

Digital Soft Start Controls

9 thru 900 Amps
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208-460V 50/60 Hz.
208-575V 50/60 Hz.



Applications: Controlled ramp start and stop, minimize spillage in material handling, reduced water hammer in pumping, reduced wear on mechanical gears, eliminate high inrush current, and energy optimizing of under loaded motors. Typical applications include: pumps, conveyors, fans, reciprocating compressors and screw and rotary compressors

Features: Six SCR three phase voltage control with programmable starting ramp and current limit. Application software senses changing load conditions and adapts to increase performance. Power factor optimization eliminates motor over-fluxing and allows under-loaded or over-sized motors to operate more efficiently. NEMA 1 enclosure.

Design Specifications

- MOV protection
- Current feedback
- Microprocessor Control
- Power factor sensing
- Energy optimization
- One programmable input
- Two programmable form C outputs

Custom Product Capabilities

- NEMA 12, 4 or 3R enclosures with bypass contactor
- Flange mounted input disconnect
- Input circuit breaker or fuses
- Input contactor
- 3 wire start/stop pushbuttons
- 2 wire Hand-Off-Auto switch
- Indicating lights
- Large units up to 1800 amps

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

Output	Voltage	208-460V, 230-575V
	Current	9-900A
	Horsepower	Voltage and application rated, 5-700Hp
	Short Circuit	5000 Amperes symmetrical
	Altitude Derate	1% per 330 feet above 3300 feet
	Temperature Derate	2% per one °C above 40°C up to 60°C
Overload	Standard Duty	300% Motor full load amps at 35 seconds, 400% Motor full load amps at 6 seconds
	Medium Duty	300% Motor full load amps at 60 seconds, 400% Motor full load amps at 12 seconds
	Heavy Duty	300% Motor full load amps at 80 seconds, 400% Motor full load amps at 35 seconds
Input Ratings	Voltage	208-460V, 230-575V
	Frequency	50/60 Hz
	Phase	Three Phase
Control Spec	Control Method	Microprocessor controlled full wave, three phase, six thyristor firing
	Start Time	Programmable 1-255 seconds
	Stop Time	Programmable 0-255 seconds
	Voltage Pedestal	Programmable: Start 10-60%, Kick 60-90%, Stop 10-60%
	Current Limit	800% of rated current
	Power Factor	Continuously monitored to eliminate motor over-flux for power optimizing
	Control Power	110-130VAC, 50/60 Hz
SCR Spec	Peak Inverse Voltage	460VAC controllers 1400V
		575VAC controllers 1600V
	Heat Loss	3.3 Watts per 1 Ampere running current
Ambient Conditions	Temperature	Enclosed 0-40°C
	Cooling	Convection / Forced Air included when required
	Altitude	3300 feet above sea level

Digital Soft Start Controls - Typical Applications

Standard Duty

- Agitator
- Axial Blower
- Axial Fan
- Band Saw
- Centrifugal Pump
- Chiller
- Escalator
- Low Inertia Fan
- Propeller Fan
- Small Pump

Medium Duty

- Circular Saw
- Conveyor, Screw Feeder
- Drilling Press
- Elevator
- Flywheel Press
- Grinder
- Hammer Press

- High Inertia Fan
- Large Pump
- Mill Mixer
- Pelletizer / Pulper
- Positive Displacement Pump
- Reciprocating Compressor
- Vibrating Screen

Heavy Duty

- Centrifugal Blower
- Centrifugal Fan
- Chipper
- Disintegrator
- Loaded Centrifuge
- Loaded Mixer
- Loaded Screw Compressor
- Loaded Reciprocating Compressor
- Pulverizer
- Rock Crusher
- Separator

