DOI: <https://doi.org/10.15407/techned2018.05 . 035>

THE USE OF A GEOMETRIC APPROACH FOR THREE-PHASE ACTIVE POWER LINE CONDITIONER

Journal	Tekhnichna elektrodynamika
Publisher	Institute of Electrodynamics National Academy of Science of Ukraine
ISSN	1607-7970 (print), 2218-1903 (online)
Issue	No 5, 2018 (September/October)
Pages	35 – 38

Authors

V.Y. Zhuikov*, **D.A. Mikolaiets****

National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”,
pr. Peremohy, 37, Kyiv, 03056, Ukraine,
e-mail: valery.zhuikov@gmail.com , dmytri_m@ukr.net

* ORCID ID : <http://orcid.org/0000-0002-3338-2426>

** ORCID ID : <http://orcid.org/0000-0002-9152-8593>

The geometric approach with the use of the transition matrix from independent variables in a three-coordinate space to a dependent system with two independent variables is considered in this paper. A relationship that allows to express output variables through inputs are got. The space of vectors of input and output variables is constructed. References 9, figures 3, table 1.

Key words: active power line conditioner, geometric approach reactive power compensation.

Received: 05.03.2018

Accepted: 05.04.2018

Published: 16.08.2018

References

1. Ryan M.J., Lorenz R.D., De Doncker R.W. Modeling of Multileg Sine-Wave Inverters: A Geometric Approach. *IEEE Transactions on industrial electronics*. 1999. Vol. 46. No 6. Pp. 1187-1198. DOI: <https://doi.org/10.1109/41.808008>
2. Cadaval E.R., Gonzalez F.B., Montero M.I.M. Active power line conditioner based on two parallel converters topology. *Compatibility in Power Electronics*. 2005, Gdynia, Poland. IEEE, June 1. Pp. 134 - 140. DOI: <https://doi.org/10.1109/CPE.2005.1547558>
3. Zhemerov H.H., Tuhay D.V. Components of total electric energy losses power in pqr spatial coordinates. *Electrical engineering & Electromechanics*. 2016. No 2. Pp. 11-19. (Rus)
4. Yamnenko Yu.S., Tereshchenko T.O., Mykolaiets D.A. Active power line conditioner with battery charge. *Tekhnichna Elektrodynamika*. 2015. No 5. Pp. 16-20. (Ukr)
5. Mykhalskyi V.M., Soboliev V.M., Chopyk V.V., Shapoval I.A. The minimization strategy of undesirable instantaneous power components with different topologies of shunt active filter. *Tekhnichna Elektrodynamika*. 2014. No 1. Pp. 41-50. (Ukr)
6. Artemenko M.Yu., Batrak L.M., Mykhalskyi V.M., Polishchuk V.Y. Energy performance optimization of the three phase four wire power supply system with a parallel active filter in the unbalanced sinusoidal mode. *Tekhnichna Elektrodynamika*. 2015. No 2. Pp. 30-37. (Ukr)
7. Zhuikov V.Ya., Nguyen Hai Tung. The condition of the reactive power compensation of the parallel-type high frequency converter. *Elektronika i Sviaz*. 1998. Vol. 5. Pp. 82-85. (Rus)
8. Mykolayets D.A., Mykytiuk V.I. Interval currents in filter-compensating converter with battery self-discharge current compensation. *Tekhnichna Elektrodynamika*. 2014. No 4. Pp. 75-77. (Ukr)
9. Andre Ango. Mathematics for electrical and radio engineers. Moskva: Nauka, 1964. 772 p. (Rus)

[PDF](#)