Abstract

Large power consumers or consumers who have their own distribution substations, such as Hotels, Offices, Shopping Centers, Industries, etc. Installation is connected with 3 phase electricity, which includes phase R, phase S and phase T. In planning and installing electrical installations carried out by installer (Electrical expert) always refers to the design of loads connected in R, S and T phases, which are balanced (equally large), but in the operation (ON / OFF) of the electrical load the balance of the load cannot be adjusted for each phase, because operation (ON / OFF) adjusted to the needs of electrical equipment installed in each phase, so that the load is not balanced. Unbalanced loads in each phase can cause electrical power losses. Electricity losses will be even greater, if additional loads or the development of electrical installations are carried out without regard to the initial design of installation. In this study a simulation of a monitoring and control system will be created automatically as a study material to minimize the occurrence of phase load imbalance. The control system will work automatically to monitor and control supply to the load. Besides that, this control system can also detect if one
or two phases are lost (OFF), where the system will provide information to the user in the form of an alarm, which shows that there has been a loss of phase, so that users can carry out the overall power outage. Avoid the occurrence of large power losses. The method used in making the system is a method of research and development, with the stages including the study of literature, field studies to obtain data relating to the making of the system. The next stage is designing software that is simulated through the Lab View program. The next step is to test the work of the control system based on a system algorithm made through program simulations. The results of the tests were carried out, when the system was not burdened and burdened, for example the load detected in Phase R was 1.01 Ampere, in Phase S as basic as 1.5 Amperes and in Phase T of 1 Ampere, the system would automatically move one of the electricity lines from Phase R to one of the paths of Phase T, so that the overload in Phase R is overcome by Phase T. Besides that, when indicated there is one phase missing, the system will inform the alarm indicator and display on the monitor.

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Index Terms

Computer Science  Circuits and Systems

Keywords

Simulation, control system, load control, Labview