

## KENWOOD TS-2000 SDR RADIO MOD

This simple guide will help you to install a pan adapter key to process the signals coming from your radio's IF.

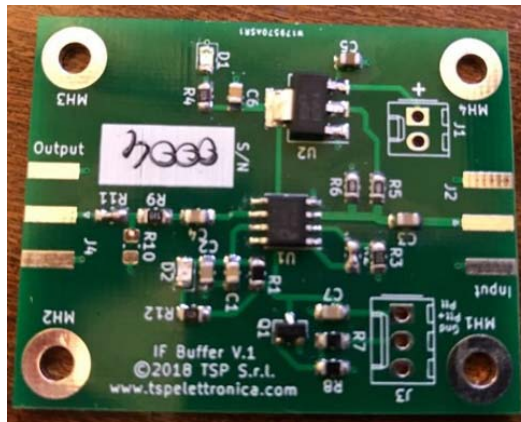
N.B. the internal installation requires that the radio has not installed the UT-20, the 1.2G board

Here is the key purchased by me on Amazon:<https://www.amazon.it/gp/product/B013Q94CT6>



Then everyone can choose the key that he wants but attentive to size if, like me, you want to put it in your TS-2000.

Now you need an IF Buffer interface to pick up the IF signal and hide its use on the radio. The choice fell on the iFace of TSP Elettronica, available here:<https://www.tspelettronica.com/2019/01/19/iface/>



Here it is already almost ready



Proceed to assembly:

First of all we have to remove both the covers of the radio by removing the 20 screws.

Place the radio on the right side on the table to have access to the left side so you can see the empty space where to apply the components.



Proceed with fixing the USB key to the radio frame by means of self-adhesive tape



Now let's fix our interface to the frame with a small screw in order to hold it firmly, look for a raised point so that the underlying circuit does not make contact with the radio frame

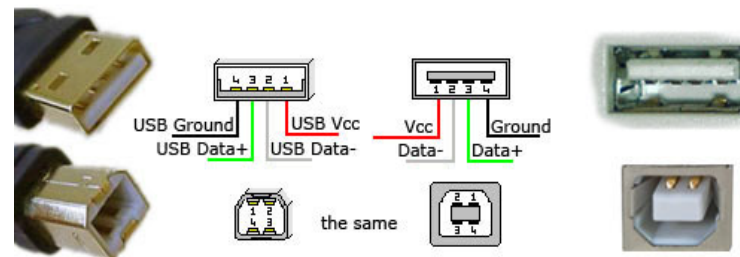


We just have to do the electrical connections.

I found 2 USB sockets of which one USB-B one used in printers and the other from an old motherboard of a notebook.

Solder the wires respecting the exact connection

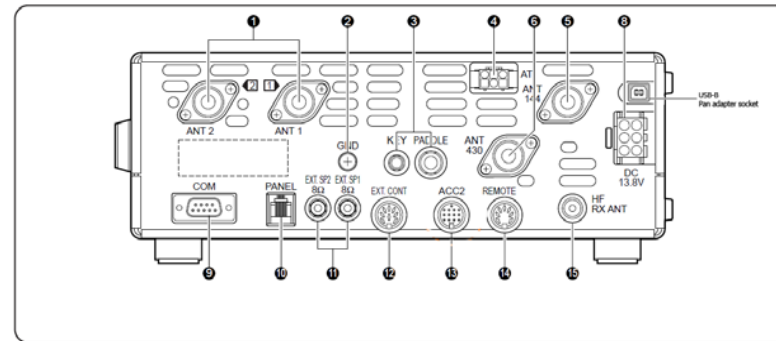
### USB pinout



USB is a serial bus. It uses 4 shielded wires: two for power (+5v & GND) and two for differential data signals (labelled as D+ and D- in pinout)

[http://pinouts.ru/Slots/USB\\_pinout.shtml](http://pinouts.ru/Slots/USB_pinout.shtml)

The USB-B will put it at the point where the antenna of the 1.2G unit normally comes out.



To do this you need to remove 2 screws and remove a plate because it must be cut to give access to the USB-B port



Unfortunately the space on the radio chassis is low and the connector is not well accessible, so you have to work a little with a DREMEL in order to enlarge the hole, being very careful not to send the dust inside the radio, I used a vacuum cleaner homemade to avoid this inconvenience.



Lock the USB-B socket with 2 cable ties

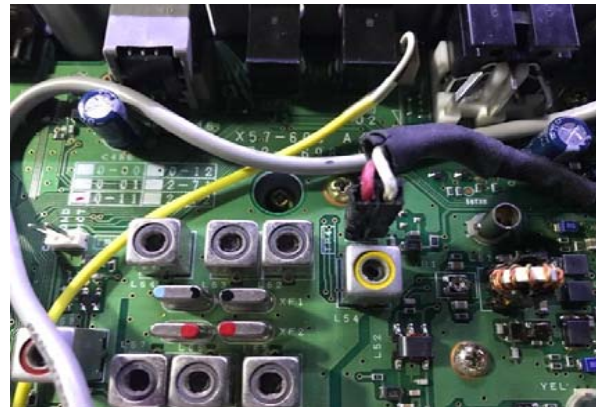




Cut the antenna wire supplied with the USB dongle where the antenna connector is and weld it to the iFace where OUTPUT is written while the remaining wire, obviously shortened, we will weld it to the INPUT output and then connect it to the radio to the IF socket. We are very advantaged because we do not need to do any welding on the board from the radio as it will be enough to connect the wires to the CN6 connector



HOT is the signal and GND is GROUND



Now we just have to feed the iFace board via a non-permanent + 12V, the easiest place is to take it on the positive of the cooling fan, just peel a little bit and weld it and cover it with a little insulation tape or thermal sheath shrinking.

Close the radio, connect the flash drive and install a software suitable for our purpose in your PC, I personally use SDRSharp  
<https://airspy.com/download/>

Tune the SDR software to one of the following frequencies, depending on the band:

f1: 75.925 MHz (160 m, 80 m, 40 m, 18 m, 15 m, 10 m)

f2: 69.085 MHz (30 m, 20 m, 12 m, 6 m)

The dongle might be a bit out of frequency, so you'll probably have to tune better using a headset connected to the PC and listen with the ear from the radio and with the other from the radio, I remind you that it's a signal processed has a slight delay but the set up is very easy.

Remember to reduce the SDR dongle's gain if you see "ghost" stations or any other distortion. Deactivate the pre-amplifier in the low bands 160/80 / 40mt.

Good listening.

'73 de IKØZTL Alberto