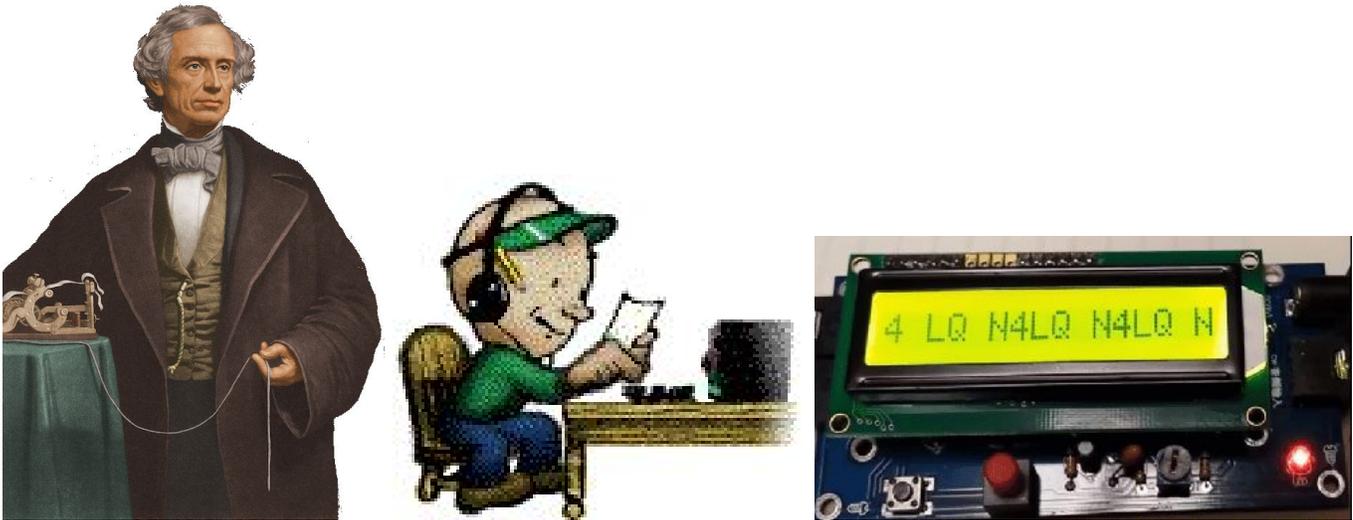


Having Fun with Morse, Getting Started with CW & Getting on HF Bands with Any License



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- *Website - www.k8zt.com/morse*
- *Ham Radio Quick Start Guide- tiny.cc/new-ham*

The mode of Morse Code in Amateur Radio is commonly referred to as “continuous wave” or “CW”. (This name was chosen to distinguish it from the damped wave emissions from spark transmitters, not because the transmission is continuous.)

Morse Code, No Fun! Why?

Before 1990 all Amateur Radio licenses required at least some code and up until 2007 Code Proficiency was required to have most Voice HF radio privileges. It was something you had to do. Many learned just enough to get their license but never used it on the air, they really just wanted voice privileges. Or worse yet, they got frustrated and lost interest in Amateur Radio. Now there is no code proficiency requirement for any level of Amateur Radio license.

Fun with Code- Maybe?

So the goal of this document is...

- To get you on the HF bands as soon as possible.
- To help you get on the air using code
- To learn how it can be a fun and effective way to make contacts on HF
- No testing or shaming of your code ability

Fun with Code- Yes!

Morse Code could be Fun and Useful:

- Gets you on HF now!
- More efficient in getting contacts than SSB (especially with QRP- low power)
- Lower cost equipment & simple kits
- A very popular contesting mode
- No one knows how old you are, your gender or your accent
- Doesn't bother spouse or other nearby (with the shouting of voice contacts)
- Did you realize you already have HF privileges with just a Tech License? Using CW- You Already Have HF Access!
 - You can use CW with your Tech License!
 - 80 meters 3.525 - 3.600 CW
 - 40 meters 7.025 - 7.125 CW
 - 15 meters 21.025 - 21.200 CW

Many new hams are not aware of HF and 6-meter privileges that come with a Technician class license so let's take a look at them and what can be done with them:

- **6 Meters**- Although a VHF band 6 meters has a number of features that can make it resemble the behavior of HF bands at times. Technicians have full privileges on 6 M including Voice, Data and CW.
 - During periods high sunspot activity the F₂ layer of the atmosphere can support worldwide contacts like the HF bands. Unfortunately, we are at an 11-year low point in the cycle right now, so let's skip this one.
 - E Skip, on the other hand, is not dependent on the sunspot cycle and can support regional and sometimes even nationwide and Caribbean contacts. E Skip is more predominate in Summer months but can occur year round. In addition to SSB voice contacts, the extremely popular new data mode FT8 is especially successful at making E skip contacts under even poor conditions. For additional info on FT8 and MSK144 see my website's digital page www.k8zt.com/digital and my [presentation on FT8](#).
 - Meteor scatter is not dependent on the sun at all and MSK144 digital mode can provide regional and sometimes even nationwide and Caribbean contacts.
- **10 Meters** is the highest frequency band has a wide variety of privileges for Technicians. During periods of high sunspot activity, the F₂ layer of the atmosphere can support worldwide contacts. Unfortunately, as I mentioned earlier we are currently at the bottom of sunspot

activity. Because of this worldwide and even regional contacts can be rare to come by. But there are still statewide contacts and rare openings (usually during contests) across the Western Hemisphere.

- SSB Voice on 28.300 through 28.500 MHz.
 - CW on 28.000 to 28.299 MHz.
 - Data- RTTY, PSK31 and most recently and promising during poor band conditions FT8!
- **80, 40 & 15 Meters.** Although 15 M is also quite dependent on solar activity, both 40 & 80 are bands that are open even during this low sunspot period. These Technician HF privileges are probably a surprise to many, but they exist and are just waiting to be used. The catch? These 80, 40 & 15 Meter privileges are limited to CW, but we will get to that below.

Now before I go any further this is not an article on the pros and cons of CW as a licensing requirement, an argument on old versus new ways of doing things or of any type of operator shaming.

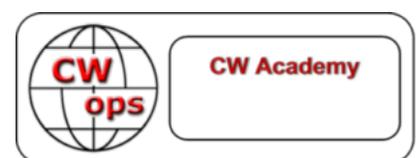
The remainder of this document will focus on getting you on the air using Morse Code:

- Learning Code
- Using Code
- Tools
- General Guides to CW Contacts
- Tips & Tricks
- Fun with Code

Different people learn differently but here are a few ideas to get you off on the right foot. Do not learn to count dot (dits) or dashes (dahs) it will just slow you down. Learn at least 10 WPM (Words Per Minute) so you are hearing sounds of each character not counting elements (dots and dashes). One method of doing this is the Farnsworth Method. In the Farnsworth Method individual characters are sent at the target speed (CPM- Characters Per Minute), but extra space is sent between characters and words to slow the rate at which you have to translate (WPM- Words Per Minute).

Over the years there have been a number of methods used to teach code. Some of them involved a “live” instructor sending the practice code but many used recordings of sent code (phonographic records, tapes, CDs, etc.) one of the problems with these recorded methods was learner could soon memorize the code being sent as opposed to learning to receive it. Fortunately with the advent of computer software code practice can be generated on the fly. So I suggest one of the following:

- Computer Software Programs
- Apps for phones or tablets
- Devices (self-contained hardware to designed to send practice code)
- On-Air (best saved for after you have experience with code, just remember some code you encounter on the air is not sent perfectly)
- If there is a class with a live instructor in your area that could be a good option (an excellent alternative to this is an online/on-air class option- [CW Ops CW Academy](https://cwops.org/cw-academy-2) <<https://cwops.org/cw-academy-2>>).



Once you pick a method or methods for learning one of the most important things is setting goals and a schedule of practice. Having a buddy to learn with can be a great incentive in this process.

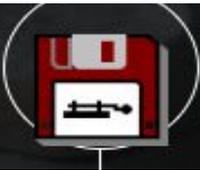
Computer Software Programs

G4FON HOCH CW TRAINER SOFTWARE

www.g4fon.net

LCWO LEARN CW ONLINE

<https://lcwo.net>



CWStudio

Practice Morse Code with the sound like the real air.
Multichannel portable CW signals generator.

