

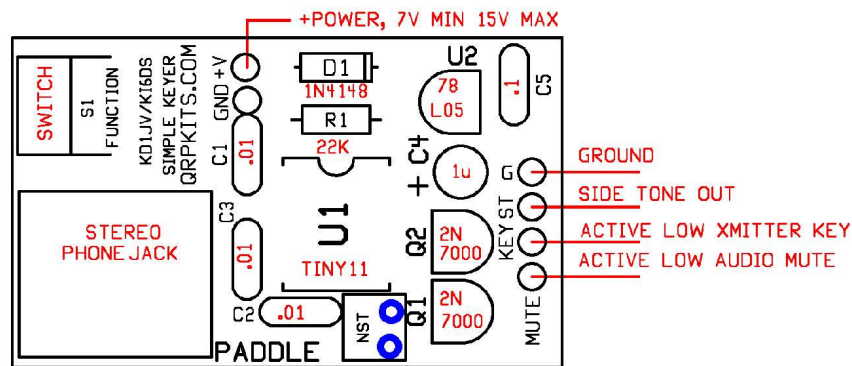
Simple Keyer Kit

A gift from Hendricks kits (KI6DS) and KD1JV
qrpkits.com kd1jv.qrpradio.com

The Simple Keyer is just that, nothing fancy, just a plain vanilla keyer. The keyer has a speed range of 5 to 30 wpm, has a "Tune" mode and can operate in either iambic A or B mode, with B being the default, power on mode.

The keyer is built on a small circuit board, about 1 inch square. The paddle jack is used to mount the board to a front panel of a rig. Only two holes need to be drilled, one for the jack and one for the function switch.

The diagram below shows the location of the few parts used.



Parts assembly sequence:

- D1, 1N4148 glass diode
- R1, 22K resistor Red/Red/Orange/Gold
- 8 pin IC socket
- C1, C2, C3 - .01 (103) capacitor
- Phone jack
- U2, 78L05 voltage regulator
- C4 – 1 uFd capacitor, voltage rating - what ever.
- Q2, Q1 – 2N7000 MOSFET
- C5 - .1 uFd (104) capacitor
- Tiny11 microprocessor chip – insert into 8 pin socket

Connections:

The paddle jack is wired for "standard" paddle plug configuration of tip dot, ring dash, sleeve ground.

Key: This connects to the rigs straight key input and is active low.

Side tone: A Piezo electric speaker (not a buzzer!) can be directly connected to this output. A low impedance (8 - 32 ohm) dynamic speaker CAN NOT be directly connected. If the keyer is built into a rig, the side tone can be injected into the rigs audio amp using a low pass filter to smooth out the square wave tone output to make it sound better and to reduce the amplitude from 5 volts peak to peak to something more reasonable. See the schematic

on the last page for typical values. If the rig uses a LM386, generally, one of the input pins is not used. This might be pin 2 or 3. Injecting the side tone (using the low pass filter) into the unused pin will produce volume control independent side tone level.

NST pads:

NST stands for No Side Tone. If your using the keyer with a rig which already generates side tone when transmitting, there is no need for the keyer to do it. By putting a jumper between the NST pads, this will turn the side tone off when keying a rig. The side tone will still be active when the Function switch is used, as you need that audio feedback when using the switch.

Audio Mute output:

Most of the users of this keyer will not use the audio mute output. This output goes low (ground) before the key output does, and goes back high (open) about 7 milliseconds after the key output goes high (open). The audio mute output is useful if you building the keyer into your own home brew rig, as it eliminates the R/C delay network normally required in the rigs audio mute circuit. Using the NST jumper to turn the side tone off when keying will of course defeat the audio mute output. However, if your using the NST jumper, there is probably no need for the audio mute output.

Operation:

There are three possible functions which are selected using the "Function" Switch. These are:

1. Change code speed
2. Enter and exit Tune Mode
3. Change from Iambic B to A mode.

Change code speed:

A short, quick click of the switch enters change code speed mode. The letter "S" will be sounded by the side tone.

- Closing the Dash paddle will increase the code speed, a dot will sound each time the speed is incremented by 1 wpm.
- Closing the Dot paddle will decrease the code speed. Again, a dot will sound each time the speed is decremented by 1 wpm.
- At the upper and lower speed limits, a double dot (I) will sound.
- The change code speed mode will automatically exit after the paddles have been released for about 1 second.

Tune mode:

Tune mode is used when you want to key the transmitter continuously to say adjust an antenna tuner or make a power output measurement. To enter Tune mode:

- Click and hold closed the function switch until the letter "T" is sounded by the side tone (about 1 second)
- To key the transmitter on, tap the Dash paddle closed.
- To turn the transmitter off, tap the Dot paddle closed.
- Repeat as needed.
- To exit Tune mode and return to normal operation, click the Function switch.

Selecting Iambic A mode:

Click and hold closed the Function switch until the letter "A" is sounded by the side tone. Since the keyer does not have nonvolatile memory, it will revert to "B" mode if power is cycled off, then back on again.

Schematic:

