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خلاصه مقاله:

Operation from Solar energy is emitted in recent researches. One of the most important energy type is electricity. Photovoltaic system can transfer irradiation of solar to electricity. There are many methods to connect photovoltaic system to grid in researches. This paper presents a novel method for this case, simply and flexible. The method describes a grid-connected (PV) power conversion system based on a three-phase inverter as two structures. A simple switching strategy based on Clark axis equations creates reference signal to produce reference output voltage waves for power transformation from photovoltaic to three-phase load. The algorithm used power factor correction (PFC) converter to regulate DC voltage of PV. The system has a capability of synchronism with grid-connected and exchanging of active and reactive power by PFC. It can be regulated to supply a part of load power in grid-connected mode. In other hand, amount of power injection to grid can be regulated. Also MPPT is used to operate from maximums power of PV. The validation of the proposed system is verified through simulations study as stand-alone and grid-connection. The results demonstrate that proposed algorithm is capable to operate synchronize and transfer power to the grid in different characteristic such as none-linear, none-ohmic loads. Hence, it is suitable to use PV power conversion system in various applications.

کلمات کلیدی:

Photovoltaic, Controller, power, three-phase inverter, αβ reference, PFC