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CURRENT AND VOLTAGE STATOR LIMITATION IN THREE-ZONE SPEED CONTROL SYSTEM OF MOTOR WITH PERMANENT MAGNETS USING OPTIMAL CONTROL STRATEGIES

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The method of limiting stator current and voltage in a three-zone speed control system using the optimal control strategies "Maximum torque per ampere" and "Maximum torque per volt" without using additional circuits for interior permanent magnet synchronous machine is proposed. The idea is to consistently include two dynamic-limiting blocks in the torque-forming component of the stator current, the first of which prevents the maximum permissible value of the stator current amplitude from exceeding, and the second one - the amplitude of the stator voltage. Formulas are derived for calculating the levels of the constraint without taking into account and taking into account the voltage drop of the stator at the active resistances. References 6, figures 3.

Key words: electrical drive, synchronous motor, permanent magnets, three-zone speed control, optimal control, maximum torque per ampere, maximum torque per volt, stator current and voltage amplitude limitations.

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