

# Norvento Gridmaster Converter

norvento  
energía



on-grid  
EN

[norvento.com](http://norvento.com)

nGM  
Norvento Gridmaster  
Converter  
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Norvento Gridmaster Converter (nGM) is an innovative and versatile power converter platform designed for smart energy storage. It has been developed by Norvento's Power Electronics Unit. The product enhances the competitiveness and makes the integration of energy storage systems in electrical installations easier.

Thanks to its modular and scalable design, Norvento Gridmaster is capable of working connected to the grid (on-grid) or in weak grids and in isolated systems or microgrids (off-grid), optimizing the energy flows and ensuring a constant, reliable and high-quality power supply.

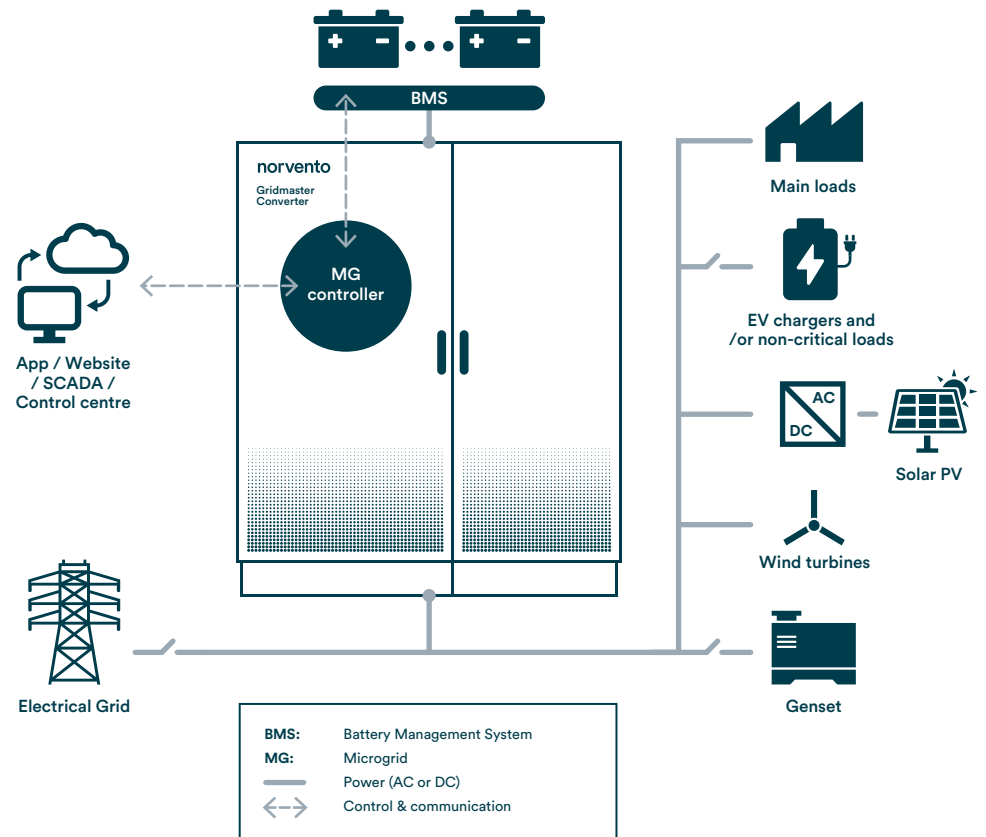
Tailorable to meet project requirements and compatible with multiple systems, nGM simplifies the design, development and implementation of microgrids and distributed generation systems with energy storage.

Norvento Gridmaster Converter perfectly adapts to the power and energy requirements of any installation, ranging from small installations to generation plants and distribution networks, commercial and industrial applications.



