

Fault Detection in Three Phase Transmission Line with Location

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Abstract: Power transmission is a major issue in Electrical Engineering after Power generation. Fault in transmission lines is common and major problem to deal with in this stream. This paper presents a technique to detect the location of the different faults on a transmission lines for quick and reliable operation of protection schemes. The simulation is developed in Proteus to generate the fundamental component of the transient voltage and current. Proteus software is used to simulate different operating and fault conditions on high voltage transmission line, namely single phase to ground fault, line to line fault, double line to ground and three phase short circuit. Effects of variations in the fault resistance (R_f), distance to fault (L_f) have been studied broadly on the voltage, current and its relation to impedance of the system which creates the logic for detection, classification and location of faults. Phase absence is a very common and severe problem in any industry, home or office. Many times one or two phases may not be live in three phase supply. Because of this, many times, some electrical appliances will be on in one room and OFF in another room. This creates a big disturbance to our routine work. Power Failure is common problem. it hampers the production of industry, construction work of new plants and building. It is often noticed that power interruption in distribution system is about 70% for single phase faults while other two phases are in normal condition. Thus, in any commercial or domestic power supply system where 3 phases are available, an automatic phase selector system is required for uninterrupted power to critical loads in the event of power failure in any phase. There is no requirement of backup power supply in that case. also there is no time consumption as the phase is changed automatically within a few seconds.

Keywords: Transmission Line faults, Transmission Line Protection, Detecting and Locating faults in overhead transmission lines, Fault Analysis in transmission line

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