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, <u>SR35-PSU</u>
- · 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









Rated operational violage Sea Rating Table on page (SST-18			SR35 Soft	Starter General Specifications				
### ### ### ### ### ### ### ### ### ##	Product stand	lard						
Rated operational currently Rating index Rated presentational currently Rated presentational	Rated operat	onal voltages	sU _a	110 – 240 VAC 1Ph; 200 – 600 VAC 3Ph				
Rated trapeancies See Rating Table on page ISST-18				See Rating Table on page tSST-18				
Rated duty 50 - 60 Hz ± 5hz Rated duty Form designation Form 1, internally bypassed Method of control Segment of poles Method of control Segment automatic Method of control to Method			<u> </u>					
Form designation Form 1, internally bypassed	<u>_</u>	ncies		50 – 60 Hz ± 5hz				
Method of controlled starter Main circuit Control supply circuit Method controlled starter Main circuit Control supply circuit Method controlled starter Main circuit Control supply circuit Method controlled starter Main circuit Main circuit Control supply circuit Main circuit Method controlled starter Main circuit Main circuit Control supply circuit Method controlled starter Main circuit Main circuit Control supply circuit Main circuit Main circuit Main circuit Control supply circuit Main circuit Main circuit Main circuit Main circuit Control supply and control circuit Main c	Rated duty			Uninterrupted				
Method of conrecting Number of poles Name of control insulation voltage Name of poles Name	Form designa	tion		Form 1, internally bypassed				
Mumber of poles Main circuit See key to part numbers	Method of op	eration		Symmetrically controlled starter				
Number of poles Rated insulation insulation poles Rated impulse withstand voltage Ip code Rated conditional short-circuit current and type of coordination supply 2 Rated conditional short-circuit rortective device (SCPD) Rated voltage Rated voltage Rated voltage With SR35- Rated voltage U Rated volt	Method of co	ntrol		Semi-automatic				
Rated insulation voltage Rated impulse withstand voltage Ip code	Method of co	nnecting		Thyristors connected between motor windings and supply				
insulation voltage Rated impulse withstand voltage prode	Number of po	les		3 Main poles (2 main poles controlled by semiconductor switching element)				
Rated impulse with stand voltage voltage caregory / pollution degree Rated conditional short-circuit current and type of coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Rated conditional short-circuit protective device (SCPD) Rated voltage Caregory / pollution degree Rated vonditional short-circuit protective device (SCPD) Rated voltage Us As standard As stan			Main circuit	See key to part numbers				
withstand voltage Ip code		U _i	Control supply circuit	230VAC r.m.s ¹				
Pool Programmable opto-isolated inputs Programmable opto-isolated inputs		hstand U _{imp}		6 kV				
Supply and control circuit IP20		U _{imp}	Control supply circuit	4 kV ¹				
Supply and control circuit IP20	In code		Main circuit	IP00 (IP20 with finger guards ⁵)				
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 protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tSST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tST-15 for rated conditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tST-15 for rated canditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tST-15 for rated canditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit Protection tables on page tST-15 for rated canditional short-circuit protective device (SCPD) Type 1 coordination (See Short Circuit protective device (SCPD) Type 1 coordination (See Short Circuit protective device (SCPD) Type 1 coordination (See Short Circuit protective device (SCPD) Type 1 coordination (See Short Circuit protective device (SCPD) Type 1 coordination (See Short Circuit protective	ıp coae		Supply and control circuit	IP20				
with associated short circuit protective device (SCPD) Control supply 2 As standard Control circuit 2 Control circuit 2 With SR35- PSU Module With associated short circuit protective device (SCPD) Control control circuit 2 With SR35- PSU Module Control supply 2 Rated voltage Us Control circuit 2 Control circuit 2 Control supply 3 Control circuit 2 Control circuit 2 Control supply 3 Control circuit 2 Control supply 3 Control circuit 4 Control circuit 2 Control supply 5 Control circuit 4 Control supply 6 Control circuit 5 Control supply 6 Control circuit 6 Control supply 7 Control supply 7 Control supply 7 Control supply 6 Control supply 7 Control supply 7 Control supply 7 Control supply 7 Control supply 6 Control supply 7 Control supply 7 Control supply 7 Control supply 7 Control supply 8 Control supply 7 Control supply 8 Control supply 9 Control supply 8 Control supply 8 Control supply 9	Overvoltage (ategory / po	llution degree	III/3				
