

A remote measuring technique of electric current using fiber transmission

Sholeh Hadi Pramono, author

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Abstrak

A study on the design and construction of measurement system of electric current of power line has been carried out. The electromagnetic induction on inductor placed near a power line was used as modulator signal of laser diode. The modulator signal in frequency signal form is obtained by converting the amplitude of induced voltage into frequency signal by voltage-to-frequency converter. The optical light of laser diode modulated by the frequency signal was transmitted by optical fiber. At the output of the fiber, the optical light was detected and converted by optical detector into electrical signal. The electrical signal was then demodulated and amplified by a receiver to be measured by a frequency counter. The experimental result shows a linear property of induced voltage as a function of current in the power line; the frequency as a function of voltage and current is also linear; the frequency on transmitter is the same with the frequency on receiver. It is concluded that the system designed and constructed in this study is applicable for remote measurement of electric current of power line.