

# Alternative Energy - Solar | eLearning Course

**PV Module Performance - W20028-XB02AEN-E1**

Skill 3: Determine PV Module Efficiency

Online Skill - PV Module Efficiency Practice (Cont.)

Physical Characteristics Diagram    Typical Performance Characteristi

### Physical Characteristics

The diagram shows a rectangular PV module with a grid of cells. Dimensions are provided in inches and millimeters. The main body is 38.6 in (981 mm) wide and 58.5 in (1485 mm) high. A side profile shows a thickness of 2.2 in (55 mm). The mounting hole diameter is 0.26 in (6.7 mm). The distance between mounting holes is 38.9 in (937 mm). The distance from the edge to the mounting hole is 16.8 in (421 mm). The distance from the edge to the center of the mounting hole is 25.3 in (643 mm). The distance from the edge to the center of the mounting hole is 1.4 in (35 mm). The distance from the edge to the center of the mounting hole is 29.3 in (743 mm).

Physical Design Properties	
Weight	39.0 lb [17.7 kg]
Weight (Wind) Bearing Potential	50 lbs/ft <sup>2</sup> [125 mph equivalent]
Hailstone Impact Resistance	1" @ 50 mph [25mm @ 80kph]

What is the output power of the listed PV module at a solar irradiance of 800 W/m<sup>2</sup> if the efficiency is 13.7%?

P-sub-out = 170.02 W

P-sub-out = 150.02 W

P-sub-out = 159.66 W

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## eLearning Course: M20028

Amatrol's Alternative Energy - Solar eLearning course (M20028) teaches aspiring solar technicians the knowledge and skills they need to prepare for portions of the solar certifications offered by such certifying groups as NABCEP ([North American Board of Certified Energy Practitioners](#)) and ETA ([Electronics Technicians Association](#)). The demand for qualified solar technicians continues to rise, as consumers and businesses turn to solar energy in their communities.

This course teaches how to connect and operate photovoltaic modules, including examples of both flat-plate and thin-film PV modules. It also discusses array connections and solar battery charging.

## Teach Photovoltaic Module Components and System Operation

### Photovoltaic Module Components

Amatrol's Alternative Energy - Solar eLearning course teaches learners the components of PV modules. Cutaways, schematics, animations, and more are used to show the construction and function of components such as PV cells, PV arrays, combiner boxes, bypass diodes, solar batteries, charge controllers, and inverters.

### System Operation and Calculations

Beyond learning a component's function, users will also learn how each component operates within a PV system and apply their knowledge in online skill practice. For example, learners will use provided mathematical formulas to calculate maximum power currents and voltage temperature coefficients for PV modules.

## Interactive eLearning

### Highly-Interactive Multimedia Format Appeals to All Learning Styles

Amatrol's curriculum features a highly-interactive, multimedia format that includes stunning 3D graphics and videos, voiceovers of all text, and interactive quizzes and exercises designed to appeal to learners with different learning styles. The solar energy training curriculum provides interactions like these to teach learners about photovoltaic modules, AC and DC PV systems, and charge controllers.

## **Anytime, Anywhere Access Promotes Self-Paced Learning**

In today's fast-paced, technology-driven world, it's more important than ever to extend the reach of industrial skill training beyond the borders of traditional classrooms. Amatrol's eLearning meets the challenge for flexibility by offering in-depth, comprehensive technical skills training via an intuitive, easy-to-use web-based Learning Management System (LMS).

With anytime, anywhere online access, Amatrol's eLearning allows learners to set their own pace at home, on the job, in a traditional class setting, or a blended approach of these options.

## **Additional Info**

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### **Requires:**

- Computer ([see Computer Requirements](#))

### **Options:**

- Alternative Energy Learning System - Solar (850-AES)
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