

CHAPTER 23

ROTARY UNINTERRUPTIBLE POWER SUPPLY

23-1. General rotary uninterruptible power supply

An uninterruptible power supply (UPS) is designed to provide conditioned power which offsets the effects of adverse normal power. Rotational type UPS systems are different from static systems in that they rely on some form of rotational mechanical power to provide the conversion process to electrical power. Typically these systems are generator or flywheel driven. Static UPS are described in chapter 22.

23-2. Rotary UPS design features

A flywheel driven rotary UPS is used for applications requiring ride-through of short duration power system outages, voltage dips, etc. The flywheel driven rotary UPS typically does not include batteries, and support times are usually on the order of a few seconds to a few minutes. The use of a generator driven rotary UPS can provide extended power for an indefinite power outage and also supply air-conditioning and lighting loads. Data processing equipment rooms will typically overheat within a 15- to 30-minute period if the ventilation system is not working, making the generator set a near necessity for outages in excess of this time. Analysis of battery cost will often justify a generator set at lower cost than choosing a long battery support time with an accompanying restriction of eventually implementing an orderly critical load shutdown. A battery support time of as little as a few minutes may be specified with generator set backup; however, longer support times in the range of 15 minutes are more typical.