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Stellar® SR44 Full-Featured Soft Starters

SR44 Soft Starter Selection

SR44 Soft Starters – O/L Trip Classes ①	
Default	10
Heavy	20
Agitator	10
Air Compressor - Equalized	10B
Air Compressor - Loaded	20
Ball Mill	20
Centrifuge - extended start needed for sizing	
Chiller	10B
Conveyor - Unloaded	10B
* Conveyor - Loaded	20
Crusher	30
Escalator	10B
* Fan - Low Inertia < 85A	10
* Fan - High Inertia > 85A	30
Feeder - Screw	10
Grinder	20
Hammer Mill	20
Lathe Machine	10B
Mills - Flour, etc.	20
Mixer - Unloaded	10B
Mixer - Loaded	20
Pelletizer	20
Plastic and Textile Machines	10B
Press - Flywheel	20
* Pump - Centrifugal	10B
* Pump - Positive Displacement - Unloaded	10
Rolling Mill	20
Saw - Band	10
Saw - Circular	20
Screen - Vibrating	20
Transformer, Voltage Regulator	10B
Tumbler	10
Wood Chipper	30
* Commonly required applications	

SR44 Soft Starter Selection Steps

- ① Determine the required trip class based on the motor load and required start time.
- ② Select the applicable SR44 part number based on the required Trip Class, motor HP, and connection type.

SR44 Soft Starters – Selection Table ②											
Motor Size								Soft Starter Size			
In-Line Connection				In-Delta Connection **				Application Trip Class			
I (A)	HP @ 208V*	HP @ 230V	HP @ 460V	I (A)	HP @ 208V*	HP @ 230V	HP @ 460V	Class 10B	Class 10	Class 20	Class 30
9	2	3	5	15	2	3	7.5	SR44-9	SR44-16	SR44-23	
16	3	5	10	27	3	5	15	SR44-16	SR44-23	SR44-30	
23	5	7.5	15	39	5	7.5	25	SR44-23	SR44-30	SR44-44	
30	7.5	10	20	51	7.5	10	30	SR44-30	SR44-44	SR44-59	
44	10	15	30	76	10	15	50	SR44-44	SR44-59	SR44-72	
59	15	20	40	102	15	20	60	SR44-59	SR44-72	SR44-85	
72	20	25	50	124	20	25	75	SR44-72	SR44-85	SR44-105	
85	25	30	60	147	25	30	100	SR44-85	SR44-105	SR44-146	
105	30	40	75	181	30	40	125	SR44-105	SR44-146	SR44-174	
146	50	60	100	252	50	60	150	SR44-146	SR44-174	SR44-202	
174	60	75	150	301	60	75	250	SR44-174	SR44-202	SR44-242	
202	60	75	150	349	60	75	300	SR44-202	SR44-242	SR44-300	
242	75	100	200	419	75	100	300	SR44-242	SR44-300	SR44-370	
300	100	100	250	519	100	100	350	SR44-300	SR44-370	n/a	
370	125	150	300	640	125	150	350	SR44-370	n/a	n/a	

*** 208V applications are UL listed only as low as 196V.**

**** For In-Delta connections, all six motor wires must be available for connection, and it is critical to exactly follow the In-Delta wiring diagram in the SR44 User Manual or Quick-start Guide. (Nine-lead motors CANNOT be connected in the delta.)**
The Soft Starter will only sense the Phase Current, which is about 58% of the Line Current.

Stellar® SR44 Full-Featured Soft Starters

SR44 Max Overcurrent Protection

UL requires Recognized special purpose fuses (JFHR2) for the protection of semiconductor devices (rated 700 VAC, as indicated in the Semiconductor Fuse Table) be used to obtain the short circuit ratings required by UL.

