

Stellar® SR35 Basic Soft Starters

Overview

SR35 full-featured solid-state Soft Starters provide many advantages when used instead of electromechanical contactors to control both 1-phase and 3-phase AC induction motors. The SR35 Soft Starters are fully digital, and use thyristors on the A and C phases for controlled reduced voltage motor starting and stopping. SR35s have an Automatic Application Setup that fully configures the starter for a specific application with one entry.

Features

- 17–361 A @ 110–240 VAC, 1PH or 200–600 VAC, 3PH
- 24VDC control voltage, 110–230 VAC with optional power supply, [SR35-PSU](#)
- Internally bypassed during run
- Two-phase motor control
- Built-in SCR failure protection
- Full motor overload protection
- Full data logging (fault records, motor current, operational status, etc.)
- Fully programmable
- Easily and separately adjustable motor start and stop times
- Can be used for motor reversing (with external contactors)
- Suitable for a wide variety of motor loads
- Easy-to-navigate menu structure and quick automatic application set up
- Can be used with local or remote control
- Integrated Modbus RTU communication
- Optional remote keypad available
- Programmable digital inputs, and relay outputs for remote control
- Fault record history of last 9 trips (using the download fault log will give faults and running data for the life of the SR35)
- IP20, panel mount with optional finger guards for frame sizes 1 and 2 soft starters
- Two-year warranty
- CE, cULus, REACH, RoHS
- Suitable for soft starting, split phase, cap run or cap start / cap run motors



WARNING: NOT FOR USE WITH SINGLE PHASE, SHADED POLE MOTOR



Advantages

Mechanical Advantages

- Smaller physical size than equivalent SR55 models (even with the built-in bypass contactors)
- Smooth acceleration; reduced mechanical shock and starting stress
- Extend lifespan of mechanical drive-train components
- Fluid couplings and some clutches can be eliminated

Electrical Advantages

- Reduced starting currents and spikes
- More motors or larger motors can be started from lower-capacity power sources
- Allows motors to be started more frequently

Economic Advantages

- Lower overall costs for new installations
- Bypass relays built in
- Reduced maintenance and replacement of mechanical drive-train components
- Reduced starting current lowers demand charges
- Automatic Application setup feature speeds installation by configuring the SR35 for a specific application with one setting

Optional Accessories

- Power terminal IP20 finger guards
- Power terminal covers (Size 3)
- Remote keypad
- 110–230 VAC Power supply
- I/O Expansion module
- Cooling fans increase starts per hour

Applications

- General purpose applications where traditional across-the-line starting or wye-delta starting would typically be appropriate
- Applications with oversized or lightly loaded motors.
- Applications requiring lower inrush currents



STELLAR®
soft starters



Stellar® SR35 Basic Soft Starters

SR35 Soft Starter General Specifications					
Product standard			En 60947-4-2: 2012		
Rated operational voltages U_e			110 – 240 VAC 1Ph; 200 – 600 VAC 3Ph		
Rated operational current I_e			See Rating Table on page tSST-18		
Rating index			See Rating Table on page tSST-18		
Rated frequencies			50 – 60 Hz $\pm$ 5hz		
Rated duty			Uninterrupted		
Form designation			Form 1, internally bypassed		
Method of operation			Symmetrically controlled starter		
Method of control			Semi-automatic		
Method of connecting			Thyristors connected between motor windings and supply		
Number of poles			3 Main poles (2 main poles controlled by semiconductor switching element)		
Rated insulation voltage	U_i	Main circuit		See key to part numbers	
		Control supply circuit		230VAC r.m.s ¹	
Rated impulse withstand voltage	U_{imp}	Main circuit		6 kV	
		Control supply circuit		4 kV ¹	
Ip code		Main circuit		IP00 (IP20 with finger guards ⁵)	
		Supply and control circuit		IP20	
Overvoltage category / pollution degree			III/3		
Rated conditional short-circuit current and type of coordination with associated short circuit protective device (SCPD)			Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit current and required current rating and characteristics of the associated SCPD)		
Protect with 4a UL listed fuse	As standard	Control supply ²	Supply input		0, 24V
			Kind of current, rated frequency		DC
			Rated voltage U_s		24VDC
			Maximum power consumption		12Va (SR35-017 – SR35-065) 48va (SR35-077 – SR35-361)
		Control circuit ²	Programmable opto-isolated inputs		D1, D2
			Common input, marking		COM
			Kind of current, rated frequency		DC
			Rated voltage U_c		24VDC
	With SR35-PSU module	Control supply	Supply input		L, n
			Kind of current, rated frequency		AC, 50 – 60 Hz $\pm$ 5hz
			Rated voltage u_s		110 – 230 VAC
			Rated input current		1A
		Control circuit	Programmable opto-isolated inputs		D1, D2
			Common input		COM
			Kind of current, rated frequency		AC, 50 - 60 Hz $\pm$ 5hz
			Rated voltage U_c		110V – 230 VAC
	Auxiliary Circuit ³	Form a – single gap make -contact (normally open)		13, 14	
		Form b – single gap break-contact (normally closed)		21, 22	
		Utilization category, voltage rating, current rating		Resistive load, 250VAC, 2A. Cos ϕ =0.5, 250VAC, 2A ⁴	
Electronic overload relay with manual reset and thermal memory		Trip class		10 (Factory default), 20 or 30 (selectable)	
		Current setting		See electronic overload relay current settings	
		Rated frequency		50 – 60 Hz $\pm$ 5hz	
		Time-current characteristics		See Motor Overload Protection on page tSST-15 For trip curves (trip time $T_n \pm 20\%$)	

