

# Stellar<sup>®</sup> SR22 Compact Soft Starters

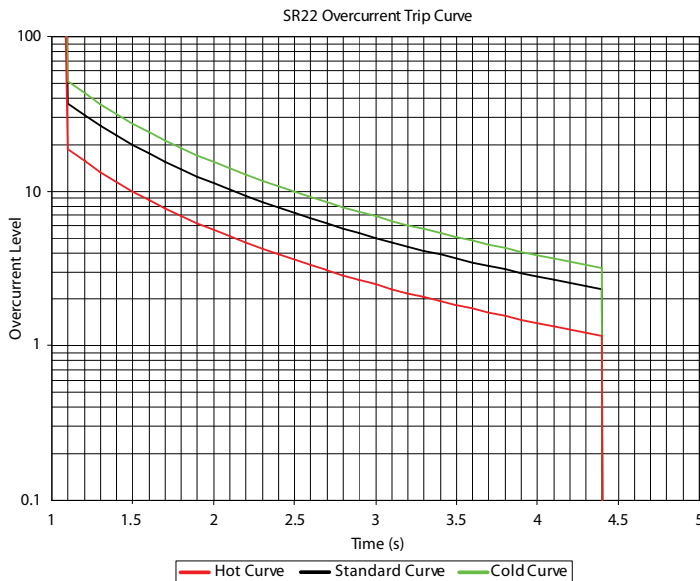
SR22 Soft Starters – Selection – Steps 1 & 2 (of 4)							
		Typical Applications					
		Standard Duty	Medium Duty	Heavy Duty	Light Duty		
<b>Step 1: Select the application from the list and follow that column down.</b>		Default Agitator Bow Thruster - Zero Pitch Compressor - Rotary Vane Compressor -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

SR22 Soft Starters – Selection – Step 3 (of 4)	
<b>Step 3: Consider the operating environment and make the model selection on a higher horsepower rating.</b>	
<b>Height Above Sea Level</b>	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).
<b>Operating Temperature</b>	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).
<b>Increased Starts per Hour</b>	Use our online tool to select the model: <a href="https://www.automationdirect.com/selectors/softstarters">https://www.automationdirect.com/selectors/softstarters</a>

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 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 <sub>a</sub> (A)	HP	I <sub>a</sub> (A)	HP	I <sub>a</sub> (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.

## 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	80A
SR22-22	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.)

# Stellar® SR22 Compact Soft Starters



45mm Stellar Compact Soft Starter

55mm Stellar Compact Soft Starter



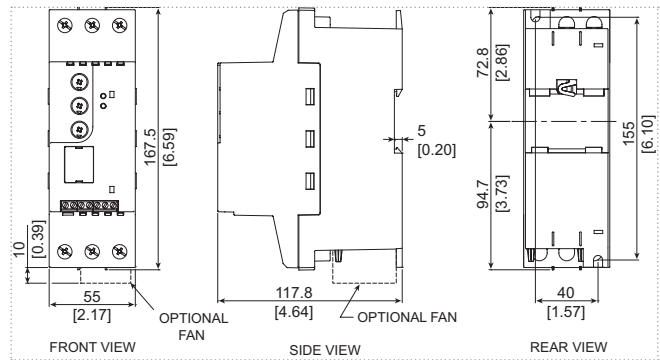
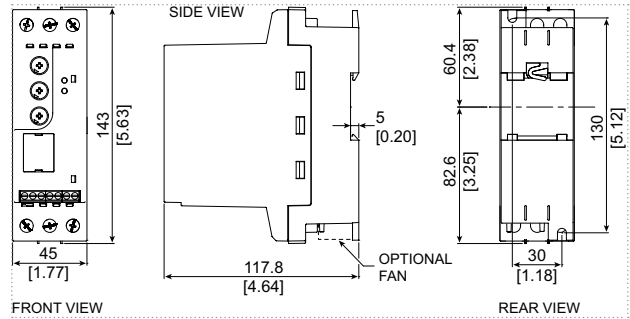
Cooling Fan for 45mm Soft Starters



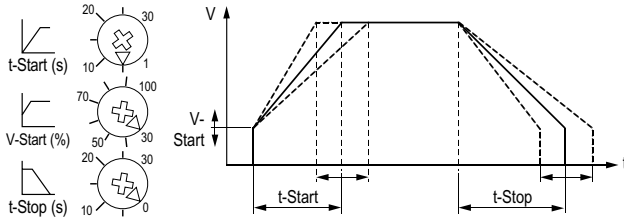
Cooling Fan for 55mm Soft Starters

## SR22 Dimensions

Dimensions = mm [in]

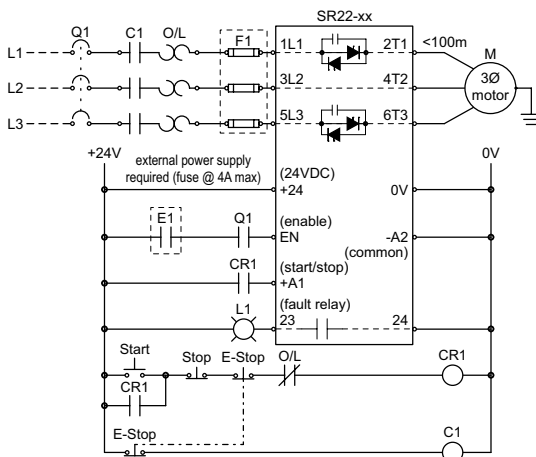


## SR22 Start/Stop Timing Diagram



## 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
<b>CLICK</b>	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
<b>Productivity3000</b>	DC Output	P3-08ND3S, P3-16ND3, P3-32ND3, P3-64ND3
	Relay Output	P3-08TAS, P3-16TA, P3-08TRS, P3-16TR, P3-08TRS-1
<b>DL05</b>	PLC	D0-05AR, D0-05DR, D0-05DR-D
<b>DL06</b>	PLC	D0-06AR, D0-06DD2, D0-06DD2-D, D0-06DR, D0-06DR-D
<b>DL05/DL06</b>	DC I/O	D0-07CDR
	DC Output	D0-10TD2, D0-16TD2, D0-08TR, F0-04TRS
<b>DL105</b>	PLC	F1-130-DR, F1-130-DR-D
<b>DL205</b>	DC I/O	D2-08CDR
	DC Output	D2-08TD2, D2-16TD2-2, D2-32TD2, F2-16TD2P
<b>DL305</b>	Relay Output	D2-04TRS, D2-08TR, D2-12TR, F2-08TR, F2-08TRS
	DC Output	D3-08TD2, D3-16TD2
<b>DL405</b>	Relay Output	D3-08TR, D3-16TR
	DC Output	D4-16TD2, D4-32TD2
<b>DL405</b>	Relay Output	D4-08TR, D4-16TR, F4-08TRS-1, F4-08TRS-2
	DC Output	T1K-08TD2-1, T1K-16TD2-1
<b>Terminator I/O</b>	Relay Output	T1K-08TR, T1K-08TRS, T1K-16TR