Power Systems Division

Norio Sugawara

Main product developments achieved by the Power Systems Division during 1998 are as follows:

With respect to the mid-capacity uninterruptible power supply system ("UPS"), we have developed "SANUPS R," a bi-directional conversion device type mid-Capacity UPS (10kVA to 100 kVA), aiming at developing equipment which is highly reliable, compact, and economical to meet the demands of today's advanced information technology society.

Our small capacity UPS line has been improved by the addition of a "3kVA, 200V UPS" employing a newly developed floating output converter. In order to deal with the network diversification, we developed our "SAN GUARDⅣ" UPS management system. This is a further improvement on "SAN GUARDⅢ" for its network compatibility.

We have also developed "PMB," an outdoor type utility interactive inverter as a global-environment-conscious photovoltaic power system. To further improve the product line, a portable hybrid power system combining a solar power system with a manual power system has been newly added to the line for use in disasters.

Mid-Capacity UPS "SANUPS R"

We have developed "SANUPS R," a highly reliable, compact and economical new uninterruptible power supply system, suitable for today's advanced information oriented society.

Adding a bi-directional convection type power conversion unit converts the existing "single UPS" into a duplex system and increases the reliability of the inverter power supply by one digit.

The advantageous features of "SANUPS R" are as follows:

1. System capacity: The high reliability of the system is significantly reinforced in the mid- Capacity province (10kVA to 100kVA) to cope with the downsizing of computer systems.
2. High reliability: The reliability of the inverter power supply (MTBF) is extended to over 250,000 hours. This is comparable to the highly reliable "parallel redundant type UPS" for the power supply reliability.
3. Excellent maintainability: By modularizing all the components of the duplex system, you can conduct inspection and maintenance services while the system is in operation under an uninterruptible power supply condition.
4. Long duration battery back-up available: Battery back-up is sustainable for about 10 hours without any separate special battery charger required.
5. Compact structure: The overall size has been reduced by about 40% from the conventional "parallel redundant UPS."

Details will be made available in a separate feature article.

Small Capacity (200V) UPS

A new 3kVA UPS for 200V input/ output has been developed as all other small capacity UPS are available only for 100V input/output.

Most of the 100V small capacity UPS adopt a system combining a voltage double rectifier circuit and a half bridge inverter circuit that can share a part of the AC input/output wiring. This system, however, does not work with the 200V unit since it results in loading the rectifier with a high DC voltage which adversely effects the circuit insulation and conversion efficiency. The use of an isolating transformer makes it difficult to build a smaller and lighter system.

This product uses a newly developed floating output converter (FCON) for the rectifier. It enables the use of a full bridge inverter circuit with a low DC voltage by isolating the AC output from the input circuit using a semiconductor without requiring an isolating transformer. Thus, we have come up with a new "on-line UPS system" with similar volume, performance, and functions as the line of 100V UPS.

UPS Management System "SAN GUARD Ⅳ"

We have developed "SAN GUARD Ⅳ" which is a substantial improvement on "SAN GUARD Ⅲ" in terms of network applications.

The main advantageous features are as follows:

1. It is compatible to the cluster system where it is important that the system can be independently controlled without being dependent on any specific computer.
2. It can be remotely controlled by management tools and with general purpose software such as an SNMP manager or a Web browser like a Java applet.
3. It can be made compatible to a variety of UNIX systems without requiring any UNIX software since the necessary data for controlling the Work Station is in the LAN interface card.
4. It is provided with various protocols including DHCP, DNS, and SNMP V.2 to cope with various network environments as well as a user verification function in order to ensure the receipt of error notices and other security measure through E-mail.
5. Software contained in the LAN interface card can by remotely updated to make the system compatible to the newest standards and functional requirements.

Details will be made available in a separate feature article.

Outdoor Type Utility Interactive Inverter "PMB-TDT"

The "PMB" type utility interactive inverter for the photovoltaic power system "SANSOLAR" has adopted Sanyo Denki's own circuitry for its semiconductor insulation system to make it more efficient and lighter by eliminating the transformer.

There are different types of "PMB" such as "PMB-TDR" which has only the utility interactive feature, "PMB-TDS" with a stand-alone function, "PMB-TDC" with standalone and charging operation functions, and the new addition of "PMB-TDT" with the outdoor type utility interactive inverter to the line makes it even more versatile.

The advantageous features of the "PMB-TDT" are as follows:

1. It can be installed in a space under the solar cell panel and can use a built-in current collector circuit to collect DC current from the solar cells. This

configuration helps dispense with either special space for installation or a current collector box and reduces the total system costs by eliminating the installation and wiring costs.

2. The system capacity is limited to 10kW to standardize the basic system configuration including the solar cell panel, Support Structure and utility interactive inverter. It allows the building of a total system consisting of any number of such basic systems to meet specific capacity demands.

Hybrid Power Generating System

We have developed clean hybrid power generating equipment which is independent of the environment and does not need any fuel.

This equipment is a portable power generating system using 24VDC voltage and 100W output. The system consists of solar cells panels, a photovoltaic power system, a foot power generator, and batteries.

The photovoltaic power system specifies power to the battery either from 3 solar cell panels or a foot power generator through a charging circuit.

The conventional hand generator has been replaced by a foot generator for both easier operation and increased power. It has been constructed to be easily assembled and disassembled. The generator and the photovoltaic power system have been made smaller and lighter and they are easily portable.

The power generating system is available as a power supply source for portable or emergency communication equipment. It uses solar cells in daylight and the foot generator on cloudy days and night.

Norio Sugawara
Joined company in 1969
Power Systems Division, 3rd Design Dept.
Worked on development and
design of revolving type power supply system