UM Unified Microsystems

XT-4 MK2 CW Memory Keyer User's Manual
Revision 0.03 – preliminary
For software version 1.00
September 2023

Specifications

Battery: 9 volt alkaline
CW speed: Approximately 8-45 WPM
Memories: 4, approximately 240 Morse characters each
Output keying: Positive Keying only, RCA phono jack output
Paddle input: 1/8' (3.5mm) stereo jack input

Note: The four XT-4 message areas have test messages programmed in. Verify they play back before attempting to program new messages!

Set UP

1) Wire up your paddle with shielded cable with two conductors. The XT-4 uses a 1/8" stereo phono plug. The shield wire is ground. The tip of the connector is for the dit key, and the center ring is for the dah key.
    The standard is for the paddle that does the dits is controlled by the thumb, and the dahs by the forefinger paddle. If you learned another way, wire it up so you are comfortable keying. Other users can swap the paddles as a programmable option.
2) Wire up a cable to the CW input of your transmitter. Use shielded cable with an RCA phono type connector for the XT-4 end and a connector compatible with your transmitter on the other end.
3) Install a standard 9V alkaline battery in the battery compartment.

Note: The XT-4 is designed to work with solid state positive keyed radios only. Damage can occur to the XT-4 and/or your transmitter if it is used improperly!

If you are unsure of your transmitter type, plug the CW cable into the transmitter but leave the other end free. Measure the voltage across the other end of the cable. Ground is the outer shell, and the inner pin is positive. The voltage should measure +5V to +12V. Do not use the XT-4 keyer with your radio if the voltage is negative or is more than 24V.

ON/OFF/Speed Control

The speed control knob is a combined ON/OFF switch and speed control. Turn the knob fully counterclockwise to turn the unit off when not in use. This will preserve battery life.

Turning the knob clockwise will increase the CW sending speed. The speed ranges from about 8 WPM to 45 WPM.

Power Saving Sleep Mode
The XT-4 has a power save mode to conserve battery power if you forget to turn the power off. The XT-4 goes into power save after about 15 minutes of inactivity. Pressing either key of the paddle brings the XT-4 back to normal operation. Note that the XT-4 will not respond to button presses while in sleep mode.

REC and MESSAGE 1-4 Buttons

Pressing message buttons 1-4 will play back the corresponding pre-recorded message. The message will be played until it is complete. Pressing either the dit or dah key paddles will immediately cancel playback of a recorded message.

To record a message:

1) Press the REC button. The LED will blink rapidly.
2) Press a message button (1, 2, 3, or 4) that you wish to record. The LED will come on without blinking.
3) Start sending the message you wish to record with the paddle. The XT-4 will not begin recording until the first dit or dah is sent.
4) Press the REC Button to stop recording. The LED will go out. Press the REC board as soon as possible after you finish sending the message. This will minimize recording dead time at the end of your message.

Message Recording Notes:

1) The recorded message will be preserved even if you turn off the power.
2) If you accidentally press the REC button and don't want to record a message, tap the dit or dah paddles *before* pressing a message number button. This will cancel the record, and the LED will go out. Or you can power the unit down and then back on.
3) Each message buffer will hold approximately 240 Morse characters. The end of the message will be lost if you try to record past the limit. Record a new, shorter, message if this happens.
4) Messages are not erased. Simply record over the old message.

Tune Function
You can place the XT-4 in a key down state for tuning with the following procedure:

1) Press and hold the REC button.
2) Press the (message) 2 button. The keyer will now be in tune mode. Release the buttons.
3) Touch either paddle key to exit tune mode.

Programmable Options
The XT-4 MK2 has several configuration options. To change a configuration, you turn off the power, press and hold down one or more specified buttons and turn the power on. Then release the buttons.

The XT-4 comes preprogrammed with factory set defaults.

Paddle Reverse

You should wire up your paddle so that the dit and dah keys operate the way you are used to. Set reverse to switch the dit and dah paddles. This is useful at Field Day and other multi-operator events when there are right and left handed operators.

Default: Normal
Set Normal: Power up with the (message) 1 button held down.
Set Reverse: Power up with the REC + (message) 1 buttons held down.

Message 1 Loop

Message 1 can be set to loop. A common use is for CQing. When looping is enabled, pressing the (message) 1 key will send the message. After a few seconds message 1 will repeat. It will repeat until either the dit or dah key is pressed. You must press (message)1 again restart the progress.

If the message repeats too soon, record the message again but leave extra time before stopping recording by pressing the REC button.

Default: No Loop
No Loop: Power Up with the (message) 2 button held down.
Enable Loop: Power Up with the REC + (message) 2 buttons held down.

Beacon Mode

Beacon Mode allows the keyer to be used for a 10 minute CW for a repeater or other application. If activated, it will play message 1 at power up and then repeat it every ten minutes. Message 1 must be programmed prior to activating Beacon Mode.

The keypad and paddle inputs are disabled while in Beacon Mode. To exit Beacon Mode, power up with button 4 pressed.

Default: Beacon Mode OFF
Beacon Mode OFF: Power Up with the (message) 4 button held down.
Beacon Mode: ON Power Up with the REC + (message) 4 buttons held down.

Mode A/B Keying

Mode A and Mode B keying affects timing of the paddle presses to form the next element (dit or dah). You will find it easier to key with the mode you learned to send.

Default: B
Set Mode B: Power Up with the (message) 3 button held down.
Set Mode A: Power Up with the REC + (message) 3 buttons held down.

