Results:

parameters	Value Set 1	Value Set 2	Value Set 3
kp	2000	1000	1000
ki	0.8	0.5	0.01
kd	0.8	3	1
risetime (t_r)(s)	1.714	2.335	1.598s
settlingtime (t_s)(s)	1.862	8.636	1.801
Overshoot (OS)(%)	1.4	40	0

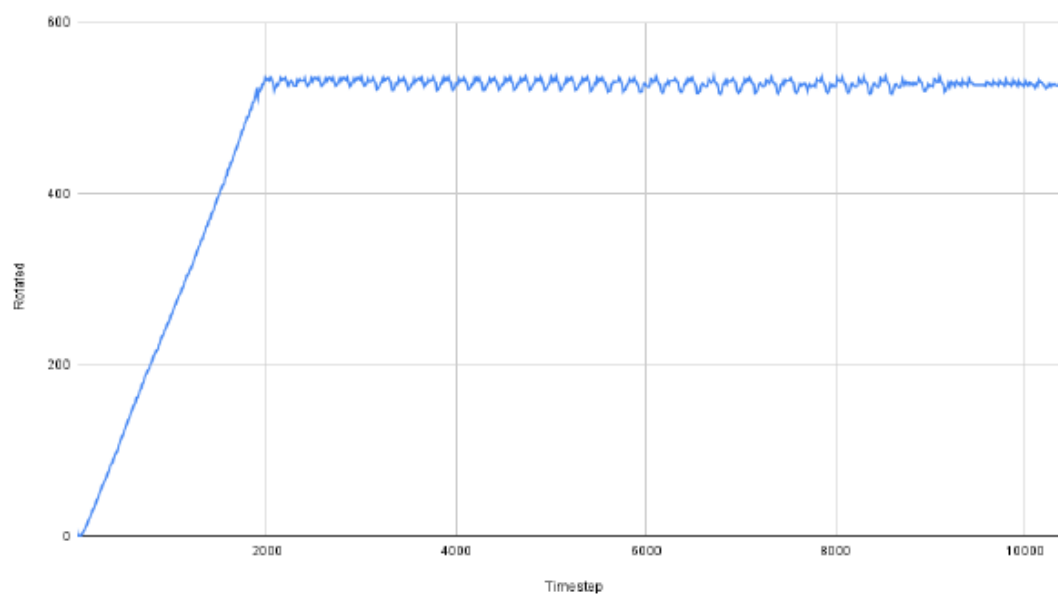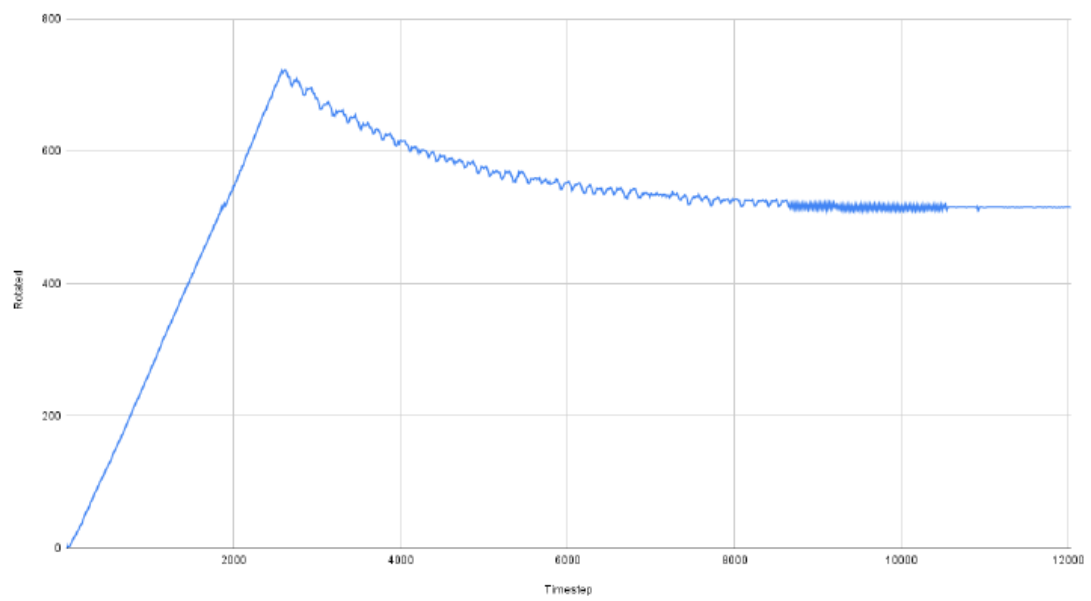Rotated vs. Timestep

Figure 1: **Value set 1-Time Response**

Rotated vs. Timestep

Rotated vs. Timestep