

1.0 INTRODUCTION

The products described in this manual are manufactured or distributed by Reliance Electric Industrial Company.

Version 4.x of the AutoMax Programming Executive uses Microsoft Windows™ to provide a graphic interface for offline operations such as mapping variable names to I/O points and creating a hierarchical structure of systems, sections and racks for each application. The online operations in AutoMax Executive V4.x, e.g., monitoring variables, are not run under Windows.

AutoMax Executive V4.x will run on IBM-compatible 80486-based (or higher) systems having at least 16 MB of RAM and a 80 MB hard drive. Your system must also have a 1.44 MB floppy drive and a mouse. Significant improvement in performance is possible with additional memory capacity.

AutoMax Executive V4.x requires a 32-bit operating system (Windows 95). It will not run under earlier versions of Windows. The current version of Windows can be purchased from Microsoft. Microsoft can also provide upgrades if you have an earlier version of Windows.

Local Area Network Features

AutoMax Executive V4.x can be used on a workstation connected to a local area network. Network facilities (tokens and file locking, Version Control Library) are included in this release of AutoMax Executive V4.x. If more than one person has access to files for your application, we recommend that you use these facilities to prevent corruption of your database files and loss of changes to application task files. See appendix J for information on Tokens and Locking. See appendix K for information on using the Version Control Library functions.

Note that the Version Control Library (VCL) facility requires the Intersolv™ Polytron Version Control System (PVCS) Version 5.0 (or later). The VCL functions are not compatible with earlier versions of PVCS. PVCS is not required to use the AutoMax Programming Executive and is not distributed as part of the Programming Executive. However, you must have PVCS installed on your network drive in order to use the VCL features in AutoMax Executive V4.x.

1.1 Manual Contents

Listed below is a brief section-by-section summary of the contents of this instruction manual. Because this instruction manual covers a wide range of information that applies specifically to the AutoMax Executive V4.x. Programming Executive and to the AutoMax distributed control system in general, you may want to go over this summary carefully to decide which sections are of specific interest to you depending upon your prior knowledge of the AutoMax distributed control system and your knowledge of Windows.

Appendix H, a quickstart guide, may be helpful as a brief overview of the Version 4.x Programming Executive.

- Section 2.0 - Introduction to the AutoMax Distributed Control System - Contains a general description of the AutoMax distributed control system and an overview of the AutoMax Programming Executive.
- Section 3.0 - Installing the AutoMax Software - Provides instructions for installing the AutoMax Programming Executive software and the Windows software. Also provides instructions for installing a mouse.
- Section 4.0 - Getting Around in Windows and AutoMax - Describes Windows functionality as it relates to AutoMax V4, Programming Executive file types and storage, and the text editor and ladder editor used by AutoMax.
- Section 5.0 - Using the System Configurator - Describes the System Configurator, which is used to organize systems, sections, and racks. Contains procedures for executing commands from the system, section, and rack menus; procedures for loading the operating system to the rack; procedures for importing tasks created with previous versions of AutoMax and ASD; and procedures for setting up your Windows and AutoMax software.
- Section 6.0 - Configuring Racks - Describes the Rack Configurator, which is used to add modules to a rack and work with modules in existing racks.
- Section 7.0 - Configuring I/O and Common Memory Locations - Explains how to configure I/O points on a module.
- Section 8.0 - Using the Task Manager - Describes procedures for creating and working with application tasks. Also describes how to access online menu functions.
- Section 9.0 - System Security - Describes online security features and methods for setting and changing passwords.
- Section 10.0 - AutoMax Processor Overview - Describes the AutoMax Processor module and online operation of the AutoMax distributed control system.
- Section 11.0 - AutoMax ON LINE Menu - Describes how to load, run, stop, monitor, and modify application tasks in the rack. Also describes AutoMax and Universal Drive Controller Processor error logs.
- Section 12.0 - ON LINE Menu: Connect - Describes how to change the baud rate, enter/release the password, and enable and disable AUTO RUN of application tasks.
- Section 13.0 - ON LINE Menu: Info/Log - Describes how to display information about the system software on any AutoMax Processor or Universal Drive Controller in the rack and how to view the status and error log for tasks.
- Section 14.0 - ON LINE Menu: Transfer - Describes procedures for changing the default path or viewing the contents of the default system. Also contains procedures for loading tasks onto the rack and saving application tasks from the rack.
- Section 15.0 - ON LINE Menu: Running Tasks - Describes how to run tasks.
- Section 16.0 - ON LINE Menu: Stopping Tasks - Describes how to stop tasks.

- Section 17.0 - ON LINE Menu: Deleting Tasks - Describes how to delete tasks from the rack.
- Section 18.0 - ON LINE Menu: Monitoring and Editing Tasks - Describes how to monitor and change status of variables and I/O points, display and modify Ladder Logic sequences in real time, and force and un-force variables.
- Section 19.0 - ON LINE Menu: Error Clear - Describes how to clear the Processor or UDC error log or errors displayed on the Processor LEDs.
- Section 20.0 - Software Troubleshooting - Describes typical errors that can occur and procedures for correcting these errors.

