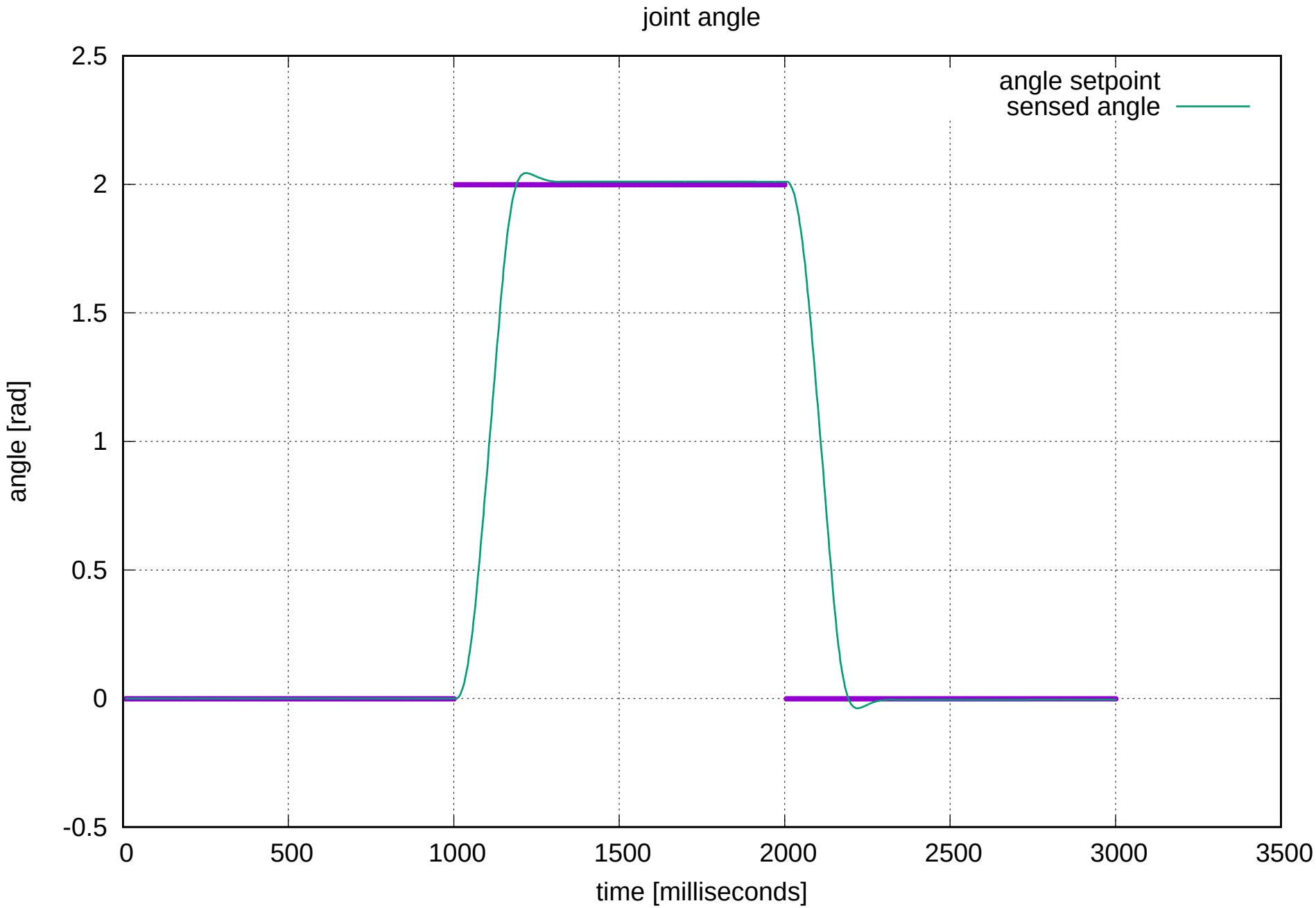
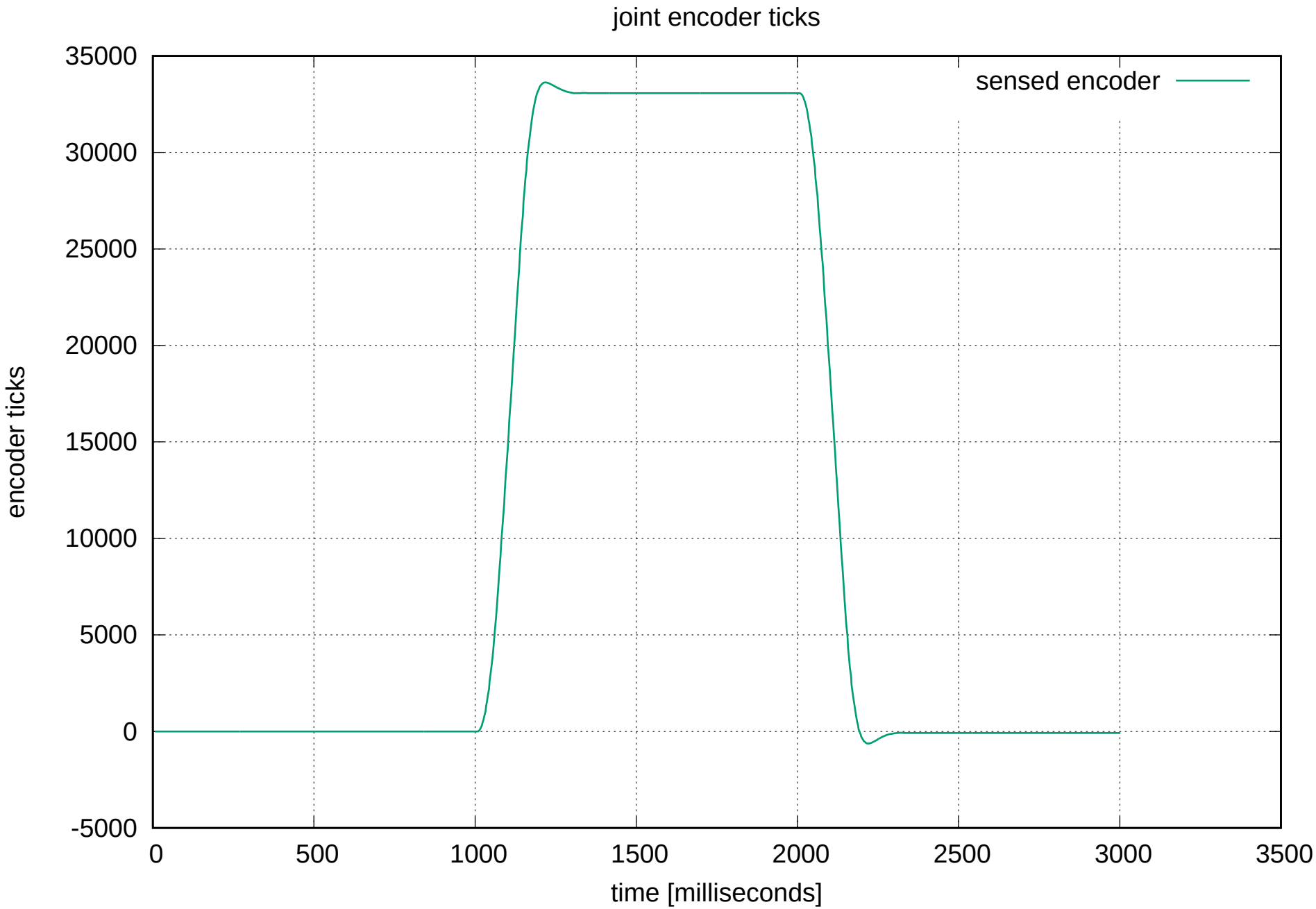
