Research on solar photovoltaic system control

In this paper, an intelligent approach based on fuzzy logic has been developed to ensure operation at the maximum power point of a PV system under dynamic climatic conditions. The current distortion due to the use of static converters in photovoltaic production systems involves the consumption of reactive energy. For this, separate control of ...

This article presents a modeling study and a control approach of photovoltaic system to provide continuous electrical energy at its output and feds a DC-DC booster converter. The last mentioned converter also provides a variable DC voltage applied directly across the terminals of a resistive load.

This research provides an adaptive control design in a photovoltaic system (PV) for maximum power point tracking (MPPT). In the PV system, MPPT strategies are used to deliver the maximum available power to the load under solar radiation and atmospheric temperature changes. This article presents a new adaptive control framework to ...

The control technique is designed to have the system behave like a grid-integrated solar power-fed system during the day and like a DSTATCOM during the night to maximize system usage. The authors in [164] discussed a solar PV-DSTATCOM system in the distribution network that uses a Volterra-filter-based control algorithm to produce reference ...

This paper has presented a review of the most recent control techniques used in PV solar systems. Many control objectives and controllers have been reported in the literature. In this work, two control objectives were established. The first objective is to obtain the maximum available power and the second one, is related with energy conversion ...

In this paper, a general review of the controllers used for photovoltaic systems is presented. This review is based on the most recent papers presented in the literature. The control...

Solar photovoltaic systems have a wide range of benefits. They can aid in lowering greenhouse gas emissions, ... The research flow diagram of the INC controller is given in Fig. 2. Figure 2. Shows ...

In modern research, to control automated solar tracking systems, they are increasingly resorting to control using intelligent systems. To independently control an intelligent system, a large amount of data on climatic conditions and the characteristics of photovoltaic devices are required [168], [213], [214].

The control of solar photovoltaic (PV) systems has recently attracted a lot of attention. Over the past few years, many control objectives and controllers have been reported in the literature. Two main objectives can be

identified. The first is to obtain the maximum available PV power with maximum power point tracking (MPPT) control and the ...

This paper has presented a review of the most recent control techniques used in PV solar systems. Many control objectives and controllers ...

Pumps powered by solar photovoltaic energy are complex electromechanical systems that include hydraulic equipment, electrical machines, sensors, power converters, and control units. Therefore ...

This paper provides a systematic classification and detailed introduction of various intelligent optimization methods in a PV inverter system based on the traditional structure and typical control. The future trends and research topics are given to provide a reference for the intelligent optimization control in the PV system.

Request PDF | On May 1, 2023, Meghraj Morey and others published A comprehensive review of grid-connected solar photovoltaic system: Architecture, control, and ancillary services | Find, read and ...

Photovoltaic power generation is a promising method for generating electricity with a wide range of applications and development potential. It primarily utilizes solar energy and offers sustainable development, green environmental benefits, and abundant solar energy resources. However, there are many external factors that can affect the output characteristics ...

Control of Solar Energy Systems details the main solar energy systems, problems involved with their control, and how control systems can help in increasing their efficiency. Thermal energy systems are explored in depth, as are photovoltaic generation and other solar energy applications such as solar furnaces and solar refrigeration systems.

These reasons justify why solar energy is a focus of such research interest. The control of solar photovoltaic (PV) systems has recently attracted a lot of attention. Over the past few years, many control objectives and controllers have been reported in the literature. Two main objectives can be identified. The first is to obtain the maximum ...

Web: https://degotec.fr