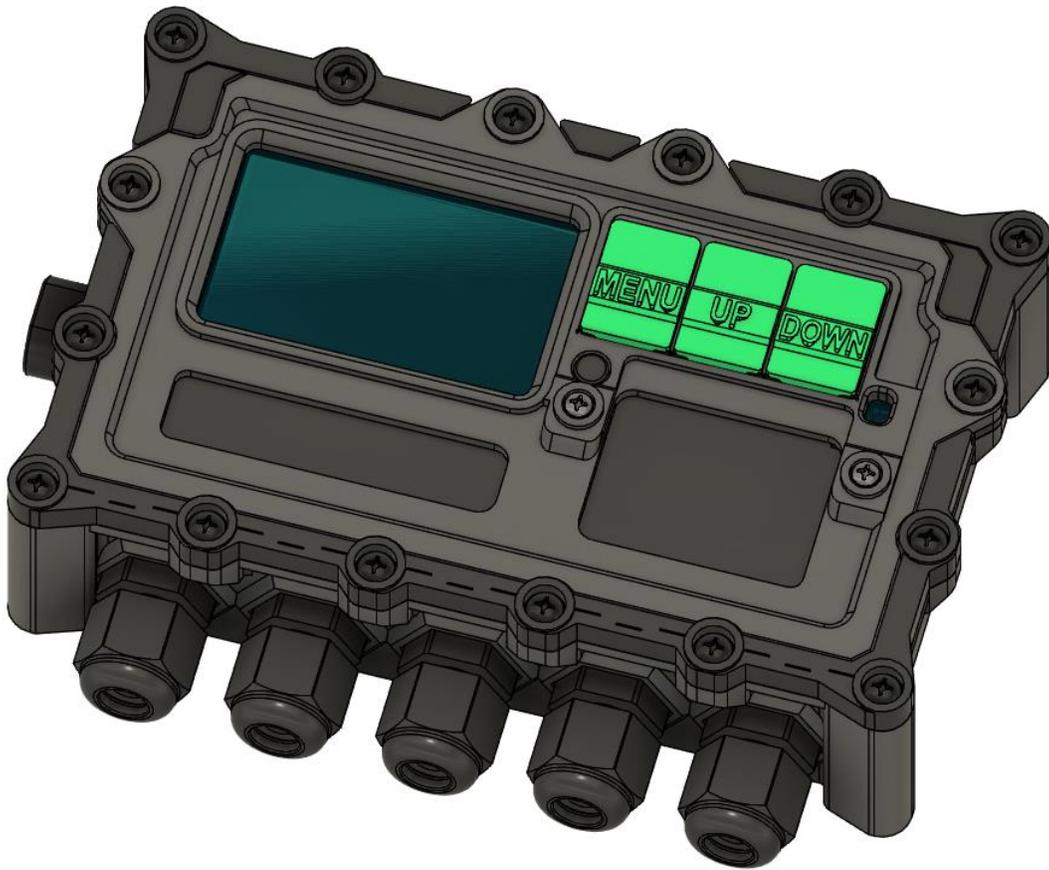
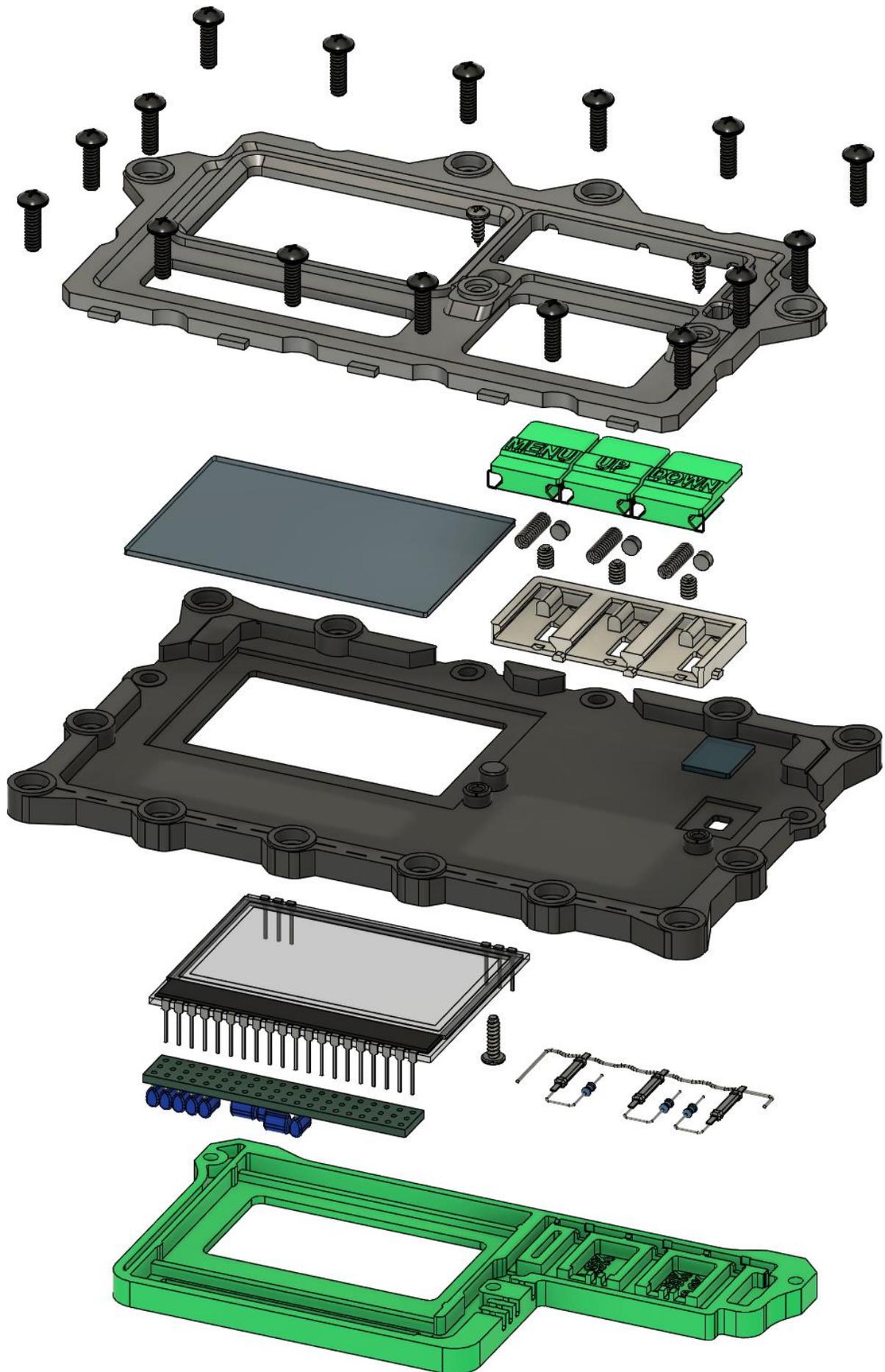