With optional SR35-PSU power supply module.

Must be supplied by class 2, limited voltage current or protected by a 4A UL 248 listed fuse.

Compliant with Annex S of IEC 60947-1:2007 at 24VDC

Not applicable for UL

For models SR35-017 – SR35-192 the main circuit IP20 rating only applies when the finger guards as supplied are fitted

The safety functions were not evaluated by UL. Listing is accomplished according to requirements of Standard UL 508 and CSA14-13, general use applications

Stellar® SR35 Basic Soft Starters

SR35 Soft Starter Technical Specifications

Technical Specifications															
Model (SR35-)	Price	Frame Size	Heat Output (W)	Weight kg [lb]	Ambient Operating Temperature	Transportation and Storage Temperature	Humidity	Maximum Altitude	Environmental Rating	Drawing Links					
017	\$497.00	1	9	1.97 [4.2]	-20°C [-4°F] to 40°C [104°F]; above 40°C derate linearly by 2% of SR35 le per °C to a maximum of 60°C (140°F)	-20°C to 70°C [-4°F to 158°F] continuous	Max 85% non-condensing, not exceeding 50% @ 40°C [104°F]	1,000m [3281ft]; above 1000m derate by 1% of SR35 le per 100m (328ft) to a maximum altitude of 2,000m (6562ft)	Main circuit: IP00 (Ip20 with optional finger guards); Control circuit: Ip20; no corrosive gases permitted	PDF					
022	\$529.00		12							PDF					
027	\$576.00		14							PDF					
034	\$602.00		16							PDF					
041	\$672.00		20							PDF					
052	\$763.00		25							PDF					
065	\$810.00		30							PDF					
077	\$1,021.00	2	37	6.0 [13.23]						-20°C to 70°C [-4°F to 158°F] continuous	Max 85% non-condensing, not exceeding 50% @ 40°C [104°F]	1,000m [3281ft]; above 1000m derate by 1% of SR35 le per 100m (328ft) to a maximum altitude of 2,000m (6562ft)	Main circuit: IP00 (Ip20 with optional finger guards); Control circuit: Ip20; no corrosive gases permitted	PDF	
100	\$1,149.00		49											PDF	
125	\$1,525.00		61											PDF	
156	\$2,269.00		74											PDF	
192	\$2,389.00		90						PDF						
242	\$2,584.00		111						15 [33.1]					Main circuit: IP00; Control circuit: IP20; no corrosive gases permitted	PDF
302	\$2,991.00		139												PDF
361	\$3,194.00	166	PDF												



Ventilation for Enclosures

SR35 Minimum Clearance Distances * (in [mm])					
SR35 Soft Starter Model	Top	Bottom	Left	Right	Front
Size 1: SR35-017 to SR35-065	3 [75]			1 [25]	
Size 2: SR35-077 to SR35-192	3.9 [100]			1.6 [40]	1 [25]
Size 3: SR35-242 to SR35-361	4.9 [125]			2.4 [60]	1 [25]

* For heat dissipation, the SR35 must not be mounted any closer to another object than these distances.