Appendix A	Processor Module Ports
Appendix B	Processor Module Error and Status Codes
Appendix C	AutoMax Task Execution
Appendix D	Limitations on Task Size
Appendix E	Database Definitions
Appendix F	Importing Racks from AutoMax Systems Containing Network Variable (.NET) Files
Appendix G	Using Foreign Modules in an AutoMax Rack
Appendix H	Quickstart Guide
Appendix I	Import Notes
Appendix J	Tokens and Locking
Appendix K	Version Control Library
Appendix L	New Features in This Release
Appendix M	Part Numbers of UDC Operating System Versions
Appendix N	What Can Go Wrong When Loading Tasks or Files
Appendix P	The Edit Configuration File Utility

1.2 Additional Information

Information about personal computers in this manual is general enough to apply to most of the personal computers that can be used to run the AutoMax Executive Software. For any specific questions about your personal computer or the printer you are using, refer to the documentation that came with your personal computer or printer.

You must be familiar with all the instruction manuals that describe your system configuration. This may include, but is not limited to, the following:

- S-3000 SD3000/SF3000 Drive (Binder)
- S-3001 SA3000 Drive (Binder)
- S-3002 SA500 Drive (Binder)
- S-3053 SA3100 (Binder)
- J-3636 COMMON MEMORY MODULE INSTRUCTION MANUAL
- J-3650 AutoMax PROCESSOR MODULE INSTRUCTION MANUAL
- J-3669 AutoMax Pocket Reference
- J-3675 AutoMax ENHANCED BASIC LANGUAGE INSTRUCTION MANUAL
- J-3676 AutoMax CONTROL BLOCK LANGUAGE INSTRUCTION MANUAL
- J2-3093 AutoMax GRAPHICAL LADDER EDITOR INSTRUCTION MANUAL
- J2-3094 AutoMax GRAPHICAL LADDER LANGUAGE REFERENCE MANUAL
- J2-3103 ReSource AutoMax and DPS SOFTWARE LOADING INSTRUCTIONS
- IEEE 518 GUIDE FOR THE INSTALLATION OF ELECTRICAL EQUIPMENT TO MINIMIZE ELECTRICAL NOISE INPUTS TO CONTROLLERS
- Microsoft Windows User's Guide
- Your personal computer manual(s)
- Other instruction manuals applicable to your hardware configuration

1.3 Related Hardware and Software

This manual includes information about the following hardware and software:

- ReSource AutoMax Executive Software Version 4.x (M/N 57C395 and 57C397). This software contains both the Executive and the operating systems to be loaded onto AutoMax Processors.
- AutoMax Processor Module (M/N 57C430A and later)
- Microsoft Windows 95
- IBM-compatible 80486-based personal computers used to run the AutoMax Executive Software
- Mouse pointing tools

Note that a mouse is required to use AutoMax Executive V4.x.

Distributed Power Drives

Distributed Power System (DPS) drives are described in other documentation. See section 1.2 for the part numbers of the documentation.

1.4 Compatibility with Processors and Earlier Versions of the Programming Executive

Version 4.x of the AutoMax Programming Executive software requires AutoMax Processor module M/N 57C431 or 57C435. Version 2 or Version 3 software can co-exist on the same personal computer with Version 4.x Executive software.

1.4.1 Programming Executive and Operating System

The Programming Executive overwrites any existing operating system in the rack with a version 4 operating system, but cannot otherwise communicate with racks containing earlier versions of the operating system. Earlier versions of the Programming Executive cannot communicate with racks that use the version 4 operating system.

1.4.2 Programming Executive Versions and Part Numbers

The following table shows the relationship between the operating system part numbers which are displayed in the online Info/Log and the Programming Executive versions. See appendix M for part numbers for the UDC operating system.

