



# GE Industrial Systems

## Phase Leg Flash Protection Board IS200CPFXG\_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.

### Contents

Functional Description .....	1
Application Data .....	2
Renewal/Warranty Replacement .....	4
How to Order a Board.....	4
How to Replace the Board.....	5

### Functional Description

The IS200CPFX Phase Leg Flash Protection Board (CPFX) is used in Innovation Series™ drives to isolate the power supply for the IS200PICH Phase Interface and Control Board (PICH). The CPFX board isolates the power for one phase leg from the other phase legs. It includes one isolation transformer (T1) and two connectors (J1, J2). There is one CPFX board per phase leg and one IS200CPFP Control Power Flash Protection Board (CPFP) per bridge. Separate outputs from the CPFP board connect to each CPFX board. (See Figure 1 for functional diagram.)

No chassis or earth grounds are present on the CPFX board. The CPFX board floats at the neutral potential of the phase leg that it is connected to. The shield lead in the transformer is connected to the return path of the primary voltage at connector J1, pin 3. The primary side of the transformer is referenced to ground via high voltage resistors present on the CPFP board.



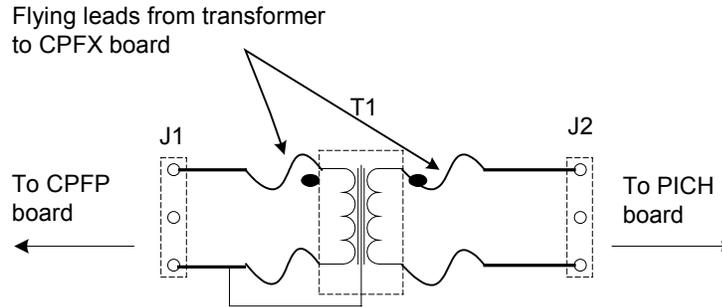
**Warning**

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

## Application Data

The CPFX board has no fuses, user adjustable hardware, LED indicators, or testpoints. The board has two plug connectors. See Figure 2 for a CPFX board layout diagram, which shows the locations of these components and the following tables for descriptions:

Table	Description
1	Plug connector J1
2	Plug connector J2



T1 transformer: 8 kV isolation primary to secondary, 27 kHz operating frequency. Floating control power is derived from the distributed 50 V ac, 27 kHz supply by T1

