

Electronic Load Controller (ELC) For Micro Hydro Systems

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Abstract

Consumers who are located at city centres and a few remote places receive electric power conveniently from conventional power plants like thermal or hydro electric generating stations.

But this is not the case with consumers located in hilly and a few remote areas, where economic and logistic constraints come into effect and it is not possible to install a receiving substation to receive and distribute electric power, leave alone the maintenance of electrical equipments in these remote areas.

In such situations Micro Hydro Systems (MHS) can be installed to deliver power, provided water resources with potential energy are available.

Like any conventional generating stations even Micro Hydro Systems require controlling, monitoring and distributing circuits for power flow from the generating stations to the load.

Conventional hydro electric generators use speed governor and also excitation controller to regulate the speed, frequency and voltage generated and fed to the user loads.

Since the cost of speed governor is high with associated problems in hydraulic systems. Micro Hydro Systems do not use speed governors.

However, the speed is governed indirectly by maintaining constant load on the generator and hence the turbine by using electronic circuits.

Thus by using ELECTRONIC LOAD CONTROLLER (ELC) the load on the generator is maintained constant for a given water input.