g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS3800NFMC**

Test Procedure for a DS3800NFMC

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Steve Pharris	06/25/2012
B			
C			

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DATE	**DATE**	**DATE**	**DATE**
06/25/12			6/25/2012

1. SCOPE

1.1 This is a functional testing procedure for a DS3800NFMC.

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
1		Fluke 87 DMM (or Equivalent)
1		Rainbow Box
1		DS3800 Connector Box
1		DS3800 Power Supply
1		NFMC Resistor Load (by fixtures)

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6. Testing Process

6.1 Setup

6.1.1 **Unless otherwise stated H and L refer to TTL logic states High and Low**

6.1.2 Connect DS3800 power supply and DS3800 connector box to rainbow box

6.1.3 Make the following connections

PA60-SW96 and Set H

PA70-L

PA6-SW81 Set L

PA10-SW82 Set L

PA11-SW83 Set L

PA8-SW84 Set L

PA28-SW85 Set L

PA30-SW86 Set L

PA31-SW87 Set L

PA29-SW88 Set L

6.1.4 Connect Load

Blue lead to DMM

Black lead to Com

Red lead to PA2

6.2 Testing Procedure

6.2.1 Apply power

6.2.2 Verify DMM reads 1V (approx.)

6.2.3 Toggle SW81 H-L

6.2.4 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.5 Toggle SW96 L-H

6.2.6 Verify DMM reads 1V (approx.)

6.2.7 Move load from PA2 to PA15

6.2.8 Verify DMM reads 1V (approx.)

6.2.9 Toggle SW82 H-L

6.2.10 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.11 Toggle SW96 L-H

6.2.12 Verify DMM reads 1V (approx.)

6.2.13 Move load from PA15 to PA4

6.2.14 Verify DMM reads 1V (approx.)

6.2.15 Toggle SW83 H-L

6.2.16 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.17 Toggle SW96 L-H

6.2.18 Verify DMM reads 1V (approx.)

6.2.19 Move load from PA4 to PA14

6.2.20 Verify DMM reads 1V (approx.)

6.2.21 Toggle SW84 H-L

6.2.22 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.23 Toggle SW96 L-H

6.2.24 Verify DMM reads 1V (approx.)

6.2.25 Move load from PA14 to PA26

6.2.26 Verify DMM reads 1V (approx.)

6.2.27 Toggle SW85 H-L

6.2.28 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.29 Toggle SW96 L-H

6.2.30 Verify DMM reads 1V (approx.)

6.2.31 Move load from PA26 to PA35

6.2.32 Verify DMM reads 1V (approx.)

6.2.33 Toggle SW86 H-L

6.2.34 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.35 Toggle SW96 L-H

6.2.36 Verify DMM reads 1V (approx.)

6.2.37 Move load from PA35 to PA27

6.2.38 Verify DMM reads 1V (approx.)

6.2.39 Toggle SW87 H-L

6.2.40 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.41 Toggle SW96 L-H

6.2.42 Verify DMM reads 1V (approx.)

6.2.43 Move load from PA27 to PA34

6.2.44 Verify DMM reads 1V (approx.)

6.2.45 Toggle SW88 H-L

6.2.46 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.47 Toggle SW96 L-H

6.2.48 Verify DMM reads 1V (approx.)

6.2.49 Move load from PA34 to PA47

6.2.50 Verify DMM reads 0VDC

6.2.51 Toggle SW81 H-L

6.2.52 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.53 Toggle SW96 L-H

6.2.54 Verify DMM reads 0VDC

6.2.55 Toggle SW82 H-L

6.2.56 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.57 Toggle SW96 L-H

6.2.58 Verify DMM reads 0VDC

6.2.59 Toggle SW83 H-L

6.2.60 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.61 Toggle SW96 L-H

6.2.62 Verify DMM reads 0VDC

6.2.63 Toggle SW84 H-L

6.2.64 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.65 Toggle SW96 L-H

6.2.66 Verify DMM reads 0VDC

6.2.67 Toggle SW85 H-L

