

TABLE OF CONTENTS



Chapter 1: Getting Started	1-1
Manual Overview	1-2
Overview of this Publication	1-2
Who Should Read This Manual	1-2
Supplemental Publications	1-2
Technical Support	1-2
Special Symbols	1-2
GS1 AC Drive Introduction	1-3
Purpose of AC Drives	1-3
Drive Package Contents	1-3
Nameplate Information	1-3
Model Explanation	1-3
External Parts and Labels	1-4
GS1 AC Drive Specifications	1-5

(Table of Contents continued next page)

Chapter 2: Installation and Wiring2-1

- Ambient Conditions2-2
- Storage Conditions2-2
- Installation2-3
 - Minimum Clearances and Air Flow2-3
- GS1 AC Drive Dimensions2-4
- GS1 Circuit Connections2-5
- Danger!2-5
 - Wiring Notes: PLEASE READ PRIOR TO INSTALLATION.2-5
 - Motor Operation Precautions2-6
 - Short Circuit Withstand2-6
 - Applicable Codes2-7
- Circuit Protection Devices2-7
 - Maximum Recommended Circuit Protection Devices2-7
- Main Circuit Wiring2-8
 - Input Power Connections2-9
 - Output Power Connections2-10
 - Control Terminal Wiring2-11
 - Basic Wiring Diagram2-12
 - External Wiring and Accessories2-13

(Table of Contents continued next page)

Chapter 3: Keypad Operation and Quickstart	3-1
The GS1 Digital Keypad	3-2
LED Display	3-2
Function Keys	3-2
Displaying the Status of the GS1 AC Drive	3-3
Programming the GS1 AC Drive	3-4
GS1 Quickstart	3-5
Example 1: Constant torque (e.g. conveyors, compressors, etc.)	3-5
Example 2: Variable torque (e.g. fans, centrifugal pumps, etc.)	3-9
Chapter 4: AC Drive Parameters	4-1
GS1 Parameter Summary	4-2
Detailed Parameter Listings	4-9
Motor Parameters	4-9
Ramp Parameters	4-11
Volts/Hertz Parameters	4-17
Digital Parameters	4-20
Analog Parameters	4-29
Presets Parameters	4-38
Protection Parameters	4-39
Display Parameters	4-47
Communication Parameters	4-48

(Table of Contents continued next page)

Chapter 5: GS1 Modbus Communications	5-1
Communication Parameters Summary	5-2
GS1 Parameter Memory Addresses	5-4
GS1 Status Addresses	5-8
Communicating with AutomationDirect PLCs	5-11
Step 1: Choose the Appropriate CPU	5-11
Step 2: Make the Connections	5-11
Step 3: Set AC Drive Parameters	5-16
Step 4: Configure the PLC CPU	5-16
CLICK Modbus Ladder Programming	5-20
Separate Run Command Write Instruction	5-20
Block Transfer Parameters for Modbus Programs	5-20
CLICK Communication Program – (for CLICK PLCs)	5-21
<i>Direct</i> LOGIC Modbus Ladder Programming	5-35
Separate Run Command Write Instruction	5-35
Block Transfer Parameters for Modbus Programs	5-35
<i>Direct</i> LOGIC Basic Communication Program	
– start with this code	5-36
Programming Differences for <i>Direct</i> LOGIC PLCs	5-37
DL MRX/MWX Communication Program	
– for DL06 & D2-260 PLCs	5-38
DL RX/WX Communication Program	
– for DL05, D2-250(-1), D4-450	5-51
Communicating with Third-Party Devices	5-64
Common Third-Party MODBUS RTU Masters	5-64
Using Modbus ASCII	5-65
Comm Delay – Optimizing Communications	5-71
Optimizing Communications to GS Drives	5-71
Types of Messages Sent to GS Drives	5-72
Additional Message Delay Times	5-73
Communication Delay Summary	5-75

(Table of Contents continued next page)

Chapter 6: Maintenance and Troubleshooting	6-1
Maintenance and Inspection	6-2
Monthly Inspection:	6-2
Annual Inspection	6-2
Recharge Capacitors (for unused drives)	6-2
Troubleshooting	6-3
Fault Codes	6-3
Warning Messages	6-5
Appendix A: Accessories	A-1
Accessories Part Numbering	A-2
Line Reactors	A-2
Line Reactors – LR Series	A-3
Line Reactors – Legacy GS Series (do not use for new installations)	A-4
Line Reactor Dimensions – LR Series	A-5
Line Reactor Dimensions – Legacy GS Series (not for new installations)	A-8
Line Reactor Applications and Connections	A-9
RF Filter	A-12
RF Filter Dimensions	A-12
RF Filter Wiring	A-12
Fuses and Fuse Kits	A-13
Fuse Block Dimensions	A-13
Ethernet Interface	A-14
ZIPLink™ Cables for RS-485 Modbus RTU	A-15
GS Drive Configuration Software	A-16
System Requirements	A-16
Configuration Cable	A-16

(Table of Contents continued next page)

Appendix B: Using GS1 AC Drives with
AutomationDirect PLCsB-1

 Compatible AutomationDirect PLCs and ModulesB-2

 Typical PLC Connections to GS1 Series AC DrivesB-6

 CLICK CPU and DC Output Modules (Sinking)B-6

 CLICK CPU Modules with Non-isolated Analog OutputsB-7

*Direct*LOGIC DC Output Modules (Sinking)B-8

*Direct*LOGIC Isolated Analog Output ModulesB-9

*Direct*LOGIC Non-isolated Voltage or Sourcing Current
 Analog Output ModulesB-10

IndexI-1

