

TSTALK v3.1

This program was written by me DJ0HF and designed to allow simple operation of Kenwood transceivers for the blind, using single key presses to select most options and doesn't need any libraries etc. just one single exe file to run. It has been tested on a Kenwood TS590SG but should work on many other Kenwood transceivers such as the TS590S, TS450/480, TS570 and TS2000.

The program is free to download along with this documentation and other files but of course although the program has been extensively tested you use it at your own risk.

New in version 3 is the ability to run a second program such as AC Log with your radio at the same time as FT Talk using something called a virtual radio

And although I have made this program/package free for all to use none of the files in this package may be modified in any way without my written permission.

If you have a question which is not answered by the documentation, or a problem then I can be contacted via the E-Mail address :-
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Preparing your Radio

Now you can connect a standard USB cable between the USB or 9 pin port of your radio and a usb or serial port on the computer.

If you are using the 9 pin serial port connector on your radio then you need to set the following menu item in the radio. Com Port communication speed to whatever speed you want to use, though I strongly recommend 38400 Baud and if you are using the USB connection then USB Port communication speed to the same value.

This information has to be also entered into the config file which is explained below but if you don't know how to find the com port or speed on your computer then after connecting the radio and switching on you can

run the program find my radio which will not only tell the com port number and speed but will automatically put this information for you into the configuration file. For this to work the radio should be the only radio connected to the computer when you run the find my radio program.

TSTALK is a Windows program and should run fine on all version from XP onwards, so also Windows 7, 8, 10 and 11 though it has only been tested on windows 10 and 11.

Configuring the config file

Unzip the TSTalk folder onto your computer.

Use a text editor to change the first line in tstalk.cfg to match your comport between 1 and 99.

The second line Serial speed for the radio normally 38400 or 9600 (I recommend using 38400) the standard 4800 Baud can be a little slow if you rapidly hit something like the cursor keys a number of times. If you used my program find my radio then this information will already be in the configuration file.

The third line power should be set to the power level you want to use when you first connect the program to the radio between 0 and 100. Initially this value is set to 100 watts. If you set a value less than 100 watts the power P command and the cursor keys will allow you to change the power between 5 and 100Watts. If however you have a radio which allows 200Watts and you enter 200 as the power in the config file then the power command P will allow you to change the power between 5 and 200 watts.

The fourth line is swr and if set to 0, in tune mode you have to press the S key to hear the SWR but if you set it to 1 then when in tune mode the SWR is repeated continually until you exit tune mode.

The fifth line is ATU if it is set to 0 then it will tune the antenna using the internal Automatic ATU However tuning can be very fast and then the radio will switch back to receive and the radio will no longer send the SWR and will send zero which will be voiced as 1.0 to 1.

But if set to 1 the program will switch on the transmitter with 5 watts of carrier and will expect an external ATU and if it is a manual ATU then it can be useful to set the SWR parameter to 1 so that the SWR is continually repeated allowing you time to adjust a manual atu for best SWR.

Even if you have an internal atu it can be useful to set this parameter to 1 as it gives you more time to check the SWR before the radio automatically goes back to receive.

You can set this parameter to 2 which will use both methods, so it will first turn on the Auto ATU and tune automatically then after a few seconds it will say Okay and turn on transmit with 5 watts of carrier and you will be able to hear the real SWR voiced.

The sixth line is bandmax which is set depending on the highest band available on your radio to 10, 6, 2 or 70 for bands between 10 metres and 70cm. The seventh line is Autoon which if set to 1 will automatically switch your radio on when you start the program and switch it off when you close the program with quit that is the Q key, so that for radio's with touch screen you do not accidentally touch the screen while searching for the on/off button. Default is 0.

The last parameter is the virtual radio port which is normally set to zero but may be used to allow a second program like AC Log to work with the radio by sending it's commands to TS Talk which relays the communication to and from the radio. How to set this up is explained in the document [virtual_radios.pdf](#).

Using TSTALK

Start the program `ts-talk-30.exe`, you can exit the program at any time by hitting the Q key. It is important to quit the program with the Q key and not just to close the window as just closing the window will prevent the automatic power off for the radio from working.

