

SQ-300®i Hybrid Automatic Voltage Control for Electrostatic Precipitators

ESP technology, parts and service

To help keep your electrostatic precipitator (ESP) functioning at peak performance, Babcock & Wilcox (B&W) provides innovative precipitator control systems, supervisory software, mechanical components, electrical equipment, and dependable installation and support services.

AVC evolution continues

B&W's SQ-300®i Hybrid automatic voltage control (AVC) is the newest addition to the proven SQ-300 product line. Based on the same trusted technology, the SQ-300i Hybrid AVC has the ability to control either a conventional, single-phase transformer rectifier (T/R) set or a low ripple, 3-phase T/R set.

Just like its predecessors, the SQ-300i Hybrid AVC is an integral component of the precipitator control system. It simultaneously controls power to the T/R set, analyzes alarms, and interfaces with computer-based data acquisition software. The ability to control two different types of power supplies adds a unique dimension to the product line.

Why the hybrid? The single-phase and the 3-phase power supplies originate from the same design. They both use silicon-controlled rectifiers (SCR) for power control, neither requires an active cooling system, and both exhibit high reliability. With these similarities, the development of the SQ-300i Hybrid control was a natural progression.



The optional operator interface with SQControl software.



Exterior and interior views of the SQ-300i Hybrid AVC.

Engineered to impress

The design of the new SQ-300i Hybrid AVC offers a variety of benefits, including:

- A single-component solution for 3-phase low ripple and single-phase power supplies
- High reliability at low cost
- Reduced control size and complexity through the use of modern, large-scale integration components and assemblies
- Simplified structure; one power supply control system that can interface with plant systems
- Decreased requirements for spare parts inventory
- Dual-function as an upgrade component; fills immediate needs for conventional control replacements, providing continued use even if T/R sets are later upgraded to 3-phase
- Automatic line voltage and control voltage detection
- Switch from single-phase to 3-phase (or vice versa) with a simple firmware change

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SQ-300i AVC line

Each AVC in B&W's SQ-300i AVC line uses a spark response algorithm pioneered by B&W that provides increased efficiency and improved emissions collection, regardless of operating conditions. These controls ship with SQControl configuration and control software that provides a wide range of features when run on an optional operator interface, laptop or PC.

Current product line features include:

- Trending, command history and alarm log
- Improved connectivity that interfaces with customer data acquisition systems
- Increased average power delivered to the field through the automated tuning of setback and spark rate, resulting in higher collection efficiency
- Power quality analysis utilizing on-board waveform analysis
- On-board generation of V-I curves
- Monitoring of key functions of the T/R and precipitator field during operation
- Modbus TCP/IP communications, which allow direct communication with the SQ-300i controller from the DCS system
- Conformal coating on printed circuit boards for environmental protection
- Configurable to unique IP address and subnet mask
- MET, CMET, CE certified
- Multi-language support
- No hardware or software potentiometers for calibration
- Can provide user-selectable digital and analog I/O (with optional hardware)
- Real-time diagnostics capability

- Built-in oscilloscope feature provides another layer of protection from arc flash
- Local viewing of real time and historical electrical and alarm history, waveforms, V-I curves and short trends
- Ability to interface with other B&W software and plant systems to provide a unique precipitator control package
- Energy savings in reduced power consumption



Auxiliary display option

Optional equipment

- Color touch screen operator interface
- Smaller-scale, touch screen auxiliary display for basic, local control
- Digital and analog input and output modules handle an enormous variety of custom I/O, including the control of tumbling hammers and acoustic horns
- Precipitator Manager™ software provides extensive monitoring and control capabilities for your Ethernet-connected AVCs using a service-based platform for greater system security
- Quick installation kit or upgrade kit for faster, easier installation and setup

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