The addition of optional finger guards to size 1 and size 2 SR35 soft starters adds approximately 14mm [0.5in] to the soft starter vertical dimension, but does NOT change the clearance distance.



When installing the SR35 starter in an enclosure, ventilation must be provided if the heat output of the unit is greater than what the enclosure will dissipate. Use the formula at right to determine the fan requirement. An allowance has been incorporated into the formula so that the figure for Q is the air delivery in the fan suppliers data.

$$Q = (4 \times Wt) / (T_{\max} - T_{\text{amb}})$$

$$Q = \text{Volume of air (cubic meters per hour - m}^3\text{/h)}$$

Wt = Heat produced by the unit and all other heat sources within the enclosure (Watts)

T_{max} = Maximum permissible temperature within the enclosure (50°C for a fully rated SR35)

T_{amb} = Temperature of the air entering the enclosure (°C)
(If you prefer to work in CFM, substitute °F for °C. Q is now in CFM)

Stellar® SR35 Basic Soft Starters

SR35 Soft Starter Overcurrent Protection



Customer-supplied external power-circuit isolation devices (contactors, disconnect switches, fusible disconnects, shunt-trip circuit breakers, etc.) and short-circuit protection devices (circuit breakers, fuses, etc.) are required for use with SR35 soft starters.

Short Circuit Protection – SR35 Frame Size 1									
Type designation (SR35-)			017	022	027	034	041	052	065
Rated operational current	I_e	A	17	22	29	35	41	55	66
Rated conditional short circuit current	I_q	kA	5	5	5	5	5	5	5
Class J time-delay fuse #1	Maximum rating Z1	A	30	40	50	60	70	100	125
UL Listed inverse-time delay circuit breaker #1	Maximum rating Z2	A	60	60	60	60	60	150	150
Semiconductor fuse (class aR) #2	Type	Mersen 6,9 URD 30 _				Mersen 6,9 URD 31 _			
		Bussmann 170M30 _				Bussmann 170M40 _			
		Bussmann 170M31 _				Bussmann 170M41 _			
		Bussmann 170M32 _				Bussmann 170M42 _			
		SIBA 20 61 _				SIBA 20 61 _			
	Fuse rating	A	160A	160A	200A	200A	250A	250A	250A

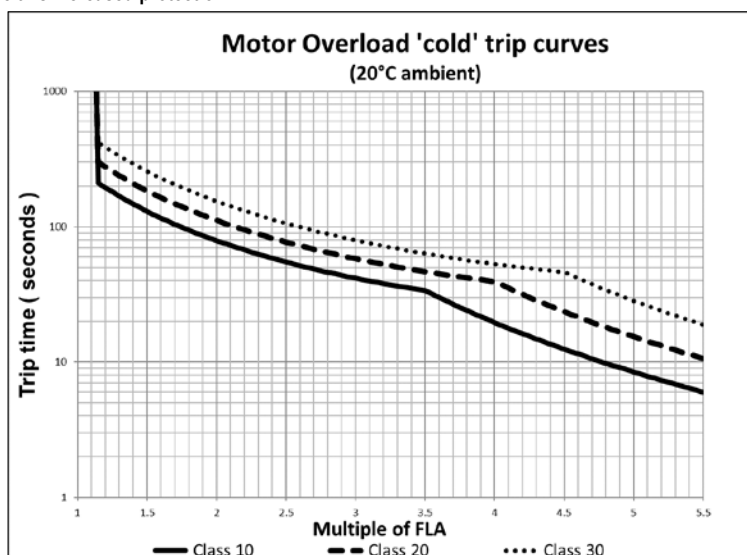
Suitable For Use On A Circuit Capable Of Delivering Not More Than I_q r.m.s. Symmetrical Amperes, 600V Maximum, When Protected by Class J Time Delay Fuses with a Maximum Rating of $Z1$ or by a Circuit Breaker with a Maximum Rating of $Z2$.
Correctly selected semiconductor fuses can provide additional protection against damage to the SR35 unit (this is sometimes referred to as type 2 coordination). These semiconductor fuses are recommended to provide this increased protection.