<http://cwstudio.sourceforge.net>



Just Learn Morse Code

www.justlearnmorsecode.com

JMorseTrainer

<http://jmorsetrainer.sourceforge.net/>

Learning Code- Android Apps (Available in Google Play Store)



**Morse Trainer
for Ham Radio**
Wolphi LLC



**Koch Morse
Trainer**



**Morse
Trainer**



**Morse code -
learn and play**



**Morse Machine
for Ham Radio**
Andrea Salvatore
IU4APC



**Morse Code
Quiz**



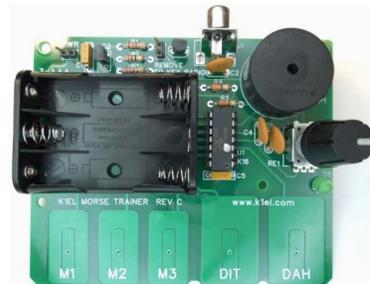
**MORSE
MENTOR**



**Morse
Machine**

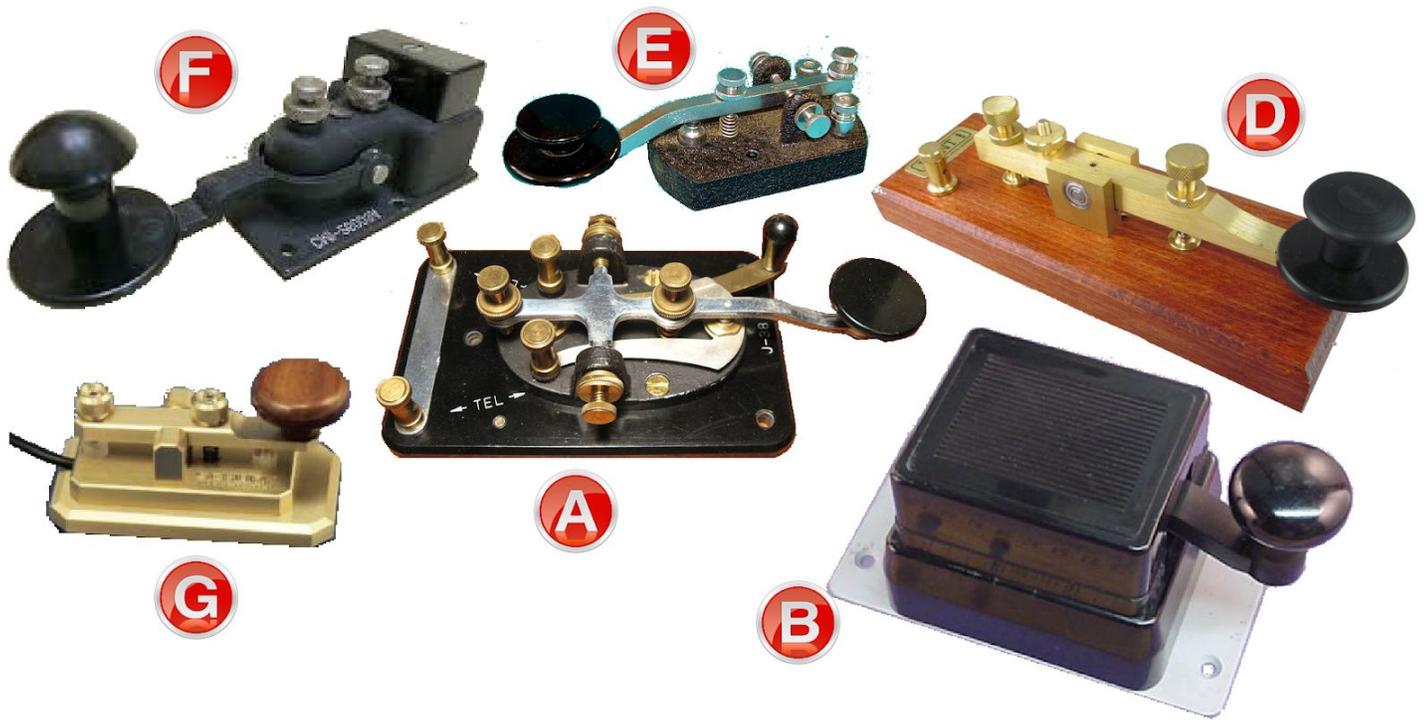
Learning Code - Devices

- MFJ-418 Code Tutor-[link](#)
- K1EL Morse Tutor Kit & Keyer Kit-[link](#)
- K5BCQ Morse Code Trainer MCT-[link](#)



