

Assignment 1

TTK4210 - Advanced Control of Industrial Processes

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1. Installation of K-Spice

Done, nothing more to report from here.

2.

a. Startup

Startup completed and model loaded.

b. Simulation

The model simulates nicely with a maximum speed at about 400.

c. Graphs and parameters

The initial values of the controller LIC0001 is shown in Figure 1.

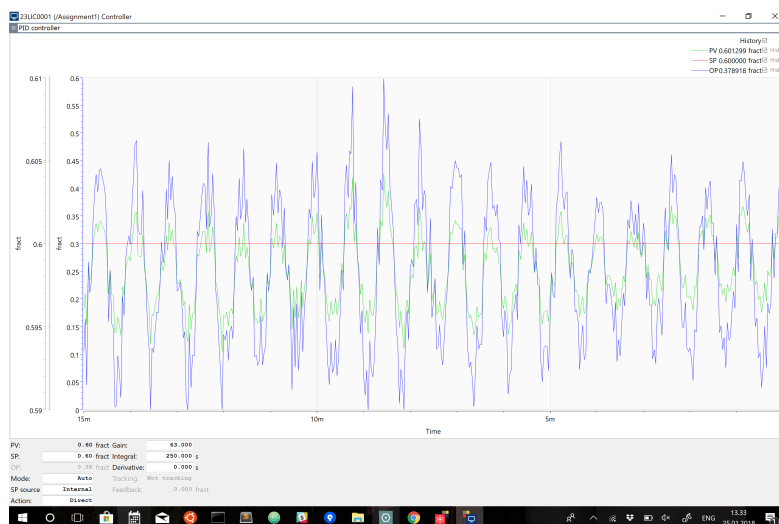


Figure 1: Initial values of the controller LIC0001

3. Model survey

The three main control loops for the 3-phase vessel 23VA0001 are the control loops for the two levels of fluid and the final loop for the amount of gas inside the vessel.

4. Model simulation and controller tuning

a.

5. Model Control Language (MCL) and data logging

6. Model survey

a.

The component ASC0001 is an Anti Surge Controller that protects the compressor from surge. This is critical for the compressor to function properly.

b.

The 23HX0001 is a cooler. This component cools the gas that is fed back to the tank in one of the main control loops and the gas that is released. As we need to cool both the air released and the air fed back we place this before the feed back loop, so that we don't need two coolers.

c.

The component PSV0001 is a safety valve to ensure that the pressure in the vessel isn't getting too high and blows up.