Pacific Antenna V2 Electret Microphone Kit

Parts Included:

1 –1/2” x 4” long PEX tube
1 – Plastic Endcap
2 – Foam microphone cover
1 – 4-40 brass nut
1 – 4-40 x 1/2” long flat head s.s. screw
1 – #4 x 1/16” thick nylon washer
1 – S1, pushbutton switch
1 – Electret microphone element
1 – 3.5mm Stereo Jack
1 – C1, .001uF capacitor, marked 102
1 – 3.5mm M-M audio cable
1 – Hookup wire ~15”
1 – PCB
1 – Package Label

Specifications:

Sensitivity: 44dB
Output impedance: 1.5KΩ
Frequency Range: ~70-20KHz
Operating Voltage: 3 V
Current Consumption: 0.5mA(Max)

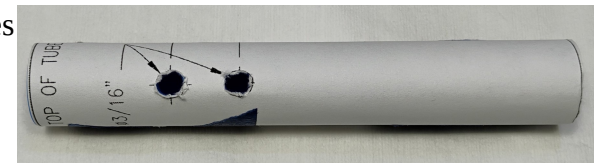
Assembly

Tube

Print out the drill template found on the last page of this manual set to full size or 100% on your printer.

Verify that the template is 4 inches (101.6mm) long. If not adjust your printer scaling so that it is 4 inches when printed.

Print the template and cut out. This will be used to mark the holes for drilling in the microphone tube.



Wrap the template around the tube and secure in place with tape.

Using a center punch, nail or other sharp object, mark the center of the holes in the tube.

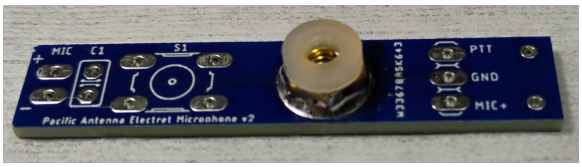
Remove the template and drill two holes of 3/16 inch (~4.8mm) diameter through only one side of the tube.

Circit Board

Secure the brass nut to the circuit board using the supplied 4-40 screw.

The screw head should be on the bottom of the board and the brass nut on top of the bare circular pad.

Carefully tighten the screw so that the brass screw is in contact with the pad and centered.



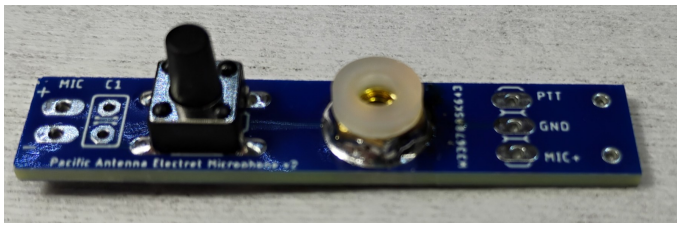
Solder around the edges of the brass screw to secure it to the pad.

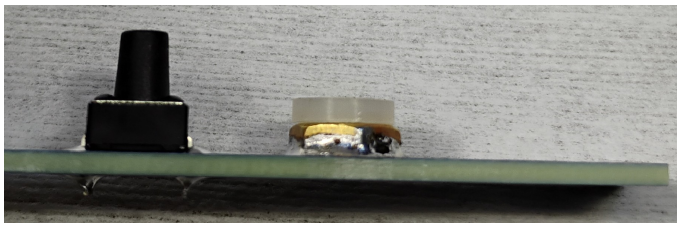
Remove the screw and attach the nylon spacer centered on the top of the brass screw with superglue.

Use care not to get glue on the threads of the nut and be sure the spacer is centered over the hole in the nut.

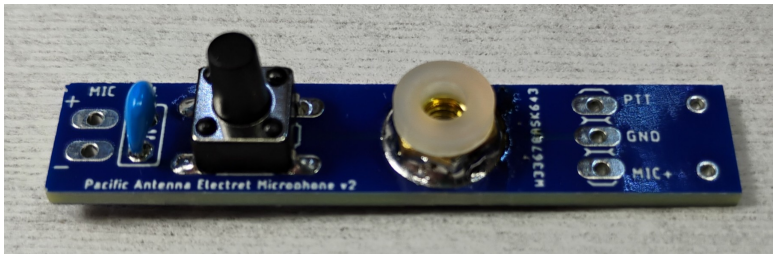
Hint: After the glue is applied, you can gently heat the brass nut a bit with a soldering iron to cure the adhesive.