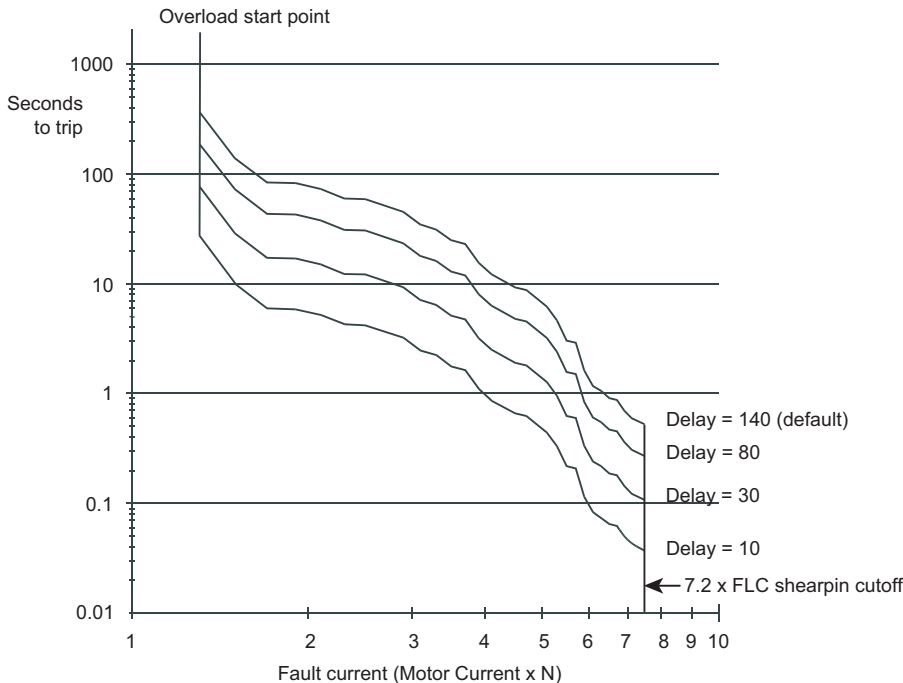
Suitable for use on a circuit capable of delivering not more than the indicated RMS Symmetrical Amperes at maximum rated operational voltage, when protected by Semiconductor Fuse type manufactured by Company and Model Number indicated in the table.

These fuses are for short circuit protection of the semiconductors and must be mounted externally by the user between the unit and the incoming main power source; not between the unit and the motor.

Semiconductor Fuse Types for SR44 Soft Starters							
Model Name	I _e (A)	S.C. Withstand	UL JFHR2 Fuses for UL Applications *			Non-UL **	
			Bussman Model # *	Mersen (formerly Ferraz) Model # *	Amps	Edison E70S Model # **	Amps
SR44-9	9	5kA	170M3110	6.9 URD 30 D08A 0063	63	E70S50	50
SR44-16	16						
SR44-23	23						
SR44-30	30						
SR44-44	44						
SR44-59	59	10 kA	170M3112	6.9 URD 30 D08A 0100	100	E70S80	80
SR44-72	72						
SR44-85	85						
SR44-105	105						
SR44-146	146						
SR44-174	174	18 kA	170M3114	6.9 URD 30 D08A 0160	160	E70S125	125
SR44-202	202						
SR44-242	242						
SR44-300	300						
SR44-370	370						
			170M3115	6.9 URD 30 D08A 0200	200		
			170M3116	6.9 URD 30 D08A 0250	250	E70S200	200
			170M3119	6.9 URD 30 D08A 0400	400	E70S300	300
			170M3121	6.9 URD 30 D08A 0500	500	E70S400	400
			170M4114	6.9 URD 31 D08A 0500	500	E70S500	500
			170M4116	6.9 URD 31 D08A 0630	630	E70S700	700

* Use these fuses with SR44 soft starters in UL applications.
 ** Use these fuses with SR44 soft starters only in NON-UL applications.

SR44 Internal Overload Trip



'Current limit', 'Overload level' and 'Overload delay' settings may be adjusted to limit overload currents in accordance with the trip curves shown here.

(See Menu Structure in User Manual or Quick-start Guide for default settings.)

» For motors with FLCs lower than the rated current of the SR44, the 'Overload level' may be adjusted using the following formula:

$$\text{Overload Level} = \text{Motor FLC} \times 1.1(\text{A})$$

Note:

The overload monitors only one of the phases, and the 'Current Limit' level is active only during motor starting.

IMPORTANT:

We recommend that the control supply is maintained between starts to ensure the integrity of the overload, which will reset on control power removal.

