Yaesu FTDX3000 Sound card digital modes setup using internal USB interface

DIGITAL MODES, EQUIPMENT REVIEWS, HINTS AND KINKS, RADIOS,

FEATURED

Getting the FTdx3000 and Ham Radio Deluxe to sing from the same sheet of music using just the radios built in USB port.

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In my PSK31 travels I have encountered other hams also using a Yaesu FTDX3000 with an external interface such as a Signalink. As the radio has a built in interface I am somewhat shocked by this. And when I ask why are they not using the built in interface the most common answer is along the lines of I was not aware that the radio had it built in.

With this in mind I took a few pictures and documented a few settings and leveraging the power of the net and search engines everywhere. Hopefully this blog post on setting up the FTDX3000 for sound card digital modes will prevent a few from doing the hard way, and for those who have already gone the external interface route to change.

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PREPARATION

DO NOT Connect the radio to the PC at this time.

Before diving in you will need a few things in addition to the radio and a PC.

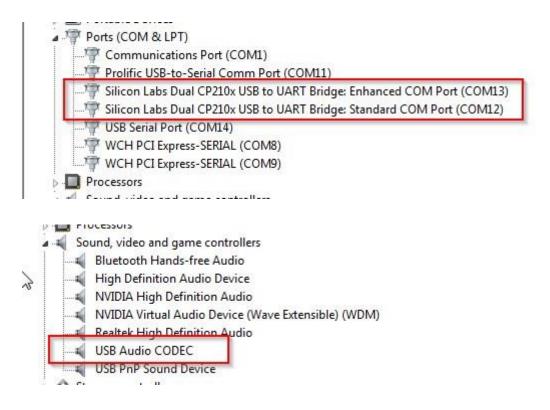
- 1. Visit the Yaesu website and download the USB Serial driver.
- 2. Obtain but do not connect an appropriate length Type A to Type B USB cable. Your PC will have the rectangular plug and the back of the radio has square type B plug.

The driver pack on the Yaesu web site has instructions, follow them and install the drivers. Once installed and the radio is connected and powered up you will get various messages in the windows task bar that drivers and being installed and or have been installed and the device is ready for use. The driver install directions on the Yaesu website details all of this.

In this next step we will check and confirm that the drivers are correctly installed.

Via the Windows control panel enter the device manager and expand the **Ports** and the **Sound, video and game controllers** section. Your port numbers may differ from mine which is ok. However if they are missing you have a problem and need to return to the Yaesu driver installation instructions.

Write down the port numbers for the Standard and Enhanced com port you will need these values when setting up the PTT.



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CONFIGURE THE RADIO

Before we begin to setup DM780 to interface with the radio, we first need to setup the radio side of the connection. When using the 3000 for PSK and other sound card based digital modes. The data mode lets the radio use a different set of interfaces and configuration settings



for example from SSB use. Which is nice as it allows you to flip between data and voice modes without having to reset a series of controls.

Enter the menu system and change option #65 PC Keying to DTR.

CONTOUR +60**dB** 5 7 3 5 PO 10 150W 100 50 0 NOTCH MENU 063 MODE CW SHAPE CW WAVE 4msec FREQ DISPLAY 064 MODE CW CW PITCH OF 065 MODE PC KEYING CW DTR 066 MODE CW QSK 15msec 067 MODE DATA DATA MODE PSK PROC/CAR NOTCH - CONT/APF SHIFT - WIDT NOTCH

Change item #75 to USB, which tells the radio to source TX audio from the USB audio interface.

The next two items #76 and #77 is the gain settings internal to the radio between the internal sound card and the audio input of the transmitter and the audio output of the receiver. These are the values which work best for me.



Change #037 to use the USB serial port and not the back panel port. Also ensure that CAT RTS #040 is enabled as this will permit hardware flow control with the PC.



Menu settings applicable to the serial port When you setup HRD to connect to the radio ensure that the "Enhanced port" is being used and that the speed is the same as what was set in radio option #038.

Also as shown here ensure that DTR is unchecked and RTS is checked.

