



Mini Yack II^d (20231019)

Iambic Keyer/Trainer



Mini-Yack 2 is a basic Iambic keyer based on the open source DK3LJ Yack engine and enhanced with additional features:

- Keying from 1WPM to 35WPM
- 2 memories with 75+ characters each
- HF Beacon and FM beacon modes for 2M FM fox hunting
- Straight key operation bypass (limited keyer functionality)
- Iambic practice modes including a progressive mode which increases/decreases speed
- Built in speaker with stereo headphone jack for private listening
- Positive OR negative transmitter keying maximum of 200V/120mA/300mW

Battery Installation (Assembled units)

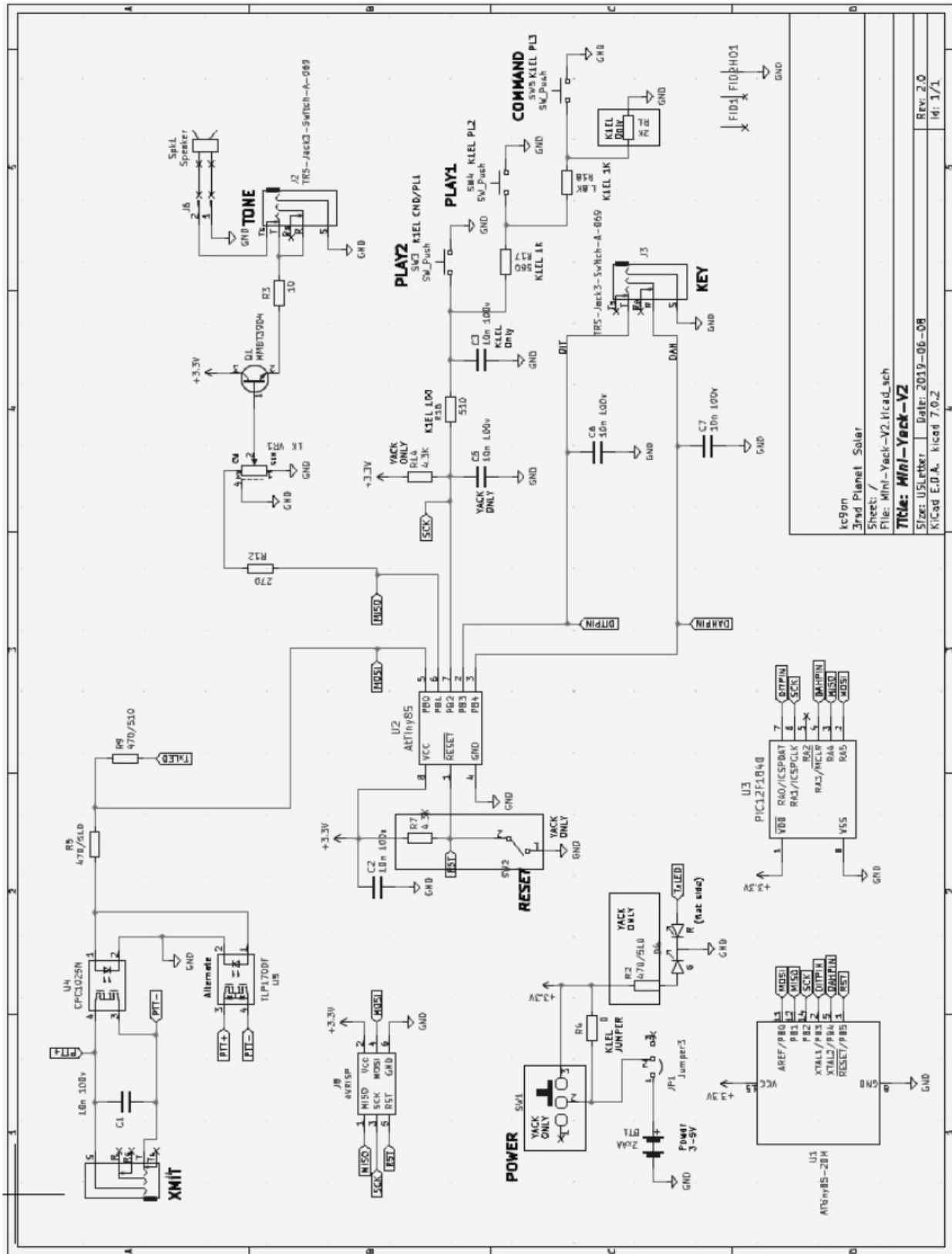
Batteries are included. **There is a jumper on the back of the unit to disable power during shipping or long term storage. Use a pair of tweezers or surgical clam to move the jumper to the ON position.** To replace batteries, remove the 4 screws on the bottom of the unit. Insert 2 AA batteries observing the polarity as shown on the battery holder. Replace the panel and 4 screws on the bottom.

