

N6MW v2 modified 10/6/2020 for use with 2 RS-232 true serial ports

Interface and strategy for K3 operation with N1MM+ logger in CW or FSK in MMTTY (no not AFSK) for seamless Mode Switching with no S/W or H/W changeovers needed using 2 true RS-232 serial ports on your Windows PC.

The object of this exercise is to use N1MM (in, say, DX log mode) with your K3 and, with no significant changeovers from one to the other, to operate either FSK or CW. This can be done and some pieces of the needed information can be found at:

<http://www.mail-archive.com/elecraft@mailman.qth.net/msg111410.html> K3 FSK interface info

<http://www.aa8ia.org/category/n1mm/> has info on setting up n1mm+mmtty for fsk but not for K3

http://ehpes.com/n6mw/N1MM_MMTTY_K3_FSK_CW.pdf has my previous note for a single true COM port but it is less complete.

There are, no doubt, other more recent materials on the WWW. W3YY has sold an interface card which functions similarly to the one being described in this note but without connectors.

<http://www.w3yy.com/fsk.htm>

The PC situation here is now Win10 with a 2 true RS-232 ports (installed for this very purpose). The desired task might be doable (some say) using a pair of USB-Serial converters (and special USB features of MMTTY) but personal brief prior efforts failed. See <https://www.contestuniversity.com/wp-content/uploads/2020/05/N6TV-Everything-You-Need-to-Know-About-USB-and-Serial-Interfaces.pdf>.

It is widely agreed that the whole mission cannot be accomplished with a single serial cable unless you are prepared to give up radio control needed to provide band info to the logger. (Note that it is possible to operate CW and the radio with a single serial cable, which can be from a USB to RS-232 converter, but not operate FSK. However, that is not being described here.)

Through one PC RS232 port one can provide data to the K3 Accessory (ACC) port: CW keying, FSK keying and a PPT line that is needed for FSK. CW can be operated in QSK mode so no PPT is needed. A second serial cable (which could be a USB to RS-232 converter) is then needed for radio control/logging.

The interface to convert PC RS-232 levels to the ground or open conditions for the K3 ACC port and keying port requires, in simplest form, three of the conventional NPN transistor switches – one each for CW, FSK and PPT. These have PC COM port inputs from the RS232 of TXD(FSK), RTS(PPT) and DTR(CW). The switched outputs go to the K3 ACC DB15 pin 4 (FSK) and pin 1(PPT) plus one for the K3 ¼ “ Key plug (not paddle). The grounded pins in both the K3 RS232 radio control and K3 ACC are connected to the cable shields, of course. A rough diagram, with some hand notes, is provided at the end of this write up. For this interface, rather than try to find suitable shielded cables and then try to wire the connector

plugs, two shielded extension cables of the correct connector persuasion were purchased and cut in two. It is not certain this the best plan due to tiny size of some of the wires and other issues – but it worked (thanks to the miracle of heat shrink tubing). The junk box yielded a venerable and motley collection of almost right parts, compromises were made and the deed was done (worked on only the second try).



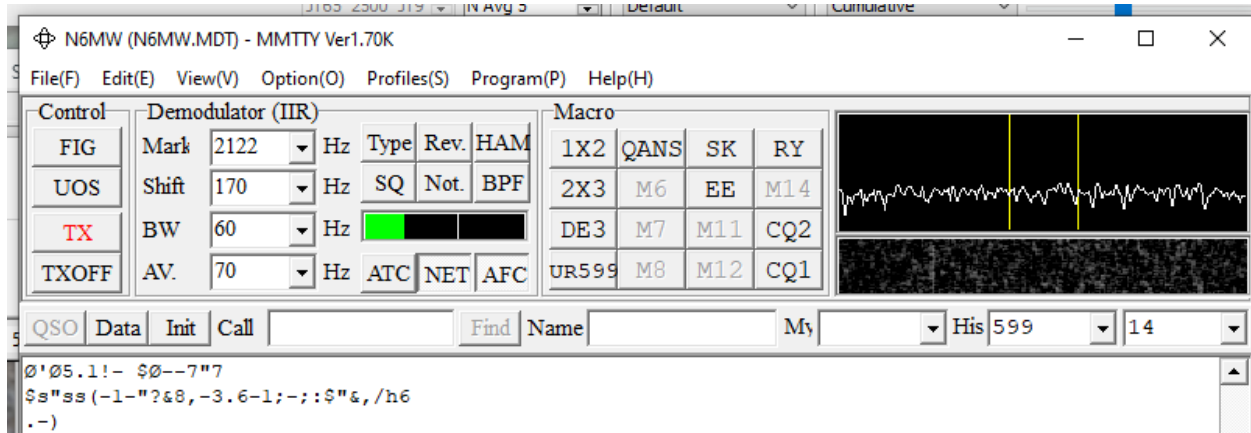
Of course, for operation the interface serial connector goes to the K3 RS232 port, and the ACC interface connector connects to the K3 ACC port while the phono plug goes to the K3 KEY jack.

