



GE Energy Services

Functional Testing Specification

*Inspection & Repair Services
Louisville, KY*

LOU-GED-DS3800NFIB-B

Test Procedure for a DS3800NFIB Card

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REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	SDP	02/09/2006
B	Revised procedure to correct problem when using rainbow box that connects SW95 and SW96	SDP	09/06/2007
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DATE 02/09/2006	DATE 02/09/2006	DATE	DATE 02/10/06

Functional test procedure for a DS3800NFIB

1. SCOPE

1.1 This is a functional testing procedure for a DS3800NFIB.

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

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		Rainbow Box
1		DS3800 Power Supply
1		Standard Connector Box for DS3800 Cards
1		Tenma DC Power Supply

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6. TESTING PROCESS

6.1 Setup

6.1.1 Make the following connections:

PA48 to PA52

PA6 to PA1

PA40 to PA1

PA26 to SW84

PA22 to SW86

PA19 to SW85

PA28 to SW87

PA24 to SW88

PA25 to SW89

PA4 to SW81

PA2 to SW82

PA18 to SW83

6.1.2 Set Tenma Power Supply for +56VDC and connect to JTBH3.\

6.1.3 Set Switches as follows:

SW81-87 = 0

SW88-89 = 1

6.2 Testing Procedure

6.2.1 SEE NOTES

6.2.2 Turn power on to DS3800 Power Supply and apply external +56VDC.

6.2.3 Toggle SW89 “High-Low-High” to reset card (all LED’s off)

6.2.4 Toggle SW84 and verify 1st and FLS fault LED’s illuminate

6.2.5 Toggle SW89 to reset card

6.2.6 SW83 to “1” and verify that SW84 no longer causes LED’s to illuminate.


6.2.7 SW83 to “0”

6.2.8 Connect PA56 to DMM set for VDC, common of meter to common of DS3800 Power Supply.

6.2.9 Verify when SW1 (on card) is toggled PA56 reads “0”

6.2.10 Momentarily connect PA4 to +15VDC by removing side of jumper connected to SW81 and touching it to +15VDC then replace at SW81.

6.2.11 Verify 0V fault illuminates and latches.

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6.2.12 Momentarily connect PA2 to +15VDC by removing side of jumper connected to SW82 and touching it to +15VDC then replace at SW82.

