



***GE 8000-Line
Motor Control Centers***

Specifications



Spectra Series™ and 8000-Line Motor Control Centers

Specifications

REQUISITION CHECKLIST SC MC NORMAL CYCLE NORMAL PLUS

All information on the requisition checklist must be supplied for each 8000 Line MCC. Refer to engineered products catalog section 10.2 to determine options available in short cycle, mid cycle, and normal cycle MCC.

GE Requisition:	Item #:	UL and Canadian Requirements: <input type="checkbox"/> UL label as applicable (<i>standard</i>) <input type="checkbox"/> Must be UL (<i>special</i>) <input type="checkbox"/> UL Service Entrance label (<i>MCC fed from utility</i>) <input type="checkbox"/> Must be CSA Certified (<i>special</i>)
Customer:		
Location:		
Prepared by:	Date:	

Incoming Power and MCC Bus Requirements

<p>Available Short-Circuit Symmetrical Amperes</p> <input type="checkbox"/> 22,000 <input type="checkbox"/> 25,000 <input type="checkbox"/> 42,000 <input type="checkbox"/> 65,000 <input type="checkbox"/> 100,000 <input type="checkbox"/> _____	<p>Horizontal Bus Material and Current Carrying Capacity <i>All Bus is UL listed except where noted.</i></p> <input type="checkbox"/> Tin-plated aluminum (<i>8000-Line only</i>) <input type="checkbox"/> 600 Amp <input type="checkbox"/> 800 Amp <input type="checkbox"/> 1200 Amp 4" Bus	<p>Copper Vertical Bus</p> <input type="checkbox"/> (Plating Same as Main Bus) <input type="checkbox"/> Factory to size (<i>standard</i>) <input type="checkbox"/> 300 Amp <input type="checkbox"/> 450 Amp <input type="checkbox"/> 600 Amp } <i>required for bolt-on units</i>
<p>Bus Bracing in Symmetrical Amperes</p> <input type="checkbox"/> 42,000 <input type="checkbox"/> 50,000 <input type="checkbox"/> 65,000 <input type="checkbox"/> 100,000 (requires 4" main bus)	<input type="checkbox"/> Tin-plated copper <input type="checkbox"/> Silver-immersion copper <input type="checkbox"/> 600 Amp <input type="checkbox"/> 800 Amp <input type="checkbox"/> 1000 Amp <input type="checkbox"/> 1200 Amp 2" Bus <input type="checkbox"/> 1200 Amp 4" Bus <input type="checkbox"/> 1600 Amp 4" Bus (<i>use 2000 amp bus for B to B</i>) <input type="checkbox"/> 2000 Amp 4" Bus (<i>22" deep</i>) <input type="checkbox"/> 2500 Amp 4" Bus (<i>22" deep—available in NEMA 1 enclosures only—vented @ top</i>) <input type="checkbox"/> 1600 Amp 4" Bus to match existing MCC Δ (not UL listed) <input type="checkbox"/> 2000 Amp 4" Bus to match existing MCC Δ (not UL listed) Δ (<i>Furnish drawing number of existing for factory match</i>)	<p>Ground Bus</p> <input type="checkbox"/> (Plating Same as Main Bus) <input type="checkbox"/> 300 Amp <input type="checkbox"/> 600 Amp <input type="checkbox"/> Vertical ground (<i>unit stab-on</i>) <input type="checkbox"/> Vertical ground (<i>Load ground in wireway</i>) Vertical ground bus is rated 150 amp
<p>Voltage and Frequency</p> <input type="checkbox"/> 208 <input type="checkbox"/> 600 <input type="checkbox"/> 240 <input type="checkbox"/> 50 Hz. <input type="checkbox"/> 380 <input type="checkbox"/> 60 Hz. <input type="checkbox"/> 400 <input type="checkbox"/> 3 phase, 3 wire <input type="checkbox"/> 415 <input type="checkbox"/> 3 phase, 4 wire <input type="checkbox"/> 480	<p>Main Disconnect (fill in Lug Data Also)</p> Circuit Breaker Type: * <input type="checkbox"/> Top or <input type="checkbox"/> Molded case <input type="checkbox"/> Bottom & <input type="checkbox"/> Power Break <input type="checkbox"/> Left or <input type="checkbox"/> w/Communications (PM) <input type="checkbox"/> Right Frame amps _____ Fuse Clip Amps _____ Special trip accessories metering _____	<p>Neutral Bus (<i>required with 4 wire systems</i>)</p> <i>Bus is the same material as main bus.</i> <input type="checkbox"/> None <input type="checkbox"/> Half neutral (<i>standard</i>) <input type="checkbox"/> Full Neutral (<i>special</i>)
<p>Terminal Board <i>Main terminal board with lugs is UL listed with standard mechanical compression-type lugs. NEMA crimp-type lugs are listed in MCC.</i></p> <input type="checkbox"/> Top or <input type="checkbox"/> 600 Amp <input type="checkbox"/> Bottom & <input type="checkbox"/> 800 Amp <input type="checkbox"/> Left or <input type="checkbox"/> 1000 Amp <input type="checkbox"/> Right <input type="checkbox"/> 1200 Amp <input type="checkbox"/> 12" Hi Pullbox <input type="checkbox"/> 1600 Amp <input type="checkbox"/> _____ Amp	<p>Fused Switch: * <input type="checkbox"/> Top or <input type="checkbox"/> QMW, QMR (400-600A) <input type="checkbox"/> Bottom & <input type="checkbox"/> HPC Switch (<i>Class "L" fuses</i>) <input type="checkbox"/> Left or <input type="checkbox"/> Fuses supplied by others <input type="checkbox"/> Right <input type="checkbox"/> Fuses supplied with MCC (<i>specify class _____R _____J</i>) Special accessories/metering: _____</p>	<p>Transitions</p> <input type="checkbox"/> to GE Transformer <input type="checkbox"/> to GE Switchboard <input type="checkbox"/> to GE Switchgear <input type="checkbox"/> to GE Bus Duct
<p>Lug Data</p> <input type="checkbox"/> Cables per phase <input type="checkbox"/> Size (MCM) <input type="checkbox"/> Standard Lugs <input type="checkbox"/> NEMA Crimp Type	<p>Special accessories/metering: _____</p>	<p>Contact: _____ Phone #: _____ REQ# #: _____</p> <p>Splice Bars: MCC #: _____ Dwg #: _____ Sht #: _____</p>

