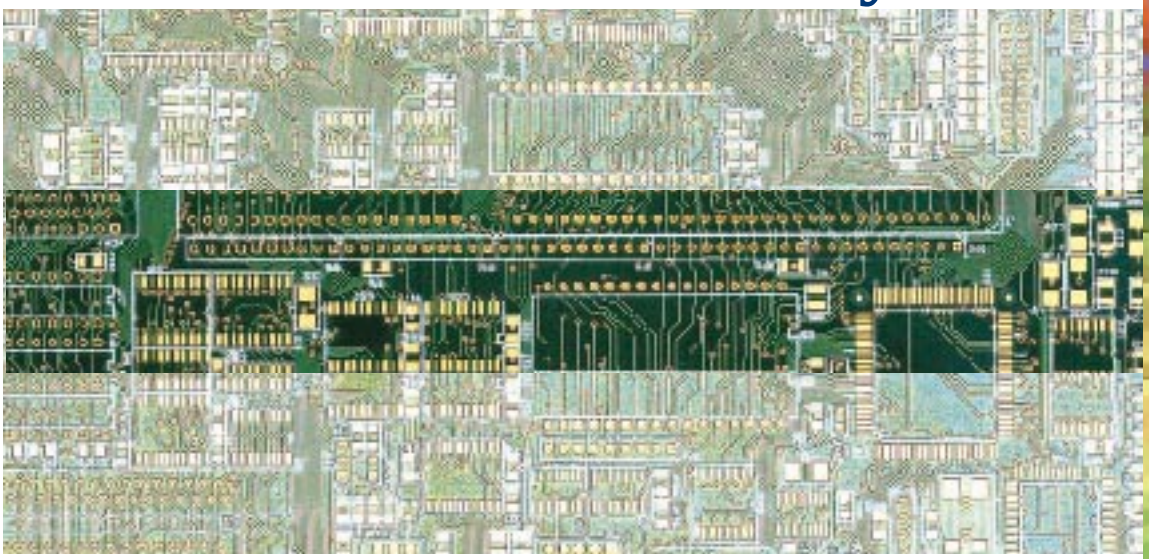
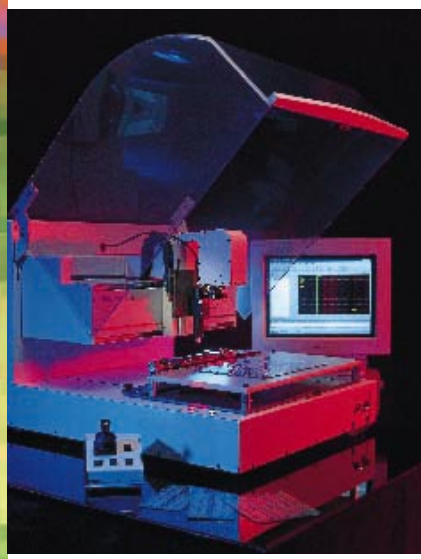
RITS500s
Robotic Impedance Test System





Automated impedance measurement for fast, reliable testing of Rambus® RIMM modules and continuity modules in a production environment

Repeatable, accurate, traceable measurement

Precision calibrated at 28 ohms and 50 ohms

SPC datalogging option for customer conformance reports

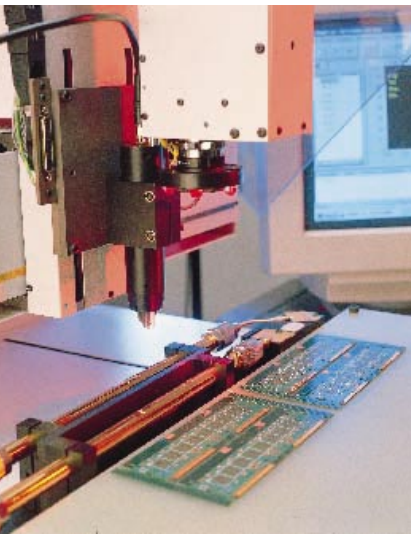
Fast production throughput

Polar

www.polar.co.uk

Measurement traceable to NPL and NIST standards

Flying probe mechanism

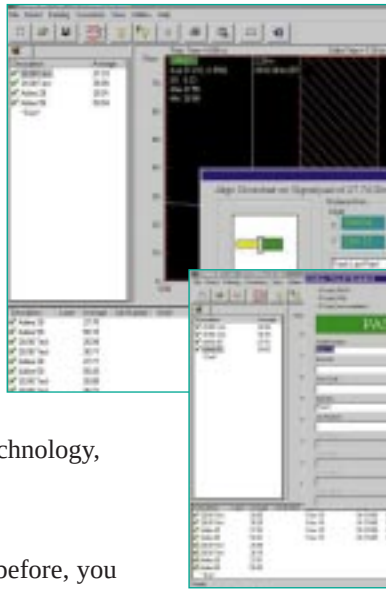


Rambus memory technology

Faster processors, accelerated graphics and faster communications require more system memory bandwidth. The evolving demands of multi-media applications and three-dimensional graphics functions in PC technology, mean that a high bandwidth memory is becoming essential to sustain system performance.