Insert and solder switch S1 on the top of the board making sure to fully seat it against the board before soldering.



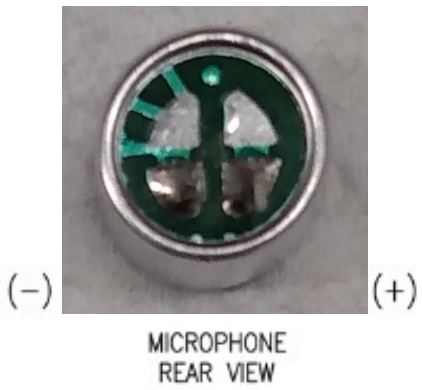


Insert and solder capacitor C1 in the location marked on the board as shown below.

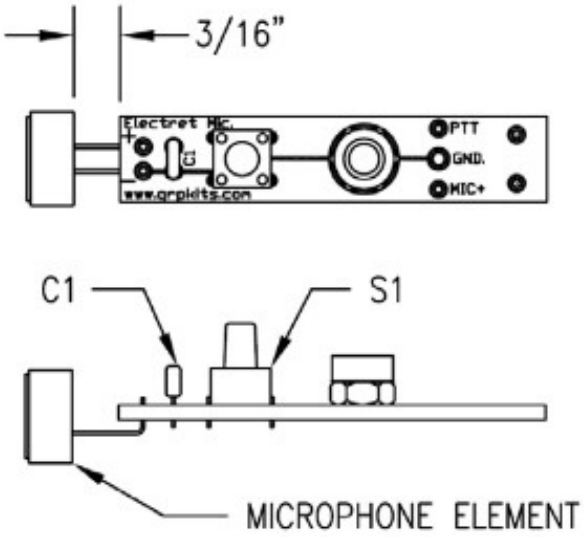


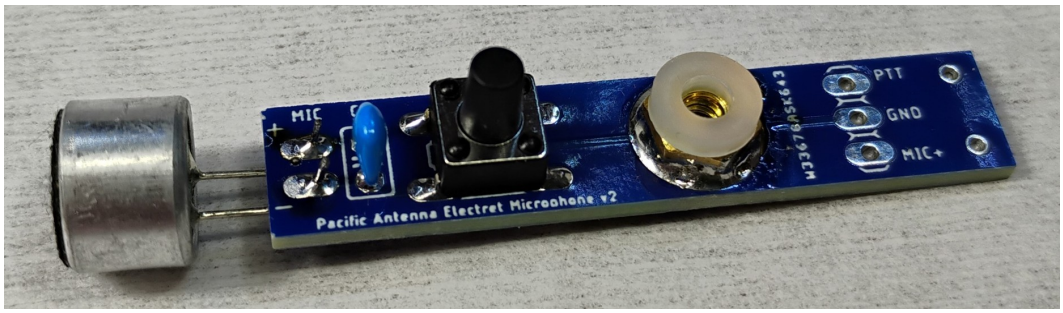
Microphone

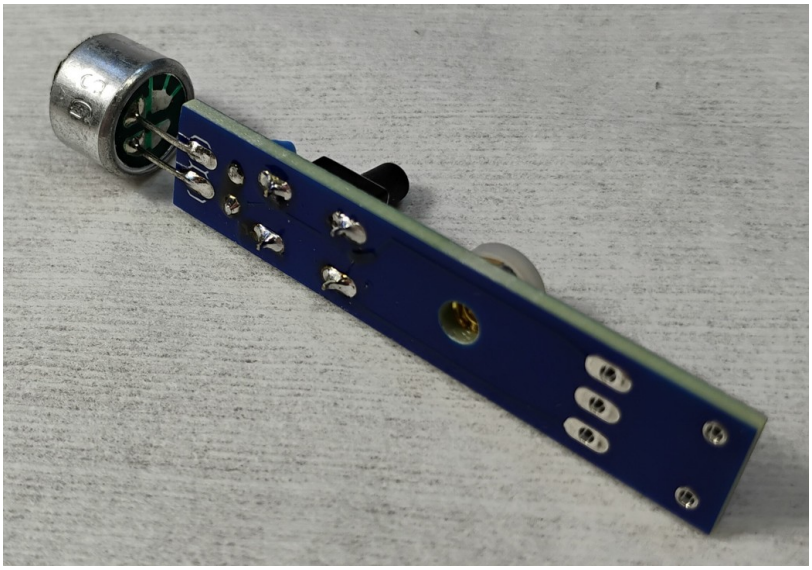
Install the microphone element as shown below, making sure to orient the microphone element for correct polarity with the + side of the mic connecting to the hole marked + on the board.

