



GE Energy

## Functional Testing Specification

*Parts & Repair Services  
Louisville, KY*

**LOU-GED-193X715ACG09**

### Test Procedure for a 193X715ACG09 card

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<b>PREPARED BY</b> G. Chandler	<b>REVIEWED BY</b>	<b>REVIEWED BY</b>	<b>QUALITY APPROVAL</b> Charlie Wade
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## Functional test procedure for a 193X715ACG09 card.

### 1. SCOPE

1.1 This is a functional testing procedure for a 193S715ACG09 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 None at this time

### 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 or cracked

4.2.1.2 Terminal strips / connectors broken or cracked

4.2.1.3 Loose wires

4.2.1.4 Components visually damaged

4.2.1.5 Capacitors leaking

4.2.1.6 Solder joints damaged or cold

4.2.1.7 Circuit board burned or de-laminated

4.2.1.8 Printed wire runs 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 85 DMM (or Equivalent)
1		193X Breakout box
1		+20VDCower Supply
1		+30VDCower Supply

## 6. TESTING PROCESS

### 6.1 Setup

**6.1.1** Note placement of original jumpers for customer and remove jumpers.

**6.1.2** Connect stab-on N, P and B1 to one another,

### 6.2 Testing Procedure

**6.2.1** Apply common of 20VDC power supply to pin 12 and +20VDC power supply through a 1K-ohm resistor to the following pins in table 1 below. Connect a voltmeter across the 1K-ohm resistor.

+20VDC	Common	DVM
14	12	0V
10	12	+18.6 to +19.6VDC
15	12	+1.6 to +1.9VDC
4	12	0V
3	12	0V
25	12	0V
26	12	0V
19	12	0V
2	12	+9.0 to +10.3VDC

**Table 1**

**6.2.2** Reverse the polarity of the 20VDC power supply and verify the following voltages in table 2 below, using the similar setup as before. Connecting a voltmeter across the 1K-ohm resistor.

-20VDC	Common	DVM
14	12	-19.1 to -19.6VDC
10	12	0V
15	12	0V
4	12	-19.1 to -19.6VDC
3	12	-18.0 to -19.0VDC
25	12	-6.3 to 6.7VDC
26	12	-9.3 to -10.0VDC
19	12	-18.4 to -18.7VDC
2	12	0V

**Table 2**

**6.2.3** Connect pin 27 to pin 9.

**6.2.4** Move common of power supply to pin 7 and verify the following voltages in table 3 using the similar setup as before. Connecting a voltmeter across the 1K-ohm resistor.

-20VDC	Common	DVM
8	7	-11.1 to -11.7VDC
27	7	-7.7 to -8.3VDC
28	7	-2.5 to -3.1VDC
29	7	-1.9 to -2.5VDC

**Table 3**

**6.2.5** Move common of power supply to pin 11 and verify the following voltages in table 4 using the similar setup as before. Connecting a voltmeter across the 1K-ohm resistor.

-20VDC	Common	DVM
6	11	-18.6 to -19.6VDC
5	11	0V
15	11	0V

**Table 4**

**6.2.6** Reverse the polarity of the 20VDC power supply and verify the following voltages in table 5 below, using the similar setup as before. Connecting a voltmeter across the 1K-ohm resistor.

+20VDC	Common	DVM
6	11	0V
5	11	+10.0 to +19.4VDC
15	11	+0.8 to +1.0VDC

**Table 5**

**6.2.7** Disconnect all connections to card.

**6.2.8** Apply +20VDC through the anode of a diode, then the cathode of the diode to a 10K-ohm resistor and the other side of the resistor to pin 17 of the card.

**6.2.9** Attach the common side of the power supply to the common side of a mA meter and attach the (+) side of the mA meter to pin 18 of the card.

**6.2.10** Using the second power supply apply +30VDC to pin 22 of the card with the common of the power supply connected to pin 18 of the card and the mA meter should read 1.5mA +-0.5mA

**6.2.11** Move the +30VDC to pin 20 of the card and the mA meter should read 1.5mA +-0.5mA.

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**6.2.12** Move the +30VDC to pin 30 (through a 1K-ohm resistor) of the card and the mA meter should read 0.75mA +/-0.5mA.

**6.2.13** Disconnect all connections to the card and remove all applied jumpers.

**6.2.14** Using an ohmmeter measure resistance between spade connector #1 and #2.  
Resistance should measure between 16.2 to 18.8 ohms.

**6.2.15** Move the ohm meter lead connected to spade connector #1 to spade connector #3 and you will read the same resistance as between 1 and 2.

**6.2.16** Move the ohm meter lead connected to spade connector #2 to spade connector #4 and you will read the same resistance as between 1 and 2.

**6.2.17** Follow this pattern on spade connectors #1 through #29.

**6.2.18** Be sure to put jumpers back to their original position when complete.

**6.3 \*\*\*TEST COMPLETE \*\*\***

## **7. NOTES**

**7.1** None at this time.