S-QSK MINI ORDERING, ASSEMBLY, AND INSTALLATION INSTRUCTIONS

1) Place a parts order. I have included a **B.O.M.** in an Excel file and also a link to Mouser Electronics for "**One-Click**" ordering of all components, including the Trinket MO microcontroller.

2) Order the PC board from OshPark. Order link: **S-QSK-Mini PC Board Order**

3) When the PC board arrives, install all components using standard soldering tools. It's impossible to accidentally mix parts on the PC board. Even the resistors are identical in value. However, ensure that the two ICs are placed correctly on the S-QSK Mini board. SAVE two of the clipped resistor leads; you will use them to set the positive/negative key line jumpers in a step below.

OC1, the 4-pin input opto-coupler does not use a socket; it's soldered directly to the PC board. Make note of the dot-marker on the chip and align it with the dot-marker on the PC board.

Using diagonal cutters, cut a group of 5 pins off the Trinket MO socket strips that were included in the B.O.M. A 5-pin strip is required for each side of the trinket MO microcontroller. Solder the header pins into the Trinket MO microcontroller. These pin strips were included with the Trinket MO microcontroller packaging. Next, solder the two 5-pin sockets onto the PC board. Insert the Trinket MO microcontroller into the socket. The USB end of the trinket MO Microcontroller is marked on the PC circuit board.

Select either a positive or negative input key line with the clipped resistor leads saved from a step above. These go into jumper positions JP1 and JP2. The center hole is common. Use the negative key line jumper positions for most transceivers.

5) Download the Icom 7300 microcontroller **program**. The program is in a text file format.

6) Download the IDE program and the Adafruit Trinket MO plugins. Instructions and download link can be found **here**.

7) Open the Arduino IDE, then copy and paste the microcontroller program (step 5 above) into the Arduino IDE's sketch screen.

8) Connect a Micro B USB to USB A cable between the Trinket MO and your PC. The same cable can be used to power the S-QSK Mini board after programming is complete.

9) In the Arduino IDE program, go to TOOLS on the top menu bar, then select BOARD type. You will select the Trinket MO board. Also check for the correct COM port in the TOOLS menu.

10) Upload the sketch to the Trinket MO microcontroller. After the upload is complete, close the Arduino IDE on your PC's desktop but DO NOT unplug the USB cable; it's used to power S-QSK Mini.

11) Connect an RCA phono cable from the Icom transceiver's SEND jack to S-QSK Mini's INPUT jack (J1). With another RCA phono cable, connect S-QSK Mini's OUTPUT jack (J2) to your amplifier's key line input.

12) Installation is complete. S-QSK-Mini will prevent hot-switching your amplifier and it's optically-coupled MOSFET output will protect the transceiver from an amplifier key line fault. The pulse stretch time can be adjusted in the Arduino IDE program. The default value is 5 ms. Simply edit the code in the Arduino IDE program to customize timing and sequencing, then upload the new values to the Trinket MO.