Table 1.1 - Part Numbers for Versions of the AutoMax Operating System

Part Number	OS Type	Programming Exec. Versions
422503-011B	6010 Standard	V1.0A
422503-011C	6010 Standard	V1.0B
422503-011D	6010 Standard	V1.0C
422503-020A	6010 Standard	V2.0A
422503-020B	6010 Standard	V2.0B
422503-021	6010 Standard	V2.1, V3.0A
422503-021A	6010 Standard	V2.1A
422503-021B	6010 Standard	V2.1B, V3.1A
422503-021C	6010 Standard	V2.1C, V3.1B
422503-021D	6010 Standard	V2.1D, V2.1E, V3.1C, V3.2A, V3.2B
422503-22A	6010 Ethernet	V2.1A
422503-22B	6010 Ethernet	V2.1B, V3.1A
422503-22C	6010 Ethernet	V2.1C, V3.1B
422503-22D	6010 Ethernet	V2.1D, V2.1E, V3.1C, V3.2A, V3.2B
422503-033B	6010 Standard	V3.3B
422503-034A	6010 Standard	V3.4A
422503-034B	6010 Standard	V3.4C
422503-036A	6010 Standard	V3.6A
422503-034D	6010 Standard	V3.4D, V3.4E
422526-001A	7010	V3.1A
422526-001B	7010	V3.1B
422526-001C	7010	V3.1C, V3.2A, V3.2B
422526-033B	7010	V3.3B
422526-034A	7010	V3.4A
422526-034B	7010	V3.4C
422526-034D	7010	V3.4D, V3.4E
422526-036A	7010	V3.6A
422526-040A	7010	V4.0
422526-041A	7010	V4.1
422544-033B	UDC	V3.3B
422544-034B	UDC	V3.4A
422547-033B	6010 Ethernet	V3.3B
422547-034A	6010 Ethernet	V3.4A
422547-034B	6010 Ethernet	V3.4C
422547-034D	6010 Ethernet	V3.4D, V3.4E
422547-036A	6010 Ethernet	V3.6A
422547-040A	6010 Ethernet	V4.0
422547-041A	6010 Ethernet	V4.1
422547-042A	6010 Ethernet	V4.2

1.4.3 Programming Executive Feature Support

The following table shows the versions of the Programming Executive in which the features or modules listed on the top are supported.

Table 1.2 - Features Supported by Versions of the AutoMax Programming Executive

Version of AutoMax Programming Executive	Feature														AutoMax V2 OS Match			
	57C430A Processor	57C431 Processor	57C435 Processor	Programmable Tick Rate	57C423 Common Memory	Works with Windows V3.1	Requires Windows V3.1	Requires Windows 95	D-C SD3000*** SF3000 Drives	A-C SA500*** SA3000 Drives	UDC	UDC EM	SA3000 & SA3100 Const. HP & V/Hz	SB3000		VZ3000	A-B RIO Scanner	PC3000
2.1-2.1A	yes*	yes*	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	n/a
2.1B	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	n/a
2.1C	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	n/a
2.1D	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	no	n/a
2.1E	yes	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	n/a
2.1F	yes	yes	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	n/a
3.0A	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	no	2.1
3.1A	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	no	2.1B
3.1B	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	no	2.1C
3.1C	yes	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	2.1D
3.2A	yes	yes	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	no	no	2.1D
3.3A-3.3F	yes	yes	yes	yes	yes	yes	yes	no	yes	no	yes	no	no	no	no	no	no	n/a
3.4	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	no	no	no	no	no	no	n/a
3.5	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes**	yes**	yes**	no	no	n/a
3.6	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes**	yes**	yes**	yes	no	n/a
4.0	no	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes**	yes**	yes**	yes	no	n/a
4.1 & 4.2	no	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes**	yes**	yes**	yes	yes	n/a

* Works only with 57430-1K and earlier 57C430 Processors, and with 57431-C and earlier 57C431 Processors.

**With the release of V3.5, DPS drive software was uncoupled from the Executive software. This software must be purchased separately and installed on the personal computer along with the Executive.

***Must be purchased separately beginning with the release of V3.5.

1.4.4 ASD and the Programming Executive

Systems created with the AutoMax Software Designer (ASD) V8 and later can be converted into AutoMax Executive V4.x systems. Refer to section 5.1.8 for instructions. See instruction manual J-3615 for more information about ASD.

1.4.5 Converting from AutoMax Version 2 and Version 3

In AutoMax, you can convert older tasks to Version 4.x at the rack or system level, depending on the version of the Executive from which you are converting. Only ladder programs can be converted at the task (program) level. See the AutoMax Ladder Editor online help file for more information.

Systems created with Version 2 of the AutoMax Programming Executive software can be converted into AutoMax Executive V4.x systems. Refer to section 5.3.12 for instructions. See instruction manual J-3684 for information about Version 2 Executive software.

Systems created with Version 3 of the AutoMax Programming Executive software can be converted into AutoMax Executive V4.x systems. Use AutoMax Setup (see 5.5.2) to set the AutoMax Library directory to the library that contains the Version 3 systems. Then select the Version 3 system from the System Configurator screen. The Version 3 AutoMax system will be converted automatically to Version 4.x, and a .LOG file will be created for each rack in the system. View the .LOG files to verify that no errors occurred during the conversion process.

1.4.6 Network Communication

Note that to fully use the network communication capability of the AutoMax Programming Executive software V4.x, all Network Communication modules on a given network must be M/N 57C404 (or later). An earlier version of the module (M/N 57404) can be used in the system, but the user will need to connect directly to the rack containing the Network module in order to communicate with that rack with a personal computer. M/N 57404 cannot be mixed with any other version on the same network. If Network module versions on a particular network are mixed, the communication capability of the network will be that of the earliest version of the Network module.