

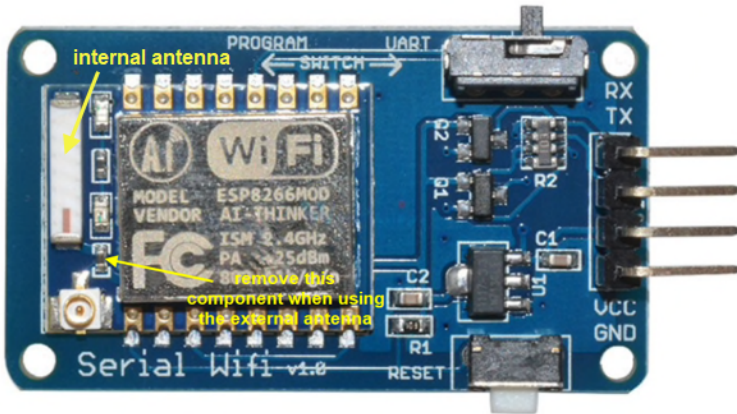
Megasquirt internal WIFI Module

Once you've installed the module, connect your computer/cellphone/tablet to the wifi network of the module. It will show up as '**Megasquirt**' with pin code **12345678** (some come without pin code).

In **Tunerstudio** choose **TCP/IP – Wifi** driver and connect to **192.168.4.1** on **Port 23**

If you have a Speeduino, follow these instructions: <https://speeduino.com/wiki/index.php/Bluetooth>

Your WIFI module should look like this. Make sure the top switch is set to the **UART** position.



IMPORTANT: If you have a WiFi module with the optional **external antenna**, you must remove the component (it's a jumper actually) next to the antenna connector (see pic above).

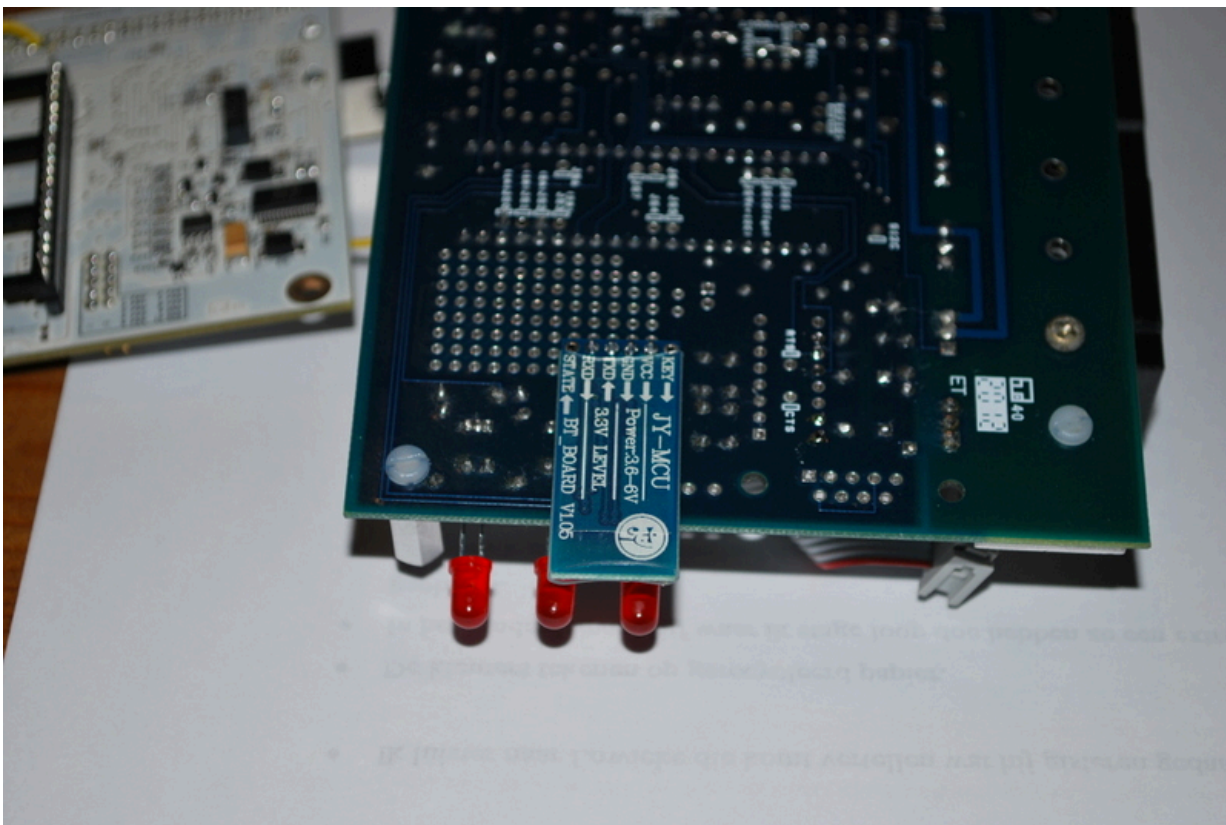
Carefully pry it off with a small screwdriver, no need to desolder. It comes off very easy.

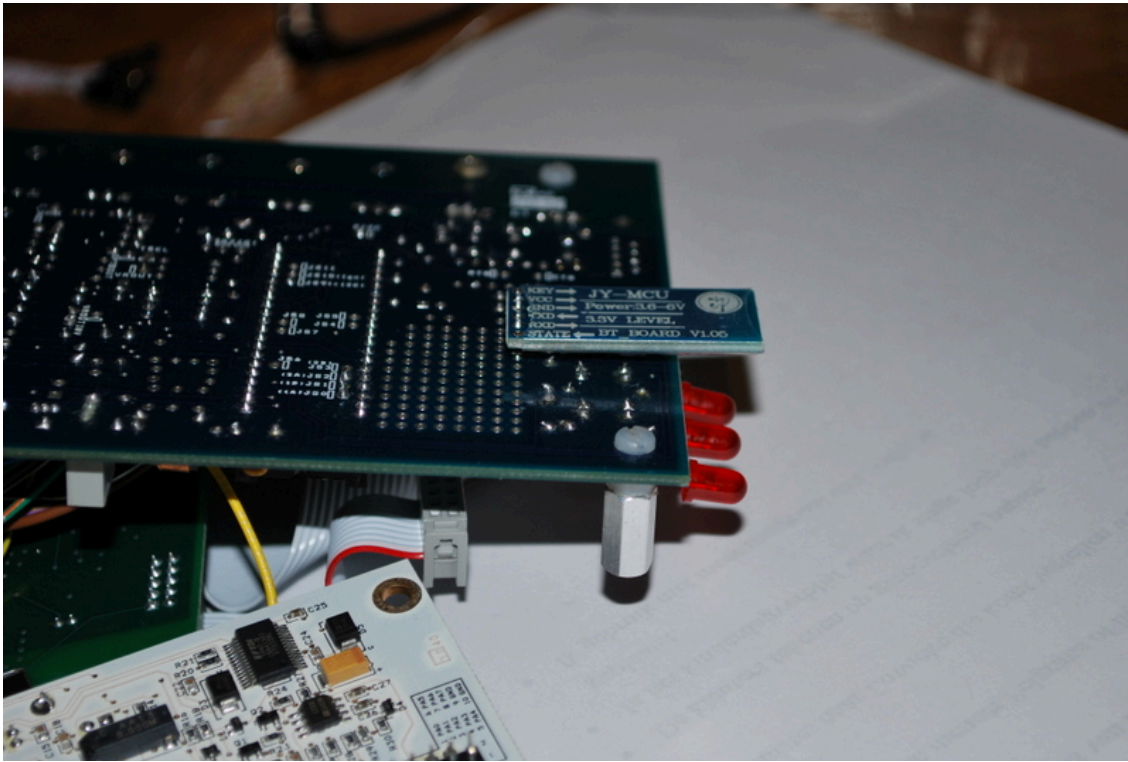
If you do not remove it, the external antenna will not be activated.

