
MICROGRID SOLUTIONS

Empowering communities and businesses

Reliable electricity access with MGS100



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ABB's integrated microgrid solution MGS100 makes affordable, safe, reliable electricity a reality by enabling solar power and battery energy storage. The system makes social and economic development possible, changing lives for the better.

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A brighter future

Electricity enables development

For 1.2 billion people, the stars are their only light at night.

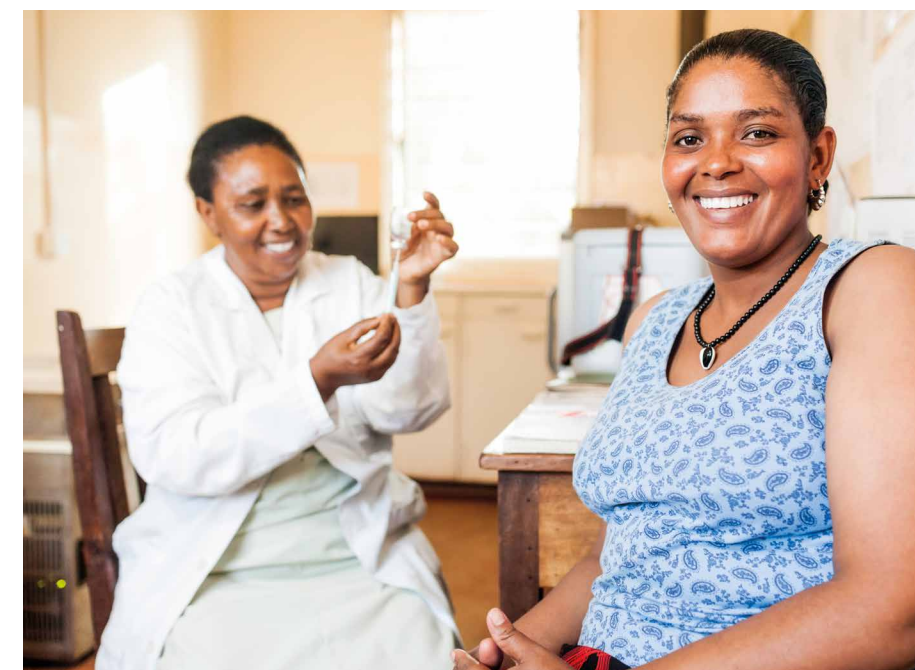
Access to affordable, reliable electricity opens up a new world of possibilities. The introduction of power can be life changing for rural areas – a catalyst for social and economic development. Basic living standards are improved with the introduction of water pumps, refrigeration for perishables and medicines, light to see by at night and a reduced reliance on expensive, polluting fuels such as kerosene or diesel. Communities benefit from critical facilities like schools and health clinics which are able to offer more varied opening hours and services. New business opportunities arise for existing and new enterprises, increasing local incomes. Electricity can lead to a better quality of life and independence for all.

Power outages cause huge disruption to local businesses.

Even when communities and businesses are connected to the grid, it doesn't mean that the power supply is constant. Frequent power outages disrupt both commercial and industrial activities, resulting in economic loss and making automated or factory production ineffective and potentially dangerous. Diesel generators for back-up power are expensive due to volatile fuel prices, they are polluting and the transition between grid power and generator is not smooth, causing further delays. A lack of reliable power stifles productivity and prevents business success.

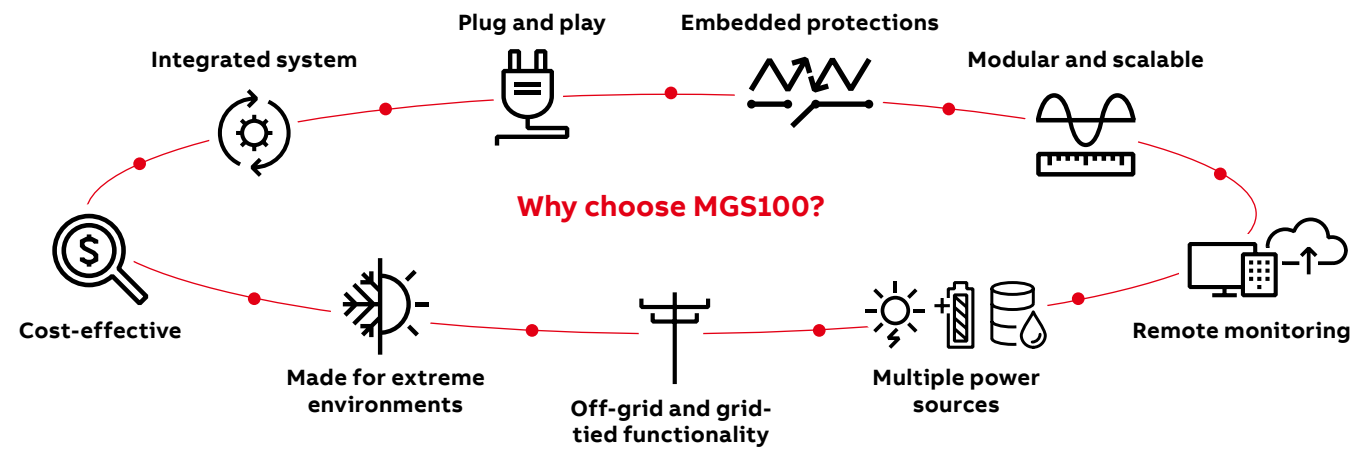
Creating a brighter future.

