

Stellar[®] SR22 Compact Soft Starters

SR22 Soft Starters – Selection – Steps 1 & 2 (of 4)					
	Typical Applications				
	Standard Duty	Medium Duty	Heavy Duty	Light Duty	
Step 1: Select the application from the list and follow that column down.	Default	Molding Machine	Ball mill	Pump - Positive displacement	
	Agitator	Plastic and textile machines	Bow Thruster - Loaded	Reciprocating	
	Bow Thruster - Zero Pitch	Pump - Submersible	Compressor - Centrifugal	Pump - Positive displacement	
	Compressor - Rotary Vane	Centrifugal	Compressor - Reciprocating	Rotary	
	Compressor - Scroll	Pump - Submersible	Conveyor - Loaded	Pump Jack	
	Conveyor - Unloaded	Rotodynamic	Grinder	Rolling mill	
	Fan - Low Inertia < 85A	Saw - Band	Hammer mill	Roots Blower	
	Feeder - screw	Transformers, voltage regulators	Mills - Flour, etc.	Saw - Circular	
	Lathe machines		Mixer - Loaded	Screen - Vibrating	
	Mixer - Unloaded		Pelletizers	Tumblers	
				Centrifuge* *For centrifuges make selection at I(A) = motor FLA x 2.3 Crusher Fan - High Inertia > 85A Shredder Wood chipper Press, flywheel	
Step 2: Confirm the rated starting capability of the soft start against the application.	Trip Class	10	20	30	2
	Rated Starting Capability	3x Motor Current - 23s 3.5x Motor Current - 17s	4x Motor Current - 19s	4x Motor Current - 29s	3x Motor Current - 5s
	Max Starts per Hour	5 starts/hr (or 30 starts/hr with fan) Index Rating Standard (Class5) AC53b: 3-5: 355; Overcurrent = 3 x I _{rated} for 5 seconds			
Warning: Applying more starts per hour than the specified 5 or 30 start/hr will cause the starter to overheat and fail.					

SR22 Soft Starters – Selection – Step 3 (of 4)	
Step 3: Consider the operating environment and make the model selection on a higher horsepower rating.	
Height Above Sea Level	Standard operating height is 3280ft. For every 328ft, increase motor HP by 1%, up to 6600ft. Example: For a 100HP motor at 4900ft, make model selection based on 105HP (5% higher).
Operating Temperature	Standard operating temperature is 122°F. For every 1°F above, increase motor HP by 2.2%, up to 140°F. Example: For a 100HP motor at 132°F, make model selection based on 122HP (22% higher).
Increased Starts per Hour	Use our online tool to select the model: https://www.automationdirect.com/selectors/softstarters

SR22 Soft Starters – Selection – Step 4 (of 4)									
Step 4: Select SR22 model based on your motor Voltage and Horsepower									
Motor HP						Trip Class			
208VAC		230VAC		460VAC		3-23:697	4-19:701	4-19:691	3-5:355
HP	I _r (A)	HP	I _r (A)	HP	I _r (A)	10	20	30**	2***
0.5	2.4	0.5	2.2	1.5	3	SR22-05	SR22-07	SR22-09	SR22-05
0.75	3.5	0.75	3.2	2	3.4	SR22-07	SR22-09	SR22-12	SR22-05
1	4.6	1	4.2	3	4.8	SR22-09	SR22-12	SR22-16	SR22-05
1.5	6.6	2	6.8	3	4.8	SR22-12	SR22-16	SR22-22	SR22-07
2	7.5	3	9.6	5	7.6	SR22-16	SR22-22	SR22-30	SR22-12
3	10.6	3	9.6	7.5	11	SR22-22	SR22-36	SR22-40	SR22-12
3	10.6	5	15.2	10	14	SR22-30	SR22-40	SR22-40 + Fan	SR22-16
5	16.7	5	15.2	10	14	SR22-36	SR22-40	SR22-40 + Fan	SR22-22
5	16.7	7.5	22	15	21	SR22-40	SR22-40 + Fan	-	SR22-22
7.5	24.2	10	28	20	27	SR22-40 + Fan	-	-	SR22-30