If you bought the module + antenna from me, I have already removed the jumper for you 😊.

INSTALLATION:

Bend the 4 pins straight up and insert the module in the first row of the proto area as shown in the pics below. Secure the module by soldering all 4 pins to the proto area (from above). The pic shows a Bluetooth module, but the procedure is identical.





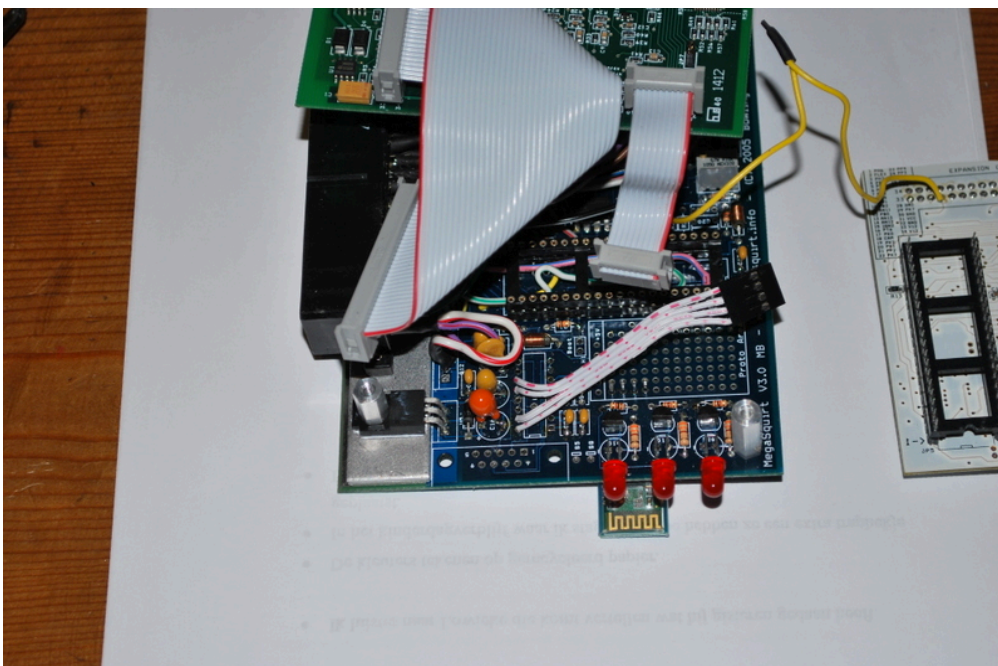
If you have an MS3 cpu, remove the MAX232 serial chip. Serial is not needed because MS3 has USB. Solder 4 wires in the empty locations in pin 11, 12, 15 and 16 (see pic below). Pin 11 is the upper most wire (with the red stripes) and pin 16 is the wire on the bottom corner. In the picture, there's a connector on the module side, but it's best to solder the wires without connector. I found that the connector is prone to working itself loose from the module.

If you have an MS1 or MS2 cpu, serial is needed to do firmware upgrades because there's no USB on MS1/2. Leave the MAX232 in place and carefully solder the 4 wires directly to the MAX232 legs. Serial will not work if Wifi is powered on. Therefore, to enable serial, you must cut power to the WIFI module. Install a switch in the 5V wire to the WIFI module. Install the switch on the outside of the case for ease access. Power on for WIFI, power off for serial.

REMARK: I have been able to flash firmware over WiFi, so the MAX232 may actually be removed, but it's safer to leave it in place. Remove at your own risk of not being able to flash the firmware.

