

CG100 CONTROLGUARD™

PROTECTION FOR MOTOR
CONTROL CENTER-FED LOADS
SUPPRESSION FILTER SYSTEM



Compatible with all Current Technology MasterPLAN® facility-wide suppression filter system products

TECHNICAL DATA SHEET

STANDARD MODEL NUMBERS

SELECTION TABLE 1 — MCC MFG/MCC TYPE

| Manufacturer/Type | Cat. # PREFIX | Description |
|---|----------------|-------------------------------------|
| Allen Bradley • Centerline | CG100-ABC4GS- | 3 phase 4 wire w/ground bus stab |
| | CG100-ABC3GS- | 3 phase 3 wire w/ground bus stab |
| Cutler-Hammer • Unitrol | CG100-CHU4GC- | 3 phase 4 wire w/ground bus contact |
| | CG100-CHU3GC- | 3 phase 3 wire w/ground bus contact |
| General Electric • 8000 Series | CG100-GE84GS- | 3 phase 4 wire w/ground bus stab |
| | CG100-GE84GC- | 3 phase 4 wire w/ground bus contact |
| | CG100-GE83GS- | 3 phase 3 wire w/ground bus stab |
| | CG100-GE83GC- | 3 phase 3 wire w/ground bus contact |
| Square D • Model 5 • Model 6 | CG100-SQD54GS- | 3 phase 4 wire w/ground bus stab |
| | CG100-SQD53GS- | 3 phase 3 wire w/ground bus stab |
| Siemens/TTE • Model 90 • Model 95 | CG100-ITE94GC- | 3 phase 4 wire w/ground bus contact |
| | CG100-ITE93GC- | 3 phase 3 wire w/ground bus contact |
| Cutler-Hammer/ Westinghouse • Series 2100 | CG100-W2A4GC- | 3 phase 4 wire w/ground bus contact |
| | CG100-W2A3GC- | 3 phase 3 wire w/ground bus contact |

SELECTION TABLE 2 — VOLTAGE/CONFIGURATION

| Cat. # SUFFIX | Voltage | Configuration | Cat. # SUFFIX | Voltage | Configuration |
|---------------|---------|---------------------------------|---------------|---------|---------------|
| WYE | | | DELTA | | |
| 120/208-3GY | 120/208 | Grounded Wye | 240-3D | 240 | Delta |
| 277/480-3GY | 277/480 | Grounded Wye | 480-3D | 480 | Delta |
| 347/600-3GY | 347/600 | Grounded Wye | 575-3D | 575 | Delta |
| 120/240-3GHD | 120/240 | Grounded Neutral High Leg Delta | 600-3D | 600 | Delta |

Single phase, ungrounded WYE, ungrounded DELTA and less common voltage configurations also available; other motor control configurations available. Contact factory, local Current Technology representative or authorized distributor for details.

To determine complete ControlGuard catalog number, identify manufacturer and type of motor control center; select prefix from PREFIX column in Selection Table 1; then add suffix from SUFFIX column in Selection Table 2. Example: General Electric 8000 Series; CG100-GE84GC-480-3D

SINGLE PULSE SURGE CURRENT CAPACITY

| Protection mode | Single pulse surge current capacity per mode |
|-------------------|--|
| Line-to-Neutral | > 100,000 A |
| Line-to-Ground | > 100,000 A |
| Neutral-to-Ground | > 100,000 A |
| Line-to-Line | > 100,000 A |
| Per Phase | > 200,000 A |

In compliance with NEMA LS 1-1992, paragraphs 2.2.7, 2.2.9 and 3.9, Current Technology suppression filter systems are single pulse surge current tested in every mode at currents up to 150% of the product design rating by an industry-recognized independent test laboratory. Single pulse surge current capacities of 200,000 amps or less are established by single-unit testing of all components within each mode. Due to present industry test equipment limitations, single pulse surge current capacities over 200,000 amps are established via testing of individual components or sub-assemblies within a mode.