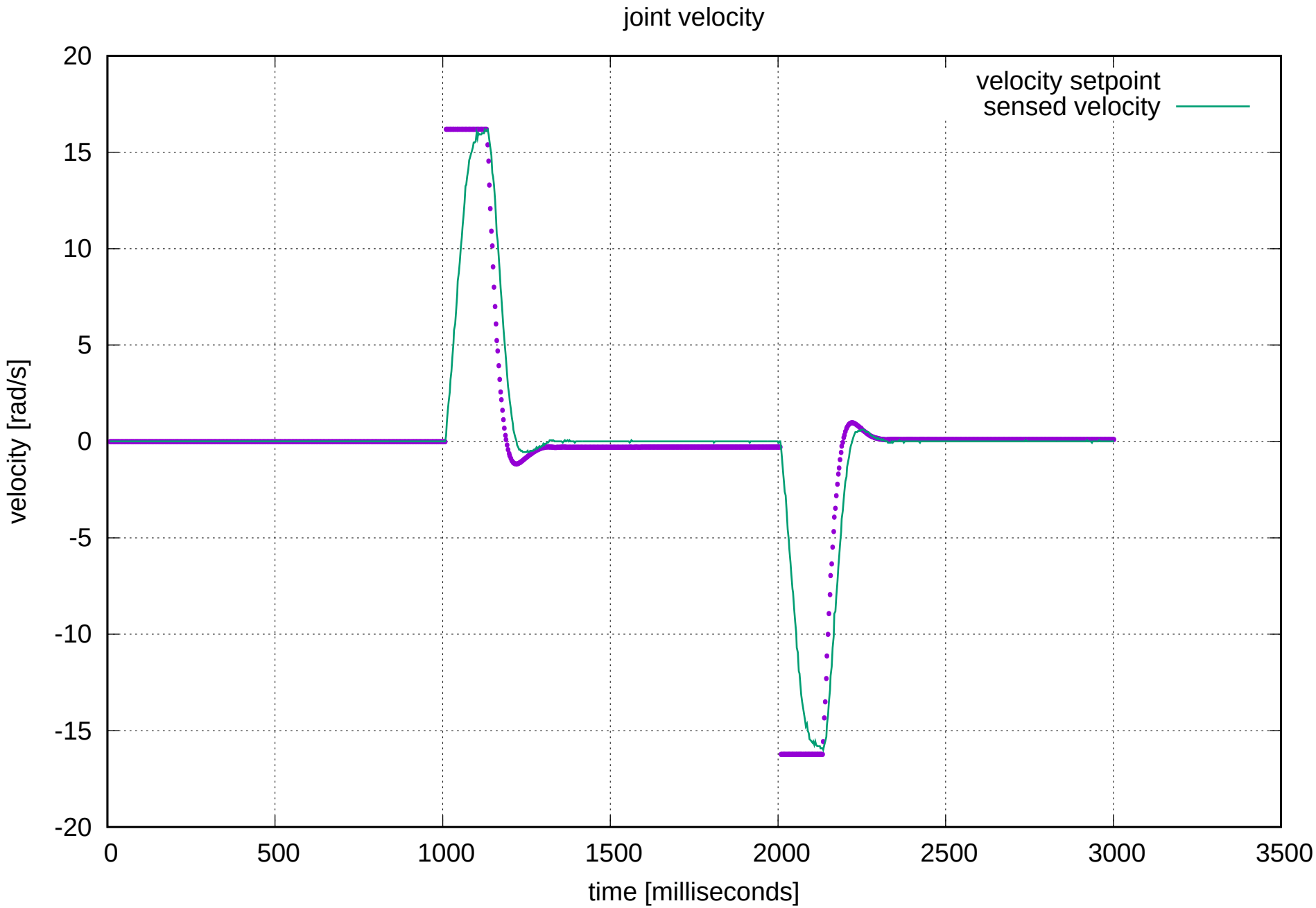
