GRS
200

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PCB Fault Locator

Polar
GmbH ®
Instruments

GRS200 PCB Fault Locator

Typical production and manufacturing departments have a small percentage of PCBs that require fault location to component level after assembly. Whether your volume is high or low, the GRS200 PCB Fault Locator can help you locate these faults rapidly and cost effectively. The GRS200 is based on proven Analog-Signature Analysis, comparing the nodal impedance between an unpowered known good board and a faulty PCB. The GRS200 finds typical production faults in electronics manufacturing as well as defective components in Service & Repair without detailed circuit knowledge:

- missing componets
- reversed components
- wrong value or incorrect type components
- counterfeit components
- shorts and opens

The GRS200 System comprises of Analog-Signatur-Hardware and powerful software providing LIVE-Signature Analysis, Program-Mode, CAD-Data-Viewer, Schematic Diagrams, PCB images, Repair Reports, and an optional Digital-Multimeter Interface.

CAD Viewer

GRS200 imports CAD Data in more than 20 popular formats, including GenCAD, Hyperlynx, IPC-2581, ODB++ and displays the PCB layout for faultfinding purposes. Faulty nets can be selected with a mouse click and highlighted in red or blue. Query net information on each faulty net and display connected components.
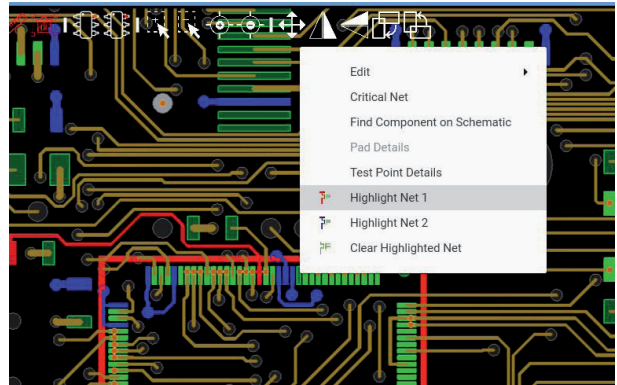

Analog-Signatur-Analysis

The nodal impedance test is made on unpowered PCBs, by applying a current limited sinewave voltage, producing a graph of voltage against current for the node. The GRS200 will compare the nodal response of a defective PCB with that of a known good PCB previously learned and stored. It will automatically identify signatures that exceed a defined tolerance and identify components that are suspect.
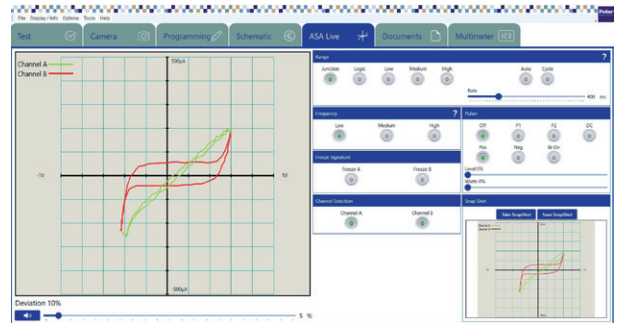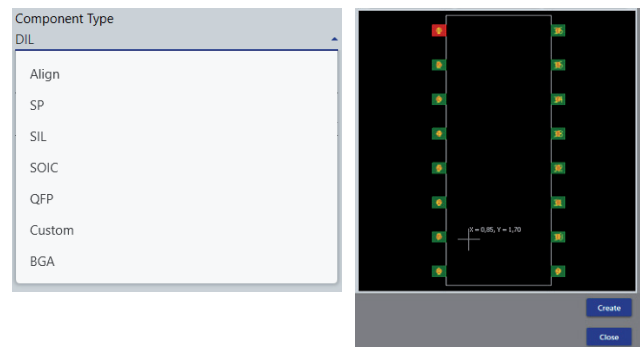

Test Programs

All nets contained in the CAD data will be allocated a test point and analog signatures will be stored for later comparison.
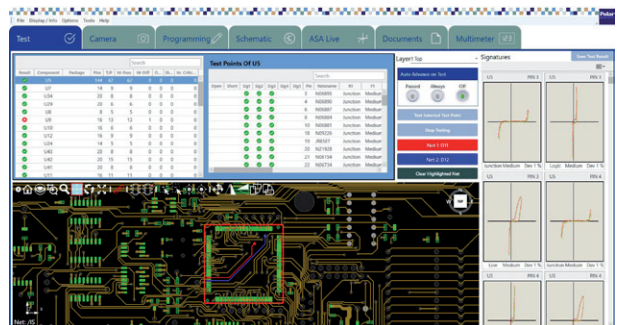
Manual Programming

In case no CAD Data is available – such as in third party service and repair applications – use manual programming by entering the IC package style and pin number.

