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BASTL
INSTRUMENTS

ABC v1.1 - Assembly Guide

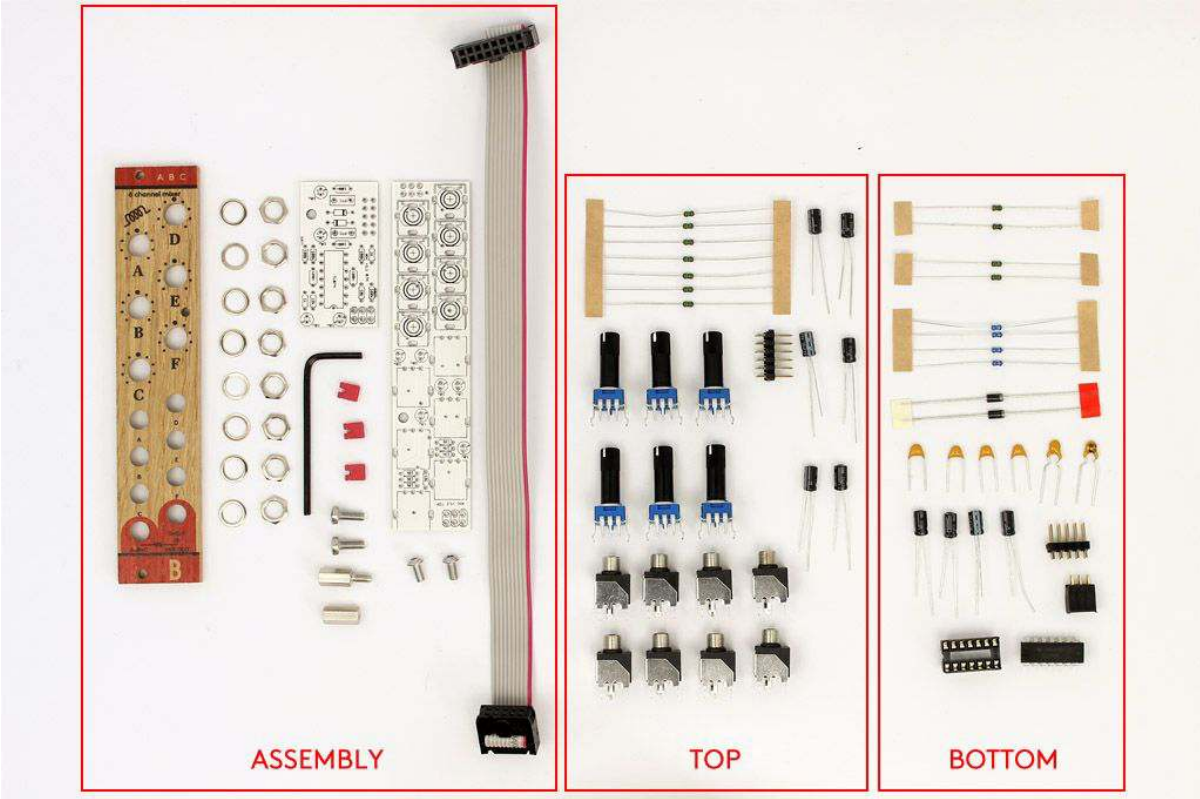
bastl-instruments.com

INTRODUCTION

This guide is for building ABC 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 included some of the best quality solder to help you solder everything faster and better.

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

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



Before starting this kit, prepare the following tools:

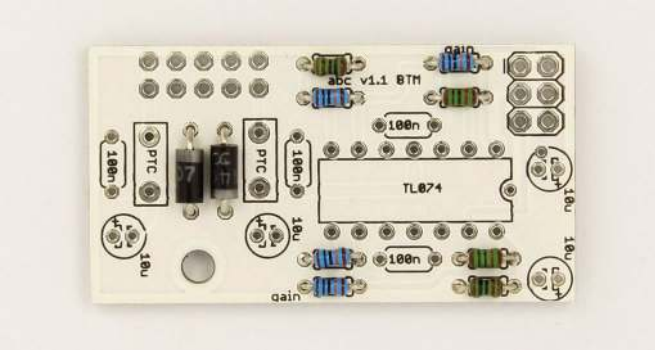
- Soldering iron (15-20W)
- Multi-meter
- Flush cutters
- n2. hex screwdriver or allen key (enclosed with kit)
- Phillips screwdriver (cross)
- Wrench No. 8
- Protective eyewear

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.

