RTTY For Yaesu FTDX101D/MP & FTDX10 John 2E1HEL

First, we need to set the radios RPTTY to be controlled by the USB virtual com port. To do this press Function/FUNC then RADIO SETTING -> MODE RTTY. Scroll down to RPTT SELECT and choose DTR. Leave all other settings to their defaults (highlighted in yellow)

RADIO SETTING				
MODE SSB MODE RTTY			>	
MODE AM	HCUT FREQ	3000Hz		
MODE FM	HCUT SLOPE	6dB/oct 18dB/oct		
MODE PSK/DATA	RTTY OUT SELECT	MAIN SUB		
MODE RTTY				
ENCDEC PSK		50		
ENCDEC RTTY	RPTT SELECT	DAKY RTS DTR		
	MARK FREQUENCY	1275Hz 2125Hz		
	SHIFT FREQUENCY	1704-		
BACK			>	

With the radio on and connected to your PC make note of the virtual com port numbers in the device manager of windows.

You can easily locate the device manager by clicking the start menu then typing the word **device**. Your COM port numbers may differ to the image below but the highest value number is usually allocated to the Standard UART Bridge, this is the one we need later. In my case its number 4:



Download and install the MMTTY software from <u>https://hamsoft.ca/pages/mmtty.php</u> Make sure you click on the correct Full Version link a little way down the page and not on the clickbait links at the very top.



Once the MMTTY software is loaded on the first run it will ask for your callsign. Next click **Option (O)** at the very top then click **Setup MMTTY (O)** from the drop-down menu. I won't go into detail of what all the options mean, please simply match your settings to the screenshots below:

Setup MMTTV Ver1 70K		×
Demodulator AFC/ATC/PL	L Decode TX Font/Win	dow Mise SoundCard
Discriminator Type © IIR resonator © FIR BPF © PLL © FFT Mark 2125 • Hz Shift 170 • Hz BW 70 • Hz Show	Limit Amp. AGC Over Sampling Gain 200 • Smooth LPF • FIR av. • IIR Freq 60 • Hz f	Pre-Filter Show BPF LMS/Notch ON Tap 56 • FW 100 • FW 100 •
□ Reverse	HAM Default	
Dual Peak Filter	2125 170 Fix	es 45.45 baud
HAM Set Default(Demodulator)	? OK Cancel
Setup MMTTY Ver1.70K		×
Demodulator AFC/ATC/PLI	L Decode TX Font/Wind	dow Misc SoundCard
AFC		
AFC Time 8	▼ VCO Gain 3	•
Shift C Free SQ 32	▼ LoopLPF (IIR)	
• Fixed Sweep 1	Order 2	 ✓ f
C HAM	FC 250	✓ Hz
○ FSK	OutputLPF (IIR)	
ATC	Order 4	• f
□ ATC Time 4	FC 200	 → Hz

Setup MMTTY Ver1	.70К	×
Demodulator	AFC/ATC/PLL Decode TX	Font/Window Misc SoundCard
BaudRate BitLength	45.45 ▼	ajority Logic nore framing error Parity © NONE C 1
G 5bit G 6bit G 7bit	 1.5bit 2bit Rx=1bit, Tx=1.5bit 	C Even C 0 C Odd
⊂ 8bit	• Rx=1.42bit, Tx=1.5bit	• Rx=10it, 1x=1.50it • Rx=1.42bit, Tx=1.5bit
BAUDOT C	odeset O J-BELL	
HAM	Set Default(Demodulator)	? OK Cancel

Obviously use your Callsign. EXTFSK64 is at the very bottom of the drop-down menu:

Setup MMTTY Ver1.70K					×
Demodulator Al	FC/ATC/PLL Decode	TX Font/Win	dow Misc	SoundCa	ard
DIDDLE C NONE C BLK C LTR Random WaitTimer	TX ☐ UOS ☐ Double shift ☐ Disable Wait ☐ Disable Rev ☐ Always fix shift	Digital Output	ldle Wait	PTT & I Port E □ Inver Radio	FSK XTFSK64 - rt Logic o command
TxBPF/TxLPF TxBPF T TxLPF F Input Button 1x1 DEAL	Tap 48 • f req 100 • Hz R ANS BTU	Macro Your Callsign 2E1HEL	1X2 2X3 DE3 UR55 nediately	2 QANS 3 M6 3 M7 9 M8	SK RY EE M14 M11 CQ2 M12 CQ1
HAM	Set Default(Demodulat	or)	?	OK	Cancel