Sending Morse Code- Keys & Paddles

- Mechanical (connects directly to radio)
 - Straight Key

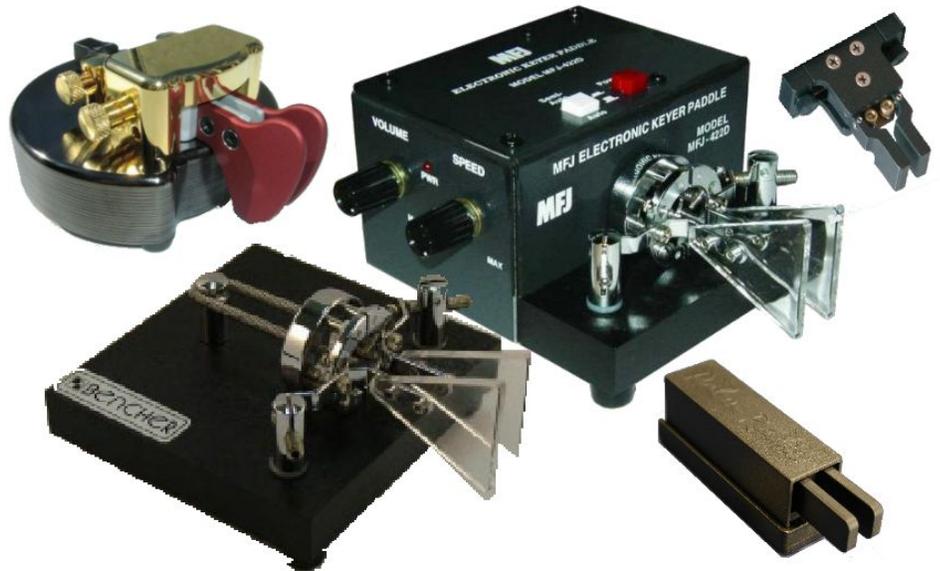


- Bug (semi-automatic mechanical keyer)



- Electrical (require electronic keyer)
 - Double Lever Paddles, “iambic” paddles
 - Single Lever Paddle

For a good explanation read [Keys, Bugs, Paddles & Keyers, a Terminology Introduction](#) [Sending CW](#)



Unlike the mechanical straight keys and Bug (semi-automatic mechanical keyer), both double and single paddles require an electronic keying device. These

keyers come in a variety of styles. They translate the paddles movements in dits and dahs in both sound feedback and connection to key the radio. Most recent HF radios have built-in Keyers although some users prefer external units for their extra features. Most have adjustable speeds, programmable memories and other features like Iambic Keying Mode that can be set to autocomplete letters. Here are two resources on Iambic/Squeeze Keying- [“Squeeze Keying - Iambic Mode Operation”](#) and [“Iambic Keying - Debunking the Myth”](#).

Sending CW Via a Keyboard. Some Keyers have features and a port to use a PC Keyboard (PS2 and/or USB). A few radios have the ability to directly attach a keyboard to send CW (and even RTTY or PSK). Contesting software programs (N1MM, WriteLog, etc.) can send CW from computer keyboard by keying radio via a serial interface. Most contest programs allow “Macros” which can be programmed to send a series of CW exchanges during contest including signal reports, contest serial numbers, etc.). For additional information on Contesting Software visit www.k8zt.com/contesting.

