PWM Inverter with 4-Phase Carrier for Grid Connection Via Combined LCL Filter

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Objective
- Inverter for grid connection
- Low Harmonic injection to grid

New features
- PWM with 4-phase carrier (interleaved PWM)
- Combined LCL filter
- Excellent Harmonic elimination

The Proposed System (based on single-phase half bridge)

Harmonic Reduction in Current (Constant average approximation)

Harmonic Analysis (Voltage Harmonics)

Experimental Setup and Results

Conclusion
- The inverter system tied to a grid has been studied.
- Four-phase carrier-based interleaved PWM is applied to the inverter system.
- Harmonic currents into the filter capacitor and the grid are greatly reduced.
- Harmonics reduction is always possible as long as stable.
- The proposal is verified through prototype system.

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