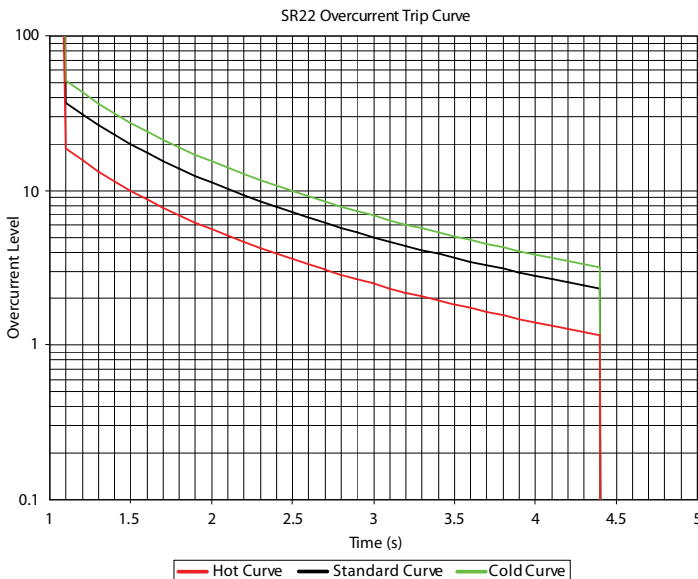
* A separate overload protection device with a rating corresponding to the applicable trip class must be used with the SR22.
 ** The SR22 is not suitable for very high inertia loads such as centrifuges or loaded crushers with start times > 30s.
 *** Do NOT use the Class 2 rating when there is a possibility of the motor starting under a heavy load.

Online Product Selection Tool:

<https://www.automationdirect.com/selectors/softstarters>

SR22 Internal Overcurrent Trip Curve

The internal overcurrent trip of the soft starter does not replace the required external overcurrent device.

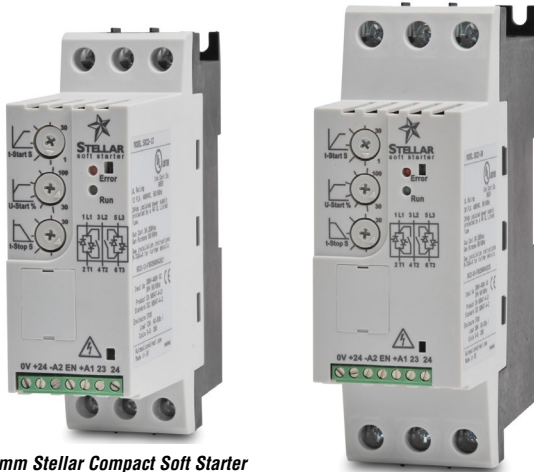


SR22 Max UL Overcurrent Protection

UL Maximum Overcurrent Protection Devices * for 5kA @ 480V Short Circuit Rating		
Soft Starter Model Number	Maximum Non-Time-Delay Trip Rating *	
	Fuse * – Class J or T (600V rated)	Circuit Breaker * (600V rated)
SR22-05	15A	N/A
SR22-07	15A	
SR22-09	30A	
SR22-12	40A	
SR22-16	50A	
SR22-22	80A	80A
SR22-30	100A	100A
SR22-36	125A	125A
SR22-40	150A	150A

* Maximum trip ratings are for non-time-delay overcurrent protection devices.
 * Motor branch circuit protection must be based on MOTOR Full Load Current, and must comply with applicable local electrical codes. The 2008 NEC section 430.52 recommends a maximum of 175% (up to 225% absolute maximum) of motor FLC for time-delay fuses. (Class CC time-delay fuses are permitted up to the non-time-delay fuse maximum rating.)

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45mm Stellar Compact Soft Starter

