## Spectra Series™ and 8000-Line Motor Control Centers

### Specifications

**REQUISITION CHECKLIST**

<table>
<thead>
<tr>
<th>SC</th>
<th>MC</th>
<th>NORMAL CYCLE</th>
<th>NORMAL PLUS</th>
</tr>
</thead>
</table>

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.

<table>
<thead>
<tr>
<th>GE Requisition:</th>
<th>Item #:</th>
<th>UL and Canadian Requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>___ UL label as applicable (standard)</td>
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<tr>
<td></td>
<td></td>
<td>___ Must be UL (special)</td>
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<tr>
<td></td>
<td></td>
<td>___ UL Service Entrance label (MCC fed from utility)</td>
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<td></td>
<td></td>
<td>___ Must be CSA Certified (special)</td>
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</tbody>
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**Incoming Power and MCC Bus Requirements**

### Available Short-Circuit Symmetrical Amperes

<table>
<thead>
<tr>
<th>Amperes</th>
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</thead>
<tbody>
<tr>
<td>22,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25,000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>42,000</td>
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<td></td>
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<tr>
<td>65,000</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>100,000</td>
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</table>

### Bus Bracing in Symmetrical Amperes

<table>
<thead>
<tr>
<th>Amperes</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>42,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50,000</td>
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<td></td>
<td></td>
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<tr>
<td>65,000</td>
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</tr>
<tr>
<td>100,000</td>
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</tbody>
</table>

### Voltage and Frequency

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>208</td>
<td>600</td>
</tr>
<tr>
<td>240</td>
<td>50 Hz</td>
</tr>
<tr>
<td>380</td>
<td>60 Hz</td>
</tr>
<tr>
<td>400</td>
<td>3 phase, 3 wire</td>
</tr>
<tr>
<td>415</td>
<td>3 phase, 4 wire</td>
</tr>
<tr>
<td>480</td>
<td></td>
</tr>
</tbody>
</table>

### Terminal Board

**Main terminal board with lugs is UL listed with standard mechanical compression-type lugs. NEMA crimp-type lugs are listed in MCC.**

- Top or Bottom
- Left or Right
- 12" Hi Pullbox
- 1600 Amp
- 600 Amp
- 800 Amp
- 1000 Amp
- 1200 Amp 2" Bus
- 1200 Amp 4" Bus
- 1600 Amp 4" Bus (use 2000 amp bus for B to B)
- 2000 Amp 4" Bus (22" deep)
- 2500 Amp 4" Bus (22" deep—available in NEMA 1 enclosures only—vented @ top)
- 1600 Amp 4" Bus to match existing MCC △ (not UL listed)
- 2000 Amp 4" Bus to match existing MCC △ (not UL listed)
- △ (Furnish drawing number of existing for factory match)

### Lug Data

- Cables per phase
- Size (MCM)
- Standard Lugs
- NEMA Crimp Type

### Main Disconnect (fill in Lug Data Also)

**Circuit Breaker Type:**

- Top or Bottom &
- Left or Right
- w/Communications (PM)

**Frame amps:**

Fused Switch:

- Top or Bottom &
- HPC Switch (Class "L" fuses)
- Fuses supplied by others
- Fuses supplied with MCC (specify class)

Special accessories/metering:

### Copper Vertical Bus

- (Plating Same as Main Bus)
- Factory to size (standard)
- 300 Amp
- 450 Amp
- 600 Amp

### Ground Bus

- (Plating Same as Main Bus)
- 300 Amp
- 600 Amp
- Vertical ground (unit stab-on)
- Vertical ground (Load ground in wireway)
- Vertical ground bus is rated 150 amp

### Neutral Bus

**(required with 4 wire systems)**

- Bus is the same material as main bus.
- None
- Half neutral (standard)
- Full Neutral (special)

### Transitions

- to GE Transformer
- to GE Switchboard
- to GE Switchgear
- to GE Bus Duct

### Splice Bars:

- MCC #: ________________________
- Dwg #: ________________________
- Sht #: _________________________

### MCC Enclosure

**NEMA Type**

- For outdoor enclosures (see pg. 2) the MCC enclosure type is NEMA 1.
- 2 dripproof
- 1 gasketed
- 12 industrial
- Space heaters
- Thermostat
- Bottom plates (std. on NEMA 12)
- Seismic zone 1 & 2 bracing
- Seismic zone 3 & 4 bracing

**Section Depth**

- 13 inches (1200 Amp bus max.)
- 20 inches (2000 and 2500 Amp bus)
- 22 inches (2000 and 2500 Amp bus)
- Front access only
- Rear access available

**Larger Wireway**

- top
- bottom

If back-to-back is specified, the rear main bus cover is 12" (18" for the 4" main bus).

