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B A S T L
INSTRUMENTS

KNIT RIDER EXPANDER v1.1 - Assembly Guide

bastl-instruments.com

INTRODUCTION

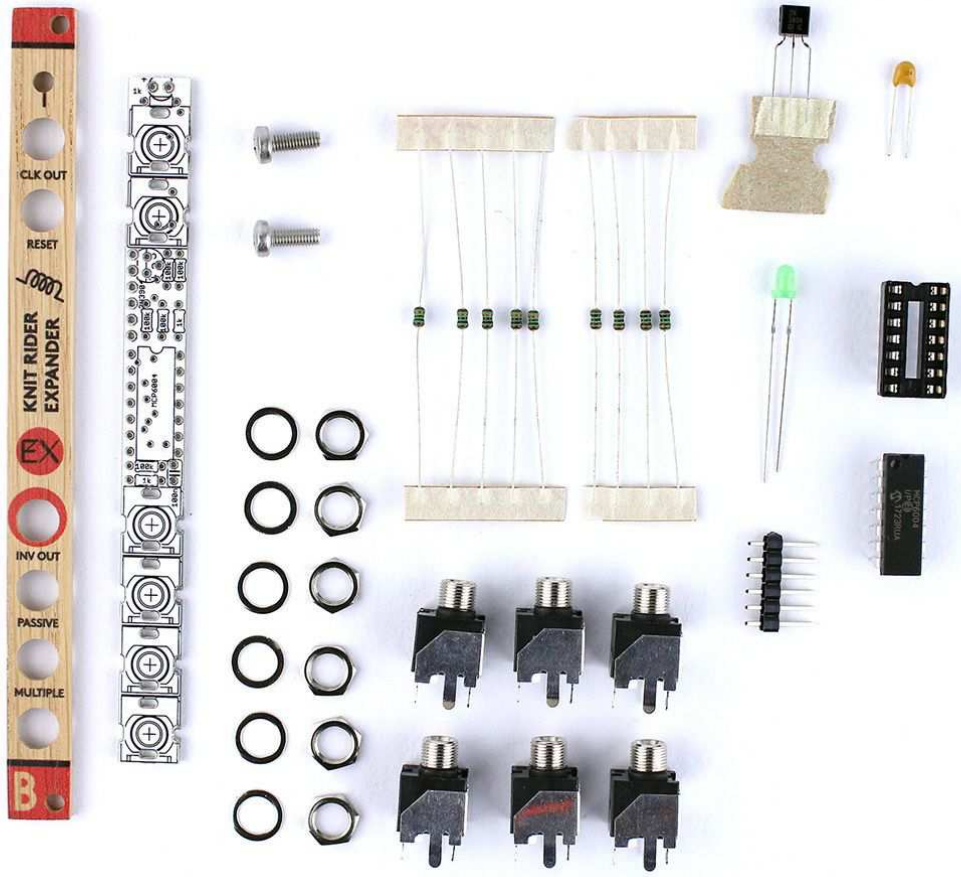
This guide is for building Knit Rider Expander module from Bastl Instruments. It is good to have basic soldering skills and to be able to identify electronic components before starting this kit. However if you have never soldered before, check out this tutorial first[1]. We even included some of the best quality solder to help you solder everything faster and better.

The module consists of one board. All the parts comes in two bags separated for Bottom board and Assembly parts. See Bill of Materials (BOM) for detailed list.

[1] http://www.instructables.com/id/How-to-solder/

BILL OF MATERIALS

KNIT RIDER EXPANDER v1.1 BILL OF MATERIALS		
SOLDERING		
Quantity	**Value**	**Part**
4	1kΩ	0,4W 1% resistor
5	100kΩ	0,4W 1% resistor
1	100nF	2.54mm ceramic capacitor
1	2N3904	transistor
6	PJ-301BMB	jack connector
1	diffuse green	LED
1	6 pin	male pinheader
1	14 pin	DIL socket
1	MCP6004	IC
ASSEMBLY		
1		PCB
6		jack washer
6		jack nut
2	8mm	panel screw
1		cable 6 pin
1		front panel



BEFORE STARTING THE KIT...