Speaking of Contesting, contests are a great place for the beginner to start using CW. During a contest, the amount and variation of code to be copied are limited and uniform. In most cases you only need to copy:

- Their Callsign (but you have many, many opportunities as they will repeat it often)
- It will even show up on DX Spotting Sites so you get an idea of what you will be copying
- Your Own Callsign to know when they are replying to you
- When they want you to send your exchange
- ? or AGN if they need you to repeat your exchange
- R, QSL or TU to know they copied you

You can use a Memory Keyer, Keyboard CW or Contest Software to send everything you need to exchange with the contest station. Listen to the Podcast DitDit.com for an interview with me describing this entire process-

www.ditdit.fm/shows/episode-12-the-cw-ops-guide-to-contesting-101.



What if you still can copy very well or would like a little help copying CW in the air? Although they are far from perfect Morse Code Decoders can help. There is a wide variety of Morse Code Decoders/Readers available including:

- Computer Software Programs
- Hardware Devices
- Built into Radio Features
- Phone/Tablet Apps

Morse Code Readers are not perfect and work best with:

- Strong signals in the clear
- Perfectly send CW
- “Machine sent CW” (CW sent from keyboard or software program)
- Usually better with faster WPM (CW under 10 WPM is usually especially problematic)
- When there is little to no QRM or QRN
- When your radio has effective filtering and/or DSP

Morse Code Readers- Software Programs:



www.polar-electric.com/Morse/MRP40-EN/



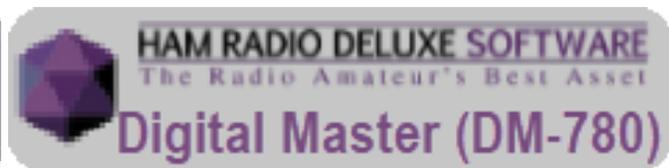
www.dxsoft.com/en/products/cwget



www.hotamateurprograms.com/downloads.htm



www.dxatlas.com/cwskimmer



www.hamradiodeluxe.com/features/dm780/



<http://www.w1hkj.com/>



<https://www.gsl.net/hamscope>

Morse Code Readers- Hardware

- [MFJ-461](#) Pocket Sized Morse Code Reader ~\$90
- [MFJ-464](#) CW Keyer/ Reader ~\$175
- [K1EL-K44](#) CW Keyer/Reader ~\$160
- Cheap eBay Morse Code Reader <\$12
Usually not the best decoder



Morse Code Readers- Built-In

- [Elecraft Transceivers](#)
 - K3
 - KX3
 - KX2
- [Kenwood TS-590 SG](#)
- [Yaesu FTdx1200 with optional FFT-1](#)
- [TenTec Jupiter](#) (Used Only ~\$300-450)
- [QRP Labs- QCX 5W](#), single- band, High-performance CW transceiver kit with built-in CW Decoder \$49. Single Band models available for 80, 60, 40, 30, 20 or 17 meters

Morse Code Readers- Android Apps (Available in Google Play Store)



**Morse Decoder
for Ham Radio**



**M³ Translator:
Morse code**



**Morse Code
Reader**



**Morse Code
Agent**

Tips for using a code reader successfully:

- Always try to copy in your head also
- Listen to multiple QSOs before sending to get other stations info
- Use narrow filtering
- Use Context Clues to fill in missing or miscopied letters
- Know what stations usually send
- Know the typical QSO or Contest Exchange
- Know CW operating abbreviations, Q-code, shortcuts, cut #s, etc
- Use DX Spotting Cluster to get an idea of potential callsigns
- Operate in contests
 - Use contesting Super Partial Checking Software
 - Use N1MM History Files for exchange help

Making Code QSOs Successfully Helpful Links:



A Beginner's Guide to Making CW Contacts

Making a CW QSO

Amateur Q Codes & Abbreviations

AC6V Abbreviated Numbers

Getting Better & Building Speed

There are a variety of ways to get better but the two that stand out are more practice and getting on air as much as possible to make contacts. Again a great way to practice is with a buddy. In addition to on-air practice, there are computer software programs and Apps:



RufzXP
Callsign CW Practice

Pileup Runner
CW Simulation

Morse Runner
CW Contest Simulator

There are a number of CW Groups and Clubs you might be interested in joining for support, news, awards, etc.:

