DIY BUILD INSTRUCTIONS – EURORACK CABLE TESTER

First off, thank you for your purchase of the EURORACK CABLE TESTER PCB. If you are a DIY Synth novice, you have selected a great [and useful] bit of kit to strengthen your DIY 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 short order.

First, let's make sure that you have everything on hand before we heat up the iron. The tools you will need are as follows:

- Soldering Iron and Solder
- Wire Cutters [for trimming component leads]
- Needle Nose Pliers – possible a pair of straight tweezers for placing the relay, but needle nose pliers work fine

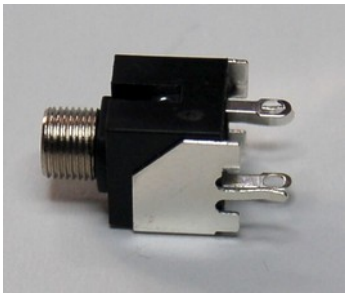
You will need the following parts to finish your build (Choose one BOM or the other, NOT both):

Qty	PCB Identifier	Part Description
1	DC Power	Right-Angle Switched DC Power Jack – PCB mounted
1	C1	0.33µF, 50V MLCC Capacitor
1	C2	0.15µF, 50V MLCC Capacitor
1	IC1	LM7805 +5VDC, 1A Voltage Regulator
1	K1	SMD 3.2 DPDT Relay with 5VDC Coil [2 Form C contacts]
1	SW_TEST	6mm x 6mm Tact Switch
2	SUPPLY_2X8, MODULE_2X8	2x8 Male 0.1" Vertical Pin Header [Shrouded or Un-shrouded]
2	SUPPLY_2X5, MODULE_2X5	2x5 Male 0.1" Vertical Pin Header [Shrouded or Un-shrouded]
10	R1 - R10	680Ω, 1/4W, 1% Metal Film Resistor
8	R11 - R18	1kΩ, 1/4W, 1% Metal Film Resistor
10	LED1 - LED10	3mm Green LED
6	LED11 - LED16	3mm Orange LED
2	LED17, LED18	3mm Yellow LED
Un-Shrouded Header BOM – http://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=abc1f9552a Shrouded Header BOM - http://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=92dff0d2e2		

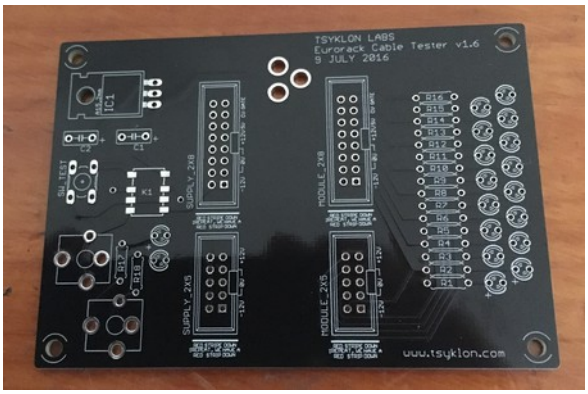
If you want to fasten your voltage regulator to the PCB as well as add some stand-off, get these components:

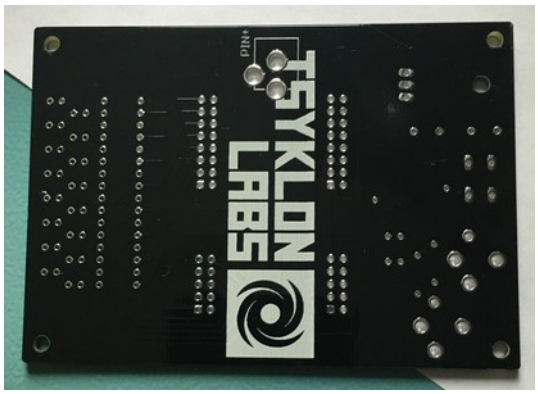
Qty	PCB Identifier	Part Description
4	F/F Stand-off	M3 x IImm Hex Stand-of [Female/Female]
I	F/F Stand-off	M3 x 3mm Hex Stand-of [Female/Female]
5	Screw	M3 x 6mm Screw
Hardware BOM - http://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=65ec79cfcc		

