

RIGblaster Advantage



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Introduction To The RIGblaster Advantage

We understand you have a choice when buying Amateur Radio products and we would like to take a moment to thank you for choosing West Mountain Radio. The RIGblaster Advantage has been designed with you, the digital-mode operator in mind. It has many outstanding features which will at the same time enhance and simplify your operating.

Some of the features of the RIGblaster Advantage which put it ahead of the competition include;

- COM port push-to-talk (PTT) keying.
- A high-quality built-in USB sound card with level controls (both RX & TX) on the front panel.
- Pre-wired Instant Setup Connectors – no more complex jumper wiring!
- Rig-control (CAT/CI-V).*
- FSK jack for operating FSK RTTY.**
- CW keying jack for operating Morse Code.
- Digital VOX with adjustable delay.
- Separate audio jacks for received and transmitted audio.
- Foot-switch PTT input.
- USB virtual serial port with real RS-232C DB9.
- TX inhibit switch.

Connection to your computer is made very simple with the supplied USB cable. We will go into connecting up your RIGblaster Advantage in the first chapter so **do not** hook it up right away. Please read through this manual first (especially the driver installation section) and you will find the RIGblaster Advantage will provide you with many years of reliable service and enjoyment.

* *Rig control is only available on certain transceivers.*

** *FSK requires the transceiver to have a dedicated RTTY mode with FSK input and the software must support COM port FSK.*

Introduction To Digital-Mode Operating

The CD is a collection of various digital-mode software programs for use with the RIGblaster Advantage. The software is all Third-Party software programs, however, we have tested our products on the majority of them. Amateur radio software is constantly evolving and we encourage you to visit the author's website to check for updates for software you wish to use.

Most modern digital-modes can be operated on the RIGblaster Advantage. Some of these may be familiar to you. For instance PSK31, JT65 & RTTY are very commonly heard on the bands.

Try tuning to 14.070MHz (usb) and chances are you will hear multiple PSK31 QSOs taking place. Tune to 14.076MHz and you will often hear JT65 signals. Going up another 10KHz lands you right in a very popular RTTY segment. Other modes that will work with the RIGblaster Advantage include, but not limited to, Olivia, Hellschreiber, WinMOR, DominoEX, SSTV, Packet and ALE.

It is worth noting there are some modes in use which cannot be used with the RIGblaster Advantage in Windows (nor any sound-card based interface). These are the ARQ modes Pactor-I/II/III and Amtor. These modes require very precise timing cycles which Windows is unable to deliver. Amtor is very rarely used these days but Pactor is commonly employed for mail messaging using the Winlink 2000 system. In practice this is not much of a limitation as the RMS Express software (WinMOR) makes mail/e-mail messaging simple using the RIGblaster Advantage.

Many digital-modes (such as PSK31) will work far down into the noise level. It is not uncommon to see copy on your screen even when you have difficulty hearing the signal on your speaker.

This also implies you do not need to run high power levels during normal conditions and for most digital-modes you will find 20-40W ample. In fact, running close to maximum output on your radio is self-defeating. In this case you stand a very good chance of having a spread-out badly distorted signal (think QRM!) and you may even damage your rig on long overs as many transceivers are not designed to run high duty-cycle transmissions for extended periods.

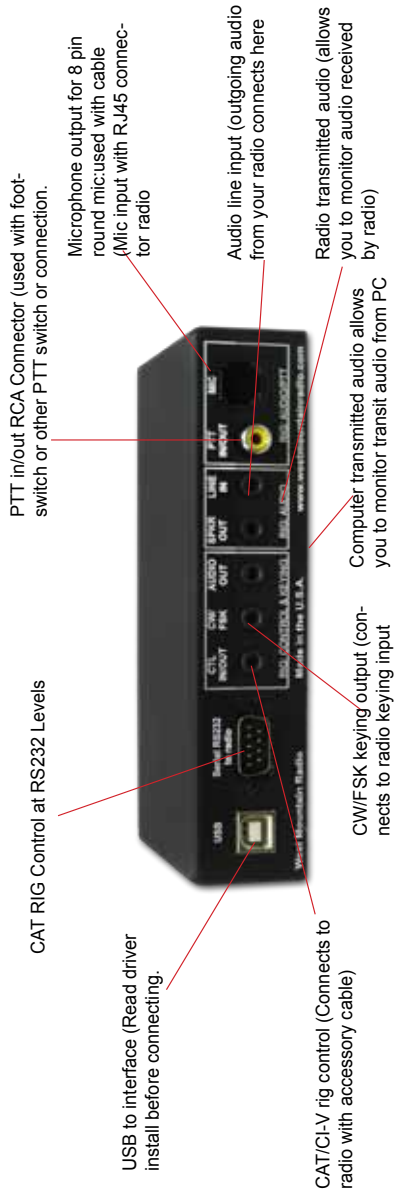
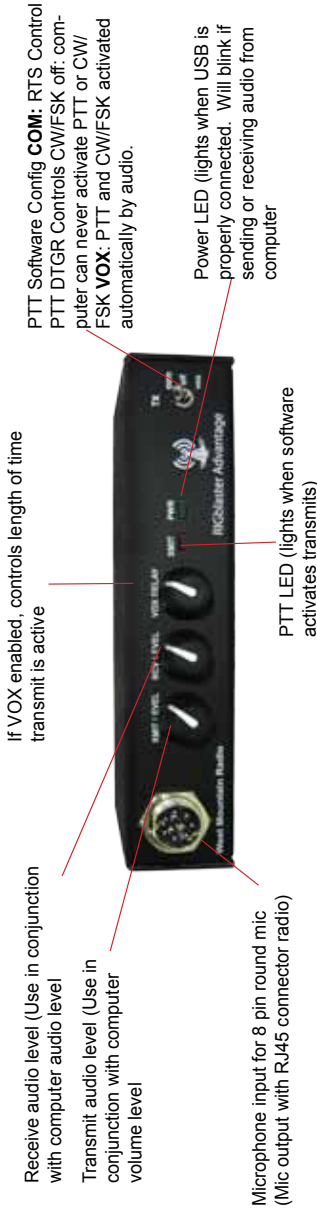
At the back of this manual you will find a simple chart of digital-modes, software and frequencies to try. These are just suggestions but will help you get started navigating the world of HF digital-modes.

Package Contents

The following is a list of the contents for the RIGblaster Advantage. Verify that all the following items were included:

- 1 — RIGblaster Advantage Unit
 - Note: Cover is loose so you may easily remove it to install jumpers)
- 1 — Accessory ZipLock® bag. Contains the following:
 - 8 — Single pin jumper wires
 - 5 — Mini blue shunts
 - 4 — #6 black sheet metal screws (for cover)
 - 4 — Adhesive pads and Rubber Feet
- 1 — Baggie of Instant Setup Connectors
- 1 — Microphone cable (RJ-45 to 8 pin screw-on)
- 1 — 1/8 inch stereo mini plug cable
- 1 — USB A-B cable
- 1 — RIGblaster & RIGtalk CD
- 1 — Owner's manual

Controls, Connections And Features



Software Driver Installation

The RIGblaster Advantage when properly installed in Windows, Linux or Macintosh operating systems will provide two new hardware devices; a serial COM port and a sound-device.

Linux Installation

The RIGblaster Advantage was successfully tested with Ubuntu. Drivers and instructions are available online:

<http://www.westmountainradio.com/adv/drv/linux>

Macintosh OS X Installation

The RIGblaster Advantage will work with OS X 10.5 and above. Drivers and instructions are available online:

<http://www.westmountainradio.com/adv/drv/macosx>

Windows Installation

The RIGblaster Advantage has been tested on Windows 2000/XP/Vista and Win 7. Drivers and instructions for Windows 2000 are available on our website at the following location:

<http://www.westmountainradio.com/adv/drv/win2k>

Drivers for Windows XP and above are supplied on the CD-ROM. They are also available via Windows Update as they are digitally signed with Microsoft.

To install the Advantage in Windows XP and above, connect the supplied USB cable from the PC to the RIGblaster Advantage. This will notify Windows that new hardware has been connected and the "Found New Hardware" wizard will start.

Follow the prompts on the screen. When Windows asks for the location of the drivers, point it to search the supplied CD ROM and/or retrieve them from the Internet if PC is online. The online drivers are digitally signed with Microsoft and will always be the latest version.

After the drivers installation has finished, the green PWR LED on the front of the RIGblaster Advantage will be illuminated. During installation, the red XMIT LED may flicker a few times. This is normal and does not indicate a problem.

Note: *The green PWR LED will blink when incoming or outgoing audio is detected and remain solid when idle. This LED will only be illuminated if the driver installation was successful.*

After successful installation a good idea is to check Windows Device Manager and verify there is a new COM port and audio device (see Figure 1).

How to verify in Windows XP:

1. Open the Windows Control Panel (Start->Settings->Control Panel)
2. Look for the System icon and double-click it.
3. Choose the “Hardware” tab at the top and click the button marked “Device Manager”.

How to verify in Windows 7:

1. Open the Windows Control Panel (Start->Settings->Control Panel)
2. Change Control Panel to “View By Small Icons”
3. Click on the icon labeled “System”
4. Click on the icon labeled “Device Manager”

A window similar to the one shown in Figure 1 should appear. There will be a section called “Ports (COM & LPT)” which can be expanded to view by clicking on the + symbol to the left.

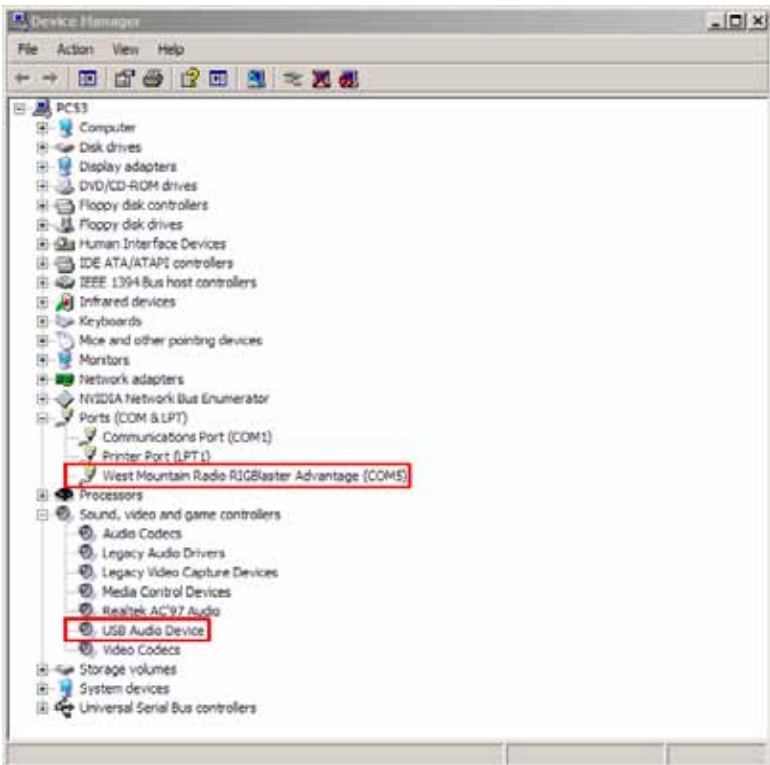


Fig 1 - Windows XP Device Manager

Look for the entry West Mountain Radio RIGblaster Advantage. Immediately after this text, look for the COM port number in parenthesis (e.g. COM5). Make a note of this as it will be needed to configure digital mode software to use this COM port later.

When expanding the section marked “Sound, video and game controllers”, notice the new entry labeled USB Audio Device (or RIGblaster Advantage Audio in Win 7).

Note: *Windows may assign any number for the COM port. Windows typically treats COM1 to COM4 as special and does not normally use them for USB serial devices. Therefore, it is not recommended to renumber the RIGblaster Advantage COM port to a value lower than 5.*

Note: *Some digital mode software, especially older software, may not allow a COM port greater than 8. In which case, renumber the COM port to a value within the range 5-8.*

How to renumber the RIGblaster Advantage COM port.

If needing to renumber the RIGblaster Advantage COM port in Windows, refer to Figure 2.

Bring up the Windows Device Manager and highlight (single left-click of the mouse) on the West Mountain Radio RIGblaster Advantage entry under the Ports (COM & LPT) section.

Next, select the Action menu at the top of this window and select Properties. A new window titled West Mountain Radio RIGblaster Advantage Properties will appear.

Select the Port Settings tab and then click the Advanced button. A new window named Advanced Settings will appear. On the drop-down list near the bottom of this window with the current RIGblaster Advantage COM port selected, click on the little down-arrow to the right and select a new COM port.

After selecting the new COM port, click ‘OK’ on this window and on the Properties window. Continue running the Device Manager, disconnect and reconnect the RIGblaster Advantage USB cable. The Device Manager window will refresh with the new COM port setting.

Sometimes Windows may show that a COM port is in-use. It is safe to use this COM port number as long as the device to which it refers is not physically connected at the same time as the RIGblaster Advantage.

