SR55 USER MANUAL TABLE OF CONTENTS



Contents of Stellar SR55 Soft Starters User Manual

Warnings and Trademarks	W-3
~ WARNING ~	
Trademarks	
~ AVERTISSEMENT ~	.W-2
Marques de commerce	.W-2
Warnings	. W –3
User Manual Revision History	H-1
SR55 Soft Starters User Manual Table of Contents	OC-1
Chapter 1: Mechanical Installation	1–1
User Manual Overview	
Overview of this Publication	
Who Should Read This Manual	
Supplemental Publications	
Technical Support	
Special Symbols	
Mechanical Installation	
Mounting	
Requirements for an Enclosure	
Enclosure Ventilation	
Mechanical Specifications	
Dimensions	
Chapter 2: Electrical Installation	
Safety Warning	
Agency Approvals	
Technical Information and Standards	
Electrical Specifications	
Circuit Protection	
Short-Circuit Protection	
Motor overload Protection	
Wire Sizes and Torques	
Electrical Connections	
Electrical Wiring	
Power Circuit Wiring	
Control Circuit Wiring	
Chapter 3: Configuration and Parameters	

"Heartbeat" LED	3–2
Configuration Overview	3–2
Auto Setup Procedure	3–2
Setup by Individual Parameter Settings	3–2
Configuration From Touchscreen	3–2
Auto Setup Procedure from Touchscreen	3–2
Individual Parameter Settings from Touchscreen	3–2
Touchscreen Pictorial Example – Auto Setup	3–3
Auto Setup Procedure – Parameter Settings	3–4
Auto Reset Function	
Mapping Auto Reset Status to Digital Outputs	
Parameter Summary	
Summary of Parameters Not Configurable Through Touchscreen Menu	
Summary of Parameters for Auto Setup	
Summary of Parameters for Individual Parameter Setup	
Block Transfer Parameters	
Parameter Details	
Parameters Not Configurable Through Touchscreen Menu	
Parameters in Sequence and Grouped by Touchscreen Navigation	
"Auto Setup" Menu of Parameters	
"Advanced" Menu of Parameters	
"I/O" Menu of Parameters	
"Monitor" Menu of Parameters	
"Log" Menu of Parameters	
"Device" Menu of Parameters	
"Auto Reset" Menu of Parameters.	
Trip Code Descriptions	
Fail Safe Codes	
Main Board Trip (2402 – 2436)	
Touchscreen Trip (2501 – 2581)	
Logging Trip (2601 – 2603)	
Fail Safe Trip Codes	
Saving and Loading an SR55 Configuration File	
Chapter 4: Principles of iERS (intelligent Energy Recovery System)	
Principles of the iERS	
Enabling Intelligent Energy Recovery System (iERS)	4–2
Principles of iERS	
Advantages of iERS	4–4
How Much Energy?	4-5
Estimating Energy Savings	4–6
iERS with the SR55 System	4–7
Chapter 4 Glossary of Terms	4–8
Chapter 5: Communications	5–1
SR55 Communications Overview	5–2
Modbus Serial Communications Overview	5–2

