



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-IS200STCIH4A

Test Procedure for a IS200STCIH4A

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DATE 3/7/2013	DATE	DATE	DATE 3/8/2013

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1. SCOPE

1.1 This is a functional testing procedure for a Din Rail Contact Input Card.

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	Multi-meter
2	Tenma 72-2080	Power supply capable of more than 70VDC

6. Modifications/Upgrades

6.1 Check Orange Book for any modifications or upgrades.

7. Testing Process

7.1 Setup

7.1.1 Set test power supply to the minimum current setting possible. It will be used to test diodes and we don't want them to be damaged by high current.


7.2 Testing Procedure

7.2.1 Use the Tenma power supply to test the breakdown voltage of the TVS diodes in the following list. Check them in both directions turning up the power after connections are made. There is a parts location image in the notes section.

TB1-2	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-4	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-6	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-8	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-10	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-12	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-14	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-16	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-18	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-20	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-22	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-24	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-26	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-28	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-30	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-32	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-34	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-36	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-38	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-40	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-42	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-44	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-46	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
TB1-48	SCOM-E1\E2	Should conduct at 70 VDC +/- 3VDC in both directions
JA1-30	SCOM-E1\E2	Trips oc at 80-85 VDC if shorted check D17,20,27

7.2.2 Perform the resistance checks in the following tables. Check the resistance of your meter leads so that the low resistance values don't appear to be failures.

TB1-1	TB1-17	Less than 1 ohm
TB1-1	TB1-15	Less than 1 ohm
TB1-1	TB1-13	Less than 1 ohm
TB1-1	TB1-11	Less than 1 ohm
TB1-1	TB1-9	Less than 1 ohm
TB1-1	TB1-7	Less than 1 ohm
TB1-1	TB1-5	Less than 1 ohm
TB1-1	TB1-3	Less than 1 ohm
TB1-1	TB1-37	Less than 1 ohm
TB1-1	TB1-39	Less than 1 ohm
TB1-1	TB1-41	Less than 1 ohm
TB1-1	TB1-43	Less than 1 ohm
TB1-1	TB1-45	Less than 1 ohm
TB1-1	TB1-47	Less than 1 ohm
TB1-1	TB1-49	1 ohm +/-10%
TB1-1	TB1-50	1 ohm +/-10%
TB1-1	JE1-1	1 ohm +/-10%
TB1-1	JA1-32	248k ohms +/- 1%
TB1-2	JA1-3	316k ohms +/- 1%
TB1-4	JA1-4	316k ohms +/- 1%
TB1-6	JA1-5	316k ohms +/- 1%
TB1-8	JA1-6	316k ohms +/- 1%
TB1-10	JA1-7	316k ohms +/- 1%
TB1-12	JA1-8	316k ohms +/- 1%
TB1-14	JA1-9	316k ohms +/- 1%
TB1-16	JA1-10	316k ohms +/- 1%
TB1-18	JA1-11	316k ohms +/- 1%
TB1-20	JA1-12	316k ohms +/- 1%
TB1-22	JA1-13	316k ohms +/- 1%
TB1-24	JA1-14	316k ohms +/- 1%
TB1-26	JA1-15	316k ohms +/- 1%
TB1-28	JA1-16	316k ohms +/- 1%
TB1-30	JA1-22	316k ohms +/- 1%
TB1-32	JA1-23	316k ohms +/- 1%

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TB1-34	JA1-24	315K ohms +\ - 1%
TB1-36	JA1-25	315K ohms +\ - 1%
TB1-38	JA1-26	315K ohms +\ - 1%
TB1-40	JA1-27	315K ohms +\ - 1%
TB1-42	JA1-28	315K ohms +\ - 1%
TB1-44	JA1-29	315K ohms +\ - 1%
TB1-46	JA1-34	315K ohms +\ - 1%
TB1-48	JA1-35	315K ohms +\ - 1%
TB1-51	TB1-52	Less than 1 ohm
TB1-51	JE1-3	Less than 1 ohm
TB1-51	JA1-30	Less than 2 ohms
TB1-19	TB1-21	Less than 1 ohm
TB1-19	TB1-23	Less than 1 ohm
TB1-19	TB1-25	Less than 1 ohm
TB1-19	TB1-27	Less than 1 ohm
TB1-19	TB1-29	Less than 1 ohm
TB1-19	TB1-31	Less than 1 ohm
TB1-19	TB1-33	Less than 1 ohm
TB1-19	TB1-35	Less than 1 ohm
E1	E2	Less than 1 ohm
TB1-52	JA1-30	1 ohm +/-10%
JE1-1	TB1-49	1 ohm +/-10%

7.2.3 Check the capacitors in the following table with the Fluke meter set to capacitor check.

C5	Resistor in location	4.4 Ohms +/-10%
C9	Resistor in location	4.4 Ohms +/-10%
C13	Resistor in location	4.4 Ohms +/-10%
C17		5.7uf +/- .02
C21		5.7uf +/- .02
C1		.093uf +/- .01
C2		5.7uf +/- .02
C6		5.7uf +/- .02
C10		5.7uf +/- .02
C14		5.7uf +/- .02
C18		5.7uf +/- .02
C22		5.7uf +/- .02
C24		5.7uf +/- .02
C4		5.7uf +/- .02
C8		5.7uf +/- .02
C12		5.7uf +/- .02
C16		5.7uf +/- .02
C20		5.7uf +/- .02
C3		5.7uf +/- .02
C7		5.7uf +/- .02
C11		5.7uf +/- .02
C15		5.7uf +/- .02
C19		5.7uf +/- .02
C23		5.7uf +/- .02
C25		5.7uf +/- .02
C27		.093uf +/- .01