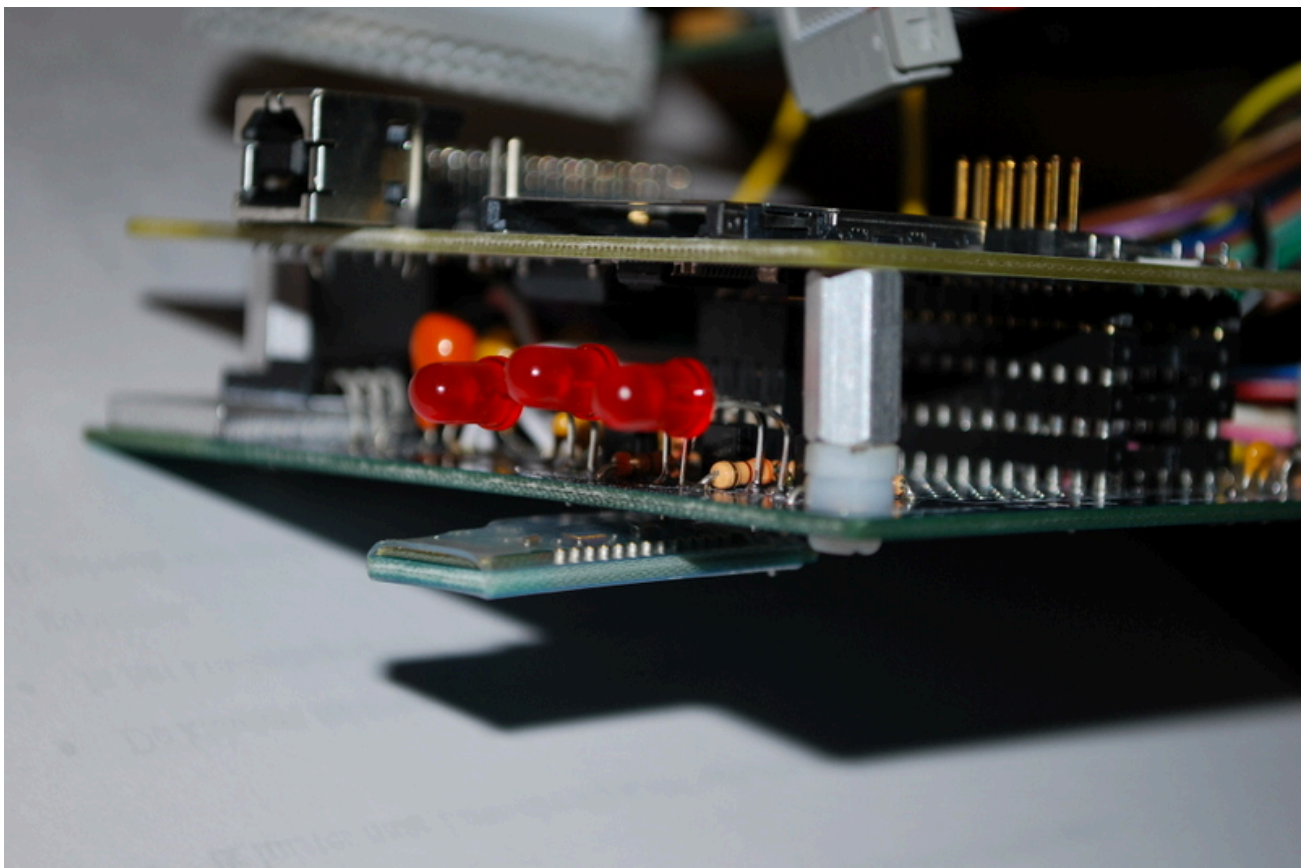
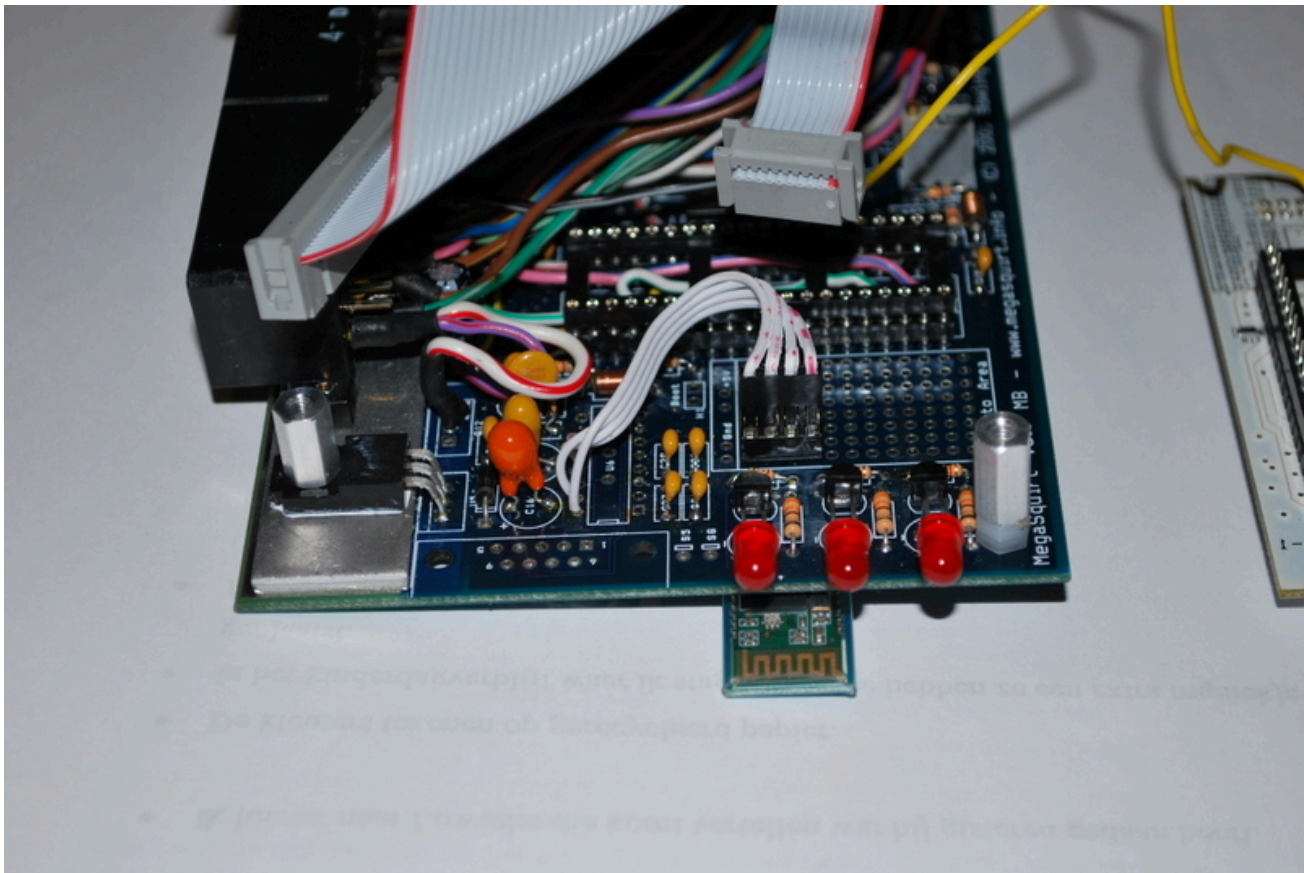
Don't know what cpu you have? See pics further down.

Instructions for the old V2.2 board at the end of this document.

