

HANDS-ONCONTROL

logix programming & troubleshooting

**Hands-On Control Logix
Programming & Troubleshooting
MODULE 1**



Training Description:

This module takes a fundamental approach to a ControlLogix system. It begins with an overview of the architecture and migrates into an introduction of RSLogix5000, the programming environment. Students will receive a basic understanding of the structure of a ControlLogix program, which includes an introductory look at Routines and the Tag Database.

1.OVERVIEW

- System Overview
- Chassis and the backplane
- Power Supplies
- Logix5000 Processors and Memory options
- Discrete and Analog I/O
- Communication Modules
- Motion Control Modules
- Software Overview

2.RSLOGIX5000 INTRODUCTION

- Software overview
- Menus
- Toolbars
- RSLogix5000 configuration

3.RSLOGIX5000 PROJECT BASICS

- Introduction to the Tag Database and Data Types
- Programming Basics

4.RSLOGIX5000 TASKS, PROGRAMS AND ROUTINES

- Routines
- Programs
- Tasks
- Multitasking
- Program I/O Scan

5.RSLOGIX5000 PROGRAMMING BASICS

6.RSLOGIX5000 COMMUNICATIONS

- Configure the DF1 Driver
- Configure the EtherNet driver
- Configure the EtherNet IP driver
- Set the project path
- Get online

7. RSLOGIX5000 DISCRETE I/O

- The Producer Consumer Model
- Connections and Ownership
- Adding Discrete I/O
- Interpreting I/O addresses in the tag database



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Hands-On Control Logix Programming & Troubleshooting MODULE 2



Training Description:

This module introduces configuration of analog I/O modules. Students will learn a variety of methods for editing ladder logic. Relay, Timer and Counter instructions will be presented in a way that meets the needs of programmers and maintenance personnel. The final lesson in this module introduces advanced features available in the Tag Database.

1.ADDING ANALOG I/O

- Adding Analog I/O
- Interpreting I/O addresses in the tag database

2.BASIC RELAY TYPE INSTRUCTIONS

- XIC, XIO
- OTE, OTL, OTU
- ONS, OSR, OSF

3.EDITING LADDER LOGIC

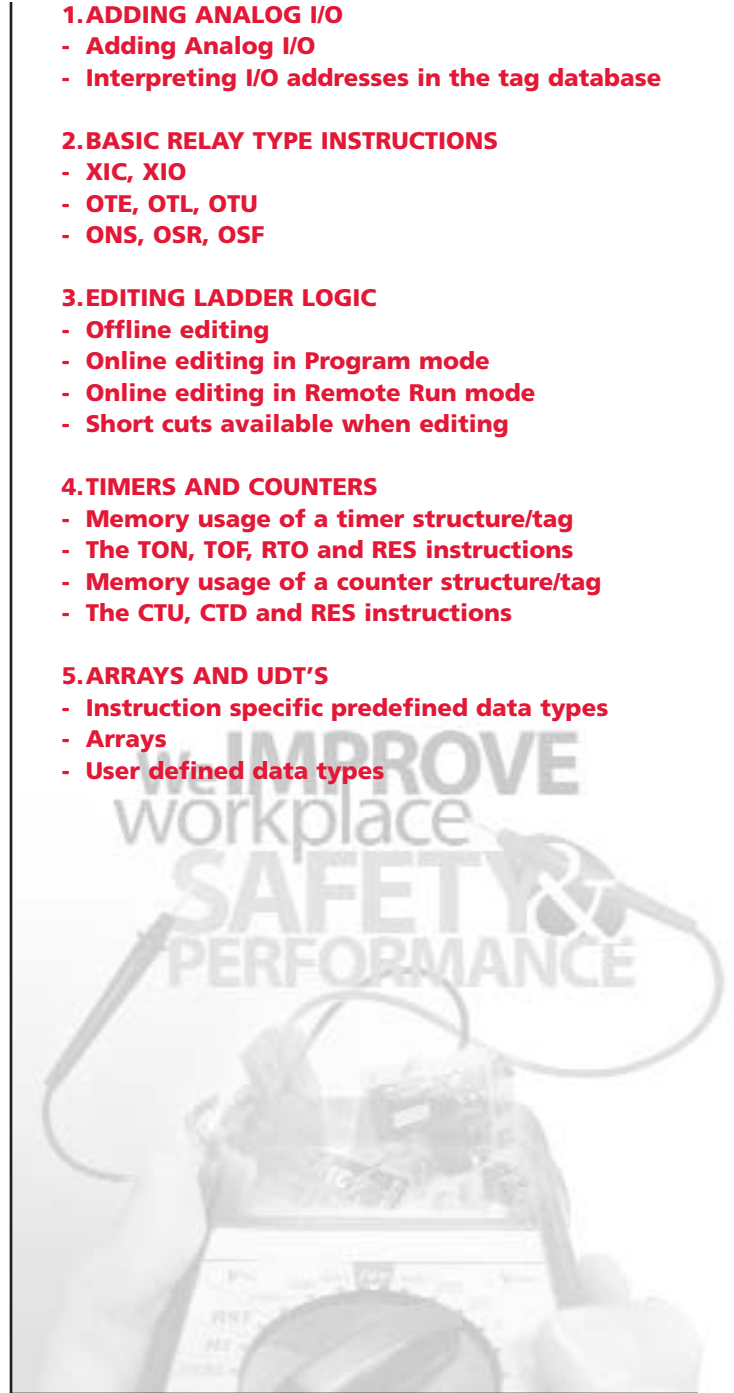
- Offline editing
- Online editing in Program mode
- Online editing in Remote Run mode
- Short cuts available when editing

4.TIMERS AND COUNTERS

- Memory usage of a timer structure/tag
- The TON, TOF, RTO and RES instructions
- Memory usage of a counter structure/tag
- The CTU, CTD and RES instructions

5.ARRAYS AND UDT'S

- Instruction specific predefined data types
- Arrays
- User defined data types



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**Hands-On Control Logix
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MODULE 3**



Training Description:

The objective of this module is to introduce program control instructions, comparison and math instructions and the importance of documenting an RSLogix5000 project.

1. RSLOGIX5000 DOCUMENTATION

- Rung comments
- Operand comments
- Page titles
- Import / Export of tags

2. RSLOGIX5000 PROGRAM CONTROL

- JMP AND LBL
- JSR, RET, SBR
- MCR

3. RSLOGIX5000 COMPARISON AND BASIC MATH INSTRUCTIONS

- EQU, NEQ, LES, GRT, GEQ, NEQ
- LIM, CMP, MEQ
- ADD, SUB, MUL, DIV



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Hands-On Control Logix Programming & Troubleshooting MODULE 4



Training Description:

This module has been designed to teach students the two software tools that can be used in troubleshooting: searching and trending. Students are then introduced to status indicators on ControlLogix I/O and communication modules. The third lesson will focus on troubleshooting. Students will learn methods for monitoring and clearing latched diagnostic bits that originate from diagnostic I/O modules. Forcing as a troubleshooting tool is covered in the final lesson.

1. SEARCHING AND TRENDING

- RSLogix Search Utility
- Search and Replace
- Trending

2. CONTROLLOGIX INDICATORS

- Discrete Input LEDs
- Output Module LEDs
- Analog I/O Module LEDs
- Communication Module LEDs

3. TROUBLESHOOTING

- Machine troubleshooting overview
- Diagnostic indicators
- Whole machine faults
- Zone faults
- Communication faults



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