ABSTRACT

In general, the generator in micro hydro power plant generates a voltage of 220 Vac and 50 Hz. Due to changes in load factor, often the voltage and frequency of the generator output is also changed. The condition can damage the generator itself and the electronic devices that are powered by the generator itself. Therefore, we need a control system that can control the voltage and frequency so that its value remains unchanged even though its loads change.

In the Control laboratory IT Telkom there is micro hydro miniplant which is used as a simulator lab. In this final project the writer will control the voltage and frequency output of the synchronous generator. So that the output voltage and frequency does not change when the load generator voltage regulation change it require to control the dc motor armature voltage and the generator field voltage using a PLC.

On the voltage control, when the generator has not been loaded, voltage drop 5.7 Vac each 0.019A load is added. After the control voltage, generator output voltage average is 36.9 Vac. While in control of frequency, when the generator has not been loaded, the motor rotation down to 11 rpm each 0.019A additional load. After the frequency control, the generator turns stable at 760 rpm.

Keywords: generator, PLC, voltage control, frequency control