6961	
2N3904	Q101,Qx101,Q201,Qx201,Q301,Qx301	SOT-23	C20526	
100K	R12,Rx12,R13,Rx13,R17,Rx17,R18,Rx18,R108,Rx108,R110,Rx110,R208,Rx208,R210,Rx210,R308,Rx308,R310,Rx310	1206	C17900	
1K	R1,Rx1,R8,Rx8,R11,Rx11,R20,Rx20,Ra21,Rax21	1206	C4410	
2K	R19,Rx19	1206	C17944	
10K	R3,Rx3,R4,Rx4,R5,Rx5,R6,Rx6,R7,Rx7,R15,Rx15,R16,Rx16,R109,Rx109,R209,Rx209,R309,Rx309	1206	C17902	
220	Rb21,Rbx21	1206	C17958	

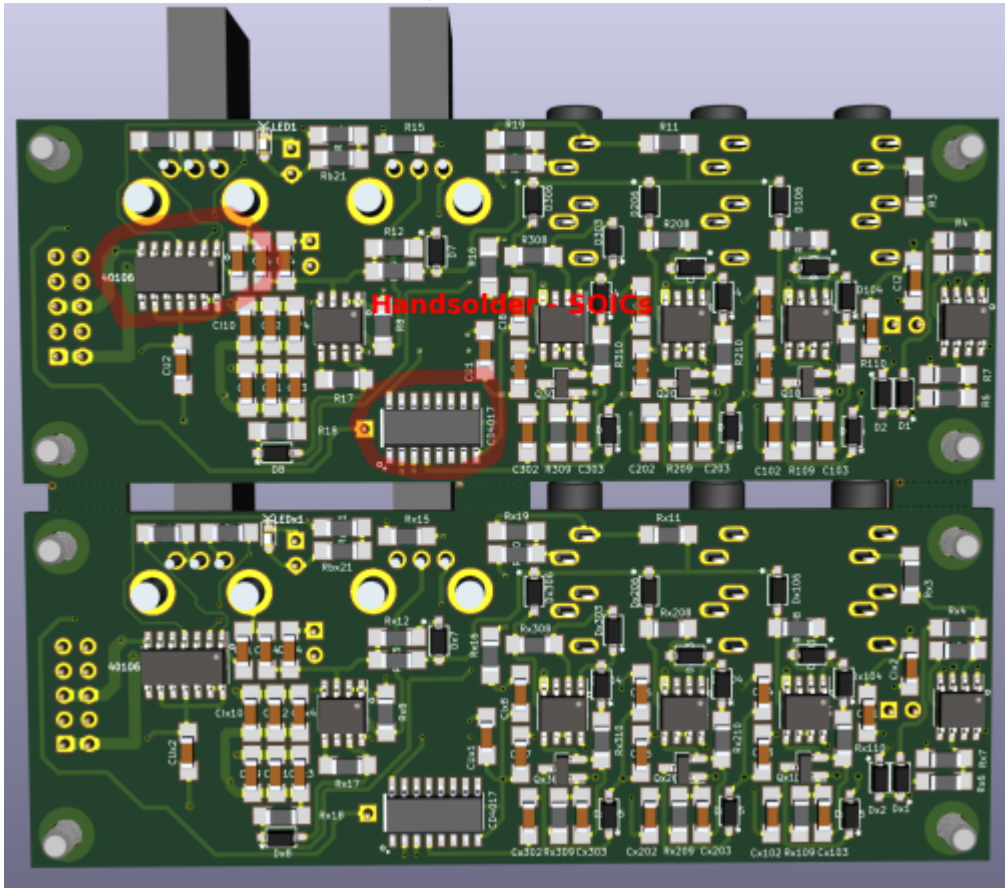
when making 10Boards…a total of **42,44€** presoledered on the PCBsincl Shipping and Import-Taxes