Now the setups of MMTTY , N1MM and and K3 are carried out as follows:

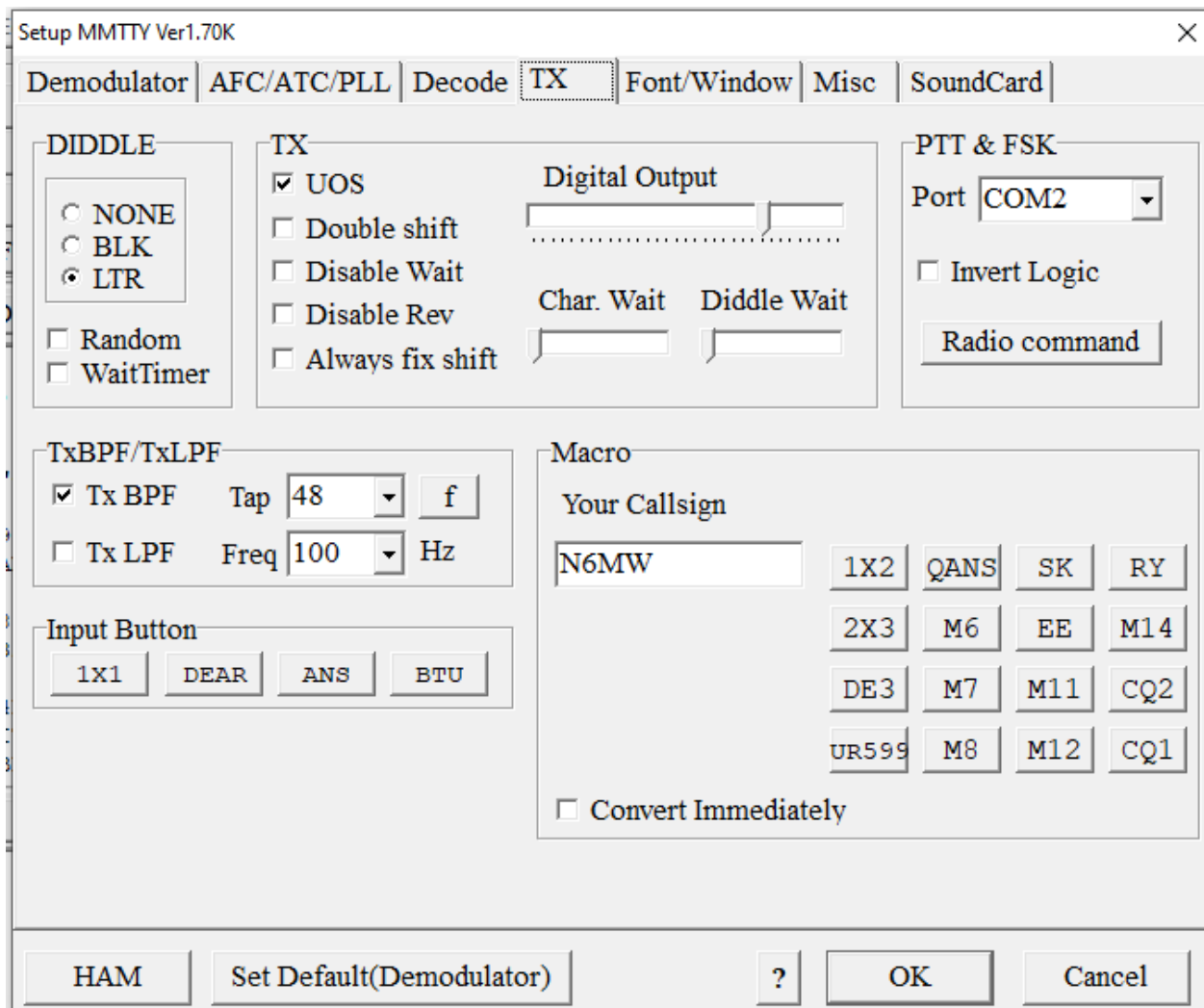
First the MMTTY Setup:

Download and install the current version of MMTTY (which is no spring chicken) and note the folder where the MMTTY.exe file is placed. Open MMTTY and make the following settings (others may work).

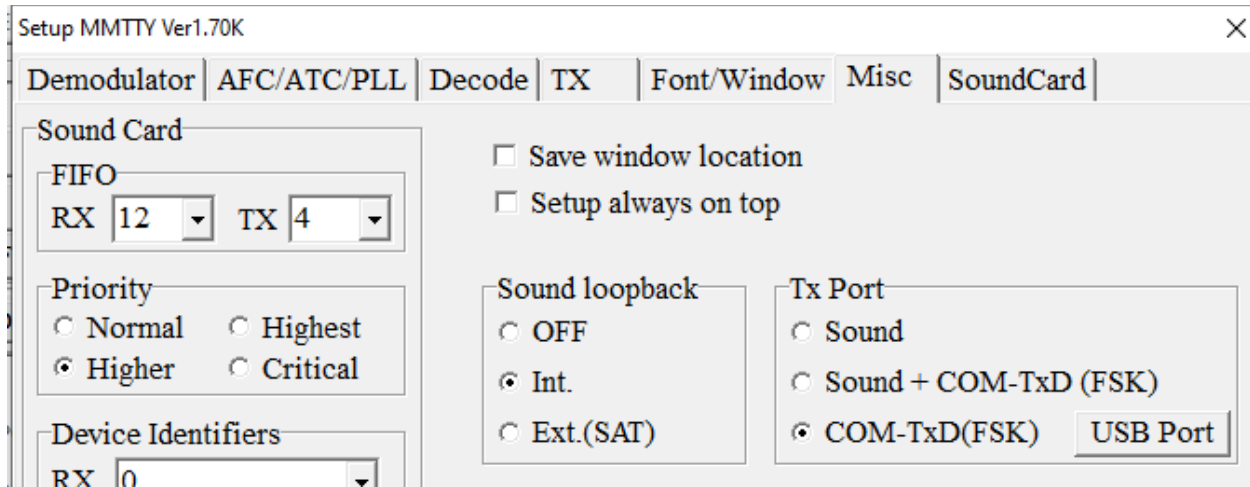
Click on HAM mode to set Mark/Space standard values for 45 baud (may be default)



Under Option menu select setup. Select TX. Select the COM Port for FSK (2 here). OK out.



Under Option / Misc select COM-TxD(FSK), but do not select USB. OK out.



