

# 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

- 17–361A @ 110–240 VAC, 1-ph or 200–600 VAC, 3-ph
- 24 VDC 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				
<b>Product standard</b>		En 60947-4-2: 2012		
<b>Rated operational voltages <math>U_e</math></b>		110 – 240 VAC 1-ph; 200 – 600 VAC 3-ph		
<b>Rated operational current <math>I_e</math></b>		See Rating Table on page tSST-18		
<b>Rating index</b>		See Rating Table on page tSST-18		
<b>Rated frequencies</b>		50 – 60 Hz $\pm$ 5hz		
<b>Rated duty</b>		Uninterrupted		
<b>Form designation</b>		Form 1, internally bypassed		
<b>Method of operation</b>		Symmetrically controlled starter		
<b>Method of control</b>		Semi-automatic		
<b>Method of connecting</b>		Thyristors connected between motor windings and supply		
<b>Number of poles</b>		3 Main poles (2 main poles controlled by semiconductor switching element)		
<b>Rated insulation voltage</b>	$U_i$	<b>Main circuit</b>	See key to part numbers	
		<b>Control supply circuit</b>	230 VAC r.m.s <sup>1</sup>	
<b>Rated impulse withstand voltage</b>	$U_{imp}$	<b>Main circuit</b>	6 kV	
		<b>Control supply circuit</b>	4 kV <sup>1</sup>	
<b>Ip code</b>	<b>Main circuit</b>		IP00 (IP20 with finger guards <sup>5</sup> )	
	<b>Supply and control circuit</b>		IP20	
<b>Overvoltage category / pollution degree</b>			III/3	
<b>Rated conditional short-circuit current and type of coordination with associated short circuit protective device (SCPD)</b>			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)	
<b>Protect with 4a UL listed fuse</b>	<b>As standard</b>	<b>Control supply <sup>2</sup></b>	<b>Supply input</b>	0, 24V
			<b>Kind of current, rated frequency</b>	DC
			<b>Rated voltage <math>U_s</math></b>	24 VDC
			<b>Maximum power consumption</b>	12Va (SR35-017 – SR35-065) 48va (SR35-077 – SR35-361)
		<b>Control circuit <sup>2</sup></b>	<b>Programmable opto-isolated inputs</b>	D1, D2
			<b>Common input, marking</b>	COM
			<b>Kind of current, rated frequency</b>	DC
			<b>Rated voltage <math>U_c</math></b>	24 VDC
	<b>With SR35-PSU module</b>	<b>Control supply</b>	<b>Supply input</b>	L, n
			<b>Kind of current, rated frequency</b>	AC, 50–60 Hz $\pm$ 5 hz
			<b>Rated voltage <math>u_s</math></b>	110–230 VAC
			<b>Rated input current</b>	1A
		<b>Control circuit</b>	<b>Programmable opto-isolated inputs</b>	D1, D2
			<b>Common input</b>	COM
			<b>Kind of current, rated frequency</b>	AC, 50–60 Hz $\pm$ 5 hz
			<b>Rated voltage <math>U_c</math></b>	110V–230 VAC
	<b>Auxiliary Circuit <sup>3</sup></b>	<b>Form a – single gap make -contact (normally open)</b>		13, 14
		<b>Form b – single gap break-contact (normally closed)</b>		21, 22
<b>Utilization category, voltage rating, current rating</b>		Resistive load, 250 VAC, 2A. Cos $\phi$ =0.5, 250 VAC, 2A <sup>4</sup>		
<b>Electronic overload relay with manual reset and thermal memory</b>		<b>Trip class</b>	10 (Factory default), 20 or 30 (selectable)	
		<b>Current setting</b>	See electronic overload relay current settings	
		<b>Rated frequency</b>	50–60 Hz $\pm$ 5 hz	
		<b>Time-current characteristics</b>	See Motor Overload Protection on page tSST-15 For trip curves (trip time $T_p \pm$ 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 24 VDC

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
<a href="#">017</a>		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	<a href="#">PDF</a>
<a href="#">022</a>			12							<a href="#">PDF</a>
<a href="#">027</a>			14							<a href="#">PDF</a>
<a href="#">034</a>			16							<a href="#">PDF</a>
<a href="#">041</a>			20							<a href="#">PDF</a>
<a href="#">052</a>			25							<a href="#">PDF</a>
<a href="#">065</a>		2	30	6.0 [13.23]					<a href="#">PDF</a>	
<a href="#">077</a>			37						<a href="#">PDF</a>	
<a href="#">100</a>			49						<a href="#">PDF</a>	
<a href="#">125</a>			61						<a href="#">PDF</a>	
<a href="#">156</a>			74						<a href="#">PDF</a>	
<a href="#">192</a>			90						<a href="#">PDF</a>	
<a href="#">242</a>		3	111	15 [33.1]				Main circuit: IP00; Control circuit: IP20; no corrosive gases permitted	<a href="#">PDF</a>	
<a href="#">302</a>			139						<a href="#">PDF</a>	
<a href="#">361</a>			166						<a href="#">PDF</a>	