55mm Stellar Compact Soft Starter



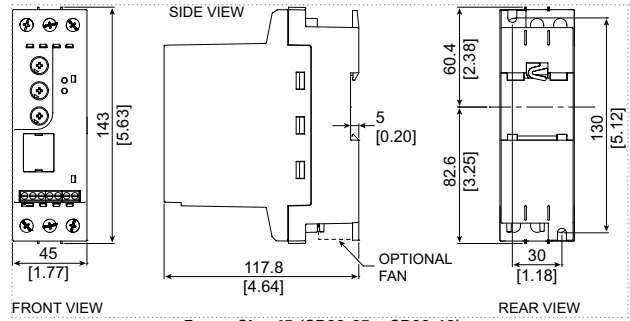
Cooling Fan for 45mm Soft Starters



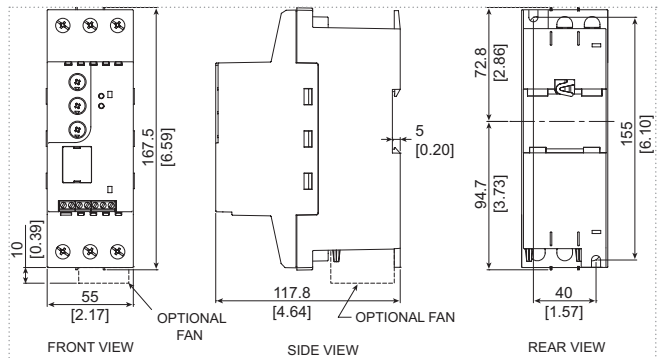
Cooling Fan for 55mm Soft Starters

SR22 Dimensions

Dimensions = mm [in]

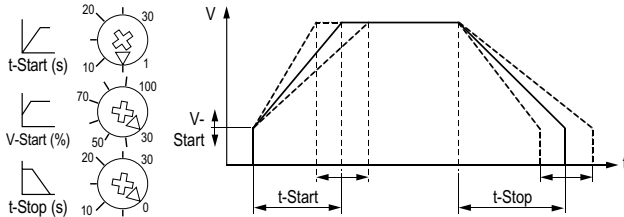


Frame Size 45 (SR22-05 – SR22-16)



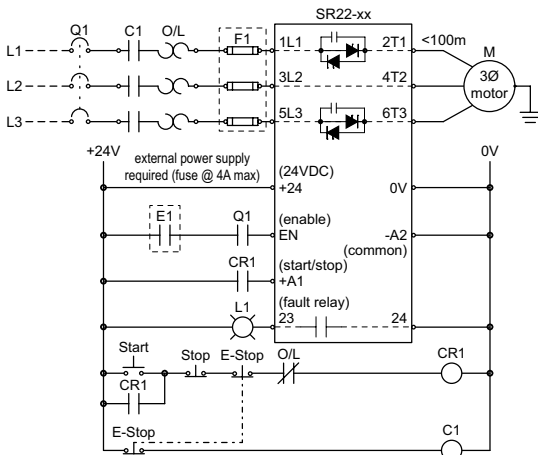
Frame Size 55 (SR22-22 – SR22-40)

SR22 Start/Stop Timing Diagram



SR22 – PLC I/O Compatibility

SR22 Wiring Diagram



External Control Elements:

- C1 = E-Stop contactor
- CR1 = Start contactor
- E1 = Optional switch to allow trip reset without opening main breaker Q1
- F1 = Optional semiconductor fuse for Type 1 Coordination (in addition to Q1)
- O/L = Overload relay
- Q1 = Cable protection circuit breaker
- L1 = Indicator lamp: ON = Ready; OFF = Fault
- E-Stop/Start/Stop = E-Stop/Start/Stop pushbuttons

SR22 – PLC & I/O Compatibility

Product Line	Module Type	Module Numbers
CLICK	PLC	CO-00AR-D, CO-00DD2-D, CO-00DR-D, CO-02DD2-D, CO-02DR-D
	DC Output	CO-08TD2, CO-16TD2
	Relay Output	CO-04TRS, CO-08TR
Productivity3000	DC Output	P3-08ND3S, P3-16ND3, P3-32ND3, P3-64ND3
	Relay Output	P3-08TAS, P3-16TA, P3-08TRS, P3-16TR, P3-08TRS-1
DL05	PLC	DO-05AR, DO-05DR, DO-05DR-D
DL06	PLC	DO-06AR, DO-06DD2, DO-06DD2-D, DO-06DR, DO-06DR-D
DL05/DL06	DC I/O	DO-07CDR
	DC Output	DO-10TD2, DO-16TD2, DO-08TR, F0-04TRS
DL105	PLC	F1-130-DR, F1-130-DR-D
DL205	DC I/O	D2-08CDR
	DC Output	D2-08TD2, D2-16TD2-2, D2-32TD2, F2-16TD2P
DL305	Relay Output	D2-04TRS, D2-08TR, D2-12TR, F2-08TR, F2-08TRS
	DC Output	D3-08TD2, D3-16TD2
DL405	Relay Output	D3-08TR, D3-16TR
	DC Output	D4-16TD2, D4-32TD2
Terminator I/O	Relay Output	D4-08TR, D4-16TR, F4-08TRS-1, F4-08TRS-2
	DC Output	T1K-08TD2-1, T1K-16TD2-1
Terminator I/O	Relay Output	T1K-08TR, T1K-08TRS, T1K-16TR