Wiring Solutions using the ZIPLink Wiring System

ZIPLinks eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN rail mount connector modules. It's as simple as plugging in a cable connector at either end or terminating wires at only one end. Prewired cables keep installation clean and efficient, using half the space at a fraction of the cost of standard terminal blocks. There are several wiring solutions available when using the ZIPLink System ranging from

PLC I/O-to-ZIPLink Connector Modules that are ready for field termination, options for connecting to third party devices, GS, DuraPulse and SureServo Drives, and specialty relay, transorb and communications modules. Pre-printed I/O-specific adhesive label strips for quick marking of ZIPLink modules are provided with ZIPLink cables. See the following solutions to help determine the best ZIPLink system for your application.

Solution 1: DirectLOGIC, CLICK and Productivity3000 I/O Modules to ZIPLink Connector Modules

When looking for quick and easy I/O-to-field termination, a ZIPLink connector module used in conjunction with a prewired ZIPLink cable, consisting of an I/O terminal block at one end and a multi-pin connector at the other end, is the best solution.



Using the PLC I/O Modules to ZIPLink Connector Modules selector tables located in this section,

1. Locate your I/O module/PLC.
2. Select a ZIPLink Module.
3. Select a corresponding ZIPLink Cable.

Solution 2: DirectLOGIC, CLICK and Productivity3000 I/O Modules to 3rd Party Devices

When wanting to connect I/O to another device within close proximity of the I/O modules, no extra terminal blocks are necessary when using the ZIPLink Pigtail Cables. ZIPLink Pigtail Cables are prewired to an I/O terminal block with color-coded pigtail with soldered-tip wires on the other end.



Using the I/O Modules to 3rd Party Devices selector tables located in this section,

1. Locate your PLC I/O module.
2. Select a ZIPLink Pigtail Cable that is compatible with your 3rd party device.

Solution 3: GS Series and DuraPulse Drives Communication Cables

Need to communicate via Modbus RTU to a drive or a network of drives?

ZIPLink cables are available in a wide range of configurations for connecting to PLCs and SureServo, SureStep, Stellar Soft Starter and AC drives. Add a ZIPLink communications module to quickly and easily set up a multi-device network.

Using the Drives Communication selector tables located in this section,

1. Locate your Drive and type of communications.
2. Select a ZIPLink cable and other associated hardware.



Solution 4: Serial Communications Cables

ZIPLink offers communications cables for use with *Direct*LOGIC, CLICK, and Productivity3000 CPUs, that can also be used with other communications devices. Connections include a 6-pin RJ12 or 9-pin, 15-pin and 25-pin D-sub connectors which can be used in conjunction with the RJ12 or D-Sub Feedthrough modules.

Using the **Serial Communications Cables** selector table located in this section,

1. Locate your connector type
2. Select a cable.



Solution 5: Specialty ZIPLink Modules

For additional application solutions, ZIPLink modules are available in a variety of configurations including stand-alone relays, 24VDC and 120VAC transorb modules, D-sub and RJ12 feedthrough modules, communication port adapter and distribution modules, and SureServo 50-pin I/O interface connection.

Using the **ZIPLink Specialty Modules** selector table located in this section,

1. Locate the type of application.
2. Select a ZIPLink module.



Solution 6: ZIPLink Connector Modules to 3rd Party Devices

If you need a way to connect your device to terminal blocks without all that wiring time, then our pigtail cables with color-coded soldered-tip wires are a good solution. Used in conjunction with any compatible ZIPLink Connector Modules, a pigtail cable keeps wiring clean and easy and reduces troubleshooting time.

Using the **Universal Connector Modules and Pigtail Cables** table located in this section,