You will also need to get two vertical PCB mount 3.5mm jacks. These are available through ModularAddict, Thonk, Synthrotek, and Erthenvar. They are known as PJ30IBM or "Erthenvar-style" jacks. They look like this:



I) Before getting started, take a close look at the PCB to make sure that there aren't any lifted pads or other damage to it that may cause it to not work properly:

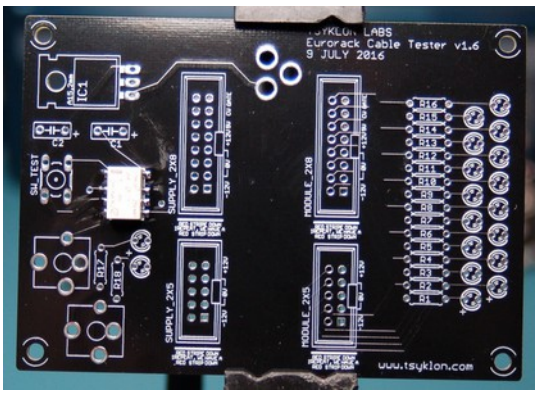




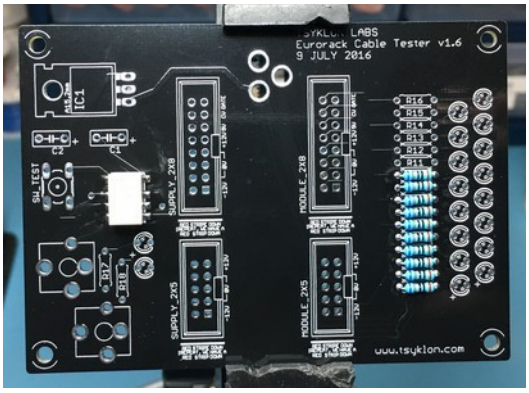
2) OK, now that we have the parts out of the way, let us begin! The first part that you will install will be the Relay. If you don't have a lot of experience with SMD soldering, do yourself a favour and watch this video from Adafruit. Seriously, watch it:

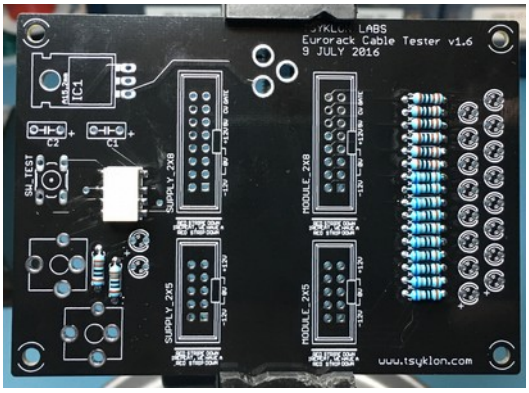
https://www.youtube.com/watch?v=QzoPxvlM2qE

3) Now that you are up to speed on SMD soldering, start by installing Relay K1 [1 x 5VDC DPDT] onto the PCB and solder in place:

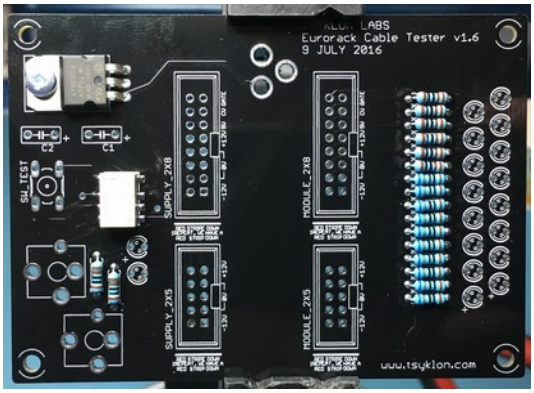


4) Install Resistors R1 – R10 [10 x 680Ω] into the PCB and solder in place, Next, install Resistors R11-R18 [8 x 1kΩ] into the PCB and solder in place:

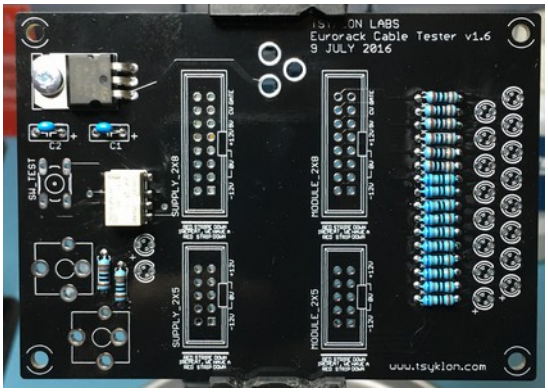




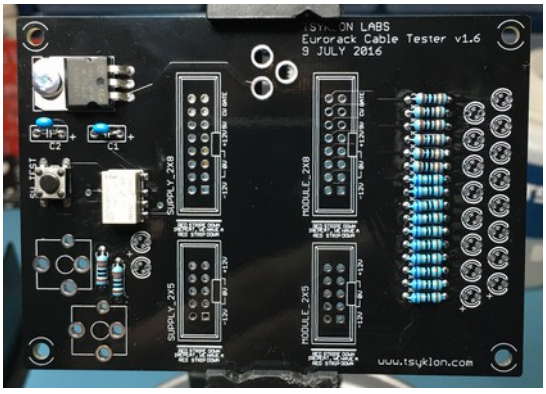
5) Install Voltage Regulator IC1 [1 x LM7805] into the PCB. Use one screw and the 3mm long stand-off [or M3 nut] to hold it in place, then solder the three pins to the PCB:



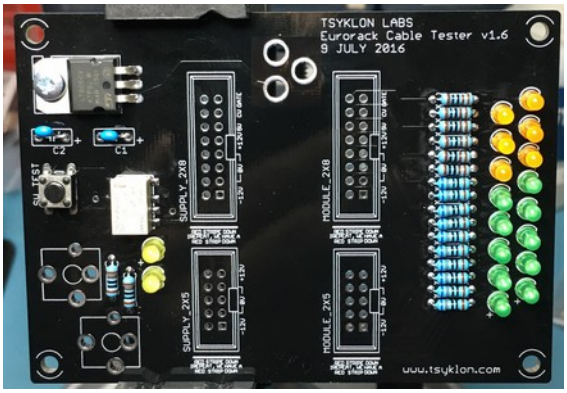
6) Install MLCC Capacitors C1 [1 x 0.33µF] and C2 [1 x 0.15µF] into the PCB and solder in place:



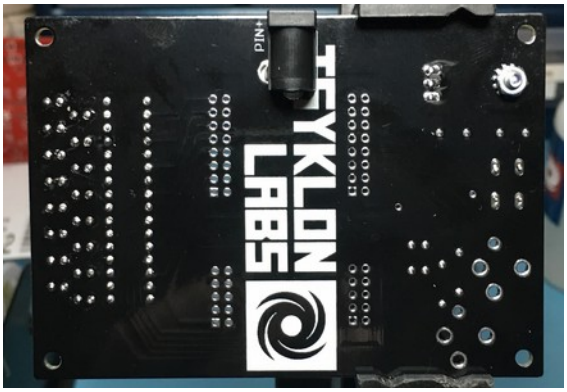
7) Install the Pushbutton/Tactile Switch SW_TEST [1 x Tact] onto the PCB and solder in place:



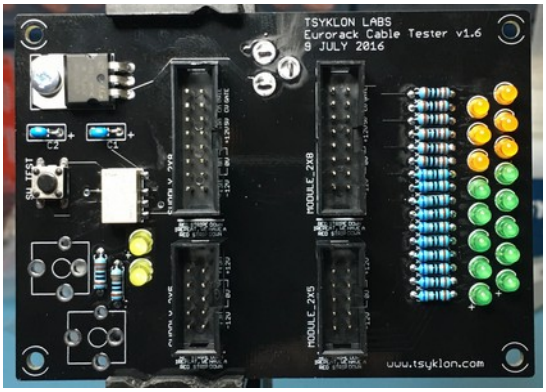
8) Install the LEDs according to the final assembly picture at the end of this Build Document. The Yellow LEDs are for the patch cable test, the Green LEDs are for wires 1-10 [a 2x5 cable] and the Orange LEDs are for wires 11-16 [the rest of a 2x8 cable]. Take note that the anode of all of the LEDs is to the left side of the PCB:



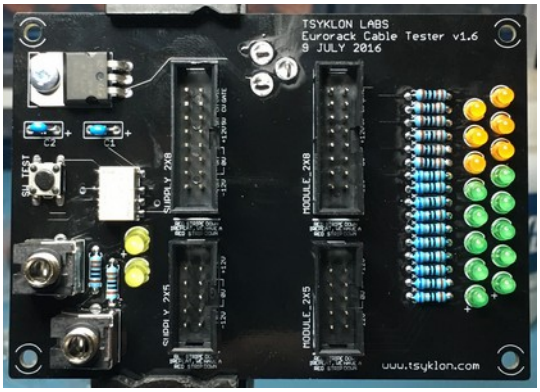
9) Install the DC Power Jack – this component is installed on the underside of the PCB:



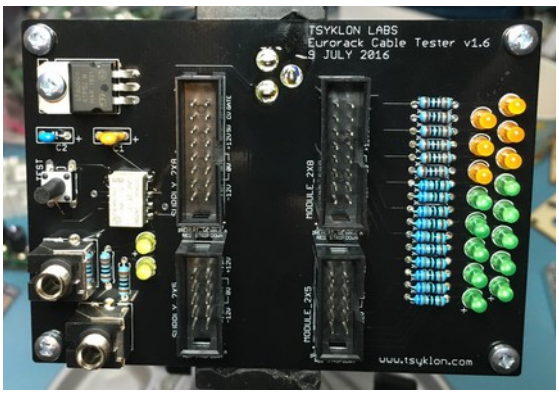
10) Install the four Ribbon Cable Headers. Take care to not short adjacent header pins on the back of the PCB:



11) Install the two 3.5mm Jacks:



12) If desired, install the four stand-offs in the corners of the PCB:



13) That is it! Job well done, Udarnik! Enjoy the fruit of your labors – test those cables!

14) But wait, "how does it work?" you say... Apply power to the DC Power jack, anywhere from 5VDC to 12VDC [center pin positive] is fine. Next, insert the cable that you would like to test. One [or one vertical line-up] of the LEDs will light showing that not only is that the correct conductors have continuity, but also that they are not shorted to an adjacent cable. Press the button to test the other half of the cable. That is it!

Support and Contact Information:

If you should have any issues or questions about the assembly of your Osmotret Eurorack Cable Tester, you can reach us at:

diy@tsyklon.com

We will make every effort to reply to you as soon as we possibly can.

If you would like to sign up for our mailing list [one monthly email max, and occasional re-stock notifications], please fill out the form here:
http://tsyklon.com/contact/

If you prefer not to sign up for the email list, but still want to stay up to date, please keep an eye on this page:
http://tsyklon.com/updates/

User Manuals, DIY Build Documents and Schematics, Microcontroller source code, and Firmware upgrade files can be found here:
http://tsyklon.com/product-support/

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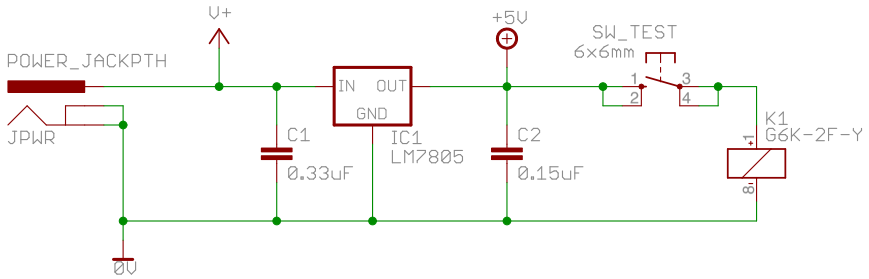
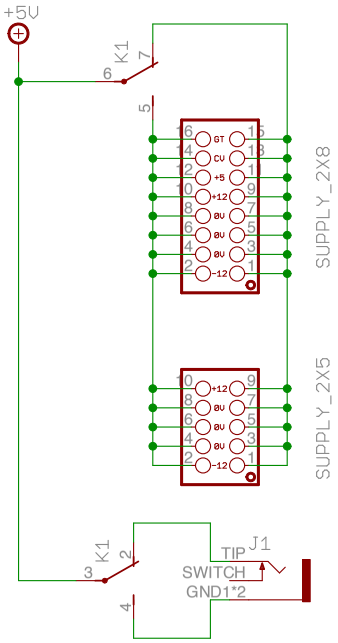
INTERPRETING COMPONENT DESIGNATIONS FOR TSYKLON LABS MODULES

