USE OF ENERGY SAVE MODE WITH ACC CONTROLLER

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INTRODUCTION

UNIPOWER's Network Power Systems product line was primarily developed in the tele-communications industry and features a modular concept which allows you to create a single chassis solution meeting a multitude of requirements. The Current Sharing algorithm being implemented in all devices of this type evenly distributes the output current between all rectifiers of the power system. It reduces deterioration of equipment and batteries and balances electricity consumption as well.

Power system capacity is based on a rated load, batteries capacity and required redundancy. Applications exist where it is necessary to supply equipment that doesn't operate at full power permanently. Load may change peri-odically, sometimes with long breaks. At the same time batteries charging isn't a constant process. In such cases total load can be reduced down to 10%.

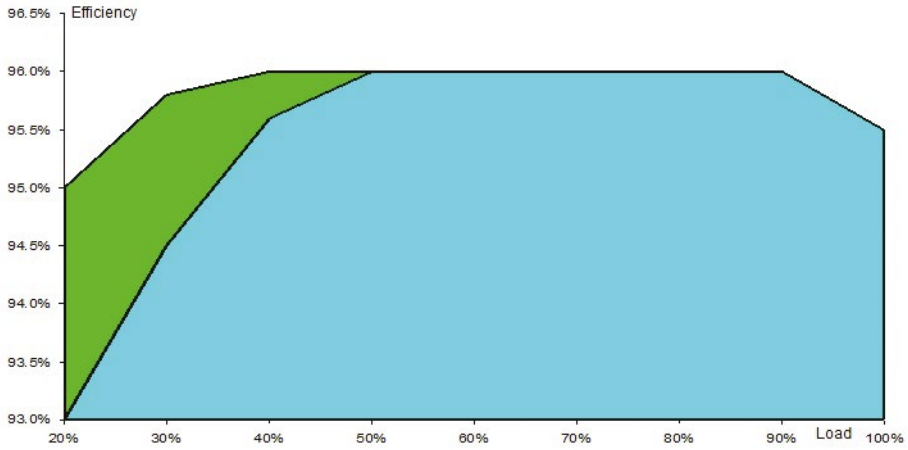

Figure 1 - Efficiency Gains

All electrical equipment always has its optimal operating conditions under which it reaches its maximum efficiency. At the same time each active module dissipates the energy as heat and requires active cooling. Engagement of all rectifiers is inappropriate in low load mode, wasting energy as heat' therefore in order to eliminate the user's need to produce a partial dismantling or manual shutdown (via software) of rectifier units the Energy Save Mode was developed.

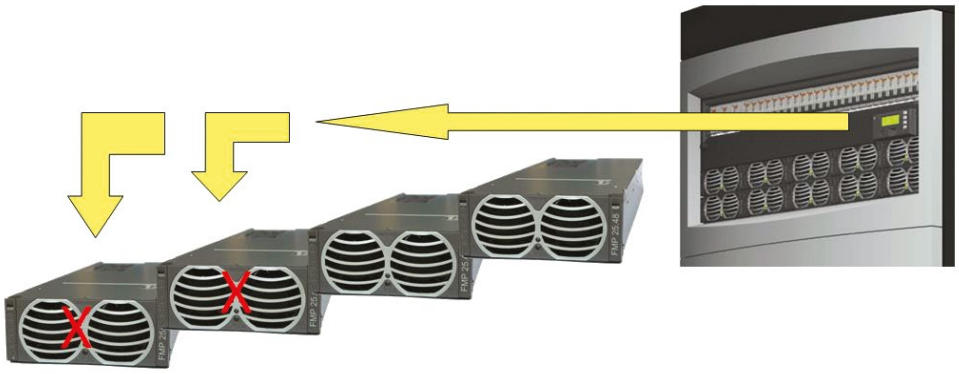

Figure 2 - ACC controls the operation of rectifiers

Energy Saving is regulated by the UNIPOWER ACC controller: it periodically rotates between the active and standby rectifiers. Replacement frequency and target percentage level of minimum and maximum load of the power system are defined by the user.

Power System must meet the following conditions to enable the use of Energy Save Mode:

- Feature is enabled by factory's default configuration (can be updated afterwards).
- Three or more operable rectifiers installed.
- Output current of active rectifiers varies between 30 and 70% of rated power.

The UNIPOWER Advance Controller Card (ACC) is a pluggable microprocessor controller that provides monitoring and control for a broad range of UNIPOWER DC Power Systems. The ACC monitors all system parameters in-cluding: DC voltage, rectifier current, rectifier temperature, system capacity, battery parameters, and circuit breaker status. This device is the key to use of the Energy Save Mode.

Figure 3 - ACC Controller

NOTE: Before activating the Energy Save Mode feature make sure that its option is enabled by default in the ACC controller configuration.

EASY START

Use UNIPOWER's PowCom™ software to connect to the ACC controller. Go to "Supervision|Set extra parameters...". Then check the box "Rectifier auto on/off" and set a rotation period value (in tenths of an hour). The minimum possible value equals to 12 minutes. "Update" button uploads changes to the controller.

