



Tornado Tuner using RT-21dc

As used with JK Antennas

Although any RT-21 may be used, this note details the use of an RT-21dc (dc powered unit) as a high-performance tuner for the 12V Tornado Tuner. With an RT-21dc, any 12-13.8V power supply with 1A capacity will work nicely in this application. The RT-21dc will provide three levels of control.

1. The RT-21dc alone, will provide convenient manual control.
2. When used with any rotator control program that allows presets, a set of presets may be defined to tune the Tornado to any frequency by clicking a button.
3. When used with GH Everywhere ** the RT-21dc will provide automatic tuning based on the frequency defined by the radio.

If Possible, run the antenna to the fully retracted position before connecting to the RT-21r

RT-21dc CONFIGURATION:

The Setup for the RT-21dc is the same as a SPID rotator,. The unit's power comes from any external supply connecting to the rear terminal strip #7 (+) and #6 (-). Make sure that the RT-21dc fuse is a 1A.

Set OFFSET = 0 (so we start at 0 and go up from there)

CONNECTIONS:

- Connect the motor to terms #1 and #2.
- Connect the pulse switch to terms #3 and #4

CALIBRATION:

Calibration is simple, we already have 0 as the fully retracted position, so once connected, we want to run the unit to the fully retracted position, then set CALIBRATE = 0.

Now, run the unit fully extended to determine the highest count. 208

Set the Soft Limits to keep from every even running into the limits.

CCW Limit = 2

CW Limit = 208 -2

OPERATION - MANUAL:

Use the CW/CCW buttons to tune the Tornado to any desired frequency as determined by your SWR meter. Then by keeping a chart of frequencies vs display counts, you can easily return to any frequency using the front panel Point and Shoot knob by selecting the proper tuning count.



OPERATION - PRESETS:

Use any convenient rotator control program that the capability of storing “Rotator Presets”. Then setup your presets such that the “Preset Display Name” is the desired frequency, and the corresponding “Heading” is the display count that tunes to that frequency. GH Everywhere will do this, as will many other rotator control programs.

OPERATION - AUTOMATIC: - Uses GH Everywhere to make an automatic “Preset” based on the frequency of the radio. Requires Version 2.7.0 or later. This description assumes some level of expertise with configuring devices in GH Everywhere. We are always ready to help you if needed.

Setup a Virtual Band Switch with the frequency ranges matching the resolution of the RT-21dc control of the Tornado Tuner’s desired presets. Then for each named freq range, enter the “Rotor Name” in the first field, and “#nnn.y” in the position field. The first character must be ‘#’ followed by the heading with no spaces. The heading may be integer, or single decimal format.

Now, you may either click on the desired preset, or let Software Control automatically tune via radio frequency data.

You MUST associate the Virtual Switch for Tornado Tuner with a real connected GHE Base unit that is connected in Device Manager. The GHE base doesn’t need to be used for anything, but The Device Manager must see one in order to connect the Virtual Device



EXAMPLE Virtual Band Switch for an 80 meter dipole Tornado Tuner.

In Device Manager, connect the RT-21dc as device named "Tuner". Also, connect the virtual switch "Tornado" using the "Tornado Sample" SubType as defined here:

Virtual	Name of Setting	Bidirectional	Degrees	Beamwidth	1	2	3	4	5	6	7	8	Freq. (MHz)	
													Lower	Upper
...	3500-3550	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3500.0	3550.0
...	3551-3600	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3551.0	3600.0
...	3601-3650	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3601.0	3650.0
...	3651-3700	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3651.0	3700.0
...	3701-3750	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3701.0	3750.0
...	3751-3800	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3751.0	3800.0
...	3801-3850	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3801.0	3850.0
...	3851-3900	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3851.0	3900.0
...	3901-3950	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3901.0	3950.0
...	3951-3999	<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	3951.0	3999.0
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
...		<input type="checkbox"/>	0	0	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		

Expansion ... of first setting:

Translate Virtual Position: 3500-3550

Real Switch/Rotor Name	Real Switch/Rotor Position
Tuner	#27
<Enter>	<Enter>
<Enter>	<Enter>
<Enter>	<Enter>

OK CANCEL

** if you need more than 4, you will need to create the wio profile xml manually!