

DOI: <https://doi.org/10.15407/techned2020.05.062>

THE IMPACT OF SAMPLING FREQUENCY ON THE ACCURACY OF TRAVELLING WAVE-BASED FAULT PROTECTION METHODS

Journal	Tekhnichna elektrodynamika
Publisher	Institute of Electrodynamics National Academy of Science of Ukraine
ISSN	1607-7970 (print), 2218-1903 (online)
Issue	No 5, 2020 (September/October)
Pages	62 - 64

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Abstract

This paper investigates the impact of sampling frequency on the effectiveness of travelling wave-based fault detection and location in cases when the fault is very close to the relay location. The arrival times of consecutive reflected travelling waves in such situations may result in errors if the sampling frequency of the relay is too low. Effectively, this will limit the accuracy of estimated fault location. This issue is investigated by simulating a fault close to the relay and observing the extracted voltage travelling waves for different sampling frequencies. The results confirm a strong correlation and prove that high accuracy will require higher sampling frequencies. References 7, figures 4.

Key words: Travelling wave, line protection, fault location, sampling frequency.

Received: 28.02.2020

Accepted: 01.06.2020

Published: 25.08.2020

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