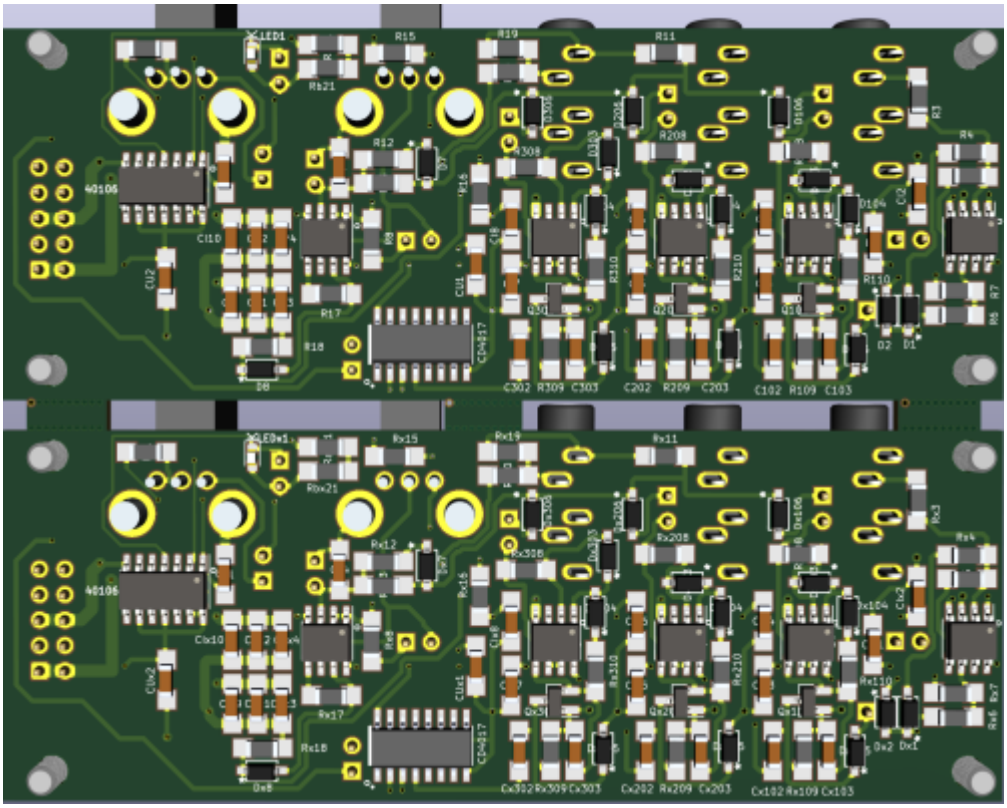
BOM Mouser

These are the parts which has to be handsoldered
copy list below, and paste in this link, you will need to order the project 2 times since 2PCBs are on 1PCB
583-FM4002|2
490-SJ1-3535NG-GR|3
523-G821EU210AAL10Y|1
650-MINISMDC014F-2|2
771-HEF40106BTD-T|1
595-CD4017BM|1
652-PTV09A-3015FB103|1
652-PTV09A3020FB104|1

for prototyping i ordered:
490-SJ1-3535NG-GR instead of **490-SJ1-3535NG** because it is out of stock - so **GREEN sockets** for now!

when making 10PCBs this make a total of **69,83€** incl Shipping/VAT which is free above 50€!
There are 2 SOICs that have to get Handsoldered, i have done this before and its easy!



the actual Picture is this 

Overall Material Costs

PCB:**42,44€ +** MouserParts: **69,83** = 111,46€ / **10** PCBs **= 11,14€ a PCB**
(where half off work is done by pick and place machine!)

Kicad Files & Production Files

V1. from 05.01.2021env-follower.zip
Shematic, Board, Gerber, Pick and Place and Booms, ready for Pick and Place!
—at the moment untestet, since i order the project just now!
as Example what you see if you got thru the ordering process:

2021-01-06 | W202101



SMT Assembly

Order #: 23438-2436262A

Build Time: 1 day

5 pcs $28.36

Product Details

bom-LCSC.xls

cpl.xls

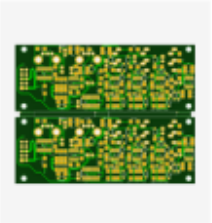
Reviewing

File review will be completed in 10-60 mins when business hours.

Merchandise Total: $30.87

Shipping Charge: $18.71

Order Total: $49.58



PCB Prototype

Order #: 62A

Build Time: 2-3 days

5 pcs $2.51

Product Details

follow_Y6

Reviewing

File review will be completed in 10-60 mins when business hours.