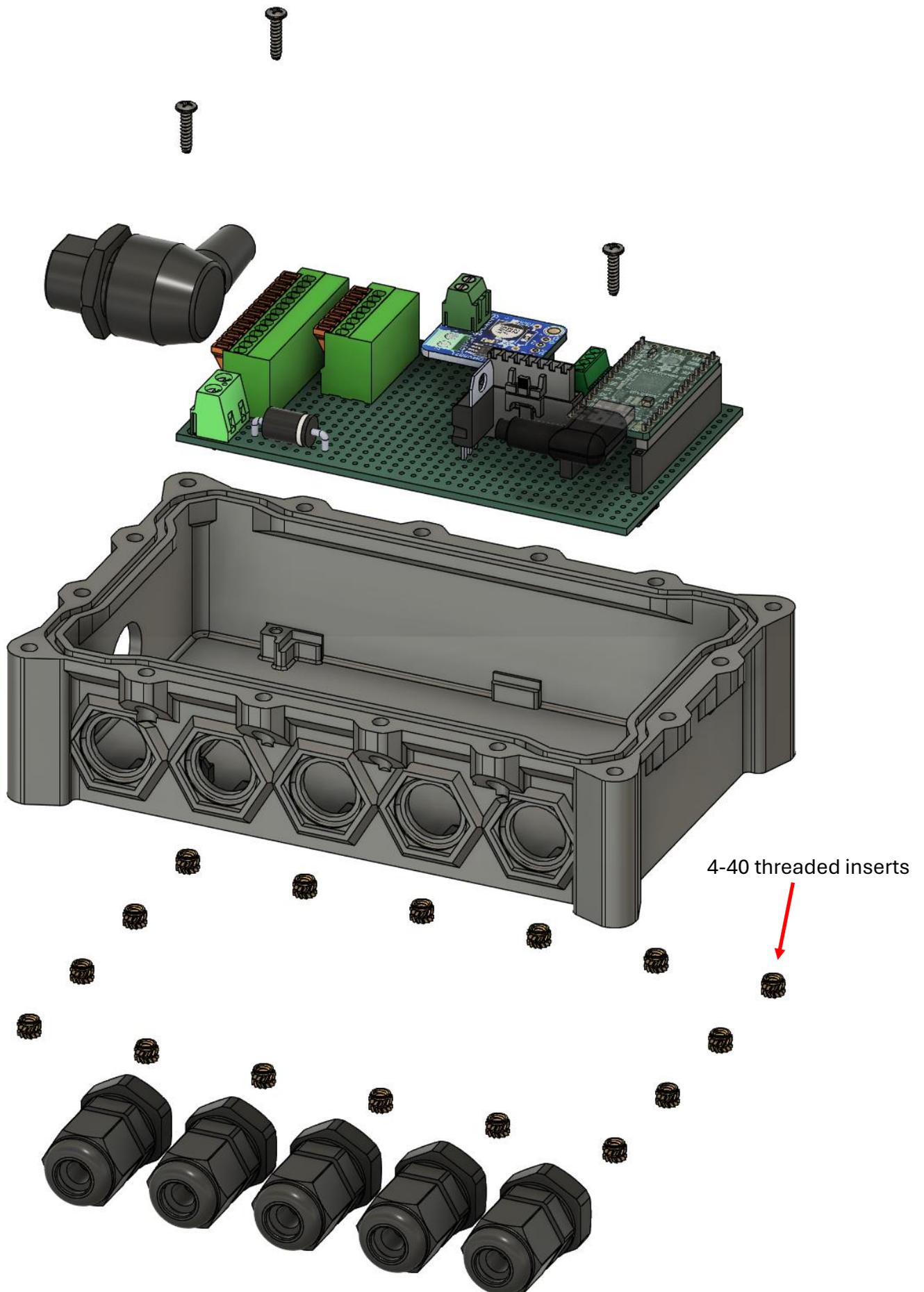
3D Printed Sealed Controller Enclosure



Exploded View – Top Cover



Exploded View – Enclosure Shell



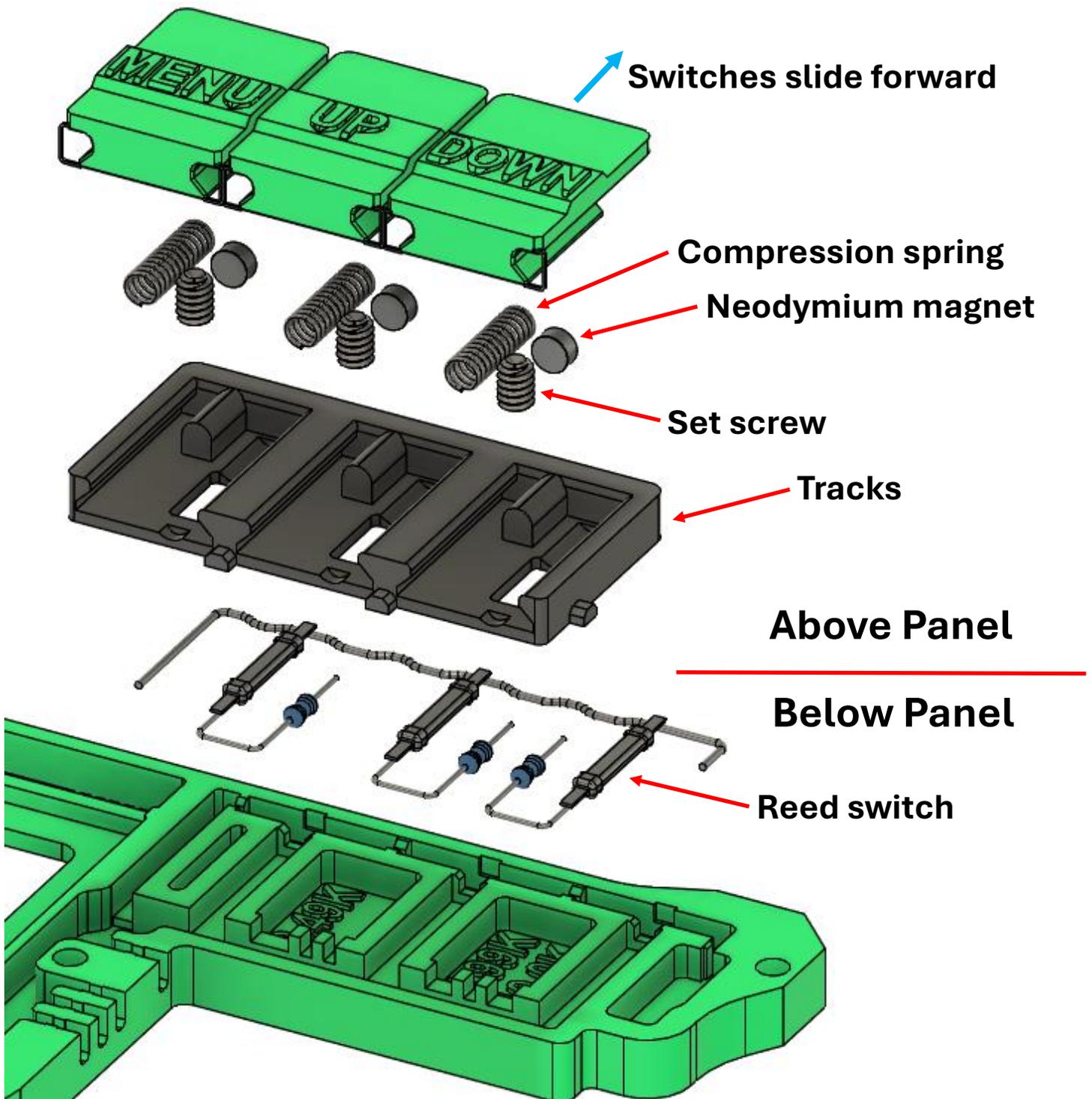
Secured Label



Magnetically Coupled Switches

Sliding switches are held in a down position with compression spring and their lower position is limited by a set screw that travels in a slot at the bottom of each track. When the switch is slid downwards its Neodymium magnet achieves a position that activates a reed switch below the panel.

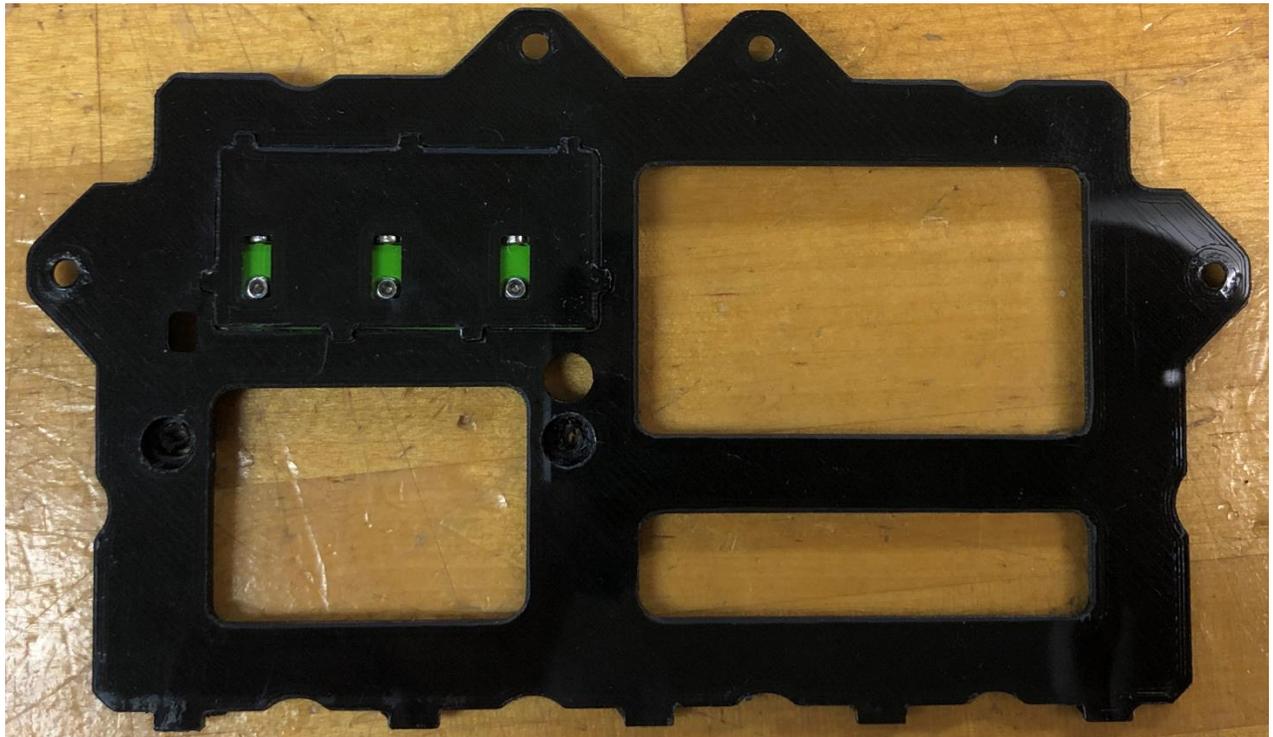
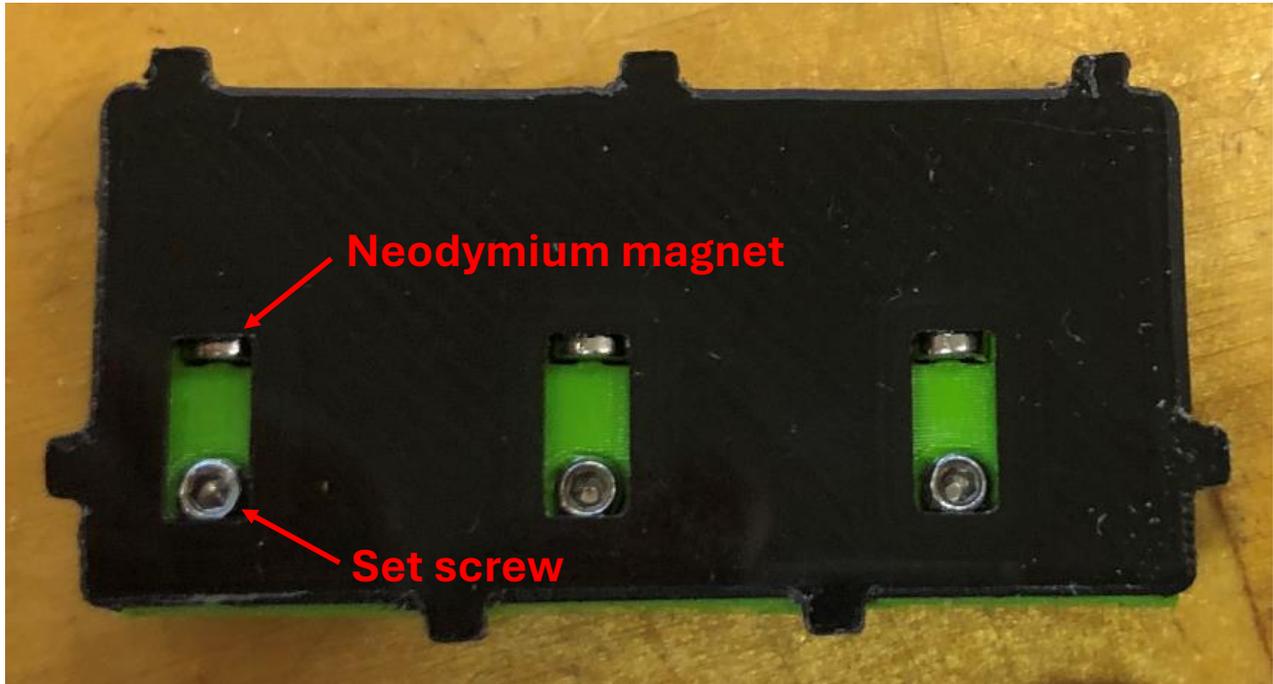
Reed switches and magnets were selected and positioning determined and tested to ensure reliable switch operation.

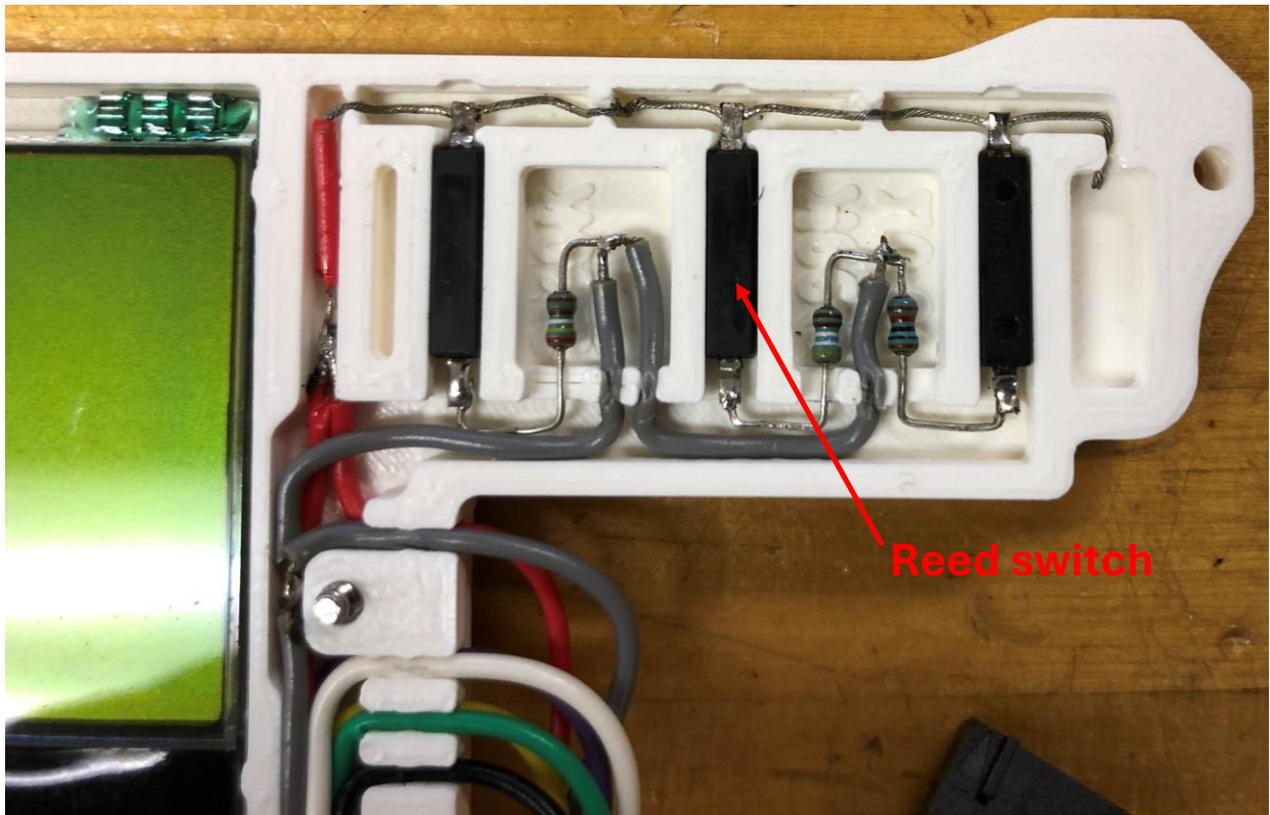


Magnetically Coupled Switches in Track Assembly

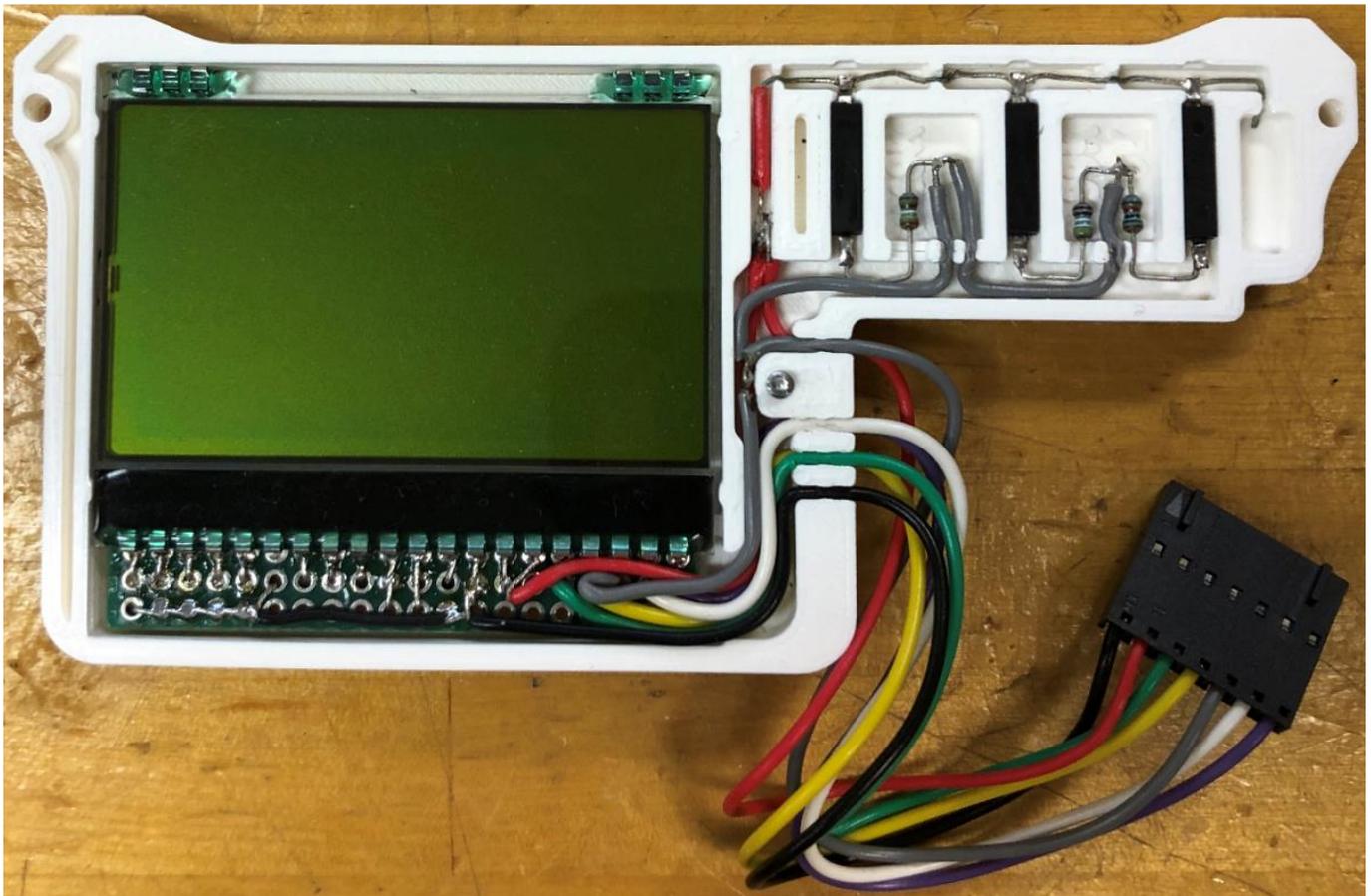
To assemble a switch the magnet is press fit into a pocket of the switch and the compression spring is inserted in another pocket. This assembly is slid into its track and the set screw is inserted to ensure the switch doesn't slide out.