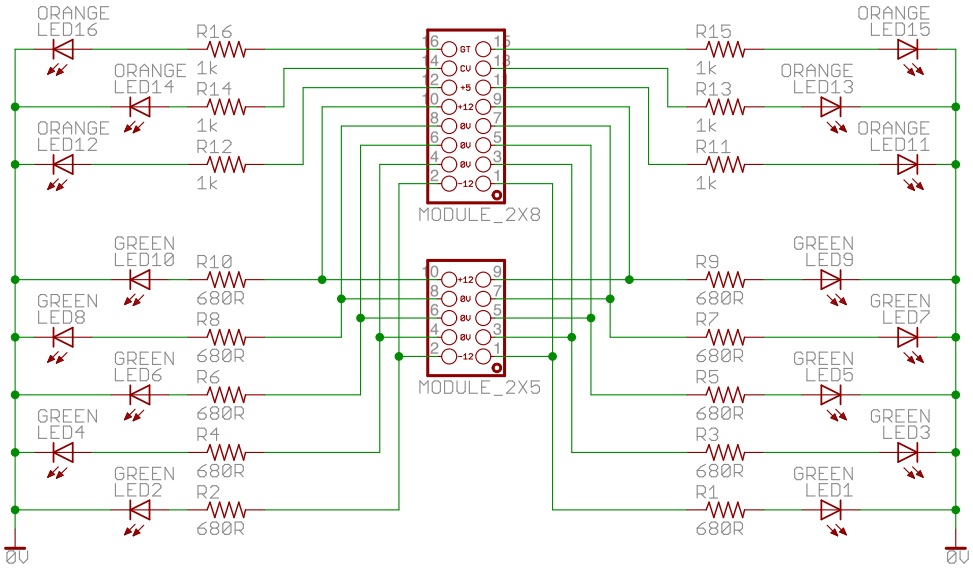
As much as possible, we have tried to be very consistent with how our components are labeled on our Printed Circuit Boards (PCBs). Aside from being consistent component to component, PCB to PCB, and module to module within our own products – we have also done as much as possible to be consistent with 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.

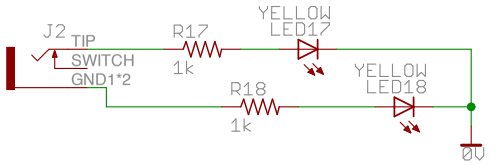
COMPONENT ID	EXAMPLE	COMPONENT TYPE
R	**R**000	Resistor
C	**C**000	Capacitor
PB	**PB**_RESET	Push Button
SW	**SW**_INVERT	Switch (Toggle)
VR	**VR**000	Variable Resistor (Potentiometer or Trimmer)
LED	**LED**000	Light Emitting Diode
D	**D**000	Diode
Q	**Q**000	Transistor (BJT, FET, or MOSFET)
IC	**IC**000	Integrated Circuit
MHDR	**MHDR**_NBL	Male Header
FHDR	**FHDR**_NBL	Female Header
FB	**FB**000	Ferrite Bead
XTAL	CLK_**XTAL**	Quartz Crystal
REG	10V**REG**	Voltage Regulator
PF	**PF**000	Resettable Poly Fuse
POWER	**POWER**	Power Header (2x5 or 2x8)
L	**L**000	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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DATE: 9 JULY 2016

DOCS: http://tsyklon.com/diy-building-resources/

SKU : Eurorack Power Cable Test Board v1.6

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