

Table of Contents

Chapter 1: Getting Started

Introduction	1-2
The Purpose of this Manual	1-2
Contents of the Manual	1-2
Supplemental Manuals	1-2
Where to Begin	1-2
Technical Assistance	1-2
How this Manual is Organized	1-3
What is Slice I/O?	1-4
When Do You Need Slice I/O?	1-4
How Does Slice I/O Compare to Standard Remote?	1-4
How Does the DL405 Support Slice I/O?	1-5
Number of Masters and Slaves Allowed	1-6
Distance Between Slaves and Master, Baud Rates	1-6
Slice Master Features (D4-SM)	1-7
Specifications	1-7
Slice Slave Features (D4-SS-xx)	1-8
General Specifications	1-8
Slice Slave Input Specifications	1-9
Slice Slave Output Specifications	1-9
Addressing Modes	1-10
What is Addressing?	1-10
3 Modes of Addressing Available	1-10
Assigning the Remote Input and Output Addresses	1-11
Automatic Addressing for Local and Expansion I/O	1-11
The Affect of Automatic Addressing on Slice I/O	1-11
Manual or Discrete Addressing for those Points Not Automatically Configured	1-11
How the CPU Updates Slice I/O Points	1-12
3 Steps for Setting Up Slice I/O	1-13
Step One: Design the System	1-13
Step Two: Install the Components	1-13
Step Three: Write the Setup Program	1-13

Chapter 2: Designing the Slice I/O System

Determine the System Layout	2-2
Determine I/O Needed and How Many Masters & Slaves	2-2
An Example System	2-2
Choose the Addressing Mode	2-3
32-Point I/O Consumption Rule	2-3
16-point Boundary Rule	2-3
Example System Addressing	2-4
Other Examples	2-4
Complete the Programming Worksheets	2-5
Filling Out the Slice Slave Worksheet for the 1st Master	2-5
Filling Out the Slice Slave Worksheet for the 2nd Master	2-6

Chapter 3: Installation & Wiring

Introduction	3-2
6 Steps:	3-2
Step 1: Set the Baud Rate with the Rear DIP Switches	3-3
Step 2: Install the Master(s)	3-4
Step 3: Mount the Slave Units	3-4
Step 4: Set the Slave Address with the Front Rotary Switch	3-5
Example Showing Proper Setting of Switches	3-6
Step 5: Connect the Communications Cable	3-7
Cabling Between the Master and Slaves	3-7
Termination Resistors	3-7
Step 6: Connect the Field Wiring	3-9
General Wiring Guidelines	3-9
Power Connections for the Master and Its Slaves	3-9
D4-SS-88 I/O Field Device Wiring Diagram	3-10
D4-SS-106 I/O Field Device Wiring Diagram	3-11
D4-SS-16N I/O Field Device Wiring Diagram	3-12
D4-SS-16T I/O Field Device Wiring Diagram	3-13
Optional Features	3-14
Connecting the Run Output Circuit	3-14
Using the Slave Unit Communications Port	3-15

Chapter 4: Writing the Setup Program

Choosing a Programming Device	4-2
Writing Your Slice I/O Setup	4-3
Step 1: Decide How You Are Going to Execute Your Program	4-3
Step 2: Write the Setup Logic for Each Slice Master	4-4
Automatic Addressing	4-4
How About the Other Types of Addressing?	4-5
Manual Addressing	4-5
Discrete Addressing	4-6

Slave Removal	4-7
Why Would You Use Slave Removal?	4-7
What is It?	4-7
Types of Slave Removal	4-7
How Pointer Addresses are Used for Slave Removal	4-7
Sample Logic for Writing to Secondary Pointer	4-7
4 Steps for Using Slave Removal	4-8
Step 1: Setting the DIP Switch	4-8
Step 2: Determining the Bit Pattern for Slave Removal	4-8
Step 3: Determining the Setup Pointer for Storing the Bit Pattern	4-8
Step 4: Write the Slave Removal Setup Program	4-9
Sample Ladder Logic for Manual Slave Removal	4-9
Sample Ladder Logic for Automatic Slave Removal	4-9
Rejoining Slaves	4-10
What is It?	4-10
How is It Done?	4-10
Example of Rejoining a Slave	4-10
Special Relays Used for Slice I/O	4-11
How to Use the Special Relays	4-12
C672/C670/C674	4-12
C671/C675 I/O Status On Error	4-12
C673/C677 Activate Removal or Rejoining of Slaves	4-13
C700/C720 Locate Communications Error	4-14
C710 and C730 Mapping O.K.	4-15

Appendix A: Slice I/O Worksheet

Appendix B: Memory Tables

Standard Input (X) Addresses	B-2
Standard Output (Y) Addresses	B-3
Control Relay (C) Addresses	B-4
Remote Input/Output Global (GX) Addresses	B-6

Appendix C: Determining I/O Update Time

Overview	C-2
Calculating Input Signal Delay Time	C-3
Input Delay Time Formulas	C-3
Example for Computing Input Delay	C-3
Calculating Output Signal Delay Time	C-4
Output Delay Time Formulas	C-4
Example for Computing Output Delay	C-4
Calculating Total System Delay Time	C-5
Output Delay Time Formulas	C-5
Table Showing Approximate Signal Delay Times	C-5