Documentation

Add and display circuit diagrams and other supporting documents such as component´s datasheets, photos, etc. to the repair project.

Integrated Multimeter (optional)

In addition to power-off nodal impedance test, the GRS200 provides an interface to an optional external Multimeter, adding measurement capabilities for voltage, resistance, frequency, temperature, etc. Measurement values may be stored for critical nets on the circuit board and compared with live measurements during the fault finding process.
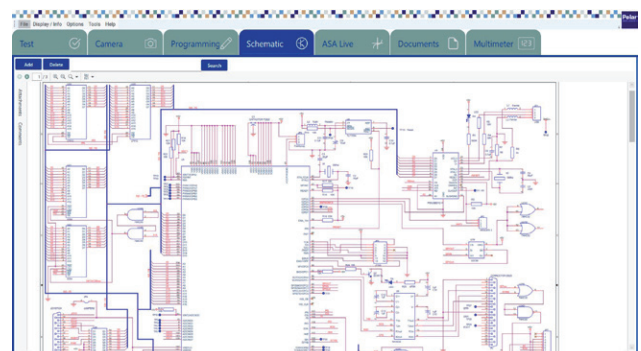
Integrated Short-Locator (optional)

A significant percentage of electronics manufacturing and in-service defects are caused by PCB short-circuits or faulty devices loading the circuit. Conventional fault location techniques can be used to diagnose the presence of shorts, but not their physical location. Using the 4-Wire resistance measurement of the optional Multimeter, the GRS200 traces the shorted nets and produces a sound with a pitch proportional to the measured resistance. This way, the physical location of the short may be located to within a few millimeters.

Repair Report

For each PCB assembly under repair, a repair report may be produced to record and document all relevant information such as serial number, repair history, faults found. Historical data from previous repairs may help to identify faults at an early stage.

Integrated Camera (optional)

Use the optional high resolution USB camera to take images of the PCB unter test to record fault information and store in the test file.

The GRS200 is shipped with highly flexible silicone test wires and two sets of high quality test probes – the standard probes and the miniature probes for components that are difficult to access.

The optional interface adapter ACC769 connects all 128 scanner channels to a custom configurable breadboard area, allowing circuit boards to be tested very effectively via connectors.
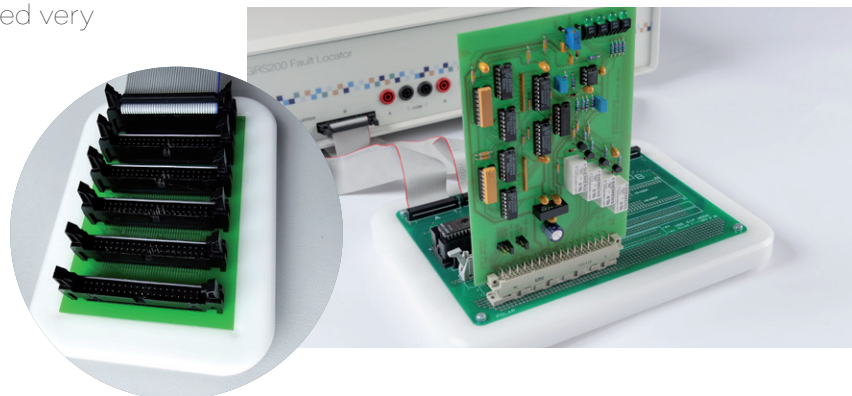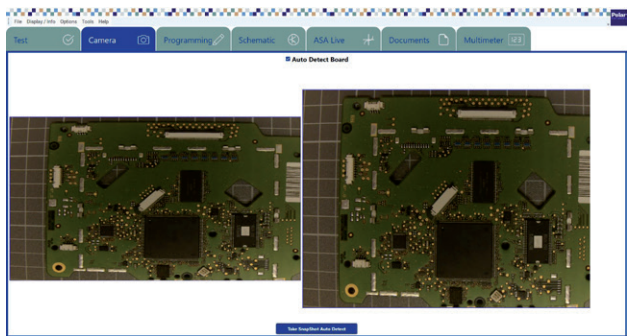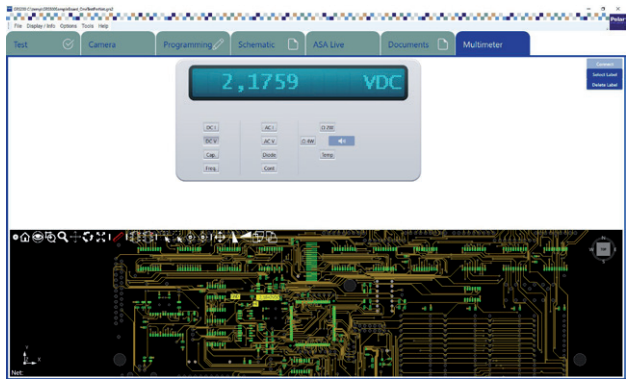
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Test integrated components directly in-circuit via the built-in scanner of the GRS200 and a wide choice of test clips for DIL and SOIC packages. Each clip is supplied complete with a ribbon cable, terminated with a plug in connector. An adapter board supplied with the test clip set allows simultaneous connection of up to 5 test clips to the instrument.