1. Select module type.
2. Select the number of pins.
3. Select cable.



Drive / Motor Controller (GS/DuraPulse/SureServo/SureStep/Stellar) ZIPLink Selector										
Drive / Motor Controller		Communications			ZIPLink Cable					
Controller	Comm Port Type	Network/Protocol	Connects to	Comm Port Type	Cable (2 meter length)	Cable Connectors	Other Hardware Required			
GS1	RJ12	RS-485 Modbus RTU	DL06 PLCs	Port 2 (HD15)	GS-485HD15-CBL-2	RJ12 to HD15	—			
			D2-260 CPU				—			
			GS-EDRV100	RJ12	GS-EDRV-CBL-2	RJ12 to RJ12	—			
			ZL-CDM-RJ12Xxx*	RJ12	GS-485RJ12-CBL-2		—			
FA-ISOCOCON	5-pin Connector	GS-ISOCOCON-CBL-2	RJ12 to 5-pin plug	—						
GS2	RJ12	RS-232 Modbus RTU	CLICK PLCs	Port 2 (RJ12)	GS-RJ12-CBL-2	RJ12 to RJ12	—			
			DL05 PLCs				—			
			DL06 PLCs				—			
			D2-250-1 CPU	Port 2 (HD15)			FA-15HD			
			D2-260 CPU							
			D4-450 CPU	Port 3 (25-pin)			FA-CABKIT			
		P3-550 CPU	Port 2 (RJ12)	—						
		RS-485 Modbus RTU	DL06 PLCs	Port 2 (HD15)	GS-485HD15-CBL-2	RJ12 to HD15	—			
			D2-260 CPU				—			
			GS-EDRV100	RJ12	GS-EDRV-CBL-2	RJ12 to RJ12	—			
			ZL-CDM-RJ12Xxx*	RJ12	GS-485RJ12-CBL-2		—			
			FA-ISOCOCON	5-pin Connector	GS-ISOCOCON-CBL-2	RJ12 to 5-pin plug	—			
DuraPulse (GS3)	RJ12		RS-485 Modbus RTU	DL06 PLCs	Port 2 (HD15)	GS-485HD15-CBL-2	RJ12 to HD15	—		
		D2-260 CPU		—						
		GS-EDRV100		RJ12	GS-EDRV-CBL-2	RJ12 to RJ12	—			
		ZL-CDM-RJ12Xxx*		RJ12	GS-485RJ12-CBL-2		—			
		FA-ISOCOCON		5-pin Connector	GS-ISOCOCON-CBL-2	RJ12 to 5-pin plug	—			
		SureServo		IEEE1394 (CN3)	RS-232 Modbus RTU	CLICK PLCs	Port 2 (RJ12)	SVC-232RJ12-CBL-2	6-pin IEEE to RJ12	—
						DL05 PLCs				—
						DL06 PLCs				—
D2-250-1 CPU	Port 2 (HD15)		FA-15HD							
D2-260 CPU										
D4-450 CPU	Port 3 (25-pin)		FA-CABKIT							
P3-550 CPU	Port 2 (RJ12)		—							
RS-485 Modbus RTU	DL06 PLCs		Port 2 (HD15)		SVC-485HD15-CBL-2	6-pin IEEE to HD15	—			
	D2-260 CPU						—			
	ZL-CDM-RJ12Xxx*		RJ12		SVC-485RJ12-CBL-2	6-pin IEEE to RJ12	—			
	USB-485M		RJ45		SVC-485CFG-CBL-2	6-pin IEEE to RJ45	—			
	Stellar (Soft Starter) SR44 Series		RJ45**		RS-485 Modbus RTU	DL06 PLCs	Port 2 (HD15)	SR44-485HD15-CBL-2	RJ45 to HD15	SR44-RS485**
		D2-250-1 CPU								
D2-260 CPU		—								
ZL-CDM-RJ12Xxx*		RJ12		SR44-485RJ45-CBL-2		RJ45 to RJ12				
SureStep	RJ12	RS-232 ASCII	DL06 PLCs	Port 2 (HD15)	STP-232HD15-CBL-2	HD15-pin to RJ12	—			
			D2-250-1 CPU				—			
			D2-260 CPU (Port2)				—			
			DL05 PLCs	RJ12	STP-232RJ12-CBL-2	RJ12 to RJ12	—			
			CLICK PLCs				—			

* When using the ZL-CDM-RJ12Xxx ZIPLink Communication Distribution Module, replace the lowercase xx with the number of RJ12 ports, i.e.4 for four ports or10 for ten ports. (ex: ZL-CDM-RJ12X4 or ZL-CDM-RJ12X10)

** The SR44-RS485 Communications Adapter must be installed for RS-485 communications with the Stellar soft starters.