

## Automatic testing of controlled impedance PCB coupons

In response to the increasing volume of PCBs with controlled impedance, Polar Instruments has developed a turnkey system for automated impedance testing of PCBs and coupons in a production environment.

**RITS 550** automates the industry standard CITS 880s (Controlled Impedance Test System) to give fast, repeatable volume testing of coupons and PCBs. CITS 880s employs proven technology and is currently used worldwide for manual testing of controlled impedances. Even if you have not had much experience of electrical or RF testing before, you will find **RITS 550** easy to use. The system is controlled via easy to use Windows software. Test set-up is straight forward, results data is automatically logged in

accessible formats, and there is the option of a built-in report generator. We have found that system operators can usually be fully trained in just half a day. High speed technologies, faster processors, accelerated graphics and faster communications require more system bandwidth. The evolving demands of multi-media applications and three-dimensional graphics, mean that high bandwidth printed circuit interconnect is now essential to sustain system performance. The challenge for

the PCB industry is to develop reliable, repeatable processes for cost-effective volume manufacture of this next-generation interconnect technology.

With test times as fast as fixture based systems, **RITS 550** flying probe technology provides unparalleled levels of measurement repeatability, with a lifetime cost of ownership just a fraction of a fixture based system. Tooling costs for new jobs are reduced to a few moments of program setup.

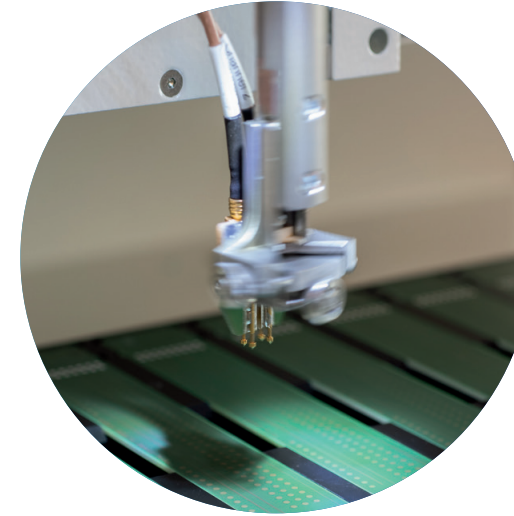
Accurate, traceable measurement **RITS 550** uses proven time domain reflectometry (TDR) techniques to measure the reflection of fast rise-time pulses. High precision reference airlines - traceable to NPL and NIST standards - ensure repeatable measurement accuracy to allow the trace impedances to be controlled.

You can be sure of the repeatability of the test measurement because **RITS 550** is calibrated using traceable airlines. The system is able to make both single ended and differential measurements, in addition the **RITS 550** can check for differential imbalance and also report odd and even mode impedance.

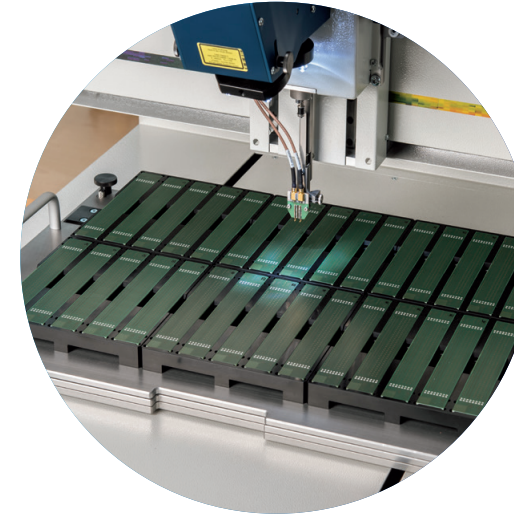
### Flying probe technology

For each new coupon or memory module design, **RITS 550** learns the location of the impedance test points, in contrast to fixture systems setup is very fast and tooling charges for new jobs are minimal. Precision motion systems in the **RITS** give a step resolution of just half a mil (13 microns), so you can be sure of accurate probing even with very fine pitches.

Up to 30 test coupons can be loaded on the **RITS 550** for testing and logging, and spare coupon trays may be preloaded to achieve maximum throughput. Lifetime cost of ownership of a **RITS 550** can be a fraction of the cost of a fixture based solution.



The **RITS550** tests single ended and differential traces using a newly developed rotational probe head.



