

A Grid Synchronization Phase Locked Loop Method for Grid-Connected Inverters Systems

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Abstract : The operation of grid-connected inverters necessity a single-phase phase locked loop (PLL) is proposed in this article to accurately and quickly estimate and detect the grid phase angle. This article presents the improvement of a method of phase-locked loop. The novelty is to generate a method (PLL) of synchronizing the grid with a Notch filter based on adaptive fuzzy logic for inverter systems connected to the grid. The performance of the proposed method was tested under normal and abnormal operating conditions (amplitude, frequency and phase shift variations). In addition, simulation results with ISPM software are developed to verify the effectiveness of the proposed method strategy. Finally, the experimental test will be used to extract the result and discuss the validity of the proposed algorithm.

Keywords : phase locked loop, PLL, notch filter, fuzzy logic control, grid connected inverters

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020