

DOI: <https://doi.org/10.15407/techned2020.03.036>

EQUIVALENCE OF "VECTOR" AND "PROPORTIONAL" CONTROLLING METHODS FOR ACTIVE POWER FILTER

Journal	Tekhnichna elektrodynamika
Publisher	Institute of Electrodynamics National Academy of Science of Ukraine
ISSN	1607-7970 (print), 2218-1903 (online)
Issue	No 3, 2020 (May/June)
Pages	36 - 39

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Abstract

The equivalence of "vector" based on transformations of p-q-r instantaneous power theory and "proportional" based on proportional-vector power theory methods of control systems synthesis for three-phase four-wire power supply system parallel power active filter is proved. New calculated ratios to determine the compensator currents, which allow to take into account the nonlinearity and asymmetry of both the phase network voltages and the phase load currents are obtained. It is shown that the transition from a structural diagram of a control system based on classical transformations of p-q-r instantaneous power theory to a structural diagram based on the coefficient of proportionality calculation between the module of the network voltage spatial vector with partial weakening of the zero sequence component and the module of the constant component projection of the load current vector on the axis "p", allows more than twice to reduce the number of mathematical operations required to implement control algorithms for the same quality compensation. References 5, figures 1.

Key words: power active filter, control system, algorithm, power theory.

Received: 28.02.2020

Accepted: 31.03.2020

Published: 05.05.2020

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