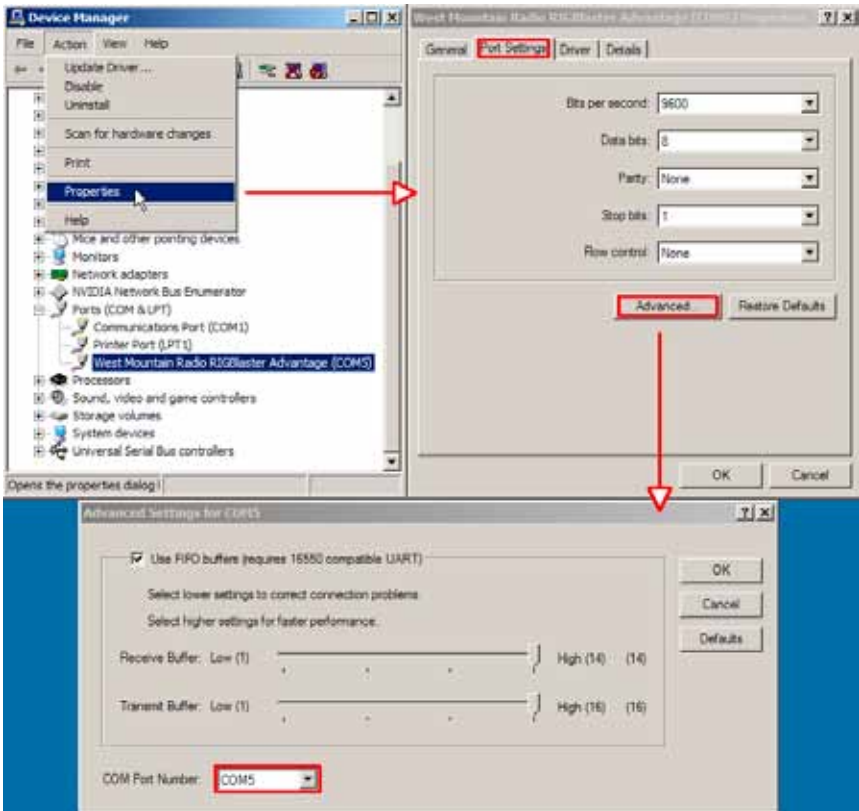


Fig 2 - Renumbering COM Port

Transceiver Connections

Configuring the RIGblaster Advantage with a transceiver is very simple by use of the *Instant Setup Connectors* (ISC). The baggie included in the package contents has six small printed circuit boards. Each ISC is respectively identified: Icom Round Metal, Icom RJ45 Modular, Yaesu Round Metal, Yaesu RJ45 Modular, Kenwood Round Metal and Kenwood RJ45 Modular.

Depending on the transceiver in use, one of these ISCs will need to be installed inside the RIGblaster Advantage before use. They take care of all the microphone connection wiring that previously was done by installing jumper wires and shunts. If using a non-standard microphone wiring, jumper wires and blue shunts have been provided in the package contents. The ISCs cover most popular brands and models of radios.

Choosing the Correct ISC

Observe the microphone connector on the radio. Typically it will be one of two types – either an 8-pin round metal connector or an RJ-45 “square” modular jack. The RIGblaster Advantage is designed to interface the transceiver through the microphone jack. Be sure to select the ISC that matches the connector on the radio. If unsure which ISC to use, refer to the back of this manual and for a chart of common radios and the correct ISC to use.

Example: The Icom 706MKIIG uses an *Icom RJ45 Modular* jack. A Yaesu FT-897D uses a *Yaesu RJ45 Modular* jack. A Kenwood TS-590S uses a *Kenwood 8 Pin Round Metal* jack.

Note: Some radios use a 4-pin round microphone connector, these include some Kenwood and Ten-Tec radios. An adapter will be needed to use the RIGblaster Advantage with these radios. The correct adapter is sku #58136-1000 and available online for purchase.

Locate the correct ISC for the radio and install it on the ISC header (2 rows of 13 pins) located inside the RIGblaster Advantage ensuring pin 1 on the ISC matches pin 1 on the header. Refer to Figure 3 for correct installation.

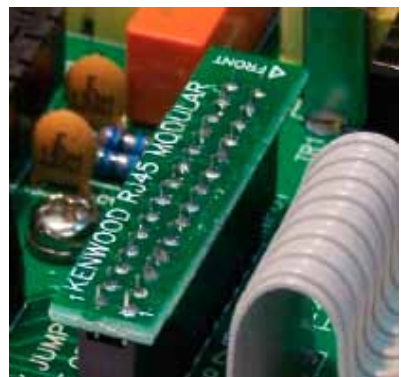


Fig 3 – Installation of a Kenwood RJ45 Modular ISC inside the RIGblaster Advantage. Notice the orientation of the ISC and the location of pin 1.

Now hook up the RIGblaster Advantage to the radio. Follow the steps in the next section and refer to the connection diagram at the back of this manual.

Required Connections

1. Disconnect the microphone from the transceiver.
2. Reconnect the microphone to the RIGblaster Advantage.
***Note:** There will be only one connector on the Advantage that will mate with the microphone plug; either be the 8-pin round metal socket mating to the front panel or the square RJ-45 connector mating to the rear panel.*
3. Connect the 8-pin (round) to RJ-45 (square) microphone cable, included in the package contents, to the transceiver's microphone input socket. *There will be only one end that will mate with the transceiver's microphone socket.*
4. Connect the other end of the microphone cable to the RIGblaster Advantage.
5. Take the 1/8" inch stereo patch cable and connect one end to the transceiver's speaker out (or headphone) jack.
***Note:** If the transceiver uses a 1/4" jack, use the optional 1/8" inch to 1/4" stereo adapter with the patch cable.*
6. The other end of the patch cable should be connected to the jack labeled **LINE IN** on the rear of the RIGblaster Advantage.

Optional Connections

Additional jacks are provided on the rear of the RIGblaster Advantage for operation enhancement:

1. **Serial DB-9.** This connector can be used to interface to transceivers that require RS-232C level CAT or other serial RS-232C devices.
***Note:** This serial connector is a hardware extension of the USB virtual serial port. All lines are connected but take note that some control lines are used by the RIGblaster Advantage for PTT & CW/FSK. See page 14 for details.*

2. **CTL IN/OUT.** This is a TTL level jack providing CI-V/CAT rig control. Many radios can be interfaced to this jack with a low-cost cable for complete rig control with suitable software (e.g. Ham Radio Deluxe, OmniRig, DX Labs Commander etc.)
3. **CW/FSK.** This jack can be used for serial port CW keying or FSK shift if your transceiver supports it. See page 14 for details.
4. **AUDIO OUT.** This jack provides a transmitted audio output. Connect an external speaker here for transmit monitoring.
5. **SPKR OUT.** This jack provides a rig receive audio output. Connect an external speaker here to hear receive audio.
6. **PTT IN/OUT.** This RCA phono jack is primarily used for connection to a foot-switch for PTT. The contacts are in parallel with the Advantage PTT relay (rated 30 VDC 2A max.) and in parallel with the transceiver's microphone PTT line, and will float at the same voltage.

Hints About PTT & CW/FSK Keying

On the front-panel of the RIGblaster Advantage there is a three position switch labeled TX. This controls how PTT is activated (*the method by which the transceiver goes into transmit*).

Position 1 – COM.

The Advantage is under computer control and switches the transceiver between transmit and receive depending on the state of the serial port RTS control signal.

Position 2 – OFF.

The Advantage is prevented from activating transmit on the transceiver. Note the RCA foot-switch input is still active.

Position 3 – VOX.

The Advantage contains circuitry which detects the presence of an audio transmit signal and automatically switches the transceiver into transmit. When the signal ends the transceiver is returned to receive mode.

The VOX method of operation is suitable for many digital-modes and often simplifies software configuration. An example of this would be running a logging program (which requires exclusive use of the serial port to read frequency and mode) but having the ability to run a preferred PSK31 software simultaneously. Using VOX mode allows the PSK31 software to key the rig without conflicting with the logging program.

Note that this method of VOX operation applies only to the RIGblaster Advantage – there is no need to use the transceiver VOX setting.

Morse (CW) Operation

The RIGblaster Advantage has two methods of sending Morse Code (CW). One method is using MCW (Modulated or Tone CW) in SSB or FM modes. Some computer software will only produce this type of CW.

The second, and preferred, method is to use serial port keying. Connect a stereo patch cable from the RIGblaster Advantage's CW/FSK jack to the transceiver's CW keying jack. This will permit Morse operation when using the radio's CW mode with suitable software.

This hardware CW keying can be realized by use of the DTR control line on the USB virtual COM port. In practice, needing to configure the CW software to use RTS for PTT and DTR for keying. Refer to page 28 of this manual for an example of setting up CW keying using the MRP40 software.

RTTY Operation

Similar to CW, there are two methods used to generate RTTY signals. Method one is AFSK RTTY being used in SSB mode. This relies on the software to generate the RTTY tones. Most digital-mode software will use this method.

The other method, FSK RTTY, may also be used by some PC software. Only transceivers that have an RTTY mode and FSK shift input will work in this method.

Often times a special cable is required to interface from the CW/FSK jack on the RIGblaster Advantage to the FSK input on the transceiver. FSK shift input is controlled by the serial DTR line. Refer to page 25 of this manual for an example of configuring MMTTY to use FSK.

In summary, the serial control lines used by the RIGblaster Advantage are shown in the table below:-

Serial Line	Function
RTS	Transceiver PTT
DTR	CW Keying (with CW software)
DTR	FSK Keying (with RTTY software)

Setting Audio Levels

Proper audio level setting is crucial to successful digital-mode transmission. The RIGblaster Advantage transmit audio level can be set by use of the Windows volume slider and the front-panel XMIT LEVEL control. Receive level can be set by the Windows recording volume slider and the front-panel RCV LEVEL control.

It is recommended to set the RIGblaster Advantage audio device levels to 50% for both “recording” and “playback” within Windows. Fine tuning can then be made using the XMIT & RCV level controls on the front of the Advantage.

Note: It is important not to set the RIGblaster Advantage as the default Windows audio device. This will prevent any unintentional transmissions if operating in VOX mode (Windows audio-alerts, music etc).

Note: Some older digital-mode software only uses the default sound-card in Windows for output. If using older software be careful when changing the default Windows sound-card to the Advantage. In this case, it is recommended to change the Windows sound scheme to silent.

Windows XP Audio Levels

Windows XP and earlier used a simple mixer control which can be accessed from the volume control in the system tray. Access with a double-click on this speaker icon which will bring up the audio mixer window for the *default windows device*.

From the menu at the top, choose “Options” and then “Properties”. Select RIGblaster Advantage Audio from the mixer device drop-down menu. Select either “playback” or “recording” and click on “OK”. This will bring up the Windows mixer and allow for setting audio levels. Refer to Figure 4 for assistance.

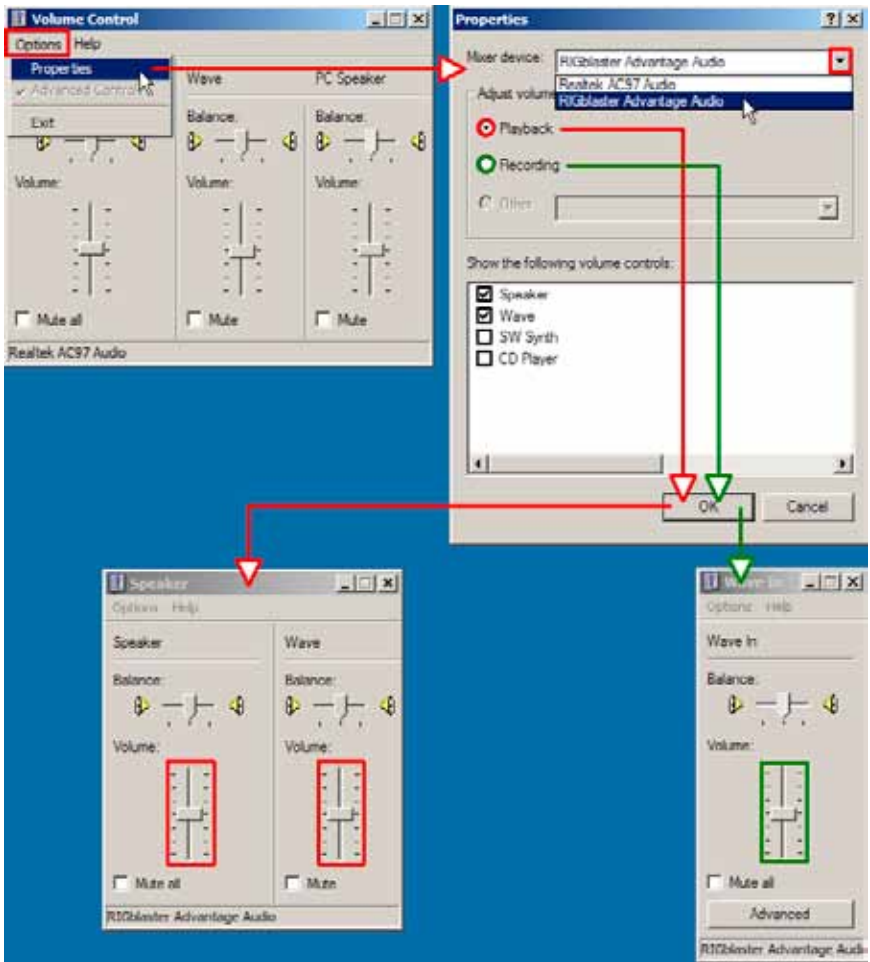


Fig 4 – Setting Windows XP volume levels to 50% for both playback (red) and recording (green)

Windows 7 Audio Levels

Windows 7 sound level settings are found in Windows Control Panel. Refer to Figure 5 below. Be sure to set both Playback and Recording audio levels for the RIGblaster Advantage Audio device.

