Intertech
Applying Practical Skills in a Technological World

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Allen-Bradley ControlLogix
Intermediate II Programming & Troubleshooting
Module: 243

The Intermediate I course explored the Compare, Compute, Data Conversion, File Manipulation, and Message instructions. The Intermediate II course continues the investigation of the File Manipulation and introduces the Bit Manipulation instructions. Programs using these instructions include data gathering, calculations, date and time stamping, shift reports, data concentration, totalizing, averaging, etc. The Intermediate II course further develops the skills necessary to trace the flow of word information into, through, and out of logic programs using the Word and File manipulation instructions. This additional programming knowledge provides the ability to comprehend and troubleshoot detailed control circuits. In addition, students explore the system status and diagnostic data access instructions (SSV, GSV) to help diagnose and solve in-plant control problems more quickly.

The course length is four days. Rockwell Software's RSLogix-5000 / Studio-5000 Logix Designer programming software is used to conduct this course. *Module 242 Allen-Bradley ControlLogix Intermediate I Programming & Troubleshooting is a prerequisite.*

Objectives

- Refresh knowledge of the major functional components of the Allen-Bradley Logix (ControlLogix) programmable logic control system as it relates to your facility's installation.
- Discuss design considerations for system architecture and communication system layout.
- Refresh knowledge of the memory layout and configuration of the Logix (ControlLogix) processor, including tags, data types, tasks, programs, and routines.
- Develop a thorough understanding of the uses of and applications for User Defined Data Types.
- Re-examine differences and capabilities of Local, Universal Remote, DeviceNet, ControlNet, and Ethernet I/O systems.
- Refresh knowledge of the Contact, Coil, Timer, Counter, Comparison, Math, and Data Conversion instructions.
- Further explore and test the functionality of the File Manipulation and Message instructions.
- Introduce the Bit Manipulation instructions.
- Read and Write information on a communication network using the Message instruction and Produced/Consumed tags.
- Access and manipulate processor status and configuration information with the Get System Value (GSV) and the Set System Value (SSV) instructions.
- Create methods to test programs, develop traps, and follow the flow of information through a series of instructions.
- Develop advanced troubleshooting skills, learn to gather clues to help eliminate non-problem spots, and draw attention to possible problem areas.
- Use the programming software as a diagnostic and troubleshooting tool.
- Develop a thorough understanding of, and the safety issues related to, Forcing in the Logix (ControlLogix) family of PLCs.
- Is the circuit really off? Discuss appropriate safety issues.