



Solar Power Solutions

Master Power Technologies has launched a new range of photovoltaic solar solutions for use in industrial applications in hot, arid regions, or wherever utility power is expensive or unreliable. The solar power systems are designed to supplement or replace utility power to save money and reduce the user's carbon footprint, and some designs can feed excess power back into the power grid.

"Our battery-free solar power solutions have been designed with characteristics such as low heat degradation and high durability, making the equipment ideal for power installations throughout Africa," explains Andre Naude, strategist for business development at Master Power Technologies.

"Some of the benefits we have designed into the product include a constant power-output curve to maintain the electricity supply needed to meet peak demands, the ability to operate without active cooling mechanisms and almost no energy loss at high ambient temperatures."

The company has a range of grid-connected, grid-tie (or on-grid), stand-alone and off-grid solutions to choose from.

Grid-connected photovoltaic power systems are energised by photovoltaic panels that are connected to the utility grid. These power systems consist of photovoltaic panels, MPPT (Maximum

Power Point Tracking, a technique used to obtain the maximum possible power from photovoltaic devices), solar inverters, power conditioning units and grid connection equipment. Unlike stand-alone photovoltaic power systems, they seldom have batteries or diesel generators attached.

Grid-tie solar systems use inverters that meet stringent requirements, such as not emitting noise that can interfere with electrical devices, and must retain acceptable levels of harmonic distortion for quality of voltage and current output waveforms.

"Grid-tie systems are advantageous as the electricity generated is used by the owner during the day," says Andre. "During the evenings, when solar electricity is not generated, electricity is drawn from the grid, avoiding the need for costly battery banks."

Stand-alone photovoltaic power systems, on the other hand, are electrical power systems that are independent of the utility grid. These types of systems may use solar panels only or may be used in conjunction with a diesel generator. Master Power Technologies also supplies off-grid solar generators.

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