

In-Circuit Testing System (ICT)

Smarter **PCBA** Testing with EKTOS PTS

PTS - Production Test System is an efficient and self-contained ICT accessory for testing PCBAs after production.

It integrates hardware, fixturing, and software into a QMS workflow, making your testing consistent, fast, and efficient.

Automated test sequences

Full traceability

Scalable configuration

Industrial-grade



26×30cm

MAX BOARD SIZE

96ch

DIGITAL I/O CHANNELS

6½

DIGIT MULTIMETER

<5 min

NEW PCBA FIXTURE SETUP

Fragmented testing is **costing you quality**

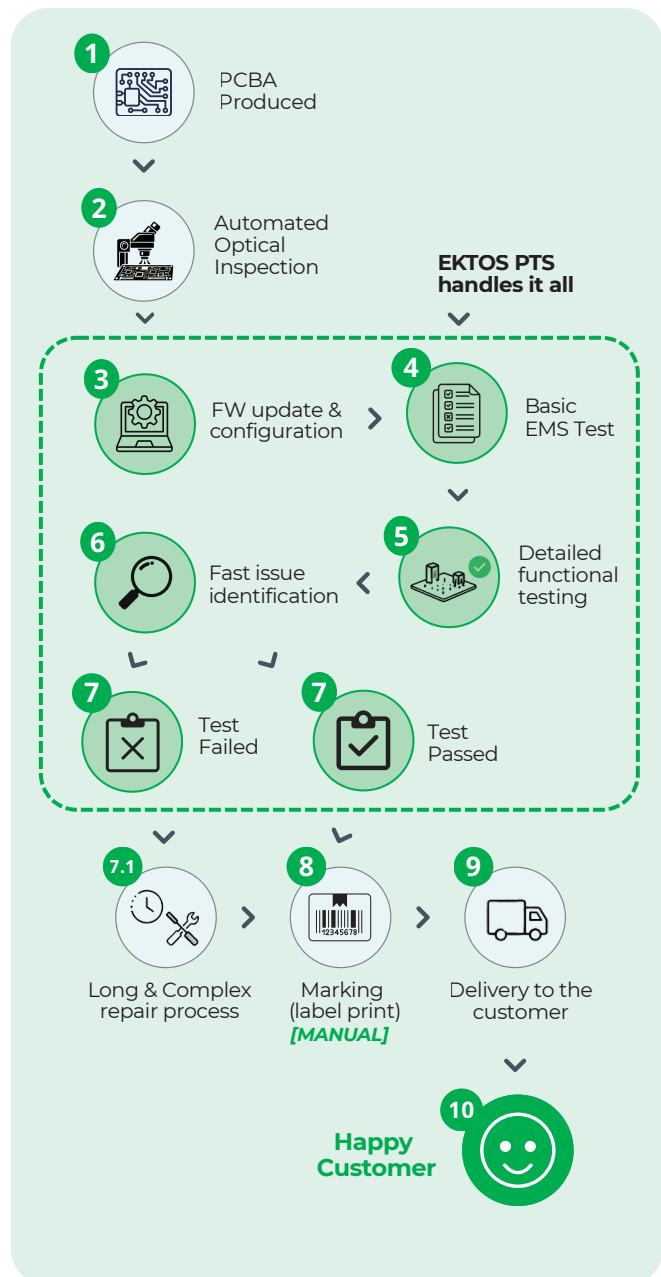
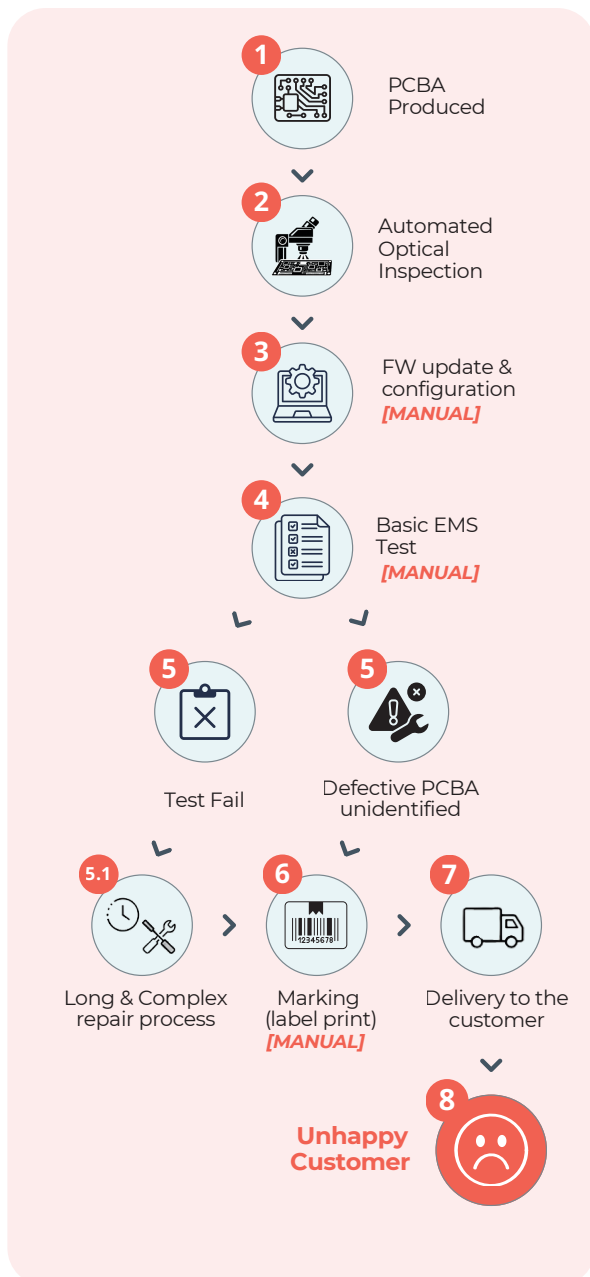
In a typical EMS production line, PCBA testing is often an afterthought disconnected from the process, undocumented, and inconsistent. Faults slip through. Boards reach customers with undetected defects. Rework costs spiral.