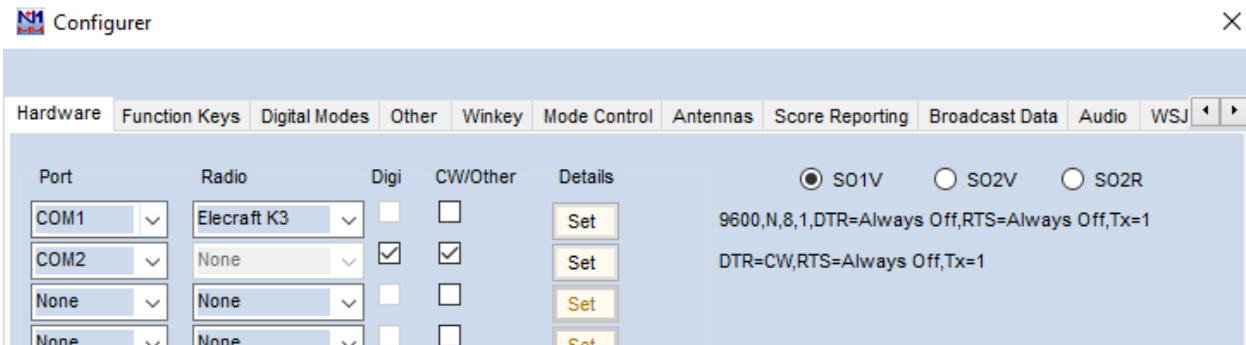
Click on Soundcard and verify Reception device is selected and Transmission device is not (we are using FSK not AFSK). OK out.. MMTTY setup is now finished - close it.

N1MM Configurer:

Open N1MM+ and Select a new log file in DX mode.

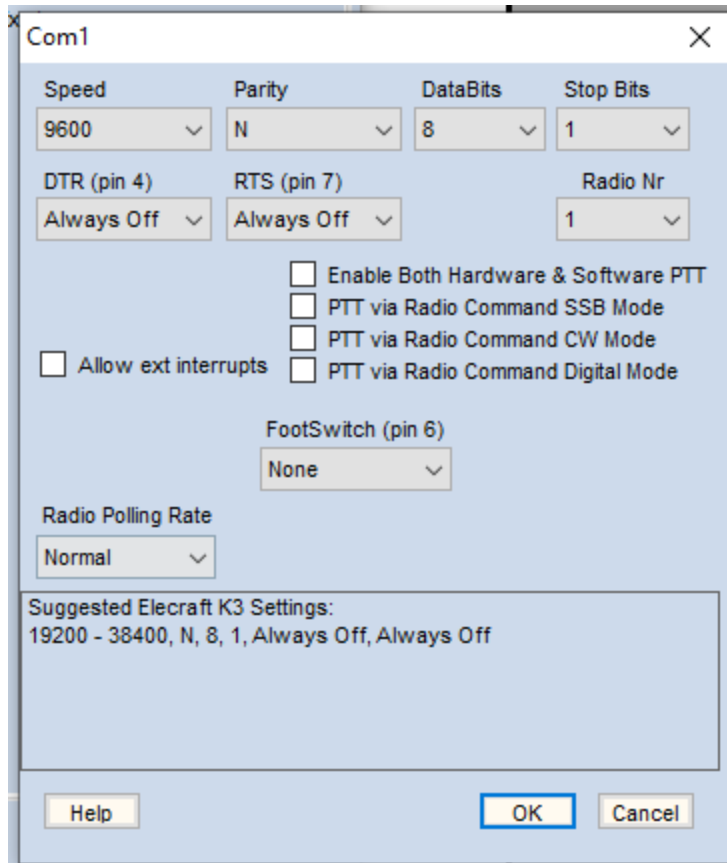
Under Config tab select Configure ports etc. and than Hardware.

Here Com 1 is the serial port selected for radio control only. COM2 has Digi and CW boxes checked so this is the port with the FSK and CW modulation. DTR as the CW line which will be directed to the appropriate RS-232 pin on PC COM2.



