A practical approach to the RJ45 Connector. One variant - the Mini Din 6P John VK5DM

Mini Din 6p connectors are used on many transceivers these days due to their small footprint.

Sometimes described as PS2 connectors, they offer a convenient six points of connectivity.

Looking at the various transceiver handbook drawings we find a lack of standardisation in the numbering styles of various manufacturers.

All is not lost. Several actually designate the same physical pins as having the same functions. Just look carefully.

By looking at the back panel of the radio into the DATA socket and noting the position of the locating plastic pin, I count from one to six clockwise.

A number of popular radio manufacturers use the Pins in the following sequence (my model).

Pin 1 is 1K2 bps Data out to be used as the driving audio into the SM1000.

Pin 2 is PTT into the rig or out of the SM1000

Pin 3 is Data in to the rig and out of the SM1000

Pin 4 is the rig ground.

Pin 5 is 9K6 out of the rig, useful in some applications but not here

Pin 6 is Carrier On out of the rig but again not used here.

In destroying a Cat five or six cable by removing one RJ45 connector we gain a convenient cable form (or two), which with the addition of the mini din connector lets us make a patch cable quite easily. A Clamp-on Ferrite RF suppression toroid is a good move here, as well.

The SM1000 internal patch block ( cn12) located behind the RJ 45 connector gives flexibility allocating wires (or more correctly RJ45 pins) to SM1000 functions.

Having made a number of such patch cables, I came to a light bulb moment. ( I know. Old age is getting the better of me)

Having more than one set of variable allocations ie Cat 5 to Mini Din then RJ45 socket to internal patch block, can cause a headache when things do not go as planned

Hence removing one set by cabling the ethernet cable standard wire 1 (Pin1 on RJ 45 at other end) to Pin 1 on the Mini Din and following through the sequence to wire number six, we now have one less point of potential error.

I then made small personality plugs for the 2mm pitch patching block with the following characteristics. The same would apply to the newer wide spaced CN12.

Numbers refer to the 16 pins on the cn12 connector.

Pin 1 to Pin 16 carries Audio into the SM1000.

Pin 2 to Pin 14 allows the SM1000 to control the PTT on the radio.

Pin 3 to Pin 15 Carries Audio out of the SM1000 and into the Radio.

Pin 4 to Pins 13, 12, 11, 10 and 9 Strap all earths (I know we do not need all pins joined but it was mechanically convenient on the little header strips I was using)

Happy Soldering…..