Short Circuit Protection – SR35 Frame Size 2 & 3										
Type designation (SR35-)			077	100	125	156	192	242	302	361
Rated operational current	I _e	A	80	106	132	160	195	242	302	361
Rated conditional short circuit current	I _q	kA	10	10	10	10	10	18	18	18
Class J time-delay fuse #1	Maximum rating Z1	A	150	200	250	300	400	450	600	600
UL Listed inverse-time delay circuit breaker #1	Maximum rating Z2	A	250	300	350	450	500	700	800	800
Semiconductor fuse (class aR) #2	Type		Mersen 6,9 URD 31 __ Bussmann 170M40 __ Bussmann 170M41 __ Bussmann 170M42 __ SIBA 20 61 __					Mersen 6,9 URD 33 __ Bussmann 170M60 __ Bussmann 170M61 __ Bussmann 170M62 __ SIBA 20 63 __		
	Fuse rating	A	400A	400A	550A	550A	550A	800A	900A	1000 A

Suitable For Use On A Circuit Capable Of Delivering Not More Than I_q r.m.s. Symmetrical Amperes, 600Volts Maximum, When Protected by Class J Time Delay Fuses with a Maximum Rating of $Z1$ or by a Circuit Breaker with a Maximum Rating of $Z2$.
Correctly selected semiconductor fuses can provide additional protection against damage to the SR35 Soft Starter (this is sometimes referred to as type 2 coordination). These semiconductor fuses are recommended to provide this increased protection.

SR35 Soft Starter Overload Trip

The SR35 soft starter provides motor overload protection, which can be configured through the keypad. Overload trip settings are determined by the Motor Current setting and the Trip Class setting. Trip class choices are class 10, class 20, and class 30. The SR35 soft starters are protected using full I2T motor overload with memory.



Stellar® SR35 Basic Soft Starters

An Online Product Selection Tool is available on our website: <https://www.automationdirect.com/selectors/softstarters>

SR35 Soft Starter Selection															
Step 1 - Select the application from the list and follow that column down															
Typical Applications					Standard Duty					Medium Duty			Heavy Duty		
					Agitator					Compressor - Centrifugal			Crusher		
					Compressor - Rotary Vane					Compressor - Reciprocating			Shredder		
					Compressor - Unloaded					Compressor - Rotary Screw			Wood Chipper		
					Bow Thruster - Zero Pitch					Ball Mill			Fan - High Inertia or >85A		
					Fan - Low Inertia or <85A					Bow Thruster - Loaded			-		
					Feeder - Screw					Conveyor - Loaded			-		
					Lathe Machines					Grinder			-		
					Mixer - Unloaded					Hammer Mill			-		
					Molding Machine					Mills - Flour etc.			-		
					Plastic and Textile Machines					Mixer - Loaded			-		
					Pump - Submersible; Centrifugal					Pelletizers			-		
					Pump - Submersible; Rotodynamic					Press, Flywheel			-		
					Saw - Band					Positive Displacement Pump; (Reciprocating or Rotary)			-		
					Transformers					Pump Jack			-		
					Voltage Regulators					Rolling Mill			-		
					-					Roots Blower			-		
					-					Saw - Circular			-		
					-					Screen - Vibrating			-		
					-					Tumblers			-		
Step 2 - Confirm the rated starting capability of the soft starter against the application															
Trip Class					Trip Class 10					Trip Class 20			Trip Class 30		
Rated Starting Capability					3x Motor Current - 23s 3.5x Motor Current - 17s					4x Motor Current - 19s			4x Motor Current - 29s		
Max Starts per Hour					5 starts/hour					5 starts/hour			5 starts/hour		
Max Starts per Hour w/Optional Cooling Fan					40 starts/hour					40 starts/hour			40 starts/hour		
Step 3 - Consider the operating environment and make the model selection on a higher amp rating															
Height Above Sea Level					Standard operating height is 1000m, for every 100m increase motor Amps/kW by 1% up to 2000m. Example: For a 20A motor at 1500m, make model selection based on 21A (5% higher).										
Operating Temperatures					Standard operating temperature is 40degC, for every 1°C above, increase motor Amps/kW by 2%, up to 60°C. Example: For a 20A motor at 50°C make model selection based on 24A (20% higher).										
Increased Starts per Hour					Fit optional fan to increase maximum up to 40 starts per hour.										
Step 4 (Three Phase) - Select your motor Voltage and Horsepower/kW and select model															
Motor Rating										Select Model 5 starts/hour @ 40°C		Select Model 5 starts/hour @ 40°C		Select Model 5 starts/hour @ 40°C	
I _e A	kW			FLA A	Hp (3Ph)										
	230V	400V	500V		200V	208V	220–240V	440–480V	550–600V						
17	4	7.5	7.5	17	3	5	5	10	15	SR35-017	SR35-022	SR35-027			
22	5.5	11	11	22	5	5	7.5	15	20	SR35-022	SR35-027	SR35-034			
29	7.5	15	15	27	7.5	7.5	7.5	20	25	SR35-027	SR35-034	SR35-041			
35	7.5	18.5	22	34	10	10	10	25	30	SR35-034	SR35-041	SR35-052			
41	11	22	22	41	10	10	10	30	40	SR35-041	SR35-052	SR35-065			
55	15	30	37	52	15	15	15	40	50	SR35-052	SR35-065	SR35-077			
66	18.5	37	45	65	20	20	20	50	60	SR35-065	SR35-077	SR35-100			
80	22	45	55	77	20	25	25	60	75	SR35-077	SR35-100	SR35-125			
106	30	55	75	100	30	30	30	75	100	SR35-100	SR35-125	SR35-156			
132	37	75	90	125	40	40	40	100	125	SR35-125	SR35-156	SR35-192			
160	45	90	110	156	50	50	60	125	150	SR35-156	SR35-192	SR35-242*			
195	55	110	132	192	60	60	60	150	200	SR35-192	SR35-242*	SR35-302*			
242	75	132	160	242	75	75	75	200	250	SR35-242*	SR35-302*	SR35-361*			
302	90	160	200	302	100	100	100	250	300	SR35-302*	SR35-361*	-			
361	110	200	250	361	125	125	150	300	350	SR35-361*	-	-			

