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MULTILEVEL INVERTER TOPOLOGY AND CONTROL SIGNALS DEFINITION BASED ON ORTHOGONAL SPECTRAL TRANSFORMATIONS

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Abstract

A method for synthesizing the schemes of multilevel inverters based on the theory of orthogonal transformations of discrete functions is proposed. It is shown that the forming of output voltage of multilevel inverter on the basis of orthogonal transformations of discrete functions defined at finite intervals provides the following advantages: more economical and reliable structure of the power section of the inverter based on unified H-type modules; coefficient of harmonic distortion THD is lower than in known schemes. The generalized order of voltage forming with pulse-amplitude modulation is presented and the choice of the number of inverter modules is justified. The advantages and disadvantages of the received inverter circuits in terms of THD are estimated. References 7, figures 3, table 1.

Key words: multilevel inverter, discrete orthogonal transformation, THD, inverter module

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