MCC Enclosure

<p>NEMA Type <i>For outdoor enclosures (see pg. 2) the MCC enclosure type is NEMA 1.</i></p> <input type="checkbox"/> 2 dripproof <input type="checkbox"/> 1 gasketed <input type="checkbox"/> 12 industrial <input type="checkbox"/> Space heaters <input type="checkbox"/> Thermostat <input type="checkbox"/> Bottom plates (<i>std. on NEMA 12</i>) <input type="checkbox"/> Seismic zone 1&2 bracing <input type="checkbox"/> Seismic zone 3&4 bracing (<i>special</i>)	<p>Section Depth</p> <input type="checkbox"/> 13 inches (1200 Amp bus max.) <input type="checkbox"/> 20 inches <input type="checkbox"/> 22 inches (<i>2000 and 2500 Amp bus</i>) <input type="checkbox"/> Front access only <input type="checkbox"/> Rear access available <input type="checkbox"/> Back-to-back—20" Deep Minimum (<i>22" required for 2000 and 2500 Amp Main Bus-65KA Max. Rating</i>).	<p>Larger Wireway</p> <input type="checkbox"/> top <input type="checkbox"/> bottom <i>If back-to-back is specified, the rear main bus cover is 12" (18" for the 4" main bus).</i> <i>The 4" main bus assembly uses 18" at the top of the MCC case, thus the standard top cover is 12" with stationary devices requiring an 18" top cover.</i>
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Spoetra Series™ and 8000-Line Motor Control Centers

Specifications

REQUISITION CHECKLIST (cont.)

Requisition No. _____ Item # _____

NEMA Class Wiring Diagrams

For typical standard diagrams, see GET 6782A, section K (check one) _____ Class I C _____ Class I A _____ Class II B-D (std) _____ Class I B-D (std) _____ Class II B-T _____ Class I B-T _____ Class II C	Custom Drawings Required _____ (Furnish customer elementaries)	Separately specify any special TB assembly and location. The type "C" TB assembly is located in the larger wireway.
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Starter Unit Information

