

PROTOTYPE OF AUTOMATIC TRANSFER SWITCH ON MICROHYDRO GENERATOR WITH ELECTRICITY MONITORING BASED ON INTERNET OF THINGS

Yohan Tomi Anggreawan

*Electrical Engineering Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : tomianggreaw@gmail.com*

ABSTRACT

Automatic Transfer Switch (ATS) between the battery source and the PLN source must be able to condition the switching based on the battery voltage, this is because when the battery capacity drops, the battery voltage will drop and if it is forced to charge continuously it can affect the continuity of battery life. Based on battery test data, the authors provide a lower limit on battery usage at a voltage of 10V which is used to determine switching conditions. The way this tool works is when the battery voltage is more than 12V, the battery source (inverter) will be charged and when the battery voltage is less than 10V, the PLN source is charged. This ATS prototype is based on the NodeMCU-8266 microcontroller with electrical energy monitoring using the Blynk application. The sensor used for monitoring electrical energy is the PZEM-004T sensor with the accuracy of the sensor test results in the voltage section of 99.68% while the current section of 98.26%. For switching condition parameters and battery voltage monitoring using a DC voltage sensor with the results of testing the sensor reading accuracy of 96.19%. Based on tool testing, this ATS has been able to work well in terms of source transfer and sensor readings where the accuracy is above 90%.

Keywords: *Automatic Transfer Switch, Microcontroller, PZEM-004T, Voltage Sensor, Battery, Inverter.*