RigExpert® Tiny

User's manual

IMPORTANT:

Read this manual carefully before attempting to use the RigExpert Tiny device.

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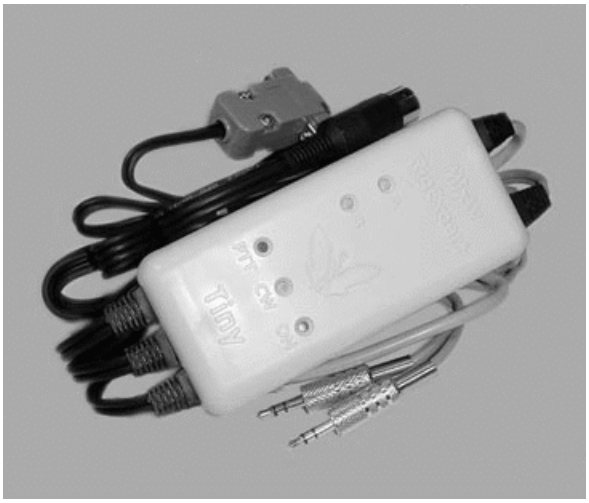


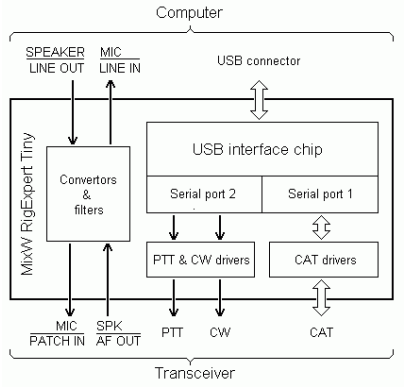
RigExpert Tiny
CAT+PTT/CW

USB Soundcard Transceiver Interface

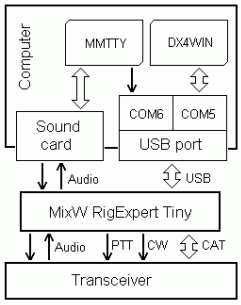
Developed by Rig Expert Ukraine Ltd., the RigExpert Tiny is a revolutionary new sound card to transceiver interface. Combining complete functionality, simplicity of use, excellent design and low price, the RigExpert Tiny is perfect for all digital modes and CW/Phone. Models built for different transceivers like the Yaesu, Icom, Kenwood and Ten-Tec are now available.

The RigExpert Tiny interface provides a CAT port (transceiver frequency and mode control using a computer), a second serial port (PTT push-to-talk and/or CW output), as well as the soundcard-to-transceiver audio interface. The transceiver and computer connections are made using pre-wired cables for your specific rig. The computer connection uses the USB port, freeing up your serial (COM) ports for other needs. A separate power supply for the RigExpert Tiny interface is not needed as it is powered by the USB port. Five LED's on the top panel display the device status, helping set up the computer software and monitor functions during on-air operation.

The RigExpert Tiny interface is fully compatible with all amateur radio software running under Windows 98/ME/2000/XP/2003/Vista. Also supported are Linux and MAC OS 8/9X operating systems. Programs like DigiPan, MixW, MMTTY, MMSSTV, EchoLink, Ham Radio Deluxe, DXBase and CQ-Log are fully supported.



A block diagram of the RigExpert Tiny is shown at the left. The "heart" of this unique interface is a dual-port USB converter chip. In this diagram, both ports are set up to operate in serial mode. One of the ports transmits and receives the CAT system data, while the other port drives the PTT and CW outputs. After the RigExpert Tiny is connected to the computer and the drivers are installed, two serial ports of your choosing (i.e. COM8 and COM9) are available for the software.



Two separate serial ports within the USB cable are just one of the many unique features of the RigExpert Tiny interface. The simultaneous use of two separate programs is an important asset to you as seen in the illustration to the right. One port operates the digital mode (driving the PTT and CW outputs). The other port controls your QSO logging software working with the CAT system. The diagram shows the RigExpert Tiny using the popular MMTTY and DX4WIN programs.

Website **www.rigexpert.com**

Specifications

General functions

- Transceiver CAT (Computer Aided Transceiver) serial port
- Separate serial port with CW (Morse output) and PTT (Push-to-talk) output lines
- Sound card audio interface

Computer connection

- USB (Universal Serial Bus) connector
- 3.5 mm audio connectors for sound card input and output
- Two or more RigExpert Tiny devices may be connected to a computer simultaneously.

