Phase Leg Flash Protection Board
IS200CPFXG_A_ _

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

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.

Innovation Series is a trademark of General Electric Company, USA.
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>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plug connector J1</td>
</tr>
<tr>
<td>2</td>
<td>Plug connector J2</td>
</tr>
</tbody>
</table>

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. CPFX Board Connector J1 (Interface with CPFP Board)

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

### Table 2. CPFX Board Connector J2 (Interface with PICH Board)

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

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.

Figure 3. Board Part Number Conventions
How to Replace the Board

Handling Precautions

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.

Caution

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.
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 4. Dc Bus Safety Grounding