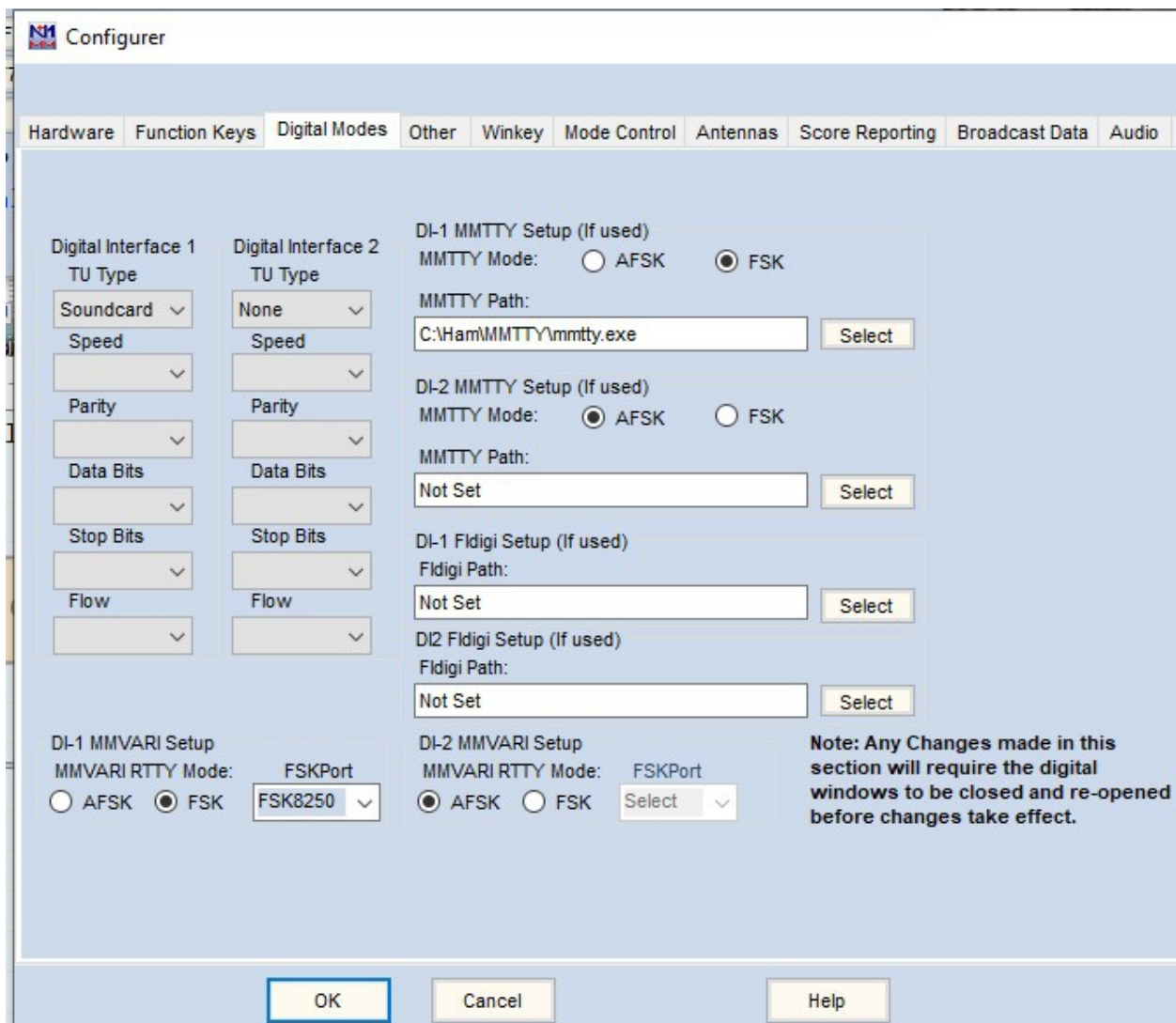
Details of the settings can be set with the SET buttons. as in the next example. RTS for COM2 is set to always off (BUT RTS will be active for PPT in RTTY mode in spite of this since MMTTY apparently overrides it).

Under the Com 1 "Set" button:



Finally you need to "configure the digital interface" by Configurer/Digital Modes

In MMTTY Path Select find the MMTTY.exe file location and enter it. Then on the upper left Digital Interface TU Type 1 select Soundcard and for DI-1 MMTTY Setup select FSK and under MMVARI Setup on lower left select FSK and FSK8350. It is possible that not all this is necessary. OK out.



That should be all for N1MM digital interface.