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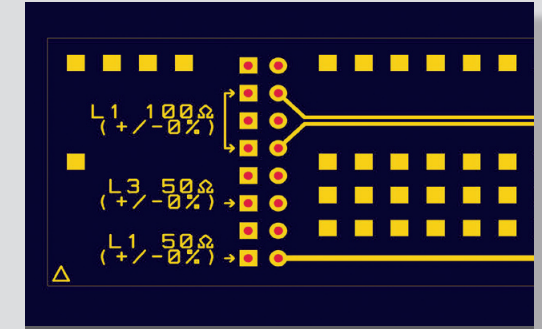
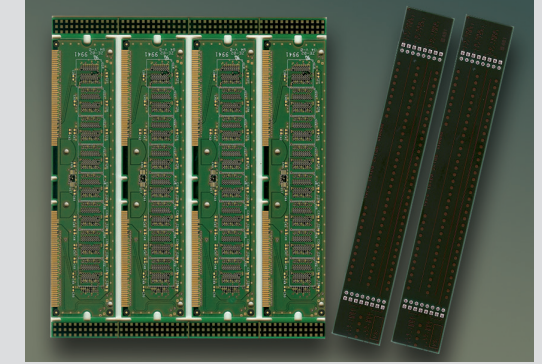
System also available with optional trolley

All calibration lines used by Polar are traceable to NIST or NPL standards. The majority of the worlds top 100 PCB fabricators choose Polar for impedance test.

### Datalogging and statistical process control

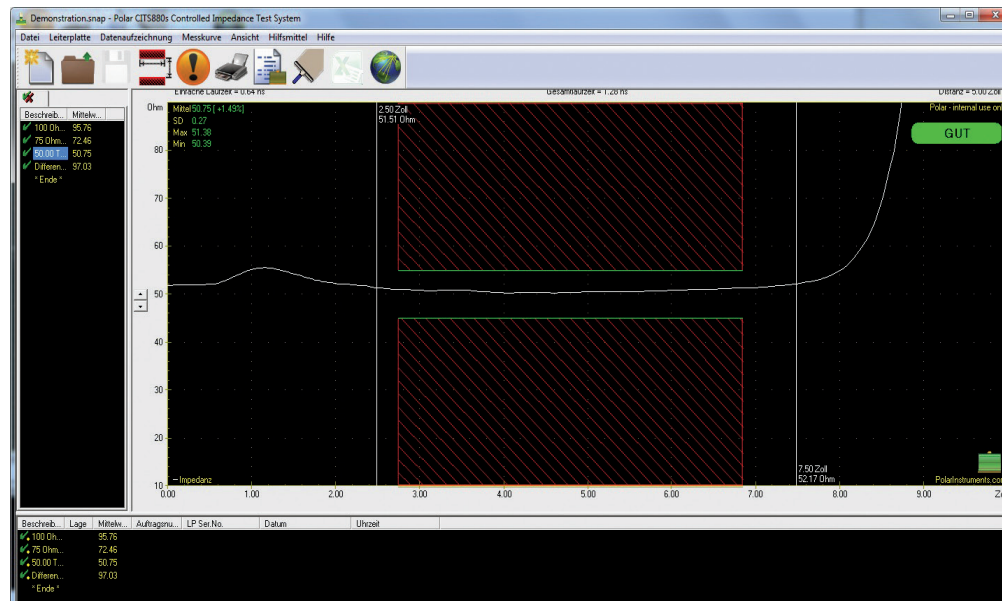
**RITS 550** verifies impedance characteristics at each test point, logging results data and identifying each board as pass or fail. In addition, with the powerful datalog report generator (DRG) option, you can record results in useful statistical formats, and generate reports automatically. Minimum, maximum and average impedance measurements are logged, along with standard deviations for each batch and statistical process control values Cp and Cpk. All data is saved in pipe-delimited ASCII format, for world-wide compatibility with popular analysis and reporting packages. You can produce customer conformance reports, including pass only data, as well as reports showing all test results for internal records or analysis. Use the Polar CGen Coupon Generator for generating impedance test coupons. If you have already invested in Polar CITS 880 the **RITS 550** can be purchased as an upgrade to your existing Polar system, please check with your local Polar representative for compatibility and upgrade options for your system. This is a very economic way for you to extend your impedance test capability and increase the value of your existing investment. **RITS 550** can be supplied in two configurations,

- Stand alone to add to your existing CITS880s
- Complete with CITS 880s - for applications with a mix of single ended and differential test.



RITS  
550

- Automatic logging of test results
- Datalogging and SPC reporting option
- Single ended and differential measurements





Repeatable, accurate, traceable measurements · Precision airline verification · Datalogging and reporting option · Fast production throughput · Optional real-time SPC

RITS  
550

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## Specification

RITS  
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### Measurement System

