WHITE PAPER

Medical Application of AVC

Costs Avoided, downtime reduced, patient care quality improved

A major hospital in Southern USA had experienced problems with voltage variations which caused very expensive damage and prolonged downtime to Linear Accelerators which are used in the treatment of patients with certain types of cancer.

The machines are programmed to deliver a certain fixed predetermined amount of energy in the form of tightly focused radiation over several seconds at a time to reduce cancer cells and each patient typically will have a number of consecutive treatments over periods from days to weeks.

If a voltage sag occurs during operation of the Linear Accelerator, it will try to draw more current for the duration of the voltage sag because it is programmed to deliver energy. This is especially severe for single phase voltage sags. The excess current can cause damage to the machine which requires costly component replacement and the resulting downtime of the machine may adversely affect patient schedules.

The hospital had undertaken to build a new cancer treatment center on a separate site and it was decided to protect the new similar Linear Accelerator machines with Active Voltage Conditioners (AVC's).

During the first year of operation a linear accelerator protected by an AVC experienced 19 voltage sag events. While some of these were minor in depth or duration, at least 6 events could have caused major damage if the AVC had not been installed.

According to the hospital's biomedical engineering staff there were no incidents in the year where the machine malfunctioned due to voltage variations, their schedules were not adversely affected nor were there any spare components needed.

While it may be that 2006 was a year with fewer thunderstorms, which are a major cause of voltage sags, the overall comment was that no weather or voltage variation problems were experienced at all.

The AVC continues to protect the Linear Accelerator.

75kVA AVC 24"w x 28"d x 36"h

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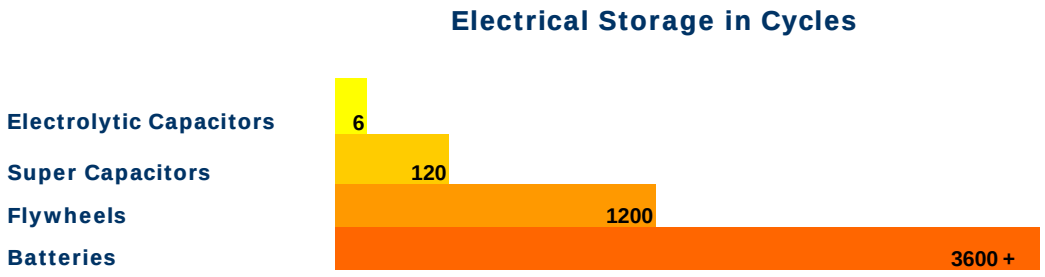
AVC Performance by Model

	AVC	AVC-2	AVC-2 Store
Always ON Line	X	X	X
Continuous Voltage Sag Correction - 1%	X	X	X
Phase Voltage balancing	X	X	X
Harmonic Reduction	X	X	X
Flicker Correction	X	X	X
Continuous Voltage Regulation +/- 1%		X	X
Power Factor Correction		X	X
30% or 40% Voltage Sag Correction	X	X	
<5% Remaining voltage correction			X
Power Outage Protection			X
Electrical Storage available			See Below

Types of Electrical Storage and Capacity



Contact us for more information on products available

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