Figure 1. CPFX Board Functional Diagram

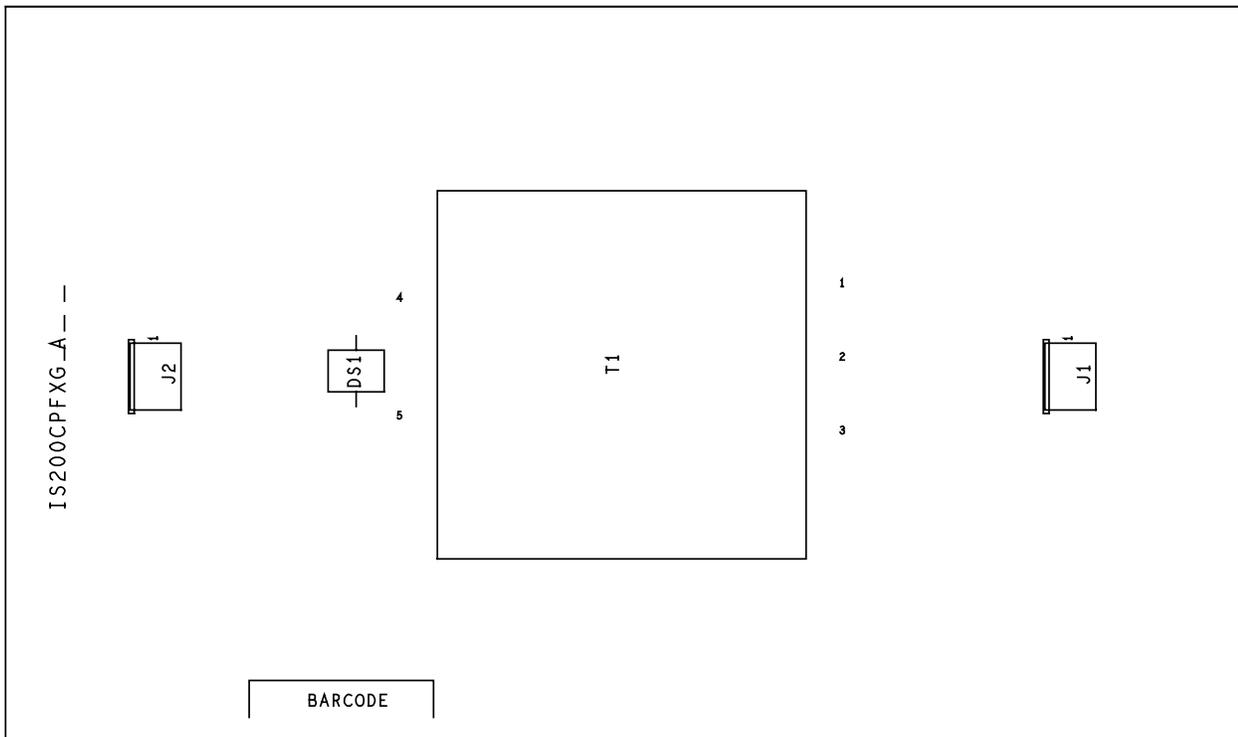


Figure 2. CPFX Board Layout Diagram

Table 1. CPFY Board Connector J1 (Interface with CPFP Board)

Pin #	Nomenclature	Description
J1-1	HF1HV	High Frequency (50 V ac, 27 kHz) Power Supply Input to CPFP Board (Primary Side)
J1-2	N/C	Not Connected
J1-3	HF2HV	High Frequency (50 V ac, 27 kHz) Power Supply Return from CPFP Board (Primary Side)

Table 2. CPFY Board Connector J2 (Interface with PICH Board)

Pin #	Nomenclature	Description
J2-1	HF1HVX	High Frequency (50 V ac, 27 kHz) Power Supply Input from PICH Board (Secondary Side)
J2-2	N/C	Not Connected
J2-3	HF2HVX	High Frequency (50 V ac, 27 kHz) Power Supply Return to PICH Board (Secondary Side)

## Renewal/Warranty Replacement

### How to Order a Board

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

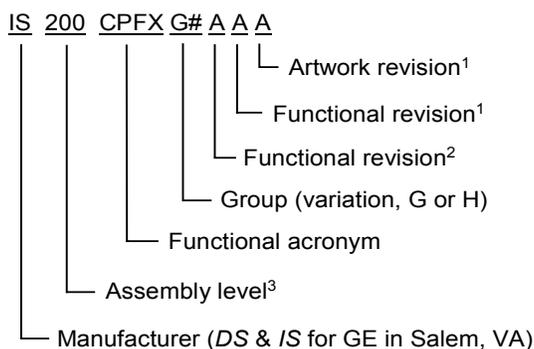
- How to accurately identify the part
- If the part is under warranty
- How to place the order

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 3 explains the structure of the part number.

The board's functional acronym, shown in Figure 3, normally is based on the **board description**, or name. For example, the CPFX board is described as the Phase Leg Flash Protection Board.



<sup>1</sup>Backward compatible

<sup>2</sup>Not backward compatible

<sup>3</sup>200 indicates a base-level board; 215 indicates a higher-level assembly or added components (such as PROM)

Figure 3. 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 above *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.

Remove the CPFX 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 IS200CVMB Capacitor Voltage Monitoring Board have gone out, indicating that voltage is below 50 V dc.
3. Install safety grounds (see Figure 4) and, using equipment designed for high voltages, test any electrical circuits **before touching them** to ensure that power is OFF and has dissipated.
4. Carefully disconnect all cables from the CPFX board to be replaced as follows:
  - Verify cables are labeled with the correct connector name (as marked on the board) to simplify reconnection.
  - For cables with pull-tabs, carefully pull the tab.