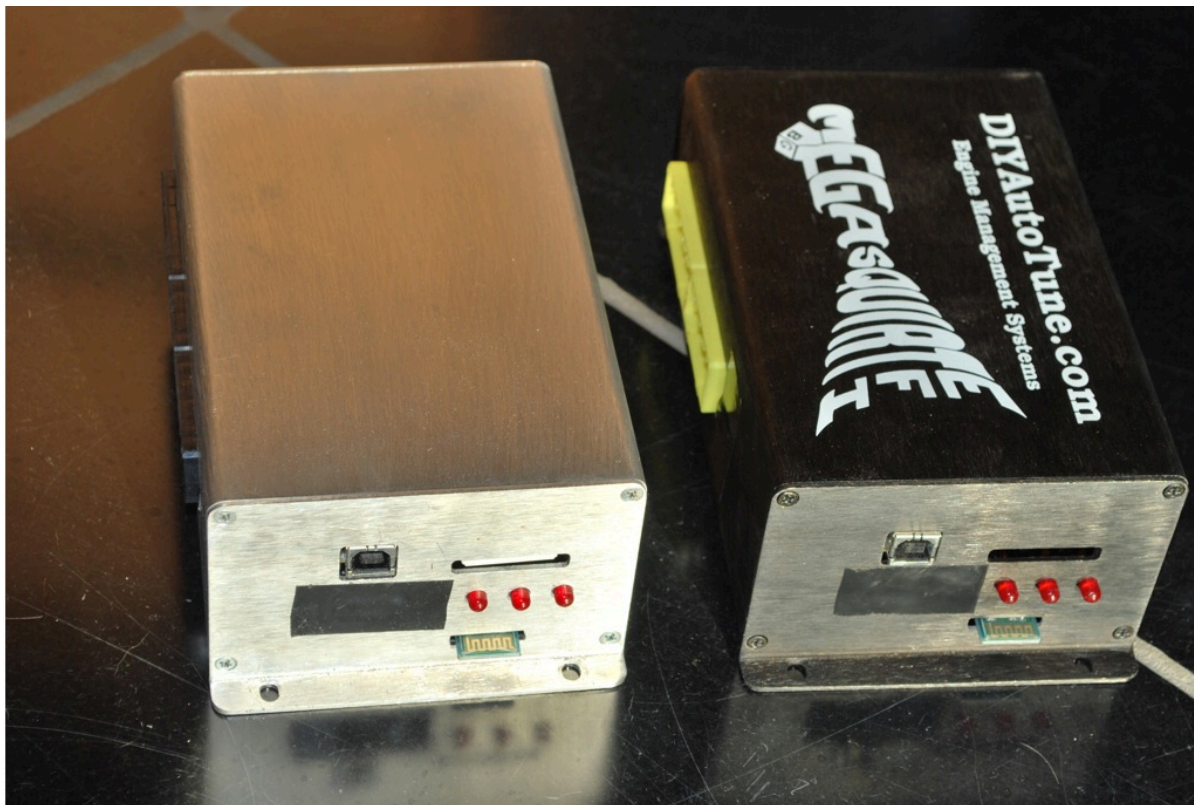
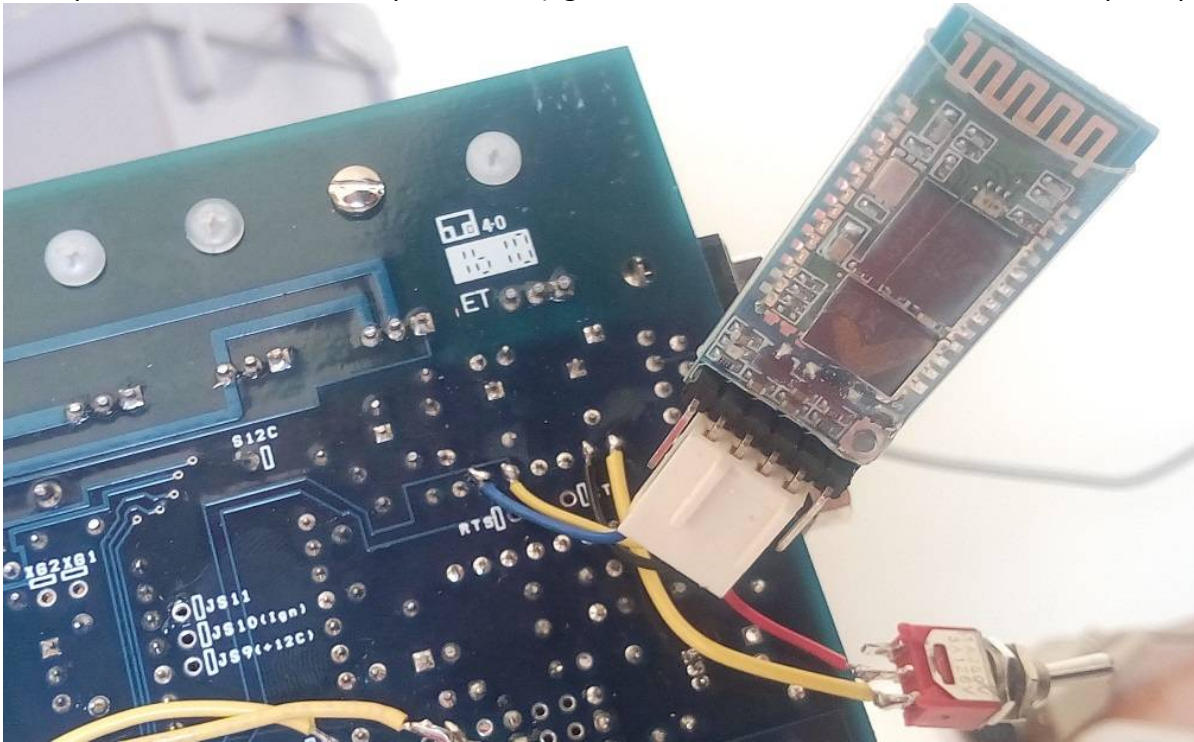


Solder the wires to the module in this order:

- pin 11 of U6 (T1IN) to RX of the WIFI module
- pin 12 of U6 (R1OUT) to TX of the WIFI module
- pin 15 of U6 to GND of the WIFI module
- pin 16 of U6 to VCC of the WIFI module

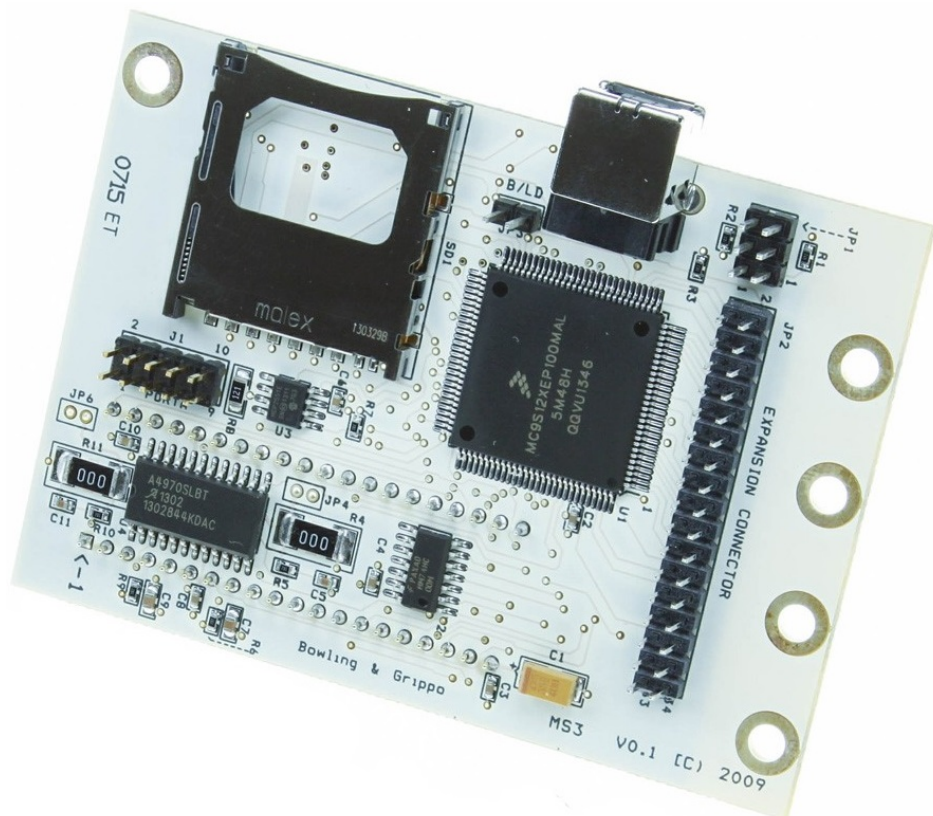


Example of a switch in the 5V power line (again a Bluetooth module is show, but the principal is identical):

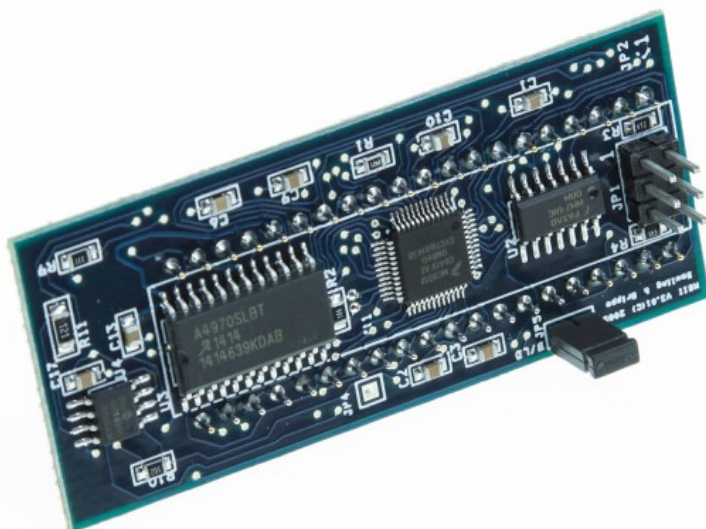


Make a notch in the case to let the internal antenna stick out. You could install the module inside the case, but then the range drops dramatically, unless you use the optional external antenna. With the antenna sticking out of the case, you should see a range of up to 250ft in open air. With the external antenna up to 400ft. Use double sided tape to stick the antenna to the case and lead the wire to the Wifi adapter inside the case.