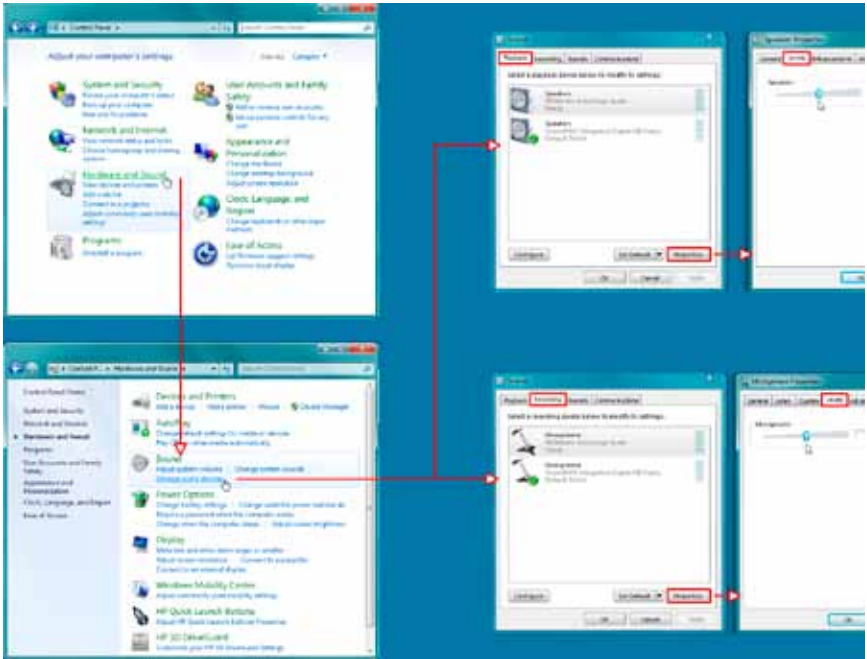


Fig 5 – Setting Windows 7 volume levels to 50% for both playback and recording.

Digital-Mode Operating

This section provides a quick overview of some of the most popular and current ham radio software that has been tested with the Advantage. Keeping in mind that these are Third-Party software programs, West Mountain Radio cannot guarantee it will work with every particular PC & radio. Most of this software is under constant development so some features referred to in this manual may not be exactly as described in future versions released by the respective authors. Also included are screen captures to aid in configuring the software with the RIGblaster Advantage.

Multi-Mode Software: FLDigi

Modes covered: CW, Contestia, DominoEX, Hell, MFSK, MT63, Olivia, PSK, QPSK, PSKR, RTTY, THOR, Throb, WEFAX, NBEMS modes.

W1HKJ's FLDigi is a very capable, cost-free, and easy to use digital-mode program. It has all of the most popular modes in use today (including PSK31) and its decode performance is highly regarded. It is used by HF operators, *ragchewers*, contesters, experimenters and EMCOMM users alike. Many of its EMCOMM modes (NBEMS) are used on HF & VHF under control of other software which provides error-checking and automatic repeat request (ARQ). It also supports logging-integrated rig-control (CAT/CI-V) by a variety of methods.

Note: *The CW mode in FLDigi is tone modulated Morse Code (MCW). Normally operated in SSB mode on HF and FM mode on VHF/UHF.*

Configure FLDigi to Use the RIGblaster Advantage Sound-device
Steps:

1. Choose "Configure" from the main menu.
2. Choose "Sound Card" from the popup menu.
3. Choose "Audio" from the first row of tabs.
4. Choose "Devices" from the second row of tabs.
5. Select the "Port Audio" checkbox.
6. Assign "RIGblaster Advantage Audio" to both of the "Capture" and "Playback" drop-down boxes.
7. Click on "Save" to make the changes permanent.

Refer to Figure 6 for assistance.

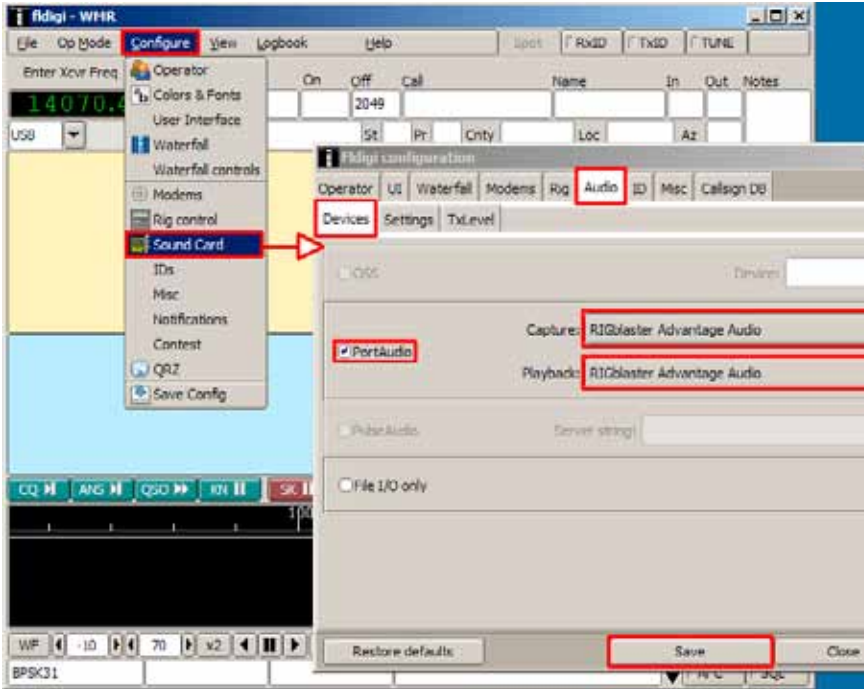


Fig 6 – Configuring FLdigi to use the RIGblaster Advantage sound-device.

Setting Up FLdigi For Hardware PTT Steps:

1. Choose “Configure” from the main menu.
2. Choose “Rig control” from the popup menu.
3. Choose “Rig” from the first row of tabs.
4. Choose “Hardware PTT” from the second row of tabs.
6. Select the “Use separate serial port PTT” checkbox.
7. Assign the Advantage COM port in the “Device” drop-down.
8. Select the “Use RTS” checkbox.
9. Ensure “Use DTR” is NOT SELECTED.
10. Ensure “RTS+=V” is NOT SELECTED.
11. Ensure “DTR+=V” is NOT SELECTED.
12. Click on “Initialize”.
13. Click on “Save” to make the changes permanent.

Refer to figure 7.

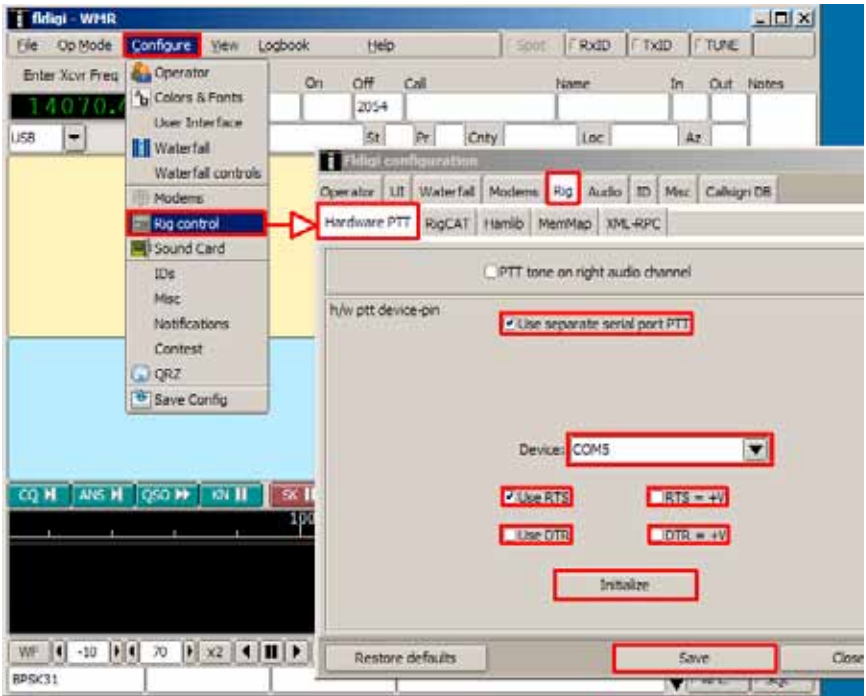


Fig 7 – Configuring PTT in FLdigi.

Setting Up FLdigi For Rig-control

FLdigi offers a number of methods of rig-control; beyond the scope of this manual to detail them all. Hamlib (on the rig-control tab) may be the simplest method, as FLdigi comes with rig description files for this library.

RigCAT is another good method. Download a rig description file for a specific radio by going to: <http://www.w1hki.com/xmlarchives.html>.

Configuring a typical rig-control:

1. Specify the Advantage COM port as the rig-control “device”.
Note: Do not set RTS or DTR high, otherwise, the transceiver may go into transmit when the program first loads!
2. Match the transceiver’s communication settings – check CAT baud rate and CI-V address (Icom).
3. Flow control is not usually needed, but if needed, use XON/XOFF as the method. Never choose hardware CTS/RTS.

Some transceivers will not allow hardware PTT (toggling the serial RTS line) at the same time as performing CAT control. If the radio in use falls into this category, an option is to use VOX mode PTT or take a look at the West Mountain Radio RIGtalk product which will allow CAT control on a separate serial port, freeing the RIGblaster Advantage for PTT.

Rig Control: Ham Radio Deluxe

One of the best known rig-control programs is Ham Radio Deluxe (HRD). When installed and configured it allows for cruising the radio spectrum using nothing more than a keyboard and mouse.

HRD maps many of the transceiver's functions onto simple-to-access buttons on the main screen. If struggling to change some hard-to-find setting buried in the transceiver's menu system, then Ham Radio Deluxe is the program to use!

Configuring HRD:

Upon the first run, a window similar to the one shown in Figure 8 will appear. (*Important settings are highlighted in red.*) This is the new connection dialog and some settings must be specified here to get HRD to communicate with the RIGblaster Advantage and the transceiver.

Steps:

1. Choose the "New" tab.
2. Select the transceiver's manufacturer in the "Company" drop-down.
3. Select the transceiver's model in the "Radio" drop-down.
4. Assign the RIGblaster Advantage COM port in the "COM Port" drop-down.
5. Select the transceiver's CAT baud rate in the "Speed" drop-down.
6. If using an Icom radio, assign its CI-V address in the "CI-V" text-box. HRD will provide a default value here which will work unless this setting has been altered in the specific radio in use.
7. Ensure that CTS, DTR or RTS are NOT SELECTED.
8. Click on "Connect" to save this connection and start HRD.

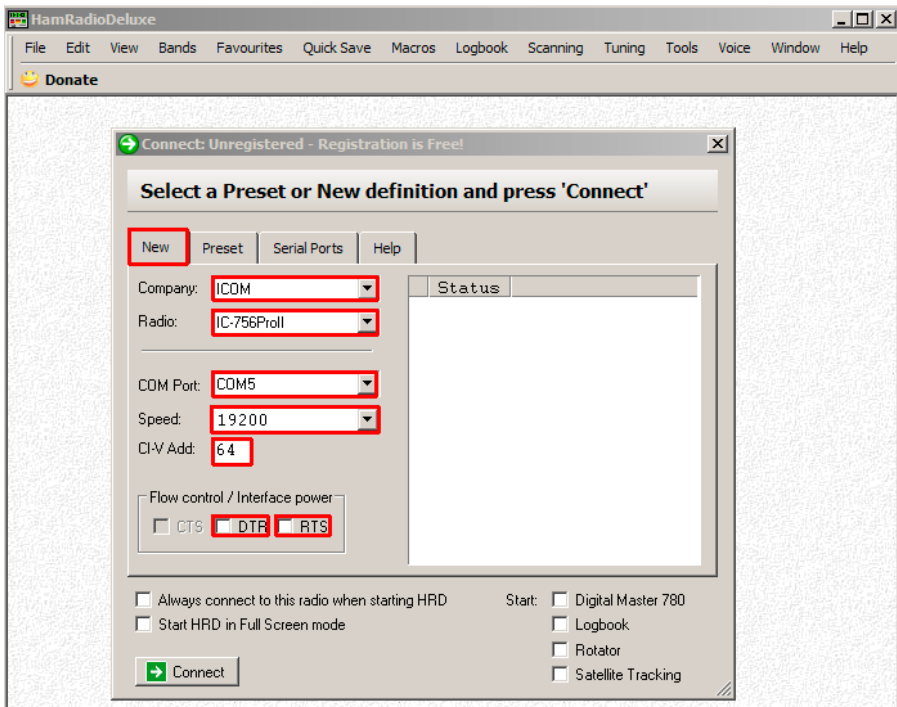


Fig 8 – Configuring a new connection in HRD.

