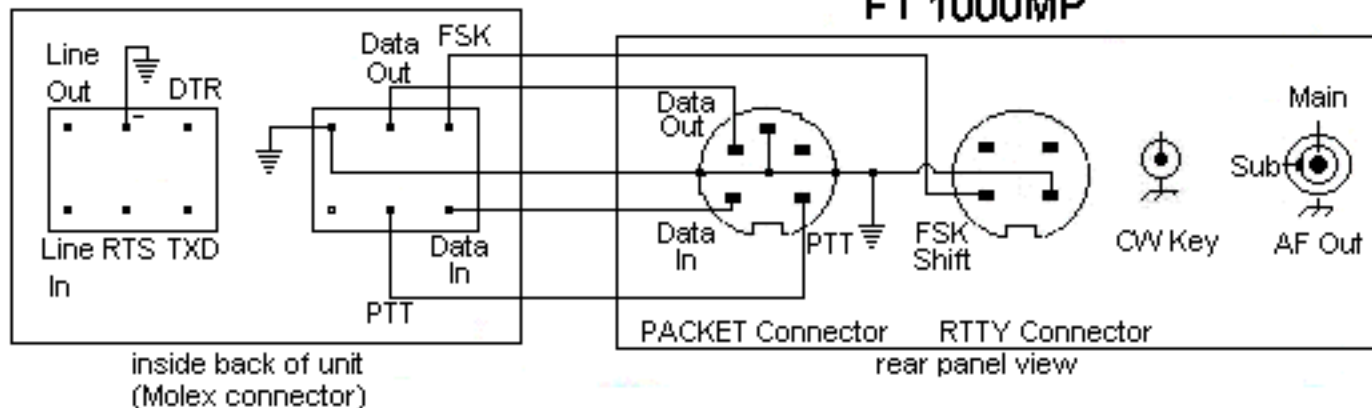


**Interface Unit**

**FT 1000MP**



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 copy it.

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 radio's Data In pin (Packet connector). This audio can be PSK, MFSK, Hell Schreiber, or RTTY (for those unfortunate souls that use RTTY in ASFK mode.)

Received audio from the radio AF out connector (notice I can chose either the main and 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) 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 me 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. So, I came up with the circuit that is shown. I feed the RTS line to a standard 2n2222 transistor, which then drives the input to the OPTO through a 470-ohm resistor to the 12-volt supply in the PC (MORE POWER IS GOOD) and this gave be 50 ohms and worked fine on any rear connector..

**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 in the CW position for the MP (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.

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.