

## KK+ Board – Conversion for Mems board

This details the changes necessary for converting the KK+ board for use with the Mems V1.1 board.

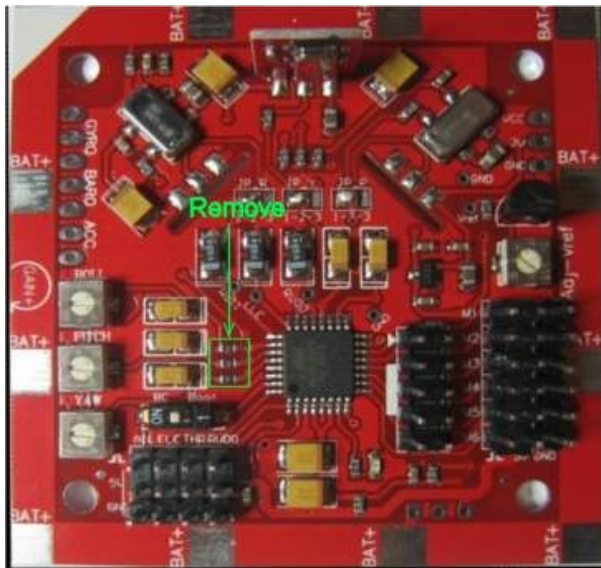
To perform this task, you will need the following:

- Soldering iron + solder (and optionally some de-solder braid) + tweezers
- Multimeter + small screwdriver
- PCB straight header pins 2.54mm pitch (x10)
- Single-row PCB sockets 2.54mm Pitch (x10)

Summary of Steps involved:

1. remove resistors from KK+ board
2. move gyro solder jumpers
3. solder mems board pin header/sockets
4. adjust Vref voltage

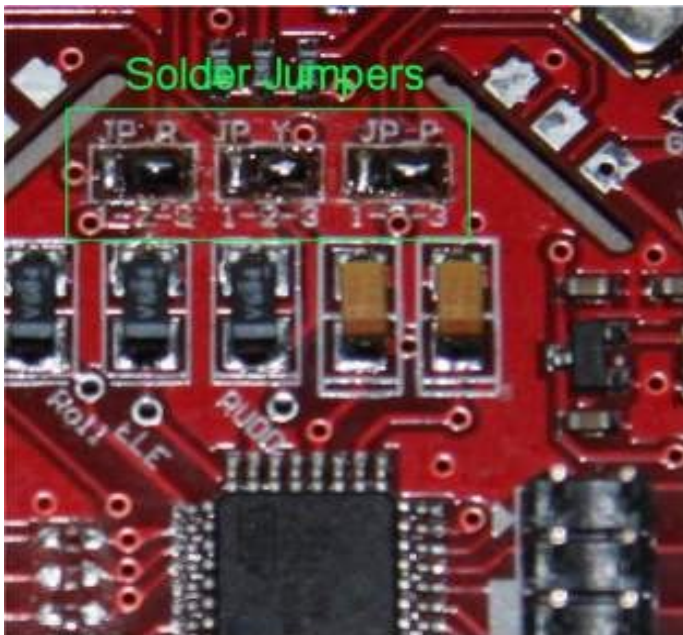
### 1. Remove resistors from KK+ board



*Left is KK5.5d Right is KK5.5e*

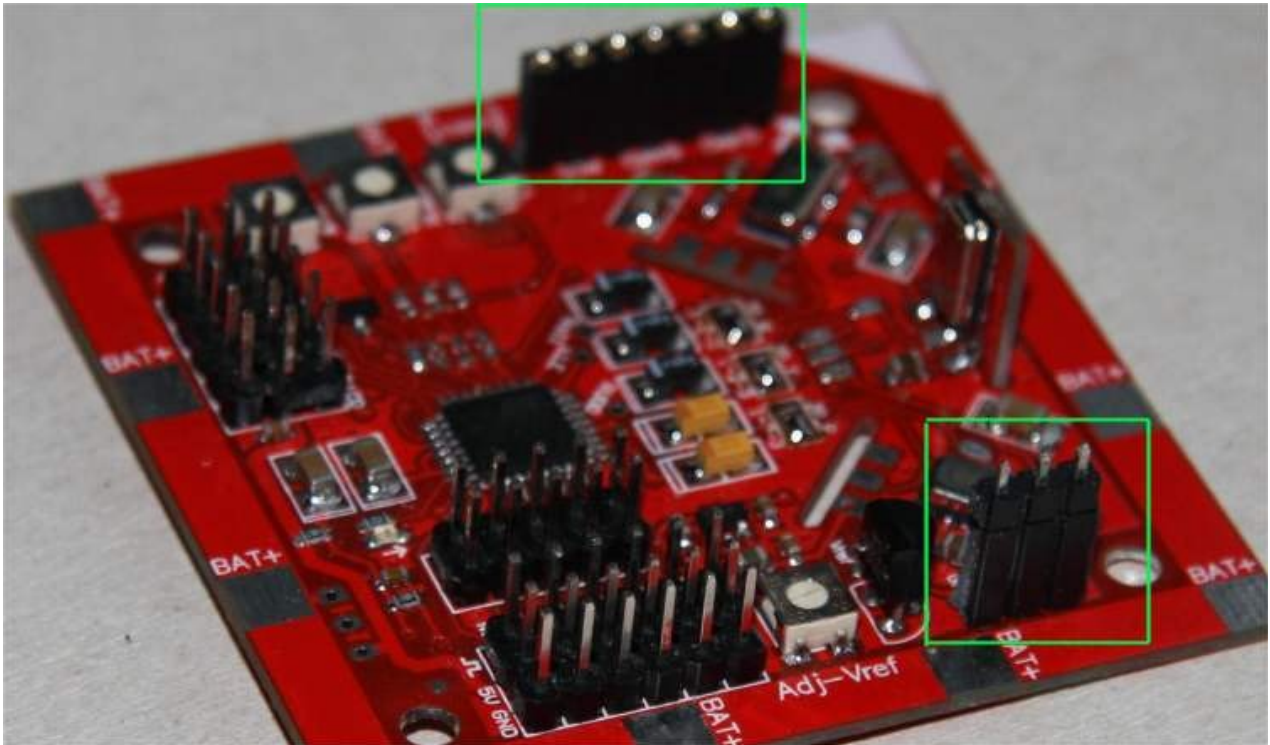
Remove 3 resistors using a soldering iron + tweezers. This will dis-connect the gyro gain pots. I use thin de-solder braid to remove excess solder first as this makes it easier to remove the component.