Prepare the following tools:

- Soldering iron
- Multi-meter
- Flush cutters
- n2. hex screwdriver or allen key (enclosed with kit)
- Isopropyl alcohol + smaller and clean brush (optional)
- Wrench No. 8
- Protective eyewear

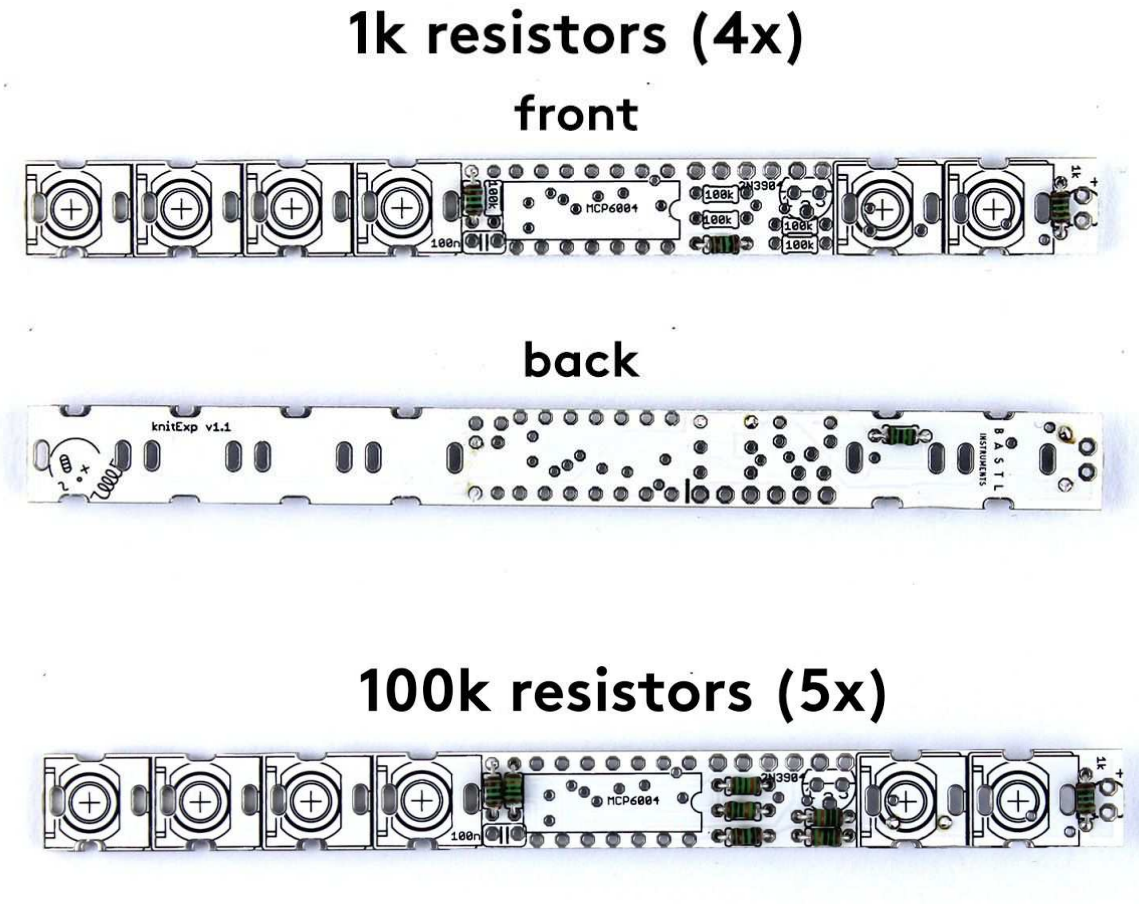
We suggest that you work in a clean and a well lit and ventilated environment to avoid accidents or losing any of the small components.

Also briefly go through this guide and make sure that you understand all the steps.

