INDEX

A

AC Drives - Purpose; 1–3
Accel 1 to Accel 2 Frequency Transition; 4–16
Acceleration S-Curve; 4–14
Acceleration Time; 4–13
Accessories; 2–12, A–1
AFD - Adjustable Frequency Drive; 1–3
Agency Approvals; 1–8, 2–7
Air Flow; 2–3
Ambient Conditions; 1–8, 2–2
Amps/Current
    Motor Nameplate Amps; 4–11
    Over-Current Stall Prevention; 4–47
    Overload; 4–43
Analog Input
    Examples; 4–34
    Gain; 4–33
    Loss of ACI Signal; 4–40
    Offset; 4–33
    Offset Polarity; 4–32
    Reverse Motion Enable; 4–33
Analog Output; 4–40
    Gain; 4–40
    Signal; 4–40
Analog Parameters; 4–32
Applicable Codes; 2–7
Auto Adjustable Accel/Decel; 4–46
Auto Restart After Fault; 4–44
Auto Voltage Regulation; 4–45
Auto-torque Boost; 4–20

B

Base-Block Time for Speed Search; 4–48
Block Transfer Parameters; 4–58, 5–29
Braking Resistors; 2–12, A–8

C

Cables
    Configuration Cables; A–25
    Keypad Cables; A–25
CE; 1–8
CEC; 2–7
Circuit Connections Warnings & Notes; 2–6
Communicating with DirectLogic PLCs; 5–12
Communicating with Third-party Devices; 5–30
Communication Address; 4–56
Communication Connections to DL PLCs; 5–12
Communication Distribution Blocks; A–26
Communication Parameters; 4–56
Communication Protocol; 4–56
Communication Transmission Speed; 4–56
Compatibility, GS2 and Direct LOGIC PLCs; B–2
Configuration Cable; A–25
Configuration Software; A–22
    Configuration Cable; A–25

Configuring/Programming the AC Drive
Keypad Configuration; 3–5
Software Configuration; A–22
Configuration Cable; A–25
Contactor; 2–6, 2–12
Contents of Drive Package; 1–3
Control Terminals & Wiring; 1–4, 2–10, 2–11
cUL; 1–8, 2–7
Current/Amps
Motor Nameplate Amps; 4–11
Over-Current Stall Prevention; 4–47
Overload; 4–43

D

DC Injection
Current Level; 4–18
during Start-up; 4–18
during Stopping; 4–18
Start-point; 4–18
Decel 1 to Decel 2 Frequency Transition; 4–16
Deceleration S-Curve; 4–15
Deceleration Time; 4–14
Default, Restore Parameters; 4–57
Desired Current; 4–31
Desired Frequency; 4–31
Dimensions; 2–4
Direction Command
Digital Input FWD/REV; 4–22
Keypad FWD/REV; 3–3
Serial Comm Direction Command; 4–59
DirectLOGIC Modbus PLC Programming; 5–16
DirectLOGIC PLCs; B–2
DirectLogic PLCs, Communicating with; 5–12
Disable
Digital Input Disable; 4–23, 4–29
Disable PID; 4–23
Disconnect switch; 2–6
Display; 3–2
Display Parameters; 4–55
Display Frequency Scale Factor; 4–55
Display Function; 4–55
Distribution Blocks, Communication; A–26

E

Electro-Magnetic Interference; 2–7
EMI; 2–7
EMI Filters; 2–12, A–10
Enclosure Rating; 1–8, 2–2
Environmental Conditions; 1–8, 2–2
Error Codes; 5–9, 6–3
Ethernet Interface; A–20
Examples
Analog Input Examples; 4–34
DL PLC Program Example for Modbus; 5–16
External Fault
External Fault, Digital Input; 4–23, 4–24
External Fault, Serial Comm; 4–60
External Parts; 1–4
Cover - lower terminals; 1–4
Cover - upper terminals; 1–4
DIP Switches; 1–4
Keypad; 1–4
Mounting Screw Holes; 1–4
Nameplate Label; 1–4
Terminals - control wiring; 1–4
Terminals - power input wiring; 1–4
Terminals - power output wiring; 1–4
Ventilation Slots; 1–4