After clicking on “Connect” the main HRD window should appear. Check that the frequency displayed is the same as your transceiver’s dial.

From this point on, the transceiver is under the control of the PC and use of the frequency sliders and “push buttons” displayed in HRD will affect changes to the rig.

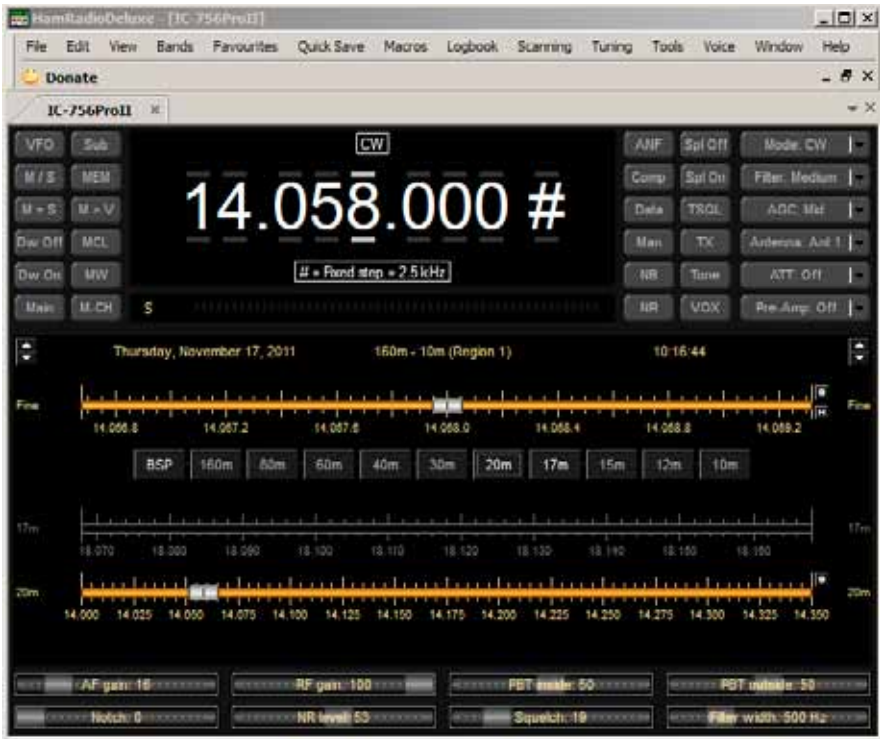


Fig 9 – The main tuning window in Ham Radio Deluxe. Note that some of the 756ProII's Menu functions are mapped onto "push-buttons" and "sliders". These are customizable to suit operating preferences.

HRD has many advanced features which are useful. The following is a list and short description of some of the more interesting features.

Bandscope

Captures audio from the RIGblaster Advantage while scanning between defined frequencies. The displays is shown on a constantly updating graph. A great way to visually see the activity on any band.

Rotator

HRD provides a nice interface to many antenna rotors for automatic control.

Satellite Tracking

HRD will automatically compensate for doppler-shift while tracking satellites.

DM780

Digital Master 780 is a very feature-rich digital-Mode program. Operate PSK31 and many other modes while integrating logging with Ham Radio Deluxe. Consider trying the “Super Browser” which will decode multiple PSK31 transmissions simultaneously.

IP Server

Provides a TCP/IP interface for remote station control. Use HRD to control your radio from anywhere with an internet connection.

RTTY: Configuring MMTTY For FSK

MMTTY by Makoto Mori (JE3HHT) is used worldwide for RTTY and for good reason – its decode performance is excellent, makes tuning RTTY signals very simple, and integrates into popular contest logging software. The latest version of MMTTY can be downloaded from Mako’s website at: <http://hamsoft.ca>

One of the features that make MMTTY (almost) unique is that it supports FSK RTTY which is often the preferred way to generate RTTY tones if the transceiver supports it.

How to tell if the transceiver supports FSK RTTY?

If the transceiver has a dedicated RTTY mode, chances are it will support FSK RTTY. A special cable is needed to go from the RIGblaster Advantage to the transceiver’s accessory jack. Look on www.westmountainradio.com for a suitable cable for a specific radio.

The trick to getting MMTTY to work in FSK is to download an external library called “EXTFSK.dll”. The latest version is available on Mako’s website at the following location:

<http://hamsoft.ca/pages/mmtty/ext-fsk.php>

Scroll down to the bottom of the page and look for a hyperlink to a zip file named “ExtFSK106.zip”.

Download this file, unzip it and copy the contents to the MMTTY working folder, usually C:\Program Files\MMTTY.

Then follow the steps below and refer to figure 10 to configure MMTTY with the RIGblaster Advantage.

1. Select the "Option" menu from MMTTY.
2. Choose "Setup MMTTY".
3. From the setup window choose "SoundCard" from the tabs at the top of the window.
4. Select RIGblaster Advantage Audio for both "Reception" and "Transmission". Although we are not actually using the Advantage sound-card for RTTY transmission (using FSK) setting it this way will allow for monitoring the signals on the AUDIO OUT jack in addition to keying the FSK line of the transceiver.
5. Choose the "MISC" tab from the tabs at the top of the window.
6. Select "Sound + COM-TxD (FSK)" in the "TX Port" frame.
7. Choose the "TX" tab from the tabs at the top of the window.
8. Select EXTFSK from the "Port" drop-down.
9. A new window will appear titled "EXTFSK 1.06". On this window, assign the RIGblaster Advantage COM port and choose DTR for "FSK output" and RTS for "PTT output". Notice the "Status: OK" message near the top. If it is showing red and "NG" then MMTTY is reporting it was unable to open the COM port. Make sure no other software is running which has already claimed the COM port (e.g. HRD).
10. Verify that the optional RTTY FSK cable is connected to the transceiver from the Advantage CW/FSK jack.
11. Put the transceiver into its RTTY mode.

Hints About Operating FSK RTTY

Check the FSK settings on the radio – for 45 baud RTTY, the shift should be set to 170Hz. Many radios also offer a choice of MARK tones (e.g. 2125Hz, 1275Hz). There will be no difference in operating when choosing either setting.

FSK polarity varies from rig to rig, so attempt to tune in some RTTY to check that it is not "Upside Down". A friendly station can help check your transmissions for correct polarity.

(cont'd)

The transmit power level in FSK RTTY is simply determined by the transceiver's RF POWER control. The RIGblaster Advantage XMIT LEVEL control will have NO EFFECT on transmit power.

RTTY is a 100% duty-cycle mode. Check the transceiver manufacturer's recommendation for a safe power level in RTTY. Good advice is to run half-power or less on solid state radios. Quarter- power or less for hybrid tube-final rigs.

If the transceiver is equipped with narrow filters, they are usually available in RTTY mode. These can really help in crowded band conditions and will improve copy.

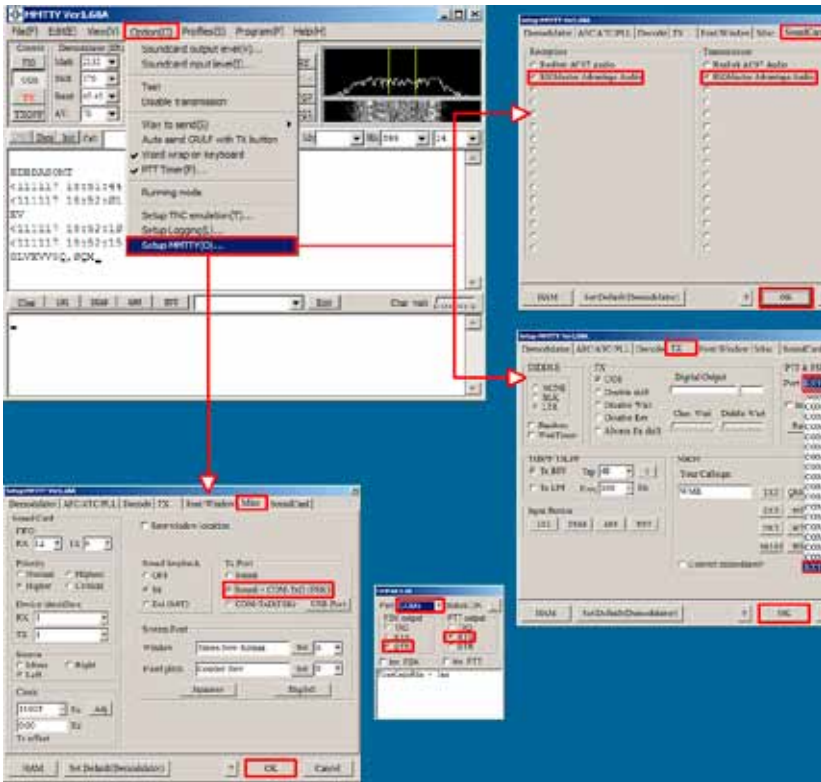


Fig 10 – Configuring MMTTY for FSK operation.

CW: Configuring MRP40 For CW Operation

Although there are free CW (Morse Code) decoding programs the performance of many leave a lot to be desired. *MRP40* by Norbert Pieper is an excellent CW decoder, even under weak signal conditions & QSB. It supports transmission of Morse Code from the PC keyboard using the CW/FSK jack on the RIGblaster Advantage.

A 30 day trial version of the software is available to download from:
<http://www.polar-electric.com/>

Configuration is simple. It will require the optional CW keying cable (or use a stereo 3.5mm to stereo 3.5mm patch cable) to be connected between the RIGblaster Advantage CW/FSK jack and the transceiver's CW keying jack. Select CW mode on the transceiver. Refer to Figure 11.

Complete the following steps to configure MRP40 with the RIGblaster Advantage:

1. Choose "Options" on the MRP40 window.
2. Move the mouse cursor to "Show..." and then choose "Soundcard..."
3. Assign "RIGBlaster Advantage Audio" in each of the RX and TX drop-down boxes.
4. Enter the preferred sidetone frequency. *In most cases this should match the transceiver's sidetone frequency (or narrow filter center frequency). If this is neglected, someone calling close to your transmission frequency may appear far away on the MRP40 "waterfall" display.*
5. Close the "Soundcard" window.
6. Choose "Options" on the MRP40 window again.
7. Move the mouse cursor to "TX Settings" and choose "Send via Com (x) Port" from the menu.
8. Enter the RIGblaster Advantage COM port number in the text box. Ensure that "Send Pin" is set to DTR, and "PTT Pin" is set to RTS.
9. Click on "Save".

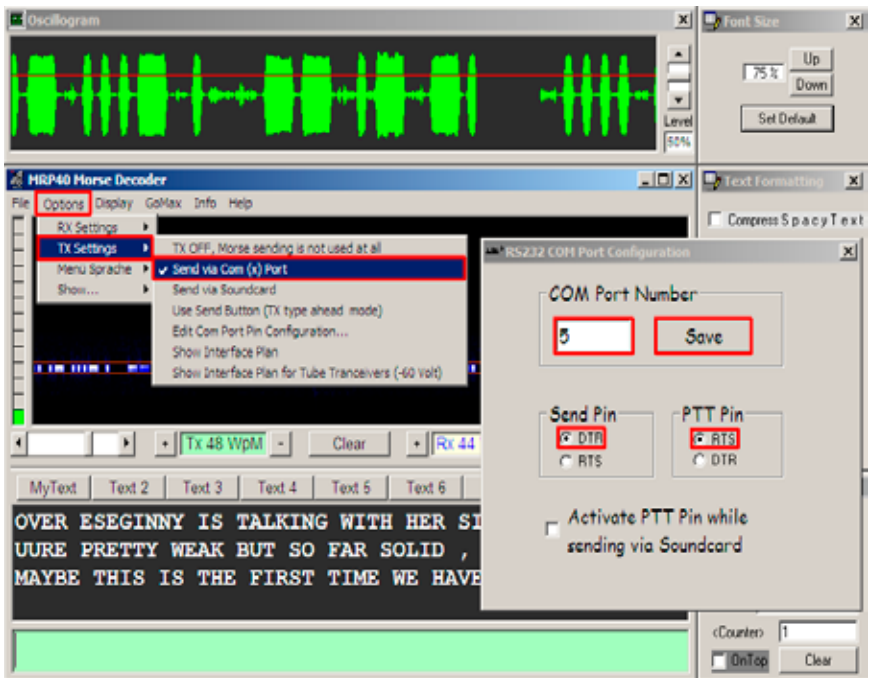


Fig 11 – Setting up MRP40 to use hardware keying with the RIGblaster Advantage.

