



DIY BUILD INSTRUCTIONS – PLITKA PROVOK (COMPARATOR)

First off, thank you for your purchase of the PLITKA PROVOK DIY Kit (PCB, Front Panel, and LED) . If you are a DIY Synth novice, you have selected a great module to strengthen your skills. If you are a veteran (or, as we like to say at Tsyklon Labs - “Hero of Synthesizer DIY”), then this kit will be super fun and you will likely have it assembled in mere minutes.

First, let’s make sure that you have everything on hand before we start building. The tools you will need are as follows:

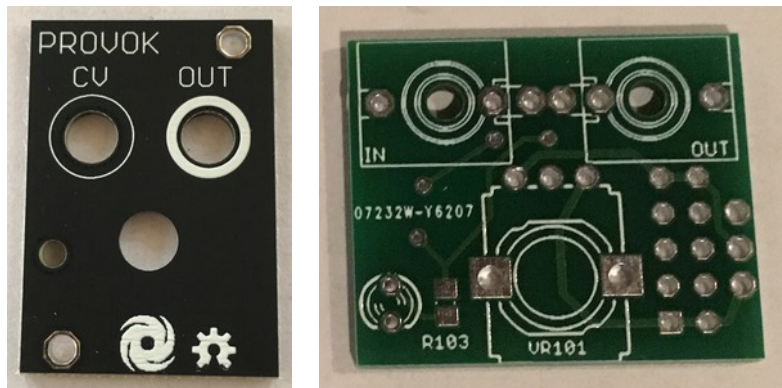
- Soldering Iron and Solder
- ESD Safe Tweezers (Toyo ESD-II)
- Knurled Nut Tool (Xicon 382-0006) or Small Pliers for tightening 3.5mm knurled nuts
- Screw Driver and 10mm Wrench or Nut Driver for tightening potentiometer nut

You will need the following parts to finish your build:

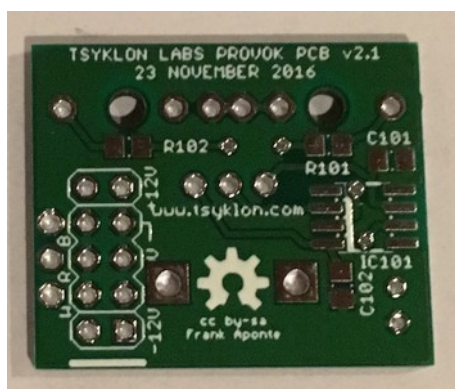
Qty	Part Description	PCB Component ID	Part Number	Vendor
2	3.5mm Inline Jacks (Thonkiconn Style)	IN_SIGNAL, OUT_SIGNAL	PJ301M-I2	Various
2	3.5mm Knurled Nuts	IN_SIGNAL, OUT_SIGNAL	3.5mm Knurled Nuts	Various
1	100k 9mm Vertical Pot / Lin	VR_ATTEN	Various	Various
1	Knob appropriate for Potentiometer	VR_ATTEN	Various	Various
2	100nF, 50V MLCC Capacitor (0805)	C101, C102	C0805C104K5RACTU	Mouser
1	100k Ω , 1/4watt, 1% Metal Film Resistor (0805)	R101	SG73P2ATTDI003F	Mouser
2	1k Ω , 1/4watt, 1% Metal Film Resistor (0805)	R102, R103	SG73P2ATTDI001F	Mouser
1	TL071 (SO-8)	IC101	TL071CDT	Mouser
1	2x5 Male 0.1” Pin Header	POWER (OPTIONAL)	M20-9720546	Mouser

These jacks are available from Thonk, Modular Addict, Synthrotek, and Erthenvar. Most vendors sell the nuts with the jacks, but check to be certain you have all of the parts that you will need.

1) First, take a look at the Front Panel and PCB to make sure that everything looks good (printing, traces, etc.):



2) And then the reverse side of the PCB:



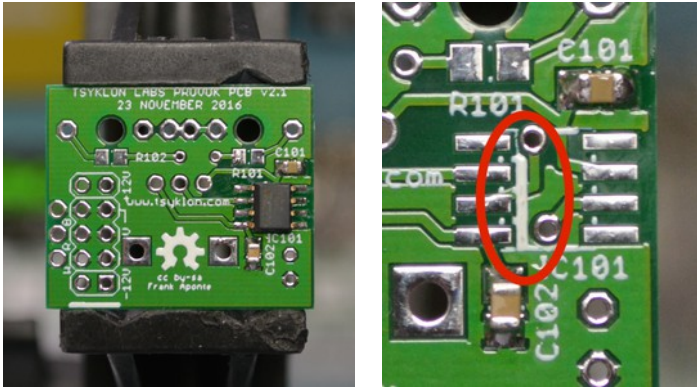
If you don't have a lot of experience with SMD soldering, do yourself a favour and watch this video from Adafruit. Seriously, watch it:

<https://www.youtube.com/watch?v=QzoPxlM2qE>

3) Next, solder capacitors C101 and C102 [2 x 100nF] to the PCB:



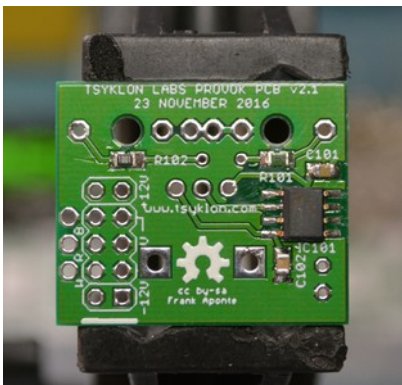
4) Once you have installed the capacitors, solder op-amp IC101 [1 x TL071] to the PCB. Note that the thick stripe on the PCB matches the bevel on the IC:



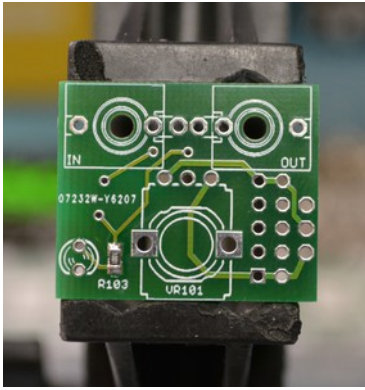
5) The next step is to solder resistor R101 [1 x 100k Ω] to the PCB:



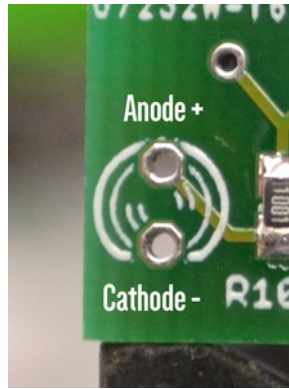
6) Next, solder resistor R102 [1 x 1k Ω] to the PCB:



7) That is everything on the back for now. Flip the PCB over and solder resistor R103 [1 x 1kΩ] to the PCB:



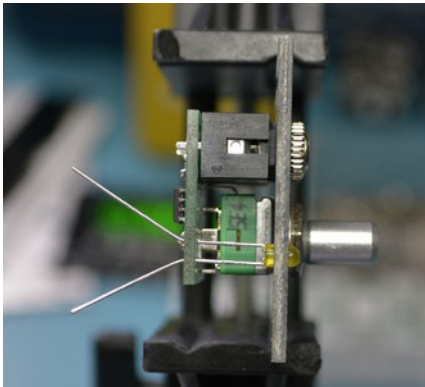
8) Install the pot, jacks, and LED into the front side of the PCB - DO NOT solder the jacks at this time. Note, the ground pin for the jack is the one outside of the molded plastic part of the jack. This is the pin that goes towards the center of the PCB. Also, be sure to install the LED with the cathode [short lead] to the flat part of the LED image on the PCB. In the picture below, it is the hole near the bottom of the PCB:



9) Once you have the pot, jacks, and LED seated, install the front panel and then the pot and jack nuts. This will keep everything together while you solder the pins to the PCB. Tighten the nuts until they are snug - no need to go crazy tight on them. If you are using pliers instead of a Knurled Nut Tool, be careful not to scratch the front panel.



10) Once last check/adjustment before soldering - double check that the pot and both jacks are still seated against the PCB. If so, you are good to go. If not, jiggle the pot and jacks (technical term) to make sure that they are seated. You may need to loosen the nuts a little bit to get it right - but do not forget to re-tighten them!



11) Solder the pot, jacks, and LED to the PCB. Do not forget to clean up the flux - if that is what you are into:



12) If you are going to power your PROVOK module from a standard Eurorack power system, install the 2x5 POWER Header and solder to the PCB. If you use the PulpLogic style Futaba cable system power instead, install the cable. Be sure to connect the white [-12VDC] wire to the **W** pad, the red [+12VDC] wire to the **R** pad, and the black [0VDC] wire to the **B** pad:



The pictures above show the PCB mounted to the Front Panel, but in order to install the power header or cable, you will need to remove the Front Panel, then re-install it once you have finished this step.

