



GE Energy Services

Functional Testing Specification

*Inspection & Repair Services
Louisville, KY*

LOU-GED-IS200IGDM-A

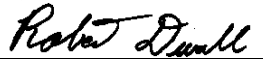
Test Procedure for a IS200IGDMxxx Card

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	John Madden	4/17/06
B			
C			

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PREPARED BY John Madden	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL 
DATE April 17, 2006	DATE	DATE	DATE 4/18/06

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1. SCOPE

1.1 This is a functional testing procedure for an IS200IGDM IGBT Gate Firing 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 IS200IGDMH#AA Schematics

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 the local documented procedures 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)
1		Isolated Oscilloscope
1		Function Generator
1		48V 27KHz power supply (DS200GDPA or IS200HFPA)
1		12Vdc supply
1		Fiber Optic transmitter array w/ optical cables, typically found in the IS200GGXI test kit

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6. TESTING PROCESS

6.1 Setup

- 6.1.1 Connect the ISOLATED oscilloscope's POS lead to the eyelet G (E3) and the NEG lead to eyelet E (E1). Set scope as follows: 5V/dv and .5mS/dv. Set X axis to read DC output.
- 6.1.2 Connect DVOM NEG lead to same eyelet G (E3) or to the NEG lead at the scope.
- 6.1.3 Connect GGXI Test Fiber Optic transmitter array black and red leads to 12Vdc, and connect the function generator to the pins on the array marked 5Vdc square wave. Set the output of the generator to give a 5Vp-p square wave, 50% duty cycle, zero offset signal of approx. 400Hz to the optic transmitter array.
- 6.1.4 Connect the 48V 27KHz supply output to J1 or J2.



Note: There is a DS200GDPA mounted on a piece of glastic that works perfect for this. It is sometimes used in the water-cooled-GTO test fixture, but spends most of it's time in the possession of Monty Starling or John Madden. If it's not available, you can use any GDPA card or an IS200HFP. One of those is located inside the IS200DSFC fixture.

6.2 Testing Procedure

- 6.2.1 Turn power on to 27KHz supply. You should see the IGDM's own transmitter light up. If not, check the Pico fuse next to MV1 and J1/J2. These are commonly blown. Also check the trace running from J1/J2 to MV1. Sometimes this trace will be broken by a crack running from the mounting hole nearby.
- 6.2.2 Using the DVOM POS lead, check the output voltages at J3 (P15Vdc), J4 (N15Vdc), and P5 (P5Vdc) with respect to common (eyelet E1, as connected at the scope). If P15 is weak, when it's time to observe led DS1 it will also be weak.
- 6.2.3 You should also notice that the output on the scope changed from 0 Volts to a flat N15Vdc.
- 6.2.4 Now with GGXI transmitter array fired up, plug one of its cables into the receiver on the IGDM. You should see DS1 light up, and also the scope should now display a 30Vp-p square wave according to the frequency being injected into the array. Vary the frequency and observe that the IGDM follows along nicely. As long as the output remains 30Vp-p you are in good shape.
- 6.2.5 Measure the resistance of R23 to ensure it is within tolerance. Test concluded.

6.3 Post Testing Burn-in

Required ___ Yes X No

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Note: All MARK I, II, & III Turbine related cards require a post testing burn-in of 100 hours.

6.3.1 No burn in is required for this card at this time.

6.4 *TEST COMPLETE *****

7. NOTES

- 7.1 Rev BBB has a 220uf electrolytic cap that must be changed if out of date. Rev AAA cannot be upgraded to BBB.
- 7.2 These cards come in often with corrosion and/or blown traces, especially on the backside, so be diligent with your visual inspection.
- 7.3 These units should go out with their mica shields and attachment hardware (tin-plated copper Allen screws with threaded spacers) intact when possible.
- 7.4 Also be cognizant of damage done to conductive eyelets by over-torqued screws with lock washers. This will need to be repaired before putting unit back into service.

8. ATTACHMENTS

8.1