

Compact IP Interfaced Remote Rig Control Case v1

Designed by: Kyle Burgess – KD7IYT

This is a custom-built portable kit for the remote (control head) portion of an Icom IC-2820, paired with a RemoteRig RRC-1258MkIIIs. This kit was specifically designed to fit the IC-2820 control head and mic in the most compact form possible. The RRC-1258MkIIIs is compatible with several other radios, but you would likely need to adapt it to a larger case in order to fit anything other than the IC-2820.

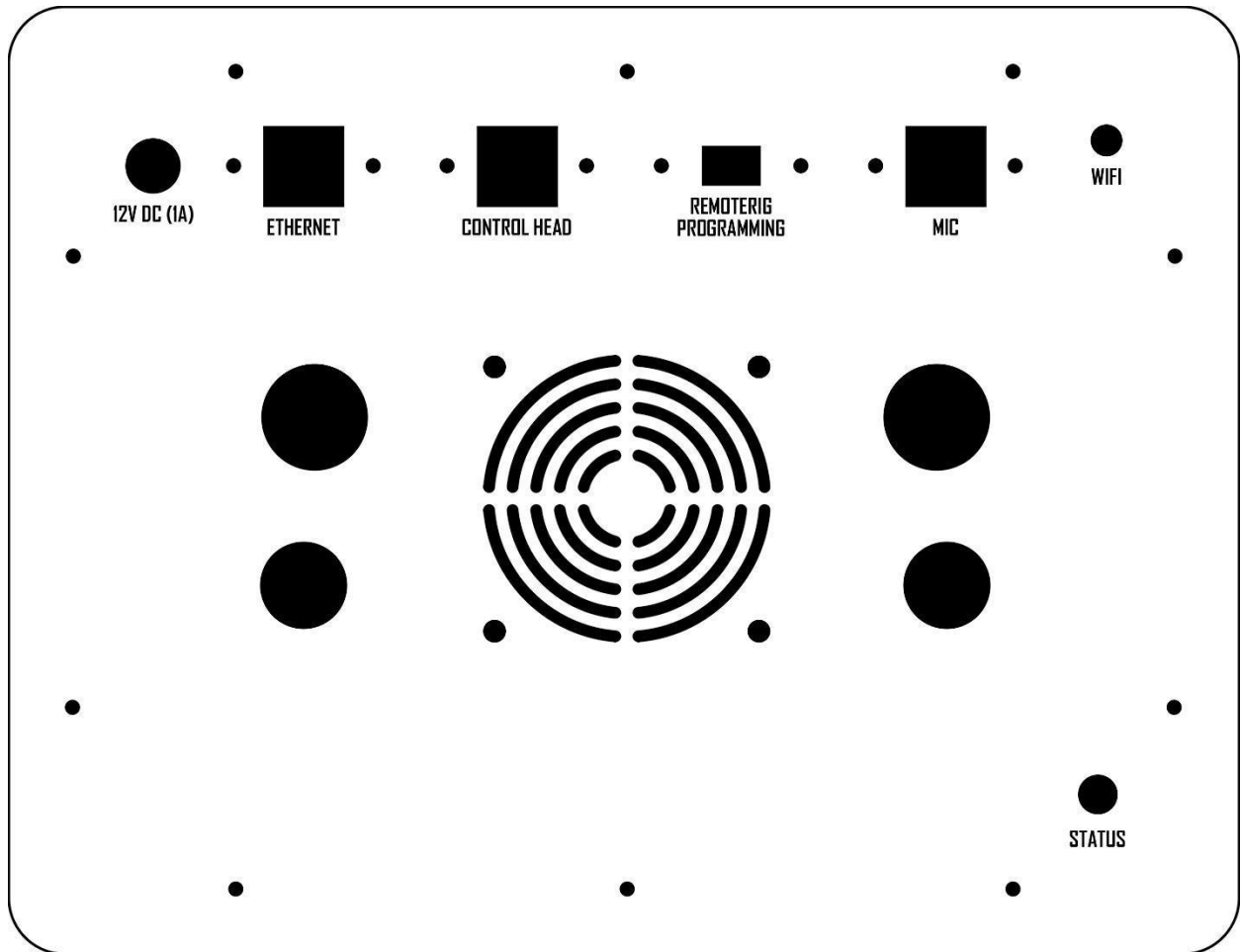
A kit like this can be handy in multiple situations. I particularly configured it so it will automatically connect to the base unit back at home via any Internet connection (WiFi or Ethernet). If I am out of town and want to stay connected with the non-network connected repeaters back at home, this will do exactly that. You can also do the same on a local network without the use of the Internet. That can be handy when you want to minimize feedline loss in the event your control station is far away from your ideal antenna location.



DESIGN PROCESS

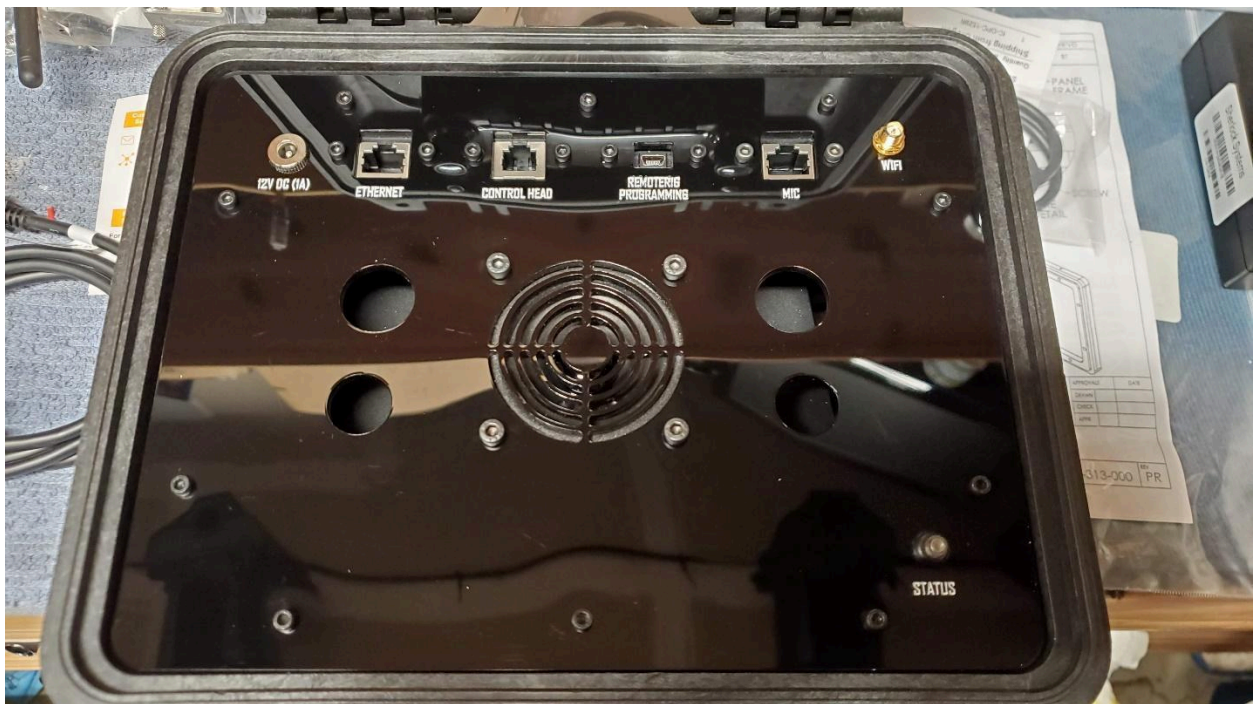
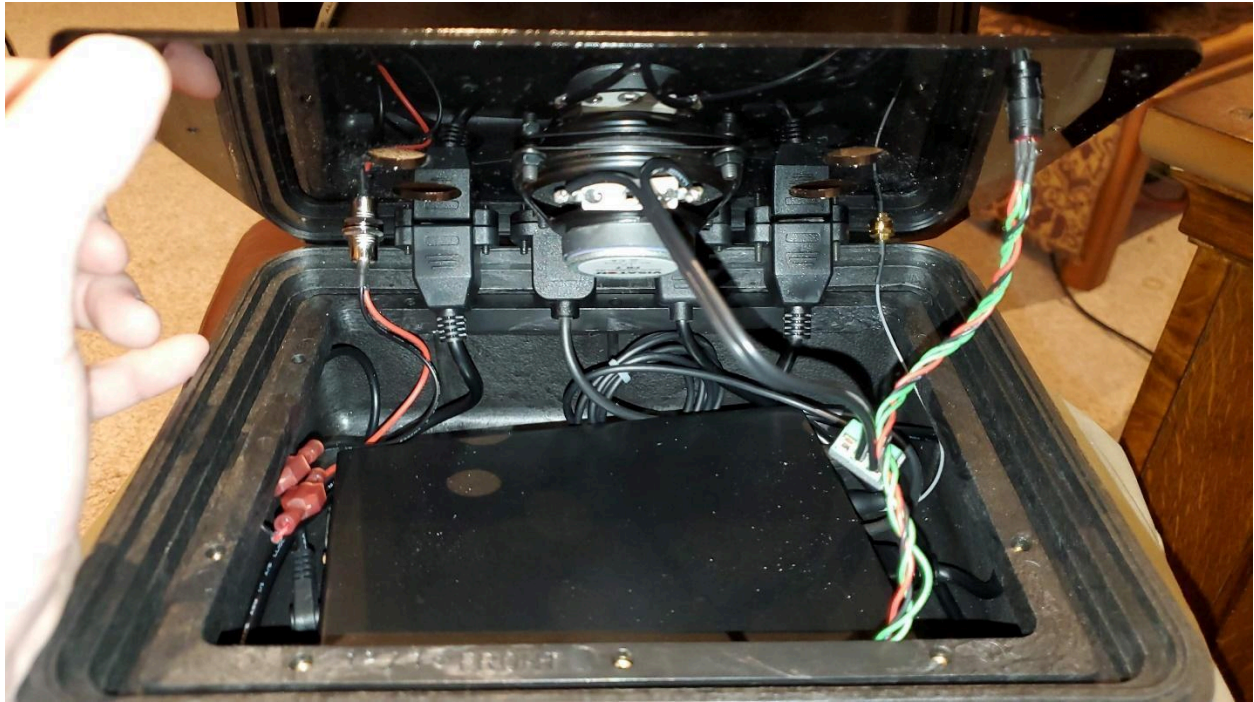
For this first design, I decided to keep all the I/O sealed within the case in order to maintain the integrity of the watertight Pelican case during transport. To keep it looking clean, I integrated a 1/8" thick black acrylic panel to surface mount everything to and to protect the RemoteRig components within. This required me to design a file in a photo editor with all the precise locations of the cutouts and labels I wanted. I then fed that file into a CO2 laser which cut and etched everything to the proper specifications.

The following image is a copy of the design file that was used to produce the panel you see in the final product.



The four big holes you see near the center are for the IC-2820 remote head knobs to pass through so you can simply close the lid with the head still attached. There is a small metal plate that was epoxied to the lid to allow the factory supplied magnets on the head to fix it to the case. When the lid is closed, the knob holes keep the head securely in place in the event the case gets dropped, etc.

To minimize WiFi signal loss and to save space, I passed the factory WiFi coax cable through the RemoteRig case and was able to mount it directly to the acrylic without any need to extend it. I also soldered a pair of wires to the RemoteRig LED terminals so I could display a surface mounted LED status light on the panel. I used a small combination LED push button that I had laying around and left the button wires unterminated for the time being.



To configure the RRC-1258 with the IC-2820 and to make the necessary custom cables, refer to the well detailed manual they have on their website, found here:

https://www.remoterig.com/downloads/RemoteRig_RRC1258-MkII_Users_manual-A40.pdf

To successfully use the WiFi module alongside the HM-133 mic adapter, you must bend or cut off a specific pin as outline here: https://www.remoterig.com/wp/?page_id=2862

PARTS LIST

Qty.	Part
1	Pelican 1200 Case
1	Pelican 1200PF Special Application Panel Frame
1	Microbit 2.0 AB RRC-1258MKIIS-SET (Includes the base & remote) https://www.hamradio.com/detail.cfm?pid=H0-010886
1	Microbit 2.0 AB 1258-N WiFi Interface (If you want WiFi capability) https://www.hamradio.com/detail.cfm?pid=H0-012053
1	Microbit 2.0 AB 1258H Adapter (In order to use the factory HM-133 mic) https://www.hamradio.com/detail.cfm?pid=H0-014737
1	Microbit 2.0 AB 1258-ANT5 2.4 GHz Antenna or similar https://www.hamradio.com/detail.cfm?pid=H0-012054
10	M3 x 16 Hex Screws (To mount the panel to the frame)
8	M3 x 12 Hex Screws (To mount the I/O adapters to the panel)
4	M4 x 12 Hex Screws (To mount the speaker to the panel)
4	M4 Washers (For the speaker screws)
4	M4 Nuts (For the speaker screws)
1	5.5 x 2.1 MM Surface Mount DC Power Socket https://smile.amazon.com/gp/product/B08272H1SR/ref=ppx_yo_dt_b_asin_title_o06_s00?ie=UTF8&psc
1	5.5 x 2.1 MM Right Angle DC Power Plug Pigtail https://smile.amazon.com/gp/product/B081TV7SQ7/ref=ppx_yo_dt_b_asin_title_o06_s01?ie=UTF8&psc
1	RJ12 Surface Mount Adapter (For control head) https://smile.amazon.com/gp/product/B07KYRH49T/ref=ppx_yo_dt_b_asin_title_o07_s00?ie=UTF8&psc
2	RJ45 Surface Mount Adapter (One for Ethernet & One for Mic) https://smile.amazon.com/gp/product/B06Y4J9MZ4/ref=ppx_yo_dt_b_asin_title_o01_s00?ie=UTF8&psc
1	Mini USB Right Angle Surface Mount Adapter (For RemoteRig programming) https://smile.amazon.com/gp/product/B08NPJDTVC/ref=ppx_yo_dt_b_asin_title_o01_s00?ie=UTF8&psc
1	2.5" 4 Ohm Speaker https://smile.amazon.com/gp/product/B004GA0LFY/ref=ppx_yo_dt_b_asin_title_o02_s00?ie=UTF8&psc
1	Surface Mount LED (The hole is cut to 7.8 MM diameter)