

INDEX

A

- absolute encoder 35, 44
- Absolute mode 42, 78
- AC power 30
- ACC 146
- accumulative error 122, 127
- accuracy 41
- advance 116, 120, 124
 - encoder sample rate 117
 - final following percentage 117
 - following acceleration constant 124
 - initial following percentage 117
 - phase relationship 116
 - positional relationship 116
- air flow 36
- Angular Misalignment 37
- AR-C
 - DIP switches 45
- AR-C Absolute Encoder 29
- AR-C absolute encoder 44
- AR-C Decoder Box 35
- AR-C decoder box 44
- Automatic Standby 19

B

- backlash 52
 - compensation 52
- backlash compensation 52
- BASIC 67
- battery backed RAM 56
- battery-backed RAM 58
- baud rate 23
- BCD 85
- branching 70, 75
- breakpoints 121
- brownout protection 1

C

- cam 127
- cam cycle 122
- cam following 127
- cam profile 127
- CE 176
- closed-loop operation 34
- closed-loop position correction 46
- coil winding 103
- communication parameters 22
- Compumotor motors 18
- Condition statements 71
- conditional branching 74
 - IF 75
 - input state 76
- Conditional Looping 73
 - NWHILE 73
 - REPEAT 73
 - UNTIL 73
 - WHILE 73
- conditional statements 72
 - Boolean Comparisons 73
 - error flag 72
 - Input State 72
 - user flag 72
- constant value 67
- Continuous mode 43, 44, 70
- copper losses 32
- Corcom® EP Series filter 10
- core losses 32
- current node 33
- current ratings 31

D

- daisy chain 23
- daisy-chain 19
- Data Inputs 89
- data inputs 70
 - BCD 70
 - weighting 70
- data strobe rate 95
- data valid line 95
- data valid switch 92
- deadband window 47
- debounce time 51, 87

- debugging 165
 - I/O simulation 166
 - report back 166
 - Trace mode 165
- debugging tools 63
 - Single-Step mode 64
 - Trace mode 63
- deceleration 122
- device address 23
- Dimensions 149
- DIP switch settings
 - Automatic Test 5, 19
 - baud rate 19
 - device address 19
 - motor current 5
 - motor current settings 18
- DIP switches 4, 9, 152
 - SW1 4
 - SW2 4
- Direction+ 137
- Direction- 137
- distance point 77
- double-flexed coupling 37
- drive resolution 8

E

- EARTH 17
- eddy current 32
- electrical noise 10, 162
- electronic cam 127
- ELSE 74
- enclosure 36
- Enclosures 161
- encoder 44, 146
 - current 146
 - reducer 45
 - resolutions 45
- encoder gear ratio 45
- Encoder Step mode 44, 45, 47
- End Float 37

end-of-travel limits 25
energized state 33
equations 138, 140, 141
Error Flags 72
Error Message mode 66
Error Messages 66
execution time 41

F

failed drive 167
fan kit 20, 30
fault output 145
FAULT sequence 59
filter 10
flange bolts 37
Following Acceleration 106
following acceleration 104
following commands 137
Following Encoder Absolute Point
120
Following mode 135
registration 135
following ratio
on-the-fly 116
Following Synchronized Acceleration
104
Fortran 67

G

Gauging Motor Resonance 39
tachometer 39
GND 146

H

handshake 96
Handshaking 22
hardware limits 8
heatsink 161
homing 53
host computer 22
How To Use This User Guide vi
How to Use this User Guide
Assumptions
Contents of This Manual vi
hysteresis 32

I

I/O 20
fault output 27
Home Position input 25
programmable outputs 27
RS-232C 22
IF statement 74
immediate-status command 23

incremental encoder 29
inputs 29
incremental encoders 44
single-ended outputs 44
Incremental mode 42, 77
Indexer mode 100
INLK 17
INLK jumper 9
inputs 81, 144
reverse voltage 145
sink current 145
voltage range 144
internal thermostat 9
internal timer 41

J

Jogging 136
FOL 136
Following mode 136
Jog Acceleration 136
power-up sequence 136
jogging 51
CCW jog input 52
CW jog input 52

L

LEDs 162
Overtemp LED 162
Power LED 162
Undervoltage LED 162
load 37
loop commands 71
Looping 71

M

math functions 69
Addition 69
Division 69
Multiplication 69
Subtraction 69
mechanical slop 44
metal fatigue 37
Microstepping 47
mid-range instability 38
misalignments 37
Motion Profiling 116, 120, 127
Motion Profiling mode 43, 77, 80
motor 155, 162
4 lead motors 12
4-Lead Motor 155
6-Lead Motor 155
8 lead motors 12
8-Lead Motor 156
Compumotor motors 12
motor waveform 40
motor case temperature 9
motor connector 17

motor current 5
Motor Mounting
foot mount 37
motor resolution 19
Motor Step mode 45
motor windage 49
Motor Winding Inductance 147
motor/driver wire size 17
motors 31
current 158
heating 31
inductance 31
motor cables 17, 157
Motor Specifications (57 & 83
Series Motors) 148
mounting 35
clearance 36
minimum width 35
minimum-depth 35

N

NEMA 23 Motor 150
NEMA 34 Motor 150
nesting 59
NIF 74
noise immunity 30
non-Compumotor motors 158
4-Lead Motors 158
6-Lead Motors 158
8-Lead Motors 158
bipolar current 158
unipolar current 158
nonvolatile memory 58