13) Lastly, install the knob on the potentiometer. If the knob has an indicator line, align it with the center of the “Open Source Hardware” gear icon (it is like that on purpose):



14) That's it! Job well done, Udarnik! Enjoy the fruit of your labors - get patching!

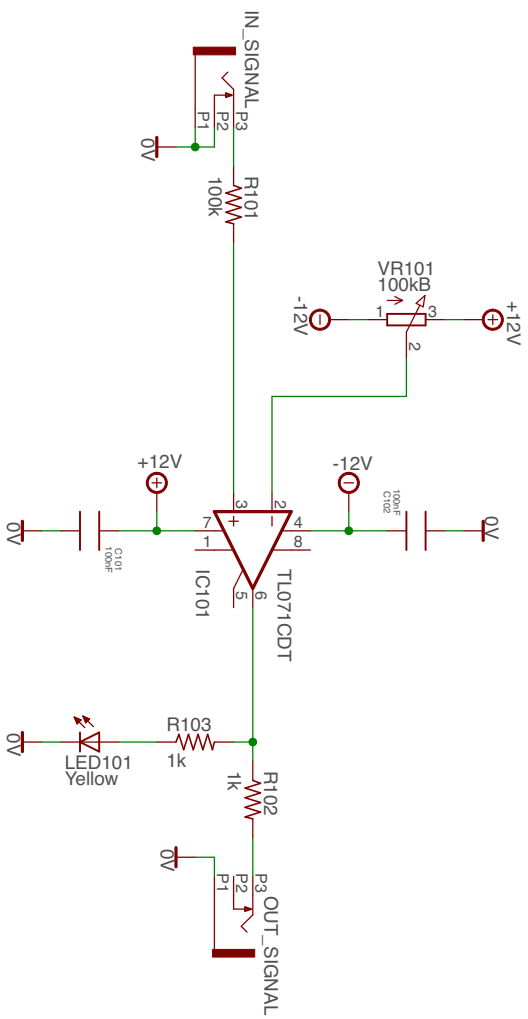
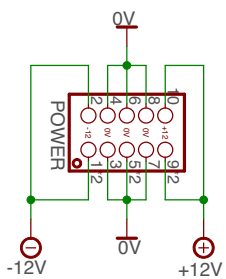
Document Published: 14 MARCH 2017

INTERPRETING COMPONENT DESIGNATIONS FOR TSYKLON LABS MODULES

As much as possible, we have tried to be very consistent with how our components are labeled on our Printed Circuit Boards [PCBs]. Aside from being consistent component to component, PCB to PCB, and module to module within our own products – we have also done as much as possible to be consistent with standard naming conventions used by other module designers. The table below lists component types and their designations. We will use 000 in place of the identification numbers normally used so that you can see what the component number will look like. Most prefixes are one to two characters long, but can occasionally be three characters.

COMPONENT ID	EXAMPLE	COMPONENT TYPE
R	R000	Resistor
C	C000	Capacitor
PB	PB_RESET	Push Button
SW	SW_INVERT	Switch [Toggle]
VR	VR000	Variable Resistor [Potentiometer or Trimmer]
LED	LED000	Light Emitting Diode
D	D000	Diode
Q	Q000	Transistor [BJT, FET, or MOSFET]
IC	IC000	Integrated Circuit
MHDR	MHDR_NBL	Male Header
FHDR	FHDR_NBL	Female Header
FB	FB000	Ferrite Bead
XTAL	CLK_XTAL	Quartz Crystal
REG	IOVREG	Voltage Regulator
PF	PF000	Resettable Poly Fuse
POWER	POWER	Power Header [2x5 or 2x8]
L	L000	Inductor

With regard to the numeric part of the component designation – 100 series numbers are for the PCB closest to the Front Panel. 200 series numbers are the next PCB behind the first, 300 series belong to the PCB behind that. While it would make sense that 400 series component numbers are for the next PCB behind that, in some cases those components are on the PCB for the expander module. Make sense? Great, go forth and build!



TSYKLON LABS

DOCS: <http://tsyklon.com/dl/ika/>
 SKU : Provok Control PCB v2.1

DATE: 23 NOVEMBER 2016

Sheet: 1/1