MS3 CPU



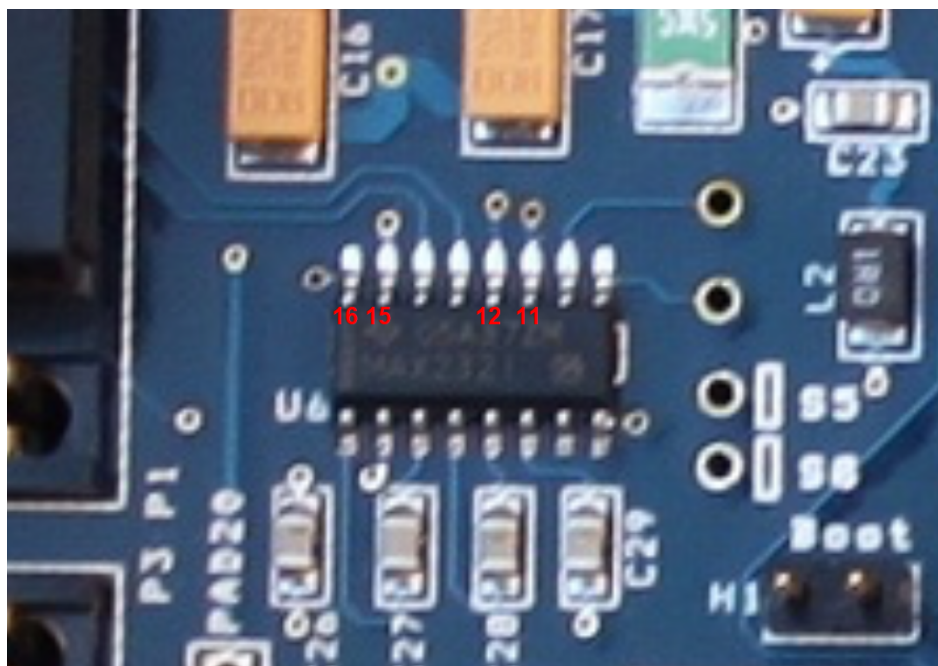
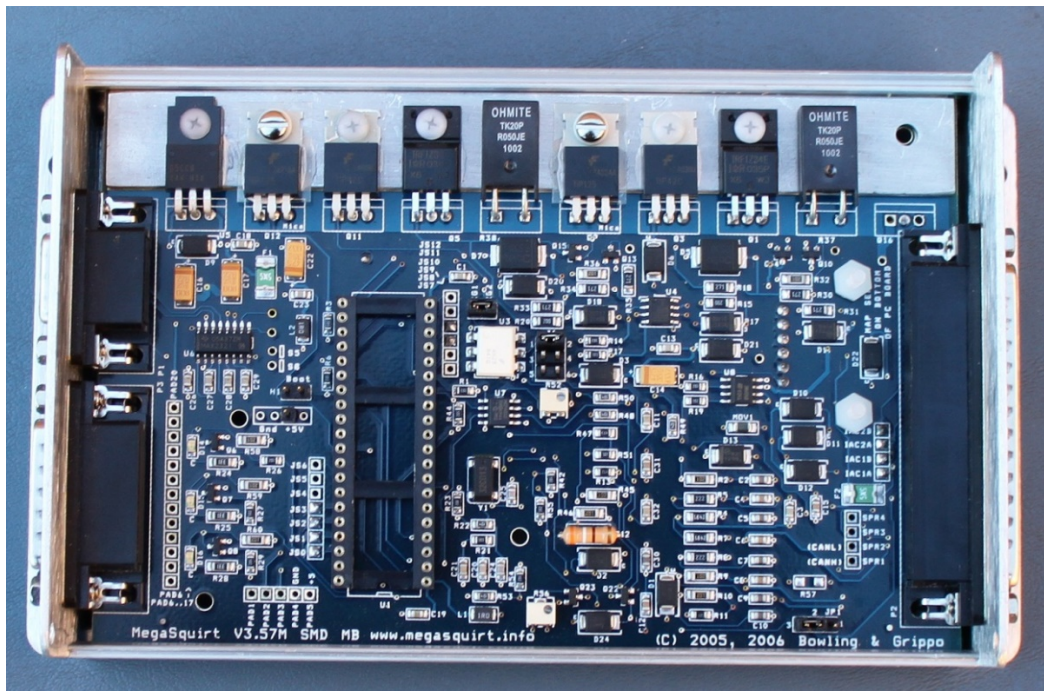
MS2 CPU



Instructions for the MS3 V3.57 SMD

The V3.57 has a SMD version of the serial chip. It's U6, located next to the serial connector. Carefully solder 4 wires directly to the MAX2321 legs and run these to the wifi module. Solder the wires to the module in this order:

- pin 11 of U6 (T1IN) to RX of the WIFI module
- pin 12 of U6 (R1OUT) to TX of the WIFI module
- pin 15 of U6 to GND of the WIFI module
- pin 16 of U6 to VCC of the WIFI module

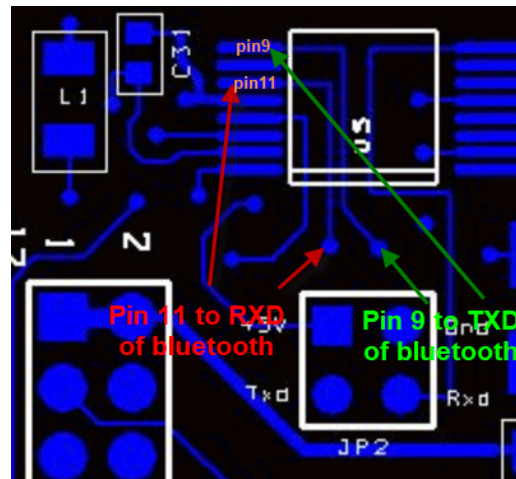
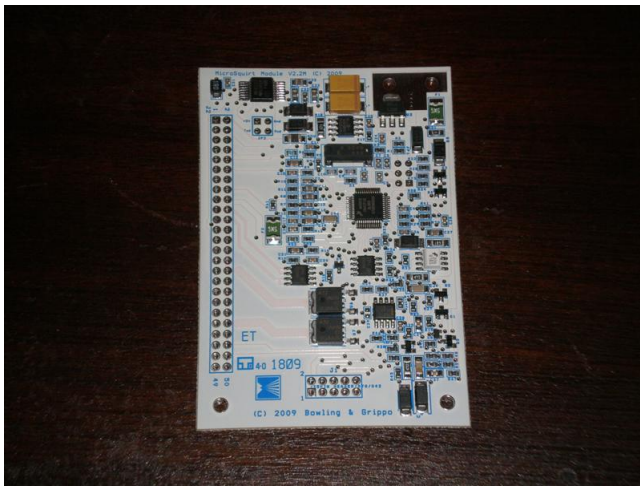


