Auto

Functions in “Auto.c” mainly realize the function of adjusting Zoffset (Zoffset coarse) and Zoffset fine according to the feedback to make Zout/current reach the preset value. Some of them implement basic functions and are called by other functions, which are more complex and directly called.

***zAutoT*** is the first one of the basic functions. It adjusts Z offset so that Z feedback can reach a specific target. The input includes target and step. Because it will be used in the loop, first it delays a long time for large step and a short time for small step. Since it’s to adjust Zoffset coarse, Zoffset fine needs to be initialized to zero before any real action. Get current value fo Zoffset; Read 50 times for the average of feedback; Check ramp direction and feedback status (If feedback is OFF, the following loop will not be entered.) In the while loop, Zoffset coarse is first ramp to current value; Delay some time for the feedback to respond; Read 50 times for the average of feedback; Update Z offset coarse value and condition based on direction for next loop; If the next step is out of range, put Zoffset coarse to maximum/minimum.

***zAuto0*** is the one of the basic functions. It adjusts Z feedback to 0. It first get the z2gain value to figure out how many Z feedback bits correspond to 1 Z offset bit. Then gets the distance between current Zout and zero. Then ramp Zoffset fine from fast to slow based on distance and z2gain.

***iAutoT*** is the third one of the basic functions. It adjusts Z offset fine so that current can reach a specific target. First it get the target, feedback status, ramp direction and 100 times average of pre-amp. Then ramp, read, judge in a while loop similar to *zAutoT*. And finally ramp Zoffset fine to maximum/minimum if the next step is out of range. It is very similar to *zAutoT*, the former's automatic regulation target is current, and the regulation object is Zoffset fine; The target of the latter is Zout, and the object is Zoffset course.