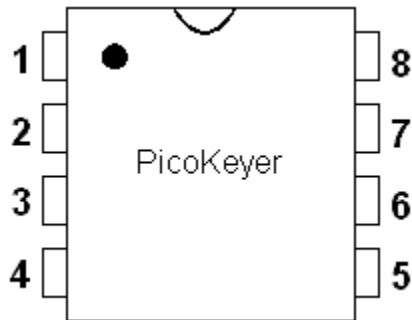

Memory Keyer for the Rock-Mite

The PicoKeyer is a single chip, automatic iambic Morse code keyer with two message memories. Perfect for portable or QRP operation or for integrating into transmitters or transceivers, its low power requirements and low component count make it ideal for limited space applications or battery operation. These instructions detail the use of the Rock-Mite compatible model.



Pinout Information		
Pin	IN/OUT	FUNCTION
1	Power	Vdd (2.5 – 5.5VDC)
2	OUT	Keying output
3	OUT	XTAL shift output
4	IN	Button input
5	OUT	Sidetone output
6	IN	DASH paddle input
7	IN	DOT paddle input
8	Power	Vss (Ground)

Features of the PicoKeyer-RM:

- Direct drop-in replacement for the Rock-Mite keyer chip
- Low voltage - from 2 to 5.5VDC
- Low current - typical sleep current .005 μ A, under 1mA when keying.
- Simple one-button "menu" interface
- Works with any dual lever ("squeeze") or single lever keyer paddle or straight key
- Setup and message entry using your paddle
- Speed adjustable from 5 to 60WPM
- Variable pitch audio sidetone
- Adjustable weight
- Selectable Mode A or B operation
- Tune mode
- Beacon mode with adjustable 0 – 99 second delay
- Two message memories, 60 characters each can be chained together
- Memory "pause" allows manual insertion of QSO number, RST etc. into message
- Paddle switching - select left or right handed operation
- Memory and parameter settings retained with power off
- Auto straight key detect, both memories available with straight key

Installation:

Keep all semiconductor parts in the anti-static foam until you are ready to use them. Always use good static prevention practices when working with static sensitive parts. This means you should wear a grounding strap when possible, or work on a static-dissipative work surface. Use a grounded tip soldering iron. When soldering small parts it is a good idea to use a small, pencil-type soldering iron of no more than 25W or so. Use pliers, clamps or alligator clips as heat sinks to prevent heat damage to parts while soldering. If you are not fairly experienced with soldering small parts, you may want to practice on some scrap parts first or get some help.

Your PicoKeyer-RM is supplied with a 1K Ohm, 1/8 Watt resistor. This resistor is used to connect pins 1 and 4 of the chip. It is not necessary to modify your Rock-Mite to install this resistor. You may solder it in place on the underside of the PCB if you wish, or tack solder the leads to the chip pins near the body of the chip. An even easier way is to trim the leads to approximately 3/8" and simply insert the leads into the IC socket before plugging in the chip. The leads should plug into the locations for pin 1 and pin 4 before the chip is inserted. You should still be able to install the chip into the socket without any trouble. Make sure you have the IC oriented properly!

Operation of the PicoKeyer:

When power is applied the PicoKeyer will operate as a normal iambic keyer, sending dots and dashes with automatic spacing and timing according to paddle inputs and stored settings.

One momentary pushbutton switch input is used just like the original Rock-Mite configuration. A single, brief tap of the button will switch the oscillator offset the same as the normal Rock-Mite chip. There are a couple of significant differences, of course! The PicoKeyer-RM has a more extensive setup menu and two message memories that can be programmed with up to 60 characters and word spaces each.

Tapping the dot paddle while pressing the button briefly (less than half a second) will send the contents of Message Memory 1; tapping the dash paddle while pressing the button briefly will send the contents of Message Memory 2. Holding in the pushbutton more than half a second will tell the keyer to enter setup mode. In setup mode the keyer will use the sidetone only and will not key the transmitter. As you hold in the button the keyer will cycle through the available menu choices. You can simply release the button when you hear letter corresponding to the item you want to check or change. Once you finish with that menu item, press and immediately release the button to exit the menu, or hold the button down to advance to the next item.