Important remark

If you have a MS2 processor, serial will not work if the Wifi module is powered on. Therefore, to enable serial (for firmware flashing), you must cut power to the WIFI module. Install a switch in the 5V wire to the WIFI module. Install the switch on the outside of the case for ease access. Power on for WIFI, power off for serial.

Because there's no proto area on these board, you'll have to install the Wifi module in the case with hot glue or double sided tape. The modules with external antenna may be installed anywhere, as long as the antenna is mounted on the outside of the case. For modules with internal antenna, it's imperative that you make a notch in the case and let the antenna stick out. Again, use hot glue or double sided tape to secure it.

Instructions for the MSPNP / DIYPNP



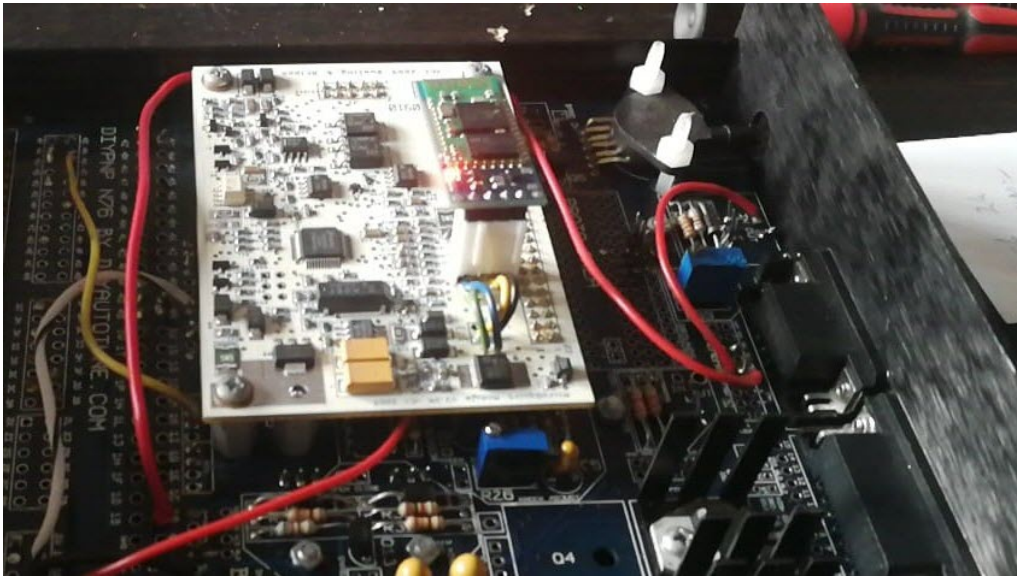
The MSPNP / DIYPNP have a white (MS2 based) microsquirt module in them. The serial chip is located on the top left corner of the board (see picture above). It has the number MAX3221 on it and has 16 legs. The chip is a lot smaller than the one used in the regular megasquirt, so be careful when soldering wires to it.

If you want to be able to still use the serial cable, install a switch in the powerline (VCC) to the WIFI module.

Solder the wires to the module in this way:

- Connect pin 11 of the MAX3221 to RX of the wifi module.
An alternative is the VIA just below the MAX3221 that you can use instead (see blue pic above)
- Connect pin 9 of the MAX3221 to RX of the wifi module. This pin is on the corner and fairly easy to solder. An alternative is the VIA just below the MAX3221 that you can use (see blue pic above)
- Connect GND on JP2 to GND of the wifi module. JP2 is located below the MAX3221 chip.
- Connect +5V on JP2 to VCC of the wifi module.

Below you can see an example of a BT module installed on top of the white board. I know this is not a WIFI module, but again, the principle is the same. This is just to show you where the wires go. Note the 4 thin wires from the BT module to the black chip on the bottom right. In this example, the VIAs were used instead of soldering the wires directly to the chip (green and blue wires). Power is going to JP2 (black and yellow wires). The BT module is installed on top of the white microsquirt board. It is not advised to install the WiFi module completely inside the case like this without external antenna. You will have bad reception. Make a notch in the case and let the antenna stick out for good reception. Install the WIFI module with hot glue.