*SR35-242, SR35-302, and SR35-361, 3 starts/hour @ 40°C

Stellar® SR35 Basic Soft Starters

SR35 Soft Starter Selection (1Ph)											
Step 4 (Single Phase) - Select your motor Voltage and Horsepower/kW and select model											
Motor Rating								Select Model 5 starts/hour @ 40°C	Select Model 5 starts/hour @ 40°C	Select Model 5 starts/hour @ 40°C	
110 – 120 V (1Ph)				220 – 240 V (1Ph)							
HP	FLA	kW	I _e (A)	HP	FLA	kW	I _e (A)				
-	-	-	-	-	-	0.07	1.2	SR35-017	SR35-017	SR35-017	
-	-	-	-	0.1	1.5	0.1	1.6	SR35-017	SR35-017	SR35-017	
-	-	-	-	0.12	1.9	0.12	1.9	SR35-017	SR35-017	SR35-017	
-	-	0.07	2.4	0.16	2.2	0.18	2.3	SR35-017	SR35-017	SR35-017	
0.1	3	0.1	3.3	0.25	2.9	0.25	2.9	SR35-017	SR35-017	SR35-017	
0.12	3.8	0.12	3.8	0.33	3.6	0.37	3.9	SR35-017	SR35-017	SR35-017	
0.16	4.4	0.18	4.5	0.5	4.9	-	-	SR35-017	SR35-017	SR35-017	
0.25	5.8	0.25	5.8	-	-	0.56	5.5	SR35-017	SR35-017	SR35-017	
-	-	-	-	0.75	6.9	-	-	SR35-017	SR35-017	SR35-017	
0.33	7.2	0.37	7.9	1	8	0.75	7.3	SR35-017	SR35-017	SR35-017	
0.5	9.8	0.56	11	1.5	10	1.1	10	SR35-017	SR35-017	SR35-017	
0.75	13.8	-	-	2	12	1.5	13	SR35-017	SR35-017	SR35-022	
1	16	0.75	15	3	17	-	-	SR35-017	SR35-022	SR35-027	
1.5	20	1.1	21	-	-	2.2	19	SR35-022	SR35-027	SR35-034	
2	24	1.5	26	-	-	3	24	SR35-027	SR35-034	SR35-041	
-	-	-	-	5	28	3.7	27	SR35-027	SR35-034	SR35-041	
-	-	-	-	-	-	4	30	SR35-034	SR35-041	SR35-052	
3	34	2.2	37	-	-	-	-	SR35-041	SR35-052	SR35-065	
-	-	-	-	7.5	40	5.5	41	SR35-041	SR35-052	SR35-065	
-	-	3	49	10	50	-	-	SR35-052	SR35-065	SR35-077	
5	56	3.7	54	-	-	7.5	55	SR35-065	SR35-077	SR35-100	
-	-	4	60	-	-	-	-	SR35-065	SR35-077	SR35-100	
-	-	-	-	15	68	9.2	67	SR35-077	SR35-100	SR35-125	
7.5	80	5.5	85	20	88	11	80	SR35-100	SR35-125	SR35-156	
-	106	-	106	-	106	-	106	SR35-100	SR35-125	SR35-156	
10	100	7.5	110	25	110	-	132	SR35-125	SR35-156	SR35-192	
15	135	-	160	30	136	-	160	SR35-156	SR35-192	SR35-242*	
-	195	-	195	40	176	-	195	SR35-192	SR35-242*	SR35-302*	
-	242	-	242	50	216	-	242	SR35-242*	SR35-302*	SR35-361*	
-	302	-	302	-	302	-	302	SR35-302*	SR35-361*	-	
-	361	-	361	-	361	-	361	SR35-361*	-	-	