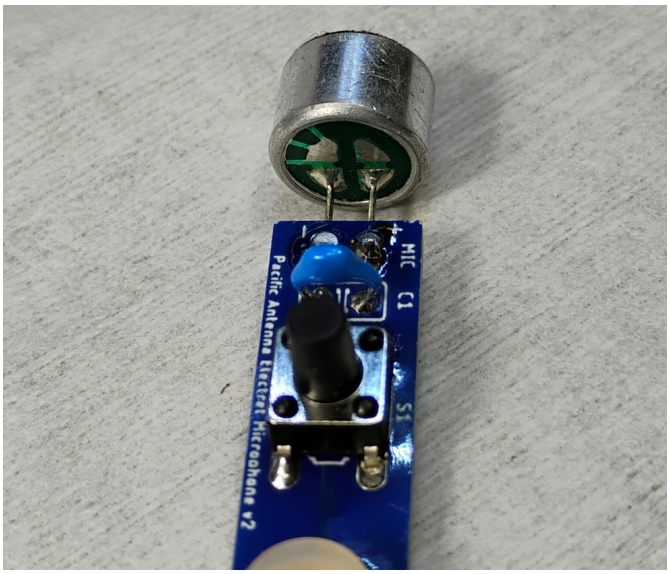


MICROPHONE
REAR VIEW



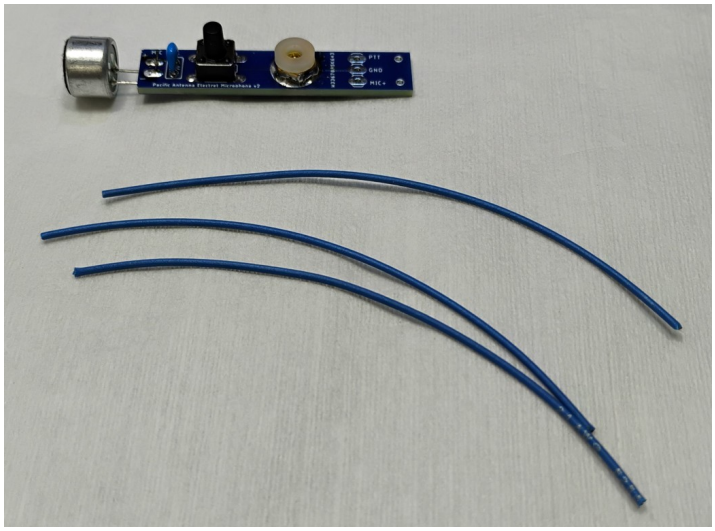


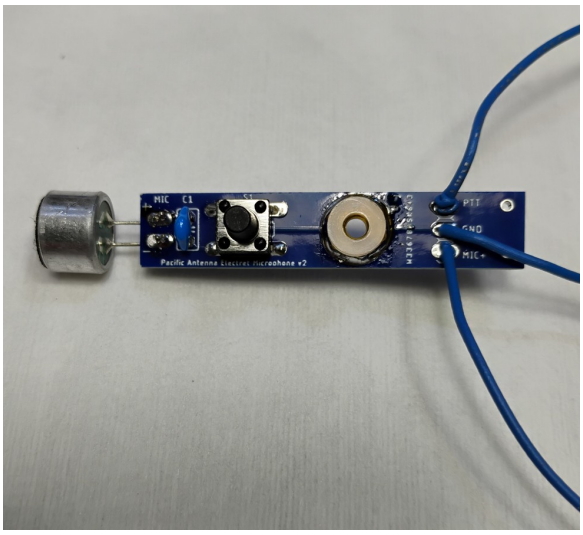




Audio Jack

Solder three short (~3”) wires between the circuit board and 3.5mm stereo jack following wiring for your radio shown below.