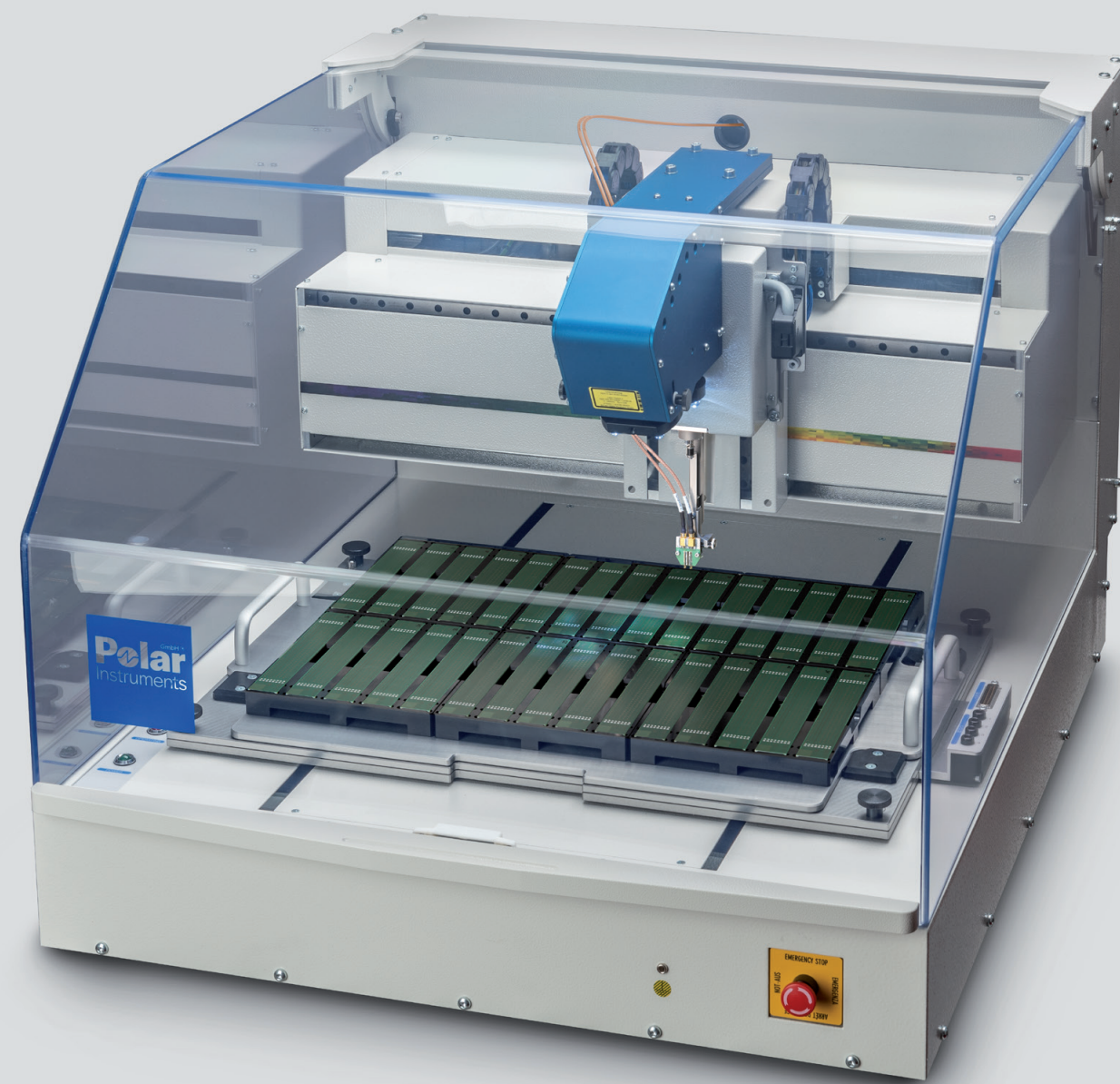
Range	20-150 Ohm Single Ended, 40-200 Ohm differential
Accuracy	1% at 50 Ohm
Calibration	Precision calibration using traceable airlines
Horizontal resolution	0.2mm (0.008")
Vertical resolution	0.03 Ohm

### Flying-Probe-Systemspecification

Probing area (max.)	440 x 300 mm
PCB size (max.)	500 x 330 mm
Testing speed	2.2 seconds per test
Position accuracy	±0.04mm over 300mm
Minimum pad size	0.3 mm
Repeatability	±0.008 mm (typical)
Resolution	0.016 mm
Probe-pressure	adjustable, typically 650g using a 4-Pin probe
Dimensions	940 x 650 x 524 mm
Weight	95 kg (ca.)
Standard Accessories	Polar CITS880s Controlled Impedance Test System, Coaxial Cables, Microstrip-Probes, Control-PC with pre-installed Software, Monitor, Mouse, Keyboard

Optional Accessories	Polar DRG Datalog Report Generator, Polar CGen Coupon Generator, Polar Si8000m or Si9000e Field Solver, Speedstack Stackup Generator
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Approvals	complies with EU-regulations and is CE marked
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# AUTOMATIC CONTROLLED IMPEDANCE PCB TEST SYSTEM

Automated impedance measurement for PCB and coupon testing with excellent R&R



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