

Betatech Instruments K11-20 Keyboard Keyer User's Guide for Board Level 5.0

Overview

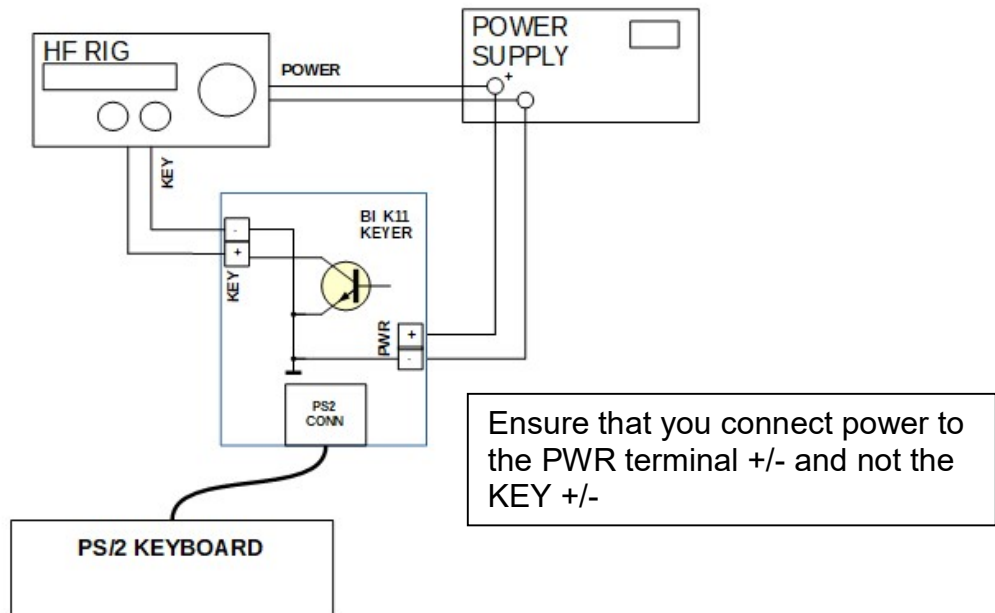
K11 is an electronic keyer which is used to generate morse code from an iambic paddle or PS/2 computer keyboard. The board has a buzzer to generate 600 Hz audible side tone. Without an HF transceiver, this keyer can be used as a code practice keyer. This keyer is a versatile accessory, for example, if you have an older rig that doesn't have an electronic keyer function. A special function, macro F8, enables this keyer to function as a beacon controller. Beacon mode is useful if you are setting up a propagation beacon, or a hidden transmitter for a fox hunt event, for example.

This board uses an NXP 68HCS08 microprocessor, enabling it to boot as quickly as you power up. Therefore, you don't have to wait for a slow boot process, like if you are using a computer. You can pounce that station as soon as you hear it.

Wiring the Keyer Board

- The PS/2 connector: Connect to the keyboard
- Power terminal: Connect 12V positive (+) and negative (-) from the power supply
- Key terminal: Connect this terminal to the transceiver (rig). Observe the correct polarity (Key and Gnd). Do not reverse the polarity since the circuit is an open collector circuit and can only conduct electrical current in one direction.
- PAD LR: Connect this terminal to the iambic paddle. For example (if you are right handed) PAD L to the DIT paddle and PAD R to the DASH paddle.
- PAD FN: Connect this to a push button for paddle function (PAD FN). This enables the execution of F1 and F2 macros.

Powering the Board

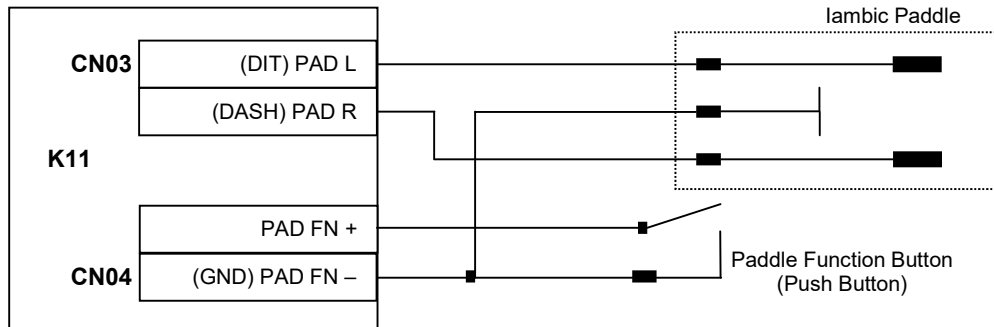


The above diagram is a connection example for the board (without iambic paddle). Inspect for the correct labels on the board.

Once powered up, the board will send a “V” (dit dit dit dah). Disable TX on your transmitter on power up so it will not inadvertently send the V on air.

Iambic Paddle Connection

The following is a connection example for an iambic paddle and paddle function (PAD FN) button. All other (HF rig, power supply, PS/2 keyboard) connections remain the same as above.



Initial Programming (Requires PS/2 Keyboard)

When you receive the board, all the function keys are blank. Connect a PS/2 keyboard to the keyer, and you will need to provide your callsign or whatever macros you want to record.

