RCI-USB Report Board 01/2012

Reported by Bob NE1H	
Modified by Pablo GARCIA	**Date**: 29/4/2012
Subject: Some rotors doesn't provide enough voltage at the CW limit, so the RCI-USB Board cannot amplify this V into 5Vcc (ADC Max V), so there is some resolution lost in the calibration.	

The RCI-USB was designed for an Amplify Gain = 3.9. It means that a rotor that provides a voltage feedback < 1.2 V when the rotor is at the Right limit (CW), will lost some resolution once the calibration is done.

The Gain in the RCI-SE is a relationship between the following resistors:

Gain Azimuth = R5 / R3 = 39K / 10K = 3.9

But it's true if R5 = R6 and R3 = R4

HD-73 example

This rotor provides 0.6V around CW limit. In this case, the gain should be

Vout = Gain x Vin

Gain = Vout / Vin = 5V / 0.6V = 8.33

So, Gain = R5 / R6
If we fixed R6 = 10K

R5 = Gain x R6 = 8.33 x 10K = 83.3K
As 83.3K is not a standard value, we can choose R5 = 100K, a higher gain, and use POT1 for adjust the gain

So, R5 = R6= 100K

You must remove R5 and R6 resistors and place new resistors with 100K value. Now the gain will be x10, and any rotator that supplies 0.5V at the CW limit will be OK.