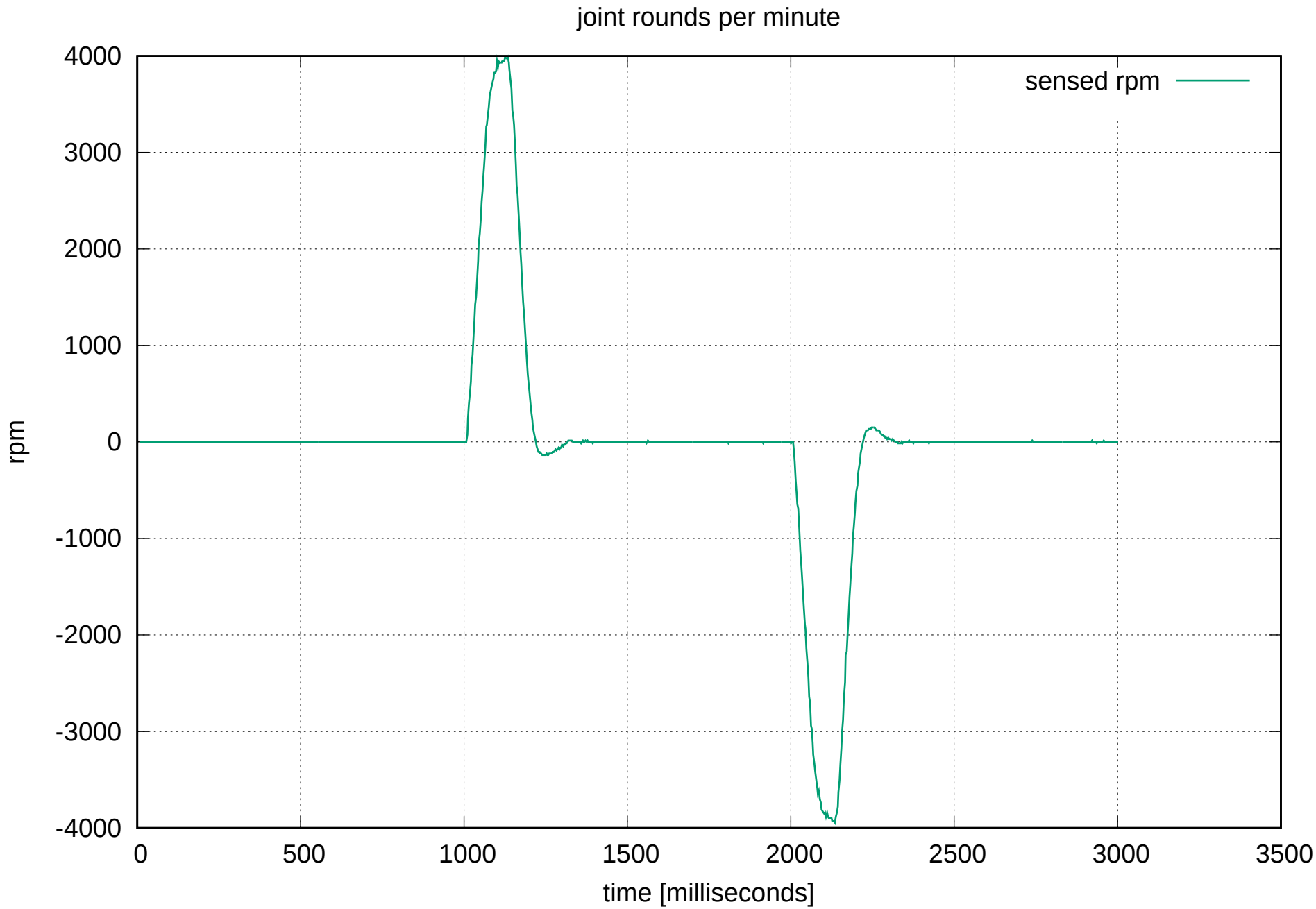
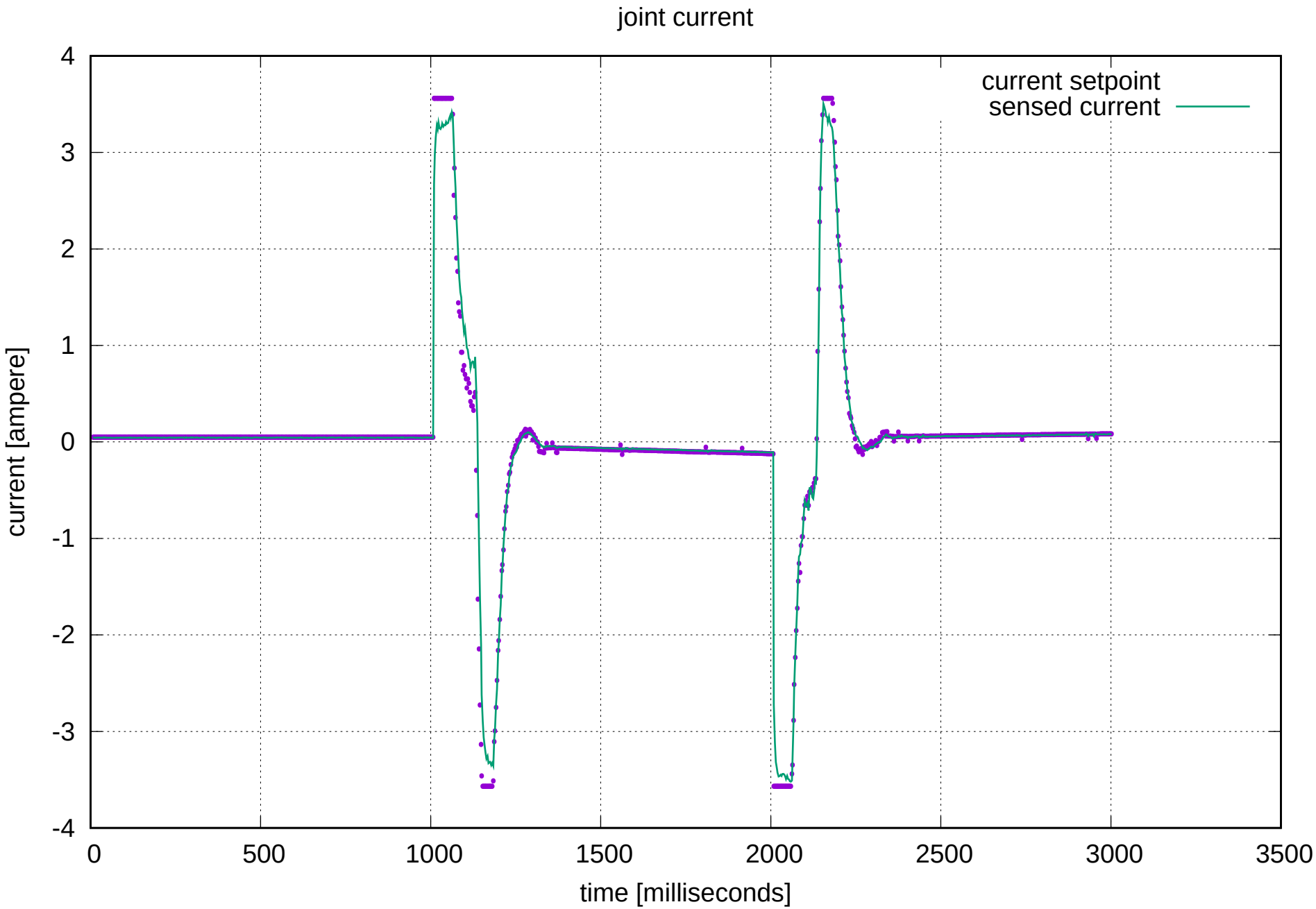
