



SUNSYS **PCS² IM**

Grid forming
Power Conversion System and Storage
for microgrids
from 33 kW to MW



The Energy Storage solution for power management on Microgrids

With an ever increasing demand for safe and reliable electricity, the power supply infrastructure needs to evolve and innovate to keep up. Socomec's SUNSYS PCS² IM Power Conversion System and Storage with Islanding Mode is a response to that need, offering a modular energy storage solution for increasing the operational performance and reliability of off-grid microgrids, grid-connected microgrids and smart buildings.



Off-grid microgrids

In remote areas, SUNSYS PCS² IM is ideal for supplying **an autonomous microgrid** with distributed PV and wind generation, loads and diesel genset. Genset efficiency and service life are maximized, whilst its operating time, energy consumption and harmful emissions are significantly reduced.

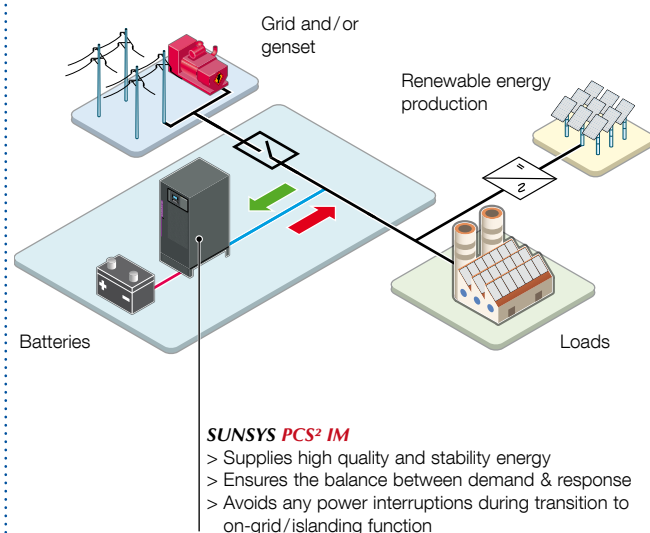
Grid-connected microgrids

In addition to the standard service provided by the energy storage system in grid-connected mode (grid stabilization, integration of renewable energy), SUNSYS PCS² IM also **enables to supply a microgrid in case of grid outage**.

Smart buildings

Energy storage is generally used to reduce the cost of electricity and to optimize the energy produced locally and exchanged with the grid. SUNSYS PCS² IM can **supply all or part of the building in case of grid outage**.

Typical architecture of a microgrid with SUNSYS PCS² IM



The Socomec Group, partner of the Interflex demonstrator

InterFLEX

Starting in January 2017 and lasting for 3 years, the French InterFlex pilot project will bring together several key players with complementary fields of expertise involved in the transition toward sustainable energy. The city of Nice on the French Côte d'Azur will be associated with the steering committee alongside manufacturers Enedis, Engie, GRDF, GE, EDF and Socomec. The DEMO1 project is funded by the European Commission for 70 % of its total budget of 5M€ for the French contribution to the European INTERFLEX project within the framework of the EU Horizon 2020 Research and Innovation programme. In line with the Nice Grid project, Socomec will be taking part in the French InterFlex pilot project which aims at:

- automatic islanding,
- use of centralised storage systems for multiple services,
- local flexibility mechanisms managed by the DSO (Distribution System Operator).

www.socomec.com/energy-storage_en.html

The benefit of the **SUNSYS PCS² IM** solution

Total flexibility

- Can be integrated into microgrids with existing PV plants.
- Scalable modular system.

Maximum availability

- Modular & independent architecture.
- Easy, fast & 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.



Complementary solutions

In addition to the SUNSYS PCS² IM solution, Socomec offers a complete range of options for your energy storage projects, including **Power Management System, Islanding Controller, AC and DC distribution cabinets** including protection devices and integration in containers.

Technical features

Configuration	With transformer			Without transformer		
Model	33TR	66TR	100TR	132TL	166TL	200TL
Input (DC)						
Battery voltage	Full power from 450 to 825 VDC - 350 to 850 VDC with derating					
Number of independent power modules	1	2	3	4	5	6
Maximum discharging current	80 A	160 A	240 A	160 A + 160 A	240 A + 160 A	240 A + 240 A
Maximum recharging current	80 A	160 A	240 A	160 A + 160 A	240 A + 160 A	240 A + 240 A
Output (AC)						
Rated power	33 kW	66 kW	100 kW	132 kW	166 kW	200 kW
Rated apparent power	33 kVA	66 kVA	100 kVA	132 kVA	166 kVA	200 kVA
Rated voltage	400 Vrms ⁽¹⁾ 3ph+N			280 Vrms ⁽¹⁾ 3ph		
Voltage tolerance	320 - 480 Vrms ⁽¹⁾ 3ph+N			224 - 336 Vrms ⁽¹⁾ 3ph		
Rated frequency	50 Hz ⁽¹⁾					
Frequency range	47.5 - 51.5 Hz ⁽¹⁾					
Rated current	48 Arms	96 Arms	144 Arms	272 Arms	342 Arms	412 Arms
Off-grid symmetrical overload	110 % for 30 min - 125 % for 10 min - 150 % for 30 sec					
Off-grid asymmetrical overload	190 % for 30 min - 215 % for 10 min - 260 % for 30 sec ⁽²⁾					
Off-grid symmetrical short-circuit	90 Arms for 40 ms + 75 Arms for 60 ms	180 Arms for 40 ms + 150 Arms for 60 ms	270 Arms for 40 ms + 225 Arms for 60 ms	360 Arms for 40 ms + 300 Arms for 60 ms ⁽²⁾	450 Arms for 40 ms + 375 Arms for 60 ms ⁽²⁾	540 Arms for 40 ms + 450 Arms for 60 ms ⁽²⁾
Off-grid asymmetrical short-circuit	145 Arms for 40 ms + 115 Arms for 60 ms	290 Arms for 40 ms + 230 Arms for 60 ms	435 Arms for 40 ms + 345 Arms for 60 ms	580 Arms for 40 ms + 460 Arms for 60 ms ⁽²⁾	725 Arms for 40 ms + 575 Arms for 60 ms ⁽²⁾	870 Arms for 40 ms + 690 Arms for 60 ms ⁽²⁾
THDI (%)	< 4 %					
Topology	Single conversion					
Efficiency						
Maximum efficiency	96.3 %			97.5 %		
Environment						
Environmental category	Non-air-conditioned indoor space					
Degree of protection	IP 20					
Operating ambient temperature	-5 °C to +50 °C					
Rated temperature	0 °C to +40 °C					
Storage temperature	-5 °C to +60 °C					
Relative humidity	5 % to 95 % without condensation					
Cooling system	Smart cooling					
Acoustic level at 1 m	< 60 dB	< 64 dB		< 67 dB		
Altitude	0 to 1000 m (full power)					
Mechanical specifications						
Dimensions W x D x H (mm)	600 x 795 x 1400		1200 x 795 x 1400	805 x 806 x 2150		
Weight (kg)	355	530	816	440	475	510

(1) Depending on the specific country and regulations.

(2) With external transformer 280/400 VAC.

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