New Steppir Controller Firmware version 6.7 or later

In a effort to improve the operation of the Steppir antenna and to address the problems that can come up in the myriad of installations we have a new version of firmware for all of our Yagis.

Feature list:

- Moved Band defaults to more common frequencies in the HAM mode.
- Moved the center frequency to better center the best SWR.
- Cleaned up messages so they are clearer.
- Frequency is common between Amateur and General Freq Modes.
- Changed Band segments so there is one segment per band.
- Applied changes done in Create Modify to entire band.
- Added New Options menu.
- Added 6M passive selection.
- Added Transceiver Frequency tracking Disable Key.
- Added Global Frequency Offset adjustment.
- Added Global SWR correction.
- Made it possible to program a single button for the Home position.
- Added 40/30 Dipole selection.

Amateur Mode

When the controller is in the Amateur Mode the band buttons 20M-6M (1 through 6) are pre-programed to get the antenna close to the desired frequency. On the larger bands the buttons have several presets in the band which the controller will cycle through each time the band button is pressed. If the the controller is switched between bands using the band buttons is will return to the last preset frequency the button was at.

The Bandwidth will depend on which model antenna you have but it will be at least 100Khz, if you want to fine tune the antenna the UP/DN Keys will shift the antenna frequency in 50Khz steps.

The button below the 180 and Bi-dir LEDs cycles the Steppir through the 3 directions. When both the 180 and Bi-dir LEDs are OUT the antenna is in the Forward or Normal direction.

The transceiver Interface does not change the frequency in this Mode.

General Freq Mode

When the controller is in this mode there are several options:

- The Transceiver Interface sets the operating frequency.
- The Options menu is selectable in this mode.
- The Band buttons are programmable in this Mode.

If the transceiver Interface is disabled or the disconnected the band buttons can be used as presets to

your favorite frequencies or to Retract (Home) the elements. To save a preset first use the band buttons and UP/DN keys to select the desired frequency. Next Hold the band button in until the LED over it starts to blink. Release the button and press it once more before the LED stops blinking.

In the Case of saving the Home position first use the setup Menu retract elements command. After the elements are Home Press and hold the Band button as before. When you press it the second time the Controller will display 0000Mhz.

The transceiver interface will update the frequency if it is enabled with the radio or computer on overriding the band buttons almost immediately. If using a Band button to home the antenna turn off the Radio first.

Options Menu- This menu is entered by holding the Select Key Down for 3 seconds while the controller is in the General Freq Mode. Due to limited program space the the only sure indication this mode is active will be some of the band LEDs lighting (LED 5 will always light). Also since we have 2 different boxes we will refer to the Band buttons as 1 through 6 with 1 being the 20M or 40/30M button on the far left.

1) **Driven Element Offset-** Band button #1 works with the #2 band button Adjust the Driven element to Correct for feed point interactions. Each time the #1 button is pressed the driven element is moved .2" longer. The opposite happens when the #2 button is pressed. The band LED's for these buttons indicate which way the driver has been adjusted (Both Off indicates the default position). This adjustment can correct for higher than normal SWRs when other antennas are interacting and changing the feed point impedance. It will have little to no effect if the antenna is in the clear.
2) **6M passive selection-** Button #3 will toggle between having the 6M passive installed or not. The band LED will be lit when the passive element is selected. The lengths for the 6M passive element will be active for the Normal and 180 positions in the frequency range of 50 through 51Mhz. There will be a small "p" in the same location as the saved segment indicator on the LCD display when the 6M passive element lengths are being used. The 6M passive antenna always faces forward even in the 180 mode, Bi-Dir mode will reduce the front to back but the antenna will still have forward gain. This does not effect any other band.
3) **40/30 Dipole selection-** Button #4 will toggle between having the 40/30 Dipole option installed or not. The band LED needs to be lit when the Dipole option is present to use it. **CAUTION** do not enable this option if the Dipole is not installed, it may be possible to damage your driven element if you do.
4) **Frequency Tracking disable-** Band Button #6 is the Transceiver Interface Frequency tracking control toggle. When its band LED is lit the antenna will follow the radio frequency. This only effects frequency tracking, the computer Port (Data Out) can still send commands to the controller.
5) **Frequency Offset ADJ-** Using the UP and DN keys the antenna display frequency can be offset from the antenna frequency. There will be a number in the range of +/- 15 displayed in the upper right of the LCD display indicating the offset value. This is a global adjustment to all bands and is based on a percent of frequency. The number is for reference only and does not scale directly. When making this adjustment it is possible to move off the best performance point so some experimentation may be necessary to find the best value.

The changes made in this menu will be saved when the controller power is switched off or after about 3 minuets.

Some notes about adjusting the antenna:

- The firmware frequency is set to what we have determined to be proper for each band, the lowest SWR point may still be at a higher frequency.
- The SWR should be less than 1.5:1 if the antenna is working correctly.
- If the antenna is working properly the SWR in the Normal Mode (Direction) and the 180 Mode should be very close to being the same. Bid Mode SWR varies a lot, do not expect it to be the same or close to the SWRs in the other modes, as it is difficult to create this type of antenna.
- If you are upgrading from older firmware (3x04) you will need to adjust the frequency offset to get the proper frequency display.