JLCPCB

JiaLiChuang (HongKong)Co., Limited

Unit 21, 28/F, Metropole Square
No.2 On Yiu Street, Shatin
New Territories
HONG KONG
support@jlcpcb.com
+86 755 23919769
JLCPCB.COM

Invoice No:
Invoice Date: 06/01/2021
Batch No.: W202101

Ship To:

michael sigl

AUSTRIA

Billing To:

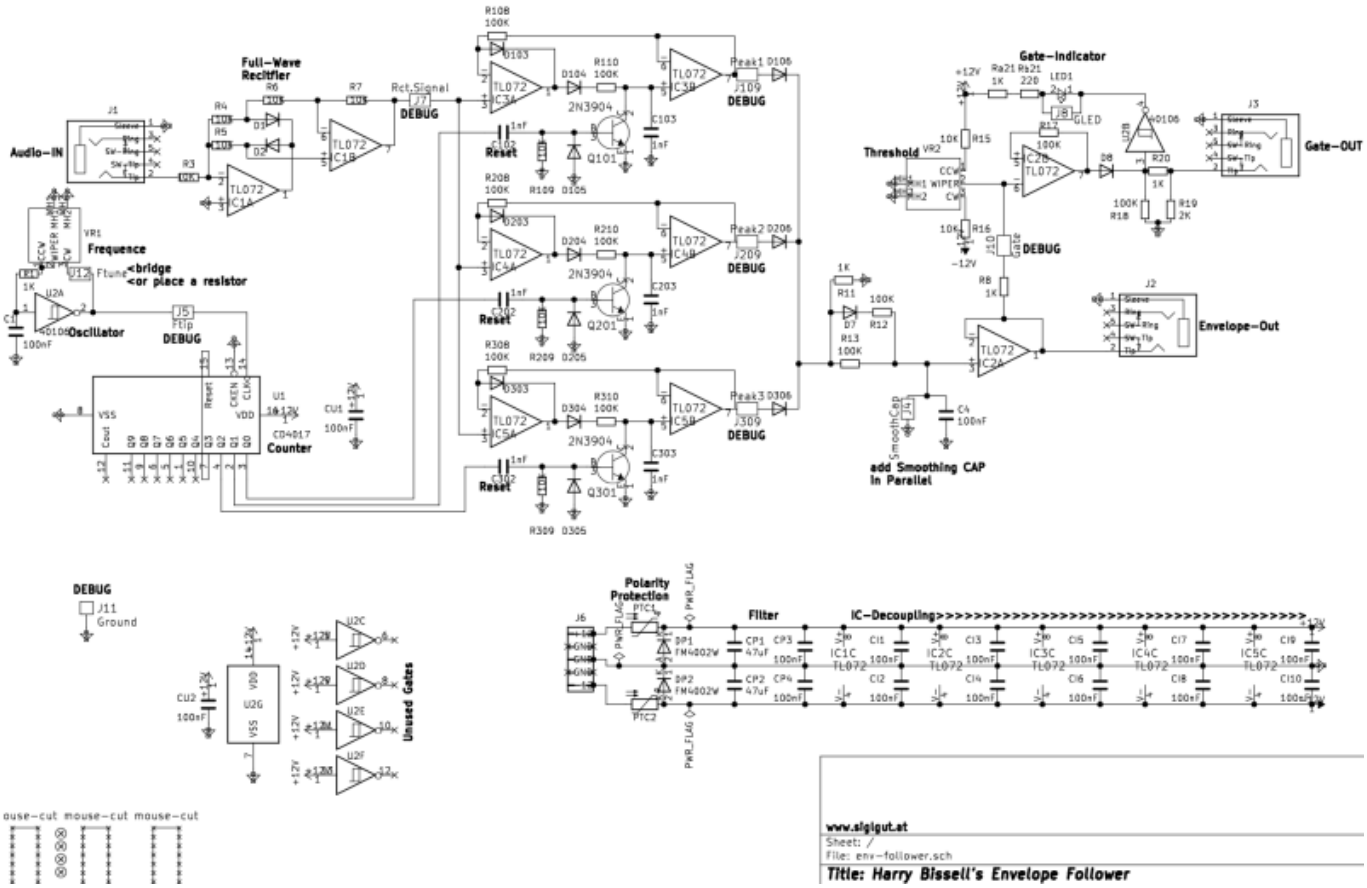
michael sigl

AUSTRIA

Description	HS Code	Order Number	QTY	Unit Price	Total
PCB Assembly	73145	1438	5	$5.6720	$28.36
PCB Samples	85340	Y6	5	$0.5020	$2.51

Subtotal:	$30.87
Shipping:	$18.71
Grand Total:	$49.58

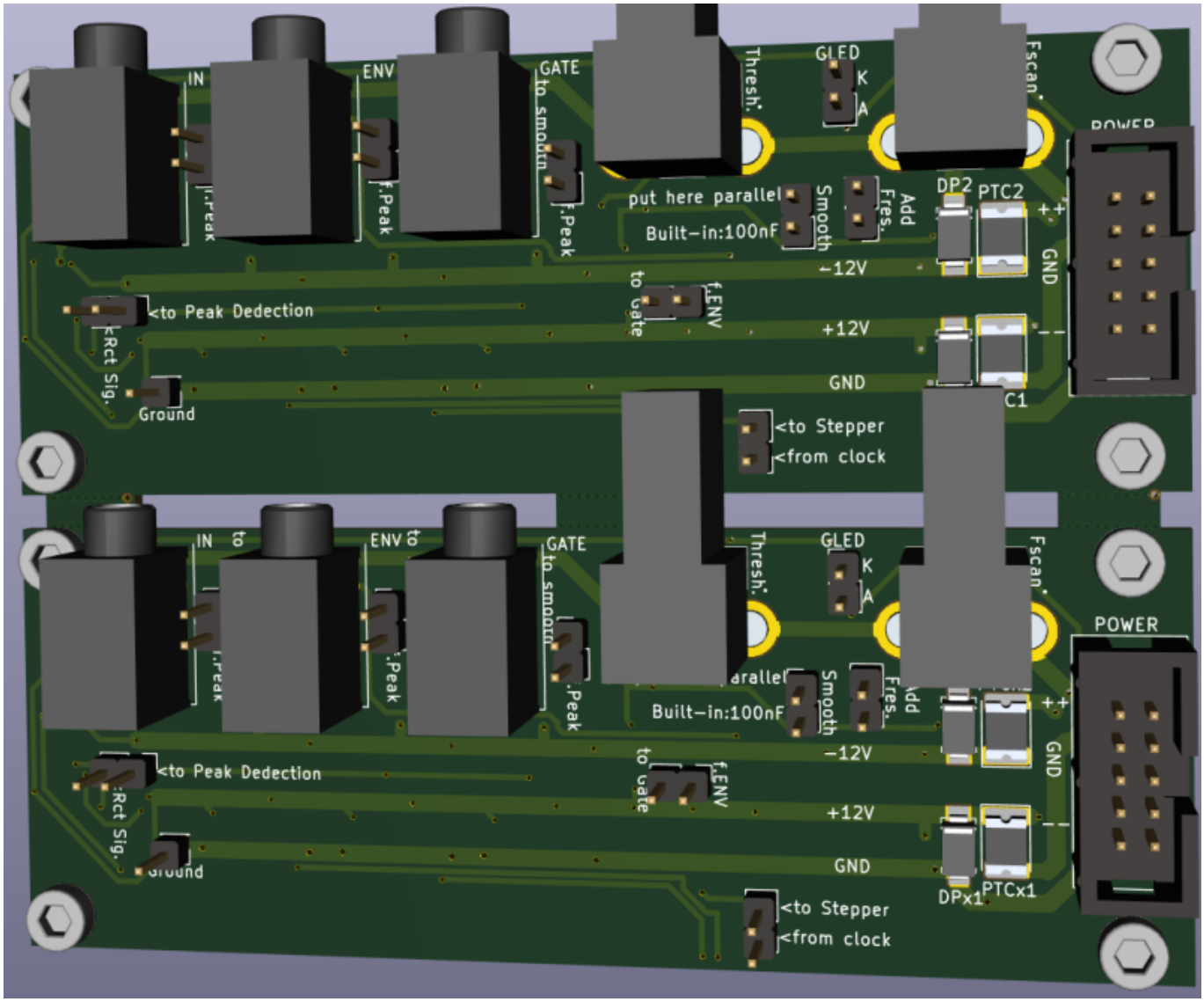
Shematic



To Do

experiment with the Smooting CAP, i already implimented a Jumper which add a second Capacitor to “double” the capacity… i took 220+220nF, but maybe it is better to use 100+220nF?
experiment with the Frequency Pot which is a lin10K + 2K Serial Resistor which gives a range of 2K-12K - really dont know what value spectrum we need here!
adding some Jumpers to break the circuit for debugging or measurement
frontplate, Debugging First Version

In order to Debug and Test and finetune the board i placed some **Headers/Jumpers:**



Resources

muffwiggler-topic
modified-shematic
THT-PCB
THT-PCB-Shematic-BUT Attention it is not correct!
THT-PCB-BOM
Haralds-Hi-Clock-Measurements
I give this links because it is the source: but i cant recommend that forum! stay away!

Community users working on it

- **Phatline** = Programming, Documentation...

Just let a Private message on the forum to user already involved.
I have ProtoBoards here - i test one, and if it works, i can share them for Beta Testing-if you pay the postage

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Last update: **2021/01/05 22:36**