MGS100 is a new microgrid solution from ABB, with the potential to change lives and businesses for the better. The integrated system can be connected to multiple power sources to provide electricity for remote villages which are not connected to the main grid, or reliable back-up power for small commercial and industrial facilities using an inconsistent grid supply. MGS100 makes access to reliable power a reality, creating new opportunities for communities and businesses.



Enabling opportunities

An integrated system for reliable, sustainable power



Electricity for remote villages

Access to electricity in remote villages is typically provided in one of two ways: either via a diesel generator, which uses expensive, harmful fuel, or via a complex off-grid system, which involves many different parts and specialized installation knowledge, making it costly to install and maintain.

MGS100 offers a new solution. The integrated microgrid system is versatile and flexible, with three possible power inputs: solar photovoltaic (PV), batteries, and energy from biofuel/diesel generators or even the grid. Built to perform in extreme environments, the system is factory-tested and embedded DC and AC protections make it ready to connect, so installation is quick and easy. Remote monitoring means vital diagnostics are always available and maintenance is made simple due to the system's modular design. The battery input means that once batteries are connected, power can continue to be delivered after dark and fuel consumption is minimized. In addition, MGS100 is ready for future growth in a village's power needs – the modular, scalable design means that capacity can be increased as and when required – and the system can even be connected to the grid if this becomes available.

Reliable back-up power for small commercial and industrial facilities

Diesel generators have traditionally been used to provide back-up power when the grid fails. However with volatile fuel prices this can hugely increase operational costs and the diesel fumes are harmful to the environment and those working and living nearby. In addition, the transition between the grid and power from the generator is rarely seamless, with delays and bumps in the power supply which can slow down production even further.

MGS100 is a sustainable and cost-effective alternative, reducing dependence on fossil fuels and cutting operational costs. Seamless transition between the grid and the microgrid allow operations to continue while the grid is down, and battery energy storage minimizes the need to purchase electricity from local utilities. Harnessing abundant local solar power, reducing traditional fuel expenditure and increasing business productivity means that the initial investment in the microgrid can be quickly recovered. There is even the opportunity to generate revenue by selling excess power back to the main grid if permitted.

With MGS100, communities and businesses are able to discover new opportunities for social and economic development.



Inside the box

Components and functionality

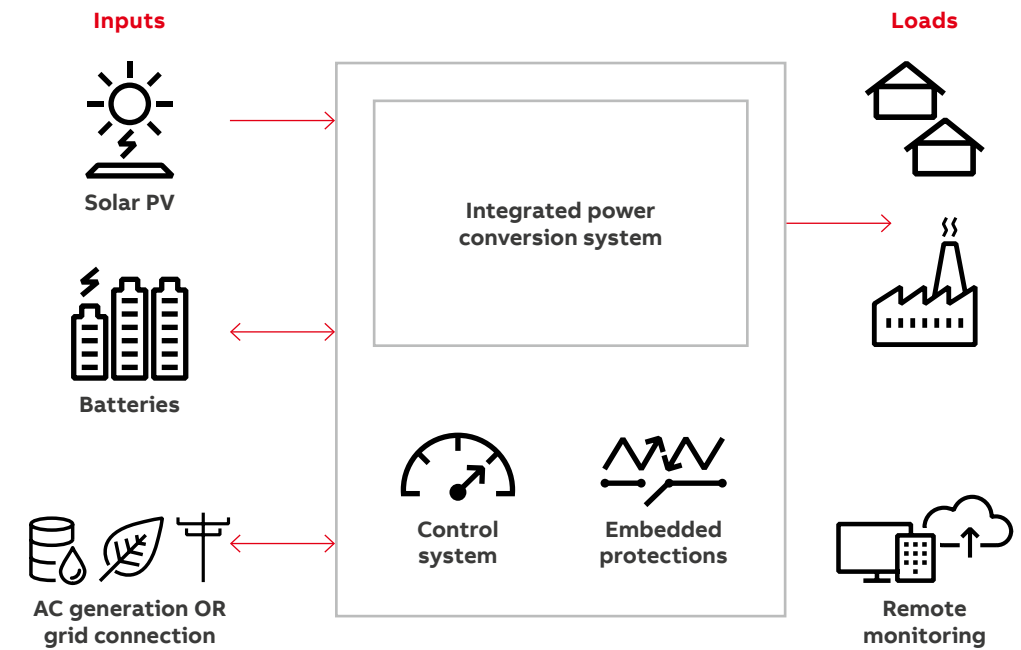
MGS100 brings together all of the components required for a sustainable microgrid in a single device. Drawing on ABB's 125 years of electrical design experience, the product is optimized to provide reliable power in the most efficient way.