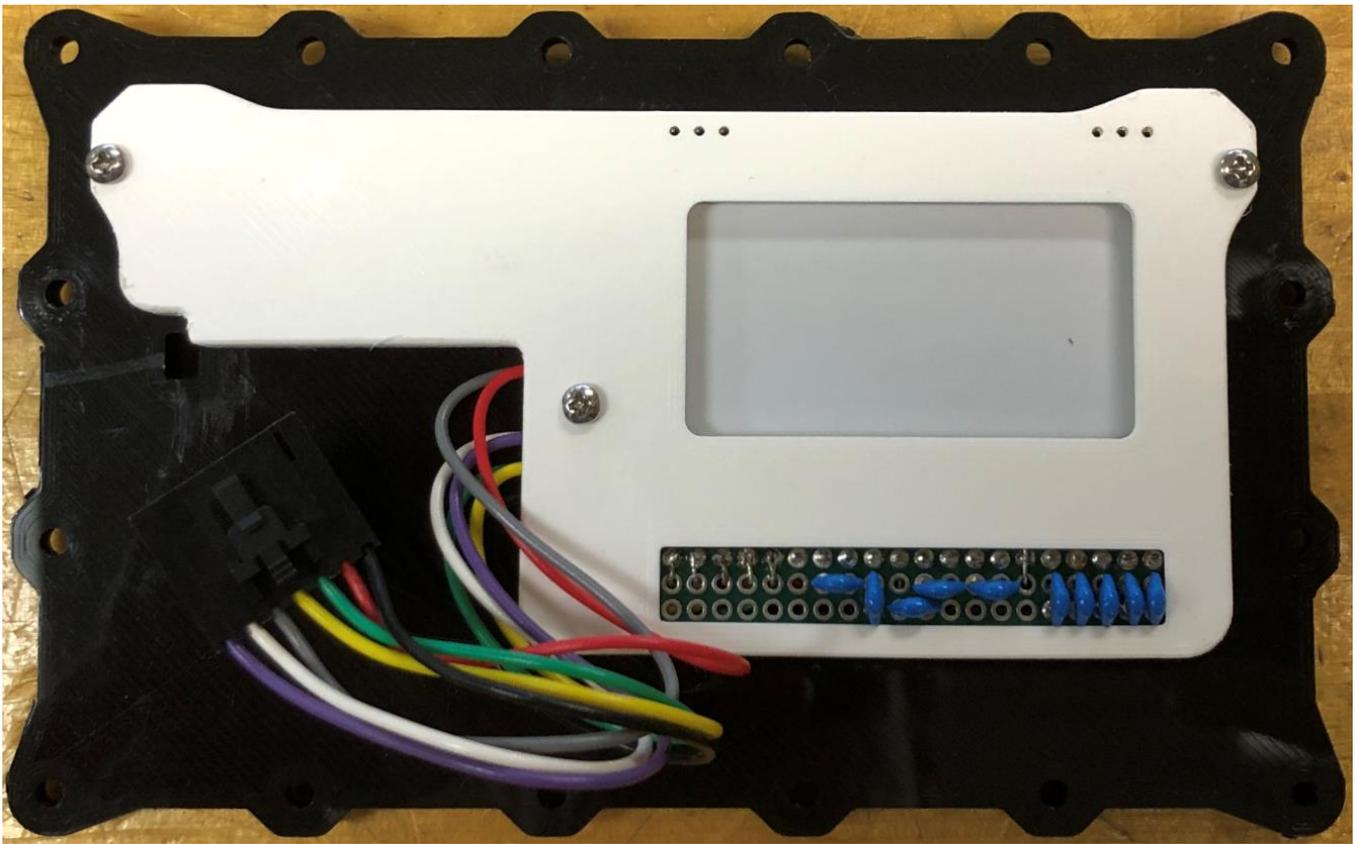
The lower photo shows the reed switches, which are positioned under the panel.