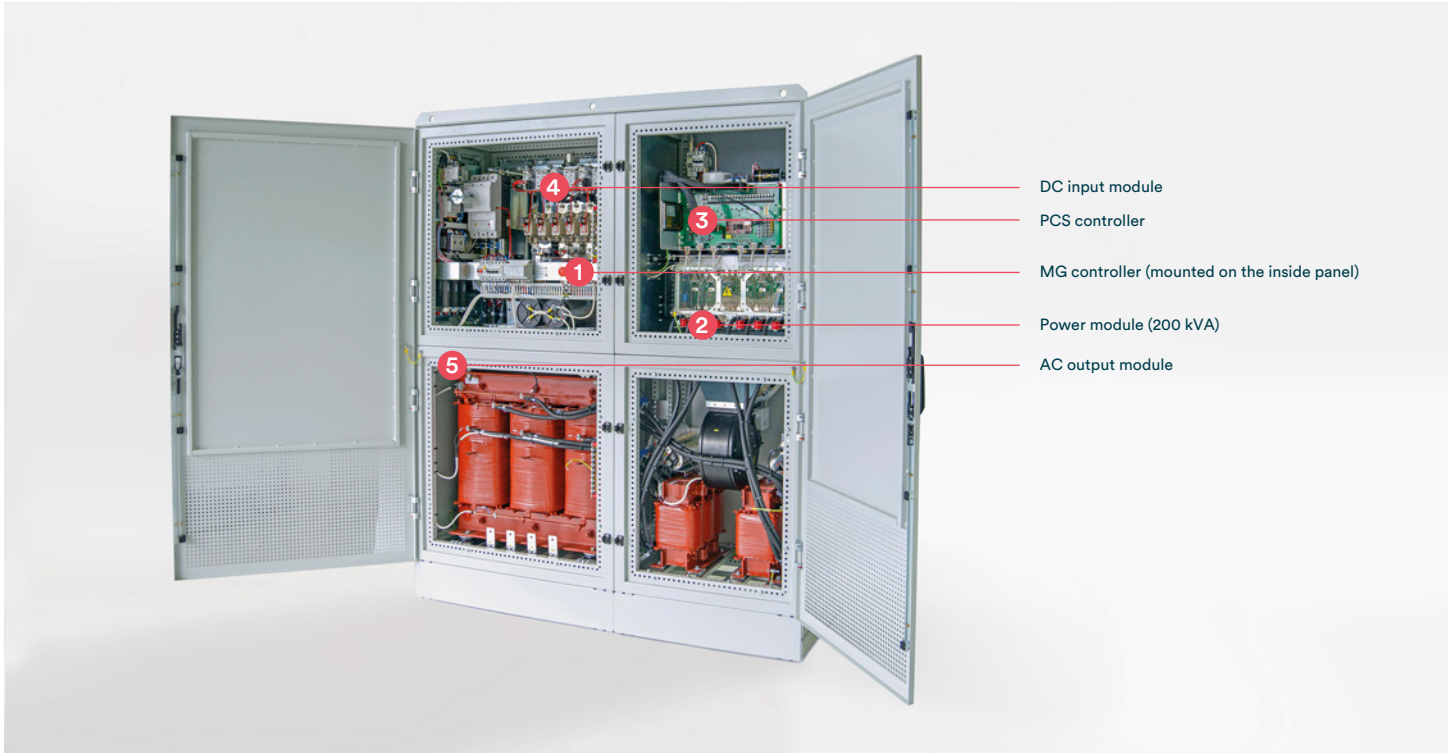
- Cutting-edge technology, turn-key solutions.
- Modular, configurable and scalable design.
- Compatible with multiple energy storage system providers.
- Microgrid control and remote monitoring.
- Energy management system included.
- Robust design for long lifespan.
- Optimization of distribution generation assets.
- Increases renewable energy penetration.

nGM  
Interfaces



## Characteristics /Technical data

DC energy storage input	DC voltage range	540 V...850 V
	Number of DC connections	Configurable (1 for every 100 kW)
	Communication with BMS	Modbus TCP/RTU, CAN
AC output	Rated power	50 kVA ... 2000 kVA (power modules of 50 kVA, 100 kVA and 200 kVA)
	Rated voltage	400 V / 480 V
	Rated frequency	50 Hz / 60 Hz
	Power factor	0 ... 1 (cap./ind.)
	Overload capability (as grid former)	Programmable (up to 2 times rated current)
Control, communications, and standards	Microgrid control	Power Management System (PMS) included Basic Energy management System (EMS) included
	Interface with other microgrid components	Modbus TCP/RTU, CAN
	Monitoring	Web, App
	Communication with SCADA systems, control centres and/or supervisory controls	Modbus TCP/RTU, IoT



Norvento Gridmaster Converter nGM-200

**MG Controller**

Responsible for the microgrid control and communication with all external elements. It integrates the Power Management System (PMS) and the basic Energy Management System (EMS).

**DC input module**

Each power module is linked to a DC input module that configures the input interface with the energy storage system

**DC distribution module**

Optional module that allows the parallelization of multiple series of batteries for any application.

**AC distribution module**

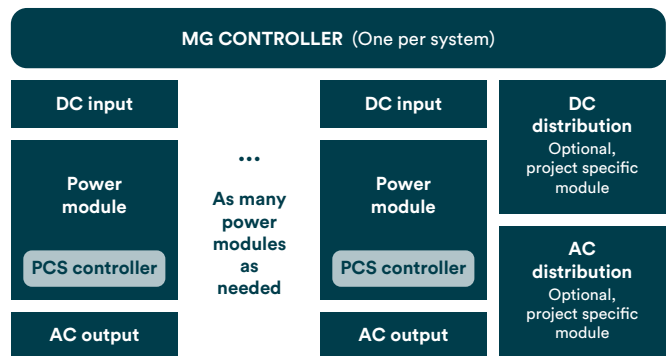
Optional module that allows the electrical integration (power and control) of other microgrid elements such as PV inverters, gensets, grid connection, circuit breakers for load shedding, etc.