New Preset Serial Ports Help Company: Yaesu Yaesu Radio: FTDX-3000 Yaesu COM Port: COM13 Yaesu COM Port: COM13 Yaesu Speed: 38400 Yaesu CIV Add: O- Flow control / Interface power TS CTS DTR RTS Ornect Always connect to this radio when starting HRD Rig Control. Auto Start			nnect	
Company: Yaesu Radio: FTDX-3000 GIM Port: COM13 Speed: 38400 GIV Add: 0- Flow control / Interface power CTS DTR DTR RTS		Ports Help		
COM Port: COM13 Speed: 38400 ▼ CI-V Add: 0- Flow control / Interface power CTS □ DTR ♥ RTS Connect □ Always connect to this radio when starting HRD Rig Control. Auto Start	· · · · ·	▼ Status		
Speed: 38400 CI-V Add: 0- Flow control / Interface power □ CTS □ DTR I RTS □ CTS □ DTR I RTS ■ Connect □ Always connect to this radio when starting HRD Rig Control.	adio: FTDX-3000	-		
CI-V Add: 0- Flow control / Interface power CTS C DTR RTS Connect Always connect to this radio when starting HRD Rig Control.	OM Port: COM13	•		
Flow control / Interface power CTS DTR RTS Connect Always connect to this radio when starting HRD Rig Control.	peed: 38400	-		
Connect Always connect to this radio when starting HRD Rig Control.	I-V Add: 0-			
Connect Always connect to this radio when starting HRD Rig Control.	Flow control / Interface powe	er		
starting HRD Rig Control.				
starting HRD Rig Control.	🗆 CTS 🗖 DTR 🗹 RTS			
Auto Exit	CTS CTR RTS			
- Start HRD Rig Control in 🛛 🗖 HRD Digital Master	Courses Always o	IRD Rig Control.	- Auto Start	
Full Screen mode	Connect Always c Start HRD Rig Control in	IRD Rig Control.	Auto Start HRD Digital Master	

port settings

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SETUP DM780 – CONFIGURE PTT

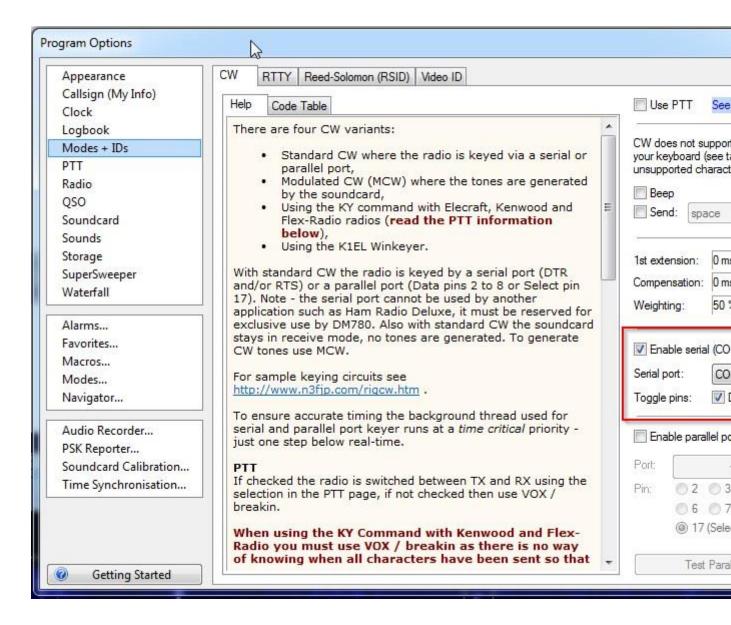
I will assume that you have already setup the radio control side of HRD to connect with the radio. It is important that when configuring HRD you use the enhanced port recorded above and not the standard port number.

Via the DM780 options screen.

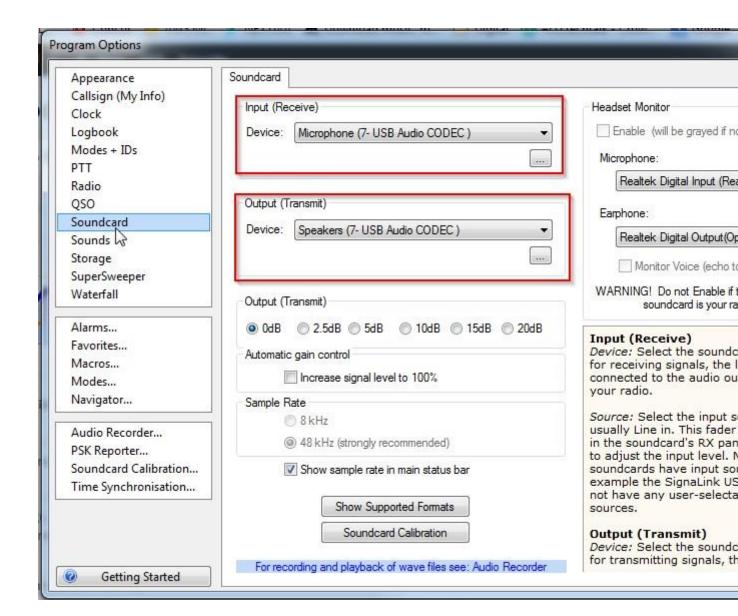
I prefer the serial line DTR option over via the HRD connection as it is consistent with the CW keying mechanism used in the next section and pulling the USB cable will drop the DTR line. Where as pulling the USB cable or shutting down the PC will not send a TX stop CAT command, to counter the TX start CAT command that HRD would use to place the radio in transmit.

