Abstract

For obtaining efficient stability and good regulation of different devices in power system and industrial applications, automatic voltage regulators (AVR) are increasingly used. However, AVR without any controller will provide slow responses due to disturbance and may cause instability. In this study therefore, the objective is to consider a generator AVR system without PID controller and with PID controller, where the PID controller was tuned with a view for improving the response of the system and make comparison between the frequency deviation step response and the tuned PID controller block performance using linear block model and control techniques in MATLAB / Simulink environment, in which the design configuration and automated PID tuning was used to tuned the PID controller for AVR system without and with PID controller for generator 1 and generator 2 respectively. Simulation results indicates that generator 1 shows higher frequency overshoot and oscillation as compared to generator 2, which shows low frequency overshoot and minimum oscillation. The performance response of the tuned AVR system in generator 2 with PID controller gives satisfactory settling time which was recorded at 1.44 second as against 5.54 second.
References


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Index Terms

Computer Science
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Keywords

AVR, PID