## Ventilation for Enclosures

SR35 Minimum Clearance Distances * ( in [mm] )					
SR35 Soft Starter Model	Top	Bottom	Left	Right	Front
Size 1: <a href="#">SR35-017</a> to <a href="#">SR35-065</a>	3 [75]			1 [25]	
Size 2: <a href="#">SR35-077</a> to <a href="#">SR35-192</a>	3.9 [100]			1.6 [40]	1 [25]
Size 3: <a href="#">SR35-242</a> to <a href="#">SR35-361</a>	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.

$$Q = (4xWt) / (T_{max} - T_{amb})$$

Q = Volume of air (cubic meters per hour - m<sup>3</sup>/h)

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

T<sub>max</sub> = Maximum permissible temperature within the enclosure (50 °C for a fully rated SR35)

T<sub>amb</sub> = 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

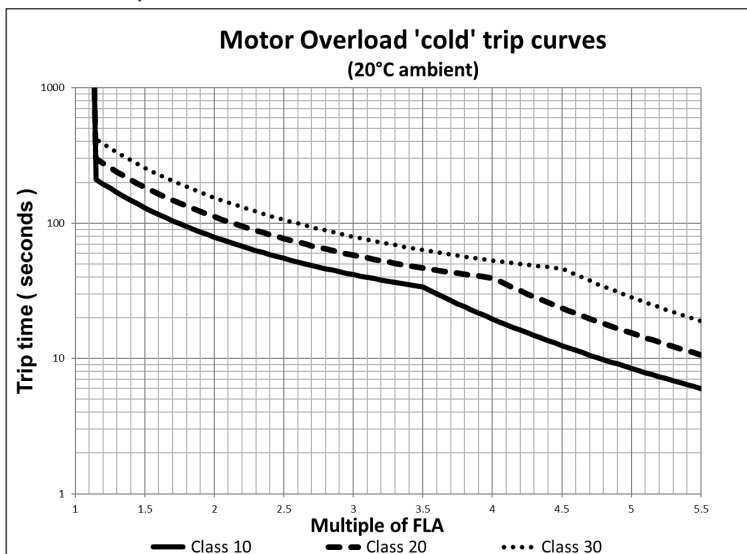
Suitable For Use On A Circuit Capable Of Delivering Not More Than  $I_q$  r.m.s. Symmetrical Amperes, 600V Maximum, When Protected by Class J Time Delay Fuses with a Maximum Rating of Z1 or by a Circuit Breaker with a Maximum Rating of Z2. Correctly selected semiconductor fuses can provide additional 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_				Mersen 6,9 URD 33_			
			Bussmann 170M40_				Bussmann 170M60_			
			Bussmann 170M41_				Bussmann 170M61_			
			Bussmann 170M42_				Bussmann 170M62_			
			SIBA 20 61_				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 40 °C, 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												
I <sub>e</sub> A	kW			FLA A	Hp (3-ph)					Select Model 5 starts/hour @ 40 °C	Select Model 5 starts/hour @ 40 °C	Select Model 5 starts/hour @ 40 °C
	230V	400V	500V		200V	208V	220-240V	440-480V	550-600V			
17	4	7.5	7.5	17	3	5	5	10	15	<a href="#">SR35-017</a>	<a href="#">SR35-022</a>	<a href="#">SR35-027</a>
22	5.5	11	11	22	5	5	7.5	15	20	<a href="#">SR35-022</a>	<a href="#">SR35-027</a>	<a href="#">SR35-034</a>
29	7.5	15	15	27	7.5	7.5	7.5	20	25	<a href="#">SR35-027</a>	<a href="#">SR35-034</a>	<a href="#">SR35-041</a>
35	7.5	18.5	22	34	10	10	10	25	30	<a href="#">SR35-034</a>	<a href="#">SR35-041</a>	<a href="#">SR35-052</a>
41	11	22	22	41	10	10	10	30	40	<a href="#">SR35-041</a>	<a href="#">SR35-052</a>	<a href="#">SR35-065</a>
55	15	30	37	52	15	15	15	40	50	<a href="#">SR35-052</a>	<a href="#">SR35-065</a>	<a href="#">SR35-077</a>
66	18.5	37	45	65	20	20	20	50	60	<a href="#">SR35-065</a>	<a href="#">SR35-077</a>	<a href="#">SR35-100</a>
80	22	45	55	77	20	25	25	60	75	<a href="#">SR35-077</a>	<a href="#">SR35-100</a>	<a href="#">SR35-125</a>
106	30	55	75	100	30	30	30	75	100	<a href="#">SR35-100</a>	<a href="#">SR35-125</a>	<a href="#">SR35-156</a>
132	37	75	90	125	40	40	40	100	125	<a href="#">SR35-125</a>	<a href="#">SR35-156</a>	<a href="#">SR35-192</a>
160	45	90	110	156	50	50	60	125	150	<a href="#">SR35-156</a>	<a href="#">SR35-192</a>	<a href="#">SR35-242*</a>
195	55	110	132	192	60	60	60	150	200	<a href="#">SR35-192</a>	<a href="#">SR35-242*</a>	<a href="#">SR35-302*</a>
242	75	132	160	242	75	75	75	200	250	<a href="#">SR35-242*</a>	<a href="#">SR35-302*</a>	<a href="#">SR35-361*</a>
302	90	160	200	302	100	100	100	250	300	<a href="#">SR35-302*</a>	<a href="#">SR35-361*</a>	-
361	110	200	250	361	125	125	150	300	350	<a href="#">SR35-361*</a>	-	-

