

# Tank Level Control Using PI Controller – MATLAB/Simulink Project

## 1. Introduction

In this project, a simple water tank level is modeled and controlled using a Proportional-Integral (PI) controller in MATLAB/Simulink.

The goal is to maintain the tank level at a desired setpoint by adjusting the inlet flow based on feedback.

## 2. System Model

Transfer Function:

$$G(s) = \frac{1}{s+1}$$

Step input is used to represent desired level.

## 3. Controller Design

Type: PI Controller

Parameters:

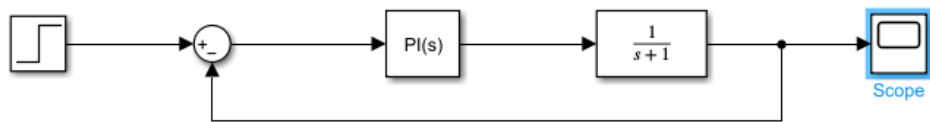
$$K_p = 2$$

$$K_i = 1$$

## 4. Simulation Setup

Simulation time: 10 seconds

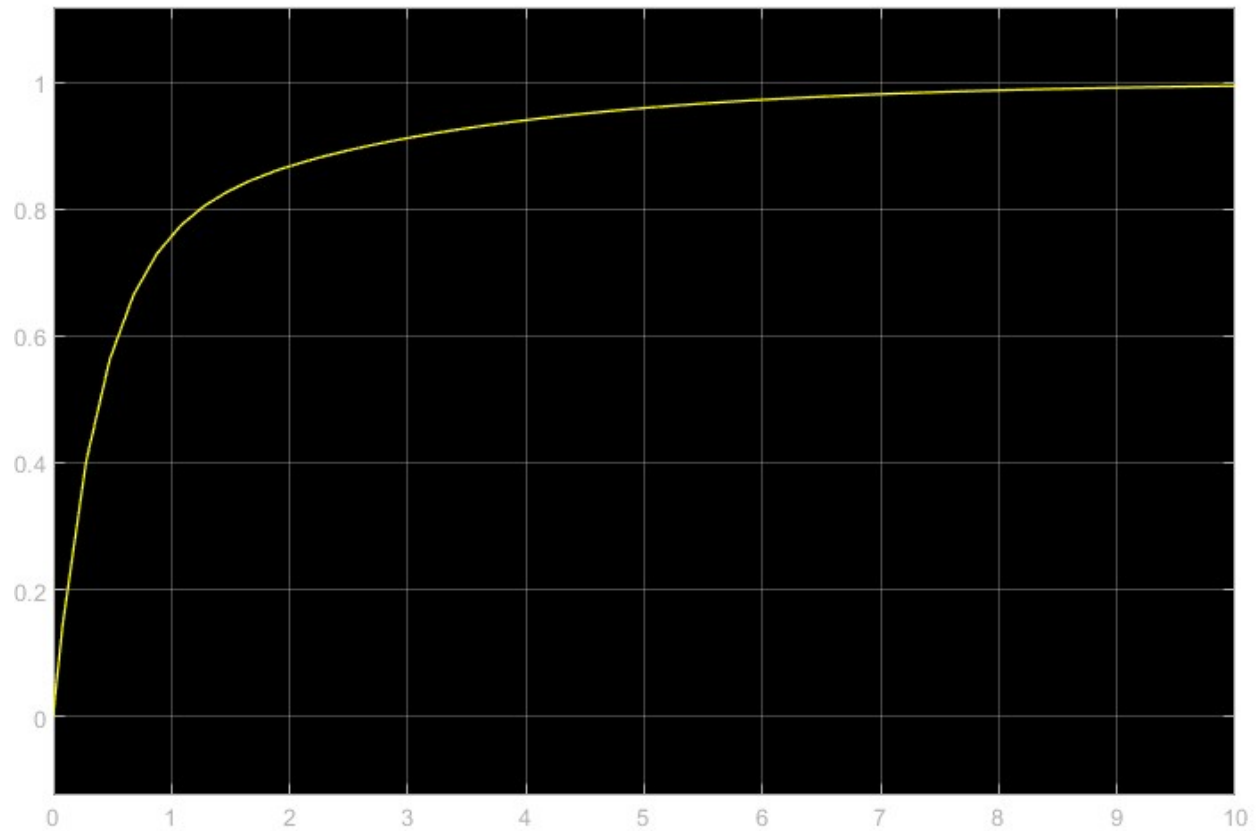
Environment: MATLAB R2023b + Simulink



## 5. Results

The tank level reaches the desired value smoothly and stabilizes without oscillations.

Below is the output curve from the simulation:



## 6. Conclusion

The PI controller effectively maintains the tank level at the setpoint with minimal error and a fast response.

## 7. Author

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