



GE Industrial Systems

Capacitor Voltage Monitoring Board IS200CVMBG_A_ _

These instructions do not purport to cover all details or variations in equipment, nor to provide every possible contingency to be met during installation, operation, and maintenance. If further information is desired, or if particular problems arise that are not covered sufficiently for the purchaser's purpose, the matter should be referred to GE Industrial Systems.

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Safety Symbol Legend



Warning

Indicates a procedure, practice, condition, or statement that, if not strictly observed, could result in personal injury or death.



Caution

Indicates a procedure, practice, condition, or statement that, if not strictly observed, could result in damage to or destruction of equipment.

Note Indicates an essential or important procedure, practice, condition, or statement.

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Functional Description

The IS200CVMB Capacitor Voltage Monitoring Board (CVMB) monitors the voltage across the dc link capacitors on Innovation Series™ drives. It provides secondary indication of voltage presence to persons that open the bridge cabinet doors. Three neon lamps (DS1, DS2, DS3) on the CVMB board blink when there is high voltage (>50 V dc) present on the dc bus. An attenuator network controls the neon lamps. These three neon lamps are located near the top edge of the CVMB board and are clearly visible when the bridge cabinet doors are opened (see Figure 1).

Replacement neon bulbs and bulb clips are available per the following part numbers:

- Bulb 68A7804P4
- Bulb Clip 68A944080P1



Warning

Bridge cabinet doors should not be opened when drive power is ON.

Application Data

The CVMB board has no fuses, testpoints, adjustable hardware, or connectors. The board mounts directly to the terminals of the dc power capacitor.

Mounting is via four through-plated mounting holes (E1 – E4, see Figure 1 and Table 1). No input power is required; the board dissipates approximately 3 to 5 W power.