If you are a developer of RDRAM® components for the PC industry, you will be familiar with the exacting standards of the Rambus specification for RIMM memory modules and C-RIMM continuity modules. Accurate impedance traces are required, to control impedance to 28 ohms ±10%.

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



With an average test time of just 1.5 seconds, the RITS500s flying probe technology is as fast as any fixture-based impedance test system. Unlike functional bare-board test, there is no time advantage in using a fixture for RF test. What is more, a fixture-based measurement cannot be verified at the probe tip.

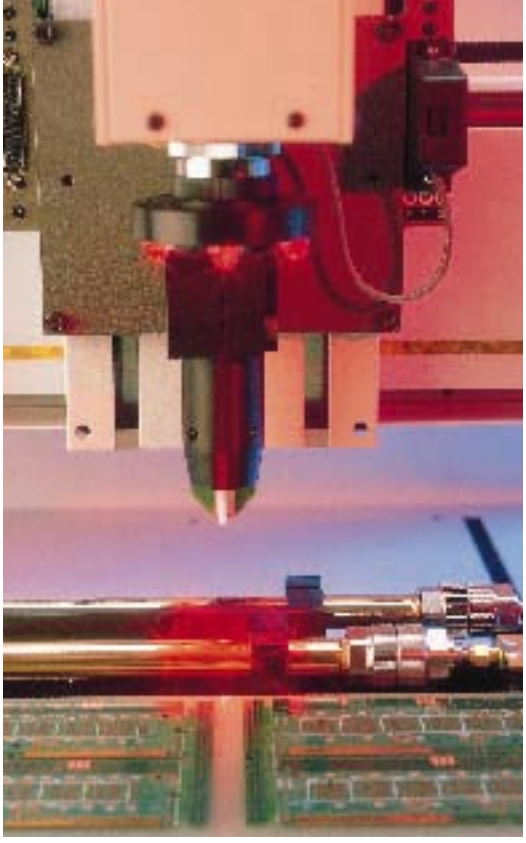
Controlled impedance testing

In response to the requirements of the Rambus specifications Polar Instruments, has developed a turn-key system for automated impedance testing of PCBs in a production environment.

RITS500s automates Polar's proven CITS impedance measurement technology, for fast, accurate, repeatable volume testing of PCBs.

Even if you have not had much experience of electrical or RF testing before, you will find RITS500s easy to use. The system is controlled via intuitive Windows software. Test set-up is straight forward, results data are 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.

RITS500s high precision reference airlines are calibrated at 28 ohms and 50 ohms



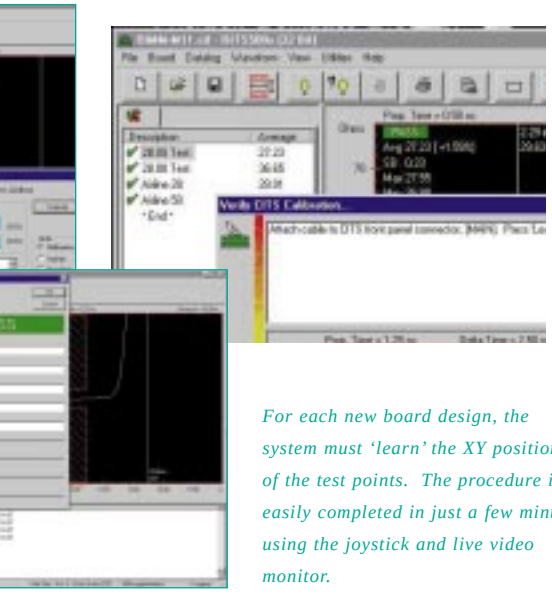
- *Automatic logging of test results*
- *SPC datalogging and report generator option*

Accurate, traceable measurement

RITS500s uses proven time domain reflectometer (TDR) techniques to measure the reflection of fast rise-time pulses. High precision 28 ohm and 50 ohm reference airlines - traceable to NPL and NIST standards - ensure repeatable measurement accuracy to allow the trace impedances to be controlled to well within the ±10% tolerance of the Rambus specification.

You can be sure of the repeatability of the test measurement because RITS500s verifies its own calibration every few minutes. Unlike other impedance test systems, *verification contact is between airline and probe tip*, confirming the accuracy of the entire system, including the test probe.

