



This interface was first designed to be used with my Kenwood TS-570SG, but now is used exclusively with my **Yaesu 1000MP** (May 2000 vintage with 0Exx serial #), with one major mod which I will explain later.

One thing I want to mention is that the Kenwood 570 had no monitor on FSK mode, so I had to design a homebrew monitor circuit, which is described in a separate link and also mentioned below. I made a note on the schematic for any 570 users who want to incorporate it into the circuit.

The following is a brief description of the interface:::

Transmitted audio from the computer soundboard Line Out connector passes through a Radio Shack audio transformer, and then into the MP's **Data In** pin (Packet connector). This audio can be PSK, MFSK, Hell Schreiber, or RTTY (for those unfortunate souls that have to operate RTTY in ASFK mode.)

Received audio from the MP's **AF Out** connector (notice I can chose either the main or sub audio via a front panel switch) passes through a 1 to 1 audio transformer, attenuator and then to the computer soundboard Line In connector.

The PTT circuit is the only one that I had to change for the MP. (MAJOR PROBLEMS HERE AND LOTS OF TIME SPENT ON IT) The **PTT** lines that are on the back of the MP require a resistance of 50 ohms or less to ground--- much lower than the 3900 ohms required for the front **MIC PTT** line. The problem I had with just the Opto, was that I could not drive it enough to give a 50 ohms drop between emitter and collector. I tried lowering the resistor in the RTS line a little at a time, but got to the point where the RTS voltage dropped from 12 volts to around 3 volts, a no win situation. I just could not get the OPTO output to be anywhere near 50 ohms. **Therefore, I came up with the circuit that is shown.** I feed the **RTS** line to a standard 2n2222 transistor circuit, which then in turn drives the input of the OPTO through a 470-ohm resistor to the 12-volt supply in the PC (MORE POWER is GOOD). This gave the required 50 ohms between emitter/collector of the OPTO to reliably turn on the rear connector **PTT** in the MP.

NOTE: The PTT connectors at the rear panel of the MP are "OR'ed" together in the AF Unit, using diode gates, before being applied to the CNTL Unit. Many of us old guys will remember the diode and the DTL "OR" gates.

For example, the pull-up for that "OR" gate tying together the RTTY and PACKET PTT pins is a 1k ohm resistor, no way we can get it sufficiently low. However, the PTT on the front MIC connector is used to pull up the base of a PNP transistor that has a 1k resistor and a diode drop to its emitter on the +5 rail. So, we only need about 3.6 K to get a two-diode drop (the external diode and the base emitter junction) to turn that transistor on.

The computer **TXD** line is fed through the Opto into the MP RTTY FSK connector (Kenwood 570 users note the extra output for the monitor circuit).

The **DTR** line is fed through the Opto, a switch, and then to the **CW Key** in the back of the MP, the CW/FSK Monitor switch is always in the **CW** position for the MP

(For Kenwood 570 users the CW/FSK Monitor switch is in the FSK Monitor position)
The Tune switch is used to turn on the transmitter for tuning purposes. I use MIXW for CW sending so I don't have a key connected to the MP, and I find it easier to use than the MOX button on the MP.

The voltages and currents that are on the drawing are for my initial troubleshooting and I left them in for reference.

I choose the 4N37, but any Opto-isolator should work on these signals.

The voltage and current readings are just notes for me in case I have any problems later.

I used a combination of Molex and RCA connectors on the back of the unit, originally I had all the cables hard wired, but changed to the connectors. Later. I used 2 RS circuit boards for the components to keep the wires down to a minimum. The case was a old modem metal case which I grounded to my main shack ground system.

I had one RFI problem in the beginning but that turned out to be a \$1.99 cheapo keyboard that caused havoc on 15 meters.