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Why Modular UPS?

Abstract

This document describes what are the reasons to decide for a modular and scalable UPS system to protect better critical load.

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Introduction

When a customer decides to purchase a UPS it means that he intends to protect his sensitive devices from mains supply disturbances and mains failures.

The conceptually simplest UPS-Configuration is the so called Standalone UPS Configuration with a static bypass. It is a cost-effective hardware solution and is the mostly used UPS – Configuration.

In the low-end power range of up to 8kVA the Standalone UPS Configuration is the answer to power protection. In the range of up to 8kVA many customers have a limited budget or the sensitive load that needs power protection is not mission-critical and therefore the standalone configurations provides sufficient availability over that of the utility power supply.

In the power range above 10kVA the importance of the sensitive loads starts to increase and the consequential costs that are caused by interruptions of the power supply may be a multiple of the UPS investment cost. Consequently, the need for UPS-Parallel Configurations with higher availability becomes mandatory.

Why are UPS-Parallel Configurations so important?

When a customer decides to purchase a UPS we must ask him the following questions:

1. *Have you correctly assessed your sensitive load that needs power protection and will your sensitive load grow in the future ?*

   If the customer's company will grow in future his computer system that needs power protection will also grow. In this case the appropriate UPS configuration will be a scalable UPS parallel configuration.

   There are two possibilities:

   a) the customer purchases a **Standalone UPS** (cost-effective) and if in future his sensitive load (application) increases, the existing UPS must be replaced by a more powerful standalone UPS. This operation is mostly *expensive*, because the installation must be increased and the existing UPS that has not terminated its life-cycle and still has value, must already be exchanged.

   b) the customer purchases a **modular scalable UPS** which is initially *more expensive* than the standalone because it is modular and comprises the parallel-function that enables future power upgrading. When the modular scalable UPS configuration is purchased, usually the installation sized for a future higher power requirement than initially necessary. The power upgrade is easily performed by simply adding UPS-modules (*cost-effective*) without the need of replacing complete UPS'S and without the need of performing any additional installation work (*cost-saving*).

2. *Is the application (load) mission critical i.e. are the consequential costs due to power supply failures high ?*

   In mission-critical applications the availability of UPS systems is of paramount importance. Commercial components do not always provide sufficient field reliability. The availability of a Standalone UPS Configuration is mostly not sufficient to guarantee the requested up-time of mission-critical applications. In the event of an inverter failure in a Standalone UPS, the critical load will be transferred to bypass i.e. to the unreliable raw mains supply.

   To enhance availability, parallel UPS configurations have been developed that can operate in the so called redundant parallel mode. In the event of a failure in one of the UPS'S in a parallel redundant configuration the critical load will continue to be supplied by the remaining UPS'S interruption free and without the need of transferring the load to the unreliable raw mains supply.

   There are various types of parallel UPS configurations in the market. Most of the vendors offer conventional UPS configurations with parallel standalone UPS'S. The shortcomings of these configurations are large foot-print, high weight, high losses, longer MTTR etc.

   The NEWAVE CONCEPTPOWER modular parallel configurations are scalable and redundant UPS Confiurations which do not belong to the same price category as the standalone UPS'S and as the conventional parallel standalone configurations.

Conclusion

Not all customers are ready to pay for a modular UPS configuration. It is therefore important to understand by asking the right questions from the beginning :

- *Will the critical load grow in the future ?*
- *How critical is the customers application ?*

If the answer to at least one of these two questions is YES, the customer will probably be ready to talk about scalable and/or redundant UPS Configurations.

Then we need ask another question:

- *Does the customer have the necessary budget for scalable and/or redundant UPS configurations ?*

  If the question is YES, obviously our chances to win the job have substantially increased.