RigPi Remote Keyer



The RigPi Remote Keyer feature allows you to operate CW from a remote location using a paddle, bug or straight key. A RigPi containing a modified Keyer board is required at the Radio end. One of several keying options can be used at the remote end:

At radio end:

- 1. Radio RigPi 1 or 2
 - A. RigPi 3 software
 - B. Raspberry Pi 3B+ or 4B
 - C. Audio Board (for VoIP) and CW Board

At remote key end (3 options):

- 1. RigPi 0
 - A. RigPi 0 software
 - B. Any Raspberry Pi
 - C. Key GPIO pin with straight or electronic key, or use RigPi Keyer board.
 - D. Requires RigPi browser on mobile device plus VoIP Mumble client.

Or

2. RigPi 1 or 2 (same as radio end)

Or

- 3. RigPi Hub Windows program
 - A. RigPi Hub 1.05 or later
 - B. Control radio RigPi with your favorite logging program
 - C. Send CW with most logging programs, straight key, mouse button or electronic key.
 - D. Requires Mumble client for VoIP.

Both RigPi Keyer boards must have two added jumpers (see schematic below).

RigPi Keyer can serve one of three functions as determined by Keyer settings:

Normal Key your radio from any browser using macros or the Keyer window.

Radio Key your radio from a Set the port used for Keyer data, normally 30040. Set Paddle Md

Keyer remote paddle, bug or (Paddle Mode) to Vibrobug. straight key. The Radio Keyer is controlled by the Remote Keyer. Remote Connect your paddle, but Set the port used for Keyer data, as above. Set the IP address for the Radio Keyer RigPi. Use the LAN IP (when at home) or the Keyer or straight key to the Remote Keyer RigPi when WAN IP (when away). When away you must also set up port forwarding on your home router for the Keyer data. If using a bug away from home. The Remote Keyer controls or straight key, connect the key using the tip and sleeve of the

Select the Keyer function in the SETTINGS>CW Keyer window.

Getting Started with Two RigPi's

the Radio Keyer.

Confirm that the RigPi Keyer is working correctly in each RigPi using the Normal Keyer function.

PADDLE connector.

Radio Keyer

- Start the Radio RigPi in any browser.
- In Settings>Advanced Radio enter the settings for your radio.
- Select RigPi Keyer in the Key list.
- In Settings>Keyer, set the Keyer Fn to Normal and put a check in the Enable Sidetone check box.
- Connect a cable from the RigPi KEY connector to the CW keying jack on your radio.
- Click Test Keyer. You will hear two Morse V characters indicating the Keyer is functioning correctly.
- Click Connect Radio on the Tuner window. The frequency shown should be the same as shown on the radio.
- Connect a Keyer paddle to the PADDLE connector, open the Keyer window and send a few characters. If you wish to use a Bug or straight key, connect it between tip and sleeve on the connector and set the Paddle Md to Vibrobug.
- The Radio Keyer is now set for the Normal mode.

Remote Keyer

- RigPi is running using rigpi3.local on the Radio and Remote RigPi's. This will cause a conflict when both are connected to the same LAN. To resolve this conflict, open the Raspberry Pi desktop. Go to Menu>Preferences>Raspberry Pi Configuration. Enter rigpi3.local in the Hostname, click OK, and give permission to reboot. From now on you can access the Remote RigPi by using rigpi3.local.
- Start the Remote RigPi in any browser.
- In Settings>Advanced Radio select the Hamlib>Dummy radio.
- Select RigPi Keyer in the Key list.
- In Settings>Keyer, set the Keyer Fn to Normal and put a check in the Enable Sidetone check box.
- · Click Test Keyer. You will hear two Morse V characters indicating the Keyer is functioning correctly.
- Click Connect Radio in the Tuner window. The frequency shown should be 145.000 MHz.
- Connect a Keyer paddle to the PADDLE connector, open the Keyer window and send a few characters. If you wish to use a Bug or straight key, connect it between tip and sleeve on the connector and set the Paddle Md to Vibrobug.

