g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200DTAIH1A**

Test Procedure for any IS200DTAIH1A Terminal Board

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1. SCOPE

1.1 This is a functional testing procedure Test Procedure for an IS200DTAIH1Ax terminal 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 N:\Design Folders\IS2\IS200D

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		Mark VI test rack Sim70
1		ID chip programmer PC

6. TESTING PROCESS

6.1 Setup

6.1.1 On the DTAI card jumper **TB1-4** to **TB1-8** and **TB1-48.**

6.1.2 On the DTAI card jumper **TB1-8** to **TB1-12.**

6.1.3 On the DTAI card jumper **TB1-12** to **TB1-16.**

6.1.4 On the DTAI card jumper **TB1-16** to **TB1-20.**

6.1.5 On the DTAI card jumper **TB1-20** to **TB1-24.**

6.1.6 On the DTAI card jumper **TB1-24** to **TB1-28.**

6.1.7 On the DTAI card jumper **TB1-28** to **TB1-32.**

6.1.8 On the DTAI card jumper **TB1-34** to **TB1-38** and **TB1-45.**

6.1.9 On the DTAI card jumper **TB1-36** to **TB1-40.**

6.1.10 On the DTAI card jumper **TB1-40** to **TB1-46.**

6.1.11 On the DTAI card jumper **TB1-3** to **TB1-7** and **TB1-47.**

6.1.12 On the DTAI card jumper **TB1-7** to **TB1-11.**

6.1.13 On the DTAI card jumper **TB1-11** to **TB1-15.**

6.1.14 On the DTAI card jumper **TB1-15** to **TB1-19.**

6.1.15 On the DTAI card jumper **TB1-19** to **TB1-23.**

6.1.16 On the DTAI card jumper **TB1-23** to **TB1-27.**

6.1.17 On the DTAI card jumper **TB1-27** to **TB1-31.**

6.1.18 Add a **249 Ohm** resistor from **TB1-48** to **TB1-47.**

6.1.19 On the DTAI card set jumpers **JP1-A/B through JP8-A/B for VDC setting.**

6.1.20 On the DTAI card set jumpers **JP9-A/B and JP10-A/B for 20MA setting.**

6.1.21 On the DTAI card set jumper block **JP0-A/B** for **20MA setting.**

6.2 Testing Procedure

6.2.1 **Initial visual inspection of card:** Look the card over very closely. These cards can arrive in the full range of conditions, from clean and excellent to filthy and corroded. Some even have physical damage from burns and/or impacts with other objects. Some will be missing components. An area of particular concern is JR1 and TB1.

6.2.2 **Verification of ID Chip (Hyperterminal):** When you visually inspected the card, you should also have taken note of the complete model and serial numbers on the card. It's a good thing to write them down, take the card over to the Chip ID programmer PC and call up the Main Menu, then select ID Prom Programmer, then go through the menus until you find the one for your card. Follow the directions it gives you.

6.2.3 With Simplex test rack powered down, disconnect plug labeled **J409** from test DTAI card and connect to **JR1** on DTAI card to be tested.

6.2.4 Power up the Simplex test rack.

6.2.5 **GE Control System Solutions Toolbox:** Double click on the Control System Toolbox icon and it should bring up the program. Click on the folder in the upper left corner of the screen, and a box should appear. Find Sim70_UCVD.m6b, right click on it, go to Properties, make sure Read-Only hasn't been check marked. If it has, un-check it and click **APPLY**. Refer to the screen prints below for guidance if you aren't that familiar with Toolbox. Now open Sim70_UCVD. At the bottom where it says "Privilege Level: 0", double click on that box and select "4: Change All Macros." Click the + sign right next to **Hardware and I/O Definitions**, then the one below that labeled **Mark VI I/O**, then the one labeled **Rack 0 Channel R (SIMPLEX).** This will bring up a listing of all cards in the rack. Now, if rack has been powered up long enough to complete it's boot cycle, you should be able to go online from Toolbox. Do this by clicking the Online/Offline button, the one with a picture of two plugs mating together at the right side of the upper toolbar. If online connection is good, then right click on the left side of the screen, on the Vxxx designation associated with the **VAIC** under **Mark VI I/O**. This will bring up a box that will allow you to do certain maintenance tasks with the **VAIC** card. Among them are downloading firmware and configuration & clearing and reading faults. These are the functions we are concerned with. Right click once again on the **VAIC** card, and select View Diagnostic Alarms. This will bring up a box showing any faults that the card or the system has found. *The trick here is, sometimes the card doesn't have everything hooked up like the configuration that's in it calls for, because we've never fully completed the buildout process for this test station. That's ok.* But it will cause certain faults to appear if it's looking for a connection that isn't there. Just click on Reset Faults, then click Refresh List, and assuming everything's hooked up like it's supposed to be, then you should get a clear list and the yellow light should go out on the card. If not, then that's ok, too, because this tells you that the **VAIC** card is performing its diagnostics like it's supposed to.

6.2.6 Verify that the readings for Analog In 1 through 10 match the readings for Analog In 11 through 20, floating up and down. Image 1 below shows screen to compare to.

6.2.7 Verify that the readings for Analog Out 1 and 2 match the readings for Analog Out 3 and 4, floating up and down. Image 1 below shows screen to compare to.

6.2.8 Let unit run under power for at least one hour, or more as to your likes, and verify the readings listed in steps **5.2.6** and **5.2.7.**

6.3 ***TEST COMPLETE ***

7. ATTACHMENTS

Below are some pictures of test stations, and screen prints of various software programs used in testing IS200VAIC card:

Image 1