

Influence of the Line Parameters in Transmission Line Fault Location

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Abstract : In the paper, two fault location algorithms are presented for transmission lines which use the line parameters to estimate the distance to the fault. The first algorithm uses only the measurements from one end of the line and the positive and zero sequence parameters of the line, while the second one uses the measurements from both ends of the line and only the positive sequence parameters of the line. The algorithms were tested using a transmission grid transposed in MATLAB. In a first stage it was established a fault location base line, where the algorithms mentioned above estimate the fault locations using the exact line parameters. After that, the positive and zero sequence resistance and reactance of the line were calculated again for different ground resistivity values and then the fault locations were estimated again in order to compare the results with the base line results. The results show that the algorithm which uses the zero sequence impedance of the line is the most sensitive to the line parameters modifications. The other algorithm is less sensitive to the line parameters modification.

Keywords : estimation algorithms, fault location, line parameters, simulation tool

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