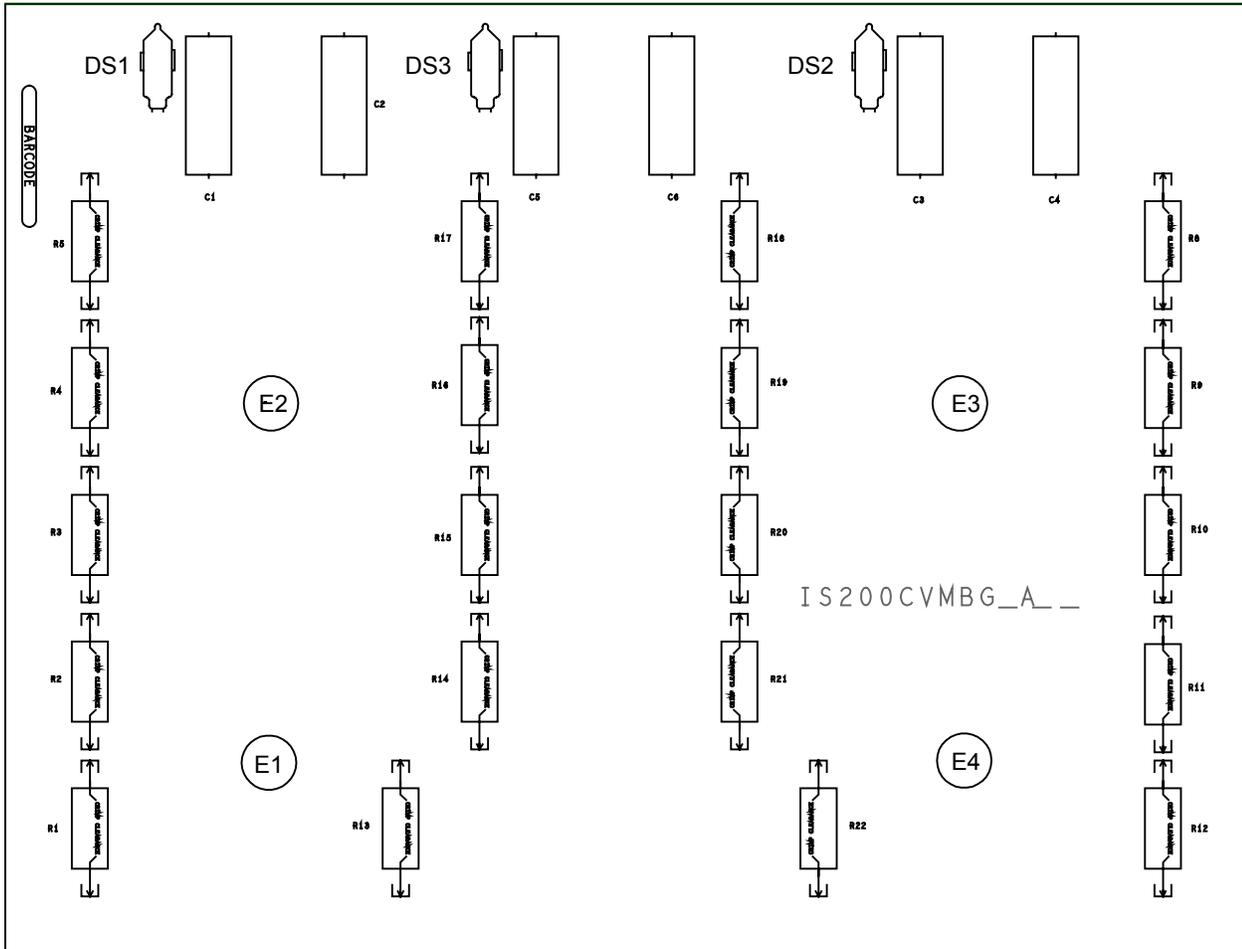


Figure 1. CVMB Board Layout Diagram

Table 1. CVMB Board Mounting Hole Connections

Mounting Point	Nomenclature	Description
E1	POS	4000 V dc Indicated by DS3 (relative to negative)
E2	NEU1	2000 V dc Indicated by DS1 (relative to negative)
E3	NEU2	2000 V dc Indicated by DS2 (relative to negative)
E4	NEG	Dc link negative

Renewal/Warranty Replacement

How to Order a Board

When ordering a replacement board for a GE drive, you need to know:

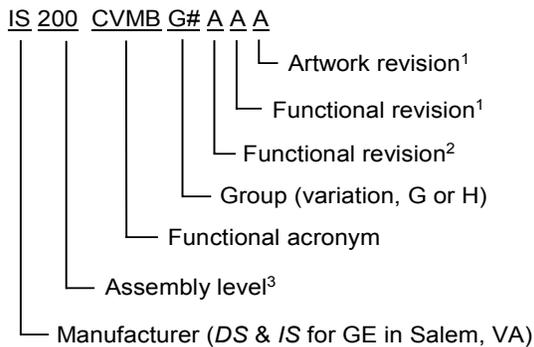
- How to accurately identify the part
- If the part is under warranty
- How to place the order

This information helps ensure that GE can process the order accurately and as soon as possible.

Board Identification

A printed wiring board is identified by an alphanumeric **part (catalog) number** located near its edge. Figure 2 explains the structure of the part number.

The board's functional acronym, shown in Figure 2, normally is based on the **board description**, or name. For example, the CVMB board is described as the Capacitor Voltage Monitoring Board.



¹Backward compatible

²Not backward compatible

³200 indicates a base-level board; 215 indicates a higher-level assembly or added components (such as PROM)

Figure 2. Board Part Number Conventions

Warranty Terms

The GE *Terms and Conditions* brochure details product warranty information, including **warranty period** and **parts and service coverage**. The brochure is included with customer documentation. It may be obtained separately from the nearest GE Sales Office or authorized GE Sales Representative.

Placing the Order

Parts still under **warranty** may be obtained directly from the factory:

GE Industrial Systems
Product Service Engineering
1501 Roanoke Blvd.
Salem, VA 24153-6492 USA
Phone: +1 540 387 7595
Fax: +1 540 387 8606

(Replace + with the international access code.)

Renewals (spares or those not under warranty) should be ordered by contacting the nearest GE Sales or Service Office. Be sure to include:

- Complete part number and description
- Drive serial number
- Drive Material List (ML) number

Note

All digits are important when ordering or replacing any board.

The factory may substitute later versions of boards based on availability and design enhancements. However, GE Industrial Systems ensures backward compatibility of replacement boards.

How to Replace the Board

Handling Precautions



Caution

To prevent component damage caused by static electricity, treat all boards with static sensitive handling techniques. Wear a wrist grounding strap when handling boards or components, but only after boards or components have been removed from potentially energized equipment and are at a normally grounded workstation.

Printed wiring boards may contain static-sensitive components. Therefore, GE ships all replacement boards in antistatic bags.

Use the following guidelines when handling boards:

- Store boards in antistatic bags or boxes.
- Use a grounding strap when handling boards or board components (per previous *Caution* criteria).

Replacement Procedures



Warning

Bridge cabinet doors should not be opened when drive power is ON.



Warning

To prevent electric shock, turn off power to the board, then test to verify that no power exists in the board before touching it or any connected circuits.



Caution

To prevent equipment damage, do not remove, insert, or adjust board connections while power is applied to the equipment.

Replace the CVMB board as follows:

1. Make sure that the drive in which the board resides has been de-energized and follow all local safety practices of Lock-Out/Tag-Out.