#### Caution

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

5. Compress (inward) each of the four plastic snaps that hold the board in place to release the board.

Install the new (replacement) CPFX board as follows:

1. Orient the board in the same position as the board that was removed.
2. Press the CPFX board onto the four plastic stand-offs, ensuring that all holders snap into position to secure in the board in place.
3. Reconnect all electrical connections that were disconnected in step 4 of *removing the board*.
4. Remove the safety grounds that were installed in step 3 of *removing the board*, then close the bridge cabinet doors.

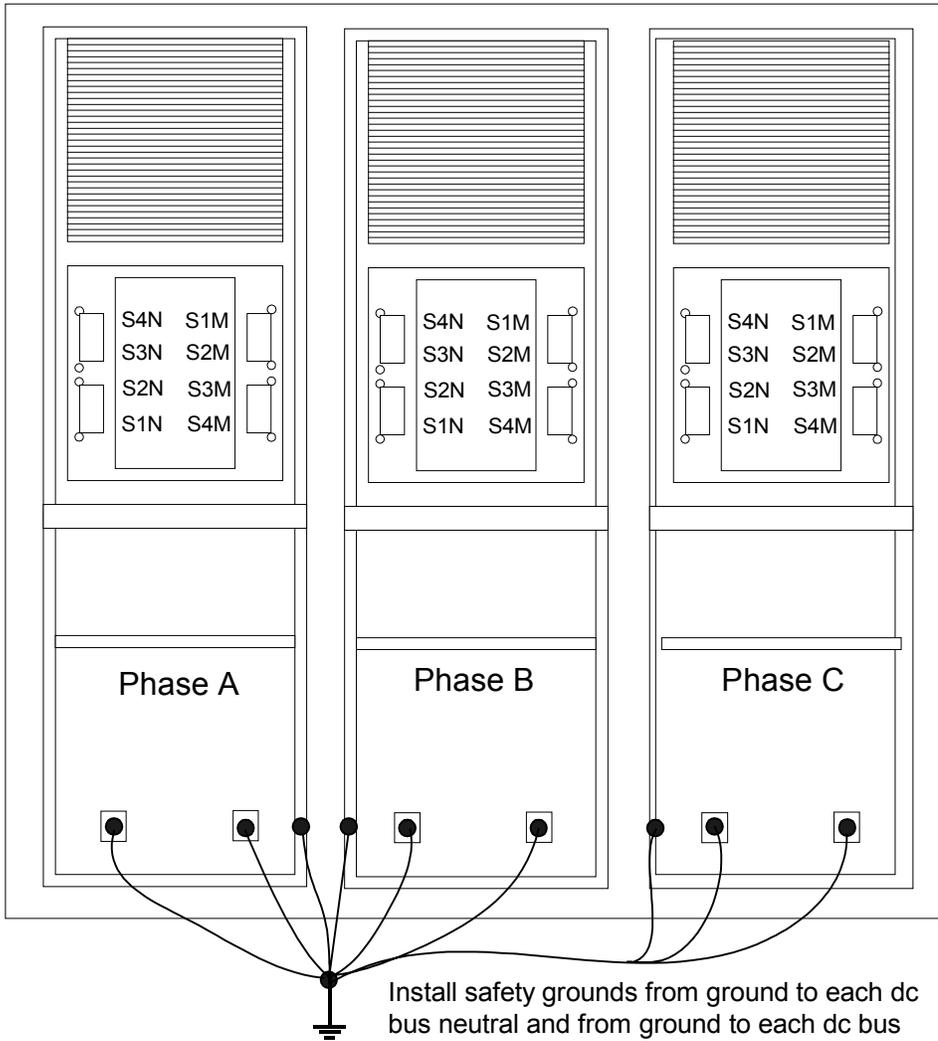


Figure 4. Dc Bus Safety Grounding



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