CLEARBLUE TECHNOLOGIES

Nano-Grid Power Pack

Smart Off-Grid for Telecom

Clear Blue's Nano-Grid Power Pack is a Smart Off-Grid solution that delivers a highly reliable power source for telecom that is cost-effective, easy to install, and upgradable. It has built-in communications, providing the ability to monitor, control, and proactively manage mission-critical systems remotely.

The solution is delivered in pre-configured power packs consisting of:

- **Smart Off-Grid controllers** for operations and management
- **Solar power panels** (or hybrid wind, diesel, or grid, if required)
- Right-Sized **Batteries** for back-up power
- A **power cabinet f**or greater system durability and reliability
- All power **wiring, terminations,** and **connectors**
- A Smart Off-Grid services **gateway** to connect to Illumience service and support

An easy to install system that is designed to meet your application's power needs and can be managed remotely ensures that your power components aren't overly taxed and last longer.

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Benefits

Maximum Uptime

The system is designed for uptime availability with Smart Off-Grid 24x7 monitoring, alerts and alarms. The predictive analytics, weather forecasting and individual load control enables proactive maintenance and expert management for maximum uptime, high performance and reliability.

Longest Life

The Clear Blue system ensures that battery power management, lifecycle optimization and proactive maintenance are easy and can be controlled over the internet, so you get the longest life possible out of your batteries.

Reliable Energy

A highly reliable power source using solar or hybrid solar, with built-in communications, and the ability to remotely monitor, control, and proactively manage. This allows for effective management of energy consumption and load prioritization ensuring emergency ride through.

Smart Load Managment

With smart load energy control, issues can be solved easily and remotely while energy and weather forecasting can allow for more effective power management, so downtime is minimized and controlled.

Cost-Effective & Upgradable

Smart Off-Grid technology, has effective power management, so batteries can be 30-50% smaller than traditional systems, yet easily upgradable, for a lower-cost to install and maintain, while providing reliable power.

Easy to Install & Maintain

As a plug and play pre-packaged system, the Nano-Grid Power Pack is easy to install and comes with remote support to ensure successful installation and troubleshooting, with no training needed.

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Delivering on the Promise of Power

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Components

Nano-Grid Power System Components

Smart Off-Grid Controller

Energy generation, storage management and load control for solar and hybrid powered systems. Industry leading with Illumience Energy Management Software and Service, it delivers power anywhere, anytime with remote operations of mission critical applications for easy installation and maintenance, maximum uptime, and longer battery life.

DC-DC Converter

Coupled with Clear Blue's Smart Off-Grid Controller for unparalleled load monitoring, management and control. With the DC-DC converter, mission critical telecom, security and other industrial applications will now have unparalleled power regulation and quality, as well as troubleshooting and remediation tools. Through Illumience, the Smart DC/DC Converter contributes to maximum power uptime, long system life and regulated power.

Smart Off-Grid Gateway

Clear Blue's Smart Off-Grid Communications Gateway connects the systems' devices to its Illumience Cloud Management Service via ethernet or cellular networking. This provides reliable connectivity that gives you access to your data while providing a low communications cost, secure platform architecture and easy maintenance.

Power Panels

Clear Blue's Nano-Grid Power Pack solution is most often paired with solar only power, but can also work effectively with hybrid systems like solar/wind, solar/grid, or solar/diesel. The type and size of the systems' power panels are selected to fit the needs of the system with future upgrade capabilities as power requirements grow.

Batteries

The Nano-Grid Power Pack is capable of supporting multiple battery types including lead acid, lithium ion, or NiMH batteries. The system comes standard with Clear Blue's 105 AH Batteries, sized for the amount of energy that can be generated in that specific area in the world & the percentage of uptime for the load.

Cabinet

For easier installation, the Nano-Grid Power pack comes pre-configured with all components, easily installable into a protective cabinet. This reduces installation complexity and wiring. The cabine is designed t comes with everything needed to set up the system. The cabinets is designed to house 2-4, batteries depending on the size of the batteries and are modular, allowing user to easily upgrade the power capacity of the site, if needed.

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Illumience Intelligent Power Management

Remote Monitoring & Reporting

The Illumience platform has a variety of reporting options to ensure you have the information you need when you need it.

Monthly, daily and hourly real-time monitoring and reports

Global performance data analytics

Easy to use dashboard map with location tracking for all systems

Advanced forward-looking system performance with weather & energy forecasting

Energy Forecasting

Advanced analysis of energy capabilities for better energy managment and reduction of downtime.

- Historical and site system data (including aging, degradation, dust).
- Multi-day weather forecast.
- Yields energy forecast for uptime management with customized scheduled service windows.

Battery Life Cycle Management

Variety of battery managment features to maximize battery life and performance.

- Patented dynamic charging algorithms.
- Scalable battery pack.
- Support of multiple battery types.
- Lifecycle forecaster.
- Remote battery maintenance & revitalizer.

Potential Energy Analysis

Greater uptime through advanced analysis of current and future energy requirements forward planning and growth.

- Measurements of the potential energy against the actual energy generated/consumed.
- System degradation analysis (dust, shading).

Smart Management & Control

More advanced power management and uptime.

- Fully integrated power distribution unit (PDU) for power and control restarts of individual loads remotely.
- Array of remote troubleshooting tools (solar panel test, cabling and connectivity integrity, remote short circuit reset, and user-defined and configured alarms) for maintenance cost reductions.
- Industry leading platform security and encryption to ensure your power is secure.