



Product information

Energy storage systems from Nilar and Socomec



An energy storage system from Nilar is based on Nilar Hydride® technology, the world's safest battery cell, a green and modular solution with a long life.



socomec
Innovative Power Solutions

When energy matters

With its wide range of continuously evolving products, solutions and service, Socomec are recognized experts in the cutting-edge technologies to ensure safety, availability and energy performance of electrical installations.

The solution that offers reliable operation for commercial, industrial and microgrid infrastructure

Socomec and Nilar now offer a solution for on-grid with backup and off-grid applications. Nilar develops and manufactures powerful hydride batteries that support the transition from fossil fuels to renewable energy. Socomec builds power conversion systems and microgrid controllers for intelligent and reliable power infrastructure.

Together, Nilar and Socomec provide the optimal solution, whether it be to make your office building more self-sufficient, regulate demand charges in industry applications or provide support for the growing microgrid infrastructure. The Nilar/Socomec system offers an energy storage solution with energy content ranging from kWh to MWh scale and power conversion options from 33 to 600 kW.

Nilar Hydride® Energy Storage

The World's Safest Battery Cell

Even in the most extreme operating conditions, Nilar Hydride® technology does not pose a fire hazard.

Nilar Hydride® batteries have:

- No flammable electrolyte
- No spontaneous ignition
- No uncontrolled heat propagation

In the event of external fire, no toxic gases are released from the Nilar EC Battery.

The sealed design and automated manufacturing process in Sweden makes Nilar batteries the safest within the energy storage market. This allows for simplified installations at any location, such as homes, offices, or shopping malls. In addition, they can be safely transported en masse by road, rail, sea or air.

Whatever the Weather

Weather forecasting is not an exact science and there can be unexpected temperature swings. The Nilar Hydride® design enables operations to run smoothly regardless if it's -20°C or +50°C.

Environmentally Conscious

Unlike most other industrial batteries, Nilar batteries are fully recyclable and free of cadmium, mercury and lead. They also contain a high percentage of nickel which has a high recycle value and is easy to recover and reuse.

The battery design has been developed to enable a cost-efficient recycling process with a high degree of reusable materials. When you choose Nilar batteries, you choose the most environmentally-conscious solution available.



Long-term Power

The unique combination of Nilar Hydride® technology and our patented bi-polar construction gives our batteries unparalleled life.

In addition, Nilar will launch a game-changing method for multiplying the life of the batteries called Nilar Refill in the near future.

Socomec Microgrid System Components

SUNSYS MCM

Microgrid Controller Module (MCM)

- Sources synchronization and Paralleling
- REN Productions control using over frequency (no direct communication with PV inverters)
- Optional PV Self-consumption maximization
- Embedded Web Site for remote monitoring and control
- Events & Electrical Measurements data logging
- MODBUS TCP/IP communication link



SUNSYS PCS² IM

The Power Conversion System (PCS) for

- Off-grid microgrids
- Grid-connected microgrids
- Smart buildings

Maximum availability

- Modular and independent architecture.
- Easy, fast and safe maintenance thanks to hot-swap power modules.
- No downtime during maintenance.

Autonomous operation

- Islanding capability - voltage generator.
- No interruption during microgrid connection to the main grid.
- Automatic balancing between production and consumption.

High performance

- High efficiency at low power.
- High quality and stability of power supply in islanding operation.
- Black-Start functionality.
- Boosted overload and short-circuit capability.

On-grid & Backup Solution

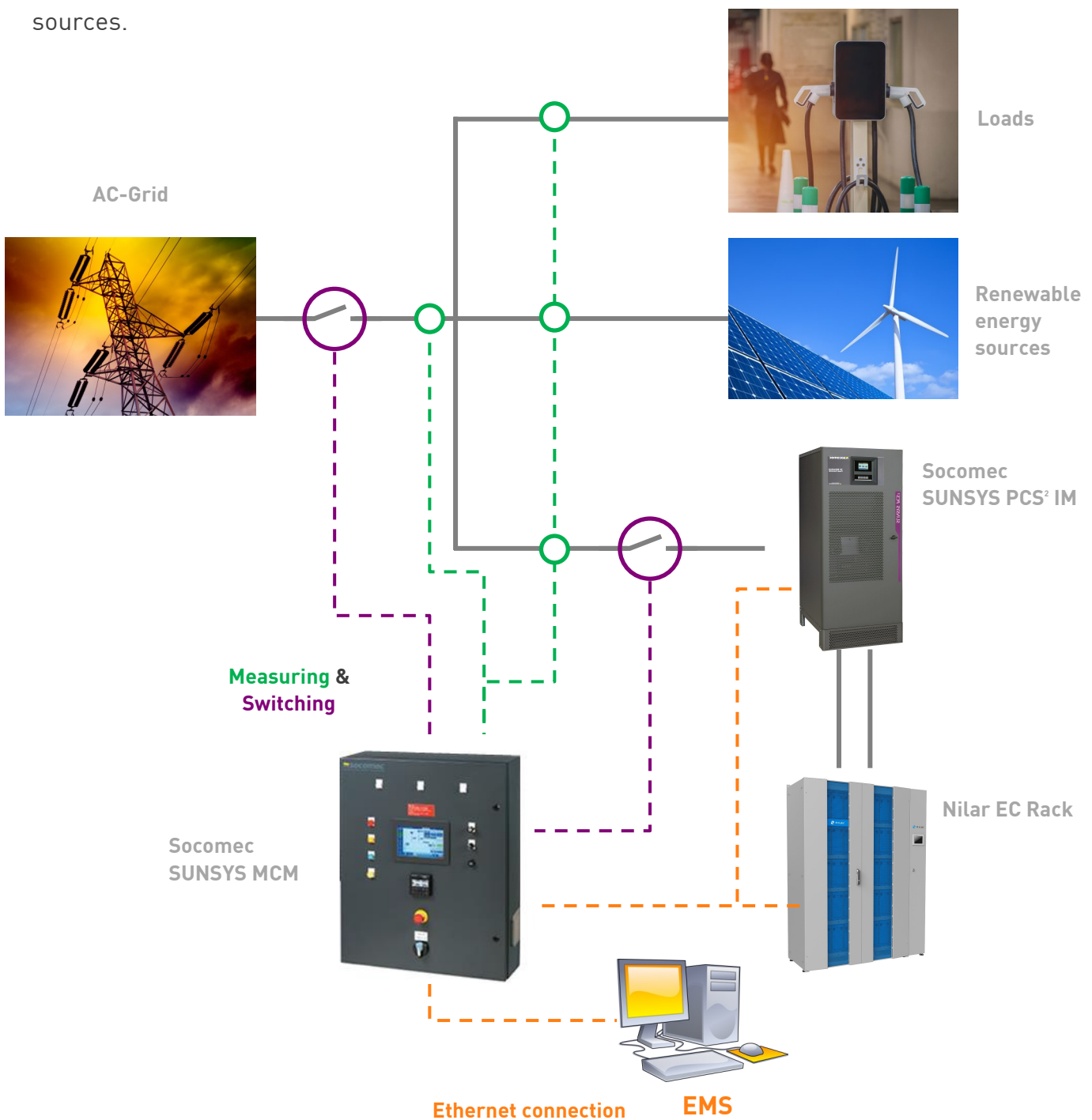
The Nilar and Socomec on-grid & backup solution can be used when the regular power supply is unavailable.

Conserved energy within the energy storage system can be used as backup. When experiencing power loss, this backup energy can be used to provide power when it is needed the most.

The on-grid & backup solution is perfect for locations with low grid reliability and nearby available renewable energy sources.

Energy Management System

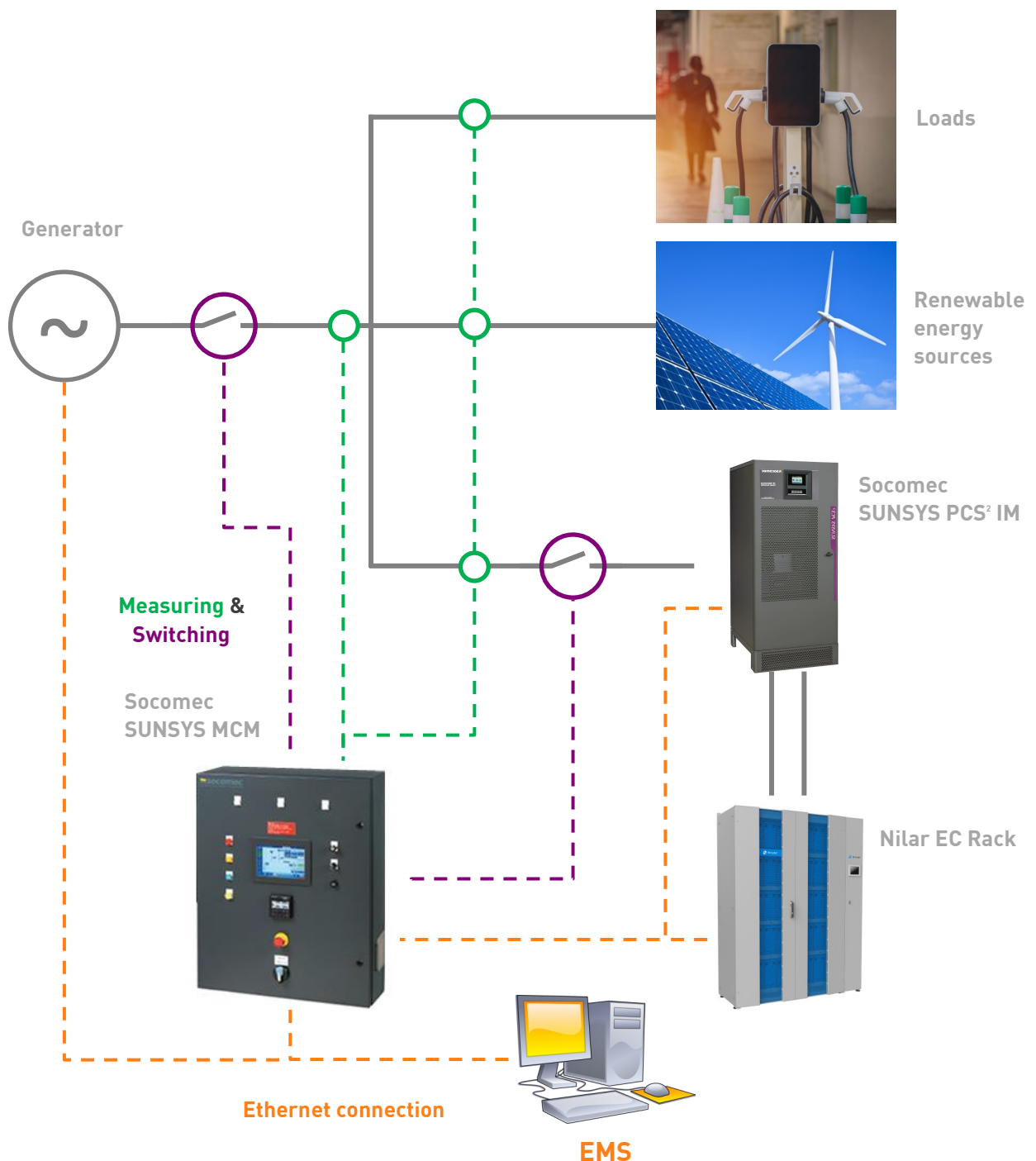
An Energy Management System (EMS) is a higher level system that monitors, controls and optimizes the performance of an energy system. The EMS communicates with the energy storage and the PCS and can command these systems to charge or discharge the batteries.



Off-grid Solution

Off-grid operation may be needed in remote areas where the electricity supply is unreliable or non-existent. The Nilar and Socomec off-grid solution allows for reliable power supply no matter the location using a combination of renewable energy sources, battery energy storage and an on-demand generator.

The Nilar energy storage can be charged from renewable energy sources that do not require connection to the electrical grid, such as solar and wind power, and discharged when these power sources are unable to provide sufficient energy on their own.



Applications of Nilar & Socomec solutions



Maximization of renewable energy self-consumption and production

One of the major issues with renewable energy productions is that they are intermittent, which makes it difficult to maximize their use. The Socomec and Nilar energy storage system can ensure zero-export, or smart-export for utilities that require them. Excess power generated by the solar panels during the day can be stored in the batteries for self-consumption in the evening.



Demand Charge Management

High peak periods have several drawbacks in terms of electricity consumption; they are expensive and may require an investment in the infrastructures that are not designed for them. To prevent these costs, the Socomec and Nilar energy storage system can reduce demand charges by discharging power stored in the batteries during peak demand intervals.



Optimization of diesel generators

Adding energy storage with renewable generation can be a cost effective way to reduce the use of diesel generators in microgrids, thus diminishing CO₂ emissions, improving the diesel generators lifespan, duration, and increasing autonomy for a given fuel supply.



Hybrid system management

The Socomec Microgrid Management System manages hybrid microgrids, coordinates how the SUNSYS PCS² IM charges and discharges batteries, and curtails the production from renewable generation when the batteries are fully charged.



Back-up power

When the grid fails, Socomec and Nilar energy storage system maintains power availability to the loads. The solution automatically disconnects from the grid and the SUNSYS PCS² IM re-powers the microgrid from batteries and renewable generation, acting as a voltage generator. Moreover the black-start function enables to take over supply without need for oversized power caused by inductive loads.



Grid services

Due to higher consumptions and decentralized production, constraints on this grid are increasing, thus creating a need for grid services. The rapid response times of the Socomec SUNSYS PCS² IM are ideal for delivering grid services such as voltage and frequency regulation. In addition, the Socomec and Nilar energy storage system can also export power to the grid when the utilities may require it, for demand response.



Time-of-use bill management

One of the services provided by Socomec and Nilar energy storage system is to use the energy from the grid during low price periods and to use energy from the batteries during high price periods. Therefore the system enables reduces the energy costs and the customers' bills.



High quality and safety in off-grid mode

Socomec and Nilar energy storage system has high short-circuit capabilities that enables the same protections in off-grid mode as in on-grid mode.



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