JOSC Devices [at]/2 Assembly Instructions

A. Contents

Base Kit Contents

	Qty.	Description	Image
A	**1**	PCB	**N/A**
B	**1**	7" LCD Touch Screen	**N/A**
C	**6**	Brown Switches	
D	**1**	Red Switch	
E	**1**	DC Input Jack	
F	**1**	Teensy 4.1 w/ pins (preprogrammed)	
G	**4**	5 mm brass standoffs (for mounting screen to PCB)	
H	**4**	4 mm m3 Steel Screw (for mounting screen to PCB)	
I	**4**	m3 Nylon Locking Nut (for mounting screen to PCB)	
J	**6**	Rotary Encoders With Switches	
K	**1**	Pololu Voltage Regulator with Header pins	
L	**2**	1x24 Single Row Header Socket	
M	**2**	Schottky diode	
N	**7**	White LED	

O	**1**	2pin JST Connector	
P	**1**	USB Micro B to Panel Mount USB B with screws	
Q	**2**	Black 6mm m3 Screws (Short for USB Panel Mount)	
R	**8**	Black 20mm m3 Screws (Long for 3D printed lids)	
S	**8**	5mm m3 Brass Heat Set Inserts (For use with 3D Printed Case)	
T	**7**	Printed Keycaps (6 Categories + Shift)	
U	**6**	Encoder Knobs	
V	**1**	5V DC Power Supply	
W	**1**	USB A to B Cable	
X	**1**	Display Cable	
Y	**4**	Self-Adhesive Rubber Feet	

Faceplate Kit Contents

	QTY.	**Description**	**Image**
AA	1	Acrylic laser cut faceplate	
BB	8	10mm brass standoffs (for mounting Faceplate to PCB)	
CC	8	6mm m3 screws	

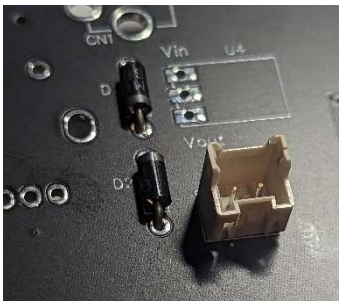
B. Tools/Materials Needed

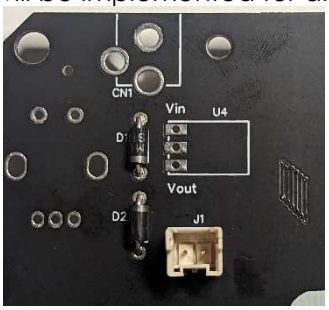
Soldering Iron
Solder
Allen Key(s) or drivers for tightening M3 Screws
Flush Cut/Diagonal Cutting Pliers

C. Soldering and Assembly Instructions

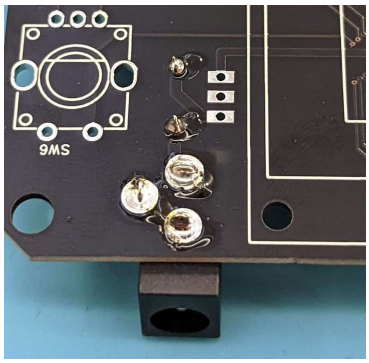
1. Solder reverse voltage protection diodes at D1 & D2 on bottom of PCB. (Line on Diode should match line on printed PCB Diode – see Photo for clarification)

2. Solder JST connector to J1, Locking tab should face towards bottom edge of PCB. (Note: this connector is currently unused but will be implemented for an additional interface coming very soon!)

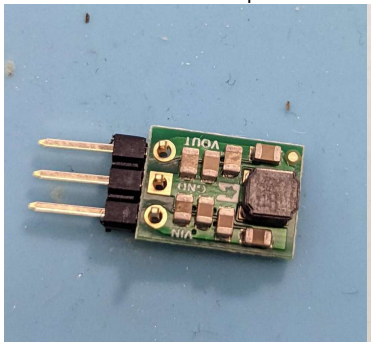




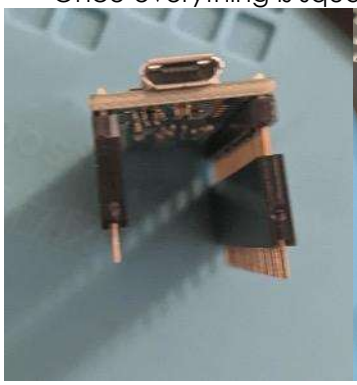
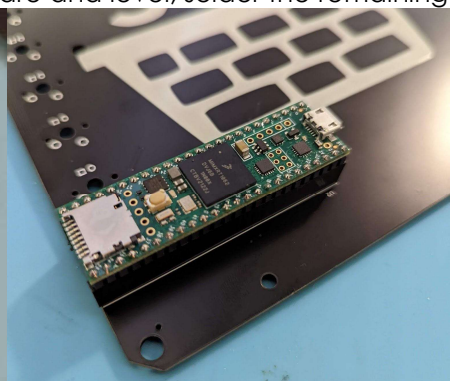
3. Solder DC Jack to bottom of PCB at CN1. Make sure jack sits square to the edge of PCB.



4. Solder included right angled pins to Pololu Voltage Regulator as shown below. Solder into U4 on bottom of PCB the VIN pin should be at the top of the PCB (closest to the DC jack).

