

APPLICATION NOTE

SOLID STATE RELAYS USED IN UNITED POWER SUPPLIES.

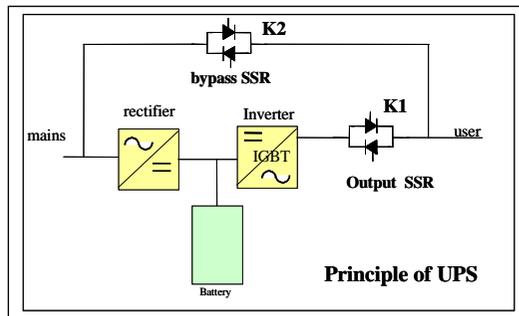
United power supplies (UPS) are made of a battery, working with an inverter which allow to supply energy, in case of power cut, without bothering the user.

These UPS are set aside to all installation which need to be assisted when a mains failure occurs and more particularly big computer systems as well as sensitive establishments such as hospitals, civil security, banks...and personal computing generally.

Working principle :

When normal functioning, K2 is closed

==>The user is using the mains power. The rectifier allows to maintain the battery loaded. The inverter is synchronized on the mains frequency, but K1 is open. In case of power cut, the automatic system spots it, close K1 and open K2. The inverter is taking over and transform the battery's voltage into alternative voltage.



K1 is a non synchronous relay which can be closed very quickly ($<10s$), so that the user can not see any power cut on the mains. The battery can run for 10 minutes, in order to take the necessary measures : saving, generator starting,... When the power comes back, the inverter synchronizes again on the mains and the reversal switching (K2/K1) is made.

Solid state using :

Most of those equipments use thyristors with protection (RC, VDR) and are driven by impulsing transformers with an expensive and fragile cabling.

Using classical solid state relays can give rise to problems because the application needs :

- relays with sufficient holding voltage : 1200 or 1600 Volts
- relays with current characteristics : sufficient nominal current, i_{tms} , P_t ,..., because every type of load can be connected to the supplying system
- Quick on state response times.
- A good immunity of the products in relation with main EMC standards.

APPLICATION NOTE

Celduc, specialised in power switching has solved many problems and has different references in this domain with :

- housing (electronical type)_SC for single phase , SGT for three phase
- housing (electro technical type)_SV for single phase, SVT for three phase
- non synchronous relays (Sx7 or SxT7) with a closing time $<10ms$
- a voltage range from 12 up to 125 A with P_t reaching $20000A^2$ in single phase or three phase
- a high immunity level :
 - >4Kvolts without interferences according IEC-4-4
 - >4Kvolts without interferences according IEC-4-5 (on relays with VDR) using celduc SSRs allows to win on cabling, maintenance...