7.2.4 Test the remaining resistors that could not be checked with connector measurements.

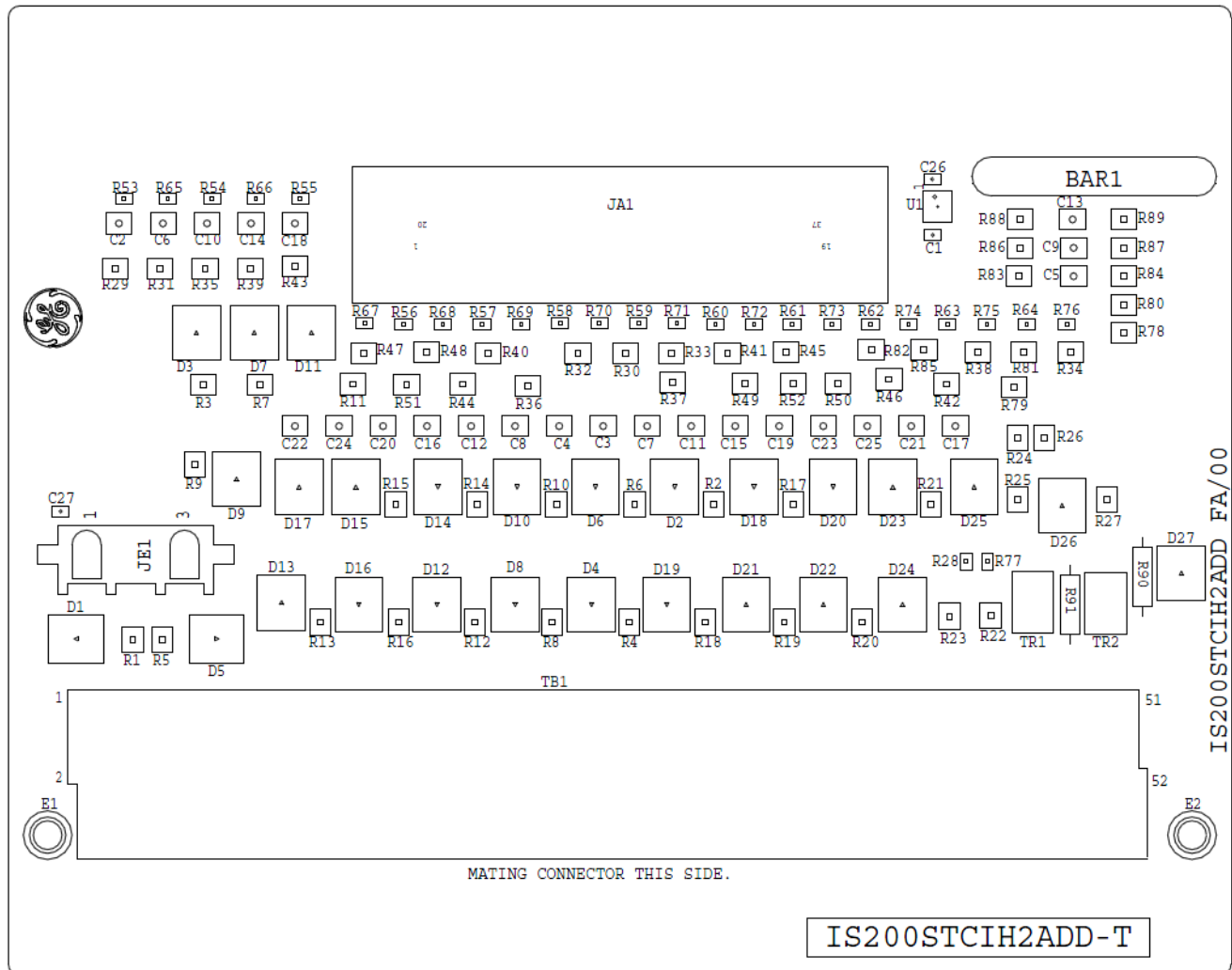
R83	3.7K ohm +\ - 1%
R84	3.7K ohm +\ - 1%
R86	3.7K ohm +\ - 1%
R87	2.7K ohm +\ - 1%
R88	3.7K ohm +\ - 1%
R89	2.7K ohm +\ - 1%
R22	3.7K ohm +\ - 1%
R23	3.7K ohm +\ - 1%
R24	3.7K ohm +\ - 1%
R25	3.7K ohm +\ - 1%
R26	3.7K ohm +\ - 1%
R27	3.7K ohm +\ - 1%
TR1	Less than 2 ohms
TR2	Less than 2 ohms
R28	220K ohms +\ - 1%
R77	27.6K ohms +\ - 1%

7.2.5 Read and verify the ID chip.

7.3 ***TEST COMPLETE ***

8. Notes

8.1 Parts locations below.



9. Attachments

9.1 None at this time.