

Figure State Transition

1 – After restart position controller will be in reset state

2 – To resume normal operation position controller should be calibrated

3 – After successful calibration position controller will wait for movement commands

4 – When movement command is received position controller will be moving

5 – After position controller has moved to requested position it will go back to idle state

6 – The only way to leave emergency stop state is to hard reset position controller

ES: A – During reset state position controller can enter emergency stop state in the following cases:

* Emergency stop command was sent by the client (over UART)
* Emergency stop button was pressed

ES: B – During calibration position controller can enter emergency stop state in the following cases:

* Emergency stop command was sent by the client (over UART)
* Emergency stop button was pressed
* If min limit switch triggers during finalizing state when moving back to ½ distance

ES: C – During idle state position controller can enter emergency stop state in the following cases:

* Emergency stop command was sent by the client (over UART)
* Emergency stop button was pressed

ES: D – During movement state position controller can enter emergency state in the following cases:

* Emergency stop command was sent by the client (over UART)
* Emergency stop button was pressed
* Either of the limit switches got triggered



Calibration is done using the following algorithm:

1. Move until 0-limit switch triggers
2. Move until max-limit switch triggers, remember maximum position where 0-limit switch triggered (if it never triggered it will be equal to 0)
3. Move back to ½ distance between 0 and max, if max-limit switch triggered reduce max position to be less than this triggered value