US 20240213922A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0213922 A1

KIM et al. (43) Pub. Date: Jun. 27, 2024

(54) METHOD OF ESTIMATING PHOTOVOLTAIC MODEL PARAMETERS AND DATA-BASED PHOTOVOLTAIC FAULT DETECTION AND DIAGNOSIS METHOD AND APPARATUS USING PHOTOVOLTAIC MODEL

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(21) Appl. No.: **18/089,932**

(22) Filed: **Dec. 28, 2022**

(30) **Foreign Application Priority Data**

Dec. 27, 2022 (KR) 10-2022-0185206

Publication Classification

(51) **Int. Cl.**
H02S 50/10 (2006.01)

(52) **U.S. Cl.**
CPC ***H02S 50/10*** (2014.12)

(57) **ABSTRACT**

Disclosed are a method of estimating PV model parameters and a method and an apparatus for data-based PV fault detection and diagnosis using a PV model. The method comprises: substituting five parameters of a PV current, a diode saturation current, a diode ideality factor, a series resistance, and a parallel resistance into an output equation of a single diode model for PV modeling of a PV module; computing an MAEP in an output by comparing power-voltage (P-V) curve values of the PV module obtained from the single diode model, which is a PV simulation model, and P-V curve values of the PV module, which is an actual PV module, when the voltage is zero, the open-circuit voltage, or a specific data value increased as much as a preset intensity; and selecting parameters representing a minimum MAEP among a plurality of stored MAEPs as parameters of the PV simulation model.