g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-531X187VCTA**

Test Procedure for a voltage to current transducer card.

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	RKD	6/6/02
B	Transferred to new format	JMH	6/17/10
C			

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
Robert Duvall	Jill Hardin		Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
6/6/02	6/17/10		6/18/2010

1. SCOPE

1.1 This is a functional testing procedure for a 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 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)
2		72-2080 Dual Power Supplies or equivalent

6. TESTING PROCESS

6.1 Setup

6.1.1 Set Jumpers as follows:

Board label	Jumper	Board label	Jumper
JP1	1-2	JP12	1-2
JP2	1-2	JP13	1-2
JP3	1-2	JP14	1-2
JP4	1-2	JP15	1-2
JP5	3-4	JP16	3-4
JP6	1-2	JP17	1-2
JP7	1-2	JP18	1-2
JP8	1-2	JP19	1-2
JP9	1-2	JP20	1-2
JP10	3-4	JP21	3-4

6.1.2 Set DIP switches as follows UP or Down:

SW1A	SW2A	SW1B	SW2B
1	2	3	4
U	U	D	D

6.1.3 Power as follows:

6.1.3.1 Cathode side of Z1 =+20

6.1.3.2 Anode side of Z2 = -20

6.1.3.3 CTB

6.1.3.3.1 Pin 6 =Common for +/-20V

6.1.3.3.2 Pin 4= +24V

6.1.3.3.3 Pin 5=Common for +24V

Note: **Upgrade U2 to ULN2023

6.2 Testing Procedure

6.2.1 Testing Channel A

6.2.1.1 Put an amp meter and 1.5K resistor in series and connect positive to ATB pin 1 and neg to ATB pin 3. With board powered on amp meter should be 4ma.

6.2.1.2 Input an isolated +5V to pin 3 of CTB with neg side to CTB pin 2(input signal). Amp meter should read 12ma.

6.2.1.3 Increase input signal on Pin 3 and 2 of CTB to +10V. Amp meter should read 20ma. If so, channel A test good. If not adjust channel A.

6.2.1.3.1 Adjusting Channel A

6.2.1.3.2 Remove input signal to CTB pin 3 and 2

6.2.1.3.3 Remove JP4 jumper

6.2.1.3.4 Using neg side of C23 as common adjust P3 to get pin 3 of U4 to 0V trip point (high gain)

6.2.1.3.5 Jumper JP4 1-2 again.

6.2.1.3.6 Adjust P2 (bias) for 4ma on meter.

6.2.1.3.7 Input an isolated +5V to pin 3 of CTB with neg side to CTB pin 2 (input signal)

6.2.1.3.8 Adjust P1 (gain) for 12 ma on meter

6.2.1.3.9 Reduce input signal to 0V and readjust P2 for 4ma(repeat above 2 adjustments if needed)

6.2.1.3.10 Increase signal voltage to 10V, output current should increase to 20 ma.

6.2.2 Testing channel B

6.2.2.1 Put amp meter and 1.5K resistor in series and connect positive to BTB pin 1 and neg to BTB pin 3. With board powered up amp meter should be 4ma

6.2.2.2 Input isolated +5V to Pin 7 of CTB with neg side to CTB Pin 8 (input signal). Amp meter should read 12ma

6.2.2.3 Increase input signal on pins 7 and 8 of CTB to +10V. Amp meter should read 20 ma. If so channel B tests good. If not adjust channel B.

6.2.2.3.1 Adjusting channel B

6.2.2.3.2 Remove input signal to CTB pin 7 and 8

6.2.2.3.3 Remove JP15 jumper.

6.2.2.3.4 Using neg side of C33 as common adjust P6 to get pin 3 of U6 to 0V trip point (high gain).

6.2.2.3.5 Jumper JP15 1-2 again

6.2.2.3.6 Adjust P5 (bias) for 4 ma on meter

6.2.2.3.7 Input an isolated +5V to Pin 7 of CTB with neg side to CTB pin 8(input signal)

6.2.2.3.8 Adjust P4 (gain) for 12 ma on meter.

6.2.2.3.9 Reduce input signal to 0V and readjust P5 for 4ma (repeat above 2 adjustments if needed).

6.2.2.3.10 Increase input signal voltage to 10V, output should increase to 20 ma.

6.3 ***TEST COMPLETE ***

7. NOTES

7.1 None at this time.

8. ATTACHMENTS

8.1 None at this time.