## Contents

Tuned Variables for Motor Model Transfer Function

```
K = 8;
sig = 50;
s = tf('s');
```

Open Closed Loop step response simulation

```
open_system('PIControl')
%
% Run the simulation
%
out=sim('PIControl');
```

```
Warning: '<a href="matlab:slprivate('open_and_hilite_port_hyperlink', 'hilite',
['PIControl/PID Controller'], 'Inport', 2);">Input Port 2</a>' of '<a
href="matlab:open_and_hilite_hyperlink ('PIControl/PID
Controller','error')">PIControl/PID Controller</a>' is not connected.
```
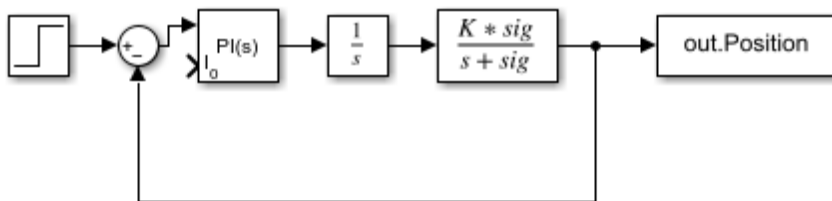

A Plot of the results: Postion Step Response with PI Controller

We see that the model transfer function when tuned with the PI controller results in a quick step response with very minimal overshoot. Using the Kp and Ki values from the controller resulted in our actual motor operating with no steady state error.

```
%Position
figure
plot(out.Position)
title('Position')
ylabel('Radians')
```

Position