g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	LOU-GED-IC3600SOTG1

Test Procedure for a IC3600SOTG1x

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	S. Cash	5-19-2011
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PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
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DATE	**DATE**	**DATE**	**DATE**
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1. SCOPE

1.1 This is a functional testing procedure for a

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
2		Fluke 85 or similar Multimeter
1		Rainbow box for IC3600 boards with switches and component locations
1		Dual 30Vdc supply with fixed 5Vdc supply (Tenma Supply works fine)
Many		Banana Jack Connectors

6. Modifications/Upgrades

6.1 Check Orange Book for any modifications or upgrades. To level listed on tag per pre-inspection.

7. Testing Process

7.1 Find box labeled IC3600SOTG for components need for setup.

7.1.1 Setup rainbow box per Diagram 1 at the end of test procedure.

Note: Original factory test should be in test setup box for any problems found.

7.2 Resistance checks.

7.2.1 Read resistance from PTA (21) to common (50) and verify 56 ohms.

7.2.2 Read resistance from PTB (18) to common (50) and verify 156 ohms.

7.3 Voltage checks at AB (14) using SW2 and SW5 referenced to common.

7.3.1 With SJ (3) connected to ACOM (2) AB (14) should measure from 0 Vdc to -.1 Vdc.

7.3.2 Remove connection from SJ (3) to ACOM (2).

7.3.3 With R103 and R105 turned fully clockwise and only SW2 closed AB (14) should measure from 2.5 Vdc to 7.0 Vdc.

7.3.4 With R103 fully counter clockwise and R105 fully clockwise and only SW2 closed AB (14) should measure from 9.5 Vdc to 11.5 Vdc.

7.3.5 With R103 and R105 fully counter clockwise and SW2 closed AB (14) should measure from 1.5 Vdc to 4.0 Vdc.

7.3.6 Leaving SW2 closed adjust R105 to get 8.0 Vdc at AB(14) for the next step.

7.4 EA\0EA and alarm lamp checks.

7.4.1 Adjust divider circuit V1 to 0 Vdc and connect to 0TA (13).

7.4.2 Close SW7 to enable V1 to circuit.

7.4.3 Verify that EA goes high, 0EA goes low and the Alarm lamp lights per the following table. This should happen between the voltages listed and with the switches set accordingly.

V1 Setting	SW1	SW2	SW4	R104
4.0 vdc to 5.1 vdc	open	open	open	Fully CW
4.8 vdc to 5.8 vdc	closed	open	open	Fully CW
1.5 vdc to 2.7vdc	open	closed	open	Fully CW
6.1 vdc to 7.5 vdc	open	open	closed	Fully CW
1.0 vdc to 2.2 vdc	open	open	open	Fully CCW

7.4.4 Disconnect V1 from 0TA (13) and move it to 0TB (11) and then repeat previous tests per the table.

7.4.5 Disconnect V1 from 0TB (11).

7.5 Temp Diff. Circuit tests.

7.5.1 Connect 0TA (13), 0TB (11) and TX (38) to fixed 5 Vdc supply. Make sure it has been tied to common.

7.5.2 Make sure SW2 is closed, set V1 to 5.5 Vdc and connect it to IAB (43).

7.5.3 Adjust R102 to fully clockwise. Then verify ED (49) is low and 0ED is high.

7.5.4 Slowly adjust V1 down and verify that ED (49) goes high and 0ED (41) goes low and that the Temp Diff light comes on when V1 goes below 4.8 Vdc.

7.5.5 Now slowly adjust V1 upward and verify that the ED (49) goes high again and 0ED (41) goes low and the Temp Diff light comes on again as V1 passes 6.2 Vdc.

7.5.6 Now remove V1 from IAB (43) and disconnect the +5 Vdc from 0TA (13). Leave the +5 Vdc connected to 0TB (11) and TX (38).

7.5.7 Jumper IAB (43) to AB (14) and connect V1 to OTA (13).

7.5.8 Jumper T1 (41) to T2 (42).

7.5.9 Set R102 fully clockwise and set V1 to 5 Vdc.

7.5.10 Verify ED (49) is low and 0ED (44) is high.

7.5.11 Slowly increase V1 and verify that ED (49) goes high and 0ED (44) goes low when V1 reaches 7.1 Vdc +/- .5 Vdc.

7.5.12 Slowly adjust V1 back down thru 5 Vdc and verify that ED (49) again goes high and 0ED (44) goes low when V1 reaches 1 Vdc +/- 1 Vdc.

7.5.13 Set V1 on 0TA (13) back to 5 Vdc and remove the jumper from T1 (41) and T2 (42).

7.5.14 Now quickly take V1 to 0 Vdc by opening SW7. Verify that ED (49) goes high and 0ED (44) goes low after a 25 to 55 second delay.