The calibration data is automatically logged for reference in the system log file and can be easily imported into Microsoft® Excel for inclusion in customer conformance reports.



For each new board design, the system must 'learn' the XY position of the test points. The procedure is easily completed in just a few minutes, using the joystick and live video monitor.

Test results are displayed on screen and automatically saved.

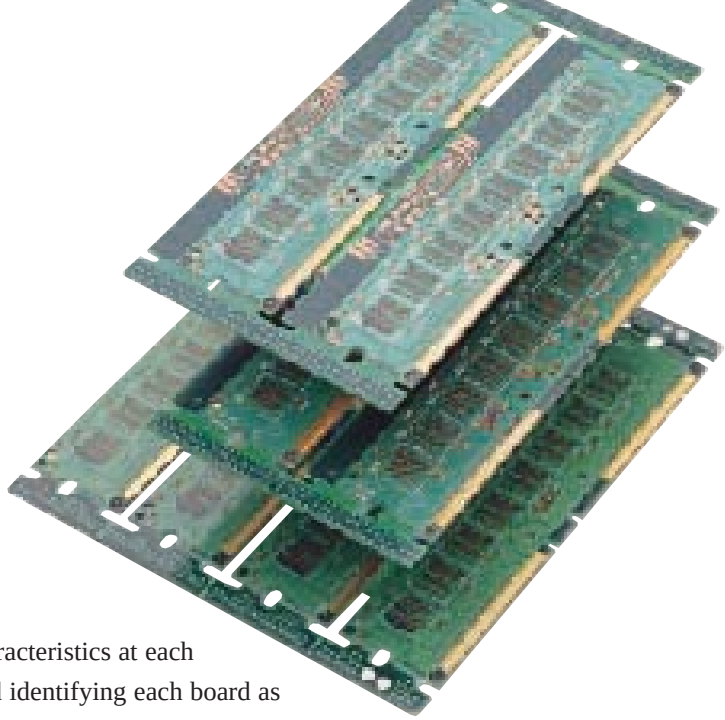
You can share graphical test results by email and view using the CITSView software which is available for download from ***www.polar.co.uk***

Flying probe technology

For each new board design, RITS500s 'learns' the location of the impedance test points, usually grouped together on a test coupon. In a procedure which takes about ten minutes to complete, the operator identifies the XY location of each point to be probed using the live video monitor and joystick supplied.

The data is saved, and thereafter, RITS500s automatically probes each test point in turn every time you run the test. Step resolution is just half a mil (0.0005inches), so you can be sure of accurate probing even with very fine pitches.

It takes approximately 30 seconds to test a four-RIMM module panel using RITS500s, including manual loading and unloading of the panel, and carrying out five tests on each module. The average test time is 1.5 seconds; that is about the same as a fixture-based system. For speed of operation in a production environment, there is a foot switch you can use to run the next test.



Datalogging and statistical process control

RITS500s 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.