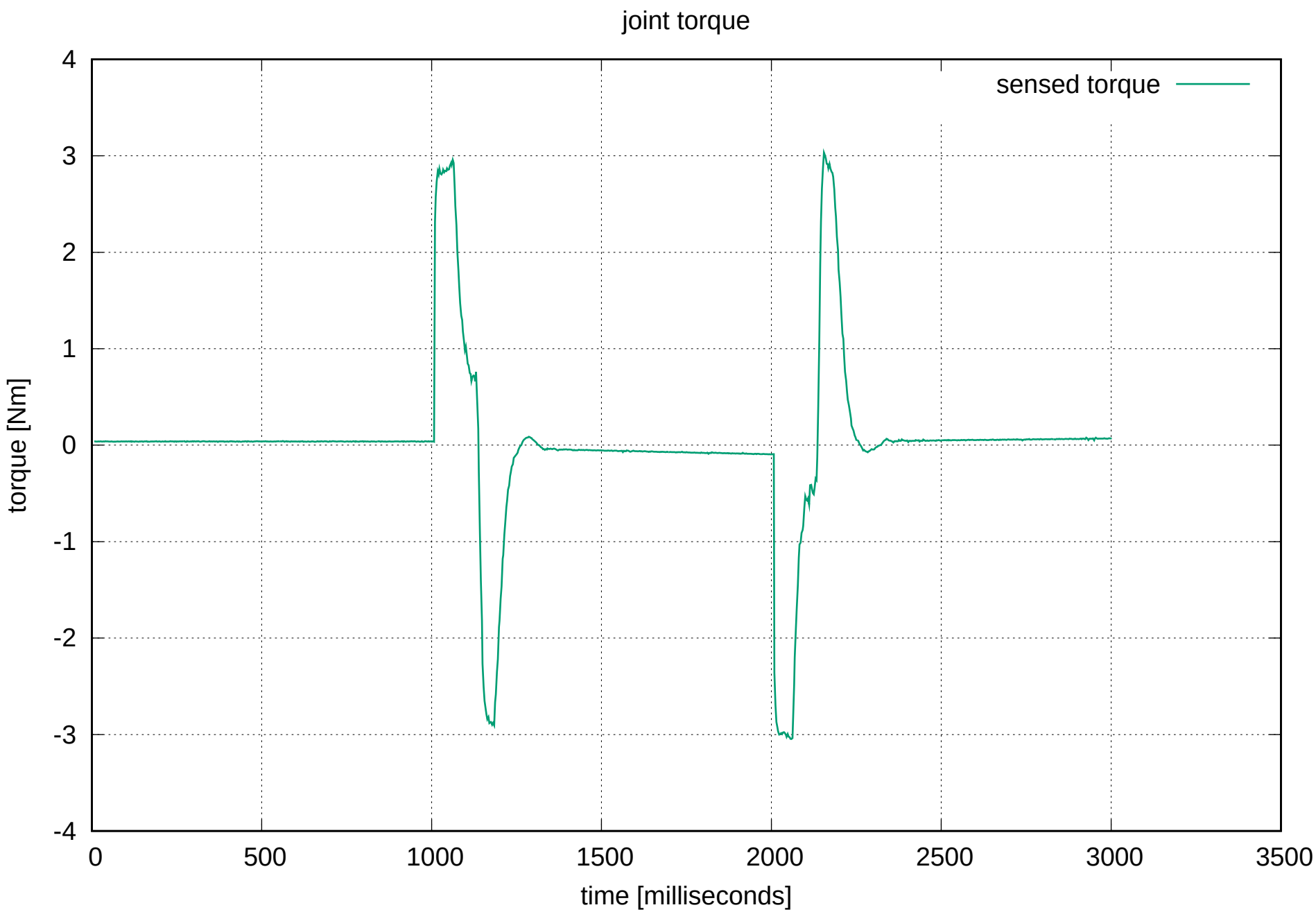

