ABSTRACT

ELECTRIC MEASURE MONITORING FROM FAR DISTANCE ON THE 3-PHASE ELECTRICAL NETWORK BASED SINGLE BOARD COMPUTER BCM2835

By

ADY KURNIAWAN

Electric measure on the 3-phase electrical network needs to be monitored which includes voltage (V), current (A), power factor (cos θ), power (W) and energy consumptions (kWh). In order to knows the changes of electrical quantities over time, so quality of electricity supply in the system can be monitored, it can be seen in case of interruption and can be known energy consumption on a regular basis.

Step-down transformer is used as a voltage sensor for voltage measurment, current measurement used ACS712-30A current sensors and measurement of energy consumption used kWh meter brands TEM015 type Thera-D4250. While the power value obtained from the calculation, where power is the quotient between the energy consumption of the time. When the value of the voltage, current and power are known, the value of the power factor can be calculated as the value of power is the product of voltage, current and power factor. For processing measurement data and calculations made using python programming Single Board Computer BCM2835 or commonly known as Raspberry Pi.

The results showed that the voltage measuring devices, power and power factor used have a level of precision that is in accordance with IEC standard No. 13B-23, but for flow devices not meet the standards yet but it can still be used because it has a small difference in measurements compared with the results of measurements using measuring instruments in the laboratory. By using the Raspberry Pi, the data monitoring records successfully stored in the database and can be viewed on the WEB in the form of graphs.

Keywords : 3 Phase electrical network, voltage sensors, current sensors, kWh meters, Raspberry Pi.