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.
## REQUISITION CHECKLIST (cont.)

<table>
<thead>
<tr>
<th>Requisition No.</th>
<th>Item #</th>
</tr>
</thead>
</table>

### NEMA Class Wiring Diagrams

For typical standard diagrams, see GET 6782A, section K (check one)  
- Class I A  
- Class II B-D (std)  
- Class II B-T  
- Class II C  

<table>
<thead>
<tr>
<th>Custom Drawings</th>
<th>Separately specify any special TB assembly and location.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Furnish customer elementaries)</td>
<td>The type “C” TB assembly is located in the larger wireway.</td>
</tr>
</tbody>
</table>

### Starter Unit Information

#### Starters with Circuit Breakers

<table>
<thead>
<tr>
<th>Interrupt rating of the combination @ 480V</th>
</tr>
</thead>
</table>
| Thermal magnetic  
  (THED type—25,000A)  
| Magnetic only (TEC type—25,000A)  
| Thermal magnetic, with Limiters  
  (THEDL type—100,000A)  
| SELT type—65/100,000A; 480V Max. |
| Magnetic only, with Limiters  
| Magnetic only, current-limiting CB  
| Thermal magnetic, current-limiting CB  
  (TECL type—100,000, 600V only) |

#### Overload Relays

| Standard  
| Ambient compensated  
| N.C. & N.O. (alarm) contacts  
| Provide heaters (installed) with MCC  
| Heaters to be provided by others  
| Heaters with MCC not installed  
  (Provided in units for field check/ installation) |

#### Control Terminal Boards

| Hi-Density pull-apart (6 point) (std)  
| 3 Point Draw-out |

#### 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 (control/power/both)  
| Ring terminals (control/power/both)  
| Power-off insertion and withdrawal  
| Vertical bus shutter for drawout units  
| Door Diagram (elementary)  
| OL Heater Table  
| Wiremarkers—control only  
| Wiremarkers—power and control |

#### Starter Control Voltage

| Line-to-Line (no CPT)  
| Line-to-Neutral (no CPT)  
| Common control (no CPT, external power)  
| Unit CPT (control power transformer, includes primary and secondary fuses)  
| Oversized CPT (Size 1 only)  
| 120V, 60 Hz.  
| 110V, 50 Hz.  
| 480V, ____ Hz. (special) |

### 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 (special)  
| 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 (standard)  
| With Taps (special)—allow more room than with standard transformer, specify % taps |

#### Lighting & Distribution Panelboards

| “A”-Series Lighting Panels:  
  | AQ—bolt in CB  
  | AL—plug in CB  
  | AE-TEY CB (3 phase, 4 wire only)  
  | AD-3 (3 phase, 3 wire)  
  | AMP Lighting panel main  
  (recommended @ 125% secondary amps)  
| Circuit panel (total circuits)  
| 20 amp CB  
| 15 amp CB |

#### Name Plates

| Master NP—2” x 6”  
| Unit NP—1” x 3” |
|-----------------|-----------------|
| Furnished NP engraved  
| No NP required  
| Provide blank NP  
| Furnished NP engraved  
| No NP required  
| Provide blank NP  |

#### Outdoor Enclosures—NEMA 3R

| Non-walk-in Type A (standard)  
| Non-walk-in Type B (special)  
| Walk-in  
| Common-aisle, walk-through  
| Non-walk-in, Back-to-back  
  (Refer to GET 6728 for dimensions)  
| High wind/Seismic construction (Heavy base, one-piece shipment)  
| Special features (describe): |

#### Other Special Modifications—Incoming Line Reactors, etc. (List Below)

| Special features (describe): |

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**NOTE:** Some coils are provided at line voltage (size 5 & 6, RVNR, etc. see GET 6728).
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 the 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.

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 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 barred to prevent the entrance of foreign objects.

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 barred 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 furnished 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) (Spectral™ 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 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.

F. Overload relays shall be: (Ref. H-11)
   1) Bimetallic (ambient/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. 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 terminals 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.

Starters 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:
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 stabs 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.