



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-IS200JPDFG1A

Test Procedure for an IS2020JPDFG01 Power Distribution Module.

DOCUMENT REVISION STATUS: Determined by the last entry in the "REV" and "DATE" column

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	J. Francis	06/27/2012

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PREPARED BY J. Francis	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL <i>Charlie Wade</i>
DATE 06/27/2012	DATE	DATE	DATE 6/27/2012

1. SCOPE

- 1.1 This is a functional testing procedure for an **IS200JPDFG1Axx** MARK VIe DC Power Distribution Module.

2. STANDARDS OF QUALITY

- 2.1 Refer to the current revision of the IPC-A-610 standard for workmanship standards.

3. APPLICABLE DOCUMENTS

- 3.1 The following document(s) shall form part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue shall apply.
- 3.1.1 Check board's electronic folder for more information.

4. ENGINEERING REQUIREMENTS

- 4.1 Equipment Cleaning
- 4.1.1 Equipment should be clean and free of debris prior to applying power unless performing an initial check. Refer to site specific SRA's for cleaning guidelines.
- 4.2 Equipment Inspection
- 4.2.1 Equipment should be visually inspected for any defects prior to applying power. This inspection should include the following as a minimum:
- 4.2.1.1 Wires - broken, cracked, or loosely connected
 - 4.2.1.2 Terminal strips / connectors - broken or cracked
 - 4.2.1.3 Components - visually damaged
 - 4.2.1.4 Capacitors - bloated or leaking
 - 4.2.1.5 Solder joints - damaged or cold
 - 4.2.1.6 Circuit board - burned or de-laminated
 - 4.2.1.7 Printed wire runs / Traces - burned or damaged

5. EQUIPMENT REQUIRED

- 5.1 The following equipment is required to perform the process requirements. Equipment may be substituted provided that all accuracy's and test ratios are equivalent or better.

Qty	Reference #	Description
1		Fluke 87 DMM (or Equivalent)
2		Tenma Dual Output Power Supply (or Equivalent)

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6. TESTING PROCESS

6.1 Setup Procedure

- 6.1.1.1 Turn switches SW1R, SW1S, and SW1T off at this time.
- 6.1.1.2 Turn switches SW7X, SW7Y, and SW7Z off at this time.
- 6.1.1.3 Remove all Fuses and Fuse Caps. While the Fuses are out, using Fluke 87 DMM (or Equivalent), set to measure Resistance, check to make sure that there is less than 5 Ohms of resistance across each Fuse.
- 6.1.1.4 Install jumper across JP1.
- 6.1.1.5 Reinstall all Fuses and Fuse Caps in correct Fuse Holders.

6.2 Testing Procedure

6.2.1 Static checks for connections between connectors P1 and P2

- 6.2.1.1 This portion of the test will verify continuity between connectors P1 and P2 connections on sheet 7 of the IS200JPDF schematic. Using the breakout connectors will reduce the time required to perform this portion of the test. If preferred, use table in step 8 of this procedure to perform this portion of the test.
- 6.2.1.2 Using the 50 pin breakout connectors, labeled "P1" and "P2" in the "IS200JPDB" test cables box, connect each connector to the corresponding plug on the unit under test (UUT).
- 6.2.1.3 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from breakout connector P1-9 to breakout connector P2-49. Reading should be less than 5 Ohms +/- 2.5 Ohms.
- 6.2.1.4 Remove the breakout connectors from P1 and P2.

6.2.2 Static check for connections between connectors JAF1, JZ2, and JZ3

- 6.2.2.1 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JAF1-1 to JZ2-1. Reading should be less than 5 Ohms +/- 2.5 Ohms.
- 6.2.2.2 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JAF1-2 to JZ2-3. Reading should be less than 5 Ohms +/- 2.5 Ohms.
- 6.2.2.3 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JAF1-4 to JZ3-1. Reading should be less than 5 Ohms +/- 2.5 Ohms.
- 6.2.2.4 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JAF1-5 to JZ3-3. Reading should be less than 5 Ohms +/- 2.5 Ohms.
- 6.2.2.5 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JZ2-7 to JZ3-7. Reading should be less than 5 Ohms +/- 2.5 Ohms.

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6.2.2.6 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JZ2-10 to JZ3-10. Reading should be less than 5 Ohms +/- 2.5 Ohms.

6.2.2.7 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JZ2-9 to JZ3-9. Reading should be less than 5 Ohms +/- 2.5 Ohms.

6.2.2.8 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JZ2-12 to JZ3-12. Reading should be less than 5 Ohms +/- 2.5 Ohms.

6.2.3 Remaining Static checks

6.2.3.1 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JD1-1 to eyelet E1. Reading should be 82.5K Ohms +/- 5K Ohms.