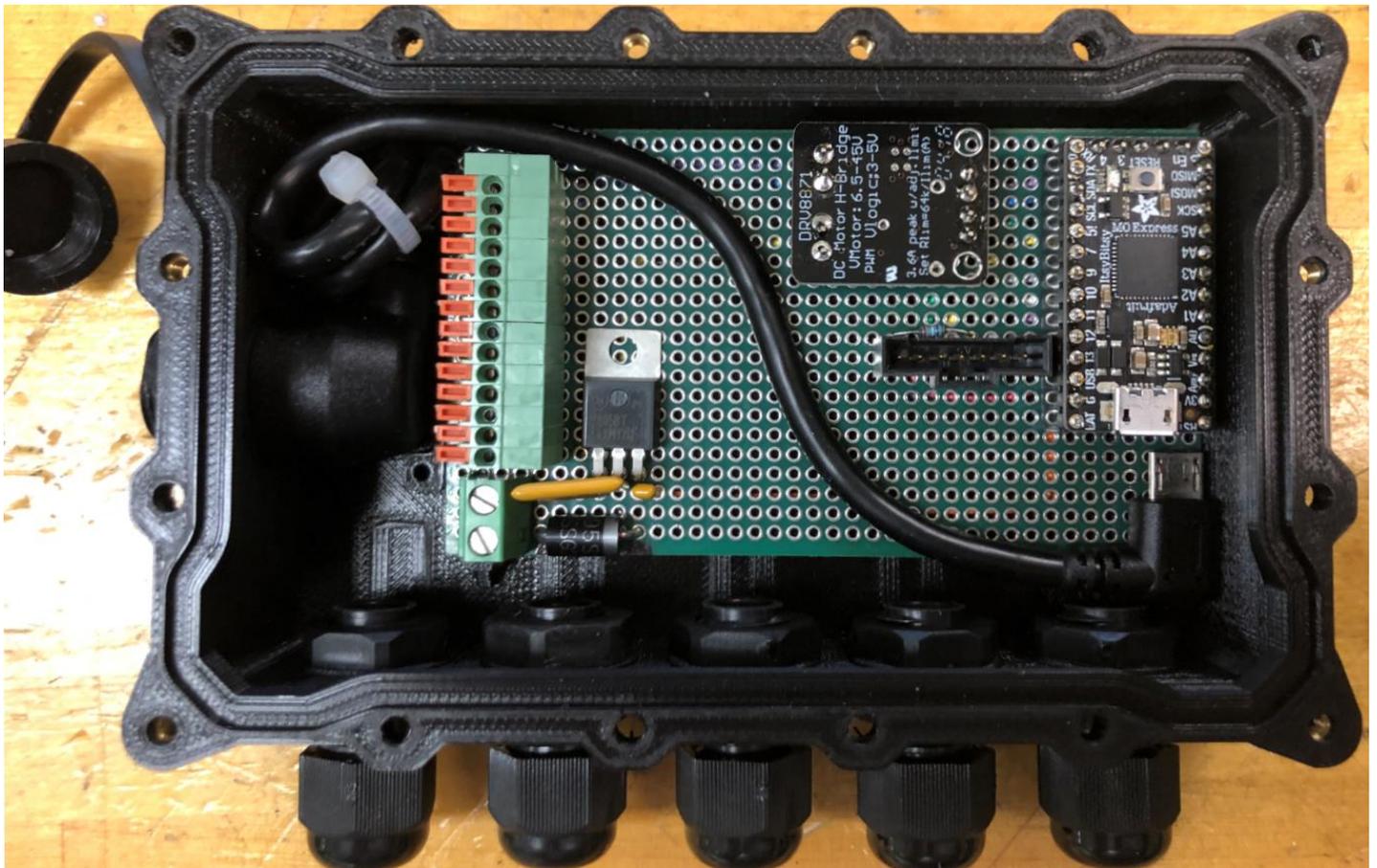


LCD Display / Reed switch assembly





Enclosure interior



BOM (Bill Of Materials)

Line	Qty	Type	Description	Part Num	Price
1	3	screw	Set 4-40 5/32"L CupPoint 18-8Stainless	92311A318	\$3.46(25)
2	16	screw	4-40 3/8"L PanHead Phillips 18-8Stainless BlackOxide	91249A108	\$8.10(100)
3	1	screw	#2 5/16"L BluntSheetMetal 18-8SS	92525A114	\$5.34(100)
4	2	screw	#2 1/4"L RoundHead Phillips SheetMetal BlackOxide	90935A101	\$8.97(50)
5	3	screw	#2 3/8" BluntSheetMetal RoundHead Phillips 18-8SS	92525A118	\$5.69(100)
6	16	insert	4-40 0.135"L HeatSet for Plastic	94459A250	\$9.91(50)
7	3	spring	Compression 0.12"OD 0.088"ID 0.375"L	9657K262	\$7.46(12)
8	3	magnet	1/8"OD 1/16"T Neodymium MagnetizedThroughThickness	5862K138	\$0.32(1)
9	4	switch	Reed 10-15AT MoldedCase 0.768"L	MK15-B-2	\$8.92(10)
10	1	display	LCD 128x64 STNpos YellowGreen Reflective	EAD0GL128L-6	\$12.49(1)
11	1	connector	MicroUSB LeftBend Panel ExtensionCable	B0BBQJ498M	\$10.99(1)
12	5	connector	CableGland M12 3mm-6.5mmDia Cable Amazon	B01MSZW5HQ	\$5.69(10)
13	9	capacitor	1uF 25V X7R Radial	FG18X7R1E105KRT06	\$4.60(20)
14	1	printPLA	EncSealedTopBezelLCD		
15	1	printPLA	EncSealedTopBaseLCD		
16	1	printPLA	ButtonGroupBase		
17	1	printPLA	SEButton_Menu		
18	1	printPLA	SEButton_Up		
19	1	printPLA	SEButton_Down		
20	1	printPLA	DisplayMountLCD		
21	2	printPLA	Header-Female-0.35H-15p		
22	1	printPLA	ConnSpring100mil8pos v4		
23	1	printPLA	ConnSpring100mil14pos		
24	1	printPLA	Header-Female-0.35H-15p (1)		
25	1	printPLA	Tool-LCDLensClampFront		
26	1	printPLA	Tool-LCDLensClampAssem		
27	1	printPLA	EnclosureBottom		
28	1	undef	PCB 20x3		
29	1	undef	EncSealedLensLCD		
30	1	undef	EncSealedLensLED		
31	1	undef	1/8W 2.49K		
32	1	undef	1/8W 4.99K		
33	1	undef	1/8W 10.0K		
34	1	undef	TopWire		
35	1	undef	DisplayMountLCDAssem		
36	2	undef	Header-Male-16p		
37	1	undef	ItsyBitsyPCB		
38	1	undef	PCB		
39	1	undef	Conn_0.1in_4P		
40	1	undef	TO-220		
41	1	undef	DO-201		
42	1	undef	Conn-HeaderShrouded-Molex-7P		
43	1	undef	Conn-HeaderShrouded-Molex-7P (1)		
44	1	undef	Conn-HeaderShrouded-Molex-7P (2)		
45	1	undef	Conn-Housing-Molex-7P		
46	1	undef	DRV8871PCB		

47	1	undef	Conn-ScrewTerm-2P		
48	1	undef	Conn-ScrewTerm-3.5mm-2P		
49	1	undef	AcrylicCoverPlate		