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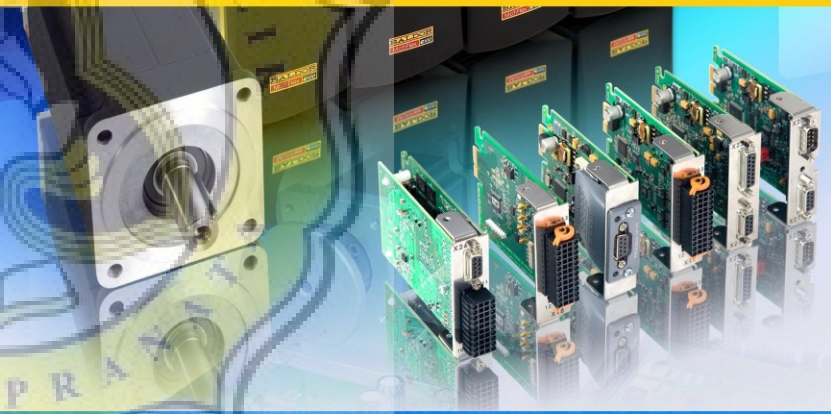
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Office Address:  
IAES Institute of Advanced Engineering and Science  
Indonesia: D2, Griya Ngoto Asri, Ngoto, Bangunharjo, Sewon, Bantul, Yogyakarta 55187  
Malaysia: No. 51, Jalan TU 17, Taman Tasik Utama 75450 Malacca, Malaysia  
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## ABSTRACT

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Integrating photovoltaic based electricity into the grid and power quality improvement have become two major issues in electrical system. Formerly, these can be solved by using two converter systems separately, a PV-Grid System and an active power filter. But recent technology uses only a converter system to do both function. An existed shunt active power filter (SAPF) can be modified to form a dual-stage PV-Grid with active filtering capability. In this paper, a PV-Grid System that is capable to transfer all power generated by PV modules and reduce harmonic contents is proposed. The system was formed by connecting a boost chopper as a Maximum Power Point Tracker and PV modules to the DC-link capacitor of a single-phase SAPF. It just needed a current transducer and also required simpler control circuits. A voltage controller was needed to achieve power equilibrium while a current controller was needed to make the grid current sinusoidal with unity power factor. To verify the analysis, simulations and experiments were done.