

Assignment 3

TTK4210 - Advanced Control of Industrial Processes

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1. Anti-windup (and simulation) for the LV-model

2. Anti-windup with PI controllers and selectors

a. Model implementation

The plant can be modelled as shown in Figure 1 with $y(s) = G(s)u(s) + G_d(s)d(s)$.

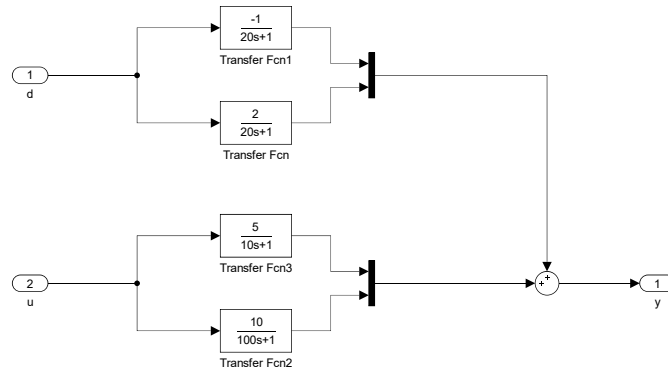


Figure 1: Implementation of the system given the transfer functions from input and disturbance to output

b. Controller tuning

Using Ziegler-Nichols method of controlling a PI(D)-controller on each of the two control loops individually we get the following table of parameters

Controller	K_p	T_i
Flow	3.04	4.63
Pressure	18	3.45

This was obtained by using a unit step function as disturbance and observing the corresponding outputs, as per Ziegler-Nichols method.