Modbus TCP Network Communications Overview	. 5–2
EtherNet/IP Network Communications Overview	. 5–2
Modbus Serial Communications	5–3
Modbus RTU Communications Interface	. 5–3
Modbus RTU Connections	. 5–3
Modbus Communications Configuration	. 5–4
Transmission Modes	. 5–4
Message Structure For RTU Mode	. 5–4
Supported Functions	. 5–5
Memory Map	. 5–6
Message Timing	. 5–6
Network Communications – EtherNet/IP and Modbus TCP	. 5–7
Communication Module Overview	. 5–7
Module Installation – SR55-CM-ENETIP2, SR55-CM-ENETIP and SR55-CM-MODTCP.	. 5–7
SR55 Configuration	. 5–7
IP Address Configuration	. 5–7
Communication Module Front Panel Indicator Lights	. 5–8
Modbus TCP Network Communications	5–8
EtherNet/IP Network Communications	
EtherNet/IP Control (SR55-CM-ENETIP2)	
EtherNet/IP Control (SR55-CM-ENETIP)	
EDS File	
Using the IP Configuration Tool (IPconfig)	
Connecting to the SR55-CM-ENETIP2 Module through I/O (Implicit Messaging)	
Connecting to the SR55-CM-ENETIP Module through I/O (Implicit Messaging)	
Connecting to the SR55-CM-ENET Module through Explicit Message:	
Explicit Message Instruction Examples (from Productivity Series CPU)	. 5–24
Chapter 6: Accessories	. 6–1
Optional Accessories	. 6–2
Finger Guards	. 6–2
Remote Touchscreen	. 6–3
RJ45 to RJ12 Adapter	. 6–5
Serial Modbus Communication Splitter	. 6–5
Communication Modules	
Replacement/Spare Parts	6–10
Replacement Cooling Fans	. 6–10
Replacement Touchscreen	. 6–16
Appendix A: Updating Firmware	. A-1
Updating SR55 Firmware	A-2
Appendix B: Soft Starter Application Considerations	. B-1
B.1 – Motor Suitability and Associated Considerations	. B-2
B.1.1 – Suitability	. В–2
B.1.2 – Induction Motor Characteristics	. В–2
B.1.3 – Rating	. В–2
B.1.4 – Maximum Motor Cable Length	. В–3

B.1.5 – Power Factor Correction Capacitors	B–3
B.1.6 – Lightly Loaded Small Motors	
B.1.7 – Motors Installed with Integral Brakes	B-3
B.1.8 – Older Motors	B –3
B.1.9 – Wound-rotor or Slip-ring Motors	B –3
B.1.10 – Enclosures	B –3
B.1.11 – Efficiency	B–4
B.1.12 – High-Efficiency Motors	B–4
B.1.13 – EU Compliance with the EMC Directive	B–4
B.1.14 – Fuses	B–4
B.2 – Rules for Specific Applications	B-5
B.2.1 – In-Delta Operation	B-5
B.2.2 – High-Inertia Loads	B-5
B.2.4 – Resistive Loads	B-5
B.2.5 – Frequent Starting	B-5
B.2.6 – Optimizing	B-5
B.2.7 – Soft Stopping	B-6
B.2.9 – Replacement of Fluid Couplings	B-6
B.2.12 – Overhauling Loads	B-6
B.2.13 – Application Table	B–6
${\it B.3-Concepts}$ and Principles of Fixed-Speed Induction Motor Starting and Control	B-8
B.3.1 – Introduction	B–8
B.3.2 – The Induction Motor	B–8
B.3.3 – Starting Induction Motors	B—10
B.3.4 – Electro-Mechanical Methods Of Starting	B—11
B.3.5 – The Semiconductor Motor Controller	B—12
B.3.6 – Running Induction Motors	B—13
B.3.7 – Reliability Considerations	B—14
Appendix B Glossary of Terms	B-15
Appendix C: Electromagnetic Compatibility	<i>C</i> –1
C.0 – Electromagnetic Compatibility (EMC)	C-2
C.1 – Introduction	
C.2 – Applicable Standard Within the EU	
C.3 – Mandatory Requirements Within the EU	
C.4 – Guidance for Installation Personnel and System Designers	
C.5 – EMC Basic Criteria	
C.6 – Purchasing Implications of Meeting an EMC Standard	
C.7 – Basic EMC Considerations	
C.7.1 – Immunity	
C.7.2 – Emissions	
C.7.4 Emissions - Harmonics	
C.7.4 – Emissions - Radio Frequency (RF)	
C.7.5 – Emissions - Conducted	
C.7.6 – Important Systems Information	
C 7 7 — Stratedies for Atlantino and Maintainino FMC Compliance	(-6

Table of Contents



Appendix D: Sizing an SR55 Soft Starter	D–1
SR55 Soft Starter Selection Steps	D–2
SR55 Soft Starter Overload Trip	D–3
SR55 Index Ratings	D–3
Standard Overload Current Profile and Duty Cycle	D–4
Increased Starts per Hour – Derating	D–5
Derating Examples	D-6