6.2.3.2 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JD1-3 to eyelet E3. Reading should be 82.5K Ohms +/- 5K Ohms.

6.2.3.3 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JD1-2 to eyelet HW1 (PDC PROBE). Reading should be 100K Ohms +/- 5K Ohms.

6.2.3.4 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from JD1-4 to eyelet HW2 (NDC PROBE). Reading should be 100K Ohms +/- 5K Ohms.

6.2.3.5 Using Fluke 87 DMM (or Equivalent), set to measure Resistance; verify continuity between eyelets E1 through E7.

6.2.3.6 Using Fluke 87 DMM (or Equivalent), set to measure Resistance; check for continuity from P1-1 to eyelet P1-49.

6.2.4 Functional Testing

6.2.4.1 Connect +5 VDC to P1-50 and +5 VDC Return to P1-1.

6.2.4.2 Connect +125 VDC to JD1-1 and +125 VDC Return to JD1-3.

6.2.4.3 Connect +125 VDC to JD1-6 and +125 VDC Return to JD1-7.

6.2.4.4 Connect +125 VDC to JD1-8 and +125 VDC Return to JD1-9.

6.2.4.5 Turn on +5 VDC and +125 VDC Power Supplies.

6.2.4.6 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J7-1 with positive lead of Multimeter to J7-2 with negative lead of Multimeter. Reading should be +125 VDC.

6.2.4.7 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J12-1 with positive lead of Multimeter to J12-2 with negative lead of Multimeter. Reading should be +125 VDC.

6.2.4.8 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J8A-1 with positive lead of Multimeter to J8A-2 with negative lead of Multimeter. Reading should be +125 VDC.

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6.2.4.9 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J8B-1 with positive lead of Multimeter to J8B-2 with negative lead of Multimeter. Reading should be +125 VDC.

6.2.4.10 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-6 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be +1.4 VDC +/-0.3VDC.

6.2.5 J1R, J1S, and J1T Circuits

6.2.5.1 Make sure Switches SW1R, SW1S, and SW1T are turned OFF.

6.2.5.2 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J1R-1 with positive lead of Multimeter to J1R-2 with negative lead of Multimeter. Reading should be +0 VDC.

6.2.5.3 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be 0 VDC.

6.2.5.4 Turn Switch SW1R ON.

6.2.5.5 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J1R-1 with positive lead of Multimeter to J1R-2 with negative lead of Multimeter. Reading should be +125 VDC.

6.2.5.6 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be +.8 VDC +/-0.3 VDC.

6.2.5.7 Turn Switch SW1R OFF.

6.2.5.8 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J1S-1 with positive lead of Multimeter to J1S-2 with negative lead of Multimeter. Reading should be +0 VDC.

6.2.5.9 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be 0 VDC.

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6.2.5.10 Turn Switch SW1S ON.

6.2.5.11 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J1S-1 with positive lead of Multimeter to J1S-2 with negative lead of Multimeter. Reading should be +125 VDC.

6.2.5.12 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be +.5 VDC +/- .3 VDC.

6.2.5.13 Turn Switch SW1S OFF.

6.2.5.14 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J1T-1 with positive lead of Multimeter to J1T-2 with negative lead of Multimeter. Reading should be +0 VDC.

6.2.5.15 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be 0 VDC.

6.2.5.16 Turn Switch SW1T ON.

6.2.5.17 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J1T-1 with positive lead of Multimeter to J1T-2 with negative lead of Multimeter. Reading should be +125 VDC.

6.2.5.18 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be +.3 VDC +/- .2 VDC.

6.2.5.19 Turn Switch SW1T OFF.

6.2.5.20 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be 0 VDC.

6.2.5.21 Turn ON Switch SW1T.

6.2.5.22 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be .3 VDC +/- .2 VDC.

6.2.5.23 Turn ON Switch SW1S.

6.2.5.24 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be .8 VDC +/- .3 VDC.

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6.2.5.25 Turn ON Switch SW1R.

6.2.5.26 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-4 with positive lead of Multimeter to P1-1 with negative lead of Multimeter.
Reading should be +1.4 VDC +/-0.3 VDC.

6.2.6 J7R, J7Y, and J7Z Circuits

6.2.6.1 Make sure Switches SW7R, SW7S, and SW7T are turned OFF.

6.2.6.2 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J7R-1 with positive lead of Multimeter to J7R-2 with negative lead of Multimeter.
Reading should be +0 VDC.

6.2.6.3 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter.
Reading should be 0 VDC.

6.2.6.4 Turn Switch SW7R ON.

6.2.6.5 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J7R-1 with positive lead of Multimeter to J7R-2 with negative lead of Multimeter.
Reading should be +125 VDC.

6.2.6.6 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter.
Reading should be +.8 VDC +/-0.3 VDC.

6.2.6.7 Turn Switch SW7R OFF.

6.2.6.8 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J7S-1 with positive lead of Multimeter to J7S-2 with negative lead of Multimeter.
Reading should be +0 VDC.

6.2.6.9 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter.
Reading should be 0 VDC.

6.2.6.10 Turn Switch SW7S ON.

6.2.6.11 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J7S-1 with positive lead of Multimeter to J7S-2 with negative lead of Multimeter.
Reading should be +125 VDC.

6.2.6.12 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter.
Reading should be +.5 VDC +/-0.3 VDC.

6.2.6.13 Turn Switch SW7S OFF.

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6.2.6.14 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J7T-1 with positive lead of Multimeter to J7T-2 with negative lead of Multimeter. Reading should be +0 VDC.

6.2.6.15 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be 0 VDC.

6.2.6.16 Turn Switch SW7T ON.

6.2.6.17 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from J7T-1 with positive lead of Multimeter to J7T-2 with negative lead of Multimeter. Reading should be +125 VDC.

6.2.6.18 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be +.3 VDC +/- .2 VDC.

6.2.6.19 Turn Switch SW7T OFF.

6.2.6.20 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be 0 VDC.

6.2.6.21 Turn ON Switch SW7T.

6.2.6.22 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be .3 VDC +/- .2 VDC.

6.2.6.23 Turn ON Switch SW7S.

6.2.6.24 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be .8 VDC +/- .3 VDC.

6.2.6.25 Turn ON Switch SW7R.

6.2.6.26 Using Fluke 87 DMM (or Equivalent), set to measure DC Voltage, measure from P1-5 with positive lead of Multimeter to P1-1 with negative lead of Multimeter. Reading should be +1.4 VDC +/- .3 VDC.

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6.2.7 CHIP ID: The ID chip needs to be read to confirm that it has been programmed properly. Take the card over to the CHIP ID pc located in the MARK VI area of the shop and select the correct revision of IS200JPDF from the menu and follow the instructions given to you by the pc. When selecting which IS200JPDF to use, you may see a 5G or 7G next to the number. This refers to the serial number and whether it has 5 or 7 digits in it. Select the proper one, as you will be expected to type this number into the system at a given point. When entering this data, be sure to use all CAPITAL LETTERS as lower case might cause it not to agree with what's programmed in the chip. If the particular revision you need to select doesn't have a 5G or 7G next to it, get it added before proceeding.

6.3 *TEST COMPLETE *****

7. NOTES

7.1 None at this time.

8. ATTACHMENTS

From:	To:	Expected Result:
P1-9	P2-1	<10 Ohms
P1-11	P2-3	<10 Ohms
P1-13	P2-5	<10 Ohms
P1-15	P2-7	<10 Ohms
P1-17	P2-9	<10 Ohms
P1-19	P2-11	<10 Ohms
P1-21	P2-13	<10 Ohms
P1-23	P2-15	<10 Ohms
P1-25	P2-17	<10 Ohms
P1-27	P2-19	<10 Ohms
P1-29	P2-21	<10 Ohms
P1-31	P2-23	<10 Ohms
P1-33	P2-25	<10 Ohms
P1-35	P2-27	<10 Ohms
P1-37	P2-29	<10 Ohms
P1-39	P2-31	<10 Ohms
P1-41	P2-33	<10 Ohms
P1-43	P2-35	<10 Ohms
P1-45	P2-37	<10 Ohms
P1-47	P2-39	<10 Ohms
P1-47	P2-47	<10 Ohms
P1-49	P2-49	<10 Ohms
P1-10	P2-2	<10 Ohms
P1-12	P2-4	<10 Ohms
P1-14	P2-6	<10 Ohms

Continued on next page.

From:	To:	Expected Result:
P1-16	P2-8	<10 Ohms
P1-18	P2-10	<10 Ohms
P1-20	P2-12	<10 Ohms
P1-22	P2-14	<10 Ohms
P1-24	P2-16	<10 Ohms
P1-26	P2-18	<10 Ohms
P1-28	P2-20	<10 Ohms
P1-30	P2-22	<10 Ohms
P1-32	P2-24	<10 Ohms
P1-34	P2-26	<10 Ohms
P1-36	P2-28	<10 Ohms
P1-38	P2-30	<10 Ohms
P1-40	P2-32	<10 Ohms
P1-42	P2-34	<10 Ohms
P1-44	P2-36	<10 Ohms
P1-46	P2-38	<10 Ohms
P1-48	P2-40	<10 Ohms
P1-48	P2-48	<10 Ohms
P1-50	P2-50	<10 Ohms