*SR35-242, SR35-302, and SR35-361, 3 starts/hour @ 40°C

Stellar® SR35 Basic Soft Starters

SR35 Index Ratings (per IEC 60947-4-2)

Rating Table – Vertically Mounted (3Ph)												
I_e	kW ¹			FLA	Hp ²					Trip Class 10 I_e : AC-53a: 3.5-17: F-S ⁵	Trip Class 20 I_e : AC-53a: 4-19: F-S ⁵	Trip Class 30 I_e : AC-53a: 4-29: F-S ⁵
A ³	230V	400V	500V ⁴	A ³	200V	208V	220-240V	440-480V	550-600V ⁴			
17	4	7.5	7.5	17	3	5	5	10	15	SR35-017	SR35-022	SR35-027
22	5.5	11	11	22	5	5	7.5	15	20	SR35-022	SR35-027	SR35-034
29	7.5	15	15	27	7.5	7.5	7.5	20	25	SR35-027	SR35-034	SR35-041
35	7.5	18.5	22	34	10	10	10	25	30	SR35-034	SR35-041	SR35-052
41	11	22	22	41	10	10	10	30	40	SR35-041	SR35-052	SR35-065
55	15	30	37	52	15	15	15	40	50	SR35-052	SR35-065	SR35-077
66	18.5	37	45	65	20	20	20	50	60	SR35-065	SR35-077	SR35-100
80	22	45	55	77	20	25	25	60	75	SR35-077	SR35-100	SR35-125
106	30	55	75	100	30	30	30	75	100	SR35-100	SR35-125	SR35-156
132	37	75	90	125	40	40	40	100	125	SR35-125	SR35-156	SR35-192
160	45	90	110	156	50	50	60	125	150	SR35-156	SR35-192	SR35-242
195	55	110	132	192	60	60	60	150	200	SR35-192	SR35-242	SR35-302
242	75	132	160	242	75	75	75	200	250	SR35-242	SR35-302	SR35-361
302	90	160	200	302	100	100	100	250	300	SR35-302	SR35-361	-
361	110	200	250	361	125	125	150	300	350	SR35-361	-	-
Rating Table – Horizontally Mounted (3Ph)												
17	4	7.5	7.5	17	3	5	5	10	15	SR35-022	SR35-027	SR35-034
22	5.5	11	11	22	5	5	7.5	15	20	SR35-027	SR35-034	SR35-041
29	7.5	15	15	27	7.5	7.5	7.5	20	25	SR35-034	SR35-041	SR35-052
35	7.5	18.5	22	34	10	10	10	25	30	SR35-041	SR35-052	SR35-065
41	11	22	22	41	10	10	10	30	40	SR35-052	SR35-065	SR35-077
55	15	30	37	52	15	15	15	40	50	SR35-065	SR35-077	SR35-100
66	18.5	37	45	65	20	20	20	50	60	SR35-077	SR35-100	SR35-125
80	22	45	55	77	20	25	25	60	75	SR35-100	SR35-125	SR35-156
106	30	55	75	100	30	30	30	75	100	SR35-125	SR35-156	SR35-192
132	37	75	90	125	40	40	40	100	125	SR35-156	SR35-192	SR35-242
160	45	90	110	156	50	50	60	125	150	SR35-192	SR35-242	SR35-302
195	55	110	132	192	60	60	60	150	200	SR35-242	SR35-302	SR35-361
242	75	132	160	242	75	75	75	200	250	SR35-302	SR35-361	-
302	90	160	200	302	100	100	100	250	300	SR35-361	-	-

