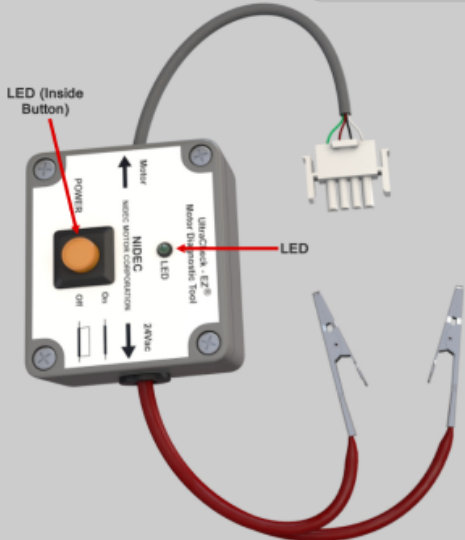


# Geothermal Troubleshooting eLearning Course | Renewable Energy Training

Geothermal Heat Pump System Troubleshooting - WX12306-AB08UEN-E2

Objective 4: Describe How to Test a Geothermal Heat Pump ECM Blower



The image shows an ECM Diagnostic Tool, a rectangular device with a power switch, a power input, and a communication port. It is connected to a 24VAC power supply and a communication cable. The tool has two LEDs: one inside a button and one on the front panel. The front panel also has a 'Water' input, a 'NIDEC' label, and a '24VAC' output. The tool is connected to a communication cable with a multi-pin connector and a pair of alligator clips.

After performing the basic checks to ensure the ECM problem is not caused by another component, the next step is to check the ECM itself.

Some ECM manufacturers provide a diagnostic tool, which makes it easy to check the ECM control unit for faults. An ECM diagnostic tool connects between the communication port on the ECM control unit and a 24 VAC power supply.

The diagnostic tool contains two LEDs that illuminate depending on the condition of the ECM.

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## eLearning Course: M12306

Amatrol's Geothermal Troubleshooting renewable energy training course moves from an introduction about geothermal energy to overall system performance evaluation including troubleshooting skills. Learners begin with an introduction to geothermal heat pump systems and move rapidly into the concepts and components that make a geothermal system operate; these include closed-loop circuits, compressors, closed-loop circuits, compressors, condensers, evaporators, metering devices, refrigerants, and more. This online course also includes topics on component troubleshooting and system troubleshooting.

## Teach Geothermal Installation

### What are Symptoms and Faults?

A **symptom** is an indication that a problem or malfunction exists in a system. Troubleshooting is the process of finding the cause of the symptom, or the **fault**. An example of a symptom displayed by a geothermal heat pump that has malfunctioned is the system does not cool. Through a troubleshooting process, a technician might discover that the cause of the malfunction, or fault, is a blocked reversing valve.

There are two levels of geothermal heat pump troubleshooting — System-Level Troubleshooting and Component-Level Troubleshooting. Before a particular component can be repaired or replaced, the troubleshooter must first determine which component in the geothermal heat pump system has failed. In system-level troubleshooting, the troubleshooter performs a methodical series of tests to find the faulty component. Once the faulty component has been located, the troubleshooter determines if it can be fixed, or should be replaced.

## Multimedia Course

### Multimedia Curriculum for Online Renewable Energy Training

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. (References [950-GEO2](#) & [950-GEO2D](#))

## **Additional Info**

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### **Requirements:**

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

### **Referenced Equipment:**

- Geothermal Troubleshooting Learning System ([950-GEO2](#))
- Geothermal Troubleshooting Learning System with Desuperheater ([950-GEO2D](#))

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