

MODEL BASED CONTROLLER WITH INTERNAL MODEL CONTROL (IMC) TUNED BY SET POINT CHANGES AND DISTURBANCE CHANGES ON POWER PLANT BASED HYSYS

Name of Student : Hendrik Elvian Gayuh Prasetya
Number Of Registration : 2410 100 051
Major : Bachelor Degree of Engineering
Physics
Department/Faculty : Engineering Physics FTI-ITS
Supervisor : Totok Ruki Biyanto, Ph.D

Abstract

Waste heat steam generator (WHSG) is a power generation system that utilizes exhaust gases in an industrial process. In order to design WHSG plant proper control parameters needed to maintain the value of the mass balance and energy balance. The technique of IMC-PID control is one method that is often applied to the power plant by tuning to change the set point. In fact, not only by changes in set point tuning that only produce a proper response, but tuning based on disturbance value also appropriate for used. This is because tuning based on disturbance value can reduce the disturbance values directly into the process output. The tuning values based on set point is given by value $\pm 5\%$, $\pm 10\%$ and $\pm 15\%$ of design data used, while for tuning based on disturbance that used $\pm 5\%$ the inputs value which used as a parameter disturbance. Based on the result of control response shows that tuning method used to control the disturbance in this study, are not appropriate to be applied using the IMC-PID method. This explanation because characteristics of resulting response shows that poor value.

Keywords:

Waste Heat Stem Generator (WHSG), Tunning, Set Point, Disturbance, IMC-PID