Setup MMTTY Ver1.70K		×
Demodulator AFC/ATC/PLL Dec	ode TX Font/Window Mis	sc SoundCard
Font Calibri	Pof	RxWindow
Font	Kei	Back
✓ slash zero	🗖 Use Palette	Char.
Adjust	WaterFall	Char sent
Width 0	L H	
Height 0		TxWindow
	7770	Back
	XYScope	Char.
	Reverse rotation	Char. sent
	Reverse rotation	
HAM Set Default(Democ	dulator) ?	OK Cancel
Setup MMTTY Ver1.70K	a lana la service de la	X
Demodulator AFC/ATC/PLL Dec	ode TX Font/Window Mis	sc SoundCard
	□ Save window location	
RX 12 • TX 4 •	\square Setup always on top	
Priority	Sound loopback Tx Port	
⊂ Normal ⊂ Highest	C OFF C Sound	d
• Higher • Critical	• Int. C Sound	d + COM-TxD (FSK)
Device Identifiers	C Ext.(SAT) • COM	I-TxD(FSK) USB Port
RX 0		
TX 0 -	System Font	
Source	Window Times New Ron	nan Set 0 🗸
C Mono C Right	Fixed pitch Courier New	Set 0 -
• Lett	- ,	Enstish
Clock	Japanese	English
11025 • Hz Adj		
0.00 Hz		
Tx offset		

The fonts window is all personal preference and does not affect operation:

Setup MMTTY Ver1.70K	×		
Demodulator AFC/ATC/PLL Decode TX	Font/Window Misc SoundCard		
Demodulator AFC/ATC/PLL Decode TX Reception C Line (USB AUDIO CODEC) C C C C C C C C C C C C C C C C C C	Font/Window Misc SoundCard Transmission © Speakers (USB AUDIO CODEC) © Speakers (Yamaha A-U670/A-U671) © © © © © © © © © © © © ©		
□ Hide FlexRadio Reserved and IQ Audio Devices			
HAM Set Default(Demodulator)	? OK Cancel		

Here you should be able to identify the radios USB audio codec:

With all the options set press **OK** to close the options window.

A secondary window should now automatically appear.

Here we need to set the virtual COM port number we found in the device manager earlier.

As said before its usually the bigger of the two numbers but you may need to try the other if it fails to work.

In my example it's COM4 but yours may be different:

EXTFSK 2.0e			
Port COM4 FSK output C TXD RTS C DTR	Status:OK PTT output TXD RTS ORTS OTR		
Inv. FSK Inv. PTT 45 baud			

Hopefully with everything set we're nearly ready to start RTTY. Going back to the radio press MODE then select RTTY-L MMTTY will obviously decode RTTY but I find it can be helpful to have the radio decoding as well. Press Function/FUNC then select DECODE.

You'll probably see a lot of gibberish appearing on the decode screen, this is simply the decoder trying to make sense of what it's hearing within the noise floor.

Select DEC LVL and adjust the level up until the gibberish decoding just about stops.

Setting the level too high could stop a genuine signal being decoded properly, some experimentation may be needed.

ТЕМР МЕТЕР 5 1 3 5 7 9 +20 +40 10 50 100 150 200 250 5 10 15 20 СОМР 2 20 40 50 80 100 с ТЕМР 2 20 40 50 80 100 с VFO ПТТТЕ 1 4.096	SWR METER B0 ALC 5 10 5 10	50 15 _A 8	HS
ANT ATT 1 OFF	- IPO - IPO	R.FIL 600Hz	AGC Slow
RTTY DECODE MAIN GIDLIDNKBFYDWSQZZFQOY O?O -1)HZN OCHXAQXSRPTSXIT FVZHI SMBU V2 N MDYXODJKP HZE VU DYYYEPRFV	DECODE LVL	55	
DEC LVL DEC OFF			MULTI DEC LVL

Another feature I personally like to enable is the radios monitor set to a low volume. Just a bit of reassurance we're actually sending something.

At this point please:

Make sure you are in the data portion of the band.

Make sure your tuned to your antenna with the lowest SWR possible.

Make sure your output power is no higher than the AM power rating of the radio. For 100W radios this is likely to be 25W

It's a good idea to monitor both your SWR and Temperature. FTDX101D/MP users can display both at the same time.

All good?

Let's now try sending some RTTY!

Return to the MMTTY software and hit the F9 key of your keyboard.

Your radio should start transmitting a carrier of essentailly blank RTTY and you should also see the little EXTFSK window populating repeatably with "1F"

You can now start typing your communications CQ CQ CQ DE (your call) (your call) (your call) PSE K for example.

When you want to end your transmission hit the F9 key again to return to RX.

If your radio did not transmit check again the COM number in the little EXTFSK window and all settings mentioned previously.

If it did work then you're ready to rock!

The MMTTY software is capable of setting assignable macros for calling CQ and setting responses to signal reports and so on.

I won't go into all that here so I recommend having a read through the MMTTY PDF File from their website: <u>https://hamsoft.ca/pages/mmtty.php</u>