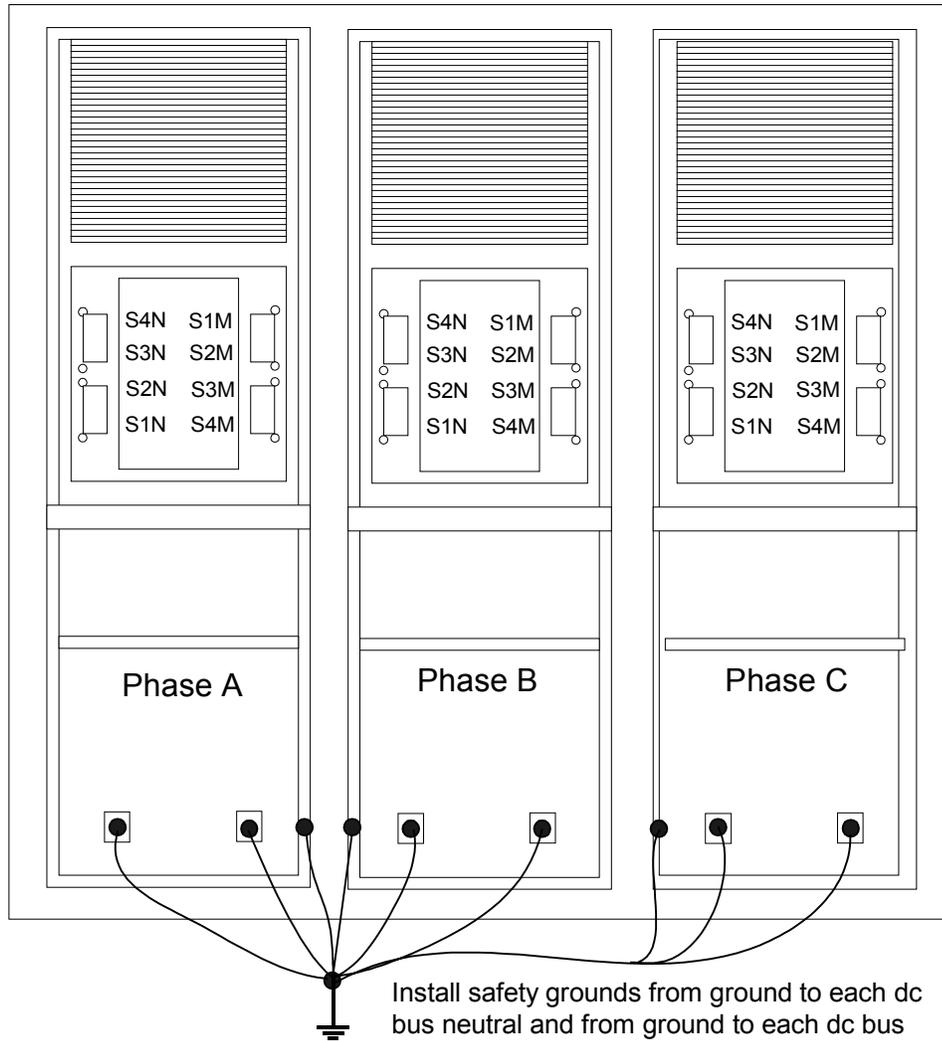
2. Open the bridge cabinet doors and verify that the neon lamps on the CVMB board have gone out, indicating that voltage is below 50 V dc.
3. Install safety grounds (see Figure 3) and, using equipment designed for high voltages, test any electrical circuits **before touching them** to ensure that power is OFF and has dissipated.
4. Remove the two nylon nuts from the standoffs at the top of the board.
5. Remove the four nuts with washers, at the eyelet connections, that secure the CVMB board to the dc power capacitor terminals. (See Figure 1 for the four board eyelet connection/nut locations).



Caution

Avoid dropping mounting hardware into the unit, which could cause damage.

6. Remove the old CVMB board from the dc power capacitor terminals.
7. Orient the new CVMB board in the same position as the one removed, install it onto the two plastic standoffs and the four dc power capacitor terminals
 - Secure the CVMB board to the dc power capacitor terminals with the nuts and washers removed in step 5 and fully tighten.
 - Place the two nylon nuts removed in step 4 onto the plastic standoffs at the top of the board and fully tighten.
8. Remove the safety grounds that were installed in step 3, then close the bridge cabinet doors.



Install safety grounds from ground to each dc bus neutral and from ground to each dc bus (positive and negative) to ensure that the bus capacitors are shorted.

Figure 3. Dc Bus Safety Grounding

Notes:



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