Transceiver connection

- Pre-wired cables with connector to go directly to transceiver sockets, depending on RigExpert Tiny model
- Total cable length (computer to transceiver): 2.5 m

CAT serial port characteristics

- Baudrate: 300-115200 baud
- Selectable stop bit and parity parameters
- Electrical compatibility: RS-232, CI-V, TTL or inverted-TTL, depending on RigExpert Tiny model

PTT/CW serial port characteristics

- PTT output is driven by RTS line
- CW output is driven by DTR line
- Electrical characteristics: open-collector outputs, max. 50 mA output

Sound card interface

- 1:10 resistor dividers at input and output lines

LED (Light-emitting diode) indicators on the top cover

- “A” – blinks when CAT data is sent from computer to transceiver
- “B” - blinks when transceiver replies a CAT command
- “PTT” - push-to-talk indicator
- “CW” - CW output indicator
- “ON” - device power indicator

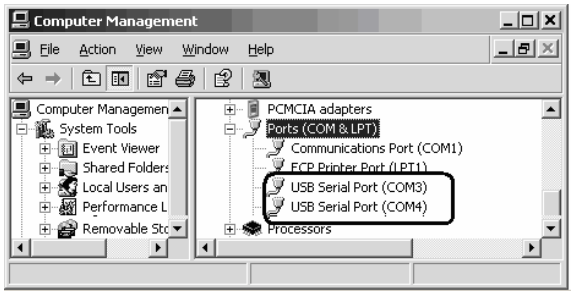
System requirements

- Desktop or laptop computer with USB 1.1 or USB 2.0 compliant port
- Windows 98/ME/2000/XP/2003/Vista or Mac OS or Linux operating system

Normally, the Microsoft Certified driver for these operating systems is installed when you first run the RigExpert Tiny CD. Additionally, you may find the driver files in the ***Drivers*** folder on the CD.

Continue with driver settings when you see ***"Your hardware is installed and ready to use"*** message.

1. As a result of successful installation, you will see a new pair of serial ports in the ***Device Manager*** (right-click ***My Computer*** on the desktop, select ***Manage*** from the menu, select ***Device Manager*** from the list on the left side of the window, then open ***Ports (COM&LPT)*** branch on the right).



2. One of these new ports is a CAT port, and the other one is PTT/CW port. To view the RigExpert Tiny serial port assignment, please run the **ListRE** program from ***Start – Programs – RigExpert Tiny – Show serial ports***:

3. Please write down these port numbers (from step 2), like in this example:

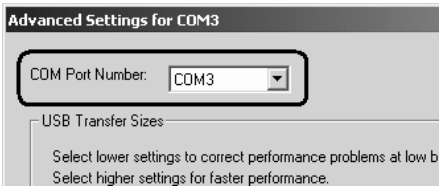
CAT port: COM3
PTT/CW port: COM4

These numbers will be needed to set up your software.

4. Changing serial port numbers.

The serial port numbers are assigned automatically during driver installation. If you need to change their values, open ***Device Manager***, right-click the ***USB Serial Port (COMxx)***, then select ***Properties*** from the menu. In the ***USB Serial Port (COMxx) Properties*** dialog, activate ***Port Settings*** tab, then click ***Advanced*** button.

In the newly-open ***Advanced Settings for COMx*** dialog, select a new ***COM Port Number***.



Click ***OK*** to apply new settings and close the ***Advanced Settings for COMx*** dialog.

You will have to re-plug the RigExpert Tiny device for this change to take effect.

It is recommended for all four ports to uncheck the ***Serial Enumerator*** check-box in the same window:

This will eliminate a case when Windows is trying to find a mouse or other device on this port when you plug in the RigExpert Tiny.

Driver Installation Guide (Windows 98/ME)

1. After the RigExpert Tiny device is plugged into the computer USB port, a ***Found New*** window will pop up on the computer screen.

2. A few seconds later, the ***Add New Hardware Wizard*** will start. Click ***Next*** to continue.

3. In the next window, select ***Search for the best driver for your device*** and click ***Next***.

4. Check ***Specify a location*** and click ***Browse*** to browse for the drivers directory (normally, this is *\Drivers\Win98ME* folder on your CD), then click ***Next*** to continue.