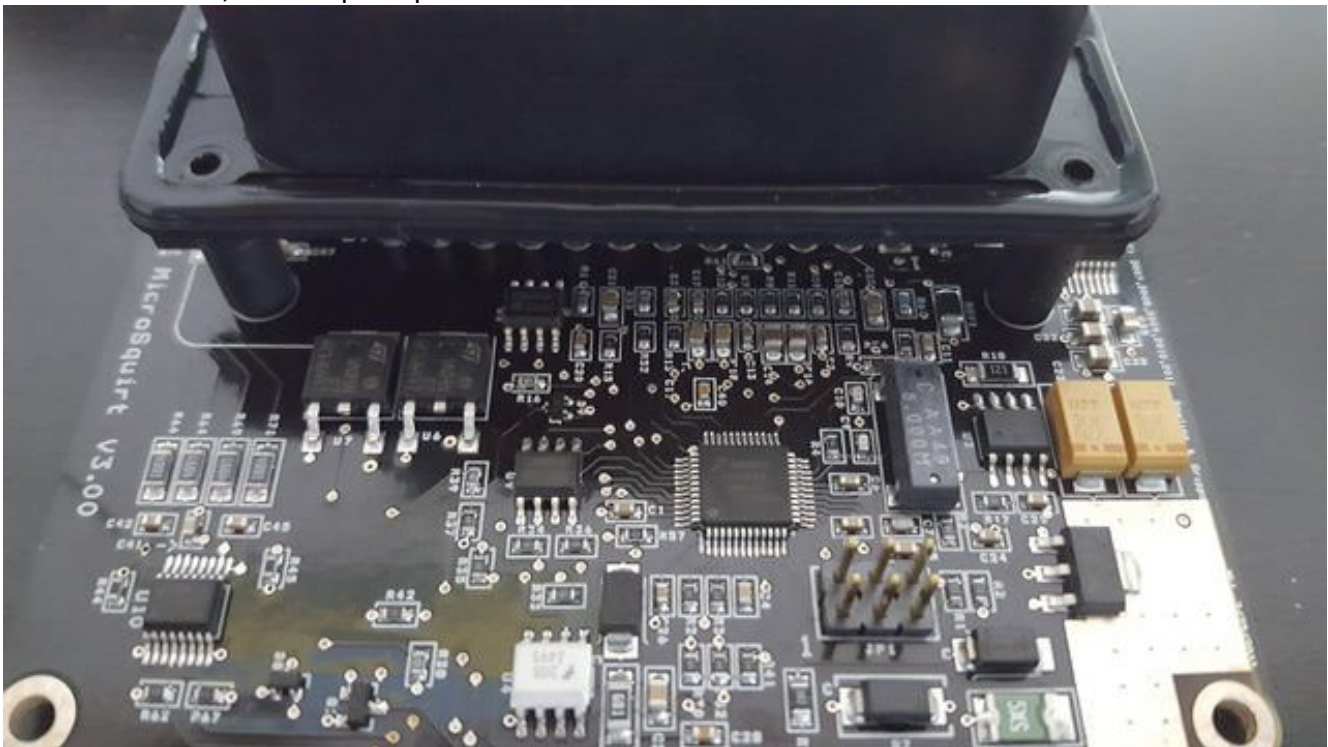


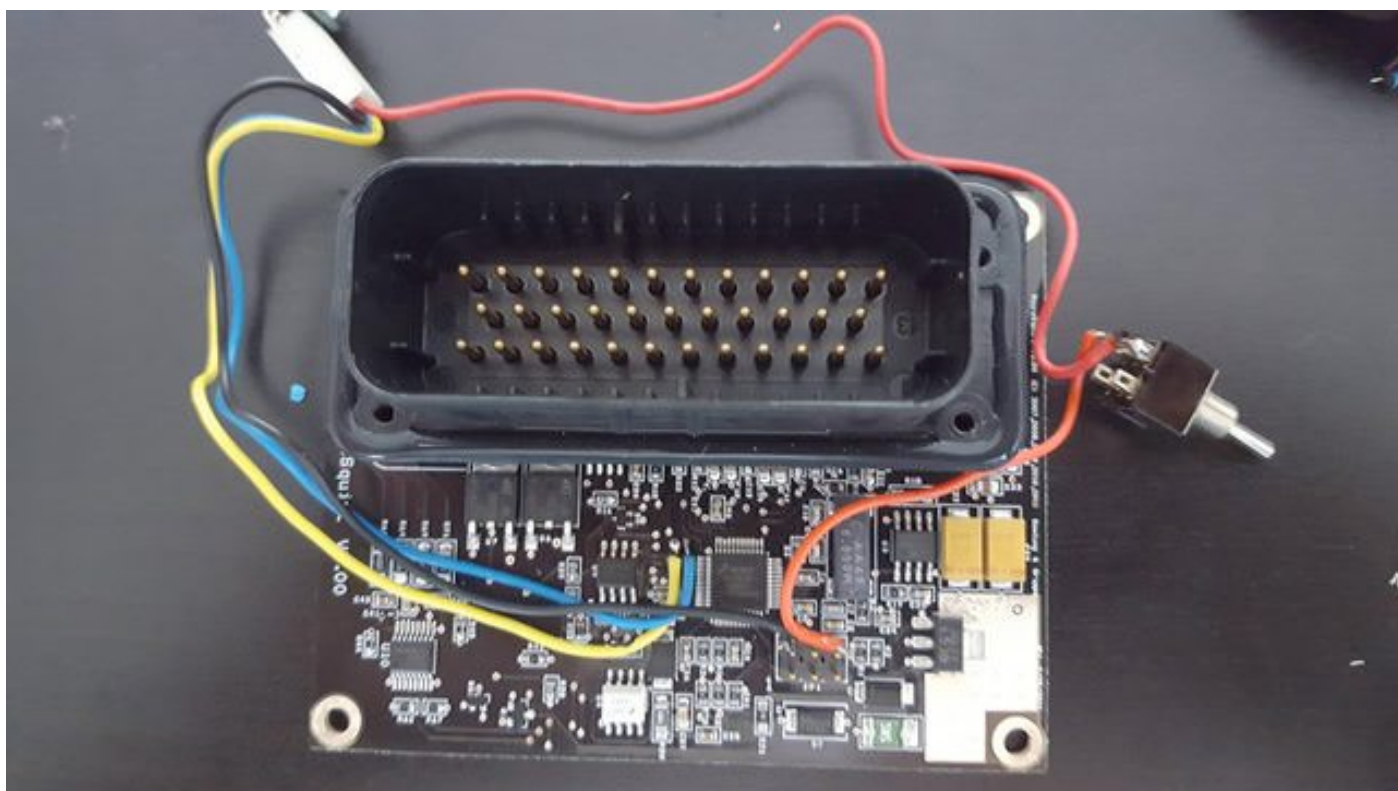
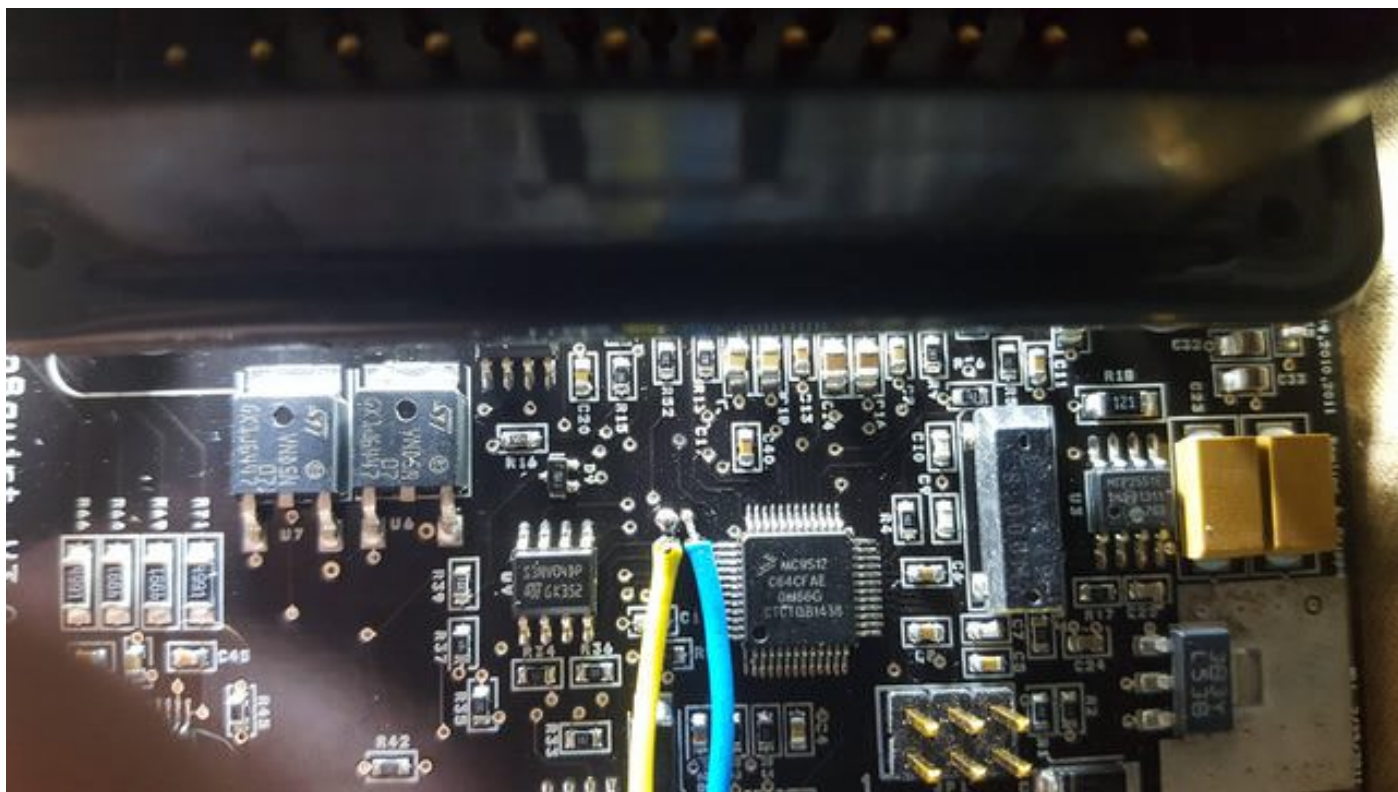
Instructions for the cased Microsquirt