6.2.68 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.69 Toggle SW96 L-H

6.2.70 Verify DMM reads 0VDC

6.2.71 Toggle SW86 H-L

6.2.72 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.73 Toggle SW96 L-H

6.2.74 Verify DMM reads 0VDC

6.2.75 Toggle SW87 H-L

6.2.76 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.77 Toggle SW96 L-H

6.2.78 Verify DMM reads 0VDC

6.2.79 Toggle SW88 H-L

6.2.80 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.81 Toggle SW96 L-H

6.2.82 Verify DMM reads 0VDC

6.2.83 Remove PA70

6.2.84 Connect PA66-SW89 and set H

6.2.85 Move load to PA56

6.2.86 Toggle SW81 H-L

6.2.87 Verify DMM reads > 12VDC (approx. 13VDC is typical)

6.2.88 Verify “DF” LED is illuminated and steady

6.2.89 Verify “F1” LED is illuminated and flashing

6.2.90 Toggle SW89 L-H

6.2.91 Verify DMM reads 1V (approx.)

6.2.92 Verify PA47 = 0VDC

6.2.93 Verify “DF” LED is now off

6.2.94 Verify “F1” is still illuminated and flashing

6.2.95 Toggle SW96 L-H

6.2.96 Verify all LED’s are now extinguished

6.2.97 Connect PA44-SW90 and set H

6.2.98 Connect PA42 SW91 and set H

6.2.99 Toggle SW81 H-L

6.2.100 Verify “DF” LED is illuminated and steady

6.2.101 Verify “F1” LED is illuminated and flashing

6.2.102 Toggle SW90 L-H

6.2.103 Verify “DF” LED is now off

6.2.104 Verify “F1” LED is illuminated and steady

6.2.105 Toggle SW91 L-H

6.2.106 Verify all LED’s are now extinguished

6.2.107 Toggle SW82 H-L

6.2.108 Verify “DF” LED is illuminated and steady

6.2.109 Verify “F2” LED is illuminated and flashing

6.2.110 Toggle SW90 L-H

6.2.111 Verify “DF” LED is now off

6.2.112 Verify “F2” LED is illuminated and steady

6.2.113 Toggle SW91 L-H

6.2.114 Verify all LED’s are now extinguished

6.2.115 Toggle SW83 H-L

6.2.116 Verify “DF” LED is illuminated and steady

6.2.117 Verify “F3” LED is illuminated and flashing

6.2.118 Toggle SW90 L-H

6.2.119 Verify “DF” LED is now off

6.2.120 Verify “F3” LED is illuminated and steady

6.2.121 Toggle SW91 L-H

6.2.122 Verify all LED’s are now extinguished

6.2.123 Toggle SW84 H-L

6.2.124 Verify “DF” LED is illuminated and steady

6.2.125 Verify “F4” LED is illuminated and flashing

6.2.126 Toggle SW90 L-H

6.2.127 Verify “DF” LED is now off

6.2.128 Verify “F4” LED is illuminated and steady

6.2.129 Toggle SW91 L-H

6.2.130 Verify all LED’s are now extinguished

6.2.131 Toggle SW85 H-L

6.2.132 Verify “DF” LED is illuminated and steady

6.2.133 Verify “F5” LED is illuminated and flashing

6.2.134 Toggle SW90 L-H

6.2.135 Verify “DF” LED is now off

6.2.136 Verify “F5” LED is illuminated and steady

6.2.137 Toggle SW91 L-H

6.2.138 Verify all LED’s are now extinguished

6.2.139 Toggle SW86 H-L

6.2.140 Verify “DF” LED is illuminated and steady

6.2.141 Verify “F6” LED is illuminated and flashing

6.2.142 Toggle SW90 L-H

6.2.143 Verify “DF” LED is now off

6.2.144 Verify “F6” LED is illuminated and steady

6.2.145 Toggle SW91 L-H

6.2.146 Verify all LED’s are now extinguished

6.2.147 Toggle SW87 H-L

6.2.148 Verify “DF” LED is illuminated and steady

6.2.149 Verify “F7” LED is illuminated and flashing

6.2.150 Toggle SW90 L-H

6.2.151 Verify “DF” LED is now off

6.2.152 Verify “F7” LED is illuminated and steady

6.2.153 Toggle SW91 L-H

6.2.154 Verify all LED’s are now extinguished

6.2.155 Toggle SW88 H-L

6.2.156 Verify “DF” LED is illuminated and steady

6.2.157 Verify “F8” LED is illuminated and flashing