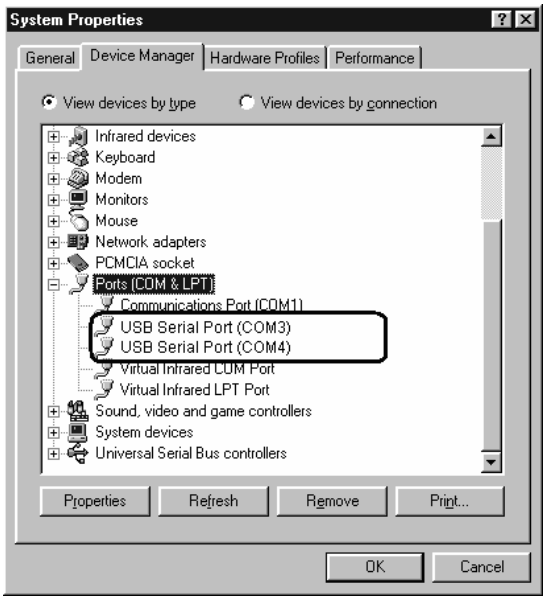
5. Click ***Next*** when you see the ***"Windows is now ready to install…"*** window.

6. In the ***"Windows has finished installing…"*** window, click ***Finish***.

7. Please repeat steps 2-6 when Windows finds RigExpert Tiny subdevices.

8. Now the drivers are installed and are ready to be configured (see page 8).

1. As a result of successful installation, you will see a new pair of serial ports in the ***Device Manager*** (right-click ***My Computer*** on the desktop, select ***Properties*** from the menu, then select ***Device Manager*** tab in the ***System Properties*** dialog. Open ***Ports (COM & LPT)*** branch in the device tree.)



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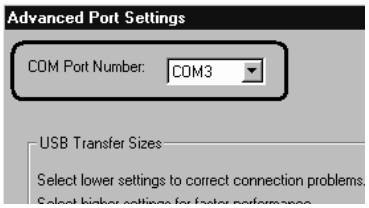


Click ***OK*** to apply new settings and close the ***Advanced Port Settings*** dialog.

You will have to re-plug the RigExpert Tiny device for this change to take effect.

It is recommended for all four ports to uncheck the ***Serial Enumerator*** check-box in the same window:

This will eliminate a case when Windows is trying to find a mouse or other device on this port when you plug in the RigExpert Tiny.

- Once the drivers are properly installed and configured (see the corresponding guides above), connect audio cables to your computer sound card. Plug the SPK connector into SPEAKER (or LINE OUT) socket, and then plug MIC connector into MICROPHONE (or LINE IN) socket of your sound card.
- Turn off transceiver power, then connect remaining cables to the transceiver sockets according to the cable labels.
- Now turn on the transceiver. RigExpert Tiny is ready to operate!

Setting up software to operate using RigExpert Tiny

There are few settings that have to be done (or verified) in the software once the RigExpert Tiny device is plugged in and the drivers are installed.

(Please see the software setup examples on the following pages.)

CAT system

- In the software, select the **CAT port** number.
- Set up baudrate, stop bits and parity parameters according to your transceiver manual.
- RTS and DTR behavior is not significant, since RigExpert Tiny does not use these lines at CAT port.

PTT and CW outputs

- In the software, select the **PTT/CW port** number.
- Set RST line to match the PTT output.
- Set DTR line to match the CW output.
- Baudrate, parity and other port settings are not significant.

Audio in/out

- In the sound card software, select a sound card the device is connected to (some programs can only work with so-called preferred sound card, which is selected via Control Panel, so there is no such a selection there).
- Adjust input and output volume using Windows Volume Control program. This procedure is well-described in various documents and publications, and is better done when the whole system is set up.

Important:

Please remember that since CAT and PTT/CW lines are located on *two different* COM ports, software *should* also be set to use separate ports for CAT and PTT/CW outputs.

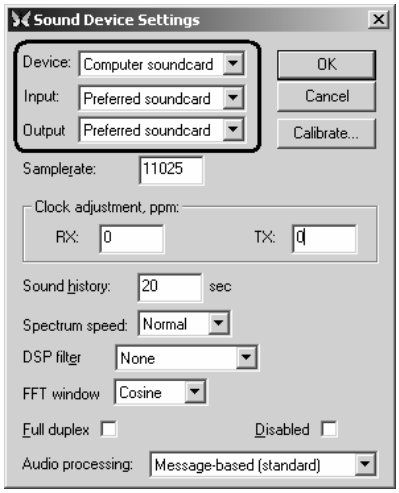
Also, please make sure the transceiver is set up properly. For Icom transceivers, check the CI-V address to correspond the software setting. Switch Yaesu transceivers into the PKT mode if your RigExpert Tiny is plugged into the transceiver PACKET connector.

Additionally, please insure that the CW input in your transceiver is configured to use straight key.

