# Power Systems Division

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The main product developments of the Power Systems Division in 2001 fiscal year are as follows.

As for the power conditioner for photovoltaic power generation system, we have created a disaster evaluation system supported product by mounting a standalone charging circuit into an I/O box. We have also manufactured the device to include peak-cut run of electricity.

For mid-capacity power supply, with a modification of the "AMB200T3", a compact and lightweight type 400Hz frequency converter has been created.

For small capacity power supply, in order to meet the demands for high reliability and a capacity of larger than 1kVA by the DC/AC inverter device which converts DC48V to AC100V, we have developed the DC/AC inverter that is able to be operated in parallel under complete individual control without having a separate control.

For UPS control software, since the share of Linux OS in the server market is expanding, we have developed the "SAN GUARD IV Lite for Linux" which is operated with Linux as part of the "SAN GUARD IV Lite For Windows" series.

## Supporting the Multifunction Power Conditioner for Photovoltaic Power Generation System, "PMC-TD"

The power conditioner "PMC-TD" for photovoltaic power generation system has the expandability of a standalone system and the charging function to support a flexible system. This time, we have succeeded to develop a product that can support a disaster evaluation system by installing the control circuit into an I/O box, the standalone auto-switching circuit, and a battery connecting circuit using a modular system structure.

The standalone function has been changed to be able to run in parallel using a complete individual control without a common control part. The parallel operation of up to 5 units by the modular system has realized not only the increase of capacity of standalone output up to 50kW, but also enhanced the expandability more than the conventional model, "PMB-TD".

In addition, we have achieved a peak-cut run function with the use of a scheduled operation with an internal timer, which enables reduction of the contract demand by charging acid batteries during off-peak usage electric power and discharging the saved power in daytime during peak power usage periods.



Image

## Size Reduction and Weight Reduction of 400Hz Frequency Converter

The 400Hz frequency converter has current uses for maintenance of aircraft or for power supply of radar with requirements from 30kVA to 100kVA.

We have developed a 15kVA (20kVA) converter for a specific customer. Upon developing, we took advantage of the circuit and the mounting technology of the compact and lightweight uninterruptive power supply, "AMB-T3" series, to reduce installation space and weight.

The following are the features of this device.

Small size and lightweight

40% reduction in installation space and 50% reduction in weight compared with conventional 30kVA products.

Enhancement of the intelligent functions such as failure diagnosis function and guidance function.

The ability to run continuously even during a momentary power break of AC input for 100ms or less.

## Parallel Operation Type DC/AC Inverter

The communication industry including NTT had been setting up large capacity batteries in their stations to provide a system by which DC48V is supplied in order to achieve uninterruptive power supply.

The equipment with DC48V input has been widespread in the IP equipment market where power supply reliability has great importance. Also, more and more stations are changing to only DC power supply system in recent years.

However, since not all equipment is able to work with DC but some of them require AC power, we have developed 1kVA DC/AC inverter, but a demand for a model with higher reliability, maintainability and larger capacity grew.

We have now developed a DC/AC inverter with a standalone control that enables parallel operation to achieve improved reliability and maintainability.

For this inverter, we have adapted the same size and capacity of the previous model (1kVA/19 inch rack mounting)

This has made possible the parallel operation of up to five units, which now allows you to handle flexibly an increase of a system load.

Moreover, it achieves reliable power by allowing additional output capacity as well as performing N+1 method redundant operations.

## UPS Management Software "SAN GUARD     Lite for Linux"

UPS management software "SAN GUARD     Lite" is a software which safely shuts down computers connected to a UPS upon an interruption in power.

Recently, the market share of Linux has been expanding as a server OS. With computer makers selling the Linux equipped servers, our most urgent task was the development of the UPS management software operated by Linux.

We have implemented the support of Linux for UPS management software and started the sales of "SAN GUARD     Lite for Linux" as part of the "SAN GUARD     Lite for Windows" series.

Because the GUI part of the tool is created in Java for "SAN GUARD Lite", it provides common operability between Window and Linux. "SAN GUARD     Lite" offers similar functions even if the OS is different, and can easily construct a UPS management system even with the environment where a Windows machine and a Linux machine exist together under one UPS.

We are currently working on the development of a UNIX version as well.
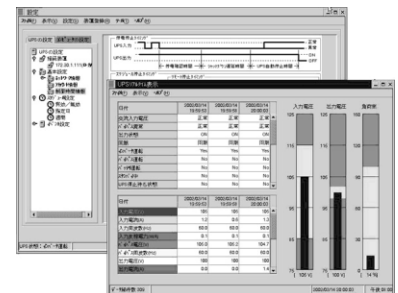
**Minoru Yanagisawa**
Joined company in 1980
Power Systems Division, 1st Design Dept.
Worked on development and design of the static type power supply system