joint angle
angle setpoint
sensed angle
angle [rad]
time [milliseconds]
2.5
2
1.5
1
0.5
0
-0.5
0
500
1000
1500
2000
2500
3000
3500

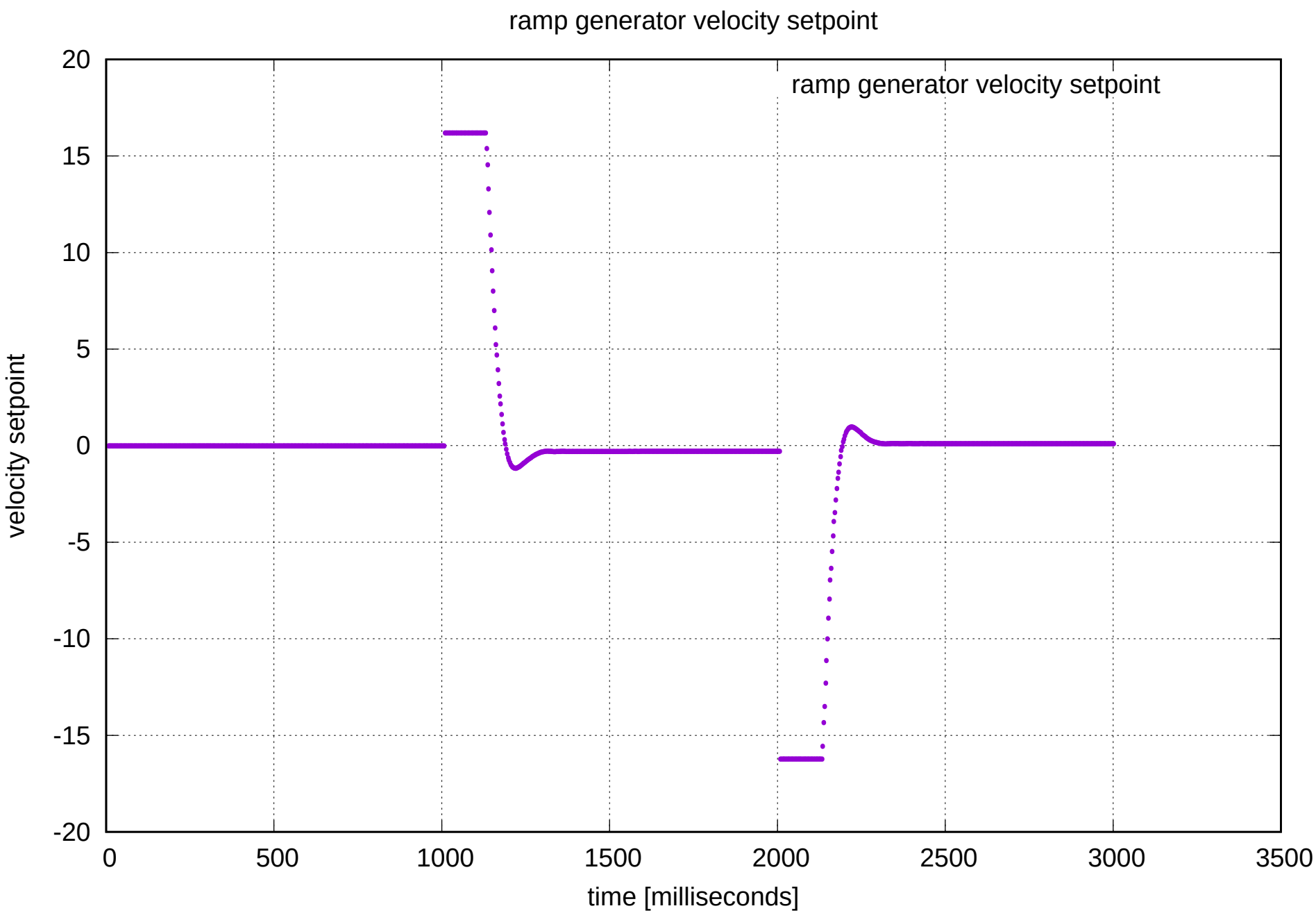

joint encoder ticks
sensed encoder
encoder ticks
time [milliseconds]
35000
30000
25000
20000
15000
10000
5000
0
-5000
0
500
1000
1500
2000
2500
3000
3500