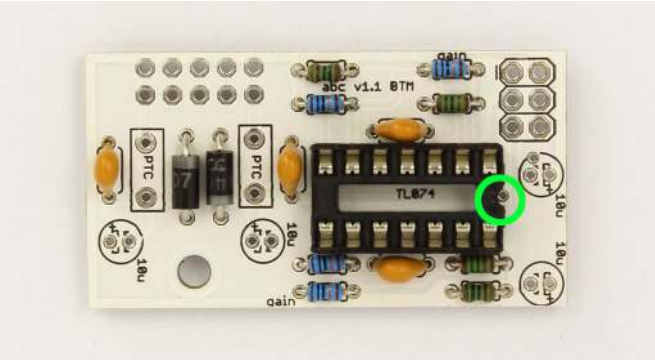
Also briefly go through this guide and make sure that you understand all the steps.

BOTTOM BOARD

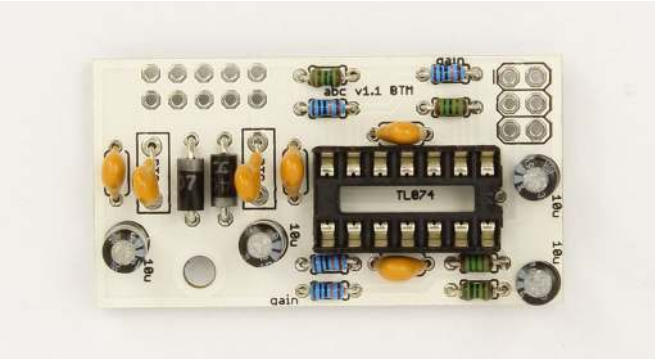
Let's start with the bottom board (the smaller one). Before you start soldering, take your time and find all the resistors values using a multimeter[2] (or you can check the color codes if you are seasoned enough).



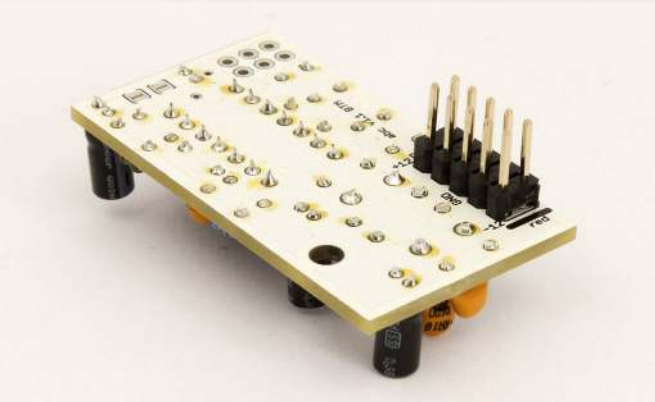
Insert and solder all 8 **resistors** (4x 100k, 2x 10k, 2x 1k). Then snip the leads as close to the PCB as you can (be sure to make this step on all remaining leads in the course of this guide). After that solder the two **diodes** (1N4007). Be careful, **diodes are polarized**! Make sure that the marking ring on the diode body matches the marking on the PCB.



Now move to soldering the four **100nF ceramic capacitors** (marked "104"). Then add the **IC socket**. Make sure that the **notch on the socket matches the print on the board**.



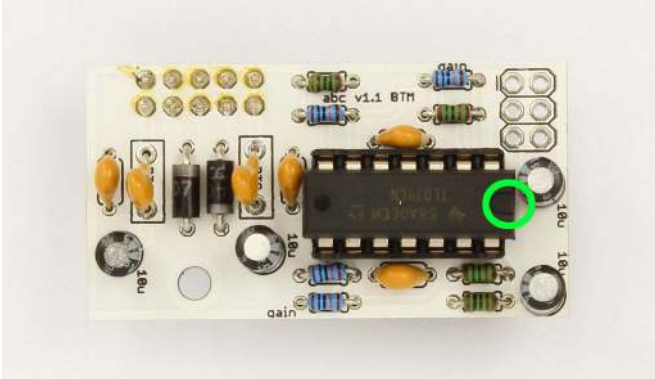
Next there are four **electrolytic capacitors** (10µF). **Watch out for orientation**! There is a plus (+) sign on the PCB that should match the longer lead of the electrolytic capacitors. Then you add two **protective fuses** (marked "PTC" on board; be careful, they look quite similar to capacitors).



Turn around the PCB and insert and solder the **2x5 pin male pinheader**. Be careful to solder it straight. You may first solder one of the pin, take the board in your hand and re-heat that pin while pressing down on the header to align it (be careful, you don't want to touch the pin you are heating up). Wait for it to cool and solder the rest of the pins.