Starters with Circuit Breakers <i>(interrupt rating of the combination @ 480V)</i> _____ Thermal magnetic <i>(THED type—25,000A)</i> _____ Magnetic only <i>(TEC type—25,000A)</i> _____ Thermal magnetic, with Limiters <i>(THEDL type—100,000A)</i> <i>(SELI type—65/100,000A; 480V Max.)</i> <i>SELT type—65/100,000A; 480V Max.)</i> _____ Magnetic only, with Limiters _____ Magnetic only, current-limiting CB _____ Thermal magnetic, current-limiting CB <i>(TECL type—100,000, 600V only)</i>	Overload Relays _____ Standard _____ Ambient compensated _____ N.C. & N.O. <i>(alarm)</i> contacts _____ Provide heaters <i>(installed)</i> with MCC _____ Heaters to be provided by others _____ Heaters with MCC not installed <i>(Provided in units for field check/ installation)</i>	Starter Control Voltage _____ Line-to-Line <i>(no CPT)</i> _____ Line-to-Neutral <i>(no CPT)</i> _____ Common control <i>(no CPT, external power)</i> _____ Unit CPT <i>(control power transformer, includes primary and secondary fuses)</i> _____ Oversized CPT <i>(Size 1 only)</i> _____ 120V, 60 Hz. _____ 110V, 50 Hz. _____ V, _____ Hz. <i>(special)</i> NOTE: Some coils are provided at line voltage (size 5 & 6, RVNR, etc. see GET 6728).
Starters with Fused Switches _____ RK-5 _____ RK-1 _____ J Time Delay _____ J Non Time Delay _____ Fuses supplied by others _____ Fuses supplied with MCC	Optional Features _____ SIS wire <i>(control/power/both)</i> _____ Ring terminals <i>(control/power/both)</i> _____ Power-off insertion and withdrawal _____ Vertical bus shutter for drawout units _____ Door Diagram <i>(elementary)</i> _____ OL Heater Table _____ Wiremarkers—control only _____ Wiremarkers—power and control	Starter Control Modifications _____ Auxiliary contact in unit disconnect <i>(CB or Fused SW) Plus Fuse</i> _____ Common control bus <i>(control power is jumpered within a section)</i>

Other Units

Feeder Units _____ RK-5 _____ RK-1 _____ Class J Time Delay _____ Class J Non Time Delay _____ Fuses supplied by others _____ Fuses supplied with MCC <i>(special)</i> Circuit Breakers: _____ 25,000A _____ 65,000A _____ 100,000A	Distribution Transformers _____ KVA single phase; 37 1/2 KVA max. _____ KVA three phase; 45 KVA max. _____ No Taps <i>(standard)</i> _____ With Taps <i>(special—allow more room than with standard transformer, specify % taps)</i>	Lighting & Distribution Panelboards "A"-Series Lighting Panels: _____ AQ—bolt in CB _____ AL—plug in CB _____ AE-TEY CB <i>(3 phase, 4 wire only)</i> _____ AD-(3 phase, 3 wire) _____ AMP Lighting panel main <i>(recommended @ 125% secondary amps)</i> _____ Circuit panel <i>(total circuits)</i> _____ 20 amp CB _____ 15 amp CB
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Name Plates

Master NP—2" x 6" _____ Furnished NP engraved _____ No NP required _____ Provide blank NP	Unit NP—1" x 3" _____ Furnished NP engraved _____ No NP required _____ Provide blank NP	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Furnish NP engraving lists as required. </div> _____ Black with white letters <i>(Standard)</i> _____ White with black letters
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Outdoor Enclosures—NEMA 3R

_____ Non walk-in Type A <i>(standard)</i> _____ Non-walk-in Type B <i>(special)</i> _____ Walk-in _____ Common-aisle, walk-through	_____ Non-walk-in, Back-to-back <i>(Refer to GET 6728 for dimensions)</i> _____ High wind/Seismic construction <i>(Heavy base, one-piece shipment)</i>	Special features <i>(describe)</i> : _____ _____ _____
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Other Special Modifications—Incoming Line Reactors, etc. (List Below)



GUIDE FORM SPECIFICATIONS

GENERAL

The motor control center(s) will be manufactured and tested in accordance with NEMA ICS-3 and Underwriter's Laboratories Standard No. 845. Vertical sections and individual units will be UL Labeled where possible, CSA Labeled when specified.

SERVICE

The motor control center(s) shall be suitable for operation on a ____-volt, ____-phase, ____-wire, ____-Hertz system having a short-circuit capacity of ____ RMS symmetrical at the motor control center incoming line terminals.

WIRING

Wiring shall be NEMA Class (I) (II), Type (A) (BD) (BT) (C). Where Type C wiring is indicated, the master terminal blocks shall be located at the (top) (bottom) of the vertical section. Combination starter units shall be wired out to split-type control terminal blocks for easy removal without disturbing either factory- or field-installed wiring.

CONSTRUCTION

Indoor enclosure(s) shall be NEMA Type (1-gasketed) (2) or (12-industrial). Outdoor enclosures where indicated shall be (3R non-walk-in) (3R non-walk-in, back-to-back) (3R walk-in) or (3R common-aisle walk-through). Seismic ratings (are) (are not) required.