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

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SR35 Soft Starter Selection (1-ph)										
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 (1-ph)				220 – 240 V (1-ph)						
HP	FLA	kW	I <sub>e</sub> (A)	HP	FLA	kW	I <sub>e</sub> (A)			
-	-	-	-	-	-	0.07	1.2	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
-	-	-	-	0.1	1.5	0.1	1.6	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
-	-	-	-	0.12	1.9	0.12	1.9	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
-	-	0.07	2.4	0.16	2.2	0.18	2.3	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
0.1	3	0.1	3.3	0.25	2.9	0.25	2.9	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
0.12	3.8	0.12	3.8	0.33	3.6	0.37	3.9	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
0.16	4.4	0.18	4.5	0.5	4.9	-	-	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
0.25	5.8	0.25	5.8	-	-	0.56	5.5	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
-	-	-	-	0.75	6.9	-	-	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
0.33	7.2	0.37	7.9	1	8	0.75	7.3	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
0.5	9.8	0.56	11	1.5	10	1.1	10	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>
0.75	13.8	-	-	2	12	1.5	13	<a href="#">SR35-017</a>	<a href="#">SR35-017</a>	<a href="#">SR35-022</a>
1	16	0.75	15	3	17	-	-	<a href="#">SR35-017</a>	<a href="#">SR35-022</a>	<a href="#">SR35-027</a>
1.5	20	1.1	21	-	-	2.2	19	<a href="#">SR35-022</a>	<a href="#">SR35-027</a>	<a href="#">SR35-034</a>
2	24	1.5	26	-	-	3	24	<a href="#">SR35-027</a>	<a href="#">SR35-034</a>	<a href="#">SR35-041</a>
-	-	-	-	5	28	3.7	27	<a href="#">SR35-027</a>	<a href="#">SR35-034</a>	<a href="#">SR35-041</a>
-	-	-	-	-	-	4	30	<a href="#">SR35-034</a>	<a href="#">SR35-041</a>	<a href="#">SR35-052</a>
3	34	2.2	37	-	-	-	-	<a href="#">SR35-041</a>	<a href="#">SR35-052</a>	<a href="#">SR35-065</a>
-	-	-	-	7.5	40	5.5	41	<a href="#">SR35-041</a>	<a href="#">SR35-052</a>	<a href="#">SR35-065</a>
-	-	3	49	10	50	-	-	<a href="#">SR35-052</a>	<a href="#">SR35-065</a>	<a href="#">SR35-077</a>
5	56	3.7	54	-	-	7.5	55	<a href="#">SR35-065</a>	<a href="#">SR35-077</a>	<a href="#">SR35-100</a>
-	-	4	60	-	-	-	-	<a href="#">SR35-065</a>	<a href="#">SR35-077</a>	<a href="#">SR35-100</a>
-	-	-	-	15	68	9.2	67	<a href="#">SR35-077</a>	<a href="#">SR35-100</a>	<a href="#">SR35-125</a>
7.5	80	5.5	85	20	88	11	80	<a href="#">SR35-100</a>	<a href="#">SR35-125</a>	<a href="#">SR35-156</a>
-	106	-	106	-	106	-	106	<a href="#">SR35-100</a>	<a href="#">SR35-125</a>	<a href="#">SR35-156</a>
10	100	7.5	110	25	110	-	132	<a href="#">SR35-125</a>	<a href="#">SR35-156</a>	<a href="#">SR35-192</a>
15	135	-	160	30	136	-	160	<a href="#">SR35-156</a>	<a href="#">SR35-192</a>	<a href="#">SR35-242*</a>
-	195	-	195	40	176	-	195	<a href="#">SR35-192</a>	<a href="#">SR35-242*</a>	<a href="#">SR35-302*</a>
-	242	-	242	50	216	-	242	<a href="#">SR35-242*</a>	<a href="#">SR35-302*</a>	<a href="#">SR35-361*</a>
-	302	-	302	-	302	-	302	<a href="#">SR35-302*</a>	<a href="#">SR35-361*</a>	-
-	361	-	361	-	361	-	361	<a href="#">SR35-361*</a>	-	-

