Microprocessor-implemented SPWM for multiconverters with phase-shifted triangle carriers

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Abstract

This paper reports on research aimed at achieving computer control of power electronic converters for high-power applications. Hitherto, in motor-drives applications, the 4-Timer Method has been adequate in approximating the sinusoidal pulsewidth modulation (SPWM) strategy for microprocessor control. This paper shows that the ideas of the 4-Timer Method can be extended, with modifications, to the multimodule arrays of converters which will be required to meet high megavoltampere ratings. Simulation and experimental results have shown that the resultant 7-Timer Method can implement the linear SPWM strategy for multiconverters

Keywords: PWM power convertors; digital signal processing chips; flexible AC transmission systems; microcomputer applications; phase shifters.