SOLDERING

RESISTORS

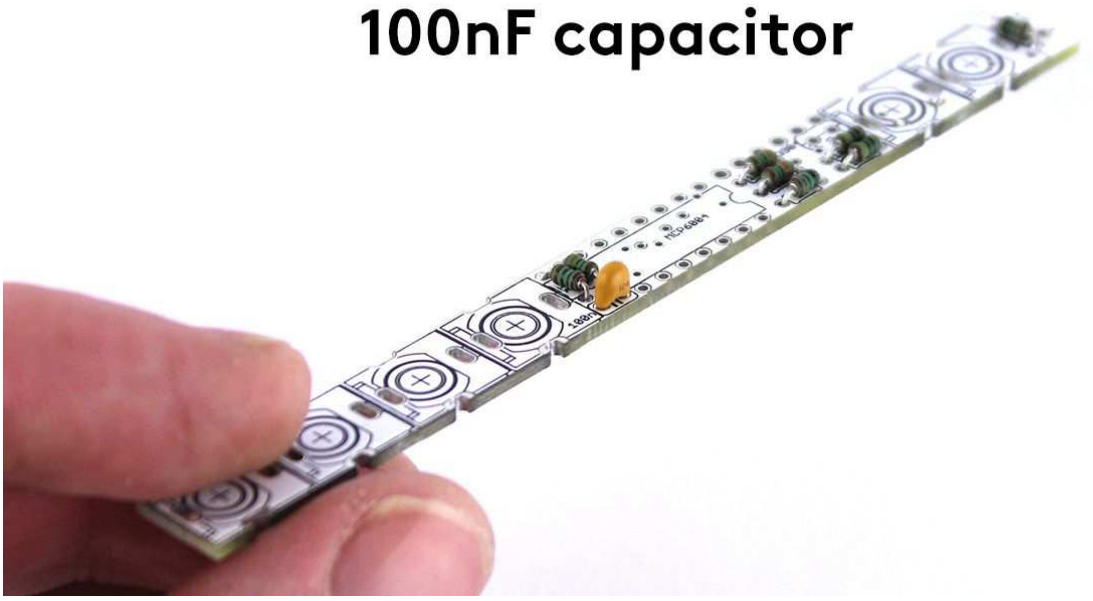
Start soldering with the **resistors**. There are just **two values** of them: **1k** (4x), **100k** (5x). Before you will start soldering, check the values by using a multimeter[2] (or you can check the color codes if you are seasoned enough). Snip the leads close to the PCB after the soldering (be sure to make this step on all remaining leads in the course of this guide). Notice that you will have to solder one of the 1k's from the other side.



[2] https://learn.sparkfun.com/tutorials/how-to-use-a-multimeter/measuring-resistance

CERAMIC CAPACITOR

Then add the ceramic capacitor, there is just one **100nF capacitor** (marked “104”).



IC SOCKET

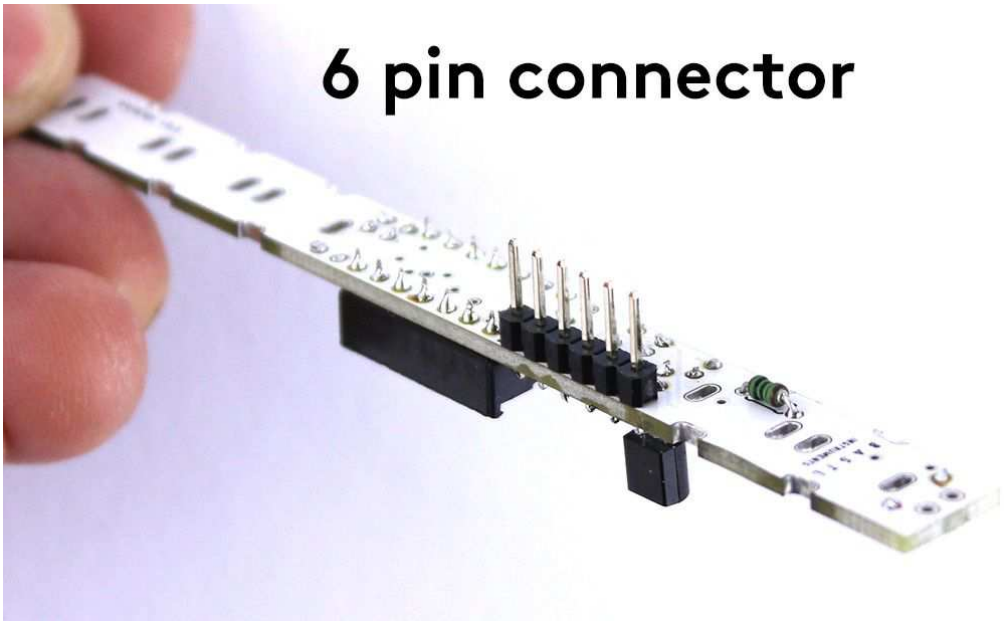
Next place and solder the **IC socket**. Make sure that the **notch is in the same direction** as printed on the circuit board.