As standard As standard Control supply 2 As standard Control circuit 2 With SR35-PSU module Control supply Kind of current, rated frequency Rated voltage U _s Maximum power consumption 12Va (SR35-017 - SR35-065) 48va (SR35-077 - SR35-361) D1, D2 Common input, marking COM Kind of current, rated frequency Rated voltage U _c Supply input L, n Kind of current, rated frequency Rated voltage u _s 110 - 230 VAC Rated input current Programmable opto-isolated inputs D1, D2 ONL Rated voltage u _s D1, D2 ONL Rated voltage u _s D1, D2				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)				
As standard supply 2 Rated voltage U _s Programmable opto-isolated inputs Control circuit 2 Rated voltage U _s Programmable opto-isolated inputs Common input, marking Kind of current, rated frequency Rated voltage U _c Supply input L, n Kind of current, rated frequency Supply input Control supply With SR35- PSU module Programmable opto-isolated inputs D1, D2 Common input, marking COM Kind of current, rated frequency AC, 50 – 60 Hz ± 5hz Rated voltage u _s Rated voltage u _s Programmable opto-isolated inputs D1, D2			Supply input	0, 24V				
As standard standard control circuit 2 Programmable opto-isolated inputs D1, D2 Control circuit 2 Common input, marking COM Rated voltage U _c 24VDC Supply input L, n Kind of current, rated frequency AC, 50 – 60 Hz ± 5hz Rated voltage u _s 110 – 230 VAC Rated input current AC Rated input current D1, D2 Control supply Rated voltage u _s 110 – 230 VAC Rated input current D1, D2		Control Kind of current, rated fre		DC				
Standard Standard Control circuit 2 Common input, marking Control Supply input L, n AC, 50 – 60 Hz ± 5hz Rated voltage u _s Rated vo			Rated voltage U _s	24VDC				
Control circuit 2 Common input, marking COM	As	As Maximum power consumption		12Va (<u>SR35-017</u> – <u>SR35-065</u>) 48va (<u>SR35-077</u> – <u>SR35-361</u>)				
Single Control Find of current, rated frequency DC	standard			D1, D2				
Rated voltage U _c Supply input Control supply With SR35- PSU module Rated voltage u _s Programmable opto-isolated inputs Rated voltage input current Programmable opto-isolated inputs Programmable opto-isolated inputs			Common input, marking	СОМ				
Rated input current PSU module Programmable opto-isolated inputs Programmable opto-isolated inputs Programmable opto-isolated inputs		Control Common input, marking		DC				
Rated input current PSU module Programmable opto-isolated inputs Programmable opto-isolated inputs Programmable opto-isolated inputs	fuse		Rated voltage U _c	24VDC				
Rated input current PSU module Programmable opto-isolated inputs Programmable opto-isolated inputs Programmable opto-isolated inputs	sted		Supply input	L, n				
Rated input current PSU module Programmable opto-isolated inputs Programmable opto-isolated inputs Programmable opto-isolated inputs	#	Control	Kind of current, rated frequency	AC, $50 - 60 \text{ Hz} \pm 5 \text{hz}$				
SR35- Rated input current PSU Programmable opto-isolated inputs module Programmable opto-isolated inputs		supply	Rated voltage u_s	110 – 230 VAC				
TSU Programmable opto-isolated inputs Programmable opto-isolated inputs Common input COM	, 		Rated input current	1A				
Control Common input	PSU module		Programmable opto-isolated inputs	D1, D2				
	Produce	Control	Common input	COM				
Circuit Kind of current, rated frequency AC, 50 - 60 Hz ± 5hz		300000		AC, 50 - 60 Hz ± 5hz				
Rated voltage U _c 110V – 230 VAC		Rated voltage U _c		110V – 230 VAC				
Form a – single gap make -contact (normally open) 13, 14			ingle gap make -contact (normally	13, 14				
Auxiliary Circuit 3 Form b – single gap break-contact (normally closed) 21, 22		Auxiliary Form b – single gap break-contact (normally		21, 22				
Utilization category, voltage rating, current rating Resistive load, 250VAC, 2A. Cosø = 0.5, 250VAC, 2A ⁴		Utilization	category, voltage rating, current rating					
Trip class 10 (Factory default), 20 or 30 (selectable)			Trip class	10 (Factory default), 20 or 30 (selectable)				
Electronic overload relay Current setting See electronic overload relay current settings	lectronic overload relay Current setting		Current setting	See electronic overload relay current settings				
thermal memory Rated frequency 50 – 60 Hz ± 5hz	with manual reset and			50 – 60 Hz ± 5hz				
Time-current characteristics See Motor Overload Protection on page tSST-15 For trip curves (trip time T _p ± 20%)			Time-current characteristics	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 24VDC