Other Ideas For CW (Morse Code)

- If you want to try a freeware CW decoder then take a look at FLdigi as it's CW performance, while not as good as MRP40, is certainly good enough to copy the stronger stations that send well-formed Morse Code.
-
- CWType is a freeware CW keyboard terminal (no decoding) but this software will let you transmit Morse Code using the CW/FSK jack.
- See <http://www.dxsoft.com/en/products/cwtype/>
-
- MultiPSK also has a good CW decoder and is free for this purpose. Check out <http://f6cte.free.fr/>
-
- Learn Morse Code, purchase our TOUCHkeyer and have some hands-on CW fun!

JT65: Configuring JT65-HF.

The “JT” series of modes were originally developed by Joe Taylor, K1JT to be very weak signal VHF modes suitable for EME, Troposcatter & Meteor trail methods of ionospheric propagation. Since that time, one mode JT65(A) has become very popular on HF for long-distance low-power contacts. Contacts may be a better term than QSO as the transmission rate is very slow with each “over” taking a little less than 1 minute in each direction.

Signal-to-noise ratios are often well below hearing threshold and it is not uncommon to perfectly decode a transmission at levels around -25dB S/N. Originally JT65 operation was only possible using WSJT software produced by K1JT and shortly after the MultiPSK program (F6CTE). While both of these programs are technically excellent they are not necessarily the easiest to use.

JT65-HF is a recent addition developed by Joe Large, W6CQZ. For straightforward HF operation in JT65 this is the easiest software to configure and simplest to use.

Follow the steps below to configure JT65-HF. Refer to Figure 12 for assistance.

1. Click on “Setup” on the JT65-HF main window.
2. Select the “Station Setup” tab at the top of the configuration window.
3. Assign the RIGblaster Advantage Audio to the sound-card input & output device drop-down boxes.
4. Ensure “Enable Automatic RX/TX Sample Rate Correction” is checked.
5. Be sure to enter your callsign and Maidenhead grid locator.
6. Select the “Rig Control/PTT” tab at the top of the configuration window.
7. Type the RIGblaster Advantage COM port into the “PTT port”.
8. Click on “Save Settings and Close Window”.

Hints for JT65-HF

Receive Audio Level

It is very important to set the receive level correctly for optimum JT65 decoding. Notice the “Adjust Input Levels” box in the screen-capture above. The sliders are adjustable, but it is easier to adjust the RIGblaster Advantage RCV LEVEL control until L0 and R0 (on a quiet frequency) are achieved.

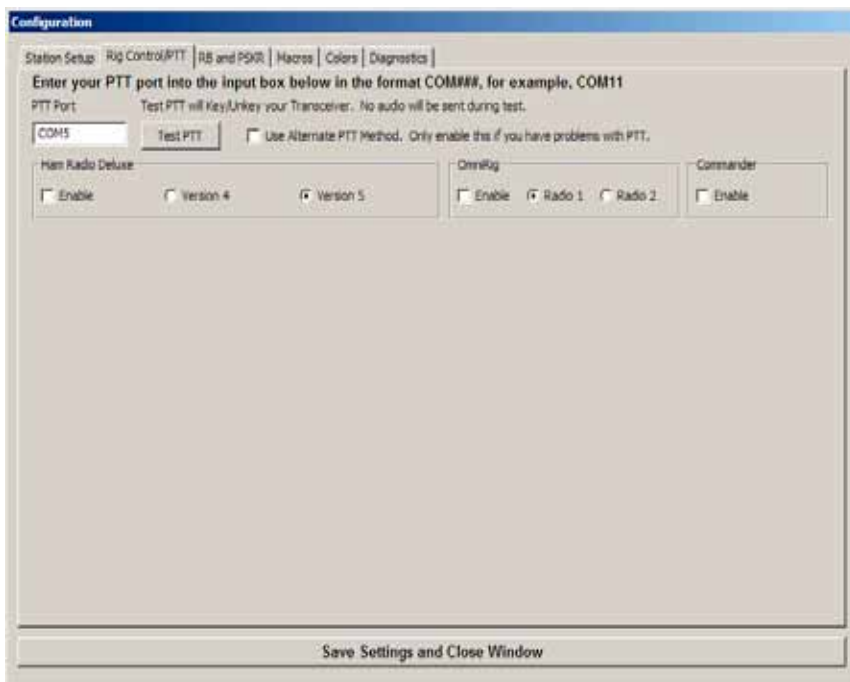


Fig 12 – Setting up JT65-HF with the RIGblaster Advantage.

Time Synchronization

The PC's clock must be synchronized to an accurate time source. In practice, this is accomplished by using Third party software which will update the clock with an Internet time server. It has been reported that the synchronization utility in Windows does not have an acceptable level of accuracy for JT65.

A well-regarded example is the "Dimension 4" time keeper software available from: <http://www.thinkman.com/dimension4/>.

Power Level

Because JT65 works even at very low signal-to-noise ratios there really no need to run QRO. In fact, running full power with transmissions lasting nearly 1 minute at 100% duty-cycle could stress the finals of many rigs. Powers of 10W and **lower** (often as low as 500mW) will produce great DX contacts.

WinMOR: Using RMS Express & Winlink 2000

Until recently there were few choices of sound-card software which could interface to the Winlink 2000 radio e-mail system. Most users bought expensive Pactor modems for HF and TNC's for VHF.

On VHF it was possible to use sound-card packet, but it was not easy to integrate with a mail client. On HF, the choices were even more limited and still did not integrate with a simple mail client.

Rick Muething, KN6KB recently developed the WinMOR sound-card modem which made the Winlink 2000 system available for anyone with an HF transceiver. The WinMOR software modem was integrated into a full mail client by the Winlink development team. This product is called RMS Express and is freely downloadable from the Winlink 2000 website: <http://www.winlink.org/ClientSoftware>

Using RMS Express requires an understanding of the Winlink 2000 system. This manual only covers getting it working with the RIGblaster Advantage.

To learn more, we recommend starting at the Winlink 2000 website: <http://www.winlink.org/>, especially <http://www.winlink.org/GetStarted>.

Configuring RMS Express

Refer to Figure 13 and complete the steps that follow to configure RMS Express with the RIGblaster Advantage.

Steps:

1. Select Winmor WL2K from the drop-down box on the RMS Express main window.
2. Click on "Open Session" (to the left of the dropdown).
3. The "Winmor Winlink 2000 Session" window will appear.
4. Choose "Setup" from the menu at the top of this window.

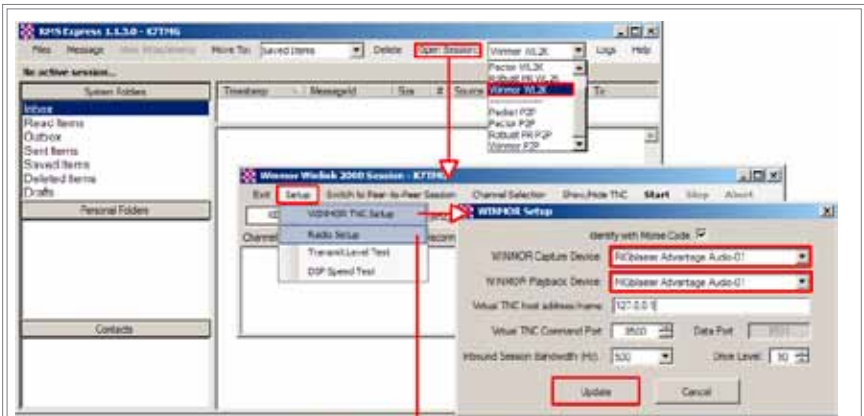
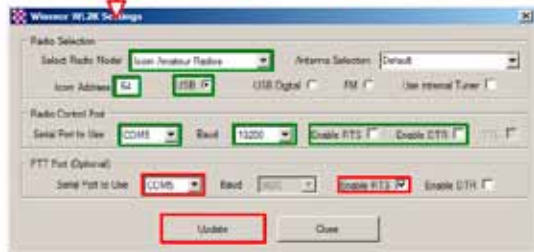


Fig 13 - Configuring RMS Express. In this example rig-control & PTT are shared on the RIGblaster Advantage serial port. Areas highlighted in green apply specifically to CAT. Radio used was an Icom IC-756proII.



5. Select “WINMOR TNC Setup”. A window titled “WINMOR Setup” should appear.
6. Assign the RIGblaster Advantage Audio device for both of the capture & playback drop-down boxes.
7. Click on “Update”.
8. From the “Setup” menu choose “Radio Setup”.
9. A window titled “Winmor WL2K Settings” should appear. This window deals with rig-control and PTT. Rig-control is highly recommended with RMS Express as the program ensures precise tuning with the remote station.
10. Choose the radio model and operating mode (usually USB).
11. If using an Icom transceiver, be sure to enter the CI-V address correctly.
12. Select the RIGblaster Advantage COM port for “Serial Port to Use”. Enter the transceiver’s CAT baud rate. Make sure “Enable RTS” and “Enable DTR” are NOT selected.
13. Optionally in the frame labeled “PTT Port (Optional)”, also specify the Advantage COM port and this time “Enable RTS” *.

* PTT in RMS Express

The RMS Express software can handle transmit/receive switching by three methods: VOX, CAT & PTT-by-serial-port. It is recommend to use the CAT method if the radio supports it.

Some transceivers may have CAT, but no command to actually switch into transmit. For those cases, it may be possible to use PTT-by-serial-port; but, only if the transceiver supports CAT & COM port PTT on the same serial port.

For radios that do not have CAT, use VOX in order to preserve rig-control (CAT). Remember to place the TX switch to VOX on the front-panel of the RIGblaster Advantage and select "External" in the "Serial Port to Use" drop-down within RMS Express. Make sure the VOX DELAY control is fully counter-clockwise.

Although there are other modes in RMS Express besides WinMOR, none of these are designed for sound-card interfaces and require a hardware TNC or modem to operate.

Packet/APRS: Configuring the AGW Packet Engine

Packet radio is extensively used some parts of the world. Some areas of the US seem devoid of traditional VHF packet networks (nodes, digipeaters & BBS) that once were common, however, there is APRS activity on 144.390MHz and the chances are good there will be a Winlink 2000 Packet RMS within range.

APRS (Automatic Packet Reporting System)

This manual does not concentrate on the APRS use of packet radio. By its nature, APRS uses non-connected packet radio (called "unproto" transmissions or beacons). If not familiar with APRS then visit: <http://www.aprs.org/> which explains the system in detail. Vehicle tracking is only one facet, and there is much to gain from a better understanding of APRS. Operating sound-card APRS is a little more complex to set up than the other digital-modes but it is worthwhile and opens up another fascinating branch of the hobbyist.

Correct installation provides the ability to monitor local and distant APRS transmissions. These transmissions get decoded and converted by software to graphical positional information and displayed on a map.

Other information that is encapsulated in the transmission can include weather observations, real-time hazards, telemetry, messaging and local information for travelers. Look for a possible APRS transmissions that have been “digipeated” via the International Space Station (ISS).

Get Started with Packet Radio Example

This example will use the AGWPE software written by George Rossopoulos (SV2AGW).

Packet radio is a layered technology. One layer is the actual hardware, (in this case the radio and the RIGblaster Advantage), on top of that layer is a packet driver (the AGW program) and on top of that layer would be the APRS program itself.

1. Install the AGWPE software. The latest version may be downloaded from: <http://www.sv2agw.com/downloads/default.htm>
2. Look for the file called AGWPE.zip. This is the freeware version. SV2AGW also has a “pro” version which has expanded features and may work better with Windows 7. The upgrade may be worth while if going to use Packet Radio often.
3. Unzip the file to a folder (suggested C:\AGW). There is no install program, so execute by double-clicking on the “AGW Packet Engine.exe” file.
4. A “splash” screen will first appear explaining AGWPE and a new icon will appear in the Windows system tray.
5. Refer to Figures 14 & 15 while performing the following steps:
 - 1) Left-click over the AGW icon in the system tray.
 - 2) Choose “Properties” from the pop-up menu.
 - 3) Click on “New Port” from the RadioPort Selection window.
 - 4) Click on “OK” on the pop-up dialog window informing of the new TNC port that has been created.
 - 5) A new window titled “Properties For Port1” should appear.
 - 6) Select the RIGblaster Advantage COM port in the “Select Port” drop-down box.
 - 8) **Ignore** the “SerialPort/Modem Baudrate” drop-down.
 - 9) Choose “SoundCard” from the “TNC Type” drop-down box. Then another window titled “SoundCard Modem/TNC Setup” will appear.
 - 10) Ensure that both left & right channels are set to 1200 baud.
 - 11) Assign “RIGblaster Advantage Audio” in the sound-card drop-down box.
 - 12) Click on “OK” to go back to the previous window.

- 13) Ensure “KISS Simple” is selected in the “Tnc Sub Type” drop-down box.
- 14) Ensure “SinglePort” is selected.
- 15) Type a description of the port. This is optional, but may help keep track when running multiple ports.
- 16) Click on “OK”.
- 17) Then click on “OK” on the pop-up window regarding the need to restart the program.
- 18) Left-click over the AGW icon in the system-tray.
- 19) Choose “Exit”.
- 20) Execute the AGW program again and now there should be two icons in the system-tray.