OPERATION

Plug your straight or Iambic key into the KEY jack. With the key down adjust the volume as needed. If using the headphone/SKPR jack ALWAYS turn the volume control fully counter-clockwise BEFORE plugging in. Then with the key down adjust the volume to a comfortable level. Plug a transmitter into the XMIT jack. Refer to the Mini-Yack operations manual for commands and usage. When using a straight key refer to the **Straight Key Operation** section of the YACK operation manual for proper usage.

CAUTION: DO NOT plug anything into the speaker or key jacks which could contain a voltage source (such as a transmitter). Damage to the unit may occur.

Specifications: Current consumption: 1.3mA idle, 4.8mA (no volume), 14.8mA keyed (full volume),



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3rad Planet Solar
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File: Mini-Yack-V2 Hcad_ach
Title: Mini-Yack-V2
Size: U.S. Letter Date: 2019-06-08
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Rev: 2.0
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YACK Operation Manual

Version MY20231019

YACK (Yet Another CW Keyer) is a universal CW keyer developed for the Atmel ATTiny processors by Jan Lategahn DK3LJ with modifications by Jack Welch AI4SV. Further modifications for Mini-Yack were developed by John Clements KC9ON.

Startup

Default Settings: The keyer initial settings on first power on is IAMBIC B at 15WPM. This can be changed to your own setting using the below commands.

Power On: The keyer will respond with **HI** when powering up with an Iambic or no key connected.

Straight Key Operation: See steps below to power the Mini-Yack into straight key mode:

1. Connect a straight key into the KEY jack with a 3.5mm mono or stereo plug:
 - A mono plug needs no further action in this step.
 - A stereo plug will detect straight key mode with either of the two methods:
 - Hold the key down during power up OR
 - Short/jumper the ring (DAH) and shield wires together.
2. Power on or press the reset button (See Hardware reset below for button location).
3. The keyer will power up by sending “STK”. The optional external buttons PLAY1, PLAY2 will still function in straight key mode. However the COMMAND button will not accept commands due to no Iambic key present. Release the straight key if holding down during power up.

Mini-Yack Buttons

COMMAND – Enters command mode. See below for command mode settings.

Play 1 – Play back the contents of memory 1.

Play 2 – play back the contents of memory 2.

Reset (internal button) - Equivalent to powering the unit off and on. Use reset to help restore settings to factory default. See **Hardware Reset** below.

Speed Change - Speed can be changed by pressing and holding the **COMMAND** button while operating the **DIT** and **DAH** paddles. DIT reduces speed while DAH increases speed. The keyer plays an alternating sequence of dit and dah while changing speed without keying the transmitter.

Command mode

Pressing the command button without changing speed will switch the keyer into command mode. This will be confirmed with the '?' character. Another press of the same button takes the keyer back into regular keyer mode and will be confirmed by sending **OK**.

During command mode the transceiver is never keyed and side tone is always activated. Further functions can be accessed by keying one-letter commands as listed below. After 6 seconds of inactivity the keyer will return to regular mode and send **OK**.

If a command is not interpreted properly an error message of 8 dits is sent. Successful commands will typically respond with '**R**'.

It is highly recommended to perform the 0 - LOCK command after you have made your setting preferences to avoid accidentally changing them. Locking will prevent commands 1, 2, A, B, D, F, I, K, L, R, S, & X, from being changed until the 0 – UNLOCK command is given.

COMMANDS - BASIC

H - PLAY 1 The stored message 1 is played back. A press of the command key immediately returns the keyer to keyer mode so a QSO can be started.

5 - PLAY 2 The stored message 2 is played back. A press of the command key immediately returns the keyer to keyer mode so a QSO can be started.

1 - RECORD 1 Record to internal message 1. The keyer immediately responds with "1" after which a message up to 100 characters can be keyed at current WPM speed. After 5 seconds of inactivity the message is played back once and then stored in EEPROM. Choosing "1" but not keying a new message deletes the chosen message buffer content.

2 - RECORD 2 Record to internal message 2. The keyer immediately responds with "2" after which a message up to 100 characters can be keyed at current WPM speed. After 5 seconds of inactivity the message is played back once and then stored in EEPROM. Choosing "2" but not keying a new message deletes the chosen message buffer content.

G - QRS -5WPM "Go Slower" Temporarily slows the keyer down by 5WPM. Resume current speed by issuing the Reset button or Power cycling the device.

Q - QRQ +5WPM Temporarily speeds the keyer up by 5WPM. Resume current speed by issuing the Reset button or Power cycling the device.

W QUERY SPEED The keyer responds with the current WPM speed.

P PITCH Allows modifying the side-tone pitch to a higher or lower level. A sequence of dits will be played and the pitch can be modified with the dit and dah paddles. If no paddle is touched for 5 seconds, OK is sounded and the mode terminates, leaving the user in command mode.

U TUNE The transceiver is keyed for a duration of 20 seconds for tuning purposes. Tuning mode is aborted once either DIT or DAH paddles are touched or the control key is pressed.