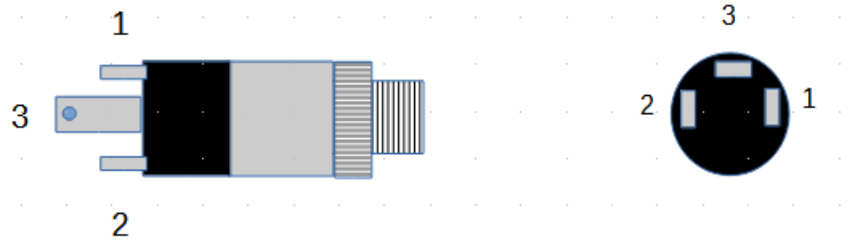
Note: Double check your radio manual to be sure the suggested connections apply to your particular model.

Strip the ends and connect the wires to the appropriate pin of the audio jack for your application.

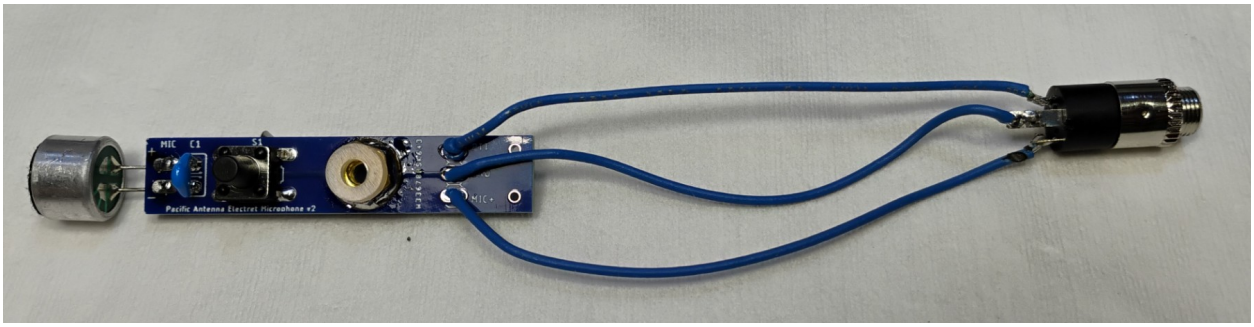
QMX, (tr)uSDX, uSDX, etc
TIP=Pin1 to PTT
RING=Pin2 to MIC positive (+) lead
SLEEVE=Pin3 to GND (common).

zBITX, uBITX, sBITX, etc
TIP=Pin1 to MIC +
RING=Pin2 to PTT
SHELL=Pin3 to GND.

KX2, KX3, etc
TIP=Pin1 to MIC +
RING=Pin2 to PTT
SHELL=Pin3 to GND.



Example Wiring for QMX, uSDX, etc



Finishing UP

Trim all wire leads close to the the circuit board.

This completes the assembly of the microphone circuit board.

Wiring Check:

Plug one end of the supplied cable into the microphone base jack and check the connections at the 3.5mm plug on the opposite end.

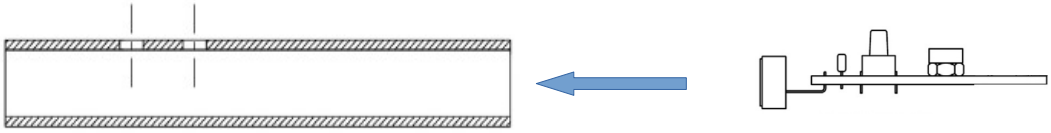
You should see continuity between the connector shell and the connection chosen for PTT when you press the switch.

You should also see approximately 1.5K ohms from the shell to the connection used for the Microphone.

Assemble the Microphone:

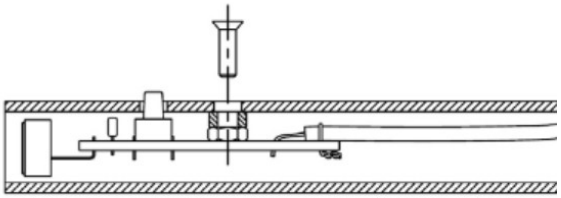
Insert the circuit board into the microphone tube as shown below.

You will need to slightly depress the switch to allow the board to enter the tube.



