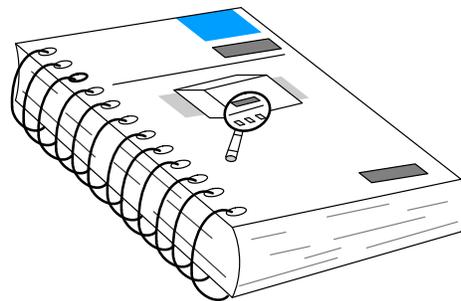


## Introduction

### The Purpose of this Manual

Thank you for purchasing a DL105 Micro PLC. This manual shows you how to install, program, and maintain all the Micro PLCs in the DL105 family. It also helps you understand how to interface them to other devices in a control system.

This manual contains important information for personnel who will install DL105 PLCs, and for the PLC programmer. If you understand PLC systems our manuals will provide all the information you need to get and keep your system up and running.



### Where to Begin

If you already understand the DL105 Micro PLC please read Chapter 2, “Installation, Wiring, and Specifications”, and proceed on to other chapters as needed. Be sure to keep this manual handy for reference when you run into questions. If you are a new DL105 customer, we suggest you read this manual completely so you can understand the wide variety of features in the DL105 family of products. We believe you will be pleasantly surprised with how much you can accomplish with PLC *Direct*<sup>™</sup> products.

### Supplemental Manuals

If you have purchased operator interfaces or *DirectSOFT*<sup>™</sup>, you will need to supplement this manual with the manuals that are written for these products.

### Technical Support

We realize that even though we strive to be the best, we may have arranged our information in such a way you cannot find what you are looking for. First, check these resources for help in locating the information:

- **Table of Contents** – chapter and section listing of contents, in the front of this manual
- **Quick Guide to Contents** – chapter summary listing on the next page
- **Appendices** – reference material for key topics, near the end of this manual
- **Index** – alphabetical listing of key words, at the end of this manual

If you still need assistance, please call us at 800-633-0405. Our technical support group is glad to work with you in answering your questions. They are available Monday through Friday from 9:00 A.M. to 6:00 P.M. Eastern Standard Time. If you have a comment or question about any of our products, services, or manuals, please fill out and return the ‘Suggestions’ card that was shipped with this manual.

**Chapters**

The main contents of this manual are organized into the following eight chapters:

**Getting Started**

introduces the eight models in the DL105 Micro PLC family and the available I/O types. Also includes tips on getting started and how to design a successful system.

**Installation, Wiring, and Specifications**

shows how to prepare for system installation, and gives safety guidelines to help protect your personnel and machinery. It includes system and I/O wiring diagrams, including specifications for each of the eight DL105 versions.

**High-Speed Input and Pulse Output Features**

teaches you how to configure the High-Speed I/O operation to provide counting functions, motion control profiles, input filtering, interrupt capability, and much more. We recommend studying Chapters 2 and 3 together.

**CPU Specifications and Operation**

explains how the DL105 internal CPU controls the PLC system operation. This includes information on I/O point updates, application program execution, and memory structure.

**Standard RLL Instructions**

describes how each of the DL105's 90+ standard instructions operate. Example programs for both *DirectSOFT* and the Handheld Programmer are included.

**Drum Instruction Programming**

describes the powerful drum sequencer operation, including detailed theory of operation and control techniques. It reveals how drums solve sequential processes problems.

**RLL *Plus* Stage Programming**

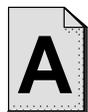
ideal for the beginning programmer – it shows how to develop simple state transition diagrams for your process, and then convert them to stage programs. This programming method is a real time-saver for programming and debug.

**Maintenance and Troubleshooting**

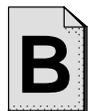
is a guide designed to aid you in diagnosing, repairing and avoiding system problems. It includes tips for finding I/O circuit problems, ladder program errors, etc.

**Appendices**

Additional reference information on the DL105 is in the following four appendices:

**Auxiliary Functions**

is a guide designed to aid you in diagnosing, repairing and avoiding system problems.

**DL105 Error Codes**

lists the error codes generated by the DL105, including a detailed description of the meaning of each code.

**Instruction Execution Times**

lists the execution times for all the DL105's instructions, including the elapsed time for not executing inactive instructions in the ladder program

**Special Relays**

lists the special relay contacts which are available to the ladder program to indicate system status, error conditions, instruction execution results, etc.