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FEATURES OF DISCONTINUOUS CONTROL OF A FREQUENCY CONVERTER IN A SINGLE-PHASE NON-AUTONOMIC POWER SUPPLY NETWORK UNDER THE CONDITION OF THE TRANSFORMER'S NON-IDEALITY

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Abstract

The object of the study is a sinusoidal voltage source that includes a generator operating from solar panels, a semiconductor frequency converter with an output LC filter and a nonlinear single-phase transformer at the output connected to a single-phase supply network. A description of this system is obtained in the form of a nonlinear singularly perturbed system of differential equations, for which reduction is carried out. Nonlinearity is reduced to a form that allows the synthesis of discontinuous control. The stability problems and features inherent in

discontinuous control in this system are considered. The results of modeling, carried out taking into account the limitations that affect the technical feasibility of implementing the obtained control law, are presented. References 10, figure 1.

Key words: frequency converter, transformer with saturation, integral manifold, discontinuous control, singularly perturbed system, stability.

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