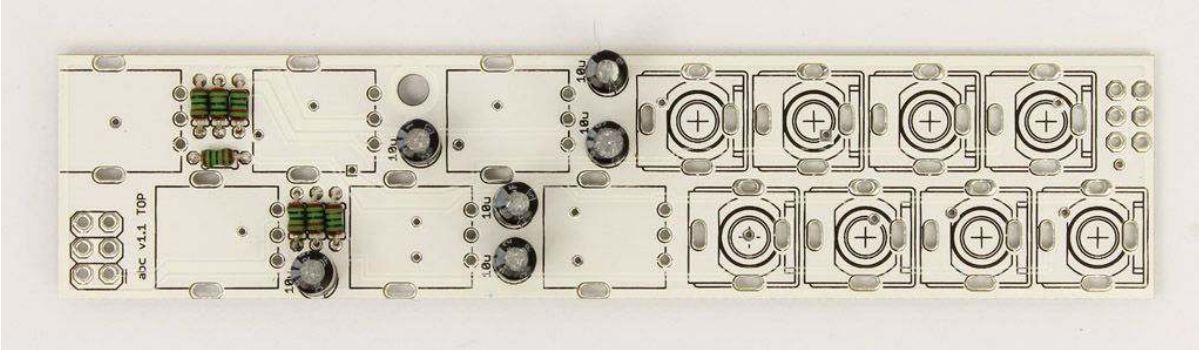
[2] https://learn.sparkfun.com/tutorials/how-to-use-a-multimeter/measuring-resistance

Next don't forget to place the **IC (TL074)** into the socket. There is a notch on the IC that should match with the notch on the socket.

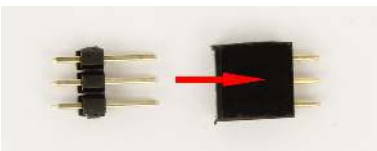


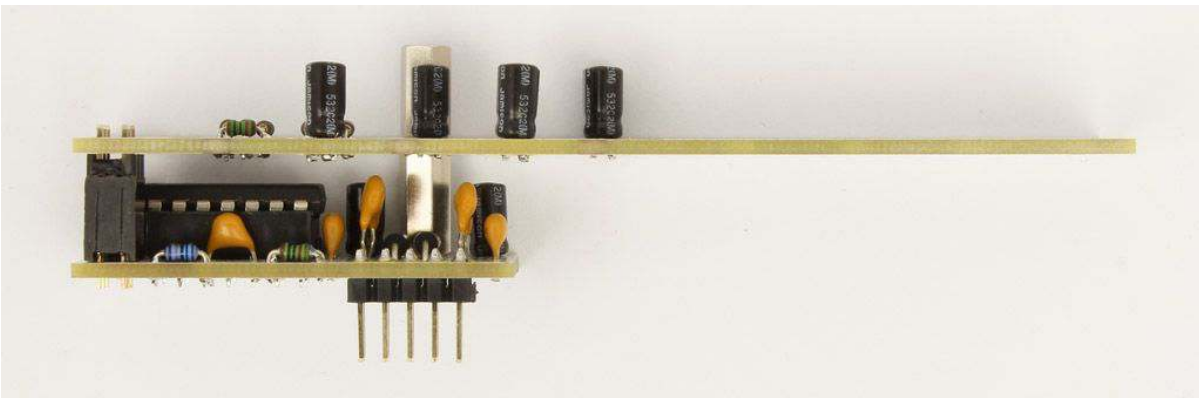
TOP BOARD

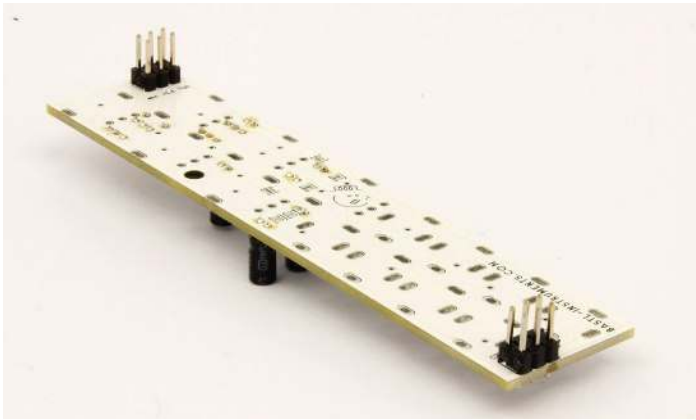
Now populate the top. Again start with the remaining **resistors** (7x 10k) and solder them in. Next solder the remaining **electrolytic capacitors** (10µF). Don't forget about their **polarity**!



