

UA4C White Fang vC3 Surface Mounted Assembly Instructions

Use the following directions to turn your mostly assembled surface mounted White Fang circuit board into a fully assembled UA4C.

With the movement towards current versions (February 2022) of both the UA4C White Fang vC3 and Speeduino v0.4.4d to surface mounted printed circuit boards, use these updated assembly instructions to help turn your PCB as-shipped into a fully assembled and functioning UA4C.

Take stock of your assembly items. Along with your Arduino Mega and PCB board, you should have the following:

- MAP Line Kit w/Hose & Bulkhead Fitting (Double Barbed Fitting w/Threaded Nut)
- Qty. 4 - “Red Top” Jumpers
- Qty. 1 - Extended Jumper for JP13 (Reset Protection/Programming & Bluetooth Activation)
- Qty. 2 - 4 Pin Sockets for VR Signal Conditioner
- Qty. 2 - Header Sockets (one 2x12 and one 2x11)
- Qty. 3 - 40 Pin Jumper Header Pin Strips
- WTMtronics 3-D Printed Hammond Case Spacer aka the “Kickstand”

Optional Hardware – Ordered Separate

- Slim “Hammond” Case
- WTMtronics UA4C Endplate Kit
- WTMtronics Bluetooth Module

After taking inventory, you should start assembly prep by laying out the three 40 pin strips. Note that all pins and headers supplied will be installed on the top side of the PCB, which is easily oriented by making note of the side with the “UA4C vC3 White Fang” and “Made for Speeduino” as your top-side identifications on the board. I find it easier to install pins using the through-holes, solder-as-you-go, take your time, and confirm correct placement and fitment with your Arduino as you go.

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Now, take the first strip and using side-cutting pliers, count out and cut or break this strip into five sections of 8 pins each. These 8-pin sections should be used to populate the following slots on your Arduino Mega 2560:

Analog In – A0 thru A7

Analog In – A8 thru A15

Communication Ports - 14 thru 21

PWM Ports – 0 thru 7

PWM Ports – 8 thru 13 plus “GND” plus “AREF”. Note: final two ports are left unpinned in this socket.

Next, take the second strip, count out the first four pins, and break into two sections of 2 pins. These 2-pin strips will serve as jumper pins for JP4 and JP5. Take the remaining strip of 36 and break it in half for two sections of eighteen. These two 18-pin strips will be for the double row of Digital ports at the base of your Arduino Mega 2560.

For the final strip, count out four pins and break. This 4-pin strip is used for P3 - Bluetooth. Next, count out and break two sections of 6 pins, on the remaining strip. These will be the final pins needed and the remaining unused strip (24 pins) can be stored for future use. The first 6-pin section is for the final remaining socket on your Arduino Mega 2560 labeled "Power". Use this piece to pin ports 3.3V thru ViN. Note: The IOREF and RESET pins are unused/unpinned in the UA4C setup. Take the second 6-pin section and break in half for two, 3-pin strips. The two 3-pin strips are used for JP2 and JP3 as part of your VR Conditioner. Follow the Speeduino Manual and the four supplied "red top" jumpers for correct jumper configurations based on your vehicle. That's it for the pin strips, now on to the remaining sockets supplied with your UA4C.

Next, located and install the "long" single jumper at JP13. If you have ordered the Hammond case and UA4C case plates, you will notice this specialized jumper extends out of the case faceplate to the left of the 2x11 header. This is for easy jumper access without the need to open the case when programming your UA4C and for reset protection plus inactivation/activation of the optional Bluetooth features built into the UA4C board.

Next, locate the two 4-pin sockets. These are for those individuals who need to run a VR signal conditioner. If you are not sure if you need these ports, go ahead and install the sockets anyways as this is the best time to install and then you can leave them unpopulated if not needed. Having the sockets installed and unused will not hurt the functioning of your UA4C. Install the 4-pin sockets on both sides of the alignment notch identified on your board for the "Trigger Signal Conditioner".

The final step to assembly is installation of the 2x12 and 2x11 headers for your harness connectors. Be sure the header matches the circuit board and that you engage and "snap" the black plastic barbs on the bottom of each header in the correct drilled ports in the PCB. Solder contacts and confirm placement and fitment with your Arduino Mega, VR Conditioner, and Bluetooth. When installing into a Hammond slim case, use the provided 3-D printed spacer (aka "kickstand") on the rear lower-right corner, essentially covering up the unused P4 port location to hold the assembly firm in the case.

Congrats! You're Done!