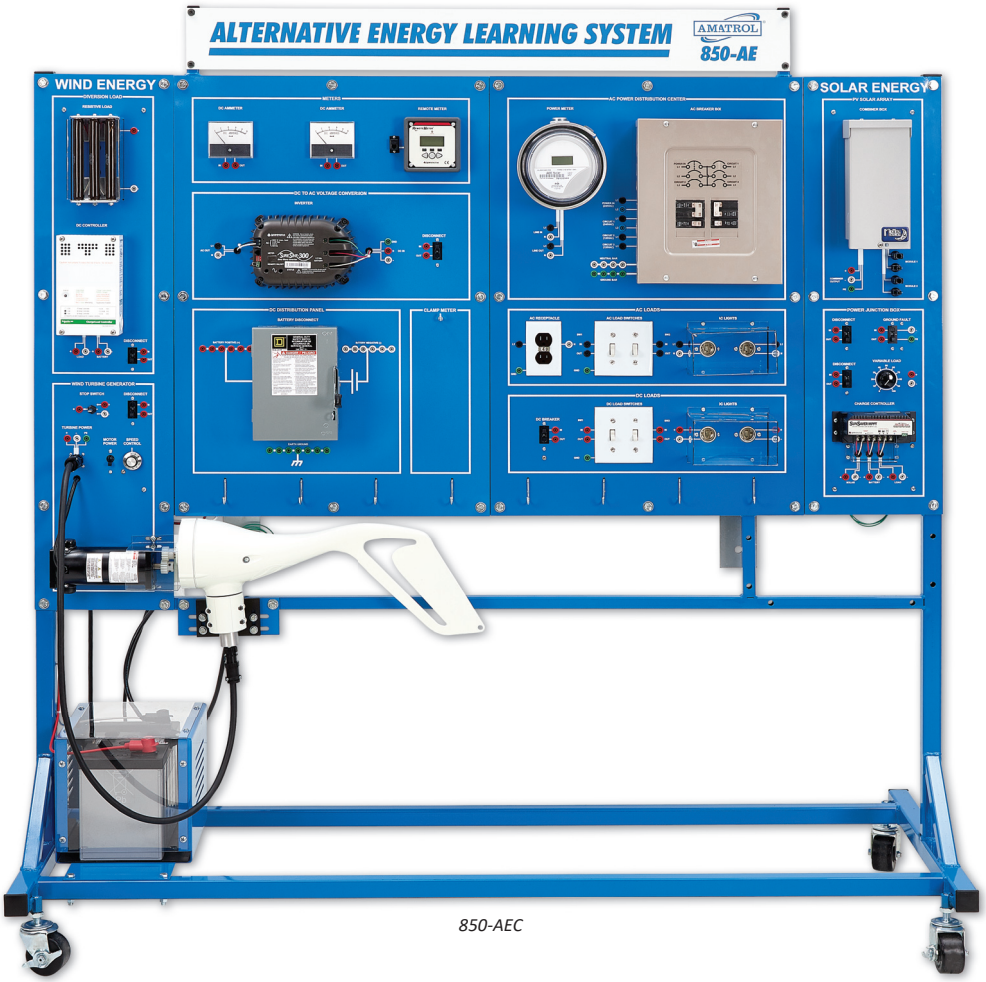
Alternative Energy Learning System – Wind and Solar

850-AEC

GT GREEN TECHNOLOGY



850-AEC

Interactive Multimedia and Student Reference Guides

Learning Topics:

- Safety
- Solar Panel Operation
- Solar Panel Performance
- PV Array Connection
- Wind Turbine Operation
- Wind Turbine Performance
- Wind Turbine Connection
- Solar/Wind Batteries
- Charge Controllers
- Inverters
- Balance of System Components
- AC/DC Solar Systems
- AC/DC Wind Systems
- Energy Conservation and Demand
- System Performance

The demand for qualified solar and small wind technicians is rising, as more consumers and businesses apply solar energy and small wind systems in their communities. Many employers prefer employment candidates who are certified. Amatrol's 850 series Alternative Energy Learning System supports the training necessary to prepare for portions of the solar and small wind certifications offered by such certifying groups as NABCEP (North American Board of Certified Energy Practitioners), SWCC (Small Wind Certification Council), and ETA (Electronics Technicians Association).

The Amatrol Alternative Energy Learning System – Wind and Solar includes a mobile workstation with solar PV components, small wind components, multimedia student curriculum, and teacher's assessment guide. The mobile workstation is equipped with pre-mounted components for easy inventory. Wind turbine and solar panels also allow for outside use with expansion capability for teaching grid-tie and data acquisition. Amatrol also offers alternate workstation configurations for either small wind or solar individually.

