

ARTICLE

# Power protection - Reliable voltage protection of sensitive loads



vital that their equipment was guarded by leading edge power protection technology. To ensure further growth, SMC opened the Samsung Cancer Center and Samsung Cancer Lab in 2008 and 2009 respectively. The Samsung International Medical Center will open in 2015. Therefore investment in power protection is crucial for ensuring that SMC is prepared for the future.

### ABB's technology and solution

SMC were concerned that their cancer treatment machines would experience potential premature failure of components due to supply voltage fluctuations. Power quality events were disrupting the operation of the cancer treatment and scanning machines, compromising the level of service offered to the hospital's customers. Disruption of operations would ultimately add to the operational costs and lead to unscheduled downtime for maintenance to bring the machines back to their original state. With the installation of the PCS100 AVCs, voltage dips and swells have been prevented.

The solution included two 300 kVA and two 600 kVA PCS100 AVCs. The PCS100 AVCs being three phase machines, provide are able to sustain single and three phase voltage sags. Another advantage is the high efficiency rate exceeding 98 percent, making the units extremely reliable giving the cancer machines with immunity from the voltage sags that occur on the AC supply network. The SMC installation is the PCS100's largest medical application to date. Since this project was a retro fit, the PCS100 AVCs, with their small footprint design, were incorporated because they provided the kVA protection required within the limited installation space available.

### A proven success

Mr Kim of Woojin Electrical Machinery said, "SMC are very happy with the PCS100 AVCs as they have provided the protection they required being a very energy efficient solution which fitted in with the intelligent building concept."

01 Samsung Medical Center (SMC) has successfully incorporated and developed an advanced model with the motto of becoming a "patient-centered hospital," a new concept in Korea

ABB's Power Conversion team has successfully installed four PCS100 Active Voltage Conditioners (AVCs) into Samsung Medical Center (SMC), based in Korea. The main purpose was to protect cancer treatment machines from voltage distortion. These machines are very expensive and are prone to shutting down when exposed to voltage sags and swells. A shutdown during a treatment cycle can disrupt the treatment program, and have a direct impact on the patient. With its small footprint in design and high efficiency rate, the PCS100 AVC is eliminating the risks of power disturbances.

Today, the medical environment is increasingly reliant on leading edge technology and machines that assist in the diagnosis and treatment of patients. Without these machines and the contributions they make to medical intelligence, medical science and research would be greatly hindered in its quest to cure diseases.

### Insight into the future

ABB's PCS100 AVCs were selected and installed to protect the cancer treatment machines which are a core component of Samsung's specialist hospital. To help ensure SMC's future goals of becoming a world class medical institute, it was

### **SMC background**

The SMC, located in Seoul, Korea, consists of a hospital and a cancer center. The hospital is located in an intelligent building with floor space of more than 200,000 square meters with 20 floors above ground and five floors underground, housing 40 departments, 10 specialist centers, 120 special clinics, and 1,306 beds. The 655-bed Cancer Center has 11 floors above ground and eight floors underground, with floor space of over 100,000 square meters. SMC is a tertiary hospital manned by approximately 7,400 staff including over 1,200 doctors and 2,300 nurses.

Since its foundation in 1994, SMC has successfully incorporated and developed an advanced model with the motto of becoming a “patient-centered hospital” – a new concept in Korea.

To find out more about ABB’s power protection solutions:

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