Turbotronic 4
Control System Operations
Course Description

Course Number

10203

Duration

5 days

Audience

Solar turbomachinery operators, maintenance personnel, and engineers

Pre-Requisites

Participants must have completed a Solar Operation and Maintenance Principles or Package Operating Principles course to ensure they have a good understanding of the equipment being controlled. Equivalent experience is acceptable if this course has not been completed.

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 the following:

- 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
- Modifying Tunable Program Constants
- Monitoring the logic to aid in package maintenance and troubleshooting activities
- Using programming techniques, such as Forcing or the insertion of temporary logic, to aid in package maintenance and troubleshooting activities

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

Methods

The course is a combination of presentations, interactive discussions, demonstrations, and simulated programming tasks. The programming tasks are completed using a three-stage "VUIT" digital activity (View / Under Instruction / Try). The steps are first demonstrated; the trainee completes the task with guidance, as necessary; and then has the opportunity to complete the task without guidance, as a verification of proficiency. These activities are normally completed as a group activity using the Instructor's laptop, while also ensuring active participation. All participants will be granted access to the digital activities via Solar's Learning Management System (LMS), and may therefore be able to complete the activities on a laptop or tablet that they bring to the class (this is contingent on internet access being available at the class location). Note that laptops are not provided by Solar for course participants. In addition, all participants will have access to these digital activities via Solar's LMS for a 12 month period following the class to allow for practice opportunities, and as a job aid when task completion is required.

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
    - Going Online with the Controller
    - Loading Software to the Controller
    - Navigating the Logic
    - Forcing Discrete Values
    - Forcing Analog Values
    - Making Online Edits