Not applicable for UL

For models <u>SR35-017</u> – <u>SR35-192</u> 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

www.automationdirect.com

SR35 Soft Starter Technical Specifications

					Technical Sp	ecifications				
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
<u>017</u>	\$547.00		9							PDF
022	\$582.00		12							PDF
<u>027</u>	\$634.00		14						Control circuit: Ip20; no corrosive gases permitted	PDF
<u>034</u>	\$663.00	1	16	1.97 [4.2]	-20°C [-4°F] to 40°C - [104°F]; above 40°C derate linearly by 2%					PDF
<u>041</u>	\$740.00		20					1,000m		PDF
<u>052</u>	\$840.00		25				050/	[3281ft]; above 1000m		PDF
<u>065</u>	\$891.00		30			-20°C to 70°C [-4°F to 158°F] continuous	Max 85% non- condensing, not exceeding 50% @ 40°C [104°F]	of SR35 le per 100m (328ft) to a maximum altitude of		PDF
<u>077</u>	\$1,124.00		37							PDF
<u>100</u>	\$1,264.00		49		of SR35 le per °C to a					PDF
<u>125</u>	\$1,678.00	2	61	6.0 [13.23]	maximum of 60°C (140°F)					PDF
<u>156</u>	\$2,496.00		74					2,000m (6562ft)		PDF
<u>192</u>	\$2,628.00		90					(000211)		PDF
242	\$2,843.00		111						Main circuit: IP00;	PDF
<u>302</u>	\$3,291.00	3	139	15 [33.1]					Control circuit: IP20;	PDF
<u>361</u>	\$3,514.00		166						no corrosive gases permitted	PDF







Ventilation for Enclosures

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

www.automationdirect.com

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 designat	ion (SR35-)		<u>017</u>	022	027	034	041	<u>052</u>	<u>065</u>		
Rated operational current	onal current I _e			22	29	35	41	55	66		
Rated conditional short circuit current	I _q		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		
	Туре			Mersen 6,	9 URD 30 _	Mersen 6,9 URD 31 _					
				Bussmann	170M30	Bussmann 170M40					
Semiconductor fuse (class				Bussmann	170M31		Bussmann 170M41				
aR) #2				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 ___lq___ 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.

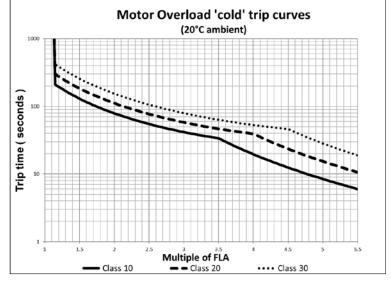
	Short Circuit Protection – SR35 Frame Size 2 & 3										
Type designat	ion (SR35-)		<u>077</u>	<u>100</u>	<u>125</u>	<u>156</u>	<u>192</u>	242	302	<u>361</u>	
Rated operational current	I _e	Α	80	106	132	160	195	242	302	361	
Rated conditional short circuit current	I_q	kA	10	10	10	10	10	18	18	18	
Class 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	Туре			Bus Bus Bus	rsen 6,9 URD 3 ssmann 170M4 ssmann 170M4 ssmann 170M4 SIBA 20 61	10 11		Bus Bus	rsen 6,9 URD ssmann 170M ssmann 170M ssmann 170M SIBA 20 63_	60 61 62	
	Fuse rating	A	400A	400A	550A	550A	550A	800A	900A	1000 A	

Suitable For Use On A Circuit Capable Of Delivering Not More Than ___lq___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.



