البحث رقم (2)

Failure Mode and Effects Analysis of CIGS Thin Film PV Modules Using Thermography Analysis and IV Measurements	**عنوان البحث :**
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	ملخص البحث

This article reports on failure modes and effects analysis of CIGS thin-film modules in photovoltaic power plants. Common faults in a small photovoltaic power station consisting of 85 Copper Indium Gallium Selenide (CIGS) PV modules are analyzed under outdoor conditions using infrared thermography inspection and current-voltage measurements. The statistical features extraction of thermal images is conducted for fault detections and diagnosis in correlation with IV measurement in order to understand the relation of modules power loss with its thermal signatures. The capability of the statistical feature extraction to identify modules with more than one fault has been improved by a careful analysis of their histograms and I-V measurements. A general classification matrix of CIGS for fault detection and diagnosis using statistical features and IV measurements is established. The matrix is very useful for the operation and the maintenance planning of PV plants.