Reset Defaults
Restores the keyer to the options to the factory defaults. Stored messages are unaffected.

Reset defaults: Power up with the REC, (message) 1, and (message) 4 buttons all held down.

Software Version

The current software version can be determined by powering up the keyer with the REC button held down. The current software version will be sent in Morse code on the LED. The keyer will operate normally once it is finished sending the version number. The software is not field upgradeable.

Summary of programmable options

The procedure for changing the programmable features is to first turn off the power with the speed/power knob. Then press and hold down the proper key(s) and turn on the power. Release the buttons after turning on the power.
The format for these options is to power the unit up with the selected number button to set to the factory default state. Pressing the number button plus the REC button at power up will set it to the alternate mode.

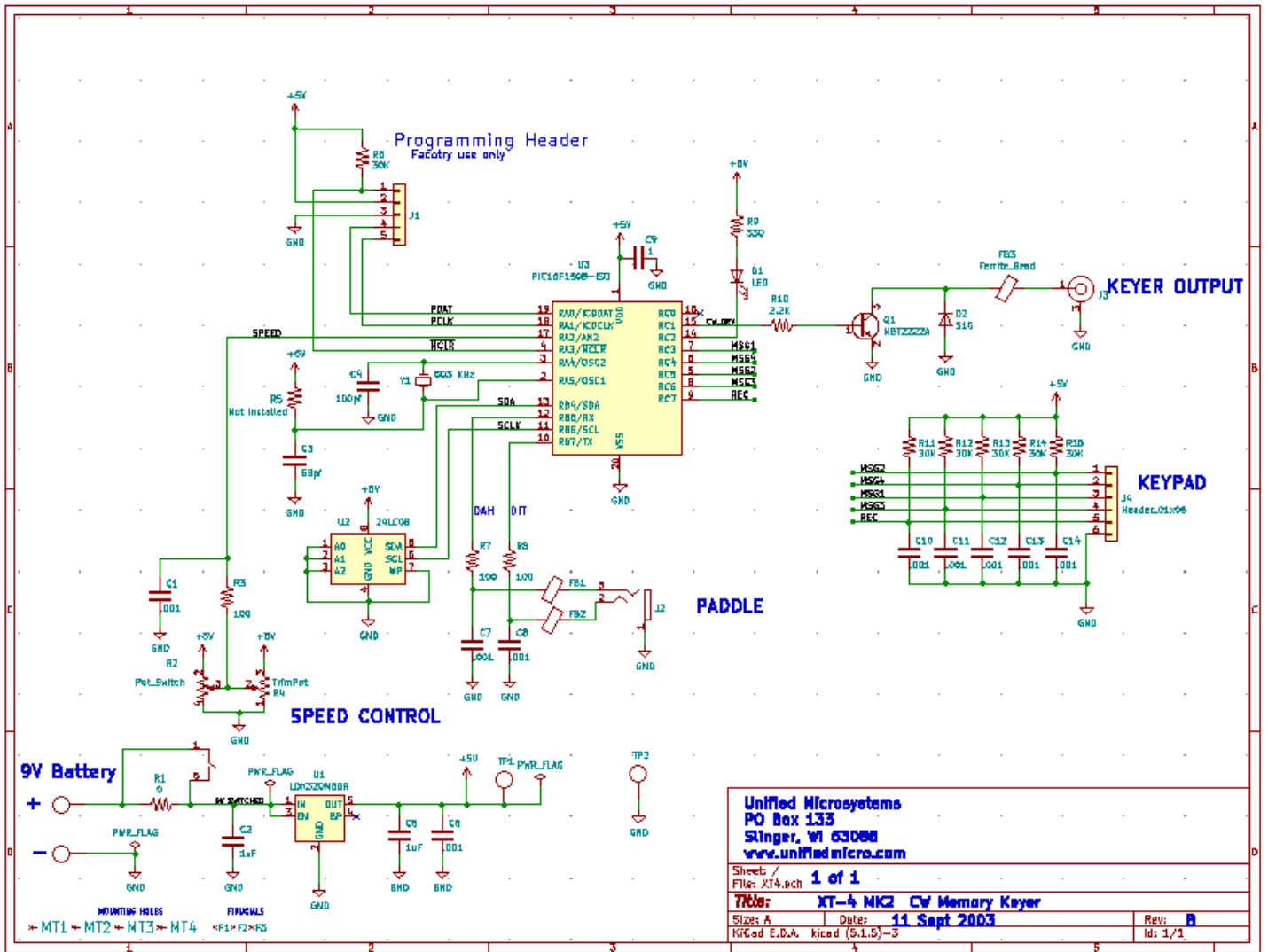| Function	Default	Set to alternate option	Set to standard
Paddle Reverse	Normal	Reverse - Power up with REC + button 1	Power up with button 1
Message 1 Loop	No looping	Loop - Power up with REC + button 2	Power up with button 2
Mode A/B	Mode B	Mode A - Power up with REC + button 3	Power up with button 3
Beacon Mode	Disabled	Enabled - Power up with REC + button 4	Power up with button 4
Reset all to factory defaults		Power up with REC, 4, and 1 buttons held down.	

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Warranty Information

Unified Microsystems guarantees the components and workmanship of the XT-4 MK2 CW Memory Keyer for a period of one year from the date of purchase. A copy of the receipt must be included with any units returned for warranty repairs. Unified Microsystems will, at its option, repair or replace defective units returned during the warranty period.

Unified Microsystems reserves the right to change the specifications of its products at any time without notice.