										An Online Product Selection Tool is availa		ationdirect.com/selectors/softstarters
									<u>SR3</u> :	5 Soft Starter Selection	on	
							Step 1	- Select	the ap	plication from the list and follow t	hat column down	
	Step 1 - Select the applic									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.	-
Тур	ical Ap	plicat	ions							Plastic and Textile Machines	Mixer - Loaded	-
										Pump - Submersible; Centrifugal	Pelletizers	-
										Pump - Submersible; Rotodynamic	Press, Flywheel	-
										,	Positive Displacement Pump;	
										Saw - Band	(Reciprocating or Rotary)	-
										Transformers	Pump Jack	-
										Voltage Regulators	Rolling Mill	-
										-	Roots Blower	-
										-	Saw - Circular	-
										-	Screen - Vibrating	-
										-	Tumblers	-
	Sten 2 - Confirm the rated st								ated st	arting capability of the soft starte	r against the application	
Step 2 - Confirm the rated st 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
Мах	Max Starts per Hour Max Starts per Hour w/Optional Cooling Fan									40 starts/hour	40 starts/hour	40 starts/hour
					Step 3	- Cons	ider the	e opera	ting en	vironment and make the model se	lection on a higher amp rating	
Heig	ght Ab	ove S	ea Lev	el	-				andard o	perating height is 1000m, for every 1 nple: For a 20A motor at 1500m, mak	00m increase motor Amps/kW by 19	% up to 2000m. 6 higher).
Ope	rating	Temp	eratur	es			5	Standard	l operati Exa	ng temperature is 40degC, for every mple: For a 20A motor at 50°C make	1°C above, increase motor Amps/kV model selection based on 24A (20%	V by 2%, up to 60°C. higher).
Incr	eased	Starts	per H	lour						Fit optional fan to increase ma	aximum up to 40 starts per hour.	
					S	Step 4 (Three F	Phase) -	Select	your motor Voltage and Horsepov	ver/kW and select model	
				Motor	Rating	1						
,		kW		FI A		- 1	Hp (3Ph)		Select Model	Select Model	Select Model
I _e A	230V	400V	500V	FLA A	200V	208V	220- 240V	440– 480V	550- 600V	5 starts/hour @ 40°C	5 starts/hour @ 40°C	5 starts/hour @ 40°C
17	4	7.5	7.5	17	3	5	5	10	15	<u>SR35-017</u>	<u>SR35-022</u>	<u>SR35-027</u>
22	5.5	11	11	22	5	5	7.5	15	20	<u>SR35-022</u>	<u>SR35-027</u>	<u>SR35-034</u>
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*	-	_
JU I	110	200	200	001	120	120	100	J00	JJU	3K30-301	-	-

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

	SR35 Soft Starter Selection (1Ph)											
			S	tep 4 (Si	ngle Phas	e) - Sele	ct your m	otor Voltage and Horsepower/kV	V and select model			
			Motor	Rating								
	110 – 12	0 V (1Ph)			220 – 24	0 V (1Ph)		Select Model 5 starts/hour @ 40°C	Select Model 5 starts/hour @ 40°C	Select Model 5 starts/hour @ 40°C		
HP	FLA	kW	I _e (A)	HP	FLA	kW	I _e (A)	o starts/flour @ 40 0	o starts/flour @ 40 0	o diario,noar @ 40 o		
-	-	-	-	-	-	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	<u>SR35-125</u>		
7.5	80	5.5	85	20	88	11	80	<u>SR35-100</u>	SR35-125	<u>SR35-156</u>		
_	106	-	106	-	106	-	106	<u>SR35-100</u>	<u>SR35-125</u>	<u>SR35-156</u>		
10	100	7.5	110	25	110	-	132	<u>SR35-125</u>	<u>SR35-156</u>	SR35-192		
15	135	-	160	30	136	-	160	<u>SR35-156</u>	SR35-192	SR35-242*		
	195	-	195	40	176	-	195	<u>SR35-192</u>	SR35-242*	<u>SR35-302*</u>		
-	242	-	242	50	216	-	242	<u>SR35-242*</u>	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