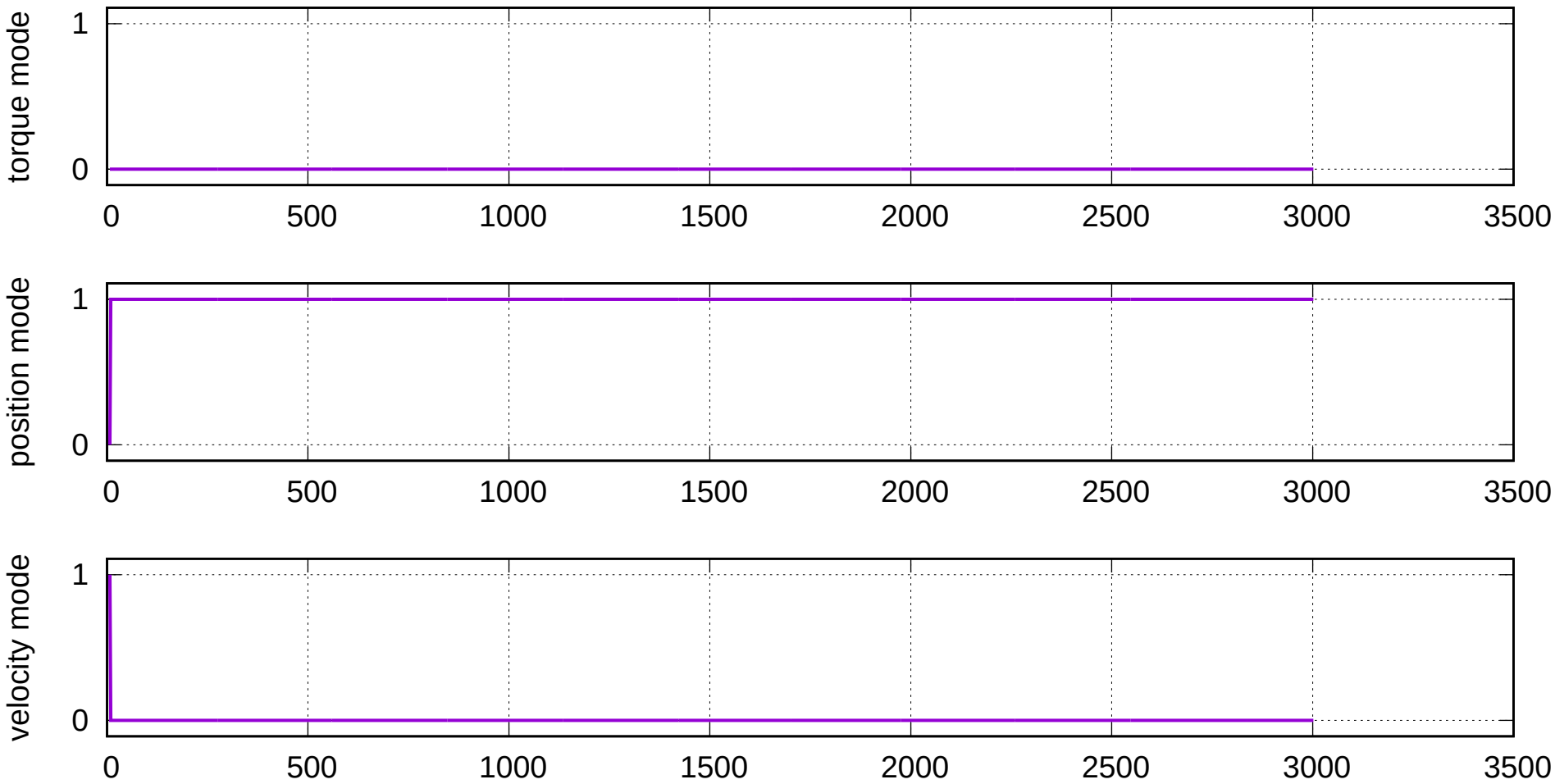

joint velocity
velocity setpoint
sensed velocity
velocity [rad/s]
time [milliseconds]
20
15
10
5
0
-5
-10
-15
-20
0
500
1000
1500
2000
2500
3000
3500

