Single-Phase String Inverter Systems Overview

Solutions

Single-phase string inverter systems convert the DC power generated by the photovoltaic (PV) panel arrays into the AC power fed into a 120 V / 220 V single-phase grid connection. The power rating typically ranges from 1kW to 10kW and is primarily used in residential market.

System Overview

The system's main components handle the DC-AC conversion. Those components include the PV panels, the DC link capacitors, cables, DC-DC boost module, and inverter module. The DC-DC boost stages are often used between the PV strings and the DC link. These systems elevate the output voltage of the PV string to the DC link operating level and run the MPPT (Maximum Power Point Tracking) function, which maximizes the power generated by the PV strings in different environmental and sun irradiance conditions. When the PV string reaches the DC link operating voltage level, the DC-DC converter is bypassed (via a