F

Fault Codes; 6–3
Fault Record; 4–50
Fault Reset
External DI Fault Reset; 4–23, 4–24
Keypad Fault Reset; 3–3
Serial Comm Fault Reset; 4–60
Fault, External; 4–23, 4–24, 4–60
Filters
EMI Filters; 2–12, A–10
RF Filters; A–16

Frequency
Jog Frequency; 4–41
Mid-point Frequency; 4–20
Minimum Output Frequency; 4–21
Motor Base Frequency; 4–12
PID Output Frequency Limit; 4–54
PWM Carrier Frequency; 4–21
Source of Frequency Command; 4–32
Volts/Hertz Parameters; 4–19
Frequency Command / Speed Reference
Serial Comm Speed Reference; 4–59
Source of Frequency Command; 4–32
Function Keys; 3–3
Fuses; 2–12, A–17

G

Ground Loops; 2–6
Grounding Resistance; 2–6
GS Series Number; 4–60
GS-EDRV Ethernet Interface; A–20
GSOFT Configuration Software; A–22
Configuration Cable; A–25

I

Inspection; 6–2
Annual; 6–2
Monthly; 6–2
Installation; 2–3
Air Flow; 2–3
Dimensions; 2–4
Minimum Clearances; 2–3
Inverter; 1–3

J

Jog Command
Digital Input Jog Command; 4–23, 4–25
Serial Comm Jog Command; 4–60
Jog Frequency; 4–41

K

Keypad; 3–2
Keypad Cables; A–25
Keypad, Spare; A–25

L

Label, Nameplate Information; 1–3
LED Display; 3–2
LED Indicators; 3–2
Lower Bound
of Output Frequency; 4–49

M

Maintenance; 6–2
Manufacturer Model Information; 4–61
Maximum Allowable Power Loss Time; 4–48
Maximum Speed Search Current Level; 4–48
Memory Addresses for Parameters; 5–4
Mid-point Frequency; 4–20
Mid-point Voltage; 4–20
Minimum Clearances; 2–3
Minimum Output Frequency; 4–21
Minimum Output Voltage; 4–21
Modbus ASCII; 5–30
Modbus Communication with Third-Party Devices; 5–30
Modbus Communications; 5–1
Modbus Connections to DL PLCs; 5–12
Modbus Control, PLC Programming; 5–16
Modbus RTU; 5–30
Model Information; 4–61
Model Number Explanation; 1–3
Momentary Power Loss; 4–44
Motor Base Frequency; 4–12
Motor Base RPM; 4–12
Motor Maximum RPM; 4–12
Motor Nameplate Amps; 4–11
Motor Nameplate Voltage; 4–11
Motor Parameters; 4–11
Motors

Single-Phase; 2–7
Three-Phase; 1–3
Mounting Screw Holes; 1–4, 2–4
Multi-Function Input Disable; 4–29
Multi-function Input Terminals; 4–22
Multi-function Output Terminals; 4–30
Multi-Speed
Auto Voltage Regulation; 4–45
Digital Input Multi-Speed Bits; 4–23, 4–25
Multi-Speed Settings; 4–42

N

Nameplate Label Information; 1–3
NEC; 2–7
NEMA Publications; 1–2

O

Operation Command; 4–22
Over-Current
Stall Prevention During Acceleration; 4–47
Stall Prevention During Operation; 4–47
Overload; 4–43
Over-Torque
Detection Level; 4–46
Detection Mode; 4–46
Detection Time; 4–46
Over-Voltage
Stall Prevention; 4–45

P

Parameter Lock; 4–57
Parameter Memory Addresses; 5–4
Parameter Summary; 4–2
Parameters, Detailed Listings; 4–11
Restore Parameters to Default Settings; 4–57
PID
PID Deviation Alarm; 4–30
PID Deviation Level; 4–31
PID Deviation Time; 4–31
PID DI Setpoint Bits; 4–23, 4–25
PID Deviation Alarm; 4–30
PID Parameters; 4–51
Derivative Control; 4–53
Derivative Filter Time Constant; 4–54
Feedback Loss Operation; 4–54
Feedback Signal Loss Detection Time; 4–54
Input Terminal for PID Feedback; 4–51
Integral Control; 4–53
Keypad Setpoint; 4–52
Multi-setpoints; 4–52
Output Frequency Limit; 4–54
Proportional Control; 4–53
PV 100% Value; 4–52
PV Setpoint Source; 4–52
Upper Bound for Integral Control; 4–54
PID SP Digital Inputs; 4–23
PLC Module Typical Connections; B–7
PLC Modules; B–2
PLC Programming for Modbus Control; 5–16
PLCs, DirectLOGIC, Communicating with; 5–12
Potentiometer
Keypad Potentiometer; 3–3
Remote Potentiometer; 2–11
Power Terminals & Wiring; 1–4, 2–7, 2–8, 2–9, 2–11
Present Fault Record; 4–50
Preset Parameters; 4–41
Programming/Configuring the AC Drive
Keypad Configuration; 3–5
Software Configuration; A–22
Configuration Cable; A–25
Protection Parameters; 4–43
Purpose of AC Drives; 1–3
PWM Carrier Frequency; 4–21

