

## Azoteq's Module Making Capabilities

Azoteq is a fabless design house of sensor integrated circuits (IC's). The IC offering is complemented by a full design and manufacturing service for touch-based modules. Azoteq's assembly partner is ISO accredited for the manufacturing of printed circuit board (PCB) and flexible printed circuit board (FPC) assemblies.

Azoteq offers standard modules and customized module solutions. [Standard modules](#) are available in several popular sizes. Customized modules can be designed based on form, function, finish, firmware, gesture and ballistic preferences.

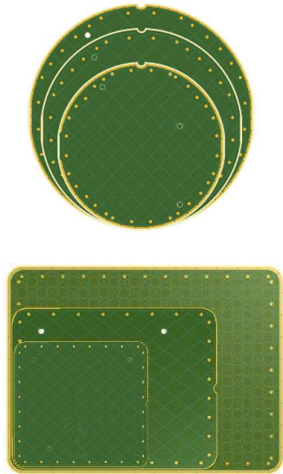


Figure 1: Standard modules.

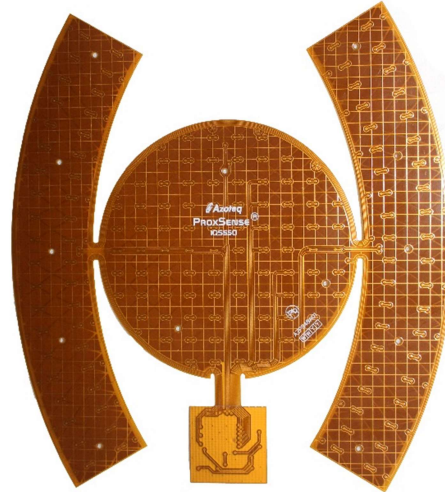


Figure 2: Example of custom FPC module.

Azoteq provides advanced testing procedures. The process utilizes the knowledge base of IC hardware, IC software and the environmental impact on the testing of the module to refine the testing procedures for hardware, software and quality control. Over 4 years of manufacturing experience ensures for effective root cause analysis and corrective action.



Figure 3: Assembly warehouse.



Figure 4a) and b): Automated tester.

Azoteq's testing procedure entails numerous steps. During the design, prototype and pre-production phases characteristics such as sensitivity, finger position accuracy, tracking linearity, sensor performance and gesture output reliability is established. During mass production each module's circuit board, programming interface, sensor integrity and current consumption is tested. Each module has a unique identifier in its ROM and a unique bar code attached to the PCB. These identifiers ensure traceability and provide a direct link to each module's specific test and manufacturing data.



Figure 5a) and b): Trackpad linearity evaluation with mechanical test finger.

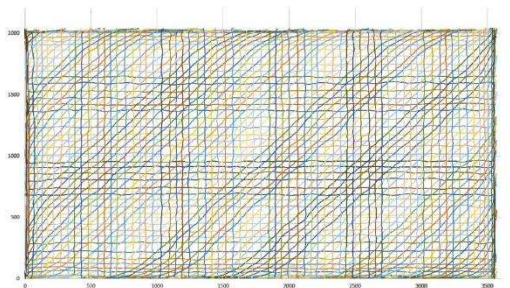


Figure 6: Graphical representation of linearity test data.

Counter	PASS_FAIL	Error_Nr	ProductCode	DateCode	SerialNumber	BL_VER	PRDGT_UID	FW_VER	TEST_DATA	ATL_Error
17	0	Pass	None	AABD-203.3	ZC1716	AAB0000876	02.00	0 U0013004C184735303733235	00.28.00.10.00.13	FF.FF
18	1	Pass	None	AABD-203.3	ZC1716	AAB0000878	02.00	0 U0013004F184735303733235	00.28.00.10.00.13	FF.FF
19	2	Pass	None	AABD-203.3	ZC1716	AAB0000882	02.00	0 U0012003F184735303733235	00.28.00.10.00.13	FF.FF
20	3	Pass	None	AABD-203.3	ZC1716	AAB0000894	02.00	0 U00120037184735303733235	00.28.00.10.00.13	FF.FF
21	4	Pass	None	AABD-203.3	ZC1716	AAB0000895	02.00	0 U00120039184735303733235	00.28.00.10.00.13	FF.FF
22	5	Pass	None	AABD-203.3	ZC1716	AAB0000883	02.00	0 U00110046184735303733235	00.28.00.10.00.13	FF.FF
23	6	Pass	None	AABD-203.3	ZC1716	AAB0000863	02.00	0 U00280036184735303733235	00.28.00.10.00.13	FF.FF
24	7	Pass	None	AABD-203.3	ZC1716	AAB0000865	02.00	0 U00280034184735303733235	00.28.00.10.00.13	FF.FF
25	8	Pass	None	AABD-203.3	ZC1716	AAB0000874	02.00	0 U00110042184735303733235	00.28.00.10.00.13	FF.FF
26	9	Pass	None	AABD-203.3	ZC1716	AAB0000862	02.00	0 U00280038184735303733235	00.28.00.10.00.13	FF.FF
27	10	Pass	None	AABD-203.3	ZC1716	AAB0000861	02.00	0 U002A0056184735303733235	00.28.00.10.00.13	FF.FF
28	11	Pass	None	AABD-203.3	ZC1716	AAB0000849	02.00	0 U002A0049184735303733235	00.28.00.10.00.13	FF.FF
29	12	Pass	None	AABD-203.3	ZC1716	AAB0000858	02.00	0 U00280032184735303733235	00.28.00.10.00.13	FF.FF
30	13	Pass	None	AABD-203.3	ZC1716	AAB0000860	02.00	0 U002A004F184735303733235	00.28.00.10.00.13	FF.FF
31	14	Pass	None	AABD-203.3	ZC1716	AAB0001342	02.00	0 U00150040184735303733235	00.28.00.10.00.13	FF.FF
32	15	Pass	None	AABD-203.3	ZC1716	AAB0001344	02.00	0 U00140039184735303733235	00.28.00.10.00.13	FF.FF
33	16	Pass	None	AABD-203.3	ZC1716	AAB0001339	02.00	0 U00150048184735303733235	00.28.00.10.00.13	FF.FF
34	17	Pass	None	AABD-203.3	ZC1716	AAB0001341	02.00	0 U0015004F184735303733235	00.28.00.10.00.13	FF.FF
35	18	Pass	None	AABD-203.3	ZC1716	AAB0000615	02.00	0 U00290044184735303733235	00.28.00.10.00.13	FF.FF
36	19	Pass	None	AABD-203.3	ZC1716	AAB0000613	02.00	0 U00290046184735303733235	00.28.00.10.00.13	FF.FF
37	20	Pass	None	AABD-203.3	ZC1716	AAB0000612	02.00	0 U0029005A184735303733235	00.28.00.10.00.13	FF.FF
38	21	Pass	None	AABD-203.3	ZC1716	AAB0000610	02.00	0 U00280037184735303733235	00.28.00.10.00.13	FF.FF

Figure 7: Traceability data.



Figure 8: Unique bar code and identifier linked to test data.

**About Azoteq (Pty) Ltd**

Azoteq ([www.azoteq.com](http://www.azoteq.com)) is a pioneer in sensor fusion. With more than 12 years of capacitive-sensing experience, the sensor offering is now expanded to include multi-sensor technologies on single ICs. The first generation of ProxFusion® offers capacitive, Hall-effect, IR, PIR, inductive and ambient-light sensing. Azoteq has design and manufacturing centers in South Africa and China, and sales offices and distributors in South Africa, Asia, Europe and the USA.

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