### 2. Move gyro solder jumpers

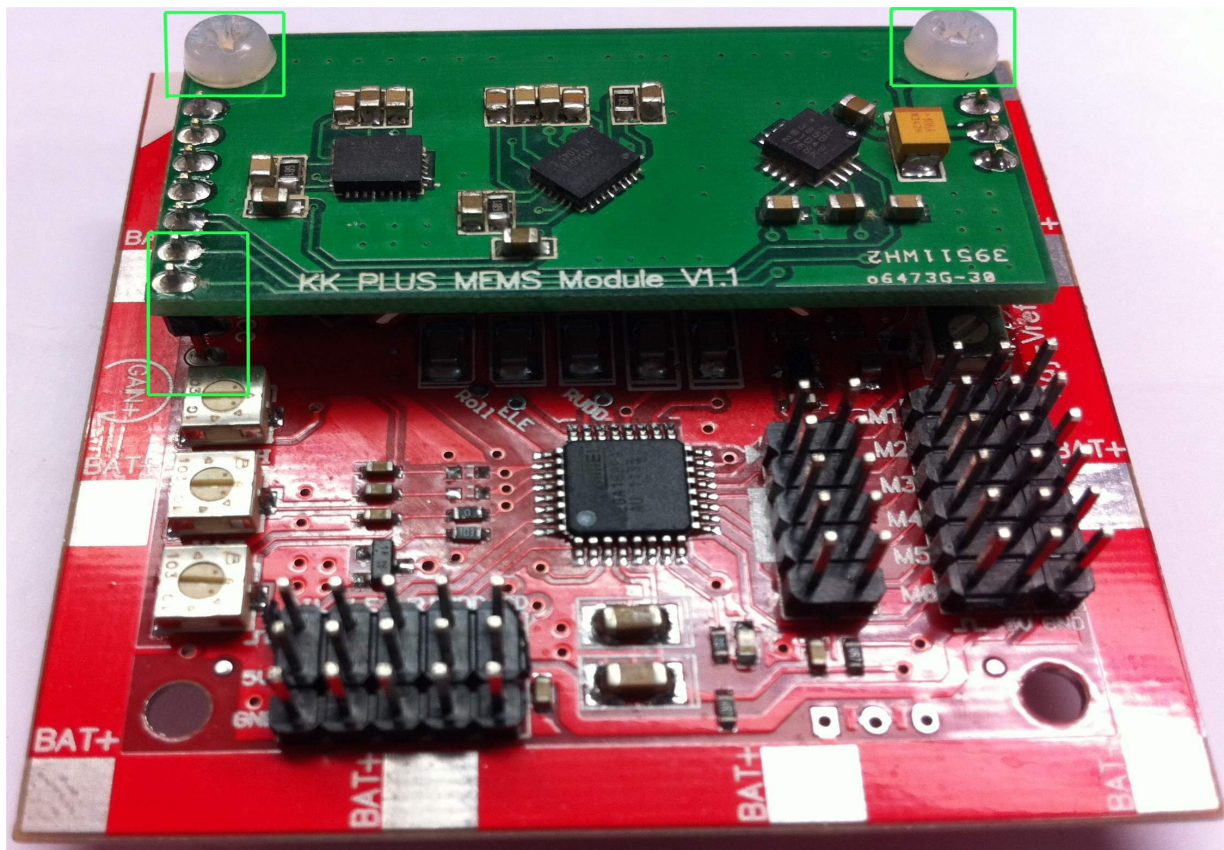


Using your soldering iron, move the solder jumpers from positions 1-2 to 2-3 as shown.

### 3. Solder mems board pin headers



You can do this several ways, here is one way of doing it. The picture above shows the socket headers inserted on both sides. On the right-hand socket, the pin headers are also inserted (long-end downwards). Do the same for the other side and finally, put the mems board on top so the pins stick through ready for soldering. Make sure it is square before soldering the top pins on both sides. Holding the board together, turn upside down and solder the pins underneath. The friction of the pins should be sufficient to keep the board in-place, but, if you are not convinced, you could wrap a rubber-band around it. Alternatively, use nylon spacers and bolt/solder the mems board in-place as shown on David Thompson's board below.



#### 4. Adjust Vref Voltage

The last thing to do is to adjust the Vref voltage on the board.

Remove the mems board and apply a 5 volt supply to the board.

Measure the Vref voltage using your multimeter with the probes applied to the test points on the board (marked Vref and GND).

Turn the Adj-Vref pot counter clockwise to increase the voltage until it reaches 2.4Volts.