Next to ensure that the headers are properly aligned, screw the **hex screw** and the **11 mm spacer** (nut - nut) on bottom board. Place the **2x3 pin female header** on bottom board with the **2x3 pin male** header inserted (use your flush cutters to get this length). Now **connect the boards** together, mount them with the **10 mm spacer** (nut - screw) and finally, **solder the headers** to both boards. Unscrew the top spacer and disconnect the boards then.

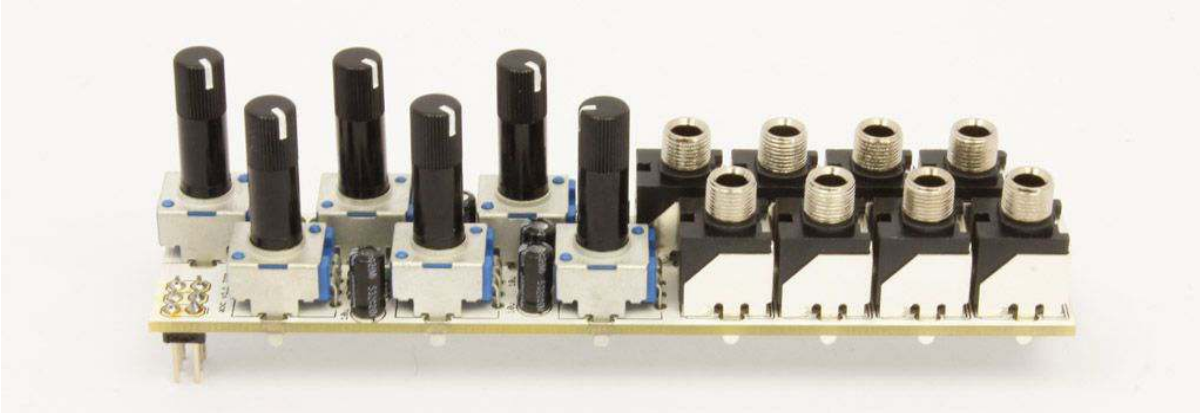




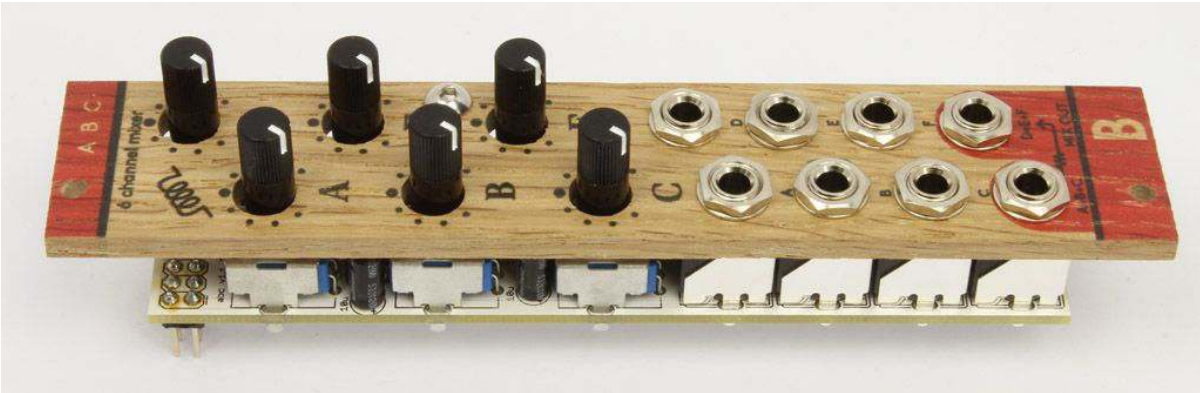


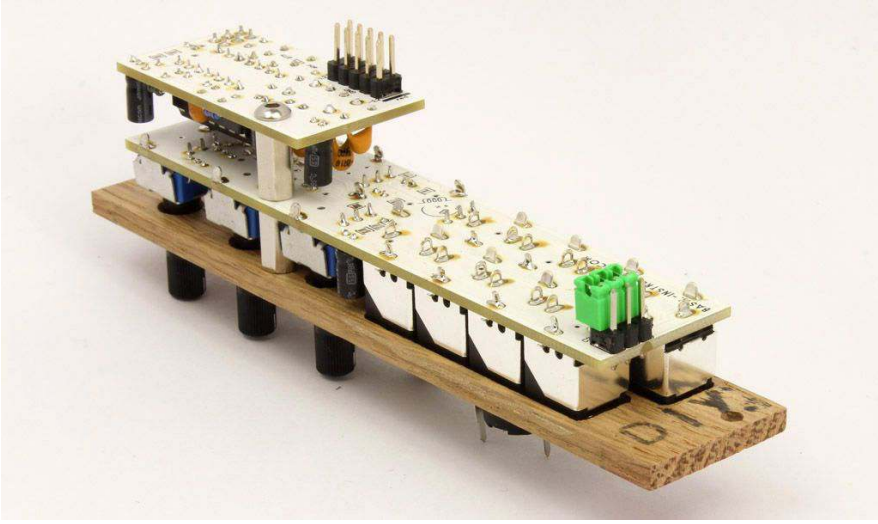
Solder the remaining **2x3 pin male header** on the top board.

Next place the six **potentiometers** (A100k) to their respected places on the top board. Push them well until they sit absolutely flat on the board. Then place the **mono jacks** (8x) on the board. **Don't solder anything yet**.



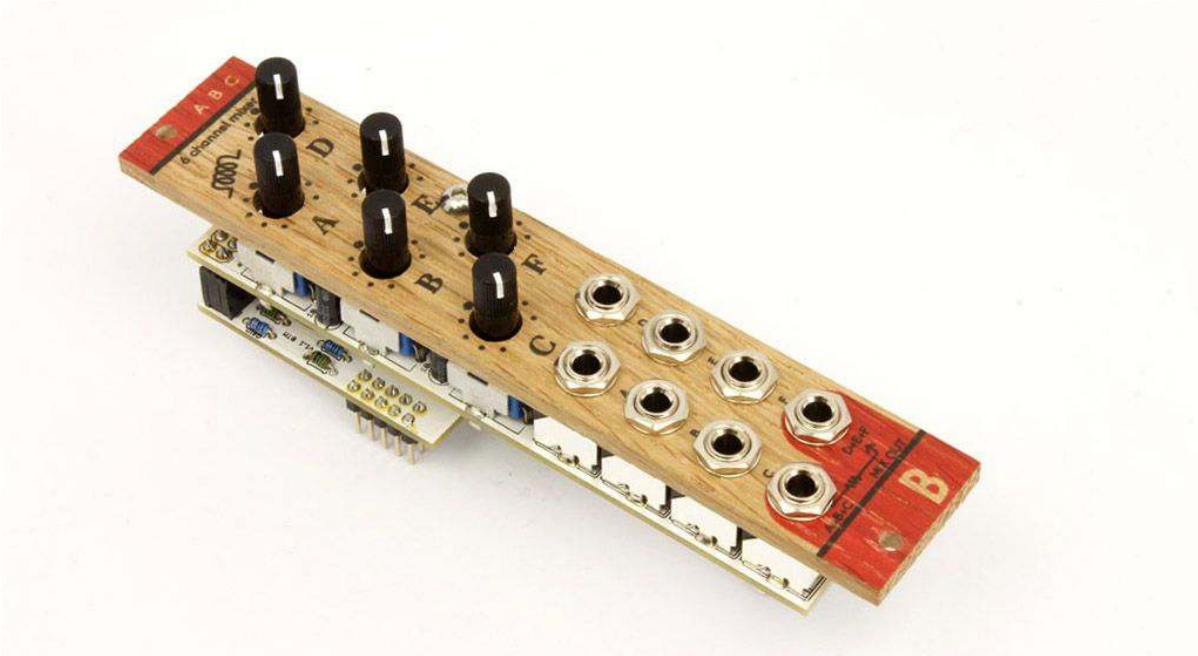
Place the spacer back in the opening. Take the **front panel**, screw and mount it with the board. Check that all the components came through. Secure the jacks to the panel with the **washers** and the **nuts** (keep in mind not to tighten the jack nuts too much as you may damage the panel!). Finally you are ready to solder the components





At last connect the boards back together and **install the jumpers** on the top board.

Congratulations! You are ready to enjoy your new module. Before you connect anything, make sure that your system is disconnected from power. Also double check the polarity of the ribbon cable, the red cable should match the -12V rail both on the module and on the bus board!



TROUBLESHOOTING

First check out the DIY F.A.Q.

If you are having some more trouble, the best thing is to take a nap! Especially late at night!

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.