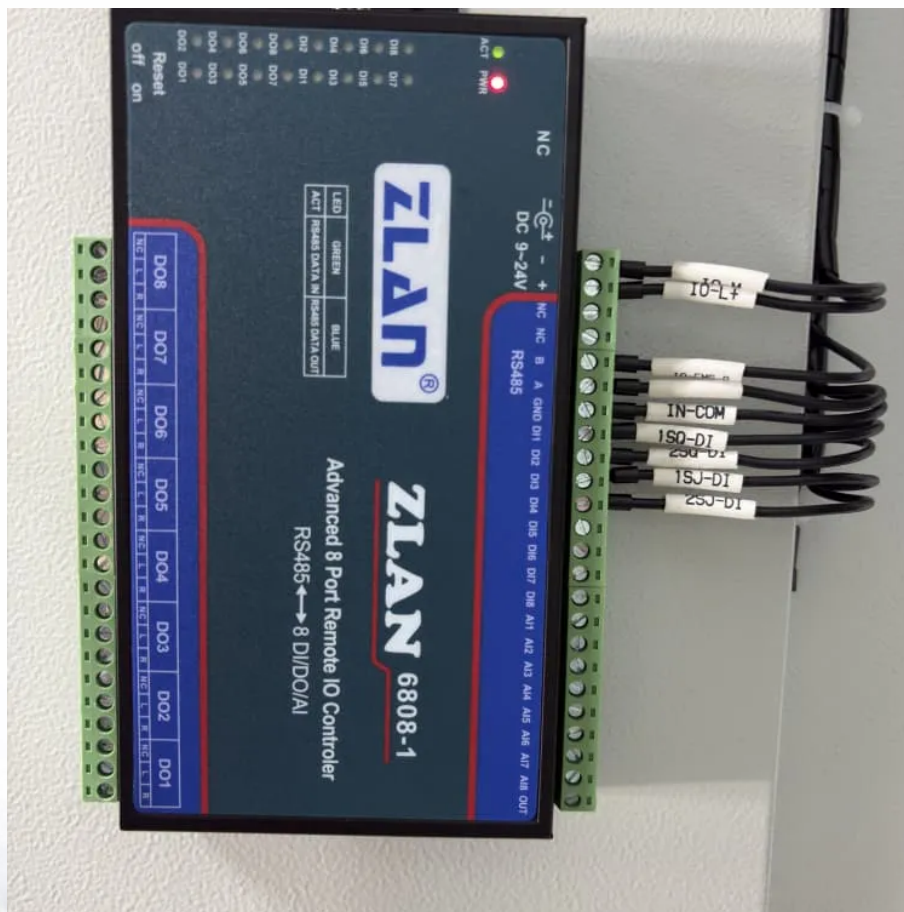


Japan Global Communications Base Station Inverter Grid- Connected





Overview

What is grid forming (GFM) inverter?

Addressing the issue of grid resilience head-on is the Grid Forming (GFM) Inverter—a next-generation power conditioning technology gaining increasing attention. GFM Inverter is an inverter powered by renewable energy sources such as solar power or storage batteries.

Who is implementing GFM inverter?

Hitachi Industrial Equipment Systems (HIES) has taken the lead in implementing GFM Inverter at its Narashino Works in Chiba, Japan. Since its launch in April 2025, the implemented system has drawn attention as one of the world's pioneering model cases for sustainable and resilient power supply.

Can GFM inverter-based microgrids provide power autonomously?

In times of disaster or emergency, GFM Inverter-based microgrids can continue supplying power autonomously at the local or facility level. Hitachi Industrial Equipment Systems (HIES) has taken the lead in implementing GFM Inverter at its Narashino Works in Chiba, Japan.

What is a microgrid inverter?

Figure 1: Overview of microgrids. Toshiba developed a prototype GFM inverter that provides synthetic inertia and suppresses the fluctuations of the grid frequency in distribution systems even when fluctuations in power supply or power demand occur (Figure 2) and demonstrated its effectiveness.

Can GFM inverters reduce grid frequency?

The company has now verified the results of using GFM inverters in a setting similar to real environments, including the actual use of renewable energy, and has demonstrated that mounting GFM inverters on photovoltaic power generators suppresses decreases in grid frequency by approximately 30%.

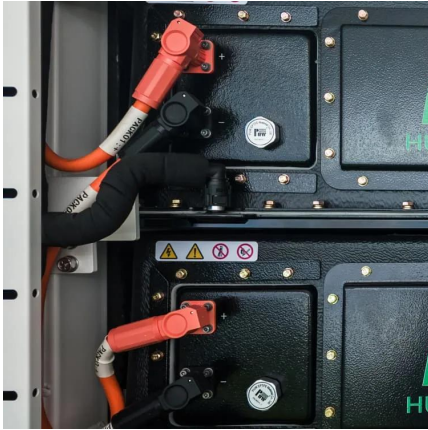


Are three-phase PV inverters compatible with low-voltage grid interconnection?

According to the revision of the Low-Voltage Grid Interconnection Regulations in April 2024 in Japan, three-phase PV inverters used in low-voltage interconnection projects (including deemed low-voltage interconnection) must be compatible with the new active method “frequency feedback method with step injection (STEP3.2).



Japan Global Communications Base Station Inverter Grid-Connected



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[High Efficiency Grid Connected Inverters: Advanced Solar Power](#)

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This cutting-edge system helps stabilize electric power systems as global transition to renewable energy, by simulating the stabilizing effects once provided by large power plants.

[Grid Interconnection Regulations \(April 2024, low voltage\) and ...](#)

Following the revision of the Low Voltage Grid Interconnection Rules in April 2024, "Application of Allowable Frequency in Parallel" is scheduled



for facilities in both high-voltage and low-voltage
...



[Low-voltage grid connected inverters \(Power conditioners\) , JAPAN](#)

Products eligible for certification include the following low-voltage grid-interconnection equipment, etc, utilizing inverter, etc. Products conform to requirements for Low-voltage grid ...



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This paper analyzes the stability of a grid-following inverter by the complex vector control in av domain and by the PLL synchronization control in dq domain. It is known that the ...



Hitachi Industrial Equipment Systems Launches Next-Generation Inverter

This cutting-edge system helps stabilize electric power systems as global transition to renewable energy, by simulating the stabilizing effects once provided by large power plants.



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