Each motor control center shall consist of one or more vertical sections of heavy gauge steel bolted together to form a rigid unit assembly. A removable lifting angle shall be mounted to the motor control center line-up at the top. Removable bottom channel sills shall be mounted front and rear of the vertical sections extending the full width of the lineup.

Motor control center lineups shall be nominally 90 inches high and in multiples of 20 inch wide sections. Alternate section widths of 24 or 30 inches may be provided as required for oversize starters, relay panels, etc. Depth shall be ____ inches (select in accordance with description below). Nominal shipping splits are three sections (60 inches wide).

- A. Front-mounted units only in 13-inch-deep sections.
- B. Front-mounted units only in 20- or 22-inch-deep sections.
- C. Front-mounted units only in 20- or 22-inch-deep sections with separate vertical bus in rear for future back-to-back unit mounting. (Available with 65-kA bracing only.)
- D. Units mounted back-to-back in 20- or 22-inch-deep sections. Phase relationship of stab-in units for back mounting shall be same as for front-mounted units. No phase rotation shall be permitted.

All parts of the section shall be accessible from the front for ease of maintenance and rearrangement.

Horizontal Pullbox

Vertical sections shall contain a 12-inch-high horizontal wireway for incoming line and wiring between sections located at the (top) (bottom) of all sections. A 6-inch-high horizontal wireway shall be located at the (bottom) (top) of all sections. These horizontal wireways shall provide a total of 18 inches of horizontal wireway area in each section.

Vertical Wiring Trough

A separate removable vertical wire trough door shall be furnished adjacent to each plug-in unit. The wire trough permits field wiring to be isolated in the wire trough area. Cable tie supports are to be furnished in the vertical wire trough to hold cable and wiring in place. Each plug-in unit compartment shall be provided with a side barrier to safely permit pulling wire in the wire trough area.

INCOMING POWER/MAIN PROTECTIVE DEVICE

Incoming power feed shall be (cable) (bus duct) entering at the (top) (bottom) of section ____.

Incoming cable(s) shall be ____ per phase, (copper) (aluminum) size ____ terminating on (terminal lugs) (main protective device). Main protective device shall be _____.

BUS SYSTEMS

Main Horizontal Bus

Power shall be distributed by means of a continuous horizontal bus with a current rating of (600) (800) (1000) (1200) (1600) (2000) (2500) amperes. Main bus shall be (copper, tin-plated) (copper, silver-plated) enclosed in an isolated compartment at the top of each vertical section. The bus shall be edgewise mounted, one above the other, and supported on white polyester reinforced insulators. The main bus shall be isolated by sliding barriers from wire troughs, starters and other areas. All bus and splice bar connections shall be accessible by sliding the barrier panels to the open position. Main bus splicing between shipping splits shall be accomplished from the front without any structural disassembly required. Bus ratings 1200 amperes UL and larger may require removal of barriers to gain access to the main bus connections.

Vertical Bus

Vertical bus shall be rated (300) (450) (600) amperes and shall be copper, tin-plated as standard, optional silver-plated when specified. Vertical bus shall be enclosed in a flame-retardant white polyester-glass "sandwich" which both insulates front and rear and isolates the individual vertical bus bars phase-to-phase. Small individual openings in the "sandwich" shall permit the entry of unit stabs such that the stabs plug into the vertical bus bars rather than onto them. The bottom of the vertical bus "sandwich" shall be barriered to prevent the entrance of foreign objects.

Bus Short-circuit Bracing

All power bus shall be braced to withstand a fault current of (65,000) (100,000) amperes RMS symmetrical.

Ground Bus

When specified an (aluminum) (copper) ground bus shall be provided full width at the bottom of the motor control center line-up. Ground bus will be drilled and lugs furnished as specified.

Neutral Bus

When specified, (half) (fully)-rated neutral bus shall be furnished continuous through the control center. Lugs of appropriate capacity will be furnished. Bottom plates shall be furnished when neutral bus is specified.

(cont. on page L-5)



GUIDE FORM SPECIFICATIONS

UNITS

Combination motor controller and feeder tap units shall employ (molded-case circuit breakers) (fusible switch with clips for _____ Type fuses) for branch circuit protection. Circuit breaker disconnects for combination motor starters shall be (thermal-magnetic) (magnetic only) (Spectra™ RMS sensing) type.

- A. All combination starter and feeder units of plug-in construction shall utilize a positive guidance system combined with a mechanical insertion method which ensures positive stabbing of the unit "wedge" stab assembly into the vertical riser bars. Connection of power wires to the "wedge" stabs shall be made with maintenance-free crimp connections.
- B. Each unit compartment shall be provided with an individual flange-formed pan-type door with quick-release, quarter-turn latches. The door shall be mounted on the (unit) (section) such that any individual unit may be withdrawn or inserted without disturbing adjacent units or without having to remove any hardware.
- C. The unit operating handle shall be of the vertical-lift type close-coupled to the unit disconnect so that positive indication of the position of the disconnect is visible with the unit door open or closed. Operation of the disconnect handle shall be mechanically interlocked so that with the door closed the interlock must be defeated to either open the door while the unit is energized, or with the door open, to energize the disconnect. The handle shall have padlocking provisions in the OFF position for up to three padlocks with the door opened or closed and shall have a drilling pattern available for adding a padlock in the ON position. On circuit breaker units the handle shall indicate the TRIPPED position in addition to ON, OFF and RESET positions.
- D. Means shall be provided for padlocking the unit in a partially withdrawn LOCKOUT position for unit or downstream maintenance. In the unit LOCKOUT position, the unit power stabs are disengaged from the vertical bus bars and no power can enter the unit.
- E. Combination starter units specified with Type B or C wiring shall contain pull-apart split-type control terminal blocks mounted along the right-hand side of the unit. In the LOCKOUT position all terminal blocks can be manually separated so that no foreign source of power can enter the unit. Combination starter units Size 1-4 up to 48 inches high shall be removable from the section without the need of disconnecting control leads to the terminals blocks.
- F. Overload relays shall be: (Ref. H-11)
 - 1) Bimetallic (ambient/non ambient compensated)
 - 2) Solid state, ambient insensitive, self-powered, including adjustable FLA, adjustable phase unbalance, phase loss protection, and selectable OL class (10, 20, 30), with accuracy and repeatability of 2%
 - 3) Advanced motor protection, microprocessor based, utilizing solid state circuit breaker technology to provide: ground fault protection, adjustable FLA settings, selectable phase loss/phase unbalance (on/off), selectable OL class (10,20,30). In addition to communications for remote monitoring of 3 phase amps and cause of trip diagnostics, an optional door mounted display will show all settings, metering information, and diagnostics. If specified, a control key pad will replace conventional push buttons and lights.

Starters shall have control power from: (Select A, B, C, and D)

- A. Individual control power transformers with one secondary lead furnished with a control fuse and the other secondary lead grounded. (Control power transformer primary fuses are required).
- B. Line-voltage control circuits on all circuit breaker and fusible switch combination starters shall be provided with current-limiting fuses mounted in both legs of the unit control circuit.
- C. Terminals for separate source control power. A control power fuse shall be provided and the other secondary lead will be grounded in the unit, plus the unit disconnect shall be equipped with a normally open contact to isolate the control circuit from the source when the controller disconnect is open.
- D. Pull-apart terminals for a separate source of control power, which removes all control through split-type terminal boards from the source of control by separating control terminal boards mounted within the unit. A control power fuse shall be provided and the other secondary lead will be grounded in the unit.

Starter units shall contain the following auxiliary devices. (List as required)

- A. Auxiliary starter interlocks _____ N/O, _____ N/C
- B. Door-mounted pilot devices: (Specify)
- C. Control/Timing relays: (Specify)
- D. Other accessories (Specify)

MISCELLANEOUS UNITS

Other units to be included in the motor control center(s): (List as required)

- A. Lighting and power transformers: _____ kVA phase _____ secondary volts.
- B. Lighting and distribution panelboards: ____ Type, No. of circuits _____, trip amperes per circuit _____.
- C. Metering panels and instrument transformers: _____ (Specify)
- D. Power-factor correction capacitors: _____ (Specify kvar rating)

OPTIONAL CONSTRUCTION FEATURES

Shutter Mechanism

Automatically covers stab area openings in the vertical bus when plug-in unit is withdrawn. This feature provides complete isolation of the vertical bus system.

Vertical Ground Bus

- A. Mounted to the steel support of the vertical bus assembly. A vertical ground bus stab mounted on each plug-in unit engages the vertical ground bus bar before the power stabs engage the vertical bus.
- B. Load vertical ground bus mounted in wireway with studs for terminating equipment ground cables.

Power-OFF Lock-Out Feature

Access to the unit racking screw is prohibited with the unit disconnect in the closed or ON position. Unit insertion or withdrawal cannot be achieved. With the unit disconnect in the OFF, position, access to the racking screw is permitted.

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