Setting up Remote Keying with Two RigPi's

Once both keyers are working using the Normal function, we will set up the remote keyer connection through your local network. A dedicated port is used for the CW data. The default port is 30040.

Radio Keyer

- In Settings>Keyer select Radio Keyer in the Keyer Fn list.
- Enter a port in the Port box (30040 is recommended, must be the same as used in Remote Keyer).
- Click Test Keyer to register the new settings.
- In Tuner, click Disconnect Radio and Connect Radio to start the Radio Keyer function with the new settings.

Remote Keyer

- In Settings>Keyer select Remote Keyer in the Keyer Fn list.
- Enter a port in the Port box (30040 is recommended).
- Enter the Radio RigPi LAN IP in the IP box.
- Click Test Keyer to register the new settings.
- In Tuner, click Disconnect Radio and Connect Radio to start the Remote Keyer function with the new settings.

You are all set for Remote CW. Tune your radio to the CW portion of a band and turn on VOX. With the Keyer window open on the Remote Keyer RigPi, try sending some characters. You will hear the sidetone on both keyers and your radio should transmit.

Note the following:

- If running Remote and Radio RigPi near each other, turn off the Radio Sidetone to hear the Remote RigPi Sidetone more easily.
- Keying speed at the Radio RigPi is determined by the speed on the Remote RigPi.
- When using Remote RigPi away from home you must set up UDP port forwarding for the port you have assigned.
- When using Remote RigPi away from home you must use the WAN IP instead of the Radio RigPi LAN IP.
- To control your radio, open any browser at the remote location and connect to rigpi4.local.

RigPi Keyer Board Modifications

Two jumpers must be added to the RigPi Keyer board to allow remote keying, see below. Later production



Remote Keying without a Second RigPi Keyer Board

Using only a Raspberry Pi board you can use an electronic or straight key for CW from a remote location. Connect the keyer from physical GPIO pin 19 to ground. In RigPi SETTINGS>CW Keyer Settings put a check in Inverted Keying. It is best to use an electronic keyer, such as the Winkeyer by K1El, since the Raspberry Pi does not have a built in sidetone. The settings for Remote Keyer, above, apply.

Remote Keying from a Windows Computer

Remote CW can be keyed from most Windows logging programs through a RTS or DTR keying input to RigPi Hub. RigPi Hub 2.0.1 is a Windows Virtual Port program that can control RigPi from up to 4 Windows programs. It is available for free from the RigPi web site: <u>https://rigpi.net</u>

Morse Keyer is a Windows programs that can connect to RigPi Hub. Using Morse Keyer you can send CW through RigPi Hub on the remote radio using a straight key, paddle, bug or even mouse buttons. A sidetone is provided. Select a free port in RigPi Hub, open it, then connect Morse Keyer to that port.

You can use a decommissioned mouse to connect to a physical key. It is possible to connect two mice to a computer although they control the same mouse pointer. The downside to this approach is that you must move the mouse pointer over the "keypad" on the Morse Keyer window to send through using a key through the recommissioned mouse. Select a free port in RigPi Hub, open it, then connect Morse Keyer to that port.

Using two USB-to-serial adapter cables you can key Morse Keyer through a USB port and key RigPi Hub. See the Morse Keyer web Help page for details on connecting your key to Morse Keyer using a USB/serial connection. RigPi Hub can use a physical serial port in addition to virtual ports. Jumper the keying output from Morse Keyer (pin 4 on a DB-9 connector) to the CTS input on the second cable. See RigPi Hub Help for details.

Using remote CW with RigPi Hub

RigPi Hub 2 can be used with RigPi to send CW from a Windows program through a virtual port. Two ways to send CW are provided with RigPi Hub: element based (start and end times for each element are sent); character based (ASCII characters are sent to RigPi where they are converted to CW).

Element based keying

Element based keying requires a second port for keying purposes. The default port for element based keying in 30040. You must use a RigPi CW board at the radio end, set up for Radio Keyer in SETTINGS->CW Keyer->Keyer Fn. Open port 30040 for UDP in your router when operating away from home.

Configure your program to use DTR for keying CW. Assign a RigPi Hub virtual port to the CW keying function of the external program.

