



DIY BUILD INSTRUCTIONS – PLITKA REPLICANT (BUFFERED MULTIPLE)

First off, thank you for your purchase of the PLITKA REPLICANT DIY Kit (2 x PCB, Front Panel) . 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:

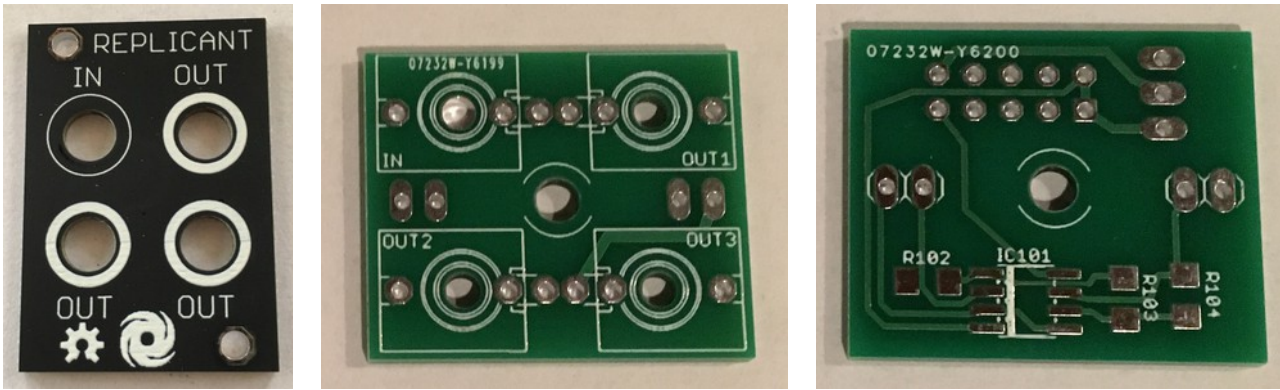
- Soldering Iron and Solder
- ESD Safe Tweezers (Toyo ESD-II)
- Knurled Nut Tool (Xicon 382-0006) or Small Pliers for tightening 3.5mm knurled nuts
- Screw Driver and 5.5mm Wrench or Nut Driver for tightening stand-off and screws

You will need the following parts to finish your build:

Qty	Part Description	PCB Component ID	Part Number	Vendor
4	3.5mm Inline Jacks (Thonkiconn Style)	IN_SIGNAL, OUT_SIGNALI-3	PJ30IM-I2	Various
4	3.5mm Knurled Nuts	IN_SIGNAL, OUT_SIGNALI-3	3.5mm Knurled Nuts	Various
2	100nF, 50V MLCC Capacitor (I206)	C101, C102	C1206C104M5RACTU	Mouser
4	100kΩ, 1/4watt, 1% Metal Film Resistor (I206)	R102, R103, R104, R200	CRCW1206100KFKEA	Mouser
3	1kΩ, 1/4watt, 1% Metal Film Resistor (I206)	R201, R202, R203	CRCW12061K00FKEA	Mouser
2	FSV530AF, 30V, 5A Schottky Diode (D0-214-2)	D101, D102	FSV530AF	Mouser
1	TL072 (SOIC-8)	IC101	TL072CDR	Mouser
2	2 Pin Male Header – 2.54mm Pitch	MHDRI, MHDR2	M20-9990246	Mouser
2	2 Pin Female Header – 2.54mm Pitch	FHDRI, FHDR2	M20-7820246	Mouser
1	2x5 Male 0.1” Pin Header	POWER (OPTIONAL)	M20-9720546	Mouser
1	M3 x 11mm Brass Hex F/F Stand-Off	FF STANDOFF	R30-1011102	Mouser
2	M3 x 6mm Screw – Zinc Plated Steel	Screw Fastener	29311	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 PCBs to make sure that everything looks good (printing, traces, etc.):



