Technical data

Type of load
Three phase medium voltage AC induction motors

AC supply voltage
2300, 3300, 4160, 6600/6900, 13,800 VAC
+10% to -10%
50/60 Hz line voltages

HP ratings ①
Up to 15,000 HP @ 13,800V (600 Amps max)

Overload rating
500% – 60 Seconds

Power circuit
Series strings of SCR power modules (2,4 or 6 matched pairs of SCRs per phase depending on voltage rating)

SCR peak inverse voltage

Amps	Line voltage	PIV rating
200 to 400	2300 V	6500
	3300 V	13,000
	4160 V	13,000
	6600/6900 V	19,500
	11-14 kV	39,000
600	2300 V	7000
	3300 V	14,000
	4160 V	14,000
	6600/6900 V	21,000
	11-14 kV	39,000

Transient voltage protection
dv/dt circuits (1 per SCR power module)

Vacuum bypass contactor ③
Standard on all models, line start rated

Ambient operating temperature
0 to 50°C (32°F to 122°F)
(Optional -20° to 50°C with heaters)

Control
Digital microprocessor controller with read-out in English text
Alphanumeric LCD display
Non-volatile memory for programming and faults
Opto-isolated inputs

Communications
RS485 with modbus RTU protocol
RS232 with Windows interface

Auxiliary contacts
FORM C, 8 Amps @ 250V

Adjustments
Motor FLA
Dual adjustments — Two independent settings for:

Initial voltage	0 – 100% of nominal voltage
Current limit	0 – 600% of motor FLA
Acceleration time	1 – 120 seconds
Deceleration time	1 – 60 seconds
Kick start	0.1 – 2.0 seconds, 10 - 100% of line voltage
Under voltage trip	70 – 95% (adjustable trip delay)
Over voltage trip	105 – 130% (adjustable trip delay)
Under current trip	20 – 90% of motor FLA (adjustable trip delay)
Over current trip	100 - 300% of motor FLA (adjustable trip delay)
Allowable re-starts	0 – 10 (adjustable time inhibit)

Motor and starter protection

Electronic overload	Inverse time, 75 – 150% of motor FLA
Electronic shear pin	Trips within 1 cycle of setpoint
Phase loss	One or more phases missing
Phase sequence	Phase sequency incorrect
Over voltage	Trips at high line setpoint
Under voltage	Trips at low line setpoint
Stall protection	Starting process is not complete
Shorted SCR	Internal fault detected
Error connection	Internal fault/motor connection
Starter over-temp	Heatsink over temperature

Metering

Current	Phase A, B, C & average current
Thermal data	Thermal capacity of motor
Power	KVA, KW, KVAR, power factor, KWH

Line start section
Load break/fault make disconnect switch with automatic grounding arm and viewing window
Fuses with blown fuse indicator
In-line vacuum contactor③
Control power transformer with fused primary/secondary
Packaged in common enclosure with soft start
Optional "Soft Start" (requires customer supplied line start panel)

Statistical data
Total amount of run time since soft start was reset
Amount of time it took motor to start during last period
Maximum current during last start period
Total number of starts since soft start was reset
Event history for last 60 events

Elevation
1000 m / 3300 ft. without derating (contact factory for higher elevations)

Enclosure ②
NEMA 12, top and bottom entrance plates
11 gauge steel
ASA #61 gray paint with lifting eyes

① Consult factory for higher horsepower and voltage requirements.
② 13.8 kV softstarters are rated NEMA 1.
③ 13.8 kV, 600A softstarters use circuit breakers for isolation and bypass functions.