TYPICAL TESTS AT EMS

- ✗ Ad-hoc bench testing - no standardisation
- ✗ Manual steps prone to human error
- ✗ No test records or traceability
- ✗ Late fault discovery - costly rework
- ✗ Test results exist only in people's heads
- ✗ Impossible to scale across shifts or operators

REINFORCED BY EKTOS PTS SYSTEM

- ✓ Fully automated, repeatable test sequence
- ✓ Operator just docks the board - system does the rest
- ✓ Every result logged: database, CSV, or PDF
- ✓ Faults caught immediately after production
- ✓ Visual results overlaid on the board image
- ✓ Scales easily across product portfolio



Everything in **one system**

The PTS is a self-contained unit. An industrial PC, measurement hardware, and power electronics live in a standard rack cabinet. The tailored test fixture sits on top and docks securely with a single action.

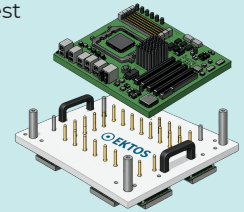
User Control Monitor & Keyboard

Provides an intuitive GUI



Tailored Testing Fixture

A spring loaded needle bed fixture designed for specific type of PCBA under test



Bar Code Scanner

For scanning fixtures and PCBAs' bar codes for its fast identification



Standard Rack

Houses system components



Industrial PC for test sequence

High-quality computer running a tailored test sequence software and test scripts



What does the system **contain**

01



Instrumentation Module

48-channel instrumentation matrix connects each test section to its own dedicated instrument or signal generator, making signal routing to external equipment fully flexible.

48ch · per-section instruments

02



I/O Board

96-channel TTL/CMOS digital I/O. Six 12-bit D/A converters (± 10 V) plus two galvanically isolated high-voltage channels (up to 1000 VDC) for demanding signal scenarios.

96ch · ± 10 VDC · 1000V VDC

03



Signal & Power Multiplexers

48-channel signal relay matrix (up to 220 VDC / 250 VAC, 2 A) routes signals to any test point.
24-channel power relay matrix handles supply switching to the device under test.

48ch signal · 24ch power

04



Industrial PC (x86)

High-reliability industrial computer running MS Windows. Hosts the test software, GUI, and all data logging. Communicates with hardware modules over internal industrial buses. Connects to the network production database. The testing software is versatile and is provided with PTS system.

MS Windows · x86

05



Precision Multimeter

A built-in $6\frac{1}{2}$ -digit DMM provides laboratory-grade measurement accuracy for voltage, current, resistance, and continuity checks across all test points. Allows calibration to be performed in any lab.

