Photovoltaic grid line positioning detection

Overview

While existing fault detection methods can identify fault types, they cannot precisely locate fault positions, resulting in time-consuming and costly maintenance. Simultaneously, the capacity to swiftly identify smart grid issues utilizing sensor data and easily accessible frequency and voltage data from PMU devices is a prerequisite of this task. Therefore, this paper proposes new methods using fuzzy logic and adaptive fuzzy neural networks as well as. Maximum Power Point Tracking (MPPT), a technique employed to maximize the power output of a PV array at different irradiance level, may potentially mask certain faults and make them undetectable by protection devices, especially when these faults occur under low solar irradiance condition or with. Fault detection and classification localization in photovoltaic power grids is a key challenge in photovoltaic power systems. Due to the greater fluctuation of power data in photovoltaic power grids, traditional grid fault detection methods suffer from inefficiency, low accuracy, and inaccurate.

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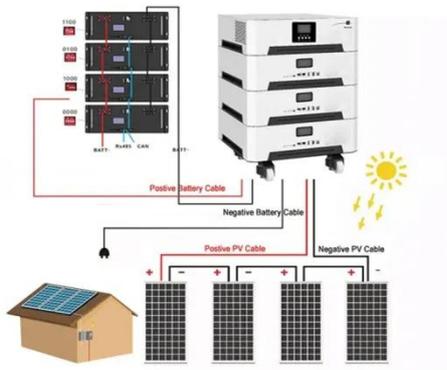
Identification and Localization of Array Faults With Optimized

Thus, this article proposes a new, robust, and efficient fault localization method based on the principle of differential voltage measurement between PV modules of adjacent strings. For accomplishing this ...

Fault Identification Method for Photovoltaic Power Grids Based on an

In this paper, a fuzzy control technique combined with an improved GABP neural network is used to identify potential fault nodes in the photovoltaic distribution network.

Fault detection and diagnosis methods for photovoltaic systems: A

Fault detection and diagnosis (FDD) methods are indispensable for the system reliability, operation at high efficiency, and safety of the PV plant.

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A Novel Detection Algorithm for Line-to-Line Faults in ...

To address the issues mentioned above, this paper proposes an efficient algorithm to detect L-L faults in PV arrays using support vector machine (SVM) with a strong classification capability .

Fault Detection, Classification and Localization Along the Power Grid

In this research, a fuzzy detection and automatic fault classification system was developed for the power grid, with the help of WHO-optimized random forest and decision tree ...

Fault Detection, Classification and Localization Algorithm for

In this study, analysis of photovoltaic (PV) string currents is performed to understand the behavior of the PV array under faults. The whole analysis is summed up in just two simple statements, and an ...

## A technique for fault detection, identification and location in

solar

This paper examines two types of unique line-line (short circuit) faults found in a grid-connected PV array. The first one is intra-string line-line fault that occurs within a single string and ...

A Heuristic Algorithm for Locating Line-to-Line Faults in Photovoltaic

While existing fault detection methods can identify fault types, they cannot precisely locate fault positions, resulting in time-consuming and costly maintenance. This paper proposes a heuristic ...
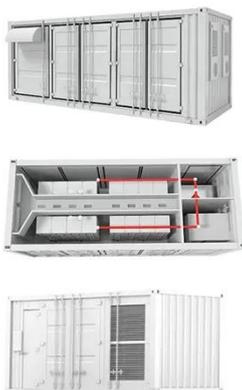
Fault detection and diagnosis of grid-connected photovoltaic systems

Early fault detection and diagnosis of grid-connected photovoltaic systems (GCPS) is imperative to improve their performance and reliability. Low-cost edge devices have emerged as innovative ...

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