REPETITIVE SURGE CURRENT CAPACITY

| Protection mode | Minimum tested impulses per mode |
|-------------------|----------------------------------|
| Line-to-Neutral | > 4,000 |
| Line-to-Ground | > 4,000 |
| Neutral-to-Ground | > 4,000 |
| Line-to-Line | > 4,000 |

Per ANSI/IEEE C62.41-1991 and ANSI/IEEE C62.45-1992, all Current Technology suppression filter systems are repetitive surge current capacity tested in every mode utilizing a 1.2 X 50 µsec 20KV open circuit voltage, 8 X 20 µsec 10 KA short circuit current Category C3 bi-wave at one minute intervals without suffering either performance degradation or more than 10% deviation of clamping voltage at a specified surge current.

TYPICAL CLAMPING VOLTAGE DATA

| Voltage | Protection mode | A3 Ringwave | B3 Ringwave | B3/C1 Comb.Wave | C3 Comb.Wave |
|-----------|-----------------|-------------|-------------|-----------------|--------------|
| 120 / 208 | L-N | 200 | 260 | 360 | 470 |
| | L-G | 340 | 365 | 355 | 530 |
| | N-G | 240 | 280 | 350 | 510 |
| | L-L | 360 | 475 | 675 | 800 |
| 277 / 480 | L-N | 460 | 580 | 825 | 950 |
| | L-G | 800 | 740 | 765 | 930 |
| | N-G | 500 | 535 | 775 | 1000 |
| | L-L | 795 | 1000 | 1545 | 1710 |

All Current Technology suppression filter systems clamping voltages are in compliance with test and evaluation procedures established in NEMA LS 1-1992, paragraphs 2.2.10 and 3.10. Values indicate typical clamping voltage data for models with integral fused disconnect.

MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV)

| Voltage | MCOV | Voltage | MCOV |
|---------|------|---------|------|
| 120V | 150V | 347V | 420V |
| 240V | 275V | 480V | 640V |
| 277V | 320V | 600V | 840V |

All Current Technology suppression filter systems maximum continuous operating voltages are in compliance with test and evaluation procedures outlined in NEMA LS 1-1992, paragraphs 2.2.6 and 3.6.

EMI/RFI NOISE REJECTION VALUES

| Multiple unit installation | Frequency | Single unit installation |
|----------------------------|-----------|--------------------------|
| 51 dB | 100 KHz | 34 dB |
| 94 dB | 1 MHz | 51 dB |
| 114 dB | 10 MHz | 54 dB |
| 120 dB | 100 MHz | 48 dB |

All Current Technology suppression filter systems EMI-RFI noise or attenuation rejection values are in compliance with test and evaluation procedures outlined in NEMA LS 1-1992, paragraphs 2.2.11 and 3.11.

MECHANICAL SPECIFICATIONS

| | |
|-----------------------------|---|
| Connection method | Parallel |
| Enclosure type/mount | NEMA size 1/MCC housing mount |
| Temperature operating range | -40°C to 60°C |
| Humidity operating range | 5% - 95% non-condensing |
| Dimensions | Varies depending on motor control center manufacturer |
| Weight | 50 lbs. |

STANDARD FEATURES

| | |
|--|--|
| Suppression filter technology | seamless technology™ |
| Internal construction | All suppression filter components are bolted to corrosion-resistant tin-plated copper bus bar |
| Fused Disconnect | Integral UL listed safety interlocked fused disconnect switch to enhance safety, reduce installation cost, improve performance, optimize reliability and permit system testing without interruption of facility power. Coordinated UL listed 200KAIC field replaceable Class J fuses for added convenience and safety. |
| Status indicators | Pilot light status indicators indicate suppression and overcurrent status |
| Display Event Counters | Provides ongoing tabulation of damaging or upsetting transients |
| Test point | Diagnostic ten mode test point allows easy DTS-2 Diagnostic Test Set connection |
| Standards | UL 1449-Second Edition, UL 1283, CSA, NEMA LS 1 |
| Warranty | Five Years |
| Options Include Double form "C" dry contacts (-FCC) and DTS-2 Diagnostic Test Set (-DTS) | |

CONTROLGUARD™ INSTALLATION INSTRUCTIONS

1. Voltage/System Verification

Prior to product installation, verify that the voltage rating of the intended electrical service matches the voltage rating of the unit to be installed. Verify that ControlGuard™ type and configuration are the same as the motor control center intended for ControlGuard installation. **Warning: serious injury or damage may result from installing a product with an improper voltage rating, incorrect type or configuration.** Contact Current Technology if voltage rating, type and configuration are not identical. For WYE connected systems, verify neutral-ground bond on secondary side of upstream distribution or service entrance transformer. **Warranty void if ControlGuard is connected to incorrect system configuration or if neutral-ground bond is not present in WYE configured systems.**

2. Installation Location

Install ControlGuard into motor control center per manufacturer's instructions.

3. Mounting

ControlGuard mounts into a standard NEMA 1 sized motor control center space. Follow manufacturer's instructions for bucket installation. ControlGuard will not feed any loads.

4. Electrical Connections

Before installing ControlGuard, measure voltage Line-to-Line, Line-to-Neutral, Line-to-Ground and Neutral-to-Ground to ensure that it does not exceed $\pm 10\%$ of the nominal rated voltage for the unit. Contact factory if these tolerances are exceeded. For some applications, a neutral conductor must be tapped from motor control center neutral bus or neutral conductor and connected to the neutral lug on the suppression filter system depending on motor control center voltage configuration. **Caution: B phase must be the high leg for high leg DELTA configured products installed on high leg DELTA systems.** Contact factory for other voltage configurations not listed on ControlGuard technical data sheet.

5. Display Event Counters

ControlGuard comes equipped with dual display event

counter(s) that measure the number of Line-to-Neutral and Line-to-Ground transients occurring in WYE configurations. For DELTA systems, a single counter measures Line-to-Line transients. To reset counters, remove connector on the back of each counter and short pins 1 and 3.

6. Remote Monitor Contacts Option

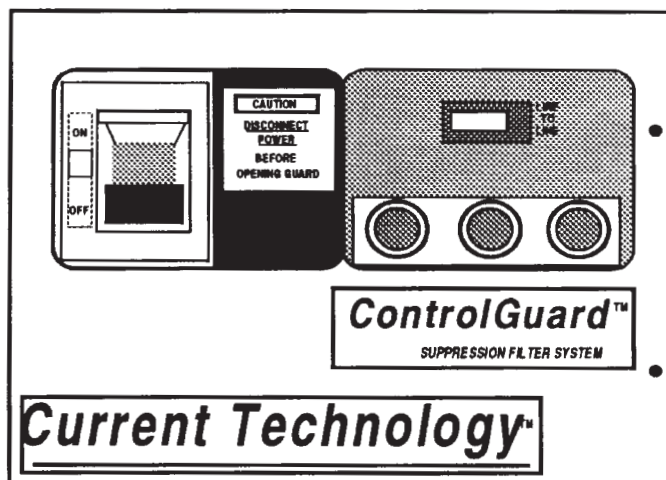
ControlGuard models are available with two sets of form "C" remote monitor dry contacts that may be connected to building management systems or remote annunciation alarm panels. To wire contacts, locate the output terminals mounted on the dry contact circuit board. Each set of contacts may be wired independently. Each set of form "C" contacts includes common (C), normally open (NO) and normally closed (NC) contacts. For normally open operation under energized conditions, connect the normally open terminal and common terminal to the monitoring input. For normally closed operation during energized conditions, connect the normally closed terminal and common terminal to the monitoring input. Upon loss of power to any or all phases, contacts will change to alarm state.

7. Final Instructions

If all voltages are in tolerance, apply power to ControlGuard by engaging the fused disconnect switch on front cover of unit. Illumination of status indicator lights indicates proper function.

8. Diagnostic Testing

In the unlikely event of unit's overcurrent protection opening, unit should be tested with a DTS-2 Diagnostic Test Set to verify operational integrity. To test, locate test point and disconnect from wiring harness. Follow DTS-2 Diagnostic Test Set instructions. If the test results are within factory specified tolerances, replace or reset overcurrent protection. **IF TEST RESULTS ARE NOT WITHIN FACTORY SPECIFIED TOLERANCES, DO NOT REPLACE OR RESET OVERCURRENT PROTECTION PRIOR TO CONTACTING CURRENT TECHNOLOGY'S "24X7" TECHNICAL SERVICE HOTLINE AT 1-888-200-6400.** Reconnect test point to wiring harness upon completion of testing and prior to re-energizing.



Current Technology
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