1. Adjusting your WPM speed
 1. Press F11 on keyboard to slow down or F12 to speed up your keying speed
 2. Press 'V' to test and hear if the WPM speed is suitable for you
 3. Once comfortable speed is reached, press F10, then F12. Your WPM speed will be recorded and the K11 board will use this WPM speed upon power up.If you adjust the speed (i.e. pressing F11 or F12 but recording sequence -- F10, F12 sequence is ignored), the next time the board starts up, it will use whatever WPM speed is currently in the flash memory.
2. Programming Your Callsign (F1)
 1. Once the board is powered up. Press F10 on keyboard to enter programming.
 2. Press F1 to start callsign programming
 3. Enter you callsign only (e.g. KC8ZZZ. Do not enter anything else. Limit = 13 characters)
 4. Press F1 to end programming
3. Programming Macros (F2, F3, F4, and F8)
 1. Press F10 on keyboard to enter programming
 2. Press F2 (or any function keys from F2, F3, F4, or F8 that you want to assign)
 3. Enter your macro (e.g. TNX FR UR CALL = UR RST IS)
 4. Press F2 (or any function keys that you pressed before) to end programming

NOTE1: F4 storage is shared with F8. Ie. F4 and F8 will overwrite each other.

NOTE2: F2, F3 limit = 31 characters. F4/F8 limit = 47 characters.

NOTE3: Press <space bar> to insert delay between words in a macro

4. Erasing a Macro

If needed (e.g. you need to erase a beacon macro in F8), you can erase a macro by not entering anything during macro programming. For example, if you want to erase F8, you have to press F10, then F8, then F8.

NOTE4: You cannot embed a function call in another function, e.g. calling F1 from within F2.

Using the Keyer with PS/2 Keyboard

Using the keyer is pretty straightforward. All key presses will be translated into morse code as if you were using a straight key. All letters have to be lowercase (caps lock will not function) and all other keys like Pg Up, Pg Dn, etc will not work either. You have a 32-character buffer inside the keyer (you can keep pressing the keys even before the keyer is done generating the complete code).

Functions to remember:

- F1 – Calls CQ in the following format, “CQ CQ CQ DE <callsign><callsign> K”
- F2 to F4 – Your own macro definitions (note that F4 memory is shared with F8)
- F8 – Beacon mode macro (this is shared with F4 macro memory)
- F9 – Toggle TX/RX (key will be held down by the K11, use this when tuning your antenna, or zero beating your operating frequency, e.g.)
- F10 – Program macro command (and record keyer speed)
- F11 – Reduce speed
- F12 – Increase speed
- <Esc>– Cancels the current buffer (erases whatever you have typed into the buffer)
- <Space> – Inserts a gap between characters (useful in a macro)
- Left <Ctrl> – Generates a dit } (dit & dash here can be composed into creating
- Left <Alt> – Generates a dash } a new character in a macro)

NOTE5: It is best that you write down your macros and tape it near your rig for quick reference.

Prosigns to remember:

AR	: or ;
SK	} or]
SN	{ or [
AS	or \
IMI	? or /

DN	“ or ‘
BT	+ or =
KN	_ or -
KA	Keypad *

NOTE6: It is best that you create small stickers with the above prosigns and stick them on the appropriate keys for ease of use.

Using the Keyer with Iambic Paddle

Using the keyer with iambic paddle is pretty straight forward. PAD L generates dits, while PAD R generates dashes. In addition, the following functions are also available:

1. F1/F2 Macro Execution: Pressing PAD FN button briefly followed by a DIT paddle press will execute of F1 macro. Brief PAD FN button press followed by a DASH will execute F2 macro.
2. WPM Adjust: Pressing PAD FN for approximately 3 seconds will result in the board sounding a “V” which indicates that you are in WPM adjust mode. Pressing DIT will increase WPM followed by another “V”. Pressing DASH will decrease WPM followed by another “V”. Once comfortable speed is reached, you can press PAD FN momentarily and the board will

sound an "R". You can also leave the board for 3 seconds without doing anything (in the WPM adjust mode) and the board will exit out of the WPM adjust by sounding an "R". The new WPM will be recorded into flash memory and used the next time the board powers up.

NOTE7: There is no provision to program F1/F2 macro using the iambic paddle. The macros can only be programmed using a PS/2 keyboard.

Beacon Mode

Beacon mode allows you to control a beacon transmitter using the K11 board. This is useful, for example, if you want to set up a propagation beacon, or a hidden transmitter for a fox hunt event. There are endless possibilities of the use of a beacon controller.

The K11 will enter beacon mode through the following:

1. On Power Up: if F8 macro is programmed, then the board will wait for the user to press <Esc> key. If there is no <Esc> keypress after approximately 3 seconds, then the board will start executing F8 continuously. <Esc> will terminate the beacon before or after the automatic F8 is executed.
2. Manually: If the user terminates automatic F8 execution (as described above), the board will function as normal. However, if the user presses F8, then the continuous execution of F8 macro will resume.

To operate the beacon controller, just program the board with an F8 macro. You can then remove the keyboard and use the K11 board to control your beacon unit without the keyboard. The K11 will start keying your transmitter system as soon as it is powered up.

For a propagation beacon, a typical message used is usually something like this:

"VVV VVV DE KC8ZZZ/B KC8ZZZ/B OI710H OI710H K"

*(insert space between char groups to provide delay)

To return the board to normal operation (does not engage beacon mode on power up), you need to erase beacon macro: Press F10, then F8, then F8.

CW Zero-Beat Using the Side Tone

CW zero-beat will ensure that you are transmitting at exactly the other station's frequency. This will tell the operator that you are addressing him/her, no matter how narrow the CW filter is. To do this, tune the TUNING dial (on your transceiver) so that the received tone matches the 600 Hz tone generated by the K11 board. Normally you can do this by turning the VOX OFF, and then pressing F9 once (this is similar to closing your CW key). (You need to have same tone output frequency from your transceiver for discernible beat frequency)

Product Support: *Note on electromagnetic compatibility*

This product has been designed with a special care given to the electromagnetic compatibility. However, this design consideration may not be sufficient in all cases. If you are experiencing a really bad RF in the shack or other RF induced problems with the product, you may be unable to operate your station correctly with the keyer. Use the email address for technical support.

Betatech Instruments

Email: info@betatech-instruments.com

Http: www.betatech-instruments.com