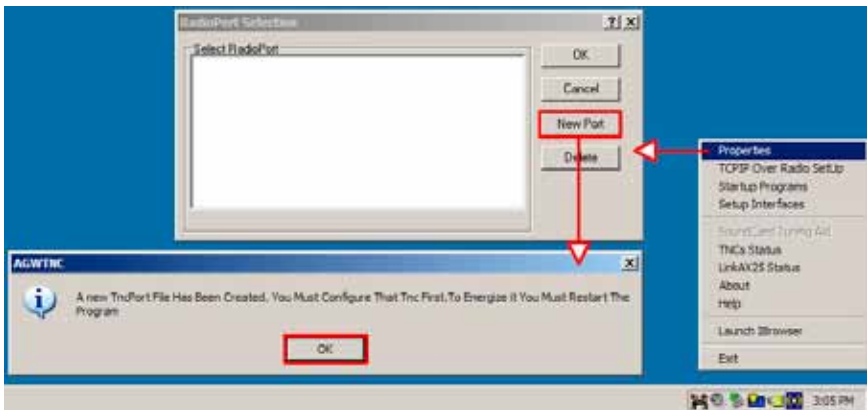


Fig 14 – Initializing a new port in AGW Packet Engine.

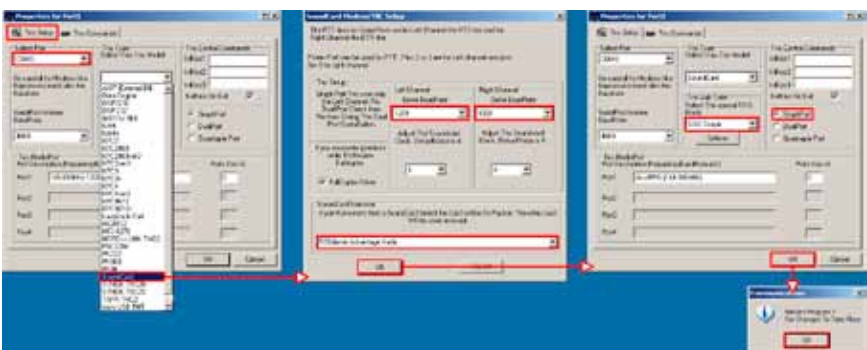


Fig 15 – Defining AGW to use the RIGblaster Advantage’s serial port (for PTT) and integrated sound-card.

The packet “port” created is a single, 1200 baud (VHF) channel with KISS emulation. AGW makes this available to other software via tcp/ip (port 8000)

That takes care of the first and second “layer” of packet-radio. This defined a packet port (with KISS emulation) which can now be used by other software.

The AGWTracker software will now be used for an APRS example, again written by George Rossopoulos (SV2AGW).

Check for the latest version to install:
<http://www.sv2agw.com/downloads/default.htm>

Configuring AGWTracker is relatively straightforward. Begin by specifying callsign, station information and if planning on transmitting; a beacon interval and beacon text. If applicable, specify a digipeater path. Before entering a generic “WIDE” it is recommended to take a look at <http://wa8lmf.net/DigiPaths/> for current “best practice” for a particular circumstance.

Refer to Figure 16 for help with configuring AGWTracker.

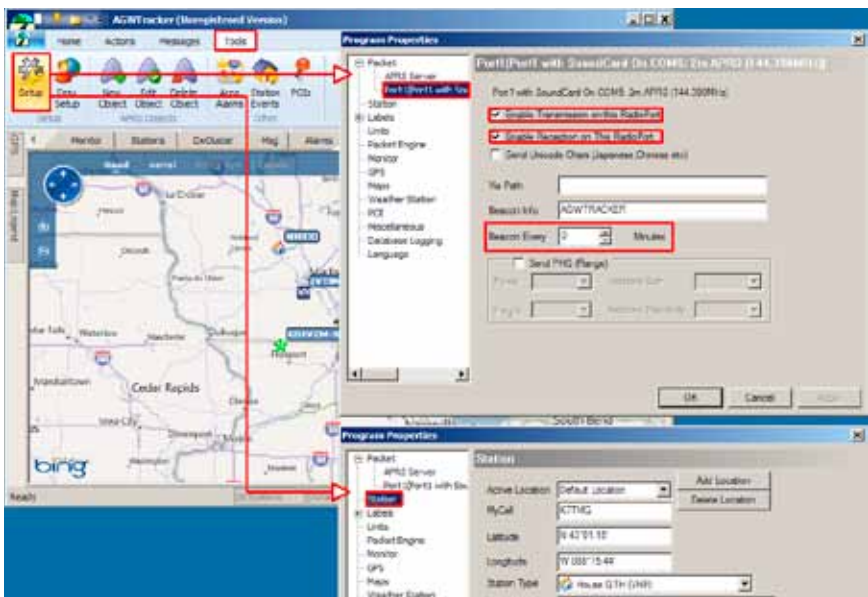


Fig 16 – AGWTracker station configuration.

SSTV: Using MMSSTV For Analog SSTV

SSTV – Slow Scan Television has been in use on the ham bands since the late 1960s. It has come a long way since the early black and white transmissions using all analog equipment. Since the advent of the personal computer with color graphics, there has been much improvement in quality and resolution.

The RIGblaster Advantage can operate all the common SSTV modes in use today by using the highly regarded (and free) MMSSTV software written by Makoto Mori (JE3HHT).

Find latest software version by visiting Mako's website:

<http://hamsoft.ca/pages/mmsstv.php>.

Before configuring MMSSTV, a little discussion about sample rates is needed. The RIGblaster Advantage uses a modern sound-card chipset which is based on a 48KHz sample rate. If the MMSSTV software goes uncalibrated, the received images are slanted and may be impossible to view properly. When first installed, MMSSTV defaults to a sample rate of 11025Hz which will not work properly with the RIGblaster Advantage. IT is necessary to specify MMSSTV to use a sample rate compatible with a modern sound-card. A good choice is 12000Hz.

Configuring MMSSTV

Refer to Figures 18 and 19 for calibrating MMSSTV.

1. Select the "Option" menu from the main MMSSTV window.
2. Choose "Setup MMSSTV(O)".
3. Select the "TX" tab from the top of the options window.
4. Assign the RIGblaster Advantage COM port to the "PTT Port" drop-down box.
5. Be sure to enter your callsign in this screen!
6. Click the "MISC" tab from the top of the options window.
7. Assign the RIGblaster Advantage Audio for both "In" & "Out" in the Sound-card section.
8. Select "12000" in the "Clock" drop-down.
9. Click on "OK" and an alert will show indicating MMSSTV needs to be restarted.
10. Exit and re-run the MMSSTV software.
11. Bring up the configuration options once again.
12. Select the "MISC" tab.

13. Tune the radio to a WWV frequency. The WWV transmitters are precisely controlled and a suitable signal source to accurately calibrate MMSSTV.

Note: Set your radio to AM mode and tune to the loudest and clearest WWV transmitter that can be heard on either 5.00MHz, 10.00MHz, 15.00MHz or 20.00MHz.

14. Press the “ADJ” button (highlighted in green in Fig.18).

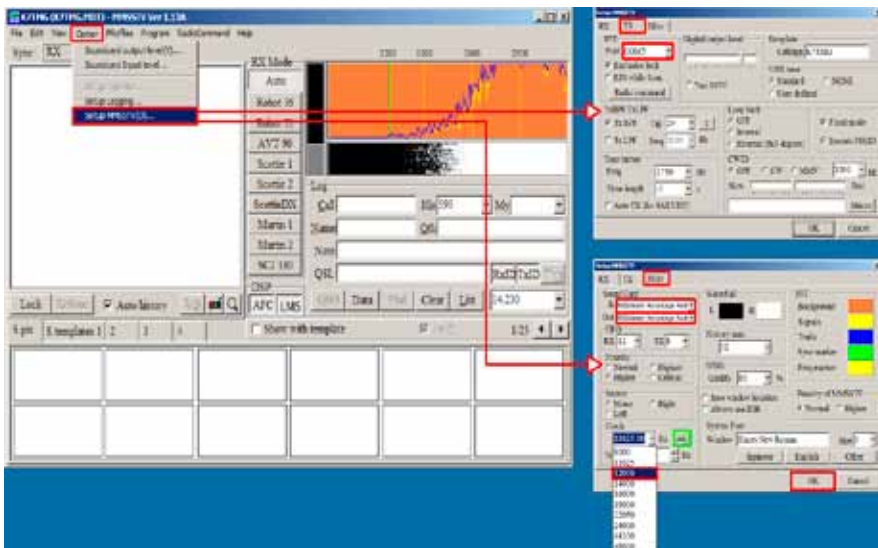


Fig 18 – Configuring MMSSTV to use the RIGblaster

15. A window titled “Calibrating the Sound Card with a Time Standard Broadcast Station” will open. See Figure 19A.
16. Leave this window open for a few minutes and look for a semi-vertical line to appear. Click the lower edge of the line and then click the upper edge of the line.
17. Notice the “Clock” value change slightly.
18. Click on “OK” and the new clock value will be shown in the configuration window. Save these changes.
19. To confirm this calibration, bring up the calibration window again and observe the WWV station. A perfectly vertical line should appear this time (shown in Fig. 19B).

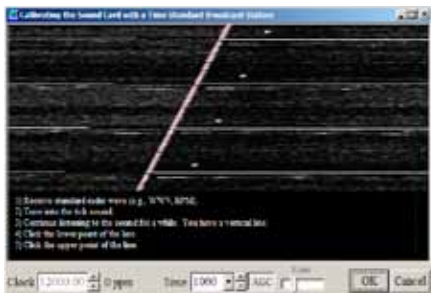


Fig 19A – Calibrating the MMSSTV program with a WWV station.

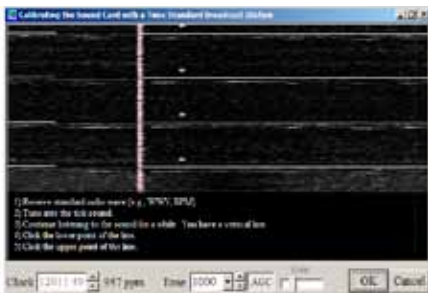


Fig 19B – After calibration notice a perfectly vertical line when tuned to a WWV NIST time station on 5MHz, 10MHz, 15MHz or 20MHz.

SSTV is now ready to operate. Most operation is on the 20m band (14.230usb). Tune there now to test the MMSSTV program on reception.

Before transmitting, it is recommended to check out the “SSTV Primer” by W4HIJ & W0EB available on Mako’s website if it a first-time operating SSTV. See <http://hamsoft.ca/pages/mmsstv/sstv-primer.php>

Keep in mind transmitting SSTV images will mean long transmissions at full duty-cycle, so limit the output power to safe levels recommended by the radio manufacturer.

SSTV: Using EasyPal For Digital SSTV

A recent development is digital SSTV. The current mode used is based on DRM encoding (Digital Radio Mondiale) and provides fast image transmission with the ability to request missing data. Images received are very high-quality and do not suffer from typical analog SSTV noise.

The RIGblaster Advantage is capable of operating digital SSTV in conjunction with the “EasyPal” software created by Erik Sundstrup (VK4AES). The latest version of EasyPal is available to download from: <http://www.kc1cs.com/>

In many ways EasyPal is simpler to set up than MMSSTV. Because it is a “digital” signal there is less worry about precise sound-card calibration.

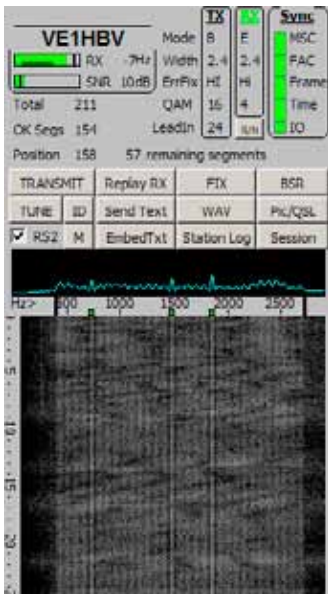
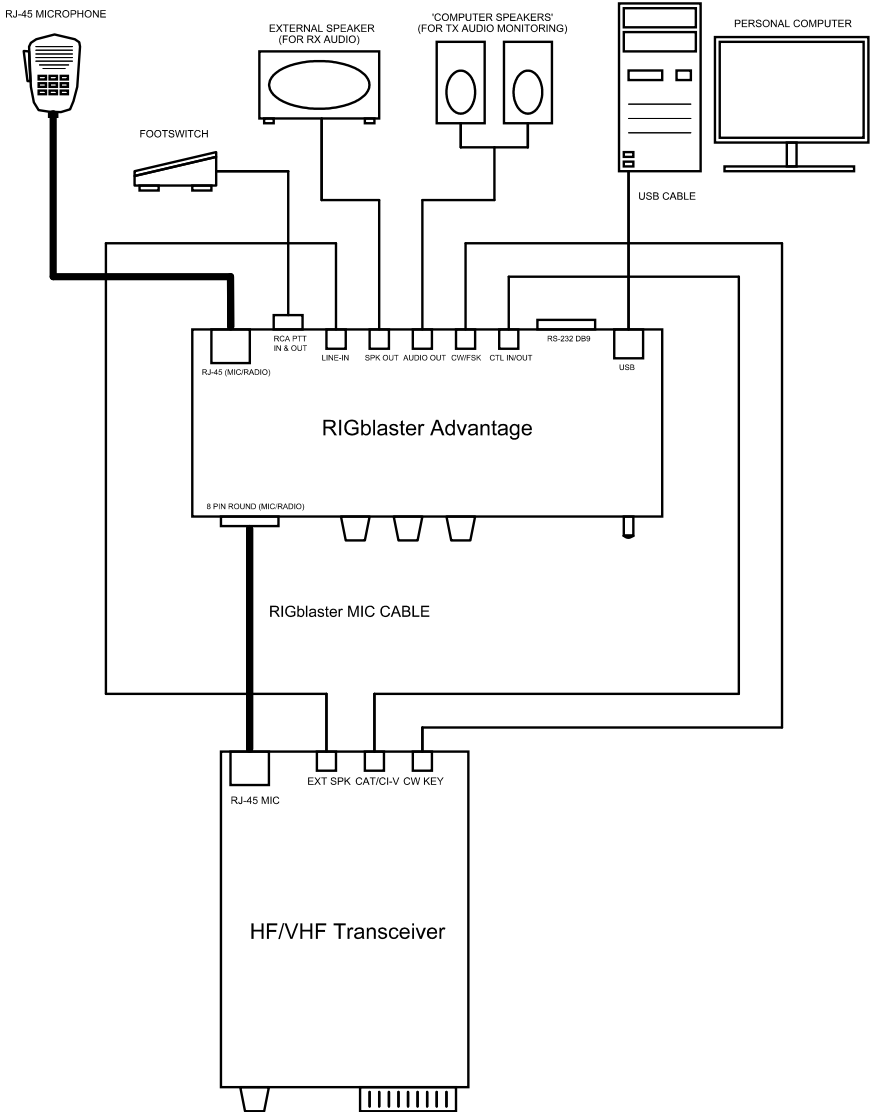


Fig 21 – A correctly tuned digital SSTV station

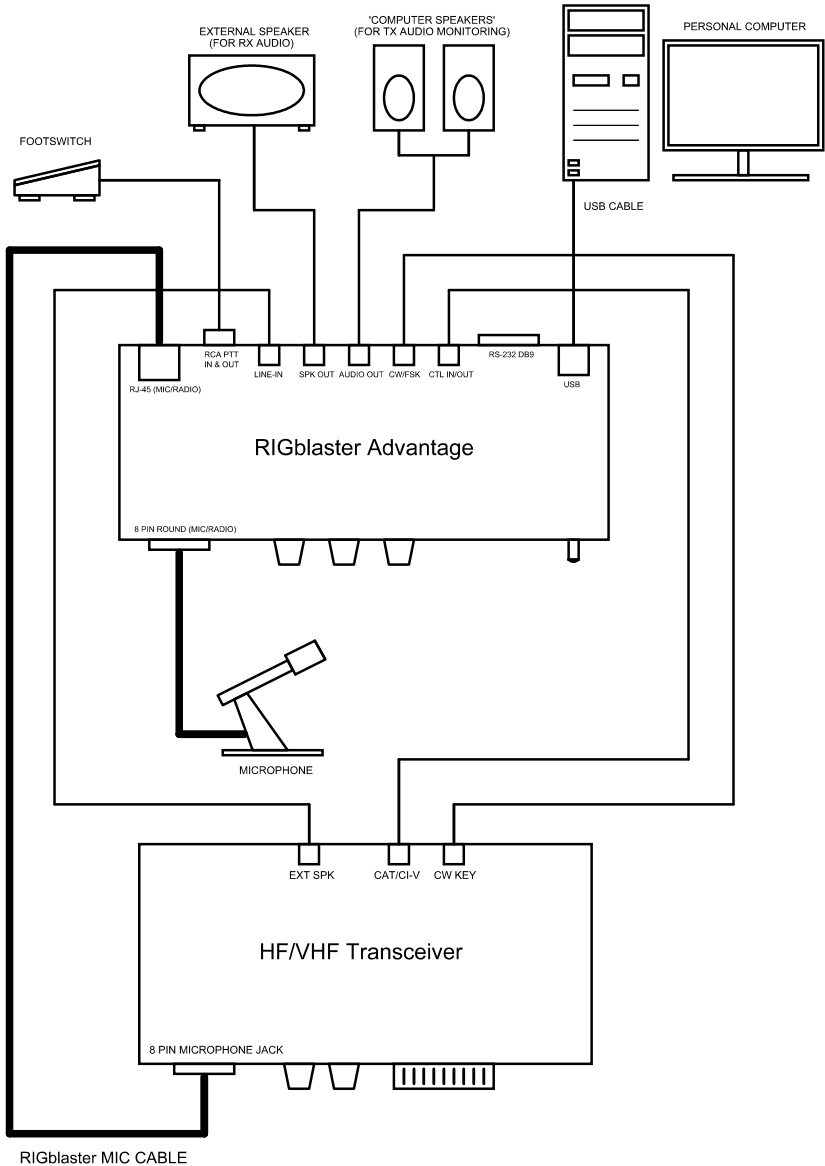
Looking at the EasyPal waterfall while receiving a transmission, notice that the three “green markers” line up with the three “transmitted carriers”. This indicates correct tuning.

RIGblaster Advantage Connection Diagram

Typical RIGblaster Advantage Station Hook-Up For Radios With RJ-45 Microphones



Typical RIGblaster Advantage Station Hook-Up For Radios With '8 Pin Round Metal' Microphones



ISC & Jumper Wiring

Alinco, Kenwood, SGC and Elecraft with 8-pin Screw-on Microphone Connectors

INPUT Side

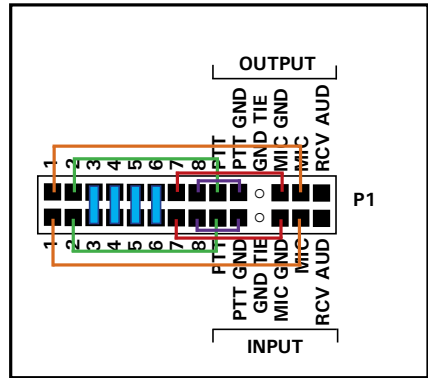
Pin

1 White Jumper to	MIC - INPUT Side
2 White Jumper to	PTT - INPUT Side
3 Blue Shunt Jumper to	Pin 3 - OUTPUT side
4 Blue Shunt Jumper to	Pin 4 - OUTPUT side
5 Blue Shunt Jumper to	Pin 5 - OUTPUT side
6 Blue Shunt Jumper to	Pin 6 - OUTPUT side
7 White Jumper to	MIC GND - INPUT side
8 White Jumper to	PTT GND - INPUT side

OUTPUT Side

Pin

1 White Jumper to	MIC - OUTPUT Side
2 White Jumper to	PTT - OUTPUT Side
7 White Jumper to	MIC GND - OUTPUT side
8 White Jumper to	PTT GND - OUTPUT side



ICOM with 8-pin Screw-on Microphone Connectors

INPUT Side

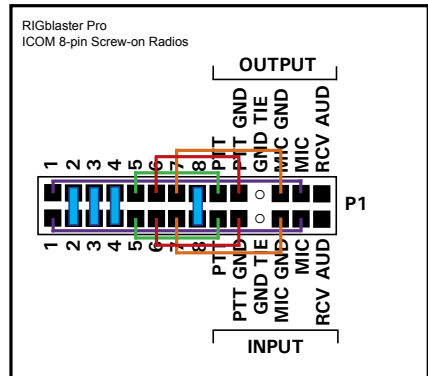
Pin

1 White Jumper to	MIC - INPUT Side
2 Blue Shunt Jumper to	Pin 2 - OUTPUT Side
3 Blue Shunt Jumper to	Pin 3 - OUTPUT Side
4 Blue Shunt Jumper to	Pin 4 - OUTPUT Side
5 White Jumper to	PTT - INPUT Side
6 White Jumper to	PTT GND - INPUT Side
7 White Jumper to	MIC GND - INPUT Side
8 Blue Shunt Jumper to	Pin 8 - OUTPUT Side

OUTPUT Side

Pin

1 White Jumper to	MIC - OUTPUT Side
5 White Jumper to	PTT - OUTPUT Side
6 White Jumper to	PTT GND - OUTPUT Side
7 White Jumper to	MIC GND - OUTPUT Side



YAESU with 8-pin Screw-on Microphone

Connectors (This jumpering is for older Yaesu radios with microphones that have common PTT & audio ground and older hand mics, desk mics, desk mics and Heil mics)

INPUT Side

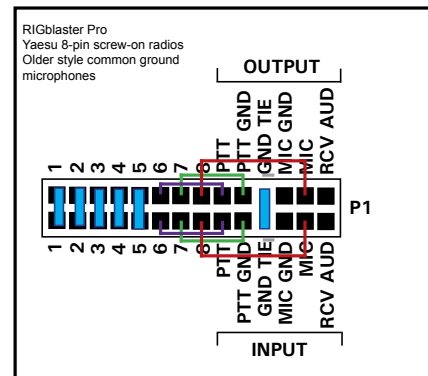
Pin

1 Blue Shunt Jumper to	Pin 1 - OUTPUT Side
2 Blue Shunt Jumper to	Pin 2 - OUTPUT Side
3 Blue Shunt Jumper to	Pin 3 - OUTPUT Side
4 Blue Shunt Jumper to	Pin 4 - OUTPUT Side
5 Blue Shunt Jumper to	Pin 5 - OUTPUT Side
6 White Jumper to	PTT - INPUT Side
7 White Jumper to	PTT GND - INPUT Side
8 White Jumper to	MIC - INPUT Side
GND TIE Blue Shunt Jumper	GND TIE

OUTPUT Side

Pin

6 White Jumper to	PTT - OUTPUT Side
7 White Jumper to	PTT GND - OUTPUT Side
8 White Jumper to	MIC - OUTPUT Side



YAESU with 8-pin Screw-on Microphone

Connectors (This jumpering is for newer Yaesu radios that have Microphones with isolated PTT & audio grounds.)

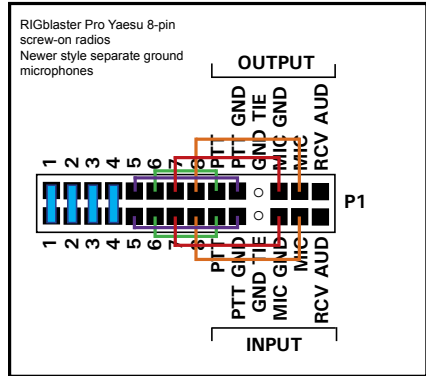
JRC JST245 with 8 Pin Screw on Microphone Connectors

INPUT Side

- | | | |
|-------|----------------------|----------------------|
| Pin # | | |
| 1 | Blue Shunt Jumper to | Pin 1 - OUTPUT Side |
| 2 | Blue Shunt Jumper to | Pin 2 - OUTPUT Side |
| 3 | Blue Shunt Jumper to | Pin 3 - OUTPUT Side |
| 4 | Blue Shunt Jumper to | Pin 4 - OUTPUT Side |
| 5 | White Jumper to | PTT GND - INPUT Side |
| 6 | White Jumper to | PTT - INPUT Side |
| 7 | White Jumper to | MIC GND - INPUT Side |
| 8 | White Jumper to | MIC - INPUT Side |

OUTPUT Side

- | | | |
|-------|-----------------|-----------------------|
| Pin # | | |
| 5 | White Jumper to | PTT GND-OUTPUT Side |
| 6 | White Jumper to | PTT - OUTPUT Side |
| 7 | White Jumper to | MIC GND - OUTPUT Side |
| 8 | White Jumper to | MIC - OUTPUT Side |



ICOM with RJ45 Microphone Connectors

(This jumpering is for ICOM 706 (all versions), IC-7000 and most, but not all ICOM FM rigs)

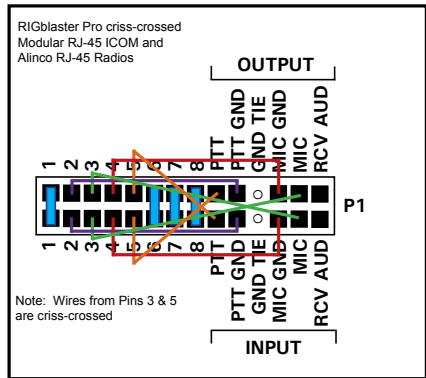
INPUT Side

- | | | |
|-------|----------------------|----------------------|
| Pin # | | |
| 1 | Blue Shunt Jumper to | Pin 1 - OUTPUT Side |
| 2 | White Jumper to | PTT GND - INPUT Side |
| 3 | White Jumper to | MIC - OUTPUT Side * |
| 4 | White Jumper to | MIC GND -INPUT Side |
| 5 | White Jumper to | PTT - OUTPUT Side * |
| 6 | Blue Shunt Jumper to | Pin 6 - OUTPUT Side |
| 7 | Blue Shunt Jumper to | Pin 7 - OUTPUT Side |
| 8 | Blue Shunt Jumper to | Pin 8 - OUTPUT Side |

OUTPUT Side

- | | | |
|-------|-----------------|-----------------------|
| Pin # | | |
| 2 | White Jumper to | PTT GND - OUTPUT Side |
| 3 | White Jumper to | MIC - INPUT Side * |
| 4 | White Jumper to | MIC GND - OUTPUT Side |
| 5 | White Jumper to | PTT - INPUT Side * |

* - Criss-crossed White Jumper



Kenwood with RJ45 Microphone Connectors and most, but not all Kenwood FM rigs

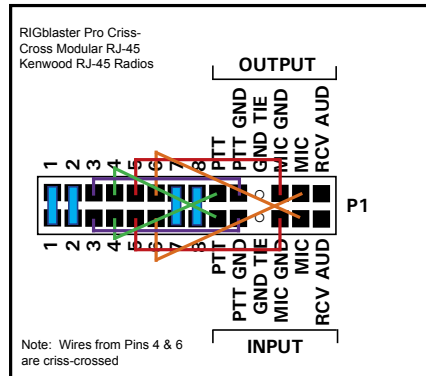
INPUT Side

- | | | |
|-------|----------------------|----------------------|
| Pin # | | |
| 1 | Blue Shunt Jumper to | Pin 1 - OUTPUT Side |
| 2 | Blue Shunt Jumper to | Pin 2 - OUTPUT Side |
| 3 | White Jumper to | PTT GND- INPUT Side |
| 4 | White Jumper to | PTT -OUTPUT Side * |
| 5 | White Jumper to | MIC GND - INPUT Side |
| 6 | White Jumper to | MIC - OUTPUT Side * |
| 7 | Blue Shunt Jumper to | Pin 7 - OUTPUT Side |
| 8 | Blue Shunt Jumper to | Pin 8 - OUTPUT Side |

OUTPUT Side

- | | | |
|-------|-----------------|-----------------------|
| Pin # | | |
| 3 | White Jumper to | PTT GND-OUTPUT Side |
| 4 | White Jumper to | PTT - INPUT Side * |
| 5 | White Jumper to | MIC GND - OUTPUT Side |
| 6 | White Jumper to | MIC - INPUT Side * |

* - Criss-crossed White Jumper



YAESU with RJ-45 Microphone Connectors and most, but not all Yaesu FM rigs.

INPUT Side

Pin #

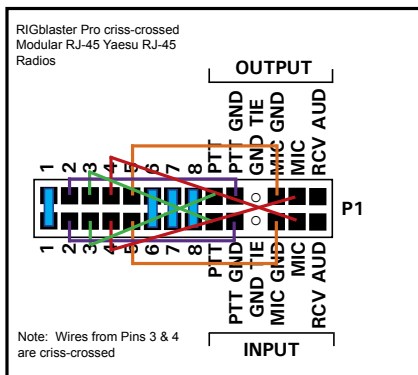
- 1 Blue Shunt Jumper to Pin 1 - OUTPUT Side
- 2 White Jumper to PTT GND - INPUT Side
- 3 White Jumper to PTT - OUTPUT side *
- 4 White Jumper to MIC - OUTPUT side *
- 5 White Jumper to MIC GND - INPUT side
- 6 Blue Shunt Jumper to Pin 6 - OUTPUT side
- 7 Blue Shunt Jumper to Pin 7 - OUTPUT side
- 8 Blue Shunt Jumper to Pin 8 - OUTPUT side

OUTPUT Side

Pin #

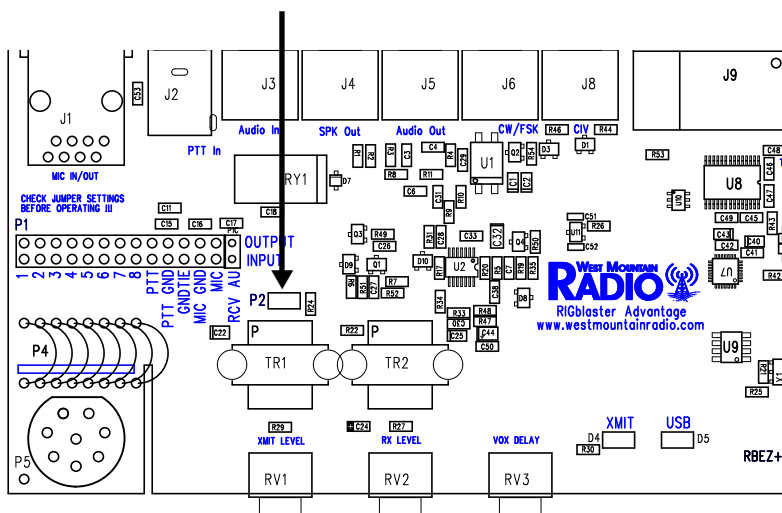
- 2 White Jumper to PTT GND-OUTPUT side
- 3 White Jumper to PTT - INPUT Side *
- 4 White Jumper to MIC - INPUT side *
- 5 White Jumper to MIC GND - OUTPUT side

* - Criss-crossed White Jumper



P2 Jumper

Placing a jumper on P2 (2 pin header pointed to below) will attenuate transmitted audio when finding the input to the transceiver is too “hot”. The factory default position is open.



Digital-Modes, Software And Frequencies

A complete list of digital-modes, software and HF frequencies would be difficult to find, however, below is a a brief (non-exhaustive) compilation of suggested frequencies to help get oriented with the RIGblaster Advantage. Most frequencies given here reflect current North American practices. Many of these are shared internationally, but if in doubt, check with a national amateur radio organization for recommendations.

There are many Internet resources that provide further information on operating digital-Modes and a good place to start is K3UK's Digital Radio Yahoo!® forum: <http://groups.yahoo.com/group/digitalradio/>

Digital Mode	Software	Frequencies	Notes
PSK31	FLdigi, Hamscope, DM780, Digipan, MixW, MultiPSK, TruTTY, WinWarbler et al.	3.580MHz (usb) 7.035MHz (usb) 10.140MHz (usb) 14.070MHz (usb) 18.100MHz (usb) 21.070MHz (usb) 24.920MHz (usb) 28.120MHz (usb)	
Analog SSTV	MMSSTV, MultiPSK, MixW	7.171Mhz (lsb) 14.230Mhz (usb)	
Digital SSTV	EasyPal	3.713MHz (lsb) 7.173MHz (lsb) 14.233MHz (usb)	
RTTY	MMTTY, TruTTY,DM780, FLdigi, MultiPSK et al	14.080-14.090MHz	Traditional operating was in lsb but many today use usb
JT-65	WSJT, JT65-HF, MultiPSK	1.838MHz (usb) 3.576MHz (usb) 7.039MHz (usb) 7.076MHz (usb) 14.076MHz (usb) 21.076MHz (usb) 28.076MHz (usb)	
Hellschreiber	FLdigi, MultiPSK, MixW, DM780	14.063MHz (usb)	
Olivia	FLdigi, MixW, MultiPSK, DM780	14.074MHz (usb) 14.1065MHz (usb)	
APRS	AGW + AGWTracker	144.390Mhz (fm)	International APRS frequencies vary.

Troubleshooting

The RIGblaster Advantage should be easy to configure and operate. However, answers to some common problems are listed below. Please call the technical support department if unable to resolve a problem. Telephone 262-522-6503 ext. 88 or email: support@westmountainradio.com

Problem	Cause	Fix
No power light showing (green LED)	<ol style="list-style-type: none"> 1. USB cable is unplugged 2. Driver Issue 	<ol style="list-style-type: none"> 1. Check USB cable is connected. 2. Check Windows device-manager for RIGblaster Advantage COM port conflicts and re-install drivers/change COM port if necessary.
Radio will not go into transmit	<ol style="list-style-type: none"> 1. Incorrect ISC installed 2. Software configuration 	<ol style="list-style-type: none"> 1. Make sure the correct ISC (or jumper wiring) is installed for the transceiver in use. 2. Ensure the digital-mode software is set for RTS=PTT and DTR=CW. Note: RTS/DTR should never be set to permanently "high" or "on".
Radio will enter transmit, but no power level showing	<ol style="list-style-type: none"> 1. Incorrect ISC installed 2. Windows mixer volume sliders set too low 3. XMIT LEVEL control is too low 4. Transceiver MIC GAIN/ RF POWER set too low 5. Wrong sound device selected 	<ol style="list-style-type: none"> 1. Make sure the correct ISC (or jumper wiring) is installed for the transceiver in use. 2. Ensure the Windows mixer (RIGblaster Audio) is set appropriately and not muted. 3. Rotate the XMIT LEVEL control slowly clockwise while transmitting and note if power out increases. 4. Check the transceiver's MIC GAN and RF POWER controls are not set too low. 5. Make sure the digital mode program is using the RIGblaster Advantage Audio device and not the default sound-card.

<p>Radio Control (CAT) not working</p>	<ol style="list-style-type: none"> 1. CAT cable unplugged 2. Software/Transceiver configuration 3. Noise 	<ol style="list-style-type: none"> 1. Connect the optional CAT cable. 2. Ensure the RIGblaster Advantage COM port is selected and the serial settings (baud rate etc) in the software match the transceiver. Some Yaesu radios have a multi-function port which must be enabled for CAT. 3. Some switching power supplies can cause problems with CAT control. Try grounding the power supply and transceiver chassis.
<p>Waterfall not showing</p>	<ol style="list-style-type: none"> 1. Audio cable not connected 2. Windows recording mixer set too low 3. RCVE LEVEL control set too low 4. Wrong sound-device selected 	<ol style="list-style-type: none"> 1. Connect the audio cable from the radio to the RIGblaster Advantage. 2. Ensure the recording level mixer for the Advantage is not muted and set appropriately. 3. Rotate RCVE LEVEL control until waterfall starts displaying normally. 4. Make sure the digital mode program is using the RIGblaster Advantage Audio device and not the default sound-card.
<p>CW keying not working</p>	<ol style="list-style-type: none"> 1. CW keying cable not connected 2. Radio has wrong mode selected 3. Software configuration. 	<ol style="list-style-type: none"> 1. Connect the optional CW keying cable to the transceiver's CW input jack. 2. Serial port CW keying will only work in the transceiver's CW mode. 3. Ensure the digital-mode software is set for RTS=PTT and DTR=CW. Note: RTS/DTR should never be set to permanently "high" or "on".

<p>Radio transmits but FSK RTTY not working</p>	<p>1. FSK cable not connected</p> <p>2. Transceiver does not support FSK RTTY</p> <p>3. Software configuration</p> <p>4. Transceiver settings</p>	<p>1. Connect the optional FSK cable to the transceiver's ACC/FSK jack.</p> <p>2. Only radios with a dedicated RTTY mode can support FSK RTTY.</p> <p>3. Ensure the software is set for RTS=PTT and DTR=FSK SHIFT.</p> <p>4. Ensure the transceiver is configured correctly for FSK RTTY.</p>
<p>Radio stays in transmit after PTT activated</p>	<p>1. RFI</p>	<p>1. This is usually caused by RFI. Try re-positioning the RIGblaster Advantage away from your radio and tuner and most importantly ensure your station ground is effective and that your radio chassis is grounded with your power supply chassis.</p>
<p>Transmitted audio is distorted</p>	<p>1. RFI</p> <p>2. XMIT LEVEL control set too high</p> <p>3. Windows mixer slider set too high</p>	<p>1. Try re-positioning the RIGblaster Advantage away from your radio and tuner and most importantly ensure your station ground is effective and that your radio chassis is grounded with your power supply chassis.</p> <p>2. Rotate XMIT LEVEL control counter-clockwise until audio output is clean. In general your transceiver ALC meter should indicate minimum or no ALC action.</p> <p>3. Reduce Windows volume sliders until audio in normal range. In general your transceiver ALC meter should indicate minimum or no ALC action.</p>

RIGblaster Advantage Warranty

RIGblaster Advantage is warranted against failure due to defects in workmanship or materials for one year after the date of purchase from West Mountain Radio. Warranty does not cover damage caused by abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation, alteration, lightning, or other incidence of excessive voltage or current. If failure occurs within this period, return the *RIGblaster Advantage* or accessory to West Mountain Radio at your shipping expense. The device or accessory will be repaired or replaced, at our option, without charge, and returned to you at our shipping expense. Repaired or replaced items are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the *RIGblaster Advantage* or accessory made after the expiration of the warranty period.

The Compact Disc of Radio Amateur Software Collection is excluded from any and all warranties by West Mountain Radio. Note that the programs have been provided as shareware or freeware by the software authors to the amateur radio community for their use and enjoyment. The CD-ROM is to be used at your own risk.

West Mountain Radio shall have no liability or responsibility to customer or any other person or entity with respect to any liability, loss, or damage caused directly or indirectly by use or performance of the products or arising out of any breach of this warranty, including, but not limited to, any damages resulting from inconvenience, loss of time, data, property, revenue, or profit, or any indirect, special incidental, or consequential damages, even if West Mountain Radio has been advised of such damages.

Except as provided herein, West Mountain Radio makes no express warranties and any implied warranties, including fitness for a particular purpose, are limited in duration to the stated duration provided herein.



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