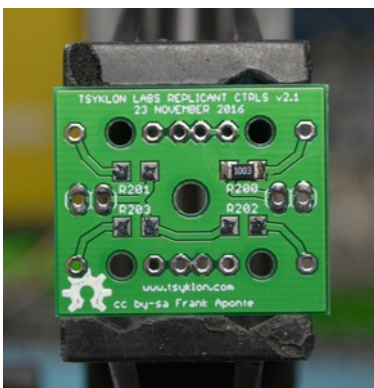
2) And then the reverse side of the PCBs:



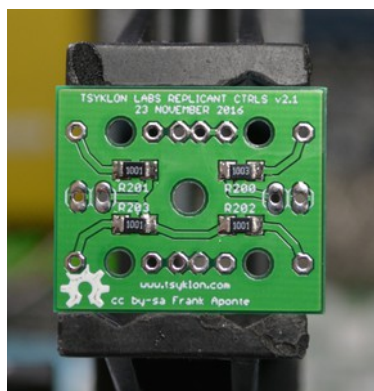
If you don't have a lot of experience with SMD soldering, do yourself a favour and watch this video from Adafruit. Seriously, watch it:

<https://www.youtube.com/watch?v=QzoPxvIM2qE>

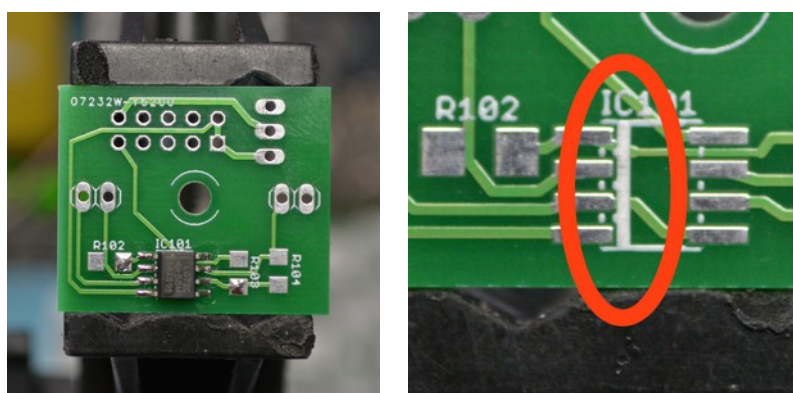
3) Next, solder resistor R200 [100kΩ] to the back of the Controls PCB:



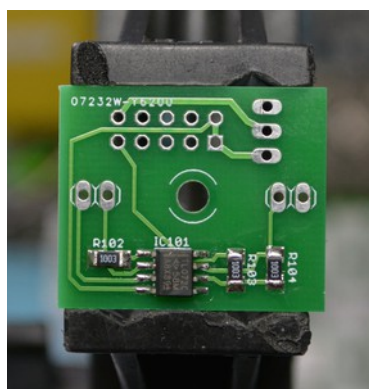
4) The next step is to solder resistors R201 – R203 [3 x 1k Ω] to the back of the Controls PCB:



5) That's all for the Controls PCB for now – move on to the Signal PCB. Solder op-amp IC101 [1 x TL072] to the front of the Signal PCB. Note that the thick stripe on the PCB matches the bevel on the IC:



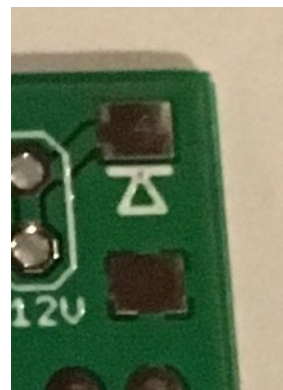
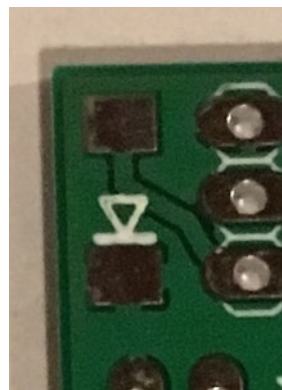
6) Next, solder resistors R102 – R104 [3 x 100k Ω] to the front of the Signal PCB:



7) Moving on to the back of the Signal PCB, solder capacitors C101 and C102 [2 x 100nF] to the back of the Signal PCB:

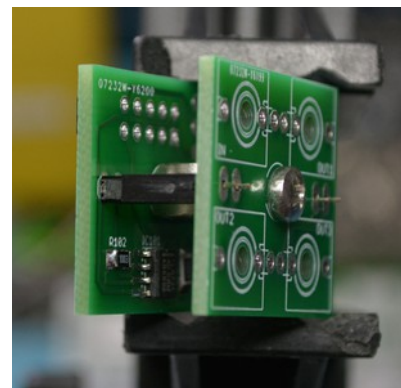
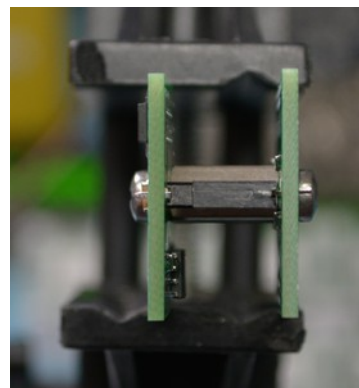


8) Next, solder the reverse power protection diodes D101 and D102 [2 x FSV530AF] to the back of the Signal PCB. Be mindful of which direction you mount them as they are not both the same:

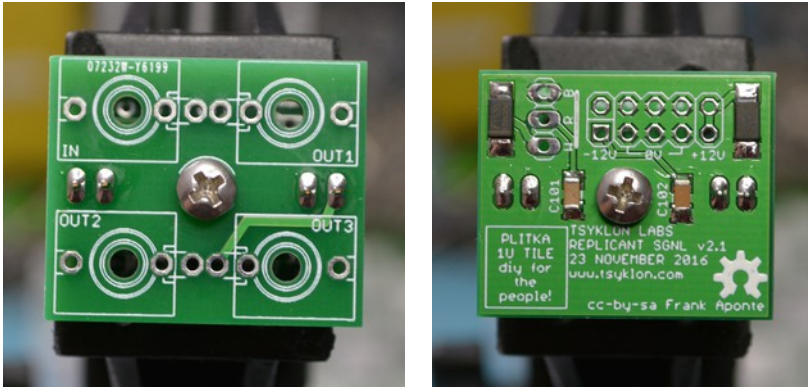


9) Now that all of the SMD parts have been installed, it is time for the headers that connect the PCBs to each other. The pictures below show the Female headers on the Control PCB and the Male headers on the Signal PCB. It is easiest to install the stand-off and screw into one of the PCBs, then assemble the headers and install them into that PCB. Then attach the other PCB with the screw. The whole stack should look like the pictures below.

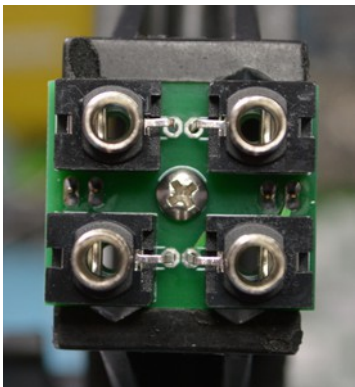
Also, make sure that both PCBs are square with each other by placing them on your workbench to square them up:



10) Once everything is assembled, solder the headers to both PCBs:



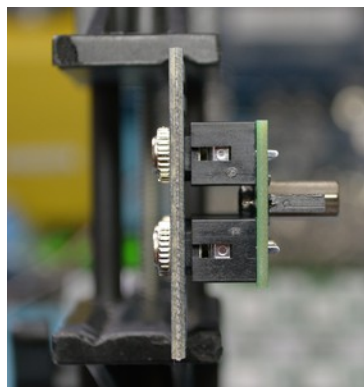
11) Install the jacks into the front side of the Controls PCB - DO NOT solder the jacks at this time. Note, the ground pin for the jack is the one outside of the molded plastic part of the jack. This is the pin that goes towards the center of the PCB:



12) Once you have the jacks seated, install the front panel and then the jack nuts. This will keep everything together while you solder the pins to the Controls 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:



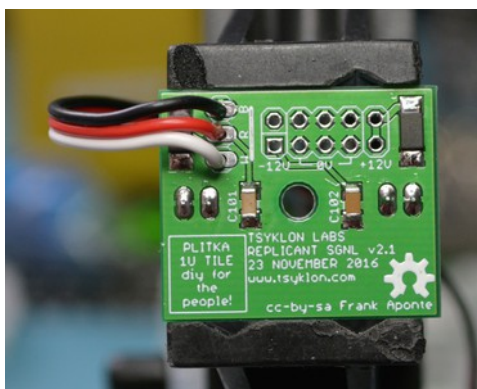
13) Once last check/adjustment before soldering - double check that the pot and both jacks are still seated against the PCB. If so, you are good to go. If not, jiggle the pot and jacks (technical term) to make sure that they are seated. You may need to loosen the nuts a little bit to get it right - but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



14) Solder the jacks to the Controls PCB. Do not forget to clean up the flux - if that is what you are into:



15) If you are going to power your REPLICANT 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.

16) Lastly, re-attach the Signal PCB to the Controls PCB and secure with the M3 screws and stand-off.



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

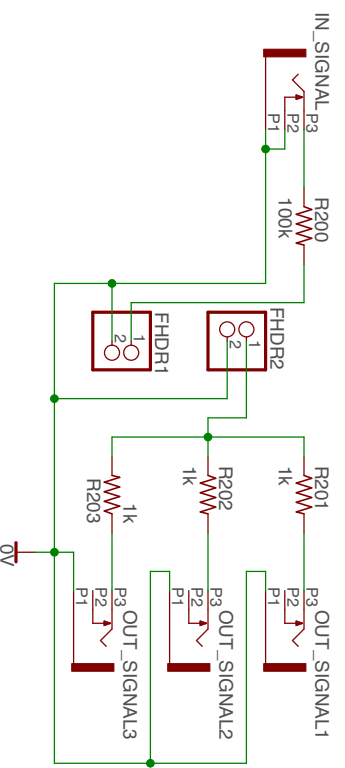
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INTERPRETING COMPONENT DESIGNATIONS FOR TSYKLON LABS MODULES

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!

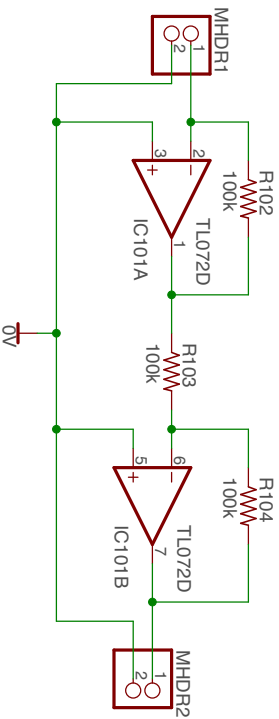
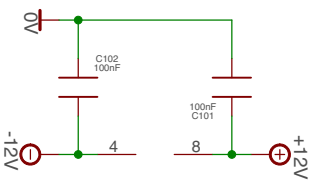
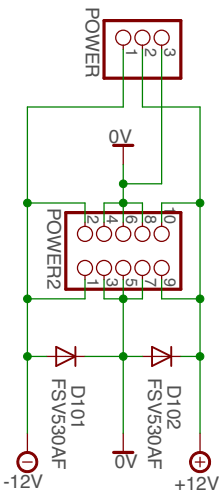


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DOCS: <http://tsyklon.com/dl/ika/>
 SKU : Replicant Controls v2.1

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DOCS: <http://tsyklon.com/giftka/>
SKU : Replicant Signal V2.4

DATE: 23 NOVEMBER 2016

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