Rated operational powers in kW as per IEC 60072-1 (primary series) corresponding to IEC current rating.

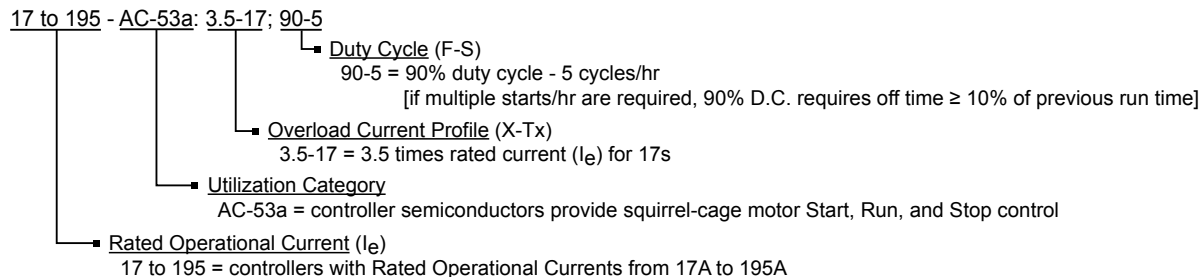
Rated operational powers in hp as per UL508 corresponding to FLA current rating.

The I_e and FLA rating applies for a maximum surrounding air temperature of 40°C. Above 40°C de-rate linearly by 2% of I_e or FLA per °C to a maximum of 60°C.

kW and Hp ratings applicable for [SR35-017](#) – [SR35-361](#) models only.

For [SR35-017](#) – [SR35-192](#) models, a higher duty cycle F-S is possible with optional fan fitted as indicated in Fan option table. For [SR35-242](#) – [SR35-361](#) models, fans fitted as standard. Reference page tSST-19 for duty cycle.

Index Rating Example – Standard Operation (AC-53a Utilization Category per IEC 60947-4-2)



Stellar® SR35 Basic Soft Starters

Standard Overload Current Profile and Duty Cycle

The SR35 has been designed for a specific Overload Current Profile and Duty Cycle as shown above in the SR35 Index Ratings. The Overload Current Profile is expressed by two symbols, X and Tx. X denotes the overload current as a multiple of I_e and represents the maximum value of operating current due to starting, operating, or maneuvering under overload conditions. For example, X = 3.5 means that the maximum overload start current allowed is 3.5 times FLC. Tx denotes the duration of the controlled overload currents during starting, stopping, operating, or maneuvering. For example, Tx = 17 means that the maximum allowed overload current is permitted for up to 17 seconds only.

The Duty Cycle is expressed by two symbols, F and S which describe the duty and also set the time that must be allowed for cooling. F is the ratio of the on-load period to the total period expressed as a percentage. For example, F = 90 means that the soft starter is ON for 90% of the time and then OFF for 10% of the time between each start. If there are not multiple starts per hour, then the Duty Cycle is continuous. S is the number of starts or operating cycles per hour. For example, S = 5 means that the soft starter is capable of 5 equally spaced starts per hour. These characteristics are summarized in the table below:

Model	Rated Current (A)"	Class 10 O/L Multiple (X)"	Class 10 O/L Time (Tx)"	Starts/Hour (S)	Duty (F)
<u>SR35-017</u>	17	3.5	17	5	90%
<u>SR35-022</u>	22				
<u>SR35-027</u>	27				
<u>SR35-034</u>	34				
<u>SR35-041</u>	41				
<u>SR35-052</u>	52				
<u>SR35-065</u>	65				
<u>SR35-077</u>	77				
<u>SR35-100</u>	100				
<u>SR35-125</u>	125				
<u>SR35-156</u>	156				
<u>SR35-192</u>	192				
<u>SR35-242</u>	242				
<u>SR35-302</u>	302				
<u>SR35-361</u>	361				
				3	

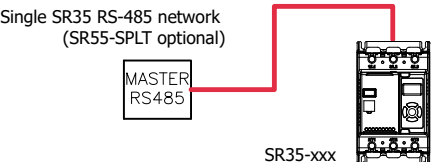
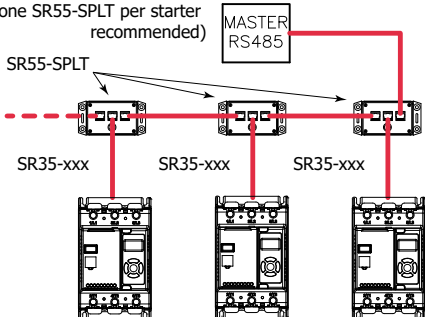
Stellar® SR35 Basic Soft Starters

SR35 Accessories

SR35 Optional Accessories					
Part Number	Price	Description	Image	For SR35 Models	Drawing Link
<u>SR35-FG-1</u>	\$38.00	Stellar SR35 series finger guards, replacement. Package of 2. For use with size 1 Stellar SR35 series soft starters. Provides IP20 protection rating.		-017 thru -065	<u>PDF</u>
<u>SR35-FG-2</u>	\$38.00	Stellar SR35 series finger guards, replacement. Package of 2. For use with size 2 Stellar SR35 series soft starters. Provides IP20 protection rating.		-077 thru -192	<u>PDF</u>
<u>SR35-TC-3</u>	\$258.00	Stellar SR35 series finger guards, package of 6. For use with size 3 Stellar SR35 series soft starters.		-242 thru -361	N/A
<u>SR35-FAN-1</u>	\$69.00	Stellar SR35 series main cooling fan, 36 x 222 x 90mm, 24 VDC. For use with size 1 Stellar SR35 series soft starters. Electrical connector included.		-017 thru -065	<u>PDF</u>
<u>SR35-FAN-2</u>	\$73.00	Stellar SR35 series main cooling fan, 68 x 297 x 102mm, 12 VDC. For use with size 2 Stellar SR35 series soft starters. Electrical connector included.		-077 thru -192	<u>PDF</u>
<u>SR35-KPD-REM</u>	\$272.00	Stellar SR35 series remote keypad, for use with Stellar SR35 series soft starters.		All	<u>PDF</u>
<u>SR35-AUX-IO</u>	\$151.00	Stellar SR35 series temperature combo module, thermistor, 1-channel input, 2-point input, 110-230 VAC/24 VDC, 2-point output, 250 VAC, (2) Form A (SPST) relays. For use with Stellar SR35 series soft starters. (1) 500mm ribbon cable included.		All	<u>PDF</u>

Stellar® SR35 Basic Soft Starters

SR35 Accessories

SR35 Optional Accessories					
Part Number	Price	Description	Image	For SR35 Models	Drawing Link
<u>SR35-PSU</u>	\$215.00	Stellar SR35 series switching power supply, 24 VDC @ 1A/120W (adjustable), 120/240 VAC nominal input, 1-phase, enclosed, plastic housing, direct mount.		All	<u>PDF</u>
<u>SR55-SPLT</u>	\$166.00	Stellar SR55 series communication splitter, 3 ports, (3) RS-485 (RJ45) female port(s). For use with Stellar SR55 series soft starters. (1) <u>SR55-RJ45-RJ12</u> adapter and (1) 9.8ft/3m Cat5e cable included. Single SR35 RS-485 network (SR55-SPLT optional)  Multiple SR35 RS-485 network (one SR55-SPLT per starter recommended)  RS-485 Network Examples		All	<u>PDF</u>
<u>USB-FLASH</u>	\$30.50	SanDisk USB Flash drive, 32 GB.		All	<u>N/A</u>