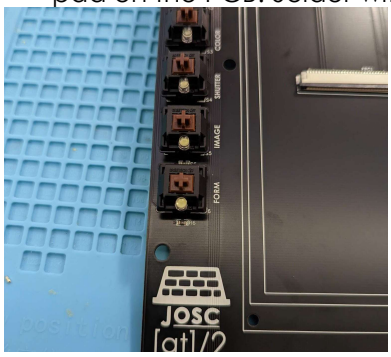


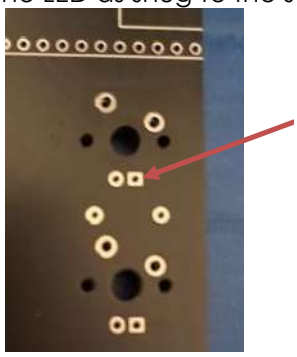
5. Place the 1x24 female header pins onto the pins on the Teensy. Place the stacked pins onto the **bottom** of the PCB. Solder the 4 corner pins to the PCB making sure everything stays square and flush to the PCB. Once everything is square and level, solder the remaining pins on the teensy and the PCB.

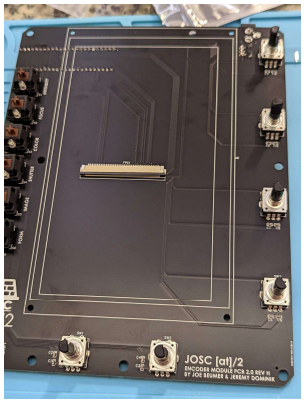
6. Solder switches S1-S6 (Brown switches) and S7 (red switch) to front of PCB. Be careful to not bend the contacts when inserting the switches into the PCB.

7. Install LEDS through the holes in the switches with the Anode (long leg) of the LED going to the square pad on the PCB. Solder with the LED as snug to the switch as possible.

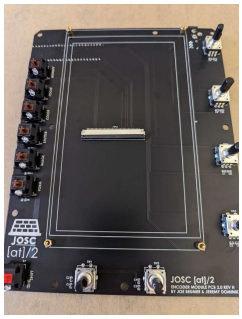




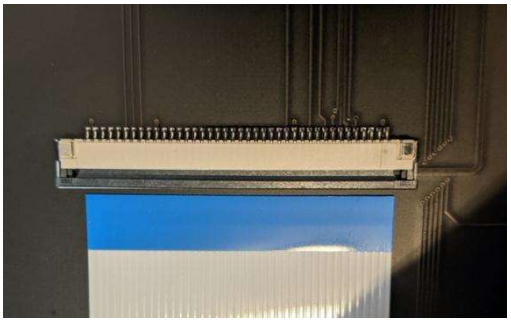
8. Solder the six Encoders on the front of the PCB as indicated (SW1-SW6)

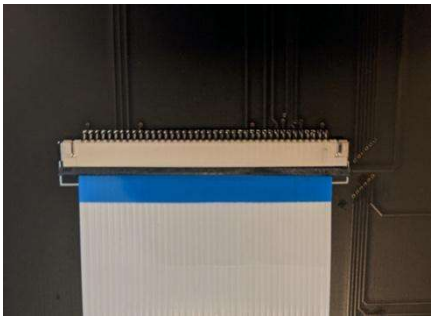


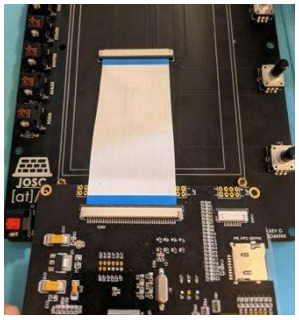
9. Place the (4) 5mm standoffs in the holes in the PCB for the screen and secure using the lock nuts.



10. Unlock the preinstalled 40 pin ZIF connectors on the display and the encoder PCB by sliding the black lever forward. Carefully slide the cable, with the exposed contacts facing towards the PCB (blue stripe facing up), into the ZIF connector in the encoder PCB (about half the blue stripe should be inside the connector) and slide the black lever back to lock the cable in. Repeat this step on the display. The cable is fragile; be careful to not kink the cable.







11. Flip the display over, and place it on the 4 standoffs. Secure using the (4) silver 4mm M3 screws

12. At this point, connect the DC adapter, plug the USB panel mount into the Teensy, and use the USB A to B cable to connect your device to your Nomad. It should handshake, and if you select a channel, the encoder and category buttons should work (Tab 99 in Nomad should be your friend). After the handshake (see screenshot at right); the encoder module will send the More SoftKeys command twice (in order to populate the softkeys. To see this, you will need to have Incoming OSC (On). Keeping Outgoing OSC (Off) will make it easier to see what is going on. If you are having issues confirm OSC via USB is still enabled in settings, this setting has a habit of turning itself off with software updates.

13. Test each switch and encoder, and ensure the touch screen responds correctly. If there are any issues with the display, make sure the display cable is fully inserted in the connectors.

If you are using the 3D printed enclosure…

14. Use a soldering iron to set the 8 threaded brass inserts into the 8 posts; pressing them so the top of the insert is flush with the angled top of the print and centered in the hole.

15. Use the included screws to mount the USB panel mount cable to the back of the enclosure.

16. Attach the other end of the USB cable to the Teensy (be certain that the micro USB firmly engages – it may take a bit of force to fully mate). Place the PCB so it sits on top of the threaded inserts.

17. If you are using a 3D Printed faceplate, place your faceplate over the PCB, and secure it using the 20mm m3 screws.

18. If you are using the acrylic faceplate; tighten the 10mm standoffs into the inserts, place the acrylic cover on top, and tighten it down with the 6mm m3 screws. (These standoffs and screws were included with your faceplate.)

19. Attach the four self-adhesive rubber feet to the bottom of the unit to keep it from sliding across the tech table.

20. Press the encoder caps down onto the encoder shafts until they all appear level.

21. Firmly press the keycaps onto the switches.

22. Power Up Unit and attach to Nomad.

23. Take photos and let us know how it's going.

*Note – for the Hue and Saturation Encoders to work properly, you must have "Create Virtual HSB" Enabled in Nomad Settings.