Menu Functions:

S	Speed: The dot paddle will decrease the speed, or the dash paddle will increase it. Holding either paddle will continuously increase or decrease the speed, with a dash or dot sent at the new speed for each step. When the paddle is released, the keyer will send the current speed setting. To change the speed up or down one WPM simply tap the appropriate paddle. Speed may be set from 5 to 60 WPM.
U	Tune mode: Either paddle may be used like a straight key to turn the rig key line ON for use when tuning up. <i>Use with caution</i> - don't overheat the 2N2222A final PA!
M	Memory: Two message memories are available. The dot paddle is used to select Message 1, while the dash paddle selects Message 2. Hit either paddle once to hear the message for that memory, followed by the Morse prosign "AR". If you want to change the message, hit the same paddle again and the keyer will send "K" to indicate it is ready for message entry. Enter your message and tap the setup button once to end recording. The keyer will send "R" to indicate the end of the message. You can then repeat the process to listen and change until you're satisfied. Each memory can hold up to 60 characters. Several special prosigns are available for use in messages. Each should be entered as a single character. When playing back a message in setup mode you will hear the <i>NNN PS or RN</i> prosign itself not its effect - message

	<p>chaining, pause and beacon mode are inactive while in setup mode.</p> <ul style="list-style-type: none"> • The special prosign “NNN” (-.-.-) is used to chain the message memories. The chain prosign should be entered as a single character at the end of Message 1, and will cause Message 2 to be played immediately when the NNN prosign is encountered. • To insert a pause in the message, use the special prosign “PS” (-.-.-). This will cause the message to pause while you manually send information such as QSO number, RST, etc. Tapping the setup button while paused will resume the message. <i>Hint: If you use PS, store it immediately following the preceding characters without a word space. In other words, store “UR RST^{PS} ...” instead of “UR RST^{PS} ...”. This prevents you starting to send before the word space completes, which will terminate memory playback completely.</i> • To use BEACON mode, insert the special prosign “BN” (-.-.-) at the end of your message. This will cause the keyer to delay for the number of seconds set with the B parameter (see below) and re-send Message 1. You can terminate beacon operation by tapping either paddle or the button. • To insert an extra word space, use the special prosign “IM” (-----). • To backspace one character or word space, use the special prosign “BS” (-.....). <ul style="list-style-type: none"> • To insert a steady carrier, send more than 9 dits. The length of the carrier will be equal to the number of dits, with no spaces in between.
W	Weight: The keyer sends the current weight setting and waits for input. Again, the dot paddle may be used to decrease the weight or the dash paddle to increase it. Weight can be set anywhere from 1 (50% "light") to 5 (normal) to 9 (50% "heavy").
C	Curtis A or B mode: The keyer will send the current mode, "A" or "B". Use either paddle to change the setting.
P	Paddle Selection: Simply hit whichever paddle you want to use for DITs. This can be used to switch from right-handed to left-handed operation without swapping wires.
A	Audio Tone: The keyer will send a series of dits at the selected sidetone audio frequency. Use the paddles to increase or decrease the audio frequency as desired.
B	Beacon Delay: The keyer sends the current beacon repeat interval and waits for input. Use the dot and dash paddles to decrease or increase the setting. Delays can be set from 0 to 99 seconds.
F	Factory Reset: Keyer sends “?” and waits. If you tap either paddle the keyer will be completely reset. All message memories will be wiped, and default settings will be restored (13WPM, normal paddle orientation, 5 second beacon delay, 800Hz sidetone on).

Straight Key Mode:

The PicoKeyer will automatically detect and use a straight key when one is plugged in. When power is applied, the PicoKeyer looks to see if either paddle input is shorted to ground. If one is, the other input is assumed to be a straight key. This way you can plug in a straight key wired to a mono plug and use it without any changes or adjustments. Be aware that while the menu will still function, many parameters will not be adjustable (and would not apply to a straight key anyway). You will not be able to record messages while using a straight key. Note that you must plug in the straight key, THEN turn power on for this to work properly.

Both message memories will be available, which must have already been recorded using a paddle. Message 1 will be sent when the button is pressed and the key is tapped and released while the button is still held. Message 2 will be sent if the key is held down after the button is released. You may want to practice a little to get the hang of it, but after a little practice it will be easy. Remember:

- Button down – key down – key up – button up for Message 1;
- Button down – key down – button up – key up for Message 2.

Support:

Should you need support, have questions, have feature requests or bug/problem reports, please feel free to contact me via email at n0xas@botkin.org or n0xas@arrl.net. I will make every effort to respond as quickly as possible.

Warranty:

All parts are tested and are guaranteed against defects for one year from date of purchase. This warranty does not cover damage due to incorrect assembly, improper soldering or wiring, overvoltage, static damage or other misuse or abuse. If you have problems, please contact me via email to arrange for an exchange or replacement part. If you accidentally damage a part, don't panic – just contact me, replacements are not expensive.