Software setup example: MixW 2

1. Perform audio in/out settings

1a. Go to ***Configure*** - ***Sound device setting*** menu.

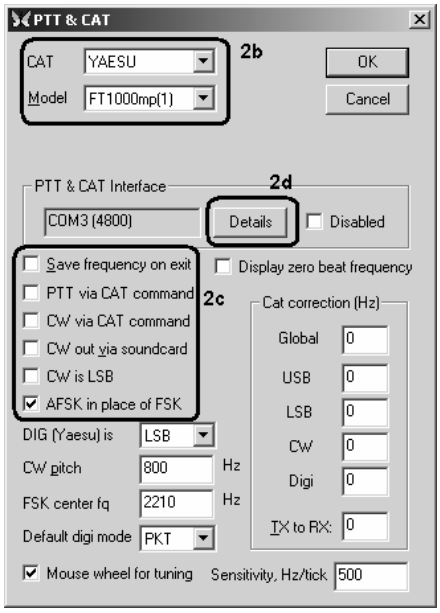


1b. In the ***Sound Device Settings*** dialog, select ***Computer soundcard*** as a device, then select Input and Output. Usually, this will be ***Preferred soundcard*** for both cases.

1c. Change other settings in this dialog according to MixW 2 manual, if you wish.

2. Set up CAT system

2a. Go to ***Configure*** - ***TRCVR CAT/PTT*** menu to open the PTT&CAT dialog.



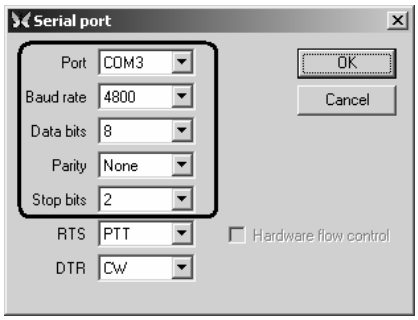
2b. Select your transceiver type and model.

2c. Review the additional settings:

PTT via CAT command, ***CW via CAT command*** and ***CW out via soundcard*** should be unchecked, since RigExpert Tiny provides "hardware" PTT and CW outputs.

AFSK in place of FSK should be checked, as the device does not have FSK output.

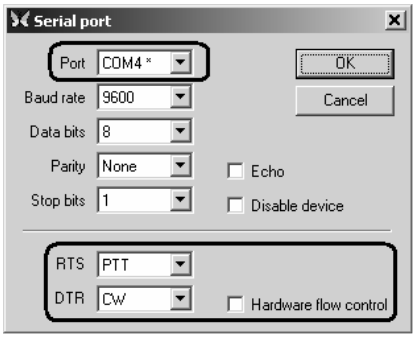
2d. Change other settings according to MixW manual, if you wish. Then click ***Details*** to configure serial port.



2e. In the ***Serial Port*** dialog, select ***Port*** to match the RigExpert Tiny **CAT port**, then set other parameters according to your transceiver manual.

3. Set up PTT and CW outputs

3a. Go to ***Configure*** - ***Secondary PTT port*** - ***Port settings menu***.



3b. In the ***Serial port*** dialog, select ***Port*** to match the RigExpert Tiny **PTT/CW Port**.

3c. Uncheck ***Hardware flow control*** and select RTS line as ***PTT*** and DTR line as ***CW***. Other settings have no effect with RigExpert Tiny.

Software setup example: MMTTY and DX4WIN

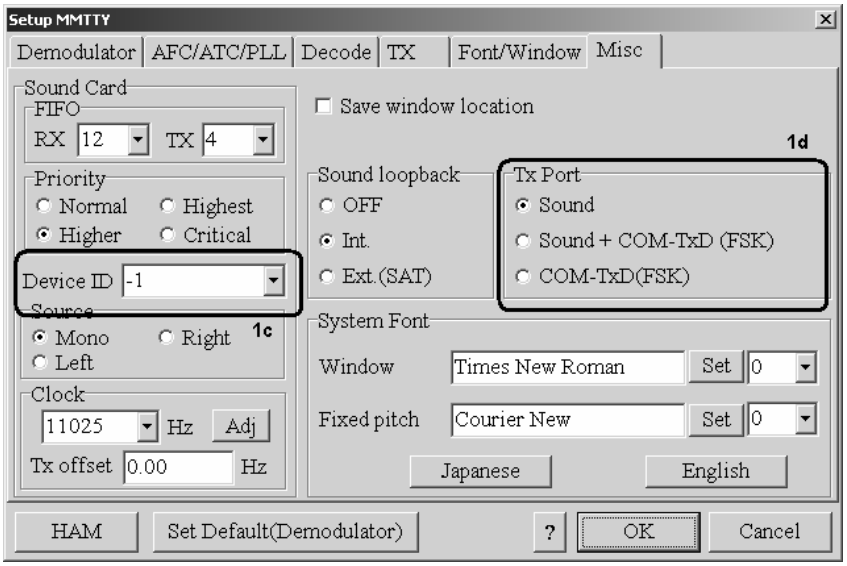
1. Perform audio in/out settings

1a. In MMTTY, go to ***Options*** – ***Setup MMTTY*** menu.

1b. In the ***Setup MMTTY*** dialog, select the ***Misc*** tab.

1c. Select the ***Device ID*** to match the sound card the device is connected to. Normally, this will be ***-1*** (default sound card).

1d. Select ***Sound*** as a ***Tx Port***. This setting will let MMTTY transmit RTTY via the sound card.

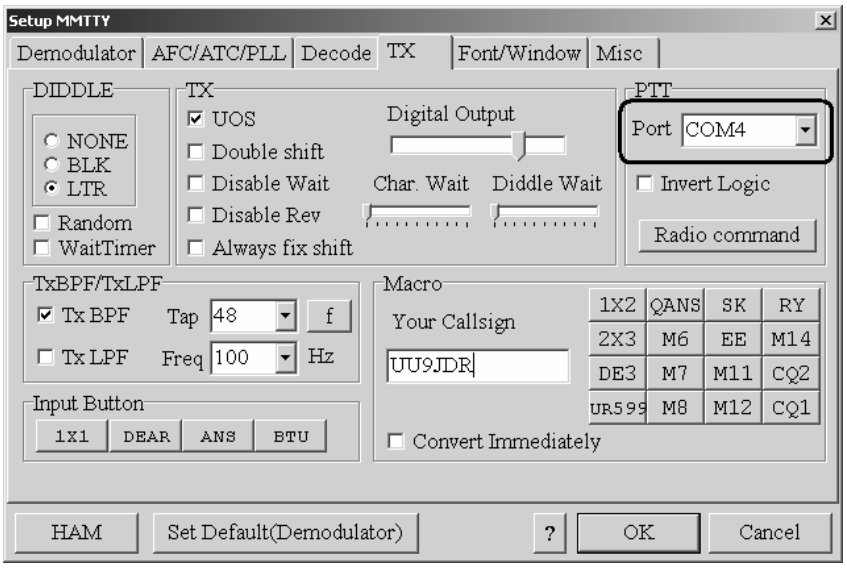


2. Set up PTT and CW outputs

2a. In the ***Setup MMTTY*** dialog, select the ***TX*** tab.

2b. Choose the Port in the PTT area to match the RigExpert Tiny **PTT/CW Port**.

2c. Perform other settings according to the MMTTY manual, if needed.



3. Set up CAT system

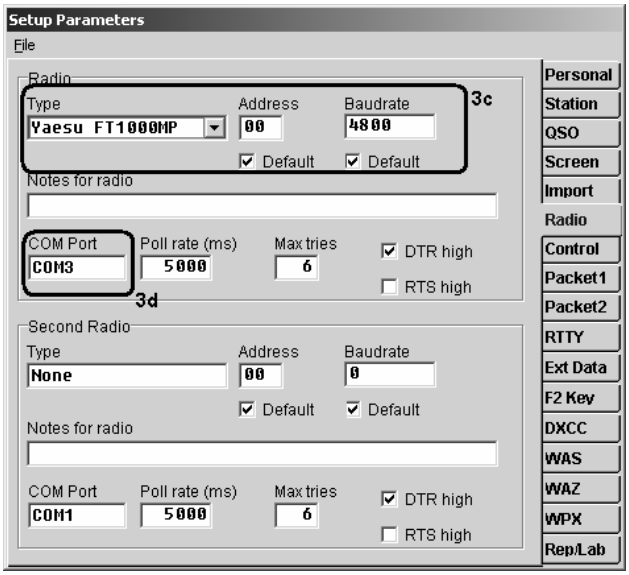
3a. In the DX4WIN software, go to ***File*** – ***Preferences*** menu.

3b. In the ***Setup Parameters*** dialog, open the ***Radio*** tab.

3c. Select your transceiver ***Type*** and parameters according to the transceiver manual.

3d. Select ***COM Port*** to match the RigExpert Tiny **CAT Port**.

3e. Perform other settings according to the DX4WIN manual, if needed.



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