GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200TRLYHxD**

Test Procedure for an IS200TRLYHxD Mark VIe Relay Output with Solenoid Monitoring

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1. SCOPE

1.1 This is a functional testing procedure for an **IS200TRLYxD** MARK Vie Relay Output with Solenoid monitoring.

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	H190121	Mark Vle TMR Test Rack with computer

6. TESTING PROCESS

6.1 Testing Procedure

Note: The following tests assume you are familiar with using ToolboxST. You will need to perform downloads at least twice for UUT to be setup fully. You should also wait for approximately 3 minutes in between downloads for rack and UUT to reboot.

6.1.1.1 Turn "OFF" Rack Power located at front right side of test rack.

6.1.1.2 Remove test card (GOLD card) from test rack and install Unit Under Test (UUT) into test rack.

6.1.1.3 Put all three switches (S1, S2, and S3) on the TRLYHxD panel down (Solenoids x & x OK).

6.1.1.4 Turn "ON" Rack Power switch. Wait for test rack to fully boot, approximately 3 minutes.

6.1.1.5 Open **ToolboxST** and open "**LVLTMR01**" by double-clicking on it and click the "ONLINE" button in the toolbar.

6.1.1.6 Click on the "HARDWARE" tab, this will show you all of the modules setup in the rack under the "Distributed IO" icon. The PDOA – 1C3-TRLYHxD module should have a red circle with an X through it, indicating no communications.

6.1.1.7 Double click on the "X" on the PDOA – 1C3-TRLYHxD Module. This will bring up a configuration box to enter the serial number of the UUT and hardware form. Click "OK" button when done.

6.1.1.8 From the menu, Download Controller Setup by going to **Device->Download->Download Wizard.** Follow instructions in dialog boxes that follow.

6.1.1.9 After all downloads completed successfully, bring unit online in ToolboxST and check that the red circle with an X through it is gone and ToolboxST will communicate with PDOA – 1C3-TRLYHxD Modules.

6.1.1.10 From the menu, open **TRLYHxD** Live View by going to **View->Liveviews**. When selection dialog box appears, double click on **TRLYHxD** selection. Go online when prompted.

6.1.1.11 The Relays are set to toggle states every 30 seconds. Verify the Relays change from GREEN to RED then back to GREEN. While Relays are toggling, check that the Solenoid Status indicators are all GREEN, even when Relays change states.

6.1.1.12 Remove power from the R PACK module on the TRLYxD card and verify that all of the indicators on the TRLYHxD Test Panel stay GREEN. Reapply power to the R PACK module. Wait for the module to come back online before proceeding to next step.

6.1.1.13 Remove power from the S PACK module on the TRLYxD card and verify that all of the indicators on the TRLYHxD Test Panel stay GREEN. Reapply power to the S

PACK module. Wait for the module to come back online before proceeding to next step.

6.1.1.14 Remove power from the T PACK module on the TRLYxD card and verify that all of the indicators on the TRLYHxD Test Panel stay GREEN. Reapply power to the T PACK module.

6.1.1.15 Perform this test step one at a time for each of the 12 Fuse Holders.

6.1.1.15.1 Remove Fuse Cap from each Fuse Holder and verify that the corresponding Fuse Status indicator changes from GREEN (fuse ok) to RED (open fuse) state.

6.1.1.15.2 Reinstall Fuse Cap into Fuse Holder and verify that the corresponding Fuse Status indicator changes from RED (Fuse Open) to GREEN (Fuse OK) state.

6.1.1.16 Flip Switch labeled S1 up to Solenoid 1 & 2 open. When the Relay Status indicators turn to Red (open), then the Solenoid Status indicators for 1 & 2 should turn RED (Solenoid Open). This may take the Relays a time or two to change states and reflect the errors.

6.1.1.17 Flip Switch labeled S1 down to Solenoid 1 & 2 OK. When the Relay Status indicators turn to RED (open), then the Solenoid Status indicators for 1 & 2 should turn GREEN (Solenoid OK). This may take the Relays a time or two to change states and reflect the changes.

6.1.1.18 Flip Switch labeled S2 up to Solenoid 3 & 4 open. When the Relay Status indicators turn to Red (open), then the Solenoid Status indicators for 3 & 4 should turn RED (Solenoid Open). This may take the Relays a time or two to change states and reflect the errors.

6.1.1.19 Flip Switch labeled S2 down to Solenoid 3 & 4 OK. When the Relay Status indicators turn to RED (open), then the Solenoid Status indicators for 3 & 4 should turn GREEN (Solenoid OK). This may take the Relays a time or two to change states and reflect the changes.

6.1.1.20 Flip Switch labeled S3 up to Solenoid 5 & 6 open. When the Relay Status indicators turn to Red (open), then the Solenoid Status indicators for 5 & 6 should turn RED (Solenoid Open). This may take the Relays a time or two to change states and reflect the errors.

6.1.1.21 Flip Switch labeled S3 down to Solenoid 5 & 6 OK. When the Relay Status indicators turn to RED (open), then the Solenoid Status indicators for 5 & 6 should turn GREEN (Solenoid OK). This may take the Relays a time or two to change states and reflect the changes.

6.1.1.22 Let unit run online for at least 48 hours.

6.1.1.23 Repeat test steps 6.1.1.10 through 6.1.1.21.

6.1.1.24 After testing has been completed successfully, remove UUT, reinstall GOLD card, and verify successfully operation in ToolboxST.

1.1 ***TEST COMPLETE ***

7. NOTES

7.1 None at this time.

8. ATTACHMENTS

8.1 None at this time.