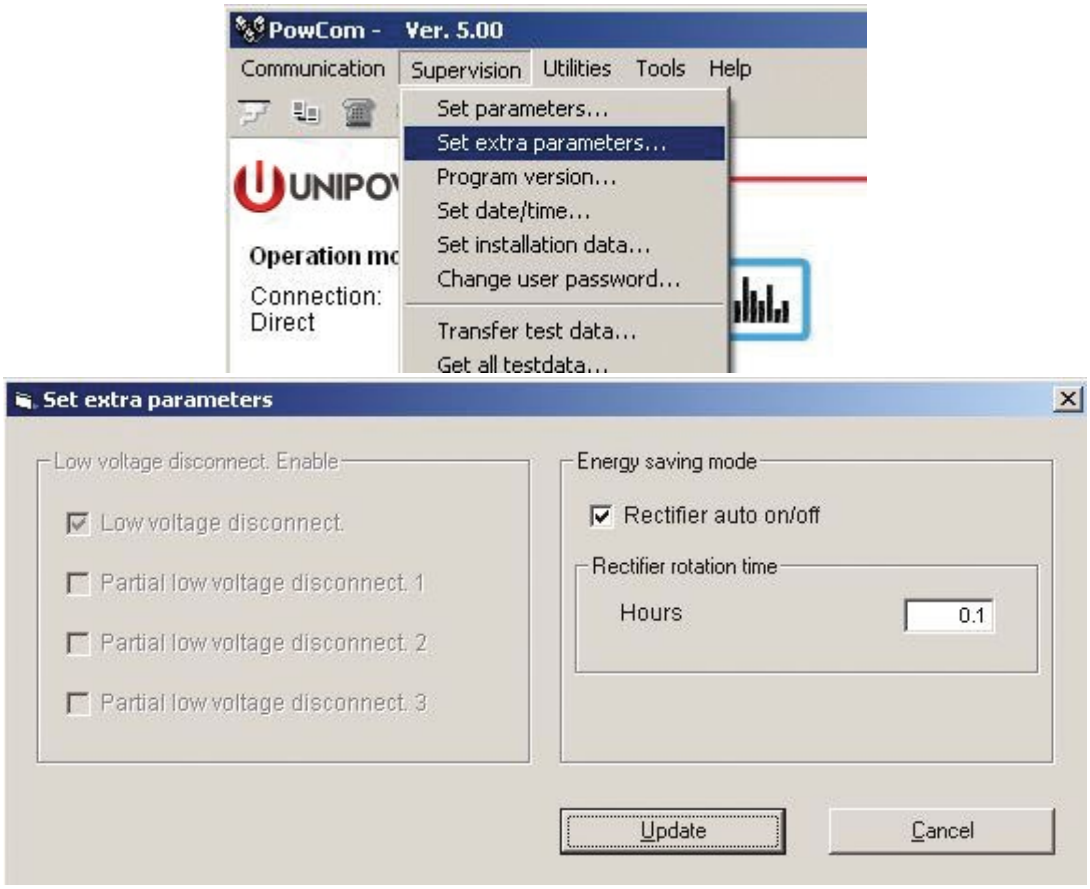

Figure 4 - PowCom™ menu steps

To enable the feature via ACC front panel interface (an alternative to software connection) go to "Adjust Limits| Energy Save Mode".

NOTE: Auto Module Turn Off/On excludes Manual Turn Off/On. If Energy Saving isn't available, please ask UNIPOWER customer support for an appropriate configuration update.

MONITORING

To verify that Energy Save Mode is operating, check that the Rectifier Block changed its color to green. If the conditions of use are met, ACC begins to turn on/off rectifiers. Those ones which are in standby mode are colored with orange.

At least two rectifiers remain active simultaneously. The others are in standby until a rotation period passes. If load exceeds 70% of its rated o/p, then one more rectifier is engaged. Otherwise when output current drops down to 30% of nominal, one of the working modules goes to reserve.

NOTE: 30% and 70% are default values of load limit. Please ask customer support for configuration changes.

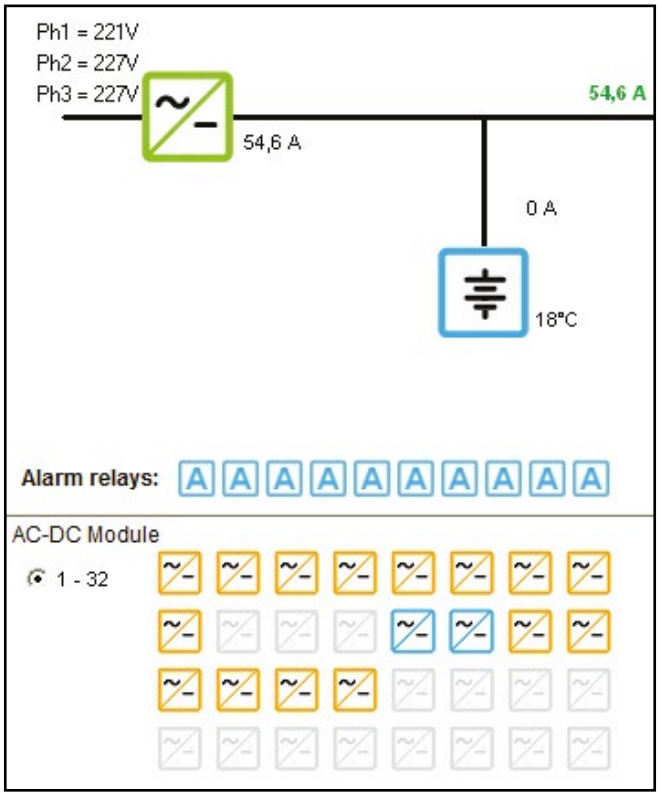

Figure 5 - PowCom™ window: Energy Saving in operation

Reserve modules aren't completely disabled so it allows them to switch and deliver load immediately. Operating in Energy Saving Mode rectifiers remain hot swappable.

CONCLUSION

High efficiency and energy saving result in savings of Finances and Resources. This Mode is a built-in function in Power Systems based on ACC controller. No extra equipment is needed to enable it. The feature can be used in all series of UNIPOWER network power systems: Aspiro, Guardian Access, Guardian Central.

Please see more details of specifications within individual data sheets at http://www.unipowerco.com.

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