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GE Industrial Systems

## Functional Testing Specification

*Renewal Services  
Louisville, KY*

**LOU-GED-DS200FSAA**

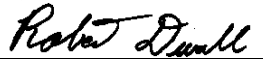
### Test Procedure for a Field Supply Amplifier Card

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<b>DATE</b> 10-1-2002	<b>DATE</b>	<b>DATE</b>	<b>DATE</b> 10/16/02

## Functional test procedure for a Field Supply Amplifier Card

### 1. SCOPE

1.1 Functional testing procedure for a DS200FSAAGxA Field Supply Amplifier 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 **DS200FSAAG1A or DS200FSAAG2A Documentation.**

### 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		Oscilloscope
1		SCR Firing Box
1		DC Power Supply

<p><b>LOU-GED-DS200FSAA REV. A</b></p>	<p><b>g</b></p> <p><b>GE Industrial Systems</b> Renewal Services Louisville, KY</p>	<p><b>Page 3 of 5</b></p>
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## 6. TESTING PROCESS

**6.1 If G1A version card: Continue testing at step 6.2.1**

**6.2 If G2A version card: Continue testing at step 6.2.16**

- 6.2.1** Verify that no shorts exist between adjacent traces.
- 6.2.2** Verify that all parts shown on the silk-screen are present (except CR45 if G1A).
- 6.2.3** Verify that all leads are properly soldered and connections are properly filleted and clipped.
- 6.2.4** Verify all Berg jumpers are in position 1-2.
- 6.2.5** Verify that diodes and zeners are assembled per the silk-screen.
- 6.2.6** Verify that FU2 and FU3 are marked KTK-30.
- 6.2.7** Verify C5, C6, C7 and C8 are marked .22-1200vdc/660vac, and are not leaking any oil.
- 6.2.8** Verify that the fuse holders mounting screws are tight and not touching the fuse.
- 6.2.9** Verify that P1PL, P2PL, N1PL and N2PL are mounted with the flange toward the card front.
- 6.2.10** Verify that FPL is mounted with the keyway toward T4 (key is not to be present in plug).
- 6.2.11** Verify that CR37 & 38 is mounted with flange toward fuse holder.
- 6.2.12** Verify that CR39 & 40 are mounted with flange toward JP1 & 2.
- 6.2.13** Verify that CR42 & 41 is mounted with flange toward edge of fabrication.
- 6.2.14** Verify that CR43 & 44 is mounted with flange toward CR22.
- 6.2.15** Continue testing at step 7.
- 6.2.16** Verify that no shorts exist between adjacent traces.
- 6.2.17** Verify that only the parts called for on the Material List are present.
- 6.2.18** Verify that all leads are properly soldered and connections are properly filleted and clipped.
- 6.2.19** Verify that diodes and zeners are assembled per silk-screen.
- 6.2.20** Verify that FU2 and FU3 are marked KTK-30.
- 6.2.21** Verify that C5, C6, C7 and C8 are marked .22-1200vdc/660vac, and are not leaking oil.
- 6.2.22** Verify that the fuse holders mounting screws are tight and not touching the fuse.
- 6.2.23** Verify that P1PL, P2PL, N1PL and N2PI are mounted with the flange toward the card front.
- 6.2.24** Verify that FPL is mounted with the keyway toward T4 (key is not to be present in plug).
- 6.2.25** Verify that CR45 is marked "1000L160".
- 6.2.26** Continue with step 7.

## 7. POWER TEST

**7.1 If G1A version: Continue with step 7.2.1**

**7.2 If G2A version: Continue with step 7.2.58**

- 7.2.1** Verify continuity exists from connector SHP to connector SP.
- 7.2.2** Verify continuity exists from connector SHN to connector SN.
- 7.2.3** Verify continuity exists between JP1 pin 3 and JP2 pin 1 or 2.
- 7.2.4** Verify continuity exists between JP4 pin 3 and JP5 pin 1 or 2.
- 7.2.5** Verify (10.8)(11.1) mega ohms from JP1 pin 1 or 2(+) to JP2 pin 3(-).
- 7.2.6** Verify (10.8)(11.1) mega ohms from JP4 pin 1 or 2(+) to JP5 pin 3(-).
- 7.2.7** Verify (10.8)(11.1) mega ohms from top of R25 (+) to bottom of R26 (-).
- 7.2.8** Verify (10.8)(11.1) mega ohms from right of R29 (+) to left of R30 (-).
- 7.2.9** Verify (1.27)(1.38) mega ohms from connector FAC3 to connector AC3R.
- 7.2.10** Verify (1.27)(1.38) mega ohms from connector FPR to connector FN.
- 7.2.11** Verify R17, 18, 19, 20, 21, 22, 23 and 24 are 100 ohms (brown-black-brown-gold) resistors.
- 7.2.12** JP1, JP2, JP4 and JP5 position 2-3.
- 7.2.13** Verify that continuity exists between JP1 position 1 and 2.
- 7.2.14** Verify that continuity exists between JP2 position 1 and 2.

<p><b>LOU-GED-DS200FSAA REV. A</b></p>	<p><b>g</b></p> <p><b>GE Industrial Systems</b> Renewal Services Louisville, KY</p>	<p><b>Page 4 of 5</b></p>
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- 7.2.15** Verify that continuity exists between JP4 position 1 and 2.
- 7.2.16** Verify that continuity exists between JP5 position 1 and 2.
- 7.2.17** Put wire jumper from top of R25 to bottom of R26.
- 7.2.18** Put wire jumper from right end of R29 to left end of R30.
- 7.2.19** Connect Pulse Generator between connector P1G1 (+) to Connector P1C1 (-).
- 7.2.20** Put scope across Pulse Generators output and set it for a positive 5v 5usec on, 20 usec off pulse.
- 7.2.21** Connect Scope between connector P1G (+) and connector P1C (-).
- 7.2.22** Scope should display a 1-2V 5 usec on, 20 usec off pulse.
- 7.2.23** Be sure the DC Power Supply is turned off and turned full CCW, then connect it between connector FAC2 (+) and connector P1C (-).
- 7.2.24** Scope should display a 1-2V 5 usec on, 20 usec off pulse.
- 7.2.25** Increase DC Supply for 17.75 +/- 0.05v.
- 7.2.26** Scope shows 0.25-1.25V pulses riding at a .5-1.0VDC level.
- 7.2.27** Turn DC Supply off.
- 7.2.28** Connect Pulse Generator between connector N1G1 (+) to connector N1C1 (-).
- 7.2.29** Connect Scope between connector N1G (+) and connector N1C (-).
- 7.2.30** Scope should display a 1-2V 5 usec on, 20 usec off pulse.
- 7.2.31** Connect DC Supply between connector FN (+) and connector N1C (-).
- 7.2.32** Turn DC Supply on.
- 7.2.33** Scope shows 0.25-1.25V pulses riding at a 0.5-1.0VDC level
- 7.2.34** Turn DC Supply off.
- 7.2.35** Connect Pulse Generator between connector P2G1 (+) to connector P2C1 (-)
- 7.2.36** Connect Scope between connector P2PL-2 (W) and connector P2PL-1(R).
- 7.2.37** Scope should display a 1-2V 5 usec on, 20 usec off pulse.
- 7.2.38** Connect Dc Supply between connector FAC3 (+) and connector P2PL-1(R).
- 7.2.39** Turn DC Supply on.
- 7.2.40** Scope shows 0.25-1.25V pulses riding at a 0.5-1.0VDC level.
- 7.2.41** JP3 position 2-3. Turn power supply on, but DO NOT leave power on any longer than necessary as resistor damage could result.
- 7.2.42** Scope shows a 3.5vdc level (with less than 250 mV pulses).
- 7.2.43** Turn DC Supply off.
- 7.2.44** Verify continuity exists between JP3 positions 1-2.
- 7.2.45** Connect Pulse Generator between connector N2G1 (W) and connector N2C1(R).
- 7.2.46** Connect Scope between connector N2PL-2 (W) and connector N2PL-1(R).
- 7.2.47** Scope should display a 1-2V 5 usec on, 20 usec off pulse.
- 7.2.48** Connect DC Supply between connector FN (+) and N2PL-1(R).
- 7.2.49** Turn DC Supply on.
- 7.2.50** Scope shows 0.25-1.25V pulses riding at a 0.5-1.0VDC level.
- 7.2.51** JP6 position 2-3. Turn power supply on, but DO NOT leave power on any longer than necessary as resistor damage could result.
- 7.2.52** Scope shows a 3.5 VDC level (with less than 250mv pulses).
- 7.2.53** Turn DC Supply off.
- 7.2.54** Verify continuity exists between JP6 positions 1-2.
- 7.2.55** Return all jumpers to position 1-2.
- 7.2.56** Remove all jumpers added in test.
- 7.2.57** End of G1A test. If card passes all the above tests apply proper stamps.
- 7.2.58** Verify continuity exists from connector SHP to connector SP.
- 7.2.59** Verify continuity exists from connector SHN to connector SN.
- 7.2.60** Verify (1.27)(1.38) mega ohms from connector FAC3 to connector AC3R.

<p><b>LOU-GED-DS200FSAA REV. A</b></p>	<p><b>g</b></p> <p><b>GE Industrial Systems</b> Renewal Services Louisville, KY</p>	<p><b>Page 5 of 5</b></p>
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- 7.2.61** Verify (1.27)(1.38) mega ohms from connector FPR to connector FN.
- 7.2.62** Verify that R19, 20, 23 and 24 are 100 ohms (brown-black-brown-gold) resistors.
- 7.2.63** Connect Pulse Generator between connector P1G1 (+) and connector P1C1 (-).
- 7.2.64** Connect scope across Pulse Generators output and set it for a positive 5v 5 usec on, 20 usec off pulse.
- 7.2.65** Connect scope between connector P1G(+) and connector P1C(-).
- 7.2.66** Scope should display a 1-2V 5 usec on, 20 usec off pulse.
- 7.2.67** Connect Pulse Generator between connector N1G1(+) and connector N1C1(-).
- 7.2.68** Connect scope between connector N1G(+) and connector N1C(-).
- 7.2.69** Scope should display a 1-2V 5 usec on, 20 usec off pulse.
- 7.2.70** Verify that R4 and R6 are 47.5-ohm resistors (yellow-violet-green-gold).
- 7.2.71** End of G2A test. If card passes all the above tests apply proper stamps.

**8. \*\*\* End of Test\*\*\***