7.5.15 Jumper AM (31) to P12 (27) and set V1 to 0 Vdc.

7.5.16 Press the reset button to turn off the system failure light.

7.5.17 Remove the +5 Vdc from 0TB (11) and leave it connected to TX (38).

7.5.18 Make sure SW2 and SW3 are both open. Then verify that SFT (32) is low and 0SFT (22) is high.

7.5.19 Slowly lower V1 until SFT (32) goes high and 0SFT (22) goes low. This should happen when V1 reaches -5.0 Vdc +/- .5 Vdc.

7.5.20 Now reduce V1 to -7 Vdc and close SW3. Press the reset button and verify that the system failure goes out.

7.5.21 Connect a scope per the wiring diagram in section 10. Make sure to setup per the diagram and that the Trigger menu is set for external trigger.

7.5.22 While watching the scope open SW3 and verify a 100 to 250 ms delay before SFT (32) goes high and the System Failure light comes on. This can be seen on the scope by a wave form similar to the one in the connection diagram section.

7.5.23 Close SW3 and press reset to repeat the previous process until delay is verified.

7.6 ***TEST COMPLETE ***

8. Notes

8.1 Original factory for factory fixture in setup box for reference.

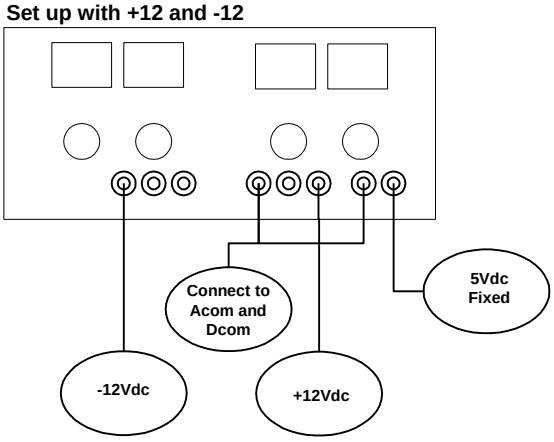
9. Attachments

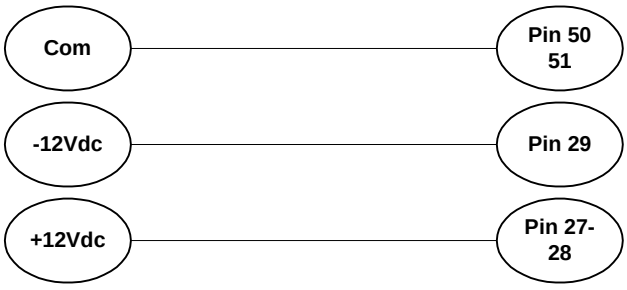
9.1 Diagrams for voltage, scope connections, and a screen shot.

