A short length of thin wall stainless steel tube is glued into the motor thru hole. The tube is 5/16” OD (~8mm). It’s main purpose is to provide a mount for the rotary encoder. It also provides a pass-thru for wires from the electrical slip ring.

I line the inside of the stainless tube with heat shrink tubing to prevent the pass-thru wires from rubbing against the steel.

It’s important that the tube OD is as concentric as possible with the motor thru-hole. I build up the OD with adhesive and then turn it down on a lathe to get a tight fit.

I do NOT use the index pulse on the CUI Devices AMT10E3-V encoder to determine a “ZERO” position. I have found (for whatever reason) that the index pulse on this particular encoder can be buggy.

The encoder is configured to a resolution [PPR] of 2560 via the onboard switches