Appearance	PTT		
Callsign (My Info) Clock	COM Port	Ham Radio Deluxe	Radio Opera
Logbook	 via Serial (COM) port 	🖱 via Ham Radio Deluxe - DM780	Let ROC radio via
Modes + IDs		must be connected to HRD.	radio via
PTT	Port: COM12 -	Configure HRD connection	None
Radio	On TX: 📝 Set DTR (data-terminal-ready)		via soun
QSO	Set RTS (request-to-send)	See notes below	PTT or ra
Soundcard		_	
Sounds	COM Port		
Storage	To use a COM port for PTT:		
SuperSweeper	Select via Serial (COM) port		
Waterfall		ust not be in use by another program	n,
Alarms			
Favorites	When you switch to TX DTR and/or R cleared.	(raised), when you retur	n to KX they
Carrier Contractor			
Macros			
Macros Modes	Note: this port cannot be used by an exclusive use by DM780.	other program such as HRD - it mus	st be available
Modes	Note: this port cannot be used by an exclusive use by DM780.	other program such as HRD - it mus	st be availabl
Modes Navigator	exclusive use by DM780.		st be availabl
Modes Navigator Audio Recorder	exclusive use by DM780.		st be availabl
Modes Navigator Audio Recorder PSK Reporter	exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be o In the View menu select Rad	connected to HRD:	st be availabl
Modes Navigator Audio Recorder PSK Reporter Soundcard Calibration	exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be o In the View menu select Rad In the Radio pane press Con	connected to HRD: lio figure and read the instructions!	
Modes Navigator Audio Recorder PSK Reporter	exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be o In the View menu select Rad In the Radio pane press Con	connected to HRD:	

Configure CW keying



Configure the Sound card



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SET SOUND-CARD INITIAL GAIN LEVELS

Before taking it for a test drive on the air the initial gain level for the USB sound card which while physically inside the transceiver it is logically part of Windows. In my particular installation the FTDX3000 sound card shows up as Speakers "7-USB Audio CODEC" and Microphone "7-USB Audio CODEC".

In your system the number may be different but the rest of the text will be the same. Right click on each device, select properties and levels. Start out will a low level around 10 for you initial trials. You can tweak the TX value in DM780, here in the logical device config, and in the radio menu settings as shown above in the radio configuration section.

Playback	Recording	Sounds	Communicat	ions		
Select a p	layback de	ice belo	w to modify	its settings:		
3	<mark>Speake</mark> 6- USB Ready		nd Device		3	•
0	Speaker 7 - USB Ready	r s Audio C(ODEC			ш
	ASUS V NVIDIA Ready		finition Audi	0		1
	ASUS V NVIDIA Ready		finition Audi	0		
0	Speaker Realtek Default	High De	finition Aud	io		
Config	ure		Set	Default 🖙	Properti	ies

Playback F	Recording	Sounds	Communi	cations		
Select a re	cording d	evice bel	ow to mo	dify its setti	ngs:	
1	Microp 6- USB		nd Device			
-		Device				
1	Microp 7- USB	hone Audio C(ODEC			
	Ready	Addio Ci	JULL			
		Digital I		udia		
	Ready	High De	finition A	2 Color		
Configu	ire		1	Set Default	Pro	perties

That should be enough to get you on the air. Perform a few test transmissions to get the the audio levels in DM780, the sound card and in the radio setup options to achieve the ALC levels recommended for your mode. Normally you are striving for no ALC deflection. Set the carrier level in the radio either via the front panel or inside the menu system to the power level desired and have fun.

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TROUBLESHOOTING

If you have trouble getting the PC to talk to the CAT port on the Radio, I would suggest downloading from the Yaesu website the PCC-3000 package.

It presents a very simple interface to the radio and is simple to setup and less may be more by using this simple app to verify radio connectivity. Versus the more capable and more complex HRD Suite.



The PCC-3000 package is what you want, very simple to run no installation is needed.

25-July-2015 Update Note!, a later version of this package is now available on the Yaesu website. Use whatever version is available.

eur Radio \ Software	
TDX3000 USB Driver (Virtual COM Port Driver) (3.49 MB)	
TDX3000 Update Firmware Information 9-4-14 (104.15 KB)	
TDX3000 Firmware Update Manual (377.36 KB)	
TDX3000 Update Software DSP (V0547) 9-4-14 (1.93 MB)	
PCC-3000 Software V1.01 and Reference Manual (10/24/14) (2.81 MB)	
TDX3000 USB Driver Installation Manual (396.08 KB)	

73's until next time, Jay

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