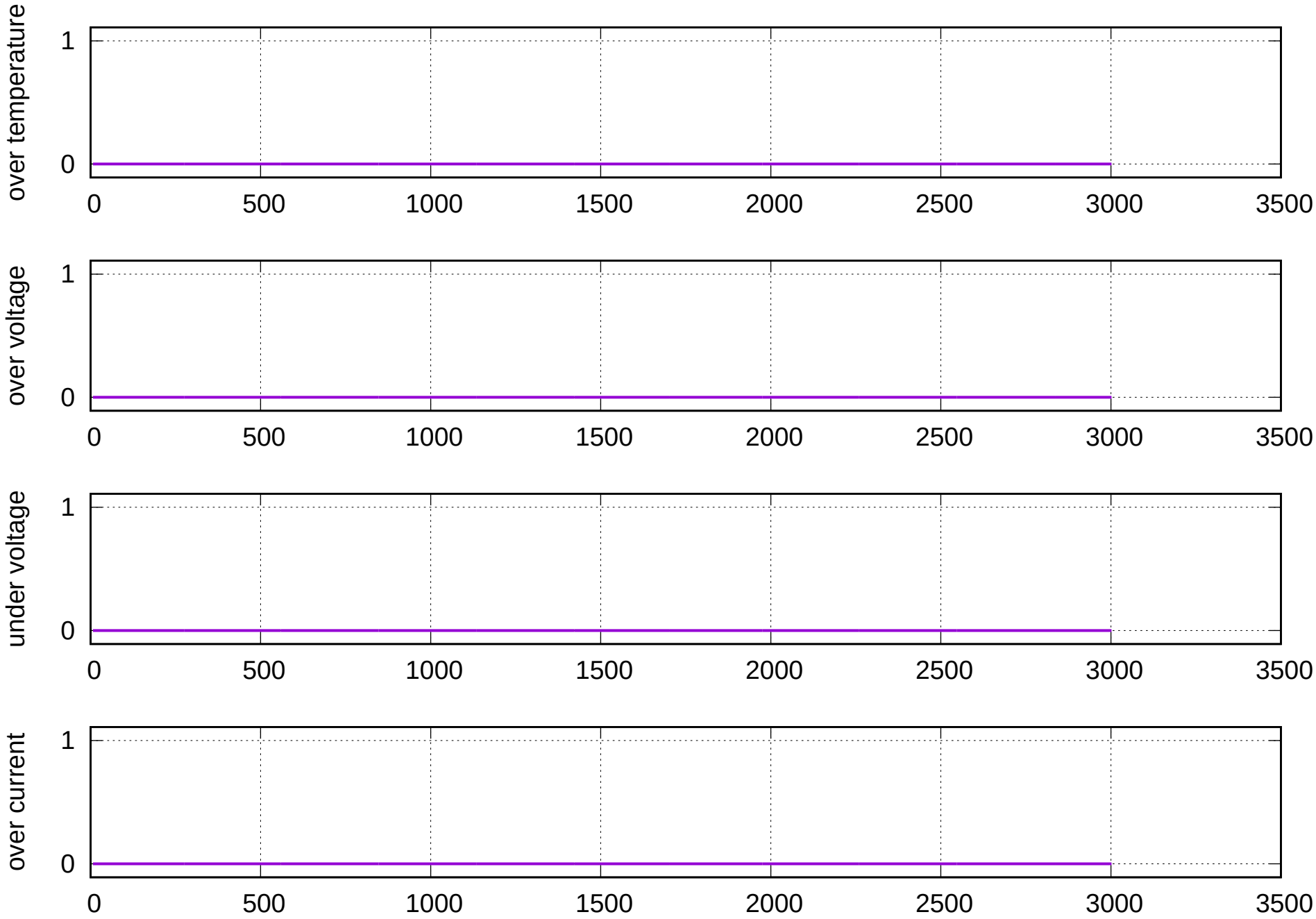

joint rounds per minute
sensed rpm
rpm
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
0
500
1000
1500
2000
2500
3000
3500
time [milliseconds]

