

## ONE EVENING PROJECT

# Homebrew ICOM 7300 Desktop Mic

by Gordon Gibby KX4Z

For a long time, I've wanted a real "desktop mic" for my home station(s). The going price of the Icom SM-30 (typically \$170!) discouraged me greatly, since I know it is based on a \$2 electret cartridge... At various hamfests I have picked up assorted older "Turner" style desktop microphones-- generally for \$15. (On Ebay, about \$30.) They were made with condenser or dynamic elements, and few hams know how to use them with more modern transistorized transmitters. The mic cable is usually a loss. At a home improvement store, I picked up several feet of two-conductor + shield thin flexible stranded cable that would work for the cable. And I had a small cache of 8-pin octal connectors compatible with the ICOM. (for example: <https://www.amazon.com/CESS-Aviation-Socket-Cable-Connectors/dp/B01MTSNNUB> )

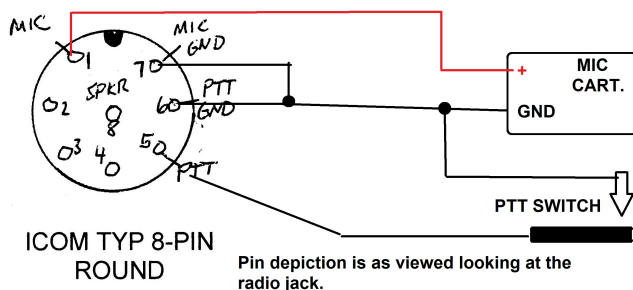


When I finally found time, I installed a modestly high-output (approx -32dB sensitivity) electret cartridge that came with a uBix kit. A suitable device from DigiKey is:

<https://www.digikey.com/en/products/detail/cui-devices/CMEJ-4618-32-L045/10253444> \$1.20.

A really high output device more suitable for uBitx/sBitx (-25 dB) is:

<https://www.digikey.com/en/products/detail/cui-devices/CMEJ-0733-25-L070/10253454> Avoid the



low-output -52 dB devices.... The robust Turner style PTT bar goes to a very simple mechanical switch with obvious solder connections, so soldering that was easy. The mic cartridge has only two solder connections; the one with traces to the case is "ground" and the other is the mic (+) connector. I did not put any switch in series with the mic to avoid any "pops." (See schematic, accompanying.)

Since the mic body is solid aluminum, everything inside is effectively shielded, and wiring inside can be done with simple wire.

I picked off the sound-obstructing center emblem from the grille with a utility knife so the mic cartridge could be installed centered, behind the grille and the fabric "pop screen" that came with the mic. If you need, you can make a pop filter out of the porous fabric of an old t-shirt. Centering the cartridge, I held it in place with some electrical tape and used a circular cardboard disk to help hold it. I packed the cavity behind it with some white synthetic packing material (you could use paper towel) and put it all together so that the mic cartridge was firmly held.

Soldering the ICOM 8-pin connector takes some *patience*, and a bit of shrink-wrap or electrical tape to insulate each pin. Pin 1 = PTT; Pin 5 = mic; 6 and 7 both get the ground wire from the mic cable. Most plugs will have the "numbers" visible to make this easier. I think Icom has used the same pinout

for years. Almost all of these electret cartridges are designed to work with 1-10V dc supply through approx 2000 ohms; the radio provides both the resistive load AND the DC voltage, and picks off the AC audio through a capacitor inside the radio, so you don't have to do anything other than wire the cartridge to the MIC and MIC GROUND pins. Couldn't be easier! Optionally, to deal with any RF energy pickup, you could put a small capacitor (say, 100pf up to 0.001 uf) in parallel with the mic cartridge wiring. Also using a ferrite bead around the cable (and possibly wrapping a turn or two of the mic cable around the snap-on bead) will also reduce common mode current picked up from nearby antennas. These may be unnecessary.

It works great! My \$25 desktop mic!