

ELECTRICAL GENERATION FUNDAMENTALS TRAINING SYSTEM 490-000



490-000

Industrial facilities know how important electrical skills are to ensuring that things run smoothly and safely. What many people don't know, however, is how diverse electrical skills can be. While basic electrical skills, such as wiring a circuit or troubleshooting a transformer, are extremely valuable and quite common, some facilities require specialized advanced electrical skills, such as those relating to power generation and managing multiple power plants on an electrical grid.

DAC Worldwide's Electrical Generation Fundamentals Training System (490-000) represents a true simulator depicting multiple power plants on a grid. The unit basically acts as the control center for a generating station and simulates four separate generating units. The system demonstrates the principles of generator operation and represents the relationships that an operator must master in order to confidently operate generators.

Practice in paralleling machines of various sizes is easily accomplished without tying up the plant simulator. The synchroscope display includes a phase angle display, representing the phase difference between running and incoming.

A graphic representation of how load is shared, by two machines of various sizes, is shown by a house curve. The relationship between real load and reactive load is displayed by meters and by a pictorial diagram of the power triangle on the graphic display. Inductive, resistive, and capacitive loads can be turned on and off reinforcing the effects of reactive load and demonstrating how power factor can be changed.



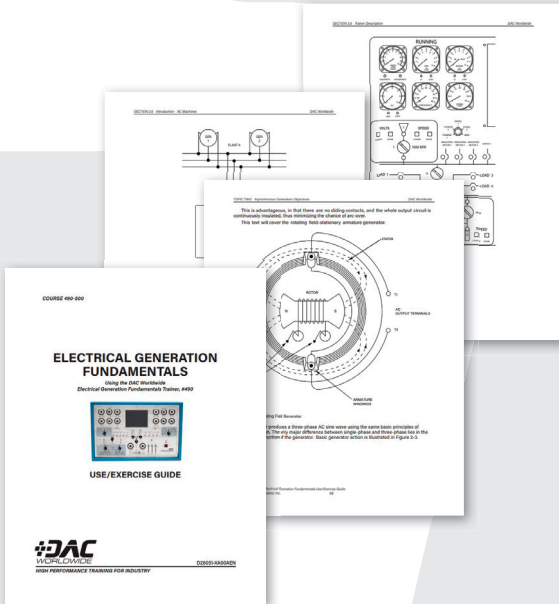
Real-World Industrial Components:

- Internal computer with analog and digital I/O, allowing for realistic analog input controls, analog meters, and digital LCD screen outputs
- Analog meters depicting amps, megawatts, megavars, kilovolts, frequency, and speed
- Realistic, three-position breaker control switches
- Breaker controls interlocked with the sync-selector switch and phase angle display
- Digital output for classroom display

Comprehensive Curriculum:

An in-depth Use/Exercise Guide provides approximately 20 hours of instruction covering the following topics:

- Introduction to AC machines
- AC generators
- Generator system operation
- Reactive power control
- Control and distribution of MW load
- Loss of generation and load
- Real vs. reactive load
- Paralleling operations
- Generators in parallel and load sharing
- Generator response to inductive, resistive, and capacitive loads
- Calculation of power factor
- Diesel generator auto-start and loading



Wide Range of Training Scenarios:

The Electrical Generation Fundamentals Training System offers a variety of training capabilities, including:

- Depiction of a 1000 MW turbine generator operating at 1800 RPM
- Depiction of a second turbine generator operating at either 500 MW @ 3600 RPM or 1000 MW @ 1800 RPM
- Depiction of a 5 MW diesel generator operating at 900 RPM with adjustable voltage and speed
- Depiction of a second 5 MW diesel generator operating at 900 RPM
- Depiction of a variable grid load of 18,000-20,000 MW
- Voltage and speed adjustment on all generators
- Various pre-set and adjustable inductive, resistive, and capacitive grid loads
- Each prime mover can be individually started and tripped
- One diesel generator starts automatically on a loss of all AC
- All circuit breakers allow for over-current trips