Solder the wires to the module in this way:

- pin 38 of the MC9S12C32 OR pin 9 of the MAX3221 to TX of the wifi module.
- pin 39 of the MC9S12C32 OR pin 8 of the MAX3221 to RX of the wifi module.
- Pin 2 (GND) on JP1 to VCC of the wifi module.
- Pin 6 (+5V) on JP1 to GND of the wifi module.

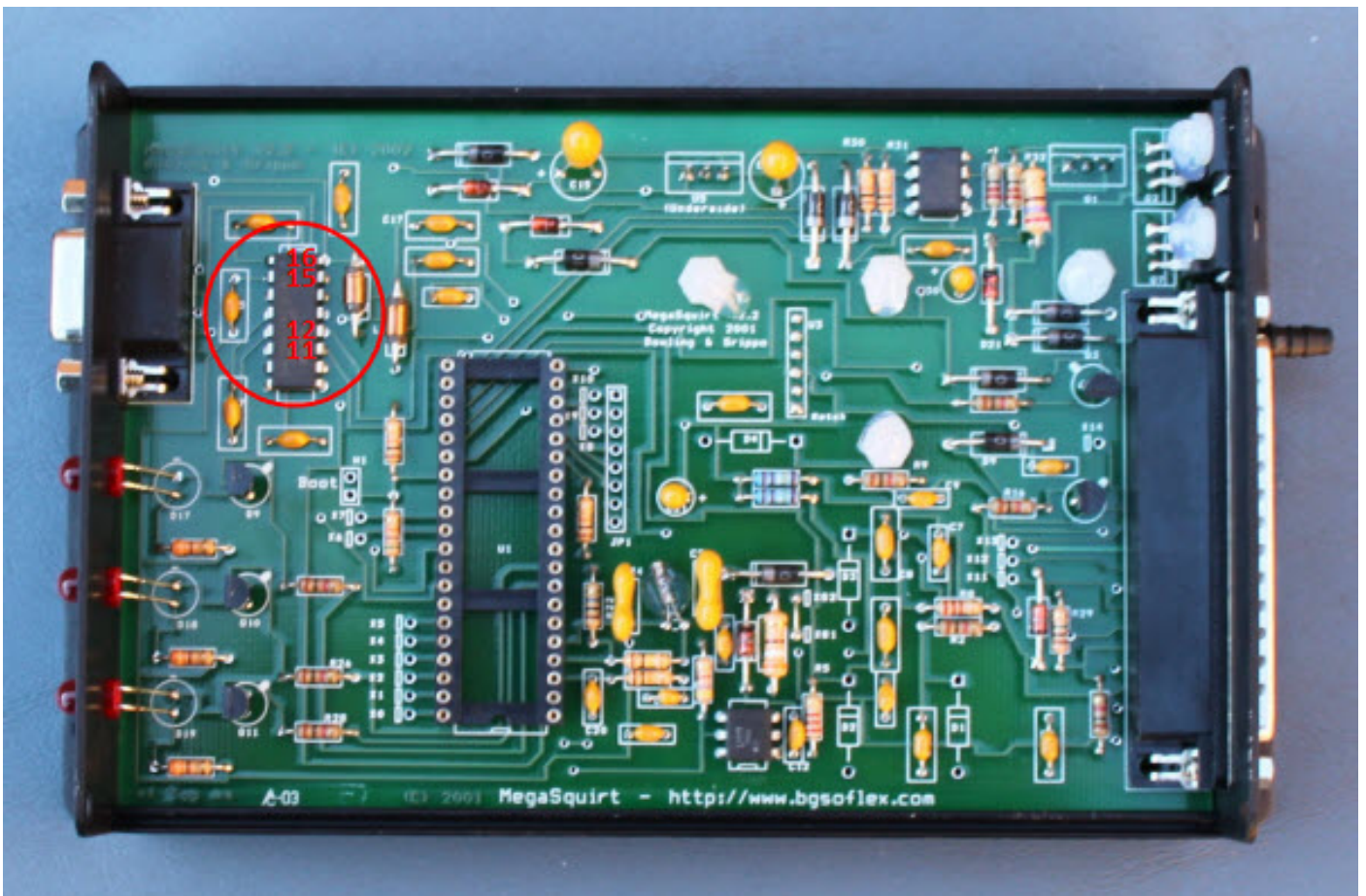
If you want to be able to still use the serial cable, install a switch in the powerline (VCC) to the wifi module. The microsquirt has a plastic case so it is not necessary to let the antenna stick out the case. Again, a BT module is shown, but the principle is the same for a WiFi module ☺.







Instructions for the V2.2 MegaSquirt



The V2.2 board has no proto area, so you need to use hot glue to install the module.

Carefully solder 4 wires directly to the MAX232 (U6) legs in this order:

- **pin 11 of U6 (T1IN) to RX of the WIFI module**

- **pin 12 of U6 (R1OUT) to TX of the WIFI module**
- **pin 15 of U6 to GND of the WIFI module**
- **pin 16 of U6 to VCC of the WIFI module**

The serial chip is needed to do firmware upgrades because there's no USB on MS1/2. Leave the MAX232 in place and carefully solder the 4 wires directly to the MAX232 legs. Serial will not work if Wifi is powered on. Therefore, to enable serial, you must cut power to the WIFI module. Install a switch in the 5V wire to the WIFI module. Install the switch on the outside of the case for ease access. Power on for WIFI, power off for serial.

REMARK: I have been able to flash firmware over WiFi, so the MAX232 may actually be removed, but it's safer to leave it in place. Remove at your own risk of not being able to flash the firmware.

Make a notch in the case to let the internal antenna stick out. You could install the module inside the case, but then the range drops dramatically, unless you use the optional external antenna. With the antenna sticking out of the case, you should see a range of up to 250ft in open air. With the external antenna up to 400ft. Use double sided tape to stick the antenna to the case and lead the wire to the Wifi adapter inside the case.