www.automationdirect.com

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

	Rating Table – Vertically Mounted (3Ph)											
I _e		<i>k</i> W ¹		FLA			Hp ²			Trip Class 10	Trip Class 20	Trip Class 30
A 3	230V	400V	500V ⁴	A 3	200V	208V	220- 240V	440- 480V	550- 600V ⁴	I _e : AC-53a: 3.5-17: F-S ⁵	I _e : AC-53a: 4-19: F-S ⁵	I _e : AC-53a: 4-29: F-S ⁵
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	-	-
				Ratin	g Table	– Hor	izonta	Ily Mo	unted (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	-	-
002	50	100		002	100	100	100	200	1 300	31100-001		_

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

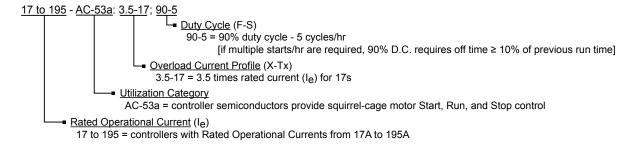
Rated operational powers in hp as per UL508 corresponding to FLA current rating.

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

kW and Hp ratings applicable for SR35-017 - SR35-361 models only.

For <u>SR35-017</u> – <u>SR35-192</u> models, a higher duty cycle F-S is possible with optional fan fitted as indicated in Fan option table. For <u>SR35-242</u> – <u>SR35-361</u> 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)



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, $T_e = 17$ 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)
SR35-017	17				
SR35-022	22				
SR35-027	27				
SR35-034	34				
SR35-041	41				
SR35-052	52			F	
SR35-065	65			5	
SR35-077	77	3.5	17		90%
SR35-100	100				
SR35-125	125				
SR35-156	156				
SR35-192	192				
SR35-242	242				
SR35-302	302			3	
SR35-361	361				

SR35 Accessories

		SR35 Optional Accessor	ies		
Part Number	Price	Description	Image	For SR35 Models	Drawing Link
<u>SR35-FG-1</u>	\$42.00	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>
SR35-FG-2	\$42.00	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>
SR35-TC-3	\$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>	\$76.00	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	PDF
<u>SR35-FAN-2</u>	\$81.00	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.	lu,o	-077 thru -192	<u>PDF</u>
SR35-KPD-REM	\$300.00	Stellar SR35 series remote keypad, for use with Stellar SR35 series soft starters.	S C C C C C C C C C C C C C C C C C C C	All	<u>PDF</u>
SR35-AUX-IO	\$167.00	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>

SR35 Accessories

		SR35 Optional Accessor	ies		
Part Number	Price	Description	Image	For SR35 Models	Drawing Link
<u>SR35-PSU</u>	\$237.00	Stellar SR35 series switching power supply, 24 VDC @ 1A/120W (adjustable), 120/240 VAC nominal input, 1-phase, enclosed, plastic housing, direct mount.	WALFORNIEGE CONSTRUCTION	All	PDF
SR55-SPLT	\$183.00	Stellar SR55 series communication splitter, 3 ports, (3) RS-485 (RJ45) female port(s). For use with Stellar SR55 series soft starters. (1) SR55-RJ45-RJ12 adapter and (1) 9.8ft/3m Cat5e cable included. Single SR35 RS-485 network (SR55-SPLT optional) MASTER RS485 Multiple SR35 RS-485 network (one SR55-SPLT per starter recommended) SR55-SPLT Frecommended (SR55-SPLT per starter recommended) SR35-xxx SR35-xxx SR35-xxx SR35-xxx SR35-xxx	SR55-SPLT X	All	PDF
<u>USB-FLASH</u>	\$30.50	SanDisk USB Flash drive, 32 GB.		All	<u>N/A</u>