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

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

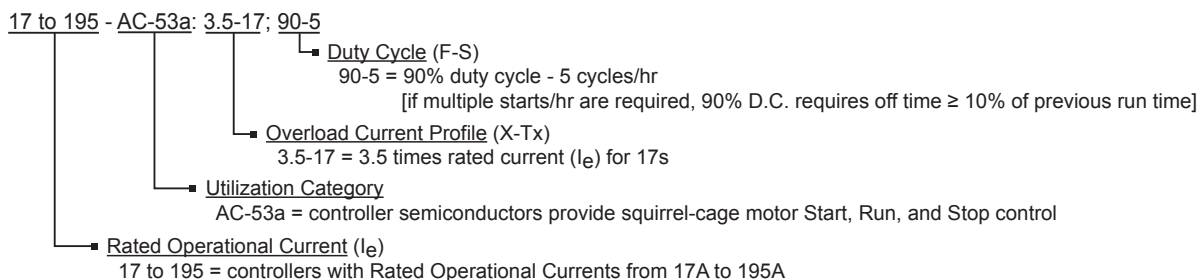
Rated operational powers in hp as per UL508 corresponding to FLA current rating.

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)
<a href="#"><u>SR35-017</u></a>	17	3.5	17	5	90%
<a href="#"><u>SR35-022</u></a>	22				
<a href="#"><u>SR35-027</u></a>	27				
<a href="#"><u>SR35-034</u></a>	34				
<a href="#"><u>SR35-041</u></a>	41				
<a href="#"><u>SR35-052</u></a>	52				
<a href="#"><u>SR35-065</u></a>	65				
<a href="#"><u>SR35-077</u></a>	77				
<a href="#"><u>SR35-100</u></a>	100				
<a href="#"><u>SR35-125</u></a>	125				
<a href="#"><u>SR35-156</u></a>	156				
<a href="#"><u>SR35-192</u></a>	192				
<a href="#"><u>SR35-242</u></a>	242			3	
<a href="#"><u>SR35-302</u></a>	302				
<a href="#"><u>SR35-361</u></a>	361				


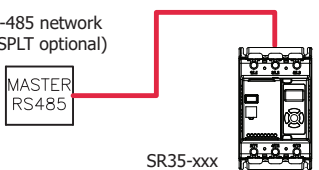
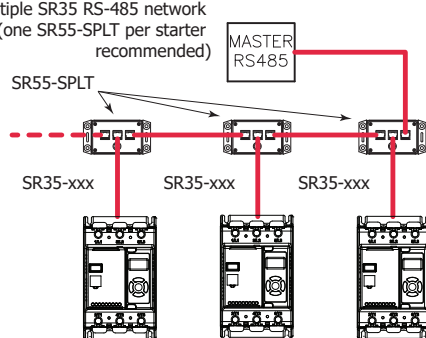


# Stellar® SR35 Basic Soft Starters

## SR35 Accessories

SR35 Optional Accessories					
Part Number	Price	Description	Image	For SR35 Models	Drawing Link
<a href="#"><u>SR35-FG-1</u></a>		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	<a href="#"><u>PDF</u></a>
<a href="#"><u>SR35-FG-2</u></a>		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	<a href="#"><u>PDF</u></a>
<a href="#"><u>SR35-TC-3</u></a>		Stellar SR35 series finger guards, package of 6. For use with size 3 Stellar SR35 series soft starters.		-242 thru -361	N/A
<a href="#"><u>SR35-FAN-1</u></a>		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	<a href="#"><u>PDF</u></a>
<a href="#"><u>SR35-FAN-2</u></a>		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	<a href="#"><u>PDF</u></a>
<a href="#"><u>SR35-KPD-REM</u></a>		Stellar SR35 series remote keypad, for use with Stellar SR35 series soft starters.		All	<a href="#"><u>PDF</u></a>
<a href="#"><u>SR35-AUX-IO</u></a>		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	<a href="#"><u>PDF</u></a>

# Stellar® SR35 Basic Soft Starters

## SR35 Accessories

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