

CASE STUDY

SGA Programmable Supplies Help Lab Study Elemental Particles

► Background

A government-funded particle-physics and accelerator laboratory has been asking big questions: What are we made of? How did the universe begin? In pursuit of answers, the lab has been studying elemental particles of matter to uncover their secrets and help us understand the intricacies of space and time. A topic of recent interest is a particular class of short-lived particles.

The lab is engaged in two projects regarding these particles. One experiment is studying how these particles act when subjected to a magnetic field to determine whether their behavior is in accordance with the predictions of the Standard Model, which describes fundamental forces, particles, and their interactions. Initial results indicate that it does not, suggesting that new fundamental particles and forces may be waiting to be found. The second experiment will try to determine whether the particles can convert into other particles.



► The Challenge

To produce the particles, the lab employs accelerators that smash protons into a target, creating the particles of interest. Magnets steer the particles into a delivery ring and subsequently to a precision storage ring, a large-diameter electromagnet, where their behavior can be studied. To drive the cryogenically cooled steering magnets used in the experiments, scientists required programmable supplies that could deliver bulk DC power and that featured isolated analog control inputs.



► The Solution

The lab recently chose Sorensen SGA Series of programmable power supplies from AMETEK Programmable Power to drive the steering magnets used in its experiments. These high-power, fault-tolerant, modular DC supplies offer 10V to 1,000V maximum voltage ranges, 5A to 6,000A maximum current ranges, and 4kW to 150kW maximum power ratings as well as isolated analog control. The lab chose the SGA Series because it has experienced good stability and reliability with the AMETEK Programmable Power products it has purchased. In addition, the lab appreciates the local long-term support and, when needed, factory support, it has received. The lab also benefits from the modularity of AMETEK Programmable Power products, which facilitates maintenance and simplifies spare inventory. And for the lab's particle experiments, the SGA Series offered value at a competitive price. Favorable relationships across the AMETEK Programmable Power sales channel sealed the deal.