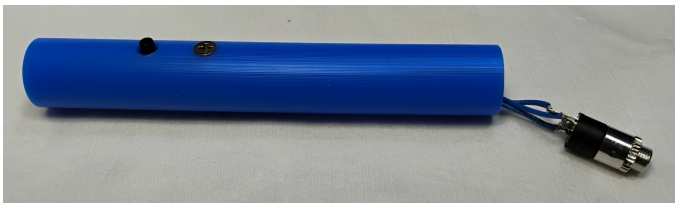
You may find it easier to slide the audio jack and wires into the end nearest the holes first but be careful not to damage the mic element if you chose this option.

Slide the board into the tube and rotate as needed with tweezers or needle nose pliers until the switch is aligned and snaps into the hole nearest to the opposite end of the tube.

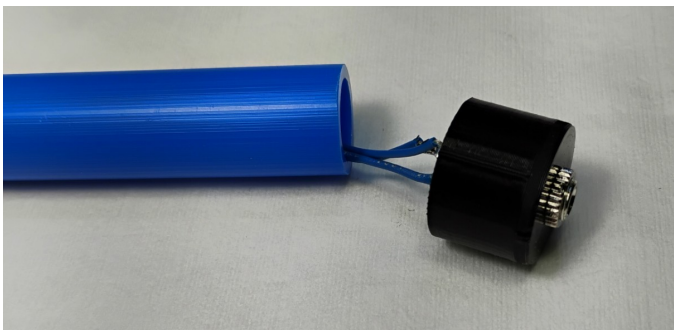


Insert the screw and tighten to secure the circuit board within the tube as shown below.

Remove the nut from the audio jack and install it into the base cap as shown here.



Tighten the nut to secure it in place and slide the base cap with the 3.5mm jack over the bottom end of the microphone tube.



Final Assembly Steps

To improve audio response, it is recommended to add some material such as a cotton ball, soft fabric or foam to fill the open space at the end of the microphone tube.

Be sure to leave enough space for the wires to fit when the endcap is put in place.

Push the cap onto the end of the tube. It should remain by friction but an adhesive such as superglue can be used if it is not securely in place.

Using a small screwdriver or wire, gently center the mic element in the other end of the tube to avoid it touching the sides of the microphone tube.

To finish the microphone, install the included sponge foam microphone cover on the end of the tube where the microphone element is located. Note that a spare foam cover is included for replacement as needed.

Congratulations, your microphone is now complete!

Using the microphone:

Electret microphones need a voltage bias to operate that is typically supplied through the MIC+ lead either from your radio or an external supply.

A dropping resistor and blocking capacitor may be required if not included in your radio.

An example of how electret microphones are connected can be found here:

https://en.wikipedia.org/wiki/Electret_microphone

Another example is seen in the Bitx kit manual located here:

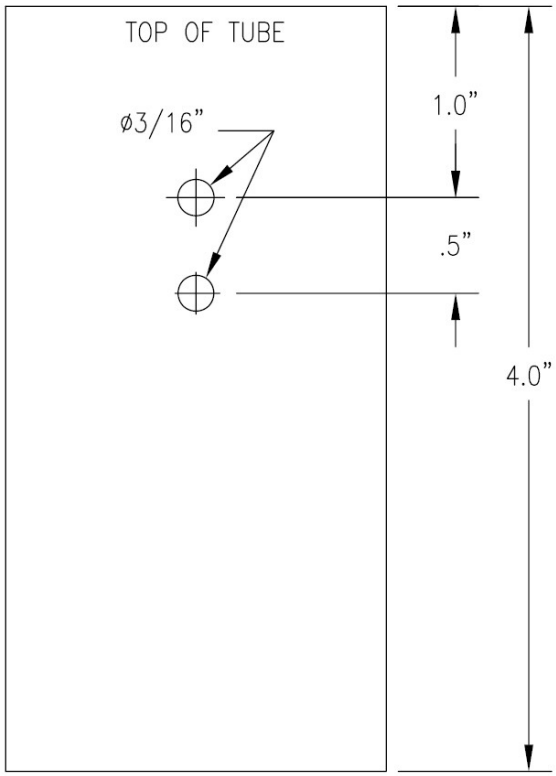
http://qrpkits.com/files/BITX20_Assembly_Manual.pdf

For support contact us by email: qrpkits.com@gmail.com

Template

The drilling template should be 4 inches in height when printed, to match the supplied tube.

If not, adjust the output size for your printer until it is correct.



Drill template