O

ohmmeter 155
on-the-fly 77
distance 77
turn on outputs 77
velocity 77
Open-Loop mode 44
OPTO1 144
OPTO2 144
OPTO2 input 25
oscillation 39
oscilloscope 39
output functions 81
Output-On-Stall 49
outputs 33, 81, 145
pull-up resistor 145
pull-up voltage 145
reverse voltage 145
sink current 145
over-temperature protection 1
overheating 11

P

- Panel Layout 36
- Parallel configurations 11
- parallel configurations 156
- parallel data 89
 - TW2 mode 90
- Parallel Misalignment 37
- parallel misalignment 37
- parametric oscillations 38
- Pascal 67
- peak motor loss 11
- Peak shaft power 32
- Peak total power 32
- Phase A 17, 137
- Phase B 17, 137
- PI type filter 10
- pitch 103
- PLC 26, 70, 94, 95
 - Miscellaneous Control 97
 - Parallel Data Read 95
 - Sequence Select 96
- Position and velocity following 103
 - acceleration ramp 105, 108
 - applications 103
 - deceleration 109
 - FOL 114
 - following percentage 114
 - trigger 110
 - variations 103
- Position Maintenance 46
- Position Maintenance mode 47
- Position Profile Mode 70
- Position Tracking 104, 136
- potentiometers 38
 - Phase A Offset 38
 - Phase B Offset 38
 - Phase Balance 38
- power 30, 146
- power supply 1
- power up 62
 - sequences 62
- power-up sequence 51, 52, 59
- precautions 9
- Preset mode 70
- preset move 42
 - absolute position 42
 - power-up position 42
- primary axis 100
- programmable outputs 81
 - inductive load 27
- programming 67
 - buffered commands 57
 - Immediate commands 57
 - nonvolatile memory 58
 - sequence 57
- Pulse and Direction mode 137
- Pulse Tracking 104

Q

- quadrature signals 137

R

- radial load 37
- Recede 125
 - distance 125
 - following acceleration constant 126
 - initial following percentage 126
- recede application 116
- Recede Profile 141
- Receding and advancing
 - following ratio 116
- recommended strobe time 91
- REG input 26
- Registration 50
- registration 51, 135
 - FOL 135
 - Following Synchronized Acceleration mode 135
- registration input 26, 51
- repair 167
- repeatability 41
- Reset 92
- Resonance 38, 49
- resonance speed 39
- Rigid coupling 38
- ringing 47
- Rotary stepper motors 37
- RS-232C 7, 22, 58, 85
 - Baud Rate 7, 22
 - daisy-chain 24
 - Data Bits 7, 22
 - Full Duplex mode 7, 22
 - ground 22
 - Parity 7, 22
 - Receive Data 22
 - Stop Bit 22
 - Stop Bits 7
 - Transmit Data 22
- RS-232C Baud Rate 154
- RSV+ and RSV- 147

S

- schematic
 - CW, CCW, and Home Inputs 145
 - Incremental Encoder Schematic 146
 - Outputs and Fault 146
 - REG and I1 - I8 Inputs 26, 145
- secondary axis 100
- Self Learn mode 133, 134
- sequence
 - definition 58
 - power-up sequence 58
 - redefine 58
- Sequence Branching Commands 57
- sequence buffers 58
- Sequence Debugging Commands 57
- Sequence Execution Commands 57
- Sequence Interrupted Run mode 87
- Sequence Programming Commands 57
- Sequence Scan mode 79, 87
- Sequence Status Commands 57
- sequence-select input 79
- Sequences 56
- sequences
 - variables 68
- series configurations 11, 156
- shaft couplings 37
 - double-flex 37
 - rigid 37
 - single-flex 37
- short-circuit protection 1
- sign bit 96
- sine wave 40
- single-flex coupling 37
- sinusoidal current waveforms 40
- smoothness 39
- software limits 25
- Spare Parts List 161
- Speed/torque 148
- Stall Detect mode 47
- static loads 37
- status-request commands 23
- stepper motors 49
 - Resonance 49
- stop input 66, 78
- Stop-On-Stall 48
 - position error 48
- SX 3, 18
 - high-power 3, 18
 - low-power 3, 18
- synchronism 47
- Synchronization 104, 133
 - encoder pulses 133
 - latched count 133
 - primary axis 132
 - registration 132
 - secondary axis 133
 - sensor 133

synchronization 106, 135
Synchronization mode 132

T

Temperature 143
 drive 143
 motor case 143
terminal 22
terminal blocks 17
thermal dissipation 32
thermal interface 9
thumbwheel switches 26
thumbwheels 70
time delay 70
time-based motion 108
TM8 Module 88, 91
tools 4
Trace mode 73, 74
transformer 30
 earth ground 30
trigger 76, 79, 110
trigger input 79
Triggers 85
tune 40
tuning 38
 potentiometers 38

U

update rate 47
User Flags 72

V

variables 67
 general-purpose 68
 read-only 68
Velocity following 101
 applications 101
 preset move 103
velocity following 100, 101
viscous damper 38
viscous dampers 50
volt-amp ratings 32

W

waveform 50
waveform matching 40
waveforms 40
WHEN sequence 59

Z

Z channel 53