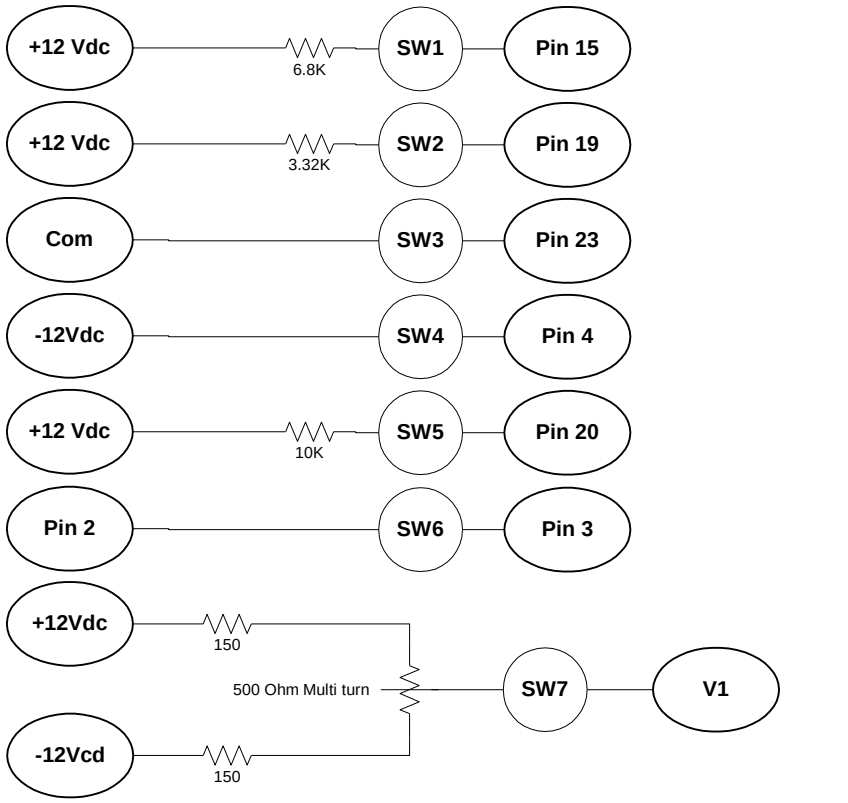
Set power supply in parallel

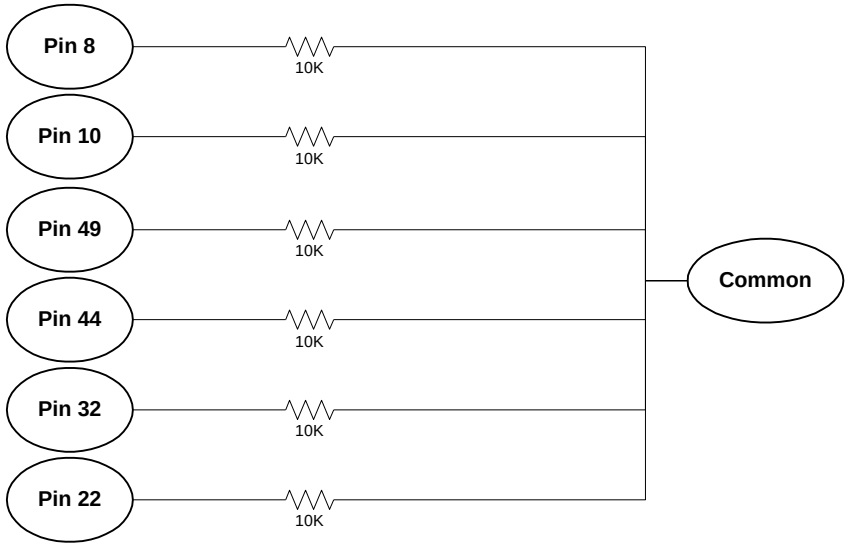
Set current just above point that keeps it on.

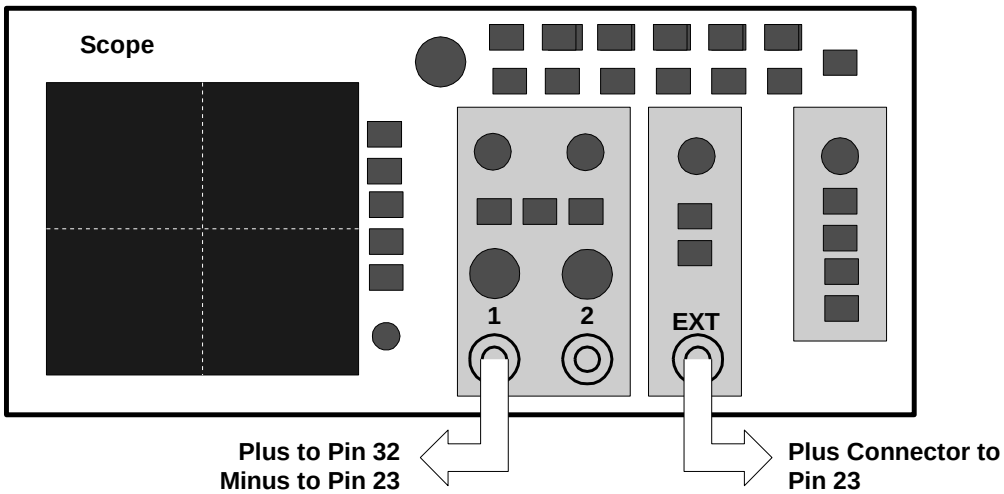
Set up with +12 and -12

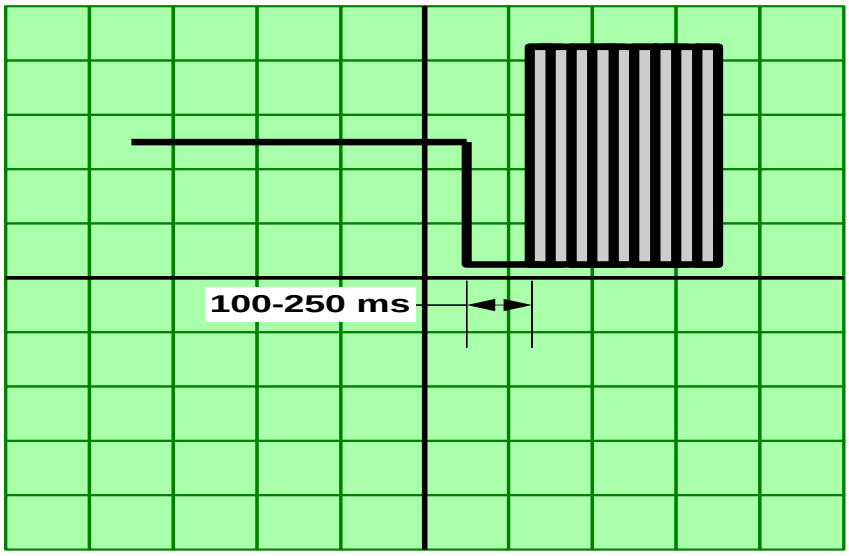












250 ms per div
2 Vcd per division