

PK-88 TNC FREQUENCY AGILE UPGRADE

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Queensland Digital Group Inc

This upgrade will describe how to make your PK-88 control your radio frequencies. I will describe how to select any one of 256 possible channels. How you go about interfacing your radio equipment is up to you. This document only allows an 8 bit word which you can do whatever you like.

PARTS REQUIRED

- (i) PK-88 terminal node controller
- (ii) 74HC374
- (iii) Fine hook up wire, wire wrap preferred

METHOD

Remove the lid of the PK-88. Remove the four PCB screws. Unplug J2, wires going to the radio. Lift the rear of the PCB, then remove from case. Careful not to damage the LED's on the front of the PCB. Remove both screws holding the heat sink. Don't lose the bolt on the voltage regulator IC1.

Locate IC9, 74HC374. On the 74HC374 which you are going to fit bend the following legs to near horizontal.

Pins - 2, 5, 6, 9, 12, 15, 16, 19 and 11.

Position the 74HC374 over IC9 (74HC374), ensure correct polarity. Solder using a fine soldering iron and solder pins 10 then 20 only. They are the power and ground pins and allow the internal ESD to prevent the IC from being destroyed.

Solder all the pins other than the ones you have bent to a near horizontal position. Check that there are no solder blobs or pins shorting.

Solder the following jumpers using very fine hook up wire, its preferable to use wire wrap wire which is available from nearly all electronic suppliers.

IC8 pin 7 to IC18 pin 4
IC21 pin 6 to IC18 pin 5
IC18 pin 6 to pin 11 of your 74HC374

The above jumpers are to allow addressing of the 74HC374 you have just fitted.

Solder the following jumpers from your 74HC374 to the DB25 connector J1.

74HC374	DB25	Data line
2	11	D0
5	12	D1
6	18	D2
9	19	D3
12	21	D4
15	22	D5
16	24	D6
19	25	D7

That completes the upgrade, you may now refit the heatsink. Install the PCB into position, be careful that all the leds fit into position then lower the rear of the PCB. Fasten the PCB with the four screws and plug the radio facilities into J2. Fix the lid and its all done.

TNC COMMANDS

There are only two TNC commands required to get an output.

- (a) Address \$000C
- (b) IO \$nn (nn = Hex number 00 to FF)

For an output from the TNC, say all 0's. ADD \$C <enter> then IO 0 <enter> and all the outputs are 0's.

For an output of all 1's or high states just enter IO \$FF <enter> and then all the outputs will be high.

Remember that the outputs are TTL levels only. i.e. 5 volts (High) 0 volts (Low) and no current. So don't try to pull in a relay.

CONCLUSIONS

ADD \$000C (hex)
IO \$nn (nn = hex number from 00 to FF)

The above commands are all that is required to output an 8 bit word from the PK-88. How you interface the TTL 8 bit word to change your radio channels is up to you.

I am currently using my PK-88 to change frequencies on my IC22, and FM321 radio's. I have had them under test for about three years now and have had no problems. I have built and tested a circuit to turn on an alarm and other functions by manipulating the 8 bit out put word which is controlled by my computer.

I have also set up my forward file to include the above commands which allowed me to change frequencies to forward mail.

Other stations using this approach are, VK4KOP, VK4ZGJ, VK4FEA and VK4DGQ.

The upgrade took approximately one hour total.

If you require more information then let me know.

Regards,
Nev (VK4KOP @ VK4TX.QLD.AUS.OC)

NB!Don't expect to write a word then read the same word back. This mod only writes an 8 bit word. The normal response when reading from address 000C is a response of FF.

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