

## Turbotronic 4 Control System Operations

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### Course Number

10203

### Course Duration

5 days

### Audience

Solar turbomachinery operators, maintenance personnel, and engineers

### Prerequisites

Participants must have completed a Solar Operation and Maintenance Principles or Package Operating Principles course. Equivalent experience is acceptable, if this course has not been completed.

### Course Description

This course is designed for package operators or maintenance technicians who are required to perform basic first line control system tasks with minimal guidance from Solar field service.

The course will cover the Turbotronic 4 control system version.

The course will cover the knowledge and skills required to help maintain the package in a serviceable state under several scenarios, including:

- Using the control system program to determine the conditions for package alarms or shutdown
- Reloading the control system program following a component replacement or system malfunction
- Loading a revised control system program that may have been received from Solar
- Restoring Turbotronic 4 ControlNet communications after loading a program, or in the event of a system or components malfunction
- Modifying Tunable Program Constants
- The use of the control system indications for basic troubleshooting (for example, the use of module channel LED's to verify inputs and outputs)

The course comprises a combination of theoretical presentations and instructor demonstrations, followed by hands-on exercises using programming terminals and control system simulators. Manipulation of the logic is not covered in this course.

A Pre-Test and Post-Test will be administered to measure student progress as a result of the course.

## Course Objectives

**On completion of this course the student will be able to:**

1. Describe the purpose and function of the control system, and the major components that comprise the system
2. List the purposes of the various software applications and tools in a Solar Turbotronic project
3. Demonstrate the ability to distribute project software to a programming terminal
4. Demonstrate the ability to configure communications drivers in RSLinx
5. Demonstrate the ability to communicate with and download project software to the Controller
6. Demonstrate the ability to use the control system program to determine the conditions for package alarms or shutdowns
7. Demonstrate the ability to configure the Turbotronic 4 control system network using RSNetworkx
8. Describe the use of Program Constants and the method used to modify tunable constants
9. Describe the control system features and indications that can assist in basic troubleshooting

## Course Topics

1. Control System Overview
2. Turbotronic 4 System Hardware
3. Boolean Logic
4. Ladder Logic and The Basic Instruction Set
5. Introduction to Software Applications
6. Turbotronic Offline Program Monitoring
7. Logix Familiarization
8. Turbotronic Program Architecture
9. Hardware / Software Interface
10. Troubleshooting Methods
11. Logix Online Functions