



# Powering Medical Technologies

For a doctor performing a delicate procedure involving interventional radiology, one of the worst scenarios is a loss of power. A steady supply of quality power is essential to the sophisticated electronic equipment and high resolution monitors that allow a doctor to see a clear path for the catheter. If the power fails and the monitors fade to black, the physician loses the ability to see where he is and in some cases, must wait for it to return just to exit the body safely. Even under the best circumstances hospital generator power can take 5 minutes to bring the system back to an operational state. Until this occurs the doctor must remain "frozen" in position so as not to risk any damage to the fragile blood vessels of the patient.

Siemens Medical Systems recognized this problem some time ago and set out to develop a solution which would provide the doctor with a way to safely exit the patient without delay should power be lost. By using the power from an Uninterruptible Power System (UPS), the C-arm and table of the Angiographic system remain completely operational. The digital imaging system continues to function which means important image files can be accessed, thereby minimizing workflow interruption.

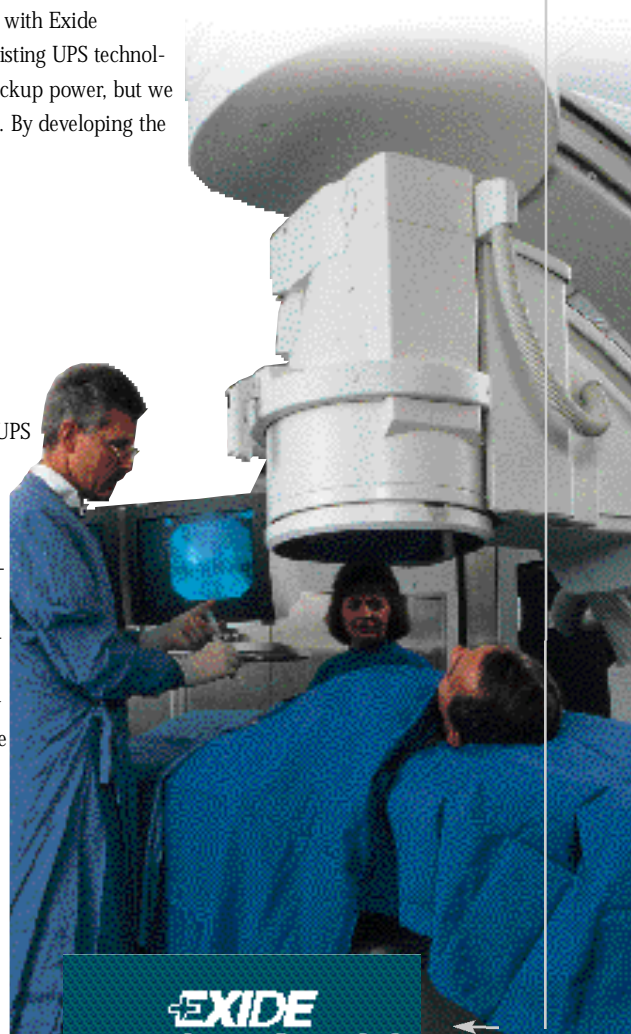
But the development team at Siemens went one step further. Working with Exide Electronics, a strategy was developed to customize a solution using existing UPS technology with application specific enhancements. "We needed a UPS for backup power, but we also needed a way to keep the size and cost of the UPS to a minimum. By developing the Emergency Fluoro code for the Polydoros Generator

## Siemens

we were able to reduce the load the UPS sees during retraction of the catheter. This enabled us to design-in a smaller, less expensive UPS achieving both of our goals." said Sandy Black, Cardiac Product Manager of Siemens Medical Systems.

The software developed by Siemens enables the Polydoros, which provides the intelligence for the x-ray equipment, to operate at 50% power. This significantly reduces the power requirements of this high-powered inductive load. In operating room environments, this means that Siemens could standardize on the Powerware Plus 36, a relatively compact 36 KVA UPS and one that is considerably less costly than one that otherwise would have been required.

The Powerware Plus 36 is a true on-line UPS which uses double conversion technology. By converting AC power to DC and back to AC the load is totally isolated from the incoming utility thus eliminating surges, spikes and brownout conditions. The UPS can accept input power worldwide and is equipped with a multilingual display.



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# customer *profile*

The configuration of the solution is unique in that the UPS provides continuous power to the computer portion of the Siemens system but only supplies power to the Polydoras Generator when the normal utility power is lost and it goes on battery. This switch to UPS backup also causes the Polydoras generator to operate in low power mode. To effect this transfer from utility to UPS power, Exide Electronics developed an Automatic Transfer Switch (ATS) which facilitates the transfer in the proper amount of time. The development required that engineering teams from Exide Electronics and Siemens form a partnership to develop the correct hardware for overall system timing and performance. "We worked closely with our partner Siemens and developed the ATS with design inputs from both Siemens and Exide Electronics. Because of this we achieved our design goals of compact design and very high reliability," said Roy Hicks, Sr. Product Marketing Engineer for Exide Electronics.

Siemens and Exide Electronics have developed a unique product which provides rapid restoration of power to the Angiography system. It is being adopted as an option on much of the Siemens industry-leading product line. The Emergency Power Supply Option is available on Siemens Multistar, Angiostar and Neurostar models.

The response from the medical community has been very enthusiastic. The power protection that has been designed into Siemens medical systems translates to much less risk in quickly and safely removing a catheter following a loss of power. The innovations that Siemens and its partners are employing are helping to ensure patients receive the highest level of care," said Richard Ruoff, Angio Product Manager.



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