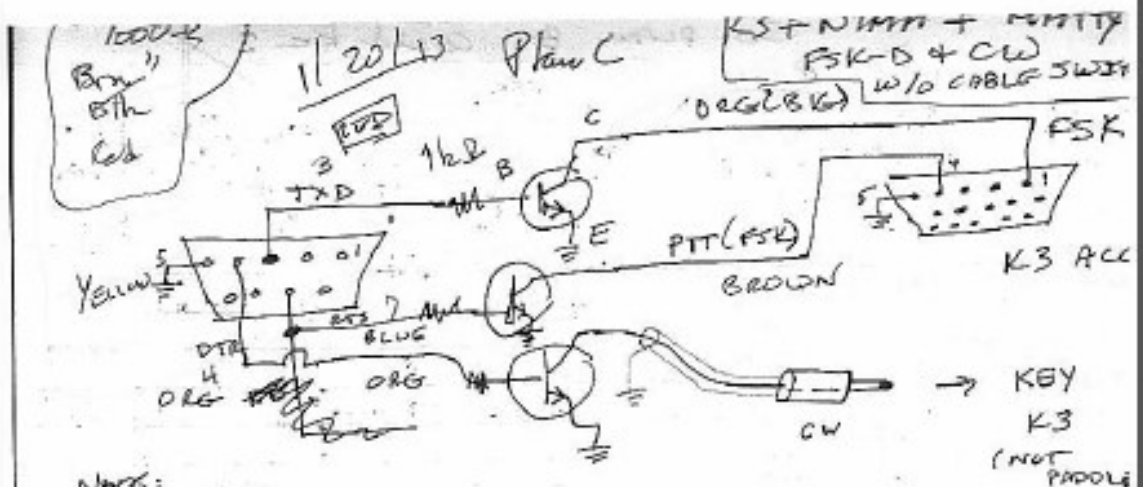
Finally, on the K3 Config PPT-Key set to Off-Off (not certain this is needed), at least if you do CW QSK on K3.

Now with N1MM, in DX log mode, in the CALL field if you type "RTTY" the MMTTY module is called into play for FSK and the digital interface appears. if you type "CW" N1MM does CW without MMTTY interface. The K3 still must be switched to mode/band in the usual way and mode is TX DATA for FSK RTTY.

Finally MMTTY needs audio from the K3 to decode the RTTY. This requires a cable from the audio out port to the MIC input of the PC (which has no line-in capability). This required a 40 dB pad to get a level suitable for the MIC input ,but the audio level from the K3 rear panel can be adjusted as well by CONFIG LIN OUT.

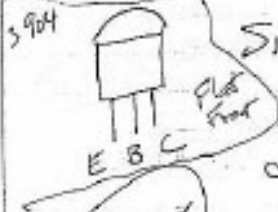
As described in a prior note, this set up can be achieved with one RS-232 port and one USB to RS-232 converter when the latter is used for radio control.

In either case you can CW key the K3 through the radio control serial line , no 1/4 phono plug needed and no CW keying from the interface, by changing the N1MM+ Port Config to check the CW box for the radio control COM and unchecking it for the other COM leaving the Digi checked. You must then change a K3 Config selection. WOMU says "set the K3's CONFIG:PTT-KEY option set to RTS-DTR, then the Logger will key both PTT and CW with just a straight RS-232 cable and no other connections" <http://elecraft.365791.n2.nabble.com/K3-Configuring-N1MM-to-send-CW-td2331726.html>. For QSK, the PPT activation is not needed.



NOTE:
THIS IS EQUIV TO W3YY Interface

DTR is set low = FSK PTT 30V
 Does not key FSK (like the paddle would) ✓
 RTS must be set ALWAYS OFF (or just ON) ✓
 in CW mode ✓
 @ 0V indep of keying ✓
 IF N1MM SET UP CORRECTLY ✓



SINGLE CABLE FOR N1MM FSK & CW

No H/W switching needed for RTTY = CW
 Only SW SWARA on N1MM
 + K3 mode Switched with button

Spent an hour to W3YY asking he can make one. No reply.

Needs 3 wire shielded DB9 Plus a mini box for the level NPN convertors

NEED TO VERIFY THAT RTS can switch properly RTTY = CW with proper CW setting ✓
 YES ✓

This should work