

# **An Intro to Your CW Journey**

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# Why Learn and Operate CW?

Signal-to-Noise advantage over SSB, Simple Radios, Removes Some Language Barriers, and most of all, **It's FUN!**

# 10db S/N Advantage Over SSB

- Easier signal isolation, tighter filters (as small as 50hz)
- Needs less power for reliable communication (QRP!)
- Simple radios, sometimes only a few components
- Works better with compromised antennas - portable operations (POTA)

# Removes Some Language Barriers

- No accents
- No phonetics
- Some DX who don't speak English are apprehensive to have a QSO on SSB with English speakers

# What Equipment Do You Need to Learn CW?

# Sending Option 1: The Straight Key



- Simple toggle on/off the carrier
- Speed limited
- Not good if you have repetitive stress injuries
- With it, you will need an oscillator to generate a tone when toggled on and off

## Sending Option 2: The Paddle



- Single
- Double (Iambic)
- Capable of fast speeds
- With a paddle, you will need a keyer that generates dits and dahs based on which side of the paddle is pressed

# Keyers/Oscillators

- **Keyers:** K1EL Winkeyer, Morserino-32, HamCube Pro, MFJ, many kits to build your own, Transceiver with keyer
- **Oscillators:** MFJ, Vibroplex Kits, Many other kits, VOM Continuity Test w/Sound, Transceiver with sidetone
- **To use your XCVR for code practice:** CW Mode, VOX off, BK IN off, Sidetone volume UP, verify you don't transmit on key-down

\*\*\* Caveat: some keyers don't generate a sidetone, so you may only be able to use them for practice with a transceiver or oscillator

**I can generate CW, now  
what?**

# How to Learn?

## Class

1. CW Ops: CW Academy
2. Long Island CW Club
3. CW Innovations

## Self Teach

LCWO.net: Learn CW Online

# Farnsworth Spacing

## Purpose

Learn characters at “fast” speed so that your brain can’t cheat!  
Use elongated spacing to slow down the overall speed.  
Increasing overall speed doesn’t require learning the characters faster.

## Example

If you set your character speed to 25-30wpm, you can’t count the dits, your ear has to know the sound it hears.

# Instant Character Recognition (ICR)

## Purpose

Move CW translation  
to the subconscious

## Example

No need to count dits  
and dahs, prevent  
getting stuck on  
similar characters (H  
and 5)

# Koch Method

- Use farnsworth spacing with fast characters from the start
- ICR
- Incrementally learn characters, starting with 2, then a 3rd, etc.
- Don't learn the next character until you copy the last 90% of the time correctly.
- Different training orders: CW Ops, LCWO, etc. (Google it)

# Sending Practice

- Learn all characters as part of Koch training. After you can 90% receive, practice sending
- Daily Warm-Up:
  - ABCs and 123s,  
Punctuation and Prosigns
  - “The quick brown fox  
jumped over the lazy dog.”
- Callsigns or QSO text
- Try to generate from your head instead of copying from print

# Hardware Tools

## Morserino-32

- Decoding Feedback
- CW Generator
- Echo Trainer
- Koch Trainer
- CW Keyer
- Plus More!

## HamCube

- Decoding Feedback
- Code Memory
- Code Reading
- CW Keyer (Pro)
- Plus More!

# Software Tools - Websites

## MorseCode.World

CWOps Training Tools, Generate Sound Files, Standard Training, Morse Machine (ICR)

## Long Island CW Club Practice Page

Contains LICW Lessons

## LCWO.net

Koch Lessons, Speed Practice, Morse Machine (ICR)

## AA9PW.com

Morse code generator

## Youtube

Search: morse code practice  
Also K4SWL has great CW POTA videos that I use for callsign practice

# Software Tools - Computer Applications

## **CW\_Player**

For Windows (Linux w/Wine)  
Morse Machine, Q Codes,  
Abbreviations, Files

## **Morse Runner**

For Windows (Mac + Linux w/Wine)  
  
Copy callsigns and contest  
exchanges with simulated band  
conditions

## **G4FON.net**

Koch Training Software for Windows

## **Automatic Morse Code Teaching Machine**

Based on Ward Cunningham's 1977  
QST Article about learning morse  
code

## **Just Learn Morse Code**

For Windows (Linux w/Wine)  
Koch Training

## **RufzXP**

For Windows  
Callsign copy practice

# Software Tools - Apps

**Android: IZ2UUF Morse Koch  
CW**

**Android/IOS: DS1UOV Morse  
Trainer w/Koch**

**Android: Morse Pro**

**IOS: Morse Toad**

**IOS: Morse Maven**

**IOS: MTP Morse Machine**

# Software Caveats

**Ignore software that has  
you think about dits and  
dahs**

**Software should use fast  
character speeds and  
farnsworth spacing**

**Get on the Air!**

# Tricks

## **Learn your callsign at high speed (35+ wpm)**

Create a text file with your callsign repeated hundreds of times. Use any of the many tools that take a text file input to generate CW of your callsign at 35wpm. Memorize the sound through repetition.

## **Common Words**

Using the same methodology, learn common words / Q codes

## CW Related Links

### Courses:

- CWOps/CWAcademy: <https://cwops.org>
- Long Island CW Club: <https://longislandcwclub.org>
- CW Innovations: <https://cwinnovations.net>

### Web Training Tools:

- LCWO: <https://lcwo.net>
- Morse Code World: <https://morsecode.world>
- AA9PW: <https://www.aa9pw.com/morsecode/>
- K4SWL Youtube: <https://www.youtube.com/@ThomasK4SWL>

### Software:

- CW\_Player: <http://f6dqm.free.fr/soft/cwplayer/en/cwplayer.htm>
- Morse Runner: <https://www.dxatlas.com/MorseRunner/>
- G4FON: <https://www.g4fon.net>
- Automated Morse Code Teaching Machine: <https://c2.com/morse/>
- RufzXP: <https://rufzxp.net>
- Just Learn Morse Code: <https://justlearnmorsecode.com>

### Hardware Trainers:

- HamCube: [https://www.hgeek.com/products/hamgeek-hamcube-mini-cw-trainer-morse-code-trainer-with-display-perfect-for-telegraph-practice?\\_pos=2&\\_sid=4c59a9389&\\_ss=r](https://www.hgeek.com/products/hamgeek-hamcube-mini-cw-trainer-morse-code-trainer-with-display-perfect-for-telegraph-practice?_pos=2&_sid=4c59a9389&_ss=r)
- Morserino Pocket: <https://www.qrp-labs.com/morserino.html>

### Keyers:

- K1EL WinKeyer: <https://www.hamcrafters2.com>
- Pico Keyer: <https://hamgadgets.com/keyers-morse-cw.html>
- DIY K3NG Arduino Keyer: <https://blog.radioartisan.com/arduino-cw-keyer/>
- DIY EZKeyer III: <https://www.4sqr.com/ek3.php>
- Many kits on ebay

### Keys/Paddles:

- Putikeeg: <https://putikeeg.com/> (might be cheaper on Amazon)
- UMPP Morse Keys: <https://sites.google.com/view/gm0eul3dkeys/home>
- CW Morse: <https://cwmorse.us>
- N3ZN: <https://www.n3znkeys.com>
- Begali: <https://www.i2rtf.com>
- Vibroplex: <https://www.vibroplex.com>
- American Morse: <https://www.americanmorse.com>
- Many others.... (check ebay and QRZ)