6.2.13 Verify IEC fault illuminates and latches.

6.2.14 Toggle SW84 and verify FLS illuminates.

6.2.15 Toggle SW85 and verify STL illuminates.

6.2.16 Toggle SW86 and verify TRP illuminates.

6.2.17 Toggle SW87 and verify OS illuminates.

6.2.18 Toggle SW88 and verify PS illuminates.

6.2.19 Momentarily remove +56VDC and verify EXT illuminates.

6.2.20 Toggle SW89 to reset card.

6.2.21 Connect PA68 Common.

6.2.22 Verify a “1” at the following locations:

PA67

PA69

PA70

PA72

PA74

PA76

PA78

PA80

6.2.23 Connect the following locations to common:

PA27

PA20

PA65

PA66

PA60

PA62

PA61

PA59

6.2.24 Verify A “0” at the following locations:

PA67

PA69

PA70

PA72

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PA74

PA76

PA78

PA80

6.2.25 Disconnect the following:

PA27

PA20

PA65

PA66

PA60

PA62

PA61

PA59

6.2.26 Make the following connections:

Remove connection between PA68 and Common

PA16 to SW94

PA47 to SW95

6.2.27 Set SW94 to “float”

6.2.28 Set SW95 to “0”

6.2.29 Verify that when SW94 is placed at “1” or “0” fault LIN illuminates and latches.

6.2.30 With DMM verify that PA58 to common is high resistance when LIN is illuminated and latched.

6.2.31 With DMM verify that PA15 is “1” when LIN is illuminated.

6.2.32 Toggle SW95 “Low-High-Low” with SW94 in “float” to clear LIN fault.

6.2.33 Verify that with SW95 at “1” or “float” LIN will not latch.

6.2.34 With DMM verify that PA50 to common is infinite resistance.

6.2.35 Induce a fault thru any **ONE** channel on SW84-SW88.

6.2.36 With DMM verify that PA50 to common is short.

6.2.37 Reset card with SW89.

6.2.38 With DMM verify that PA50 to common is infinite resistance.

6.2.39 With DMM verify that JTBH10 to JTBH6 is infinite resistance.

6.2.40 Induce a fault thru any **ONE** channel on SW84-SW88.

6.2.41 With DMM verify that JTBH10 to JTBH6 is short.

6.2.42 Reset card with SW89.

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- 6.2.43 With DMM verify that JTBH10 to JTBH6 is infinite resistance.
- 6.2.44 With DMM verify that JTBH2 to JTBH6 is short.
- 6.2.45 Induce a fault thru any **ONE** channel on SW84-SW88.
- 6.2.46 With DMM verify that JTBH2 to JTBH6 is infinite resistance.
- 6.2.47 Reset card with SW89.
- 6.2.48 With DMM verify that JTBH2 to JTBH6 is short.
- 6.2.49 With DMM verify that JTBH14 to JTBH18 is short.
- 6.2.50 Induce a fault thru any **ONE** channel on SW84-SW88.
- 6.2.51 With DMM verify that JTBH14 to JTBH18 is infinite resistance.
- 6.2.52 Reset card with SW89.
- 6.2.53 With DMM verify that JTBH14 to JTBH18 is short.
- 6.2.54 With DMM verify that JTBH22 to JTBH26 is short.
- 6.2.55 Induce a fault thru any **ONE** channel on SW84-SW88.
- 6.2.56 With DMM verify that JTBH22 to JTBH26 is infinite resistance.
- 6.2.57 Reset card with SW89.
- 6.2.58 With DMM verify that JTBH22 to JTBH26 is short.
- 6.2.59 Connect PA35 to common and verify LED 1 illuminates.
- 6.2.60 Connect PA38 to common and verify LED 2 illuminates.
- 6.2.61 Connect PA37 to common and verify LED 3 illuminates.
- 6.2.62 Connect PA39 to common and verify LED 4 illuminates.
- 6.2.63 Connect PA42 to common and verify LED 5 illuminates.
- 6.2.64 Connect PA41 to common and verify LED 6 illuminates.
- 6.2.65 Connect PA32 to common and verify LED M illuminates.
- 6.2.66 Connect PA31 to common and verify LED PRM illuminates.
- 6.2.67 Connect PA34 to common and verify LED IN1 illuminates.
- 6.2.68 Connect PA36 to common and verify LED IN2 illuminates.
- 6.2.69 Connect PA33 to common and verify LED IN3 illuminates.
- 6.2.70 With DMM verify that PA29 is "0" when +56VDC is applied to any of the following connections:
JTBH15
JTBH19
JTBH23
- 6.2.71 With DMM verify that PA30 is "0"
- 6.2.72 Connect PA64 to common.

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6.2.73 With DMM verify that PA30 is “1”

6.2.74 Remove connection between PA64 and common

6.2.75 With DMM verify that PA30 is “0”

6.2.76 Connect PA17 to common and verify the IMOK LED illuminates.

6.3 *TEST COMPLETE *****

7. NOTES

Any time a fault is set PA52 will go “1”. Put switch back to original position and toggle SW89 to clear. PA52 will go “0”.

SW95 is the clear for the LIN fault only. SW89 will clear all other faults.

When applying +15VDC to PA4 or PA2 you must disconnect it from SW81 or SW82 or you will short the +15VDC to ground and make all faults illuminate.

The fault labeled 1ST will illuminate with any fault if the card was clear of errors.

Steps 6.2.35 thru 6.2.59 test contacts on the relays.