

TS 12X

GenRad's Most Advanced Production Test System

TS 12X Key Features

- Configurable from 256 to 7,680 test pins
- Offers flexibility in configuration and upgradability. Buy only what you need today, upgrade in the field tomorrow
- Capable of testing large, complex, and heavily integrated PCBs for many different industry applications
- Delivers the industry's most advanced production test environment, including the highest fault coverage, precise diagnostics, and highest throughput
- Ergonomically designed for optimum operator efficiency; easily integrated into automated production lines
- Supports in-circuit programming of ISP and Flash devices
- Industry's most advanced in-circuit pin electronics
- Highest pin count in-circuit tester with 7,680 total points
- Highest real-pin count in-circuit tester, allows testing of devices up to 3,840 pins

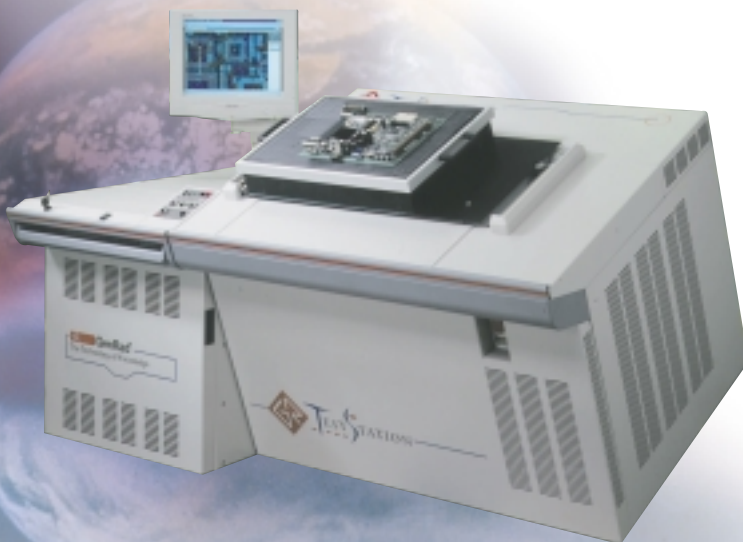
Today's demand for high-performance electronic products continues to grow. This demand drives the integration of digital devices, increased digital pin counts, and reduced voltage requirements for both speed and power. GenRad's TS 12X is designed to meet these growing technological challenges for more accurate test voltages. To insure the quality of test the TS 12X utilizes a patented backdrive monitoring technique. This insures proper isolation of each digital device during both program debug and product testing.

The TS 12X pin count, from 256 pins to a maximum of 7,680 can meet the expanding needs of customers using complex device packaging technologies. Built on a new architecture and platform evolved from GenRad's proven GR228X, TS 12X takes testing to an advanced and cost-effective level.

The Ultra 12X pincard, compared to current standards, doubles the accuracy of the measurement resolution. The TS 12X makes it possible to test low voltage technologies and mixed voltage technologies more precisely and safely.

Testing in the modern manufacturing environment is a dynamic process requiring more than just simple capacity and capabilities. Tests must be developed, debugged, integrated, revised and replaced as products and processes change. TS 12X's powerful array of tools addresses all of the challenges inherent in manufacturing PCBs.

GenRad's ongoing commitment to protecting customers' investments in board test systems is unique to the test industry. Test programs and fixtures developed and utilized on previous GR228X systems can be moved directly to the TS 12X.



Specifications

Base System	<ul style="list-style-type: none"> - Synchronized Analog and Digital Subsystems - All pins have parallel drive and sense capability - Pentium®-based PC system - Color LCD monitor on adjustable height platform - Premium software support 	<ul style="list-style-type: none"> - Ethernet® Networking Interface (10BASE-T/Thinware) - Hardware Warranty - Automatic Vacuum Control for single and dual well fixtures - System Footprint 68.00 x 43.50 inches (162.5 x 110.5 cm)
Analog Hardware	<ul style="list-style-type: none"> - Measurement Matrix: 8 lines by n pins - 2 Sources, configurable as current or voltage - DC Voltage Source: programmable, 16-bit, 0 to ±18 V over 4 ranges, to ±500 mA, programmable current limiting - DC Current Source: programmable, 16-bit, 0 to ±500 mA over 8 ranges, to ±