

عنوان مقاله:

Experiencing Numeric Relay, Fault Locator and a Novel Approach of Fault Location in Electrical Transmission and Distribution System using Smart Meter

محل انتشار:

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خلاصه مقاله:

In the modern electrical grid, accuracy and speed of fault clearance are the major challenges which need to be addressed. This paper covers a case study of fault location techniques in Electrical Transmission and Distribution network, using Numeric Relay and Offline Fault Locator. Healthiness of electrical transmission line is ensured using Line Signature Analyzer. Comparative study of online and offline fault location in electrical transmission and distribution network has been carried out and the inferences are drawn. Frequency of occurrence of Single Line to Ground fault is maximum (about 75%) among various types of faults. Data at 220 kV and 132 kV substations has been collected and analyzed, keeping focus on Single Line to Ground Fault. Architecture of Substation Automation system (SAS) using single communication technology based on IEC 61850-8 and IEC 61850-9 is explained. Proposed architecture consisting of numeric meter with JAVA Compilation Unit (JCU) and Ethernet switch standardized as per IEC 61850 is demonstrated. The Java source code to send indications to output port of Numeric Meter is included.

کلمات کلیدی:

Single Line to Ground (SL-G) Fault, Numeric Relay, Line Signature Analyzer, Smart Meter, Advanced Metering Infrastructure (AMI), smart grid, Fault Locator, IEC-61850, Substation Automation system (SAS), JCU

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