Use the Zero-Insertion-Force Socket to test up to 40 pin DIL components out-of-circuit.
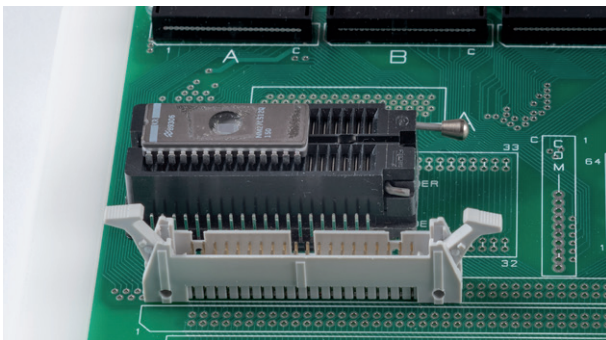
GRS 550

For automated tests, use the **GRS550** Flying Prober on complex PCB assemblies in repair and pre-production environments.
Create test programs by manual teach-in or import of CAD Data.

CT100

The optional **CT100** Circuit Trace Brush is the ideal tool to analyze suspect nets on undocumented circuit board assemblies.
Track nets on a PCB using a conductive brush and identify all connected components. An indispensable tool for the repair of circuit boards without schematics or circuit board documentation.

Specification

Tests	Nodal Impedance Test, 2-Channel-LIVE Display and comparison with stored data, CAD display, integrated Multimeter Interface (Multimeter supplied optional), Shorts Locator (requires Multimeter with 4-Wire resistance measurement), Camera images
Channels	128-channel scanner
Test ranges	1V/500µA, 10V/5mA, 10V/150mA, 20V/1mA, 40V/1mA at 90Hz, 500Hz, 2kHz
Pulser	DC, 0 - +/-5V variable, variable pulse width for testing Triac´s, etc.
CAD Formats	imports more than 20 popular formats, including GenCAD, Hyperlynx, IPC-2581, ODB++
Standard Accessories	accessory case with 2 sets of probes, silicone test wires, RS-232 and USB interface cable, power cord, foot switch, operating software, operating manual
PC requirements	Windows 10/64 Bit, min i5 CPU, 8 GB RAM, RS232 interface, USB Ports
Options	**GRS200-01** USB Digital Multimeter for measuring DC resistance, AC/DC voltage, AC/DC current, capacitance, frequency, diode test, continuity, temperature, including temperature probe, 4-wire Kelvin probes for shorts location **GRS200-02** hand held QR/Bar code reader for reading board serial numbers, wireless via Bluetooth. **GRS200-03** CT100 Circuit Trace Brush to identify and trace nets on undocumented circuit boards. **GRS200-04** Controller PC with GRS200 Software pre-installed, RS232 Port, Monitor, Keyboard, Mouse **GRS200-05** Interface adapter ACC769 for custom specific wiring of connectors or ZIF sockets. Connects up to 128 channels **GRS200-07** Testclip-Set for 8-40 Pin DIL and 8-28 Pin SOIC packages, including ribbon cable, connector and 5-way extender board