Standard Duty (a)			Medium Duty (b)			Heavy Duty (c)			Cont. Output Amps	Catalog Number	List Price	Mult. Sym.	Size
208V (d)	230V	460V	208V (d)	230V	460V	208V (d)	230V	460V					
Motor Application Horsepower @ 10 Starts per hour Maximum													
—	—	5	—	—	5	—	—	—	9	MD7-009-CB	1,873	E7	1
3	5	10	—	—	7.5	—	—	5	16	MD7-016-CB	1,945	E7	1
5	7.5	15	—	5	10	—	—	7.5	23	MD7-023-CB	2,141	E7	1
7.5	10	20	5	7.5	15	—	—	10	30	MD7-030-CB	2,325	E7	1
10	15	30	7.5	10	20	—	5	15	44	MD7-044-CB	2,650	E7	1
15	20	40	10	15	30	5	7.5	20	59	MD7-059-CB	2,969	E7	1
20	25	50	15	15	40	7.5	10	30	72	MD7-072-CB	3,358	E7	1
25	30	60	15	20	50	10	15	40	85	MD7-085-CB	3,549	E7	1
30	40	75	20	30	60	15	20	50	105	MD7-105-CB	4,279	E7	1
40	50	100	30	40	75	20	30	60	146	MD7-146-CB	5,054	E7	1
50	60	125	40	50	100	30	40	75	174	MD7-174-CB	6,700	E7	2
60	75	150	50	60	125	40	50	100	202	MD7-202-CB	7,436	E7	2
75	100	200	60	75	150	50	60	125	242	MD7-242-CB	7,992	E7	2
Motor Application Horsepower @ 3 Starts per hour Maximum													
100	125	250	75	100	200	60	75	150	300	MD7-300-CB	8,908	E7	2
125	150	300	100	125	250	75	100	200	370	MD7-370-CB	9,646	E7	2
150	200	400	125	150	300	100	125	250	500	MD7-500-CB	13,189	E7	3
200		500	150	200	400	125	150	300	600	MD7-600-CB	14,320	E7	3
		600	200		500	150	200	400	750	MD7-750-CB	17,095	E7	3
		700			600	200		500	900	MD7-900-CB	18,507	E7	3

Standard Duty (a)			Medium Duty (b)			Heavy Duty (c)			Cont. Output Amps	Catalog Number	List Price	Mult. Sym.	Size
575V			575V			575V							
Motor Application Horsepower @ 10 Starts per hour Maximum													
7.5			5			—			9	MD8-009-CB	2,154	E7	1
10			7.5			5			16	MD8-016-CB	2,238	E7	1
20			10			7.5			23	MD8-023-CB	2,462	E7	1
25			20			10			30	MD8-030-CB	2,674	E7	1
40			30			20			44	MD8-044-CB	3,047	E7	1
50			40			30			59	MD8-059-CB	3,414	E7	1
60			50			40			72	MD8-072-CB	3,860	E7	1
75			60			50			85	MD8-085-CB	4,081	E7	1
100			75			60			105	MD8-105-CB	4,919	E7	1
125			125			100			146	MD8-146-CB	5,813	E7	1
150			—			—			174	MD8-174-CB	7,704	E7	2
200			150			125			202	MD8-202-CB	8,550	E7	2
250			200			150			242	MD8-242-CB	9,189	E7	2
Motor Application Horsepower @ 3 Starts per hour Maximum													
250			—			—			300	MD8-300-CB	10,100	E7	2
300			250			—			370	MD8-370-CB	11,094	E7	2
400			300			300			500	MD8-500-CB	15,165	E7	3
500			400			400			600	MD8-600-CB	16,470	E7	3
600			500			500			750	MD8-750-CB	19,663	E7	3
700			600			600			900	MD8-900-CB	21,284	E7	3

(a) 300% Motor FLA @ 35 Sec., 400% Motor FLA @ 6 Sec.
 (b) 300% Motor FLA @ 60 Sec., 400% Motor FLA @ 12 Sec.
 (c) 300% Motor FLA @ 80 Sec., 400% Motor FLA @ 35 Sec.
 (d) 208V applications are UL listed only to 196V.

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