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ELTEK always on

HIGH EFFICIENCY

Eltek's unique power conversion technology is the result of decades of intensive research and technical breakthroughs, and has defined "High Efficiency" in the power industry for years. With market leading conversion efficiency, the power loss during use is minimized, with resulting significant cost savings and reduced environmental impact.

www.eltek.com

HIGH EFFICIENCY HYBRID EXCELLENCE

SUPERIOR POWER SOLUTIONS FOR OFFGRID TELECOM INSTALLATIONS

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ARE YOU MAKING THE MOST OF FREE, RENEWABLE ENERGY **TO REDUCE OPEX?**

Mobile operators have expanded telecom networks into rural areas with no or weak electricity supply. However, powered by continuously running diesel generators, remote offgrid sites typically have very high operating costs.

THE BENEFITS OF AN ELTEK HYBRID POWER SOLUTION

With a hybrid solution from Eltek, operators can now substitute, partially or in full, the diesel generators and make use of renewable energy. Our solutions are fully integrated and all energy sources and equipment are managed by a single controller. The benefits have been realized by numerous operators and Eltek hybrid solutions contribute to saving energy, diesel and money in thousands of installations.

HIGH EFFICIENCY
Reduces energy use and cost

UP TO 80% OPEX REDUCTION

The combination of optimized gensets and efficient exploitation of the power generated by solar panels and/or wind turbines, will significantly reduce the diesel consumption and associated transportation cost. Even if you may not be able to completely replace diesel by renewable energy, an Eltek HE solution will make sure you get the most out of every drop.

> 96,5% EFFICIENCY

Whether input power comes from solar panels, wind turbines, diesel generators or mains, our HE power conversion equipment will make sure that power loss is minimized.

REDUCED CO_2 EMISSIONS

There are approximately 500 000 offgrid telecom installations powered by diesel generators today. These represent an enormous potential for reduction of environmental footprint. Many generators serving as the main energy source are operated in an inefficient way. By optimizing the control and using our hybrid solution the energy is not just replaced kWh by kWh, but the emissions per kWh drop significantly.

FULLY INTEGRATED

The site is controlled and monitored by a single controller, providing full overview and management of all energy sources, solar and wind chargers and the diesel generator.

REDUCED SERVICE REQUIREMENTS

Our systems are specified, designed and built for endurance and problem-free operation under harsh conditions. Genset optimization mechanisms ensure that the diesel generator runs at optimal loads (80-90%), resulting in less soot and hence reduced need of maintenance.

GALVANIC ISOLATION

Our equipment has galvanic isolation, providing extended surge protection. An overvoltage pulse, e.g. from lightning, will be suppressed by the external surge protection in connection with the converter.

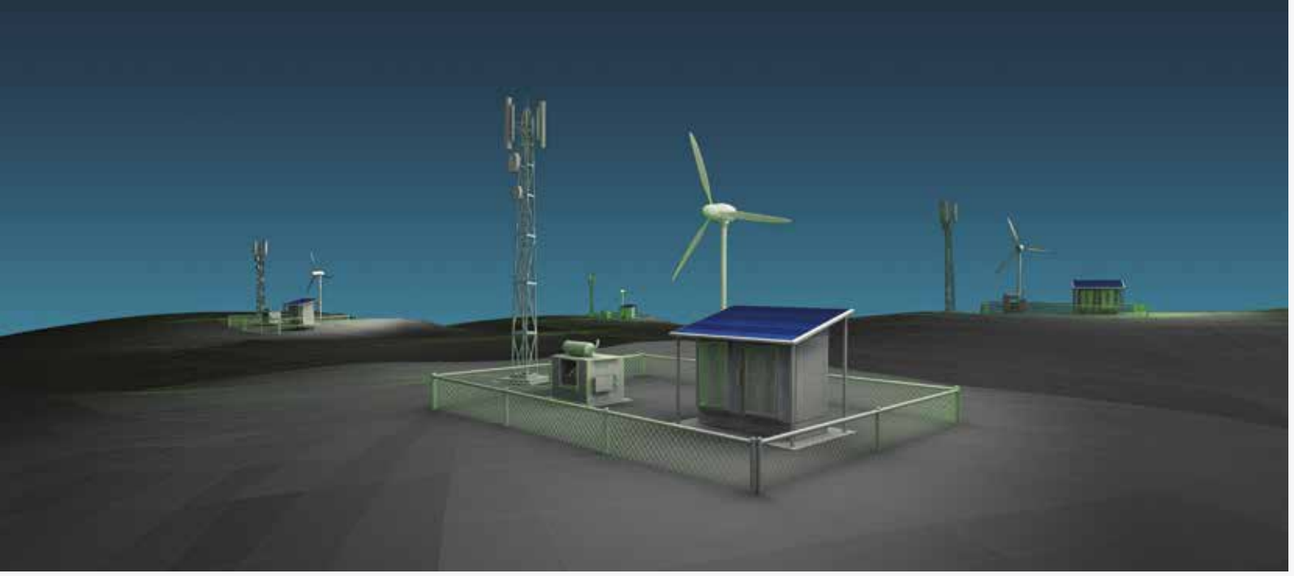
REMOTE MONITORING AND CONTROL

Our solutions come fully prepared for remote monitoring and control, and using our MultiSite Monitor software, consolidated performance reports can easily be generated and underperforming sites identified.

MODULARITY

With their modular design, our systems can be easily adapted to various power input sources and scaled to meet higher load requirements.

COMPLETE, INTEGRATED SOLUTIONS – HYBRID AND PURE RENEWABLE



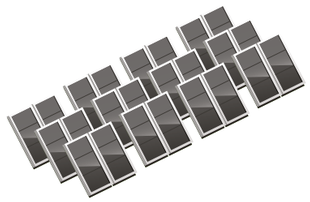
Eltek's pure renewable and hybrid power solutions are based on industry leading building blocks, fully integrated into coherent, complete and flexible solutions – with one single Smartpack controller overlooking all energy sources, flow and storage. The entire installation is easily and efficiently monitored and controlled over the Internet by means of advanced, yet user friendly monitoring software, with relevant system data fed from the Smartpack controller which at all times oversees critical parameters and general system performance.

HYBRID

A hybrid solution incorporates numerous energy input sources, such as diesel generators, solar panels, mains or wind turbines. An Eltek hybrid solution allows you to optimize the operation of the site, to achieve maximum efficiency at all times. The monitoring and control functions include advanced battery monitoring routines, gen-set optimization programs, fuel level and consumption measurements and extensive data logging functions.

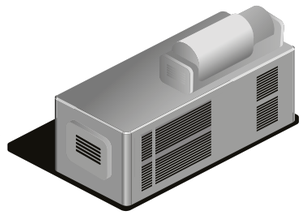
RENEWABLE

The Flatpack2 HE Solar and Flatpack2 HE Wind are ideal choices for telecom sites where solar or wind energy are the only available sources. At the core of the solution are the Flatpack2 HE Solar Charger and the Flatpack2 HE Wind Charger. With optimal power draw and 96.5% conversion efficiency, they ensure nearly complete utilization of the energy generated by the PV panels and the wind turbines.



DIESEL

A cyclic operation setup can more than double kilowatt-hours per liter of fuel compared to constant generator operation. The Smartpack controller will record and analyze critical system parameters and control the generator to ensure a maximum kWh output per liter diesel consumed. The OPEX savings add up to more than reduced diesel costs: there will be less transport, longer intervals between site service visits and a longer generator lifetime.



REMOTE MONITORING AND CONTROL

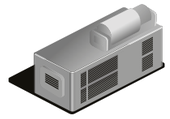
- Advanced, yet user-friendly web application
- Seamless communication with onsite Smartpack controller
- Full overview of all energy flow, usage and harvest in your network

INTERNET

SMARTPACK2 - SITE CONTROLLER

- Advanced charging control and battery monitoring
- Gen-set optimization programs
- Fuel level, consumption and theft monitoring
- Configurable data logging options
- Password protection and site cloning features

DIESEL & MAINS



FLATPACK2 HE RECTIFIER

- 96.5% power conversion efficiency
- High power density
- Wide operating AC input range
- Wide operating temperature
- Power rating 2kW/3kW

SOLAR

FLATPACK2 HE SOLAR CHARGER

- 96.5% power conversion efficiency
- Advanced Max Power Point Tracking routines
- Full galvanic isolation
- Wide operating DC input range
- Power rating 1.5kW
- Full telecom specification

WIND

FLATPACK2 HE WIND CHARGER

- 96.5% power conversion efficiency
- Programmable power vs. voltage characteristics
- Full galvanic isolation
- Power rating 3kW
- Full telecom specification

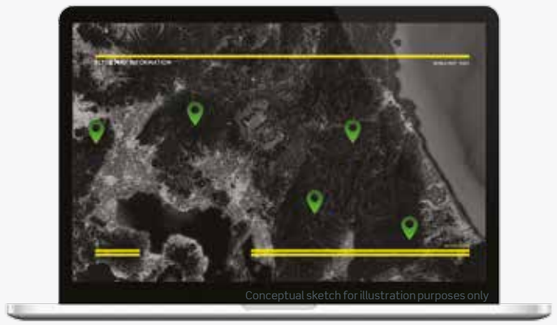
FLATPACK2 INTEGRATED POWER CORE

This is a rack mountable system with integrated DC load distribution, housing controller, solar chargers and/or rectifiers. The system is flexible and can easily be upgraded to meet changing demands.

MULTISITE MONITOR **AT WORK**

THE STATISTICS VIEW HELPS VISUALIZE ISSUES IN ORDER TO ANSWER SUCH QUESTIONS AS:

- How much of the energy generated was green?
- Are my batteries healthy and providing sufficient backup time?
- Is my ratio of energy used on cooling reasonable?
- Which sites are in alarm mode and for how long?



Network status view

CURRENT STATUS AT A GLANCE

Through an embedded map service, the MultiSite Monitor provides the operator with a map of all sites in the network and the top-level network status. This includes information such as the number of sites connected to the MultiSite Monitor server, the number of connected sites that are offline/not responding to the server and the number of sites with alarm status, as well as the total solar energy produced during the last 24 hours.

KPI - view

DOES PERFORMANCE MATCH TARGETS?

The KPI overview shows the performance of selected indicators, measured against set targets. You can customize the KPI view with little effort to match your specific needs through an easy-to-use template.

Statistics view

DISCOVER A SHADING PROBLEM

This screen shows that PV generation drops significantly around the same time – every day. This indicates a shading problem – so you can go out and cut that tree that has grown to high.

Statistics view

IDENTIFY YOUR PROBLEM SITES

From this view you can get alarm and warning data for the particular site you are looking at, including how long the site has been in alarm/warning/offline mode and the total time in alarm mode since start-up. It also shows a "worst 10" ranking of sites with the poorest alarm records. From here you can also access any site in alarm to find the details that enables you to solve the issue.

SERVICES THAT MAKE A **DIFFERENCE**

At Eltek we are committed to providing the highest quality of service to meet your specific requirements and add value to your investments in power solutions. As a customer of Eltek, wherever your location in the world, you can rely on high quality services and support, delivered by dedicated and highly qualified power professionals in our global organization.

- Installation
- Start up and commissioning
- Preventive maintenance service contracts
- 24/7/365 emergency service
- Product repairs
- Training
- Battery testing
- Extended warranty

"Eltek is one of the largest providers of hybrid power systems in the global telecom sector. Its hybrid power system solutions are some of the most technologically advanced in the market, delivering high value-for-money to its customers.

The company offers the highest efficiency in its power converters, which helps reduce operational expenses drastically. It also utilizes galvanized components that require minimum maintenance. Moreover, Eltek's hybrid power systems are fully integrated, which allows remote monitoring and control, consequently delivering optimum performance to the customers."

- 2014 Global Hybrid Power Systems Customer Value Leadership Award, Best Practices Research. Frost & Sullivan.

FROST & SULLIVAN

2014 BEST PRACTICES AWARD

GLOBAL HYBRID POWER SYSTEMS CUSTOMER VALUE LEADERSHIP AWARD