

Provide a mobile-based wave-based method for determining the location of error in the distribution network with the presence of distributed generation sources DGS by the voltage measured at the above-mentioned post.

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Abstract When a fault is occurred on distribution feeder that leads to travel wave generation between fault location and sub-transmission substation. Voltage waveform frequency measurement in substation is directly related to fault distance substation. In addition to reflected travel wave fault location, some other reflected travel wave branches cross sections get to substation which have lower energy as compare to main component are called sub-components. Then Clark Transform is applied for fault voltage waveform conversion to modal domain phase domain. Frequency analysis has been performed for frequencies recognition correspond to two first peak magnitude of V_0 or V_1 waveforms depend to fault types and then fault distance is calculated based on comparison with predetermine fault distance in term of deference two frequency modes. Proposed robust algorithm for fault distance detection substation is tested on radial distribution test feeder. Test network is modeled in Dig-SILENT software and fault distance location detector codes has been written in Matlab software, Dig-SILENT output is considered as Matlab input. All types of faults are studied on main and secondary branch of test network. Simulation result show that proposed algorithm based on travel wave using voltage waveform frequency analysis will be able to determine the correct fault location and fault distance distribution substation for all type short circuit event.

Keywords : Keyword- main and secondary fault frequency components, radial distribution feeder, travel wave, determination of fault distance, frequency analysis, Clark Transformation (CT).

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