COMMANDS - **KEYER**

A - IAMBIC A MODE Sets IAMBIC A as permanent keying mode.

B - IAMBIC B MODE Sets IAMBIC B as permanent keying mode.

D - DAH PRIORITY In squeezed state a sequence of DAHs is sent. Some of the first generation keyers exhibited this behavior so the chip can simulate that.

L - ULTIMATIC MODE Sets the keyer into ULTIMATIC mode. In Ultimatic mode always the last paddle to be touched is repeated indefinitely when paddles are squeezed

X - PADDLE SWAP DIT and DAH paddles are swapped.

F - FARNSWORTH PAUSE Allows setting of an extended inter-character pause in all playback modes which makes fast keying easier to understand. Note that this of course only influences RECEPTION, not TRANSMISSION. If you desire Farnsworth mode in transmission, please manually pause during characters.

COMMANDS – **TRANSMITTING AND TONE**

I - TX INVERT This function toggles whether the "active" level on the keyer output is positive or negative. This setting is dependent on any additional attached keying circuits or radios. Normally this command is left alone.

K - TX DISABLE Toggles the setting of the TX keyer output. In default state the keyer switches the transmit line when it is in keyer mode. Toggling this setting enables or disables that function. NOTE: Keying is always off in Command mode.

S - -SIDETONE The side tone oscillator setting is toggled (ON -> OFF or OFF -> ON). NOTE: This setting is only of relevance for regular keying mode. Side tone is always on in command mode.

COMMANDS – **FEATURES**

C - CALLSIGN TRAINER The keyer plays a generated 2x2 call signs (side tone only) at the current WPM setting. The call signs are then entered back using the iambic key. If it is repeated correctly, "R" is played and the next call sign is given. If a mistake was sensed, the error pro-sign (8 dots) is sounded and the current call sign is repeated again for the user to try once more. If nothing is keyed for 10 seconds, the keyer returns to command mode.

Z - ADVANCED TRAINER Similar to the training mode above except on each successful entry the speed is increased by 1WPM. An unsuccessful entry reduces the speed by 1WPM. Pressing the command button will terminate the training, return the keyer to the original WPM speed, and give statistics of speed at end of session, number of calls sent, and number of calls correct. Do not press command mode while the keyer is sending. The last call sign sent is not counted.

N - BEACON MODE The keyer responds with "N" after which a number between 0 and 9999 can be keyed. After a 5 second timeout the keyer responds by repeating the number and 'R'. Once the keyer returns to keyer mode, the content of message buffer 2 is repeated in intervals of the message length plus N seconds. The setting

is preserved in EEPROM so the chip can be used as a fox hunt keyer. Returning to command mode and entering an interval of 0 (or none at all) stops beacon mode. Keyer will respond with 'R'.

Y - FOXHUNT MODE When toggling this command the transmitter output will stay keyed down the entire time a memory is played. Toggling again will resume the memories back into on-off-on keying mode. This command works along with the Beacon command to allow a setup, such as an FM transmitter, to be used as a beacon or fox hunting box.

COMMANDS - GENERAL

R - RESET All settings are returned to their default values except for the stored messages in the message buffers. Restored settings include speed, Paddle Swap, TX level inversion, side tone and TX keyer settings. Speed will be reset to 15WPM in IAMBIC B mode.

V - VERSION The keyer responds with the current keyer software version.

0 - LOCK/UNLOCK The 0 command locks or unlocks the main configuration items but not speed and playback functions.

HARDWARE RESET

You may find you have lost control of your keyer by setting the speed too fast or accidentally issuing a several commands (See LOCK) which makes it act strange. The keyer may be reset to factory defaults with the following sequence:

- 1) Power off the unit.
- 2) Hold the command button down and then power on the unit
- 3) Push and release the reset button – The reset button for a Mini-Yack IId is located on the rear between the KEY and SPKR jacks. A pin or end of a paper clip is needed to access the button. Earlier Mini-Yacks may have the reset button located inside the unit and can be accessed behind the front panel.
- 4) Release the command button

Memories will still be intact.

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<http://www.gnu.org/licenses/>.

The original YACK software and instructions can be found at:

<http://sourceforge.net/projects/yack/>

YACK QUICK REFERENCE GUIDE

BASIC		KEYER		GENERAL	
H	PLAY 1	A	IAMBIC A	R	RESET
5	PLAY 2	B	IAMBIC B	V	VERSION
1	RECORD 1	D	DAH PRIORITY	0	LOCK
2	RECORD 2	L	ULTIMATIC	F	FM Fox Hunt
G	QRS - 5WPM	X	SWAP	FEATURES	
Q	QRQ +5WPM	TRANSMIT/ TONE		C	TRAINER
W	SPEED?	I	INVERT TX	Z	ADV TRAINER
P	PITCH	K	TX DISABLE	F	FARNSWORTH
U	TUNE	S	SIDETONE	N	BEACON