The following programs have been tested using element based CW:

CommCat Ham Radio Deluxe/Digital Master N1MM DXLog Morse Keyer

RigPi Hub can connect to a physical port for keying from an external device such as an electronic keyer, straight key or bug. Select the serial port you want to use in the CW group and click Connect.

You can use a USB-to-serial adapter to gain access to the RTS, DTR or CTS control lines. Here is an adapter I have tested. It works well by grounding the CTS line through the external key.

<u>https://www.amazon.com/gp/product/B07TXVRQ7V/ref=ppx yo dt b asin title o01 s00?</u> ie=UTF8&psc=1



Character based keying

Character based keying does not require a separate port, it uses the standard RigPi Hub port 30001.

Send CW from one of several popular logging programs. The program must support Winkeyer-compatible keying. Set up a RigPi virtual port for this purpose at 1200 Baud. Connect to this port from the Winkeyer interface in the program you are using.

The following programs have been tested using character based CW:

CommCat Ham Radio Deluxe/Digital Master N1MM WK3 Demo by K1EL

Ham Radio Deluxe (character mode)

Confirm that CW is working in RigPi. No special RigPi settings are required to use character mode remote CW.

Start RigPi Hub and set up one virtual port for radio control at 38400 Baud and a second virtual port for CW at 1200 Baud.

Start Ham Radio Deluxe using a Kenwood TS-2000 radio selection. Start DM780.

In DM780 Modes, select CW (WinKey).

In Winkey->Keyer settings, select the port you configured for 1200 Baud. Click Connect.

In DM780->Winkeyer->Speeds, remove the check in Track Changes if there.

In DM780->Winkeyer->Keyer, click Test. The RigPi Keyer should send TEST DE DM. Close Winkeyer settings.

Use the CW functions in DM780 as you normally would. There is no sidetone when operating in this way. You can turn on your radio's sidetone and hear it through Mumble. The RigPi CW indicator in the lower right hand corner of the RigPi Hub window shows when CW is being sent.

N1MM (character mode)

Confirm that CW is working in RigPi. No special RigPi settings are required to use character mode remote CW.

Start RigPi Hub and set up one virtual port for radio control at 38400 Baud and a second virtual port for CW at 1200 Baud.

Start N1MM using a Kenwood TS-2000 radio selection.

In Config->Configure Ports, set up a separate port for WinKeyer. Put a check in the WinKey box.

In Config->Winkey, select Ignore Winkey Speed Pot.

In Winkey->Keyer settings, select the port you configured for 1200 Baud. Click Connect..

Use the CW functions in N1MM as you normally would. There is no sidetone when operating in this way. You can turn on your radio's sidetone and hear it through Mumble. The RigPi CW indicator in the lower

right hand corner of the RigPi Hub window shows when CW is being sent.

K1EL WK3 Demo (character mode)

Confirm that CW is working in RigPi. No special RigPi settings are required to use character mode remote CW.

Start RigPi Hub and set up a virtual port for CW at 1200 Baud.

Start WK3 Demo..

In Setup->Com Port Settings, select the virtual port you set up for 1200 Baud. Click Done.

Click the Open button to initialize the keyer.

Use the CW functions in WK3 Demo as you normally would. There is no sidetone when operating in this way. You can turn on your radio's sidetone and hear it through Mumble. The RigPi CW indicator in the lower right hand corner of the RigPi Hub window shows when CW is being sent.

CommCat (character mode)

(Note: CommCat has been discontinued.)

Confirm that CW is working in RigPi. No special RigPi settings are required to use character mode remote CW.

Start RigPi Hub and set up one virtual port for radio control at 38400 Baud and a second virtual port for CW at 1200 Baud.

Start CommCat using a Kenwood TS-2000 radio selection.

In File->Settings->Radio/Ant->CW, select Winkeyer and the port you set up for 1200 Baud.

Use the CW functions in CommCat as you normally would. There is no sidetone when operating in this way. You can turn on your radio's sidetone and hear it through Mumble. The RigPi CW indicator in the lower right hand corner of the RigPi Hub window shows when CW is being sent.