NSM Industrial Solutions Pvt. Ltd.

Innovation is our Legacy

FCT (Functional Circuit Test) Bench

- PCBA as a whole testing approach (Black Box Testing)

- Test/ Final Firmware is flashed in MicroController of PCBA.

- Final Electrical Environment is simulated.
  e.g. Auxiliary Supply, Sensor inputs and more.

- PCBA Output (Digital, Analog, Relay), LEDs, LCD Display and other functionality is measured and tested.

- If this test is PASS, then PCBA is most likely to function correctly in the actual field.

Function Modules

- MicroController Program Downloading and Verification
- Boundary Scan Test
- Digital Storage Oscilloscope Measurement and Test
- Digital Multi Meter Measurement and Test
- Wave Generator
- +/- 10V, +/- 20mA Signal Generator
- AC/ DC Voltage Generator
- DiElectric, Insulation Resistance Measurement and Test
- LED analysis and Testing
- Digital Input/ Output Module
- Multiplexer Module
- RS232, RS485, MODBUS Communication
- I2C, SPI, UART and more...

NSMView Logic Builder

It is our premium software to create and run Test Program for various function modules.

It uses a table format for programming, it allows easy creation of Test Program even for a beginner with a little knowledge of basic operations.

it is so designed for enabling people, other than a creator of the Test Program, to understand operation flow of the program easily and modify if required.

NSMView Logic Builder-1

NSM INDUSTRIAL SOLUTIONS PVT. LTD.

PCBA TEST BENCH

AUTO TEST

Welcome ENGG   Role - Engineering

NSM Industrial Solutions Pvt. Ltd.
www.nsmsolutions.com
Proudly Made in Bharat (India)
Version 04 May 2024

SAFETY OK

BARCODE

24-AUT0004760-0B-000004-160124

Only Golden Sample Allowed...

Test Result   Cycle Time (Sec)

FAIL   229

DI-Control ON   IO Task Time(mSec)
83

DI-Start

DI-RSHome   PLC ERROR COUNT
0

DI-RSEnd

Previous   STOP BUTTON   START BUTTON   STEP NO
25

SR NO	TEST NAME	TEST STEP	MIN	MAX	UNIT	ACUAL	RESULT
1	Short J2.1 and J2.2	--	--	--	--	--	--
11	--	Test whether 240V is there or not	235	245	Vrms	242.99	PASS
13	Power Supply Test	Connect Voltage (240V) to J1.8 - J1.9	--	--	--	--	--
17	Power Supply Test	Test Signal [VT] at TP1 - TP-10	15	18	Vdc	11.74	FAIL
22	--	Test Signal [VDD] at TP2 - TP-10	3.27	3.33	Vdc	3.12	FAIL
28	--	Test Signal [VRECT] at J3.1 - TP10	315	350	Vdc	325.41	PASS
30	--	Disconnect Voltage from J1.8 - J1.9	--	--	--	--	--
36	--	Test whether 150V is there or not	147	153	Vrms	151.69	PASS
38	--	Connect Voltage (150V) to J1.8 - J1.9	--	--	--	--	--
42	--	Test Signal [VSENSE] at 150V TP3 -TP10	1.09	1.12	Vdc	1.05	FAIL
44	--	Disconnect Voltage from J1.8-J1.9	--	--	--	--	--
51	--	Test whether 332V is there or not	325	338	Vrms	334.12	PASS
53	--	Connect Voltage (332V) to J1.8 - J1.9	--	--	--	--	--
57	--	Test Signal [VSENSE] at 332V TP3 -TP10	2.41	2.48	Vdc	2.34	FAIL
59	--	Disconnect Voltage from J1.8 - J1.9	--	--	--	--	--
63	Flash Program	Download Software 0x6B86	--	--	--	6B86	PASS
69	--	Test whether 340V is there or not	336	343	Vrms	342.81	PASS
71	Over Voltage Test	Connect Voltage (340V) to J1.8 - J1.9	--	--	--	--	--
74	Over Voltage Test	Red Flashing 1010101010	--	--	--	1010101010	PASS
76	--	Disconnect Voltage from J1.8 - J1.9	--	--	--	--	--

NSMView Logic Builder-2

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PCBA TEST BENCH

AUTO TEST

Welcome ENGG   Role - Engineering

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SAFETY OK

BARCODE
24-AUT0004760-0B-000004-160124
Only Golden Sample Allowed...

Test Result   Cycle Time (Sec)
FAIL   229

DI-Control ON   IO Task Time(mSec)
                     84
DI-Start
                     PLC ERROR COUNT
DI-RSHome   0
DI-RSEnd

Previous   STOP BUTTON   START BUTTON   STEP NO
                                           25