The system is formed from an integrated solar PV and battery energy storage converter with an additional AC input. This can incorporate either biofuel or diesel generation, or even an existing grid connection, into the microgrid's energy mix.

Product highlights

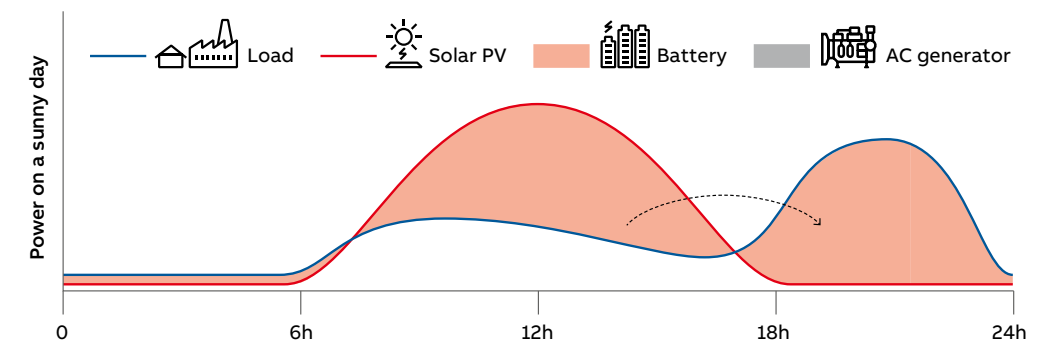
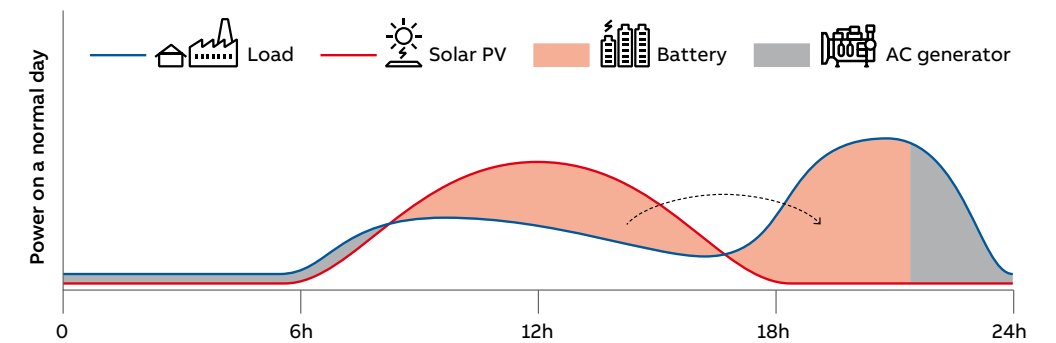
- Three power ratings available: 20kW, 40kW, 60kW nominal load power
- Integrated system, available as a single cabinet
- Designed for harsh environments
- Factory pre-tested and fully pre-wired
- Ready to install in the field



- Multi-source energy mix including AC generation (diesel/biofuel) or grid connection
- Solar PV input including embedded maximum power point tracking (MPPT)
- Battery energy storage input for lead-acid or lithium-ion batteries
- Embedded input and output protection devices
- Control system with programmable logic functionality to customize operational modes
- Remote monitoring capability

24/7 reliable electricity access with MGS100

MGS100 prioritizes solar power during the day. After dark, the battery continues to supply power. If the battery runs out of energy, the AC generator (biofuel or diesel) will supply power for the rest of the night. Any excess energy produced throughout the day is used to charge the batteries. Once these are fully charged, excess energy can be sold to the grid to generate additional revenue.



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