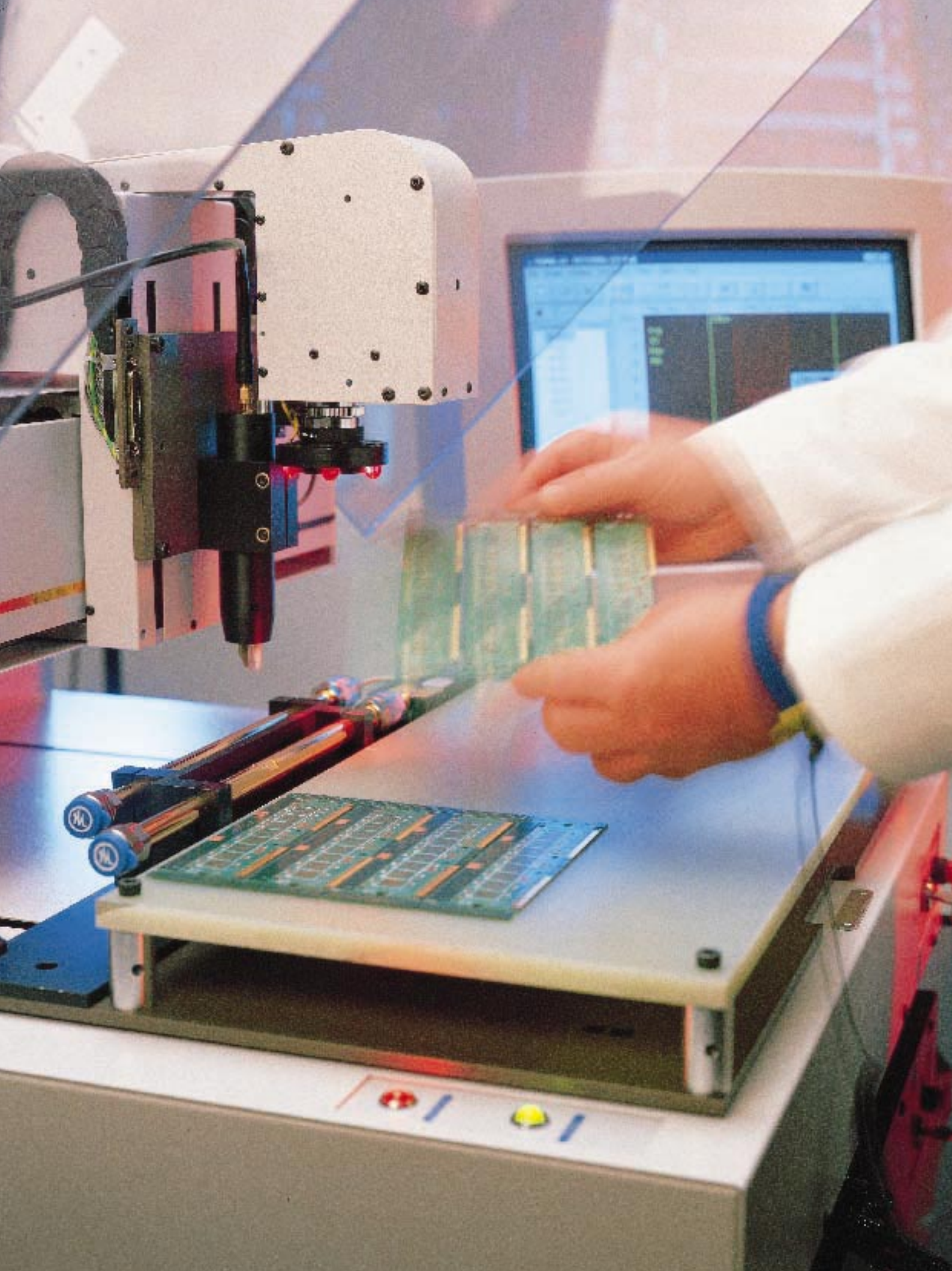
Minimum, maximum and average impedance measurements are logged, along with standard deviations for each batch and statistical process control values Cp and Cpk. All data is saved in pipe-delimited ASCII format, for world-wide compatibility with popular analysis and reporting packages.

You can produce customer conformance reports, including pass only data, as well as reports showing all test results for internal records or analysis. Customer or manufacturer logos and address details can be incorporated into the layout easily, for professional presentation with little effort.

Manufacturers already using Polar’s TDR technology for impedance testing of PCBs include:

CMK
Daeduck
Gold Circuits
Hadco
IBM
Japan Circuits
Nan Ya
Praegitzer
Samsung
Siemens
Viasystems

All airlines used and supplied by Polar are traceable to national standards NIST or NPL.



RITS500s

Probing System Specifications

	Metric	Imperial
Probing area (max.)	235 x 410mm	9.25”x 16”
PCB size (max.)	275 x 550mm	10.8”x 21.7”
Test speed	1.5 tests per second (typical)	1.5 tests per second (typical)
Z axis travel	10mm	0.4”
Accuracy	± 0.04mm over 300mm	± 1.6 mil, 0.0016” over 12”
Repeatability	± 0.008mm (typical)	± 0.3 mil, 0.0003” (typical)
Resolution	0.016mm	0.6 mil, 0.0006”
Probe pressure	Less than 142gm	Less than 5oz
Dimensions	940x650x524mm	37”x25.6”x20.6”
Weight	95kg (approx.)	210lbs (approx.)

Prober Interface	PC Custom Interface board supplied (full length, 122mm height inc. edge connector)

Measurement System

Range	0-300Ω
Accuracy	1% at 50Ω, 1.25% at 62Ω, 1.5% at 28Ω and 100Ω
Self calibration	28Ω and 50Ω precision airlines mounted on table for auto-calibration/verification at probe tip
Horizontal display resolution	0.2mm (0.008”)
Vertical display resolution	0.03Ω

Standard Accessories	External monitor and joystick plus all leads, cables Operator Manual
Optional Accessories	Datalog Report Generator software (ACC230), CITS25 field solving impedance calculator Laboratory test Fixtures Service Manual
Controller	Pentium PC, running Windows 95, Windows 98 or Windows NT, 16Mb RAM, VGA monitor
Approvals	Conforms to applicable European Directives and is CE marked Polar Instruments Ltd is certified to ISO9001

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