

Ham Radio Solutions CW Hotline User Manual

Version 0.2

<https://hamradio.solutions/cwhotline/>



Overview

The Ham Radio Solutions CW Hotline is a internet WiFi connected Morse Code/CW keyer that provides a private Morse code link between friends, enables remote keying of a CW transceiver, is a stand alone Morse code iambic keyer, and a latency free interface for HamRadio.Solutions VBand service. It includes a built-in iambic paddle or straight key, but can also accept an external paddle or key. It has a built-in speaker, line-out audio jack, and a key output to drive a connected radio. Once linked to one or more other CW Hotline devices, any CW entered into one will be sent to and played by all other linked devices. Multiple devices can be connected to each other with a user generated link key entered into each device.

CW Hotline includes the following user interfaces:

- A green Link LED to show the status of the WiFi link to other devices
- A red Key LED to show when it is sending or receiving Morse code
- A speed button to adjust the WPM speed of the iambic keyer or select straight key mode
- An optional built-in iambic paddle or straight key
- An internal speaker to generate Morse code audio
- A 3.5mm TRS jack for an external paddle or straight key input
- A 3.5mm TRS jack for line out audio to an external amplified speaker
- A 3.5mm TRS jack for an output connection to key an external transmitter
- A micro-usb connection for power and serial connection

Settings

CW Hotline has several user settings to control operation. These settings can be adjusted via a serial connection or internal WiFi access point. The settings are explained below.

- **SSID** - The SSID of the local WiFi access point the CW Hotline should attempt to connect to.
- **Password** - The password of the local WiFi access point.
- **Device Key** - A unique key provided by HamRadio Solutions to access the server. Do not share this key with others.
- **Link Key** - A user generated code to determine which other devices to link with. Choose a code word/key/phrase, and share this with other users. All devices using this link key will be connected together. Do not choose an obvious, guessable key, especially if you are connecting to a CW transmitter, as anyone with this key would be able to key your radio.
- **Callsign / Name** - The callsign or name of the CW Hotline user.
- **Min Latency** - The number of milliseconds delay between receiving code and playing it. 200 is a good starting value.
- **Speaker Enable** - Set to 1 to enable the speaker when sending, or 0 to disable the speaker.
- **Flip Paddle** - Set to 0 for a right side dah and left side dit on the paddle, or to 1 to swap those.
- **WPM** - The keyer speed in Words per Minute. Setting to 7 will enable straight key mode.

Serial Configuration Mode

Settings can be adjusted via a serial connection to a computer. A micro USB data cable must be used. A charging only cable will not work. A CH340 serial port driver will also be needed, but may be pre-installed on some computers. Run a serial terminal program, such as TeraTerm Pro on Windows, or CoolEdit on Mac, select the connected port, set it for 115200 baud, and send 3 asterisks (*) followed by the Enter key to begin the serial configuration. For each setting, the current value will be shown. Just press Enter to accept, or type in the new value followed by Enter to change. Go through all settings to have them saved, then reset power to apply the new values.

The CW Hotline website supports an on-line tool to adjust serial settings when using the Chrome or Edge browser. Go to hamradio.solutions/cwhotline and click on the Connect tab to access this feature.

Access Point Config Mode

Settings can also be adjusted by turning CW Hotline into a WiFi access point, and connecting with a phone or computer. This mode can be enabled by resetting power, and then quickly pressing and holding the speed button AND the straight key or dit or dah paddle AFTER the 3 red and green LED flashes begin. If the dit or dah paddles are pressed at the start of powerup, it will not start. Wait for the 3 flashes to start, and then quickly press and hold the buttons & paddles. Normal operation is cancelled in access point mode, and both LEDs will be on solid.

Once Access Point Config Mode is running, use a nearby WiFi enabled phone or computer, and connect to the WiFi Access Point "**CW Hotline AP**" with password "**morsecode**".

Once presented with the captive portal main screen shown on the right, select "**Configure WiFi**". It will scan for local WiFi access points. Select the desired Access Point SSID and enter the password. Adjust any other desired settings, then click "**save**". The CW Hotline will reset and attempt to connect to the selected WiFi access point.

Operation

Once the CW Hotline has successfully connected to the HamRadio.Solutions CW Hotline server (green LED is flashing quickly or on solid), any closure of a connected straight key or paddle will light the red LED, sound the speaker, key a connected radio, and send that CW timing to the server and all other devices linked with the same link key. If any other linked CW Hotline device generates CW, that will be received and the red LED will light, the speaker will sound, the connected radio will be keyed. The speaker tone for locally generated code is slightly different from the tone from remotely generated code.

CW Hotline AP

WiFiManager

Configure WiFi

Configure WiFi (No Scan)

Info

Reset

Iambic Speed / Straight Key Mode

Pressing the speed button will begin speed adjustment mode. The speaker will make alternating dit and dah tones at the current iambic speed. If in straight key mode, the speaker tone will be solid. The red LED will not light with the tone. The dit/dah tones will be sent at the current iambic keyer speed. Tap the right (Dah) paddle to speed up by 1 WPM. Tap the left (Dit) paddle to slow down by 1 WPM. The minimum keyer speed is 8 WPM. If you attempt to go slower than that, the tone will switch from dit/dah to a solid tone to indicate the keyer is now in straight key mode. Increasing the speed from straight key mode will move back to dit/dah tones at 8 WPM. Press the speed button again to leave speed adjust mode. It will play the selected speed in morse code over the speaker, either **SK** (... -.-) for straight key mode, or the speed in words per minute, then return to normal operation.

Powerup Status Code

CW Hotline will send Morse code over the speaker after powerup to indicate operation status:

- **OK** (--- -.-) when it has successfully connected to the WiFi access point
- **NC** (-. -.-) when it was unable to connect to WiFi, and is operating off-line as a keyer
- **AP** (-. ---) when it has booted into Access Point configuration mode
- **VB** (...- -...) when entering VBand mode, which disables outgoing WiFi CW
- **VX** (...- -.-) when exiting VBand mode, and re-enabling outgoing WiFi CW

LED Status

The green and red LEDs will flash 3 times after powerup, then be used to show link and key status. Both LEDs will be lit solid when in access point mode.

The green Link LED will show the status of the WiFi link to other devices. It will blink slowly when unable to connect to the CW Hotline WiFi sever. It will blick quickly when connected to the server, but when no other devices are connected with the same link key. It will be on solid when connected and paired with at least one other device.

The red Key LED will show when it is sending or receiving Morse code.