6.2.158 Toggle SW90 L-H

6.2.159 Verify “DF” LED is now off

6.2.160 Verify “F8” LED is illuminated and steady

6.2.161 Toggle SW91 L-H

6.2.162 Verify all LED’s are now extinguished

6.2.163 Toggle SW81 H-L

6.2.164 Toggle SW82 thru SW88 H-L

6.2.165 Verify “F1” LED is illuminated and flashing

6.2.166 Verify all other LED’s are illuminated and steady

6.2.167 Toggle SW96 L-H

6.2.168 Verify all LED’s are now extinguished

6.2.169 Toggle SW82 H-L

6.2.170 Toggle SW81 thru SW88 H-L

6.2.171 Verify “F2” LED is illuminated and flashing

6.2.172 Verify all other LED’s are illuminated and steady

6.2.173 Toggle SW96 L-H

6.2.174 Verify all LED’s are now extinguished

6.2.175 Toggle SW83 H-L

6.2.176 Toggle SW81 thru SW88 H-L

6.2.177 Verify “F3” LED is illuminated and flashing

6.2.178 Verify all other LED’s are illuminated and steady

6.2.179 Toggle SW96 L-H

6.2.180 Verify all LED’s are now extinguished

6.2.181 Toggle SW84 H-L

6.2.182 Toggle SW81 thru SW88 H-L

6.2.183 Verify “F4” LED is illuminated and flashing

6.2.184 Verify all other LED's are illuminated and steady

6.2.185 Toggle SW96 L-H

6.2.186 Verify all LED's are now extinguished

6.2.187 Toggle SW85 H-L

6.2.188 Toggle SW81 thru SW88 H-L

6.2.189 Verify "F5" LED is illuminated and flashing

6.2.190 Verify all other LED's are illuminated and steady

6.2.191 Toggle SW96 L-H

6.2.192 Verify all LED's are now extinguished

6.2.193 Toggle SW86 H-L

6.2.194 Toggle SW81 thru SW88 H-L

6.2.195 Verify "F6" LED is illuminated and flashing

6.2.196 Verify all other LED's are illuminated and steady

6.2.197 Toggle SW96 L-H

6.2.198 Verify all LED's are now extinguished

6.2.199 Toggle SW87 H-L

6.2.200 Toggle SW81 thru SW88 H-L

6.2.201 Verify "F7" LED is illuminated and flashing

6.2.202 Verify all other LED's are illuminated and steady

6.2.203 Toggle SW96 L-H

6.2.204 Verify all LED's are now extinguished

6.2.205 Toggle SW88 H-L

6.2.206 Toggle SW81 thru SW87 H-L

6.2.207 Verify "F8" LED is illuminated and flashing

6.2.208 Verify all other LED's are illuminated and steady

6.2.209 Toggle SW96 L-H

6.2.210 Verify all LED's are now extinguished

6.2.211 Connect PA50-PA76

6.2.212 Set all faults to on by toggling SW81 thru SW88 H-L

6.2.213 Verify all LED's are illuminated and steady except the first faulted circuit is flashing

6.2.214 Verify the following points are logic Low

PA18

PA19

PA20

PA21

PA38

PA39

PA40

PA41

6.2.215 Toggle SW90 L-H

6.2.216 Verify all LED's are now extinguished

6.2.217 Verify the following points are logic High

PA18

PA19

PA20

PA21

PA38

PA39

PA40

PA41

6.2.218 Remove connection from PA76-PA50

6.2.219 Connect PA25-L

6.2.220 Verify all LED's are illuminated

6.2.221 Remove connection at PA25

6.2.222 Connect PA52-L

6.2.223 Set SW96-L

6.2.224 Change the following connections by moving the first location to the second

SW81-PA69

SW82-PA61

SW83-PA64

SW84-PA62

SW85-PA49

SW86-PA71

SW87-PA80

SW88-PA65

6.2.225 Verify all LED's except "DF" are illuminated

6.2.226 Remove PA52

6.2.227 Verify "F1" thru "F8" start scrolling one LED off

6.2.228 Set SW96-H

6.2.229 Verify the LED that was extinguished when SW96 went H begins to flash

6.2.230 Verify the “DF” LED illuminates

6.2.231 Set SW96-L

6.2.232 Verify LED scrolling resumes

6.2.233 Remove power from UUT

6.3 ***TEST COMPLETE ***

7. Notes

7.1 None at this time.

8. Attachments

8.1 None at this time.