The program will announce the version and connect with your radio and speak the mode, then frequency and say connected if it is successful in communicating with the radio. If it doesn't say any of these things then probably the comm port or the speed is wrong, there is a driver problem or the loudspeaker on your computer is not selected as the audio output device. Also when started the program resets the notch and attenuator but keeps the Noise Reduction, Speech compressor, Break-in and VOX settings as they are configured in the radio.

You can voice the help file at any time by hitting the H key.

You put the program into various modes by a single key press and when you first start the program it will initialize on 40 metres to 7.1Mhz unless

you have used this program before in which case it will return to the last frequency and mode you were using when you quit the program. The noise reductions and speech processor settings in the radio are maintained. The noise blanker and attenuator are switched off. The preamp is automatically switched on for bands 14Mhz and higher.

In this **Frequency mode** which you can re-enter at any time by hitting the F key the the up and down Cursor/Arrow keys by 1Khz, left and right Cursor/Arrow keys change the frequency by plus or minus 100Hz for SSB and AM modes. In CW Mode the up and down cursor keys change the frequency by 500Hz and the left and right by 10Hz for CW fine tuning. In FM mode where 100Hz is not really useful and so the left and right cursor keys control the squelch. The Page up and Page down keys increase or decrease the frequency in 10Khz steps, except in FM mode on 2 Metres and 70cm where they produce 12.5Khz steps. Plus and Minus keys change the frequency in 1Mhz steps. Pressing F at any time will voice the mode and frequency and if se such things as split and CTCSS.

If you tune the radio using the main tuning knob the program will follow the frequency changes and if you stop tuning on a station and want to know the frequency just hit the F Key. You can get the **S meter** reading at any time by hitting the S key. Although it is probably best to control the radio with TSTALK if you do change bands with buttons on the radio the program will still follow those changes.

Frequency Entry Mode, hitting E will put you in frequency entry mode where you can enter a frequency between 1 and 440Mhz. The Mhz and Khz values must be separated by a full stop/point but for example to go to exactly 15Mhz you only need to enter 15 and then hit the carriage return to move to that frequency. Entering an invalid frequency the word invalid will be voiced and the entry will be ignored. Pressing F will confirm that the frequency change has taken place if you want to check. You can enter any valid frequency within the range of your transceiver if it is well outside an amateur band then it will be announced as band unknown. If you select a frequency your radio cannot use then it will be ignored.

Split Frequency mode is used when you want to work a DX or Expedition station and they are telling you up 5 or up 10 meaning you should transmit 5 or 10Khz higher than the frequency they are using.

You enter Split Frequency Mode by hitting V and VFO B will then be displayed and you can increase or decrease the frequency using the usual cursor keys, Enter frequency command etc. And of course you can check the frequency of VFO B with the F key as usual. Now when you transmit you will be transmitting on VFO B and receiving on VFO A. To exit split mode just hit V again.

You can also use split mode to set up a repeater split, for example on 10 metres if you enter the receive frequency and then hit V and then enter the transmit frequency you can use the split mode to work through the repeater. Some repeaters use CTCSS access so see below for details.

If you want to save the split frequencies and/or CTCSS then you can hit C for channel save and then a number 0 to 9 to save the split/ctcss in that memory location and recall it at any time with G for go to channel and a number 0 to 9 (see also banks 0 to 9 in the Memories section).

Zero Frequency, Most stations tend to transmit on exact Khz frequencies and when you tune your receiver you may not be exactly on the Khz but if you tune the receiver so the audio frequencies sound a bit high then hitting Z will put you exactly on the Khz frequency in use by the station you are listening too. In CW mode Z will zero the station you are receiving to the tone frequency set in the menu's typically between 400 and 800Hz and guarantee that you will be transmitting on exactly the same frequency as the station you are receiving.

You can change **Modulation mode** at any time by hitting the M key and it will cycle through LSB/USB/CW/AM and back to LSB. Except on 10 Metres to 70cm where FM follows AM and then back to LSB.

In the following modes the up and down arrow keys work to increase or decrease the parameter chosen.

Band change mode by hitting the B Key. In Band change mode each tap on the up arrow will go up one band or cursor down to go down one band, but pause between cursor key presses to give the radio time to change band. Or in band change mode you can go directly to any HF band by hitting one of the number keys 1 is 160Metres, 2 is 80Metres and so on with 0 being 10 metres. After selecting a band using the number keys the radio automatically returns to frequency mode. After 10 metres to get to

the VHF/UHF bands you hit B and use the up and down arrow keys. Or you could hit E and enter a frequency for the band you want to go to. If you are not sure which band you are on just hit the B key again to voice the band and then F will put you back in frequency mode.

The program automatically puts the radio into LSB on 160/80 and 40Metres and USB for 60Metres and from 20Metres all bands up to 6Metres and FM on 2 metres and 70cm. Also the pre-amp is automatically turned off on bands 160 to 30 Metres and on for bands 20 metres and up.

Insert CTCSS hitting I while in FM mode will ask you for a CTCSS number which if you don't know it, you can find in the file ctcss.txt. This is a 2 digit number, then hit enter and the CTCSS tone will be inserted into the transmission and expected in the received signal from the repeater.

Bandwidth mode by hitting the W key. In Bandwidth mode the up and down cursor keys can vary the bandwidth in SSB between 3Khz and 1Khz and in CW mode between 1.5Khz and 50Hz. Also while in Bandwidth mode and the left and right cursor keys still change the frequency just as in Frequency mode and in SSB this is plus and minus 100Hz and in CW mode plus and minus 10Hz. This is especially useful on CW when reducing the bandwidth may put the wanted signal outside the band pass and you can shift it back into the band pass.

Power mode by hitting the P key. In Power mode the up and down cursor keys increase or decrease the power in 10W steps between 10 and 100 watts. Cursor down from 10 watts gives you 5 watts the lowest power setting.

RF Gain mode by hitting the R Key. In RF Gain mode the up and down cursor keys increase or decrease the RF gain.

AF GAIN mode by hitting the A key. In AF Gain mode the up and down cursor keys increase or decrease the AF gain.

Keying Speed mode by hitting the K key and the radio will go to CW mode and announce the current keying speed. You can use the up and down cursor keys to increase or decrease the keying speed in steps of one word per minute. If break in is enabled it will be disabled during speed

adjustment and re-enabled when you exit keying adjustment. Hitting K again will turn off keying speed and return to the mode last used and if necessary turn on break-in.

Tune Mode, Hitting the T key will turn on the radio's transmitter in Tune mode so that the ATU can be used to adjust the antenna matching. Hitting T again will put the radio back into receive mode. While in tune mode if swr in the config file is set to zero then hitting S will give you the SWR of your antenna. If swr in the config file is set to 1 then the SWR will be automatically and continually repeated until you leave tune mode. Some radio's go back to receive automatically after the auto tune is finished (which can just be a couple of seconds) and you may no longer be able to read the SWR. In which case there are two ways to keep the transmitter on. You can set the menu item 'TX hold when AT completes the tuning' to 1 instead of 0. On the TS590S this is menu item 51 and on the TS590SG it is menu item 57 or if you have another model of Kenwood transceiver then you will need to look at the menu list to find the menu item number. Or you could set the ATU parameter in the config file to 1 so that the radio stays in transmit until you hit T again, both methods giving you plenty of time to check the swr.

If you have a manual ATU then set the SWR parameter in the config file to 1 and also the ATU parameter to 1. Now you will hear the SWR repeated all the time while in tune mode so that you can adjust your manual ATU for best SWR and then hit T to return to receive mode.

You can set the ATU parameter to 2 which will combine both modes, first starting an Auto ATU tune and after a few seconds the program will say Okay and then put the radio into transmit with 5 watts of carrier and you can then hear the real SWR of your antenna.

Transmit/Receive

Hiting the Space Bar will put the radio into transmit and hitting it again will return the radio to the receive mode. When you first start transmitting on a mode like SSB then there is no RF and the swr value will be zero in other words less than 1 to1. However when you start speaking and generating RF then my program will read the SWR and if at any time you hit S then it will voice the highest SWR it has seen during this period of transmission.

Memories

The program offers 100 memories in 10 banks and you can store either a single frequency or if you have split setup then the split will be stored as well any CTCSS tone set.

The first 10 memories that is bank zero are quick memories so to store a channel in a memory you hit C for Channel save and then a number key 0 to 9.

To recall the memory hit G for go to channel and then a number key 0 to 9. Trying to recall a memory which hasn't been used results in an invalid message. To use the other banks after hitting C or G if you hit B it will ask you for a bank number between 0 and 9 and then will ask you for the channel number again from 0 to 9 and you will store or recall that memory slot.

Memory hopping, if after using G to recall a memory channel you hit U it will recall the next memory channel and you can cycle through all 10 channels in a bank.

If you have set up a large number of memory channels it's difficult to remember all of them, so when you quit the program it creates a file called memory.txt, which is a list of all the memory channels you are using in a human readable form.

Menu, you can read and write items in the menu's just hit N and you will be asked for the Menu number. This is a 3 digit number, then hit Enter and you will be asked for a value. If you don't enter a value and just hit Enter then the contents of this memory item will be voiced. If you enter a value before hitting Enter, this value will be stored in the selected Menu location. If you enter a value the radio can't accept it will be ignored by the radio. As the menu commands vary from radio to radio you will need the correct list for your radio to interpret the commands, I have included text files for the TS590S and the TS590SG.

Extended Command Mode is turned on by hitting X and extends the command set for commands which are used less often. Hitting X again will turn it off as will hitting any key not used in Extended Command Mode.

In Extended command mode hitting M while in FM mode changes the FM mode between FM Narrow (2.5Khz) and FM (5Khz).

Options voicing. If at any time while running the program you would like to know which options are enabled (set by the function keys listed below). Then hitting o will voice all the options which are active.

F1 switches the **Preamplifier** on or off

F2 switches the **attenuator** on or off

F3 switches the **Noise Blanker** on or off

F4 switches the **Noise Reduction** on or off

F5 switches the **Notch Filter** on or off

To adjust the level of the noise blanker/noise reduction, see the Level control information below.

F8 switches the **VOX** or **CW Break-In** on or off depending on mode.

Level Control, if after turning on the Noise blanker or Noise reduction you hit L for level control you can now use the up and down cursor keys to increase or decrease the level of the selected option. Noise reduction on most Kenwood rigs has 9 or 10 different levels though the TS2000 if you set it to minimum it will be in automatic mode. Listen to your radio to find the optimum level.

F11 puts the radio into mic gain mode so that you can adjust the mic gain using the ALC readings from the radio.

First it is important to do the tuning operation to make sure your antenna is matched to the radio and you are not going to be transmitting into a high SWR. When you hit F11 you will hear Mic Gain and a reading for example four two meaning the mic gain is set to 42 at the moment. Then the program will voice Peak ALC and it should say 0 as we haven't begun the adjustment yet. Now press the PTT and speak normally into the microphone for about 10 seconds. Now release the PTT and the program will be telling you your peak ALC reading where values between 11 and 15 seem to be good for the TS-590SG . If it is lower than 11 than you can use the cursor up key to increase the mic gain or if it is higher than 15 then that is too much ALC and you can use the cursor down key to reduce the mic gain. As the mic gain goes from 0 to 100 it is probably better to hit the key 5 times to change in steps of 5. You will now hear that the peak ALC voicing has gone back to zero. So press the PTT and repeat the operation until you get your ALC between 11 and 15. Remember these are only empirical values and you may need to test while speaking to a station on

the air and the levels may vary with other models of Kenwood radio's and of course if they say you need to increase or decrease the mic gain then just hit F11 and use the up and down cursor keys to change the mic gain and then hit F11 again to exit the mic gain mode.

F12 switches the Auto ATU on and off if fitted, if switched off the ATU parameter in the config file should be set to 1 for manual ATU. This is also useful if the radio is feeding an amplifier, rather than an external ATU.