R

Ramp Parameters; 4–13
Reactors; 2–12, A–2
Reset, Fault

External DI Fault Reset; 4–23, 4–24
Keypad Fault Reset; 3–3
Serial Comm Fault Reset; 4–60
Resistors, Braking; 2–12, A–8
Restore Parameters to Default Values; 4–57
Reverse Operation Inhibit; 4–44
RF Filters; A–16
RPM
Motor Base RPM; 4–12
Motor Maximum RPM; 4–12
RS-232 Communication Interface; 5–12, 5–30
RS-232 Selector DIP Switches; 1–4, 5–12, 5–30
RS-232 to RS-485 Conversion; 5–13
Wiring Connections to DL PLCs; 5–12
RS-485 Communication Interface; 5–13, 5–14, 5–30
RS-232 to RS-485 Conversion; 5–13
RS-485 Comm Distribution Board; A–26
RS-485 Selector DIP Switches; 1–4, 5–13, 5–30
Wiring Connections to DL PLCs; 5–13, 5–14
Run Command
Digital Input Run Command; 4–22
Keypad Run; 3–3
Serial Comm Run Command; 4–59

S

Safety Codes; 2–7
Select method for 2nd Accel/Decel; 4–16
Serial Comm Speed Reference; 4–59
Short Circuit Withstand Current; 2–7
Single-Phase Motors; 2–7
Skip Frequency; 4–17
Skip Frequency Band; 4–17
Slip Compensation; 4–20
Software, Configuration; A–22
Configuration Cable; A–25
Source of Frequency Command; 4–32
Source of Operation Command; 4–22
Special Symbols; 1–2
Specifications; 1–5
Speed Reference / Frequency Command
Serial Comm Speed Reference; 4–59
Source of Frequency Command; 4–32
Status Addresses; 5–9
Status Monitor; 5–9, 5–10
Status of the AC Drive
Keypad; 3–4
Serial Comm; 5–9
Stop
Digital Input Stop; 4–22
Keypad Stop; 3–3
Stop Methods; 4–13
Supplemental Publications; 1–2
NEMA Publications; 1–2

T

Technical Support; 1–2
Three-Phase Motors; 1–3
Time Out Detection; 4–57
Time Out Duration; 4–57
Torque
Over-Torque Detection; 4–46
Torque, Constant; 3–6
Torque, Variable; 3–11
Transmission Fault Treatment; 4–57
Troubleshooting; 6–3

U

UL; 1–8, 2–7
Upper Bound
for PID Integral Control; 4–54
of Output Frequency; 4–49

V

Ventilation Slots; 1–4
VFD - Variable Frequency Drive; 1–3
Voltage
Mid-point Voltage; 4–20

Minimum Output Voltage; 4–21
Motor Nameplate Voltage; 4–11
Over-Voltage Stall Prevention; 4–45
Volts/Hertz Parameters; 4–19
Volts/Hertz Parameters; 4–19

W

Warning Messages; 6–6
Warnings & Notes - circuit connections; 2–6
Warnings & Notes - general; 1–2
Wiring & Circuit Connections; 2–6
Basic Wiring Diagram; 2–11
Control Circuit Wiring; 2–7, 2–10
Main Circuit Wiring; 2–7, 2–8, 2–9, 2–11
Serial Comm Wiring Connections; 5–12
Shielded Wiring; 2–10
Warnings; 2–6
Wiring Notes; 2–6
Wiring Connections to DL PLC Modules; B–7