

Multipurpose Solid State Soft Starter



8 thru 420 Amps
8 thru 30 Amps

208/230/460V 60 Hz.
208/230/460/575V 60 Hz.

Applications: Controlled ramp start and stop, minimize spillage in material handling applications and water hammer in pumping equipment. Current limit provides a current ceiling to limit peak demand on start and constant current starting of high inertial loads such as chippers, centrifuges and compressors. Typical applications include: small and large pumps, conveyors, low and high inertia fans, reciprocating compressors, screw and rotary compressors.

Features: Six SCR power devices and several enclosure options. Tachometer feedback may be used to provide consistent starting independent of load conditions on textile, material handling and pumping equipment.

Design Specifications

- Current feedback
- Microprocessor Control
- Power factor sensing
- Energy optimization
- One programmable input
- Two programmable form C outputs
- Programmable current limit

Environmental and Operating Conditions

- Input voltage
3 phase 208-575V
- Control voltage 120VAC
- Input frequency 50/60 Hz
- Humidity 90% RH condensing
- 3000 feet altitude
- 40°C ambient temperature

Protective Features

- Current limit
- Shorted SCR detection
- SCR overload
- Shear pin-over-current detection
- Low current/under-load detection
- Input phase loss on start up
- Heat sink over-temperature

Model Number	208/230/460 VAC 60 Hz.	MA7-008-CA	MA7-016-CA	MA7-030-CA	MB7-055-CP	MB7-080-CP	MB7-160-CP	MB7-250-CP	MB7-420-CP	
Control only	208/230/460/575 VAC 60 Hz.	MA8-008-CA	MA8-016-CA	MA8-030-CA	—	—	—	—	—	
Output Ratings	Hp Rating	230 VAC	2	5	10	20	30	60	100	150
		460 VAC	5	10	20	40	60	125	200	350
		575 VAC	5	10	20	—	—	—	—	—
	Current Rating	8 Amp	16 Amp	30 Amp	55 Amp	80 Amp	160 Amp	240 Amp	420 Amp	
	Overload Rating	Continuous 115% of FLA; 400% for 30 seconds								
Derate	Above 1000m (3300 Ft.) decrease amp rating 1% for each additional 100m (330 ft.)									
	Above 45° (115°F) decrease amp rating 1.0% for each additional °C (0.84%/°F)									
Input Rating	Frequency	60 Hz. ±5%								
	Voltage	+10% to -15% (except for 575 VAC units max. VAC is 620)								
	Phase	Three Phase								
Control Spec.	Control Method	6 SCRs connected in inverse parallel for full-wave control								
	Start Time	Adjustable 3-50 seconds (current limit starting is not timed)								
	Stop Time	Adjustable 5-50 seconds to extend stopping time								
	Initial Torque	Adjustable starting 0-75%; Stopping 0-100%								
	Current Limit	Adjustable 75-400% of full load amps								
	Pulse Time	Adjustable 0-1.5 seconds								
	Current Monitor	Adjustable 50-400% of full load amps (causes a contact closure or control shut down when current level is reached after starting)								
	Power Factor	Adjustable for max. reduced motor voltage dependent on motor load								
	Control Power	Self-powered					External Transformer			
	Status Contacts	125 VAC at 0.5 Amp normally open								
SCR Spec.	Peak Inverse Voltage	460 VAC Starters 1200 VAC 575 VAC Starters 1600 VAC								
	Heat Loss	3.3 watts per running amp								
Protective Functions	Over Current	Over current shut down at 450% of motor full load amps								
	Shorted SCR Detection	Shunt trip contact								
	SCR Thermostat	Trips on over temperature of heat sink on 55 amp sizes and above								
	Voltage Transient	Metal oxide varistor (MOV)								
Ambient Conditions	Temperature	Enclosed 0-45°C (32 to 113°F) open/panel 0 to 50°C (32 to 122°F)								
	Cooling	Convection					Forced Air			

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

Multipurpose Solid State Soft Starter

Amp Size	Max Hp at VAC				Catalog Number	List Price	Mult. Sym.
	208	230	460	575			
Combination Starter (a)							
NEMA 12 (can also be used for NEMA 1)							
55	15	20	40	—	MB7-055-GC	6,108	E7
80	25	30	60	—	MB7-080-GC	6,698	E7
160	50	60	125	—	MB7-160-GC	14,273	E7
250	75	100	200	—	MB7-250-GC	16,420	E7
420	150	150	350	—	MB7-420-GC	21,053	E7
NEMA 1 - 208/230/460 Volts							
80	25	30	60	—	MB7-080-AB	8,111	E7
160	50	60	125	—	MB7-160-AB	10,696	E7
250	60	75	150	—	MB7-250-AB-1	12,772	E7
250	75	100	200	—	MB7-250-AB	13,351	E7
420	150	150	350	—	MB7-420-AB	15,331	E7
Non-Combination Starter (a)							
NEMA 1							
160	50	60	125	—	MB7-160-BB	9,046	E7
250	75	100	200	—	MB7-250-BB	10,066	E7
420	150	150	350	—	MB7-420-BB	12,098	E7
Control Only							
Open/Panel							
8	2	2	5	—	MA7-008-CA	1,329	E7
16	3	5	10	—	MA7-016-CA	1,398	E7
30	7.5	10	20	—	MA7-030-CA	1,640	E7
55	15	20	40	—	MB7-055-CP	3,107	E7
80	25	30	60	—	MB7-080-CP	4,453	E7
160	50	60	125	—	MB7-160-CP	5,795	E7
250	75	100	200	—	MB7-250-CP	7,939	E7
420	150	150	350	—	MB7-420-CP	9,972	E7
8	2	2	5	5	MA8-008-CA	1,386	E7
16	3	5	10	10	MA8-016-CA	1,468	E7
30	7.5	10	20	25	MA8-030-CA	1,697	E7
NEMA 1							
160	50	60	125	—	MB7-160-CB	7,039	E7
250	75	100	200	—	MB7-250-CB	9,226	E7
420	150	150	350	—	MB7-420-CB	11,111	E7

(a) Combination Starter includes control, overload relay and circuit breaker. Non-combination Starter includes control and overload relay.

(b) Uses a shunt bypass contactor to short SCR after ramp up (not a full voltage bypass starter). Custom controls available.

Single Phase Starter 7 thru 110 Amps 115/230V 50/60 Hz.



Applications: Use with existing or new magnetic starter. This industrial solid state control will reduce initial starting torque and current of single phase motors allowing them to be started with minimum voltage drop. High starting torque problems such as belt slippage may be eliminated. Ideal for crop driers, augers, bucket elevators and fan or pump applications.

Features: Two adjustable starting torque settings. Adjustable starting ramp time to 30 seconds.

Amp Size	Max Hp at VAC		Catalog Number	List Price	Mult. Sym.	Notes (a)
	115	230				
Open/Panel - 115/230 Volts						
7	1/4	3/4	S20CA	564	E7	19
12	1/2	2	S21CA	586	E7	19
24	2	3	S22CA	625	E7	19
40	3	7.5	S23CA	667	E7	19
110	10	—	S25CA	1,115	E7	19

NOTE: To size single phase starters use the motor FLA. There is a great variation in FLA between motor manufacturers in these sizes.

(a) See notes on inside back flap.