$6\frac{1}{2}$ digit precision

06



Test Fixture (needle bed)

Custom spring-loaded pin fixture designed for each PCBA type. Handles and standard connectors ensure fast, reliable docking. Boards up to 26×30 cm fit as standard. Fixture can contain all AUX equipment (i.e. programmers, circuits, etc.). The fixture supports a minimum of 5,000 test cycles without maintenance.

**FIXTURES ARE PRODUCED
AND SUPPLIED SEPARATELY**

HOW IT WORKS

The automated **test workflow**

From the moment an operator places a board to the moment test results are archived, the PTS guides and automates the entire process. Clear steps. No ambiguity. No missed checks.

PLACEMENT & DOCKING

Board loaded into the testing fixture

1

The operator places the assembled PCBA into the custom needle-bed fixture. Spring-loaded pins make contact with all test points simultaneously. A single action docks the fixture - electrical connections to the PTS are made automatically. No manual probing, no setup time.

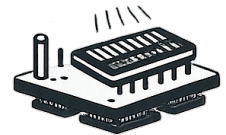


IDENTIFICATION & TRACEABILITY

PCBA and test fixture are identified

2

Before testing begins, the board and fixture are identified. Using the barcode scanner, the operator scans the serial number directly linking every subsequent test result to that specific unit in the database. No manual data entry. No mix-ups. Full chain-of-custody from fixture to shipping.



SOFTWARE INSTALLATION

Automated loading of test and production firmware

3

The system automatically uploads dedicated test firmware to the PCBA for functional verification. Once testing is successfully completed, the final production firmware is flashed to the board eliminating manual handling and ensuring every PCBA leaves fully validated and production-ready.



TEST EXECUTION

Automated stimuli measurement

4

The operator presses Start. The PTS executes the pre-configured test sequence automatically: applying power, generating stimuli (digital signals, analog voltages, AC/DC supplies), routing them through the multiplexer matrix to each test point, and measuring responses with precision instruments. The GUI displays live pass/fail status for each check. No operator decisions required during the run.



RESULTS & LOGGING

Pass/fail verdict - results stored

5

At test completion, the PTS displays the outcome visually results overlaid on an image of the tested PCBA so failures are immediately localized. All data is simultaneously logged to a database, exportable as a CSV or PDF report. If a board fails, the operator sees exactly which test step failed and on which node. Boards that pass proceed to shipping. Faulty boards enter rework - with full diagnostic detail attached.



Standard & **expandable**

The PTS ships with a proven standard configuration covering the majority of control PCBA test requirements. Every parameter can be expanded as your needs grow.

STANDARD POWER SUPPLIES INCLUDED

RACK CONFIGURATION:

Auxiliary equipment:

- Supports single PCBAs and panel arrays
- Standard board size: up to 26 × 30 cm
- Barcode scanner for serial number entry

Power Sources:

- 230 VAC – 1 A
- 115 VAC – 2 A
- 2 × 12 VAC – 10 A
- 24 VDC – 5 A
- 12 VDC – 10 A
- 5 VDC – 10 A

OPTIONAL SYSTEM EXTENSIONS

- Enlarged fixture for boards > 26 × 30 cm
- Additional power supplies (voltage / current)
- Additional communication interfaces
- Additional multiplexer and I/O channels
- Oscilloscopes, loads, and external instruments
- USB label printer for board tagging

EKTOS PTS **ICT** system **is interoperable** and guarantees good CAPEX

Real impact on your **production line**



Reduced human error

The test sequence runs identically every time, regardless of shift, operator, or board variant. Subjective judgment is removed from the quality loop.



Faster production throughput

Boards are fully tested in minutes. New board types can be added to the test program within the same day - no lengthy integration work needed.



Full traceability

Every board tested generates a permanent record - serial number, test date, individual step results, and operator. Meets quality system and audit requirements.



Integrated - not fragmented

Power supply, measurement, signal generation, fixturing, and software are all designed together. No patchwork of separate instruments and cables to manage.



Immediate fault localization

When a board fails, the GUI shows exactly which test step and which net failed - overlaid on the board image. Rework starts with full information, not guesswork.



Scalable across portfolio

One PTS rack can hold fixtures for multiple board types. Swap the fixture, load the test script - done. The base system adapts as your product portfolio grows.

Ready to streamline your PCBA testing?

Fixtures and test sequences are custom-designed for your boards - typically delivered within short notice.



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