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Technical Data

Complete technical specifications available upon request.

Mobile Technology Workstation
Component Panel Set
Wind Turbine
Wind Turbine Simulator
PV Array Connector
Instrumentation Set
Component Set
DC and AC Load Set
Regular Banana Lead Set
Interactive Multimedia Curriculum (M20027)
Instructor's Guide (C20027)
Installation Guide (D20027)
Student Reference Guide (H20027)
Additional Requirements:
- Solar PV Array Station (85-SPA1) or customer-supplied equivalent input power range: minimum 43W, maximum 200W
- Solar PV Sun Simulator (85-SPS1)
- Computer: see requirements: http://www.amatrol. com/support/computer-requirements

Additional Options:
- Grid-Tie Learning System – Solar (85-GT1)
- Data Acquisition Learning System – Alternative Energy (85-ADA1)
- Solar PV Interface (22097)
- Wind Turbine Interface (2099)
- Solar Concepts Learning System (950-SC1)
- Wind Concepts Learning System (950-WC1)

Utilities Required:
- Electric (120 VAC/60Hz/1Ph)
- For complete functionality, requires customer-supplied utility system grid interface. Note that grid tie requirements vary widely and are the exclusive responsibility of the customer.

Convenient Indoor / Outdoor Use for Solar Energy and Small Wind Technologies

The Amatrol 850-AEC Learning System's wind and solar circuits can be used indoors with sun and wind simulators, or outdoors via the detachable solar panel array or client-supplied external wind and solar sources. The solar array easily disconnects from the workstation and sets up outdoors. The 850 Learning System can also be connected to client-supplied roof-top solar panels or wind turbines with the addition of optional interface connections.

Optional Solar PV Sun Simulator (85-SPS1)

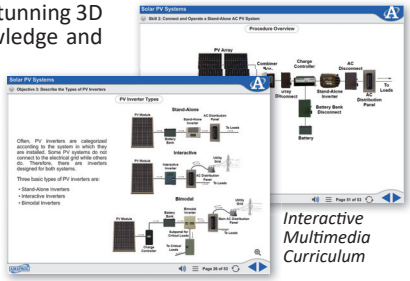
Optional Solar PV Array Station (85-SPA1)

Real-World Components: Multiple Panel Array and Modern Communications

Real world components commonly found in commercial and residential environments to help make learners job ready are showcased in the 850-AEC. For example, the 850 is equipped with a combiner box and a multiple panel solar array, allowing learners to connect panels in series and parallel. The MPPT charge controller, which is the most common controller used today, allows programming and communications via Ethernet from an LCD panel that are typical of current practices. The 400W wind turbine and diversion load controller are commonly found in small wind applications.

Multimedia Curriculum Features Online Learning Toward Certifications

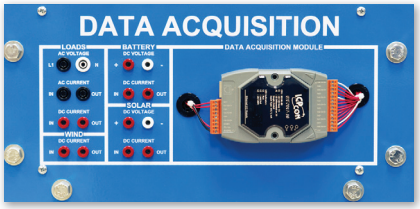
Amatrol's unmatched multimedia utilizes text, audio, and stunning 3D animations that engage learners in both theoretical knowledge and hands-on skills. This thorough, exceptionally detailed curriculum is built to begin with the basics and steadily advance to more complex concepts and skills. Through partnerships with key industry leaders and leading edge educators, Amatrol developed the right balance of knowledge and applied skills needed to train learners to work in their chosen field.



Interactive Multimedia Curriculum

Grid-Tie and Data Acquisition Options

Amatrol's 850-AEC Learning System for wind and solar offers a number of options that can greatly expand the capability of the system. The 85-GT1 Grid-Tie Learning System – Solar features a single phase inverter that enables the system to connect to the classroom grid, typical of PV systems being installed today.

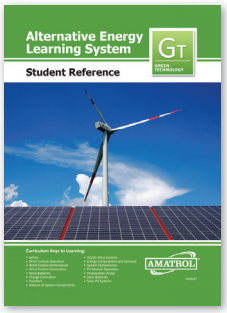


85-ADA1

The 85-ADA1 Data Acquisition Learning System – Wind and Solar features a multi-point data acquisition module, PC software, and sensors that monitor voltage and current in various parts of both wind and solar circuits, enabling students to study operation via data analysis. Both options are panel-mounted units that easily add to the 850 workstation.

Student Reference Guide

Sample copies of the Alternative Energy Learning System Student Reference Guide is included with the learning system. Sourced from the multimedia curricula, this Student Reference Guide takes the entire series' technical content contained in the learning objectives and combines them into perfect-bound books.



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