

Announcement of Development of New Portable Inverter Pulse Generator

— Achieving reduction in weight and size to about one sixth of the conventional model —

Nissin Electric Co., Ltd. is pleased to announce that Nissin Pulse Electronics Co., Ltd., a group company of Nissin Electric, has developed a new portable inverter pulse generator, which is used for insulation evaluation tests of motor wiring materials (magnet wires) for electric vehicles (EVs). The weight and size of the new model are about one sixth of those of the conventional model, achieving significant downsizing. The new model contributes to promoting the development of EV technology because insulation evaluation tests can be conducted easily.

This is a business activity that contributes to one of the six growth strategies in the Nissin Electric Group Medium-to-Long-Term Business Plan VISION2025, “Business expansion in association with the expansion of EVs”.

EVs are powered by a motor driven by an inverter. The switching operation (on/off) of the inverter generates a surge voltage (inverter surge), which is an instantaneous overvoltage, resulting in generation of partial discharge in the motor potentially causing a failure. The battery voltage of EVs has been increasing. While this offers advantages, such as rapid charging, high output, and high efficiency, devices and motors must meet the dielectric strength requirements. Thus, insulation evaluation tests using an inverter pulse generator, which can generate voltage waveforms (inverter surge waveforms) to simulate an inverter surge, have become increasingly important. However, the conventional model weighed about 210 kg, and its size was large. The equipment could not be moved easily, resulting in limitation of the test locations.




To meet the needs of customers who want to perform insulation evaluation tests easily, Nissin Pulse Electronics has developed a portable inverter pulse generator which is significantly smaller than the conventional model. A product under development which cannot be brought outside can be verified and evaluated without transporting it.

EVs are indispensable to reduce CO₂ emissions and are expected to come into widespread use globally. Nissin Pulse Electronics will contribute to realizing a decarbonized society by offering the product.

[Features of the portable inverter pulse generator]

1. Capable of modeling inverter surge waveforms (the same function as that of the conventional model)
 - Inverter surge waveforms can be generated. The exceedance rate and width of surge waveforms can be changed by changing the settings.
 - Various insulation evaluation tests can be conducted in an environment close to the actual installation environment.
2. Portable
 - About one sixth the weight and size of the conventional model, achieving significant downsizing.
 - Downsizing has achieved a sales price affordable to customers.
3. Higher functionality
 - Equipped with an automatic voltage step-up function, and improved in the functionality and operability of the touch panel.
 - High-speed switching with a rise time of 30 ns or less (at 100 pF load).

[Comparison of main specifications]

	Conventional model: PG-W03KP-A	New model: PG-W03K-PORT
Frequency	10 Hz to 100 kHz	10 Hz to 10 kHz
Weight	(Example of the product delivered: approx. 210 kg)	<ul style="list-style-type: none"> · Operation/power supply unit: approx. 22 kg · Generator unit: approx. 11 kg Approx. 33 kg in total
Dimensions (W×H×D)	570×1,700×800 mm	<ul style="list-style-type: none"> · Operation/power supply unit: 480×300×535 mm · Generator unit: 480×200×535 mm
Appearance		 <p>Operation/power supply unit</p>  <p>Generator unit</p>

The Nissin Electric Group has been stepping up its efforts to promote the SDGs through its business operations. This accomplishment is related to the following goals among the 17 SDGs.

9. Industry, Innovation and Infrastructure

13. Climate Action