TRANSISTOR

Solder also the **2N3904 transistor** (flat side must **match the outline** drawn on the PCB).

CONNECTOR

Turn around the PCB and insert and solder the **6 pin male header**. Be careful to solder the pinheader straight. You may first solder the middle pin, then take the board in your hand and re-heat that pin while pressing down on the header to align it. Wait for it to cool and solder the rest of the pins.

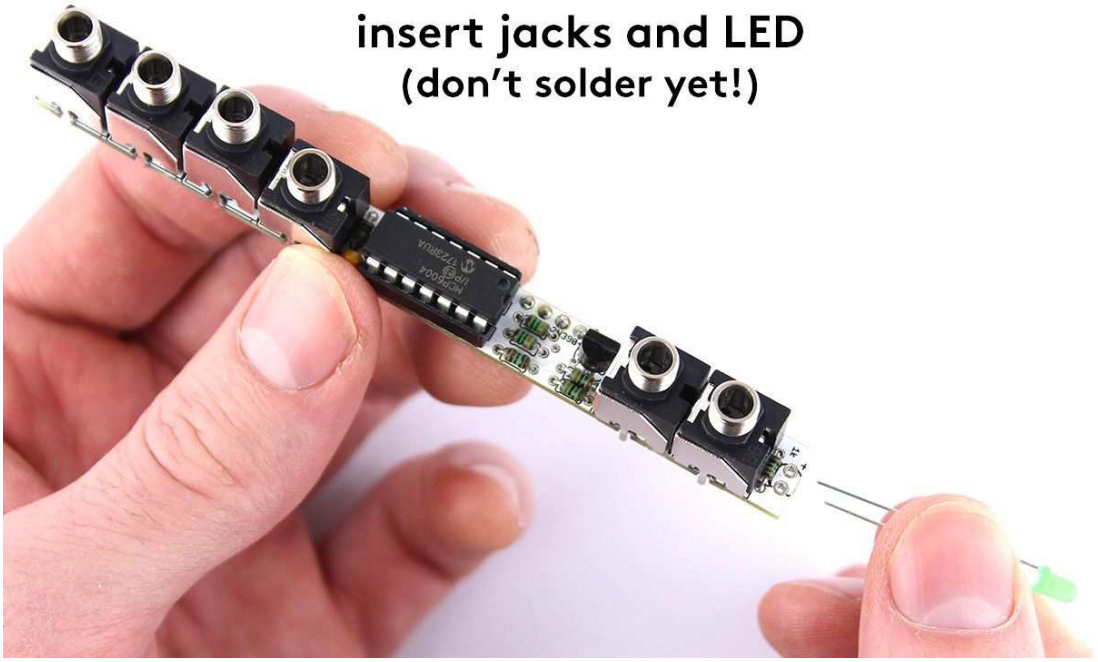


MCP6004

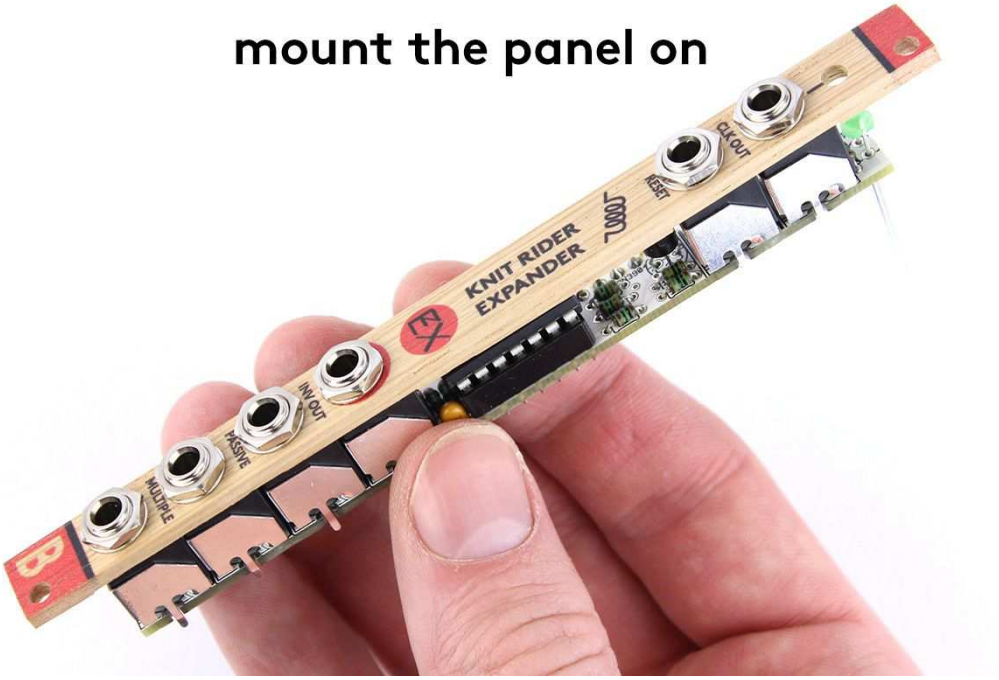
Before next soldering don't forget to insert the **IC** (MCP6004). Again **watch out for orientation**. Installing ICs can be also a little tricky. You should bend the IC leads in slightly with your fingers first. Then press all the leads into the socket in one shot

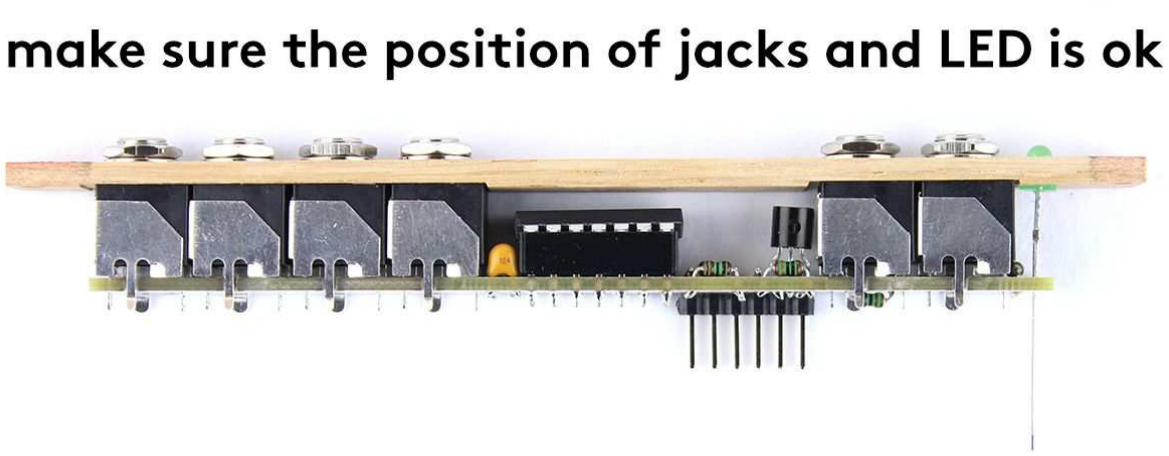
JACKS, LED, FRONT PANEL

Now just insert mono **jack connectors** (6x) and **green LED** (The LED is **polarized** so make sure that the longer lead goes to the plus (+) hole). **Don’t solder anything yet!**



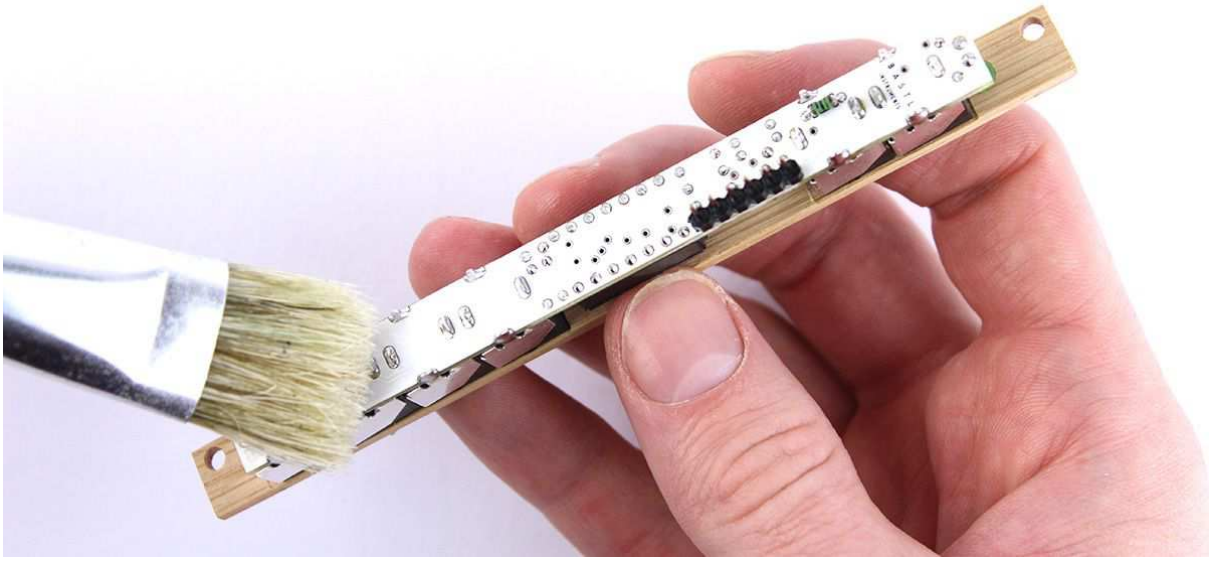
Then place the **front panel** on. Make sure that the components are properly aligned. Screw the panel with **washers** and **nuts** (don't tighten them too much as you may damage the panel). Push the LED’s leads to fit its head on the panel. Make sure that everything is properly aligned. Finally you can solder all the components.



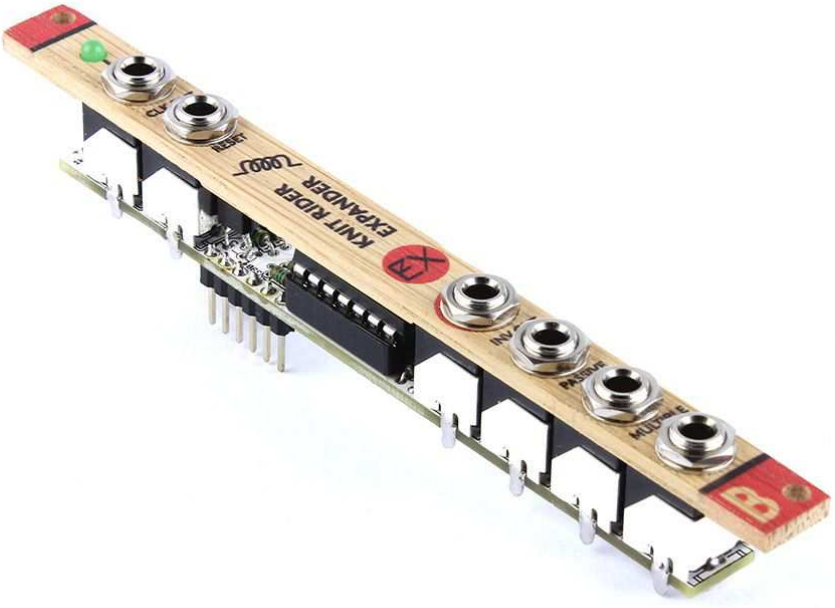


CLEANING (OPTIONAL)

After the soldering, you might want to **clean** your PCB. You can use e.g. isopropyl alcohol. Put some of the liquid all over the PCB using the brush, let it act for a while and sweep it off. Then just let it dry. You can repeat these steps until you are satisfied with the result.



Congratulations! You have made it through, now just connect the expander to the Knit Rider module with the provided cable (see the manual) and you are ready to enjoy your new module.



Before you connect anything, make sure that your system is disconnected from power. Also make sure that cable connections on both modules are in the same side!

TROUBLESHOOTING

First check out the DIY F.A.Q.

If you are still in trouble you can send the detailed description of the problem with enclosed high-resolution photos on diy@bastl-instruments.com.

If you think that you are unable to make the module work on your own, consider our “Come to Daddy” service.