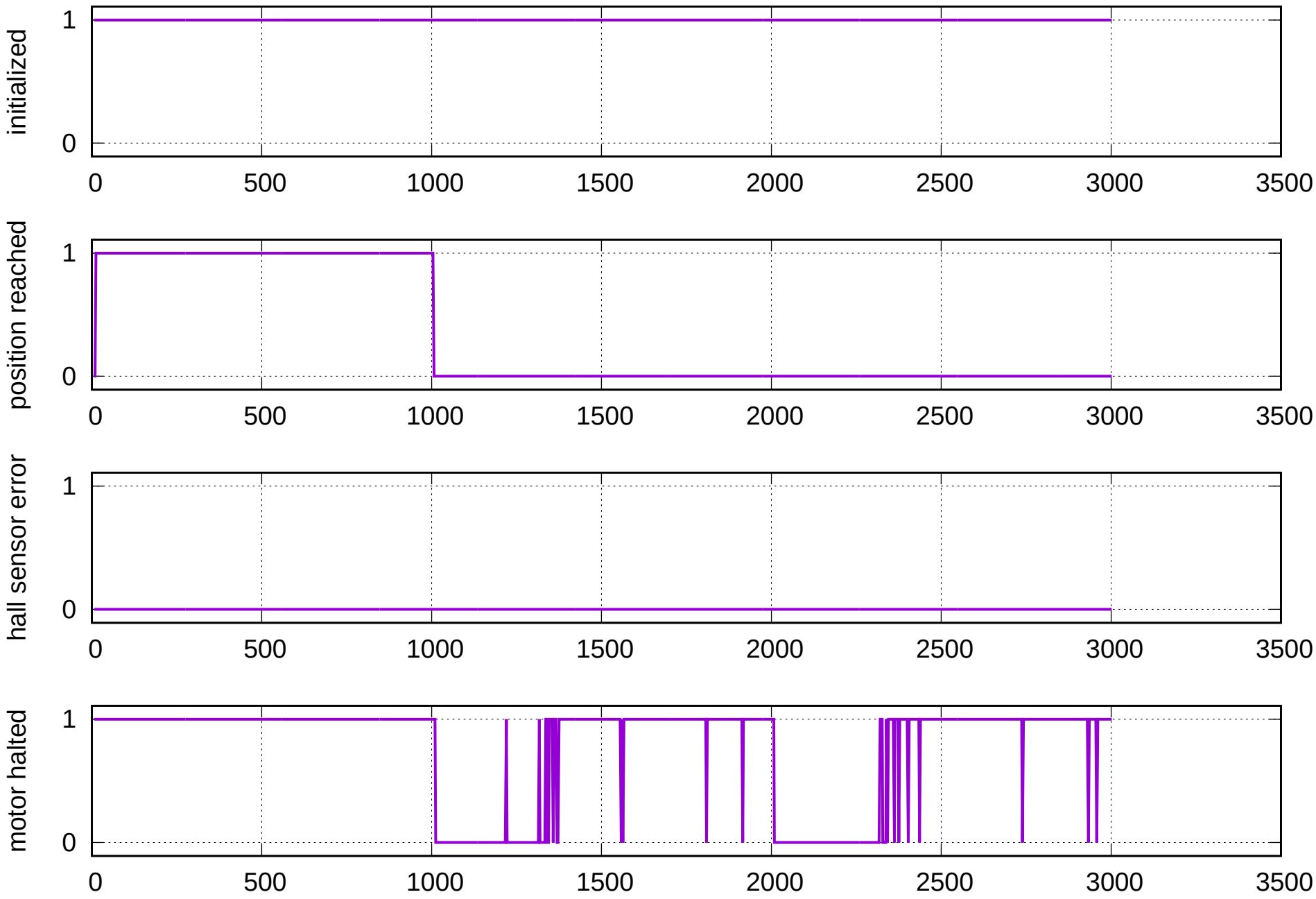

joint current
current setpoint
sensed current
current [ampere]
time [milliseconds]
4
3
2
1
0
-1
-2
-3
-4
0
500
1000
1500
2000
2500
3000
3500

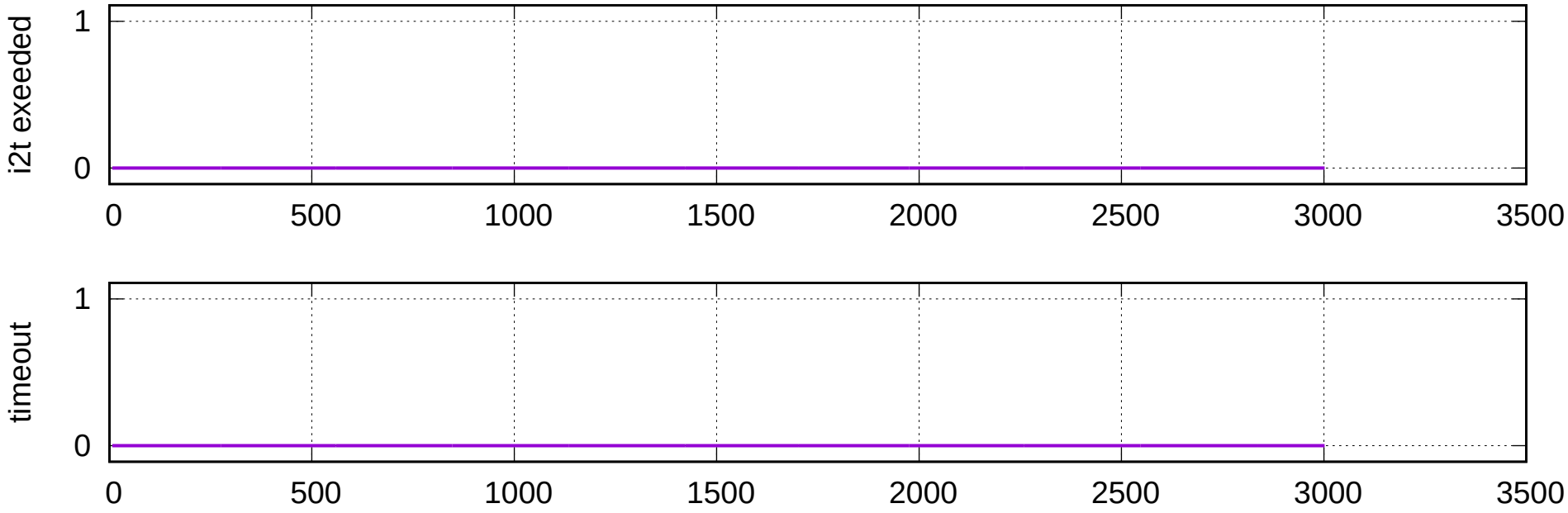

joint torque
sensed torque
torque [Nm]
time [milliseconds]
4
3
2
1
0
-1
-2
-3
-4
0
500
1000
1500
2000
2500
3000
3500


ramp generator velocity setpoint
ramp generator velocity setpoint
velocity setpoint
time [milliseconds]
20
15
10
5
0
-5
-10
-15
-20
0
500
1000
1500
2000
2500
3000
3500


torque mode
1
0
0
500
1000
1500
2000
2500
3000
3500
position mode
1
0
0
500
1000
1500
2000
2500
3000
3500
velocity mode
1
0
0
500
1000
1500
2000
2500
3000
3500


over temperature
1
0
0
500
1000
1500
2000
2500
3000
3500
over voltage
1
0
0
500
1000
1500
2000
2500
3000
3500
under voltage
1
0
0
500
1000
1500
2000
2500
3000
3500
over current
1
0
0
500
1000
1500
2000
2500
3000
3500


initialized
position reached
hall sensor error
motor halted
1
0
0
500
1000
1500
2000
2500
3000
3500


i2t exeeded
1
0
0
500
1000
1500
2000
2500
3000
3500
timeout
1
0
0
500
1000
1500
2000
2500
3000
3500