

DESIGN AND BUILD ATS (AUTOMATIC TRANSFER SWITCH) CONTROL PANEL IN PLTS AND PLN WITH THE USE OF GENERATORS FOR BACKING UP IN PLTS

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ABSTRACT

Using alternative energy that can save electricity usage can reduce the budget of companies and small businesses. The use of solar energy saves energy and is also environmentally friendly. So the author will make a control device that can supply electricity from three sources, namely from PLTS as the main source of electrical energy and PLN as a substitute energy from PLTS, while for back-up both generators or gen-sets are used. Power outages can result in disruption of service continuity, especially in service activities in the trade, hotel, hospital, and industrial sectors. In the distribution of PLN's electrical energy, failures often occur in its distribution due to internal and external factors, to meet the continuity needs for electrical energy, other sources of electrical energy are needed so that if there is a power outage from PLN, the consumer's need for electrical energy is not disturbed. These sources of electrical energy are temporary to serve the electrical load in the utilization of PLTS electrical energy as the main energy source. Automatic Transfer Switch (ATS) is a tool that functions to move the connection between one voltage source and another electrical voltage source automatically or manually. Thus, the main function of ATS/AMF is to turn on the PLN and generator if the main power source of the PLTS is off and connect the power/electricity from PLN and the generator to the load automatically. In this final project, an Automatic Transfer Switch (ATS) system is created which can transfer the power source from PLTS to PLN and generator automatically when the PLTS experiences a blackout and Automatic Mains Failure (AMF) which functions to turn on PLN and generator automatically when detecting PLTS is experiencing blackouts due to lack of power absorbed from solar cell panels. From the results of tests carried out by the Automatic Transfer Switch (ATS) Automatic Mains Failure (AMF) system by measuring the ratio of the voltage sensor and the percentage error of the voltage of 1.008%.

Keywords: Automatic Transfer Switch (ATS), PLTS, PLN, Generator, Arduino.