**Power modules**

Include the power electronics for the DC/AC conversion and an integrated controller (PCS controller).

**AC output module**

Each power module is linked to an AC output module that configures the output interface with the electrical installation or microgrid.





nGM  
Capabilities  
on-grid  
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**Grid former / follower**

Norvento Gridmaster is able to generate an electrical grid (grid former mode) or to integrate into the electrical grid created by other grid formers (grid follower mode). nGM's own technology provides the units with an inherent and immediate response to grid failures, instantly transitioning between grid forming and grid following modes. The change is achieved without appreciable electrical transients and can be triggered on demand or automatically to prevent power outages.

**Energy management system included**

Norvento Gridmaster includes an Energy Management System (EMS) to dispatch the energy from the energy storage system and other Distributed Energy Resources (DERs).

**Remote monitoring and control**

Native IoT equipment with great connectivity that can be monitored and controlled by the user through an App or web, and can communicate with a SCADA system, or control centres of DSOs and aggregators.

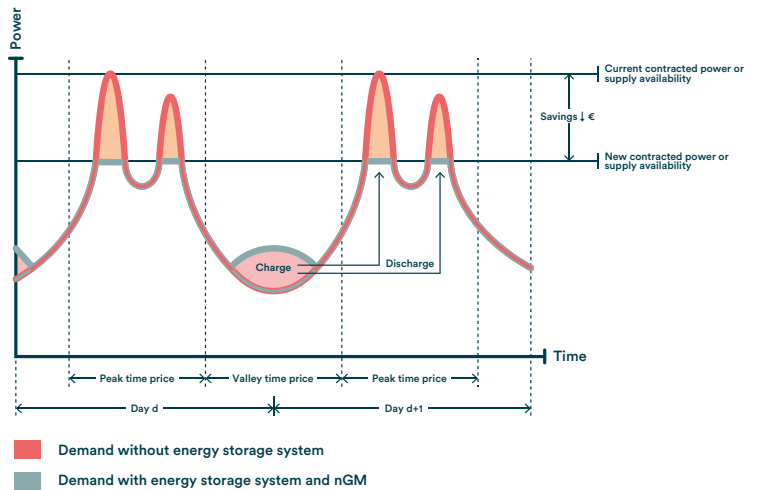
**Ancillary services and flexibility markets**

Norvento Gridmaster allows the user to participate in the ancillary services and other electricity markets, obtaining additional revenue streams.

\*subject to the regulatory framework of each country

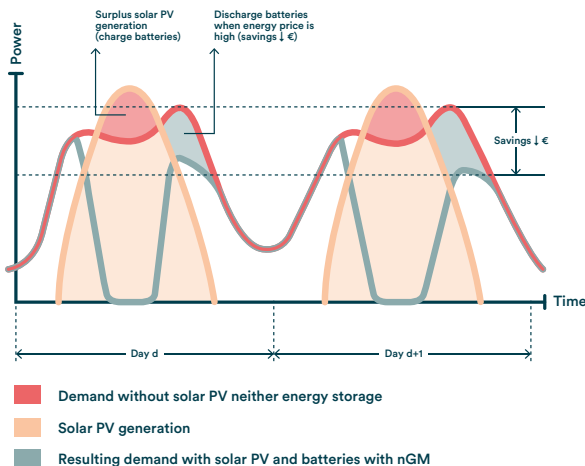
**Peak shaving**

Norvento Gridmaster allows you to reduce the utility's peak consumption with the consequent cost reduction in the electricity bills of the installation.



**Energy arbitrage or load shifting**

Norvento Gridmaster allows you to optimize your installation's load curve and, in case of on-site renewable generation, it allows you to maximize its use and avoid curtailments.



**Reactive power compensation**

Norvento Gridmaster can compensate the reactive power of your installation avoiding costs in the electricity bill or in additional reactive power compensators.

**Business Continuity**

nGM maintains the electrical supply to critical loads during power outages.

**Norvento Gridmaster eases the design and integration of energy storage systems in commercial and industrial applications connected to the grid, optimizing the electricity consumption of its customers.**



**Examples of use in on-grid installations:**

- Commercial and industrial applications with on-site renewable generation.
- EV charging stations with constrained connection to the grid or that require increase of effective power rating.
- Electrical installations in weak grids with poor quality and reliability issues or with constrained connection to the grid.
- Electrical loads that require reliable and high-quality power supply such as hospitals and data centres.
- Wastewater treatment plants.