SR NO	TEST NAME	TEST STEP	MIN	MAX	UNIT	ACUAL	RESULT
74	Over Voltage Test	Red Flashing 1010101010	--	--	--	1010101010	PASS
76	--	Disconnect Voltage from J1.8 - J1.9	--	--	--	--	--
82	--	Test whether 130V is there or not	127	132	Vrms	131.48	PASS
84	Under Voltage Test	Connect Voltage (130V) to J1.8 - J1.9	--	--	--	--	--
87	Under Voltage Test	Red Flashing 0101010101	--	--	--	0101010101	PASS
89	--	Disconnect Voltage from J1.8 - J1.9	--	--	--	--	--
92	Load Test	Connect RL1	--	--	--	--	--
93		Connect RL2	--	--	--	--	--
95		Connect Voltage (240V) to J1.8 - J1.9	--	--	--	--	--
98	Test Green LED Flashing	Green LED Flashing: 0101010101	--	--	--	0101010101	PASS
99	Test LED Colour	Green Wavelength	500	600	nm	560	PASS
102	ON1 Push Button	Short J1.5 - J1.6	--	--	--	--	--
105	--	Test Voltage accross RL2	50	150	Vdc	100.23	PASS
108	Test Red LED ON	1111111111	--	--	--	1111111111	PASS
110	Release ON1 Button	Disconnect Voltage from J1.8 - J1.9	--	--	--	--	--
112	ON1 Position Feedback	--	--	--	--	--	--
113	--	Connect Voltage (240V) to J1.8-J1.9	--	--	--	--	--
118	ON1 Push Button	Test Voltage accross RL2	0	10	Vdc	0.69	PASS
119	Release ON1 Button	--	--	--	--	--	--
124	ON2 Push Button	Test Voltage accross RL2	-150	-50	Vdc	-97.20	PASS

NSMView Logic Builder-3

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PCBA TEST BENCH

AUTO TEST

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SAFETY OK

BARCODE

24-AUT0004760-0B-000004-160124

Only Golden Sample Allowed...

Test Result   Cycle Time (Sec)

FAIL   229

DI-Control ON   IO Task Time(mSec)
                              83
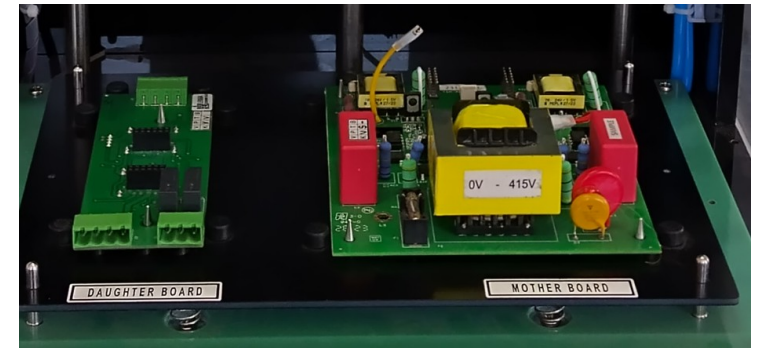DI-Start

DI-RSHome   PLC ERROR COUNT
                              0
DI-RSEnd

Previous   STOP BUTTON   START BUTTON   STEP NO
                                           25

SR NO	TEST NAME	TEST STEP	MIN	MAX	UNIT	ACUAL	RESULT
124	ON2 Push Button	Test Voltage accross RL2	-150	-50	Vdc	-97.20	PASS
127	Test Red LED ON	1111111111	--	--		1111111111	PASS
128	elease ON2 Push Butto	--	--	--		--	--
129	--	Disconnect Voltage from J1.8 - J1.9	--	--		--	--
130	Release ON1 Feedback		--	--		--	--
133	ON2 Position Feedback	Connect Voltage (240V) to J1.8 - J1.9	--	--		--	--
138	ON2 Push Button	Test Voltage accross RL2	-10	10	Vdc	0.66	PASS
139	elease ON2 Push Butto		--	--		--	--
140	ase ON2 Position Feedl	--	--	--		--	--
141		Disconnect Voltage from J1.8 - J1.9	--	--		--	--
143		Connect Voltage (240V) to J1.8 - J1.9	--	--		--	--
148	OFF Push Button	Test Voltage accross RL2	-10	10	Vdc	0.69	PASS
149	Release OFF Button	--	--	--		--	--
158	--	Test whether 300V is there or not	294	306	Vrms	302.72	PASS
162	--	Connect Voltage (300V) to J1.8 - J1.9	--	--		--	--
172	ON1 Push Button	Test Frequency accross RL2	990	1010	Hz	1000.00	PASS
173	elease ON1 Push Butto	--	--	--		--	--
174	--	Disconnect Voltage from J1.8 - J1.9	--	--		--	--
176	--	Connect Voltage (300V) to J1.8 - J1.9	--	-		--	--
182	ON2 Push Button	Test Frequency accross RL2	990	1010	Hz	999.21	PASS

- Auto Mode: For Production Use
- Data Logging and Traceability against Sample Identifier.
- Manual Mode: For Maintenance and Troubleshooting
- Calibration Mode: For Calibration of internal instruments.
- Test Master: Add/ Edit/ Delete Test Recipes
- Result CSV file direct email facility. No need of Pen drive.
- Multi-User system with different authorities: Engineering, Quality, Maintenance, Production, Operator.
- System Health Check: For Preventive and Corrective Maintenance.
- Industry 4.0 compliant system.
- Machine to Machine communication capability.
- 21CFR compliant.

ISO 9001 compliance

- 100% fault detection
- Improves Yield
- Unique Test Report of every PCBA
- Complete Traceability
- Detail Root Cause Analysis in case of Customer Complaint

- Less dependency on skilled human resources
- Faster adoptions to new PCBA manufacturing
- Faster Production with Accuracy

Why NSM ?

- Specialized in PCBA Test Benches since year 2010.

- User Interactive LabView software for Data Logging and full Traceability.

- State of Art Rack Type Modular Test System.

- Fast turn around time from Design to Delivery.

- Direct OEM support from our Online Support Ticket System.

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Thank you

www.nsmsolutions.com