

Norvento Gridmaster Converter

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energía



off-grid
EN

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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.

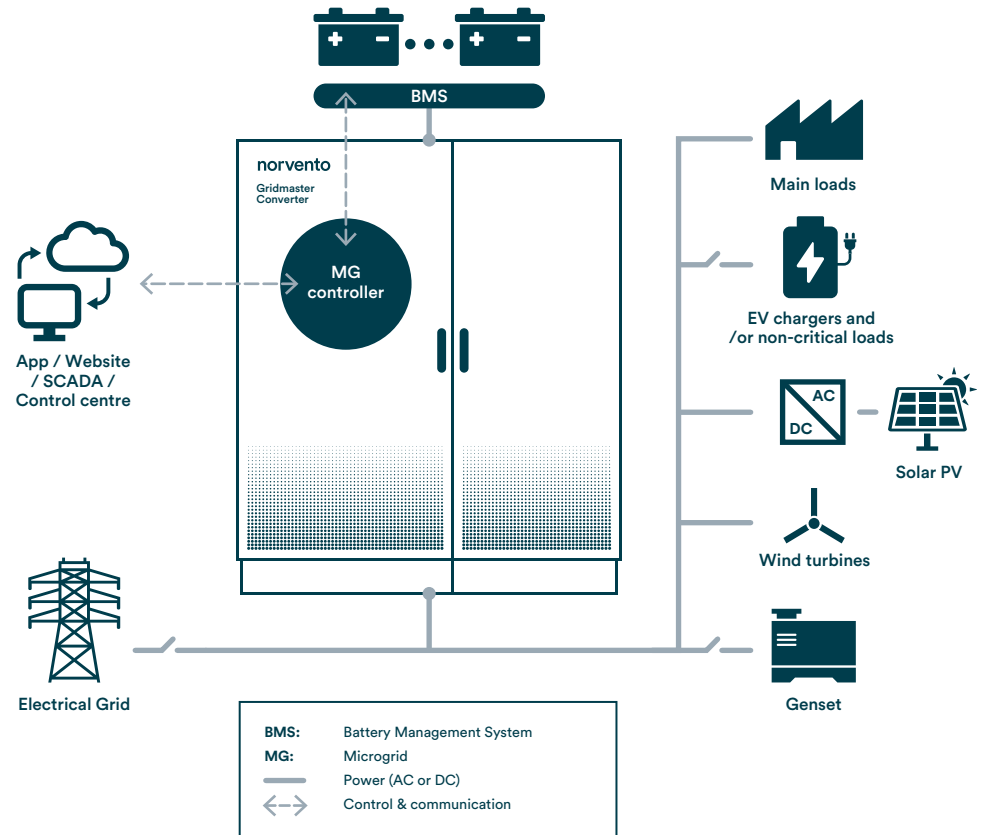
Tailorable to meet project requirements and compatible with multiple systems, nGM simplifies the design, development and implementation of microgrids and distributed generation systems with energy storage.

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.



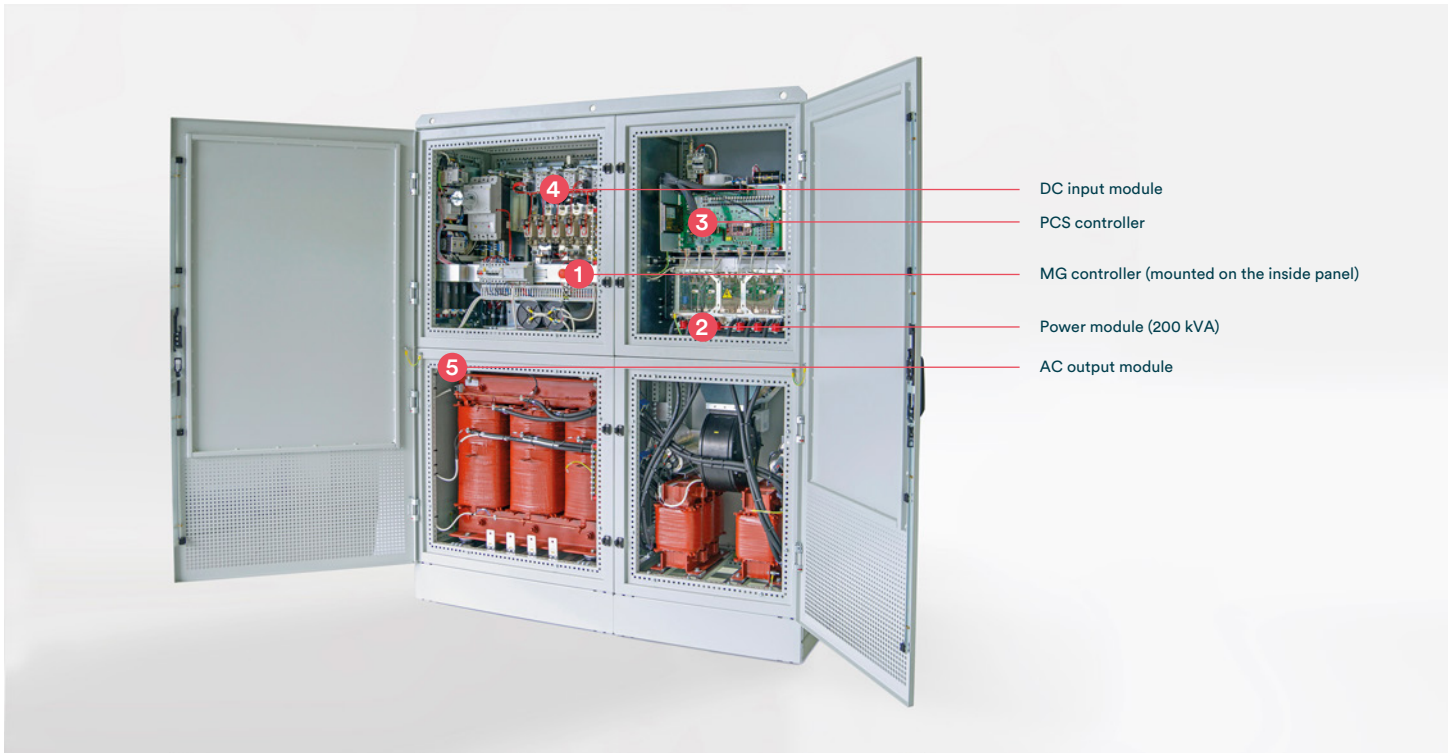
- Cutting-edge technology, turn-key solutions.
- Modular, configurable and scalable design.
- Compatible with multiple energy storage system providers.
- Microgrid control and remote monitoring.
- Energy management system included.
- Robust design for long lifespan.
- Optimization of distribution generation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

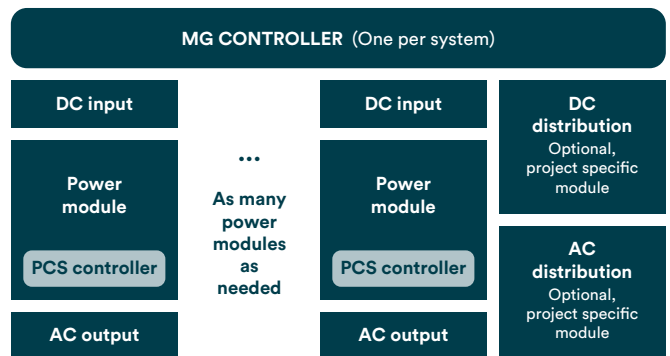
Optional module that allows the electrical integration (power and control) of other microgrid elements such as PV inverters, gensets, grid connection, circuit breakers for load shedding, etc.

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
off-grid
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Microgrid control

Norvento Gridmaster can communicate and control other microgrid elements, such as gensets, solar PV inverters, wind turbines, energy meters or circuit breakers, among others, ensuring a reliable and quality power supply.

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.

Voltage and frequency control

nGM's Power Management System (PMS) controls the active and reactive power of the installation, always ensuring the balance between generation and consumption and a permanent power supply to critical loads.

Short-circuit programmed behaviour

Norvento Gridmaster excels at providing maximum fault current while keeping the microgrid voltage as healthy as any given near or far outage permits. The short-circuit programmed behaviour makes the protection coordination work simpler.

Genset friendly

nGM can couple to former gensets without controller in an easy way, guaranteeing no electrical transients or reverse power in the generators.

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.

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).

Unbalance control

Norvento Gridmaster features a state-of-art control system that minimizes the unbalance of the electrical supply even when loads are unevenly distributed across the phases.

Norvento Gridmaster eases the design and integration of energy storage systems in microgrids or off-grid systems, integrating the microgrid controller and ensuring a reliable power supply.



Examples of use in microgrids and off-grid systems:

- Hybridization of existing diesel gensets to reduce emissions, operating expenses and increase their lifespan.
- Renewable microgrids in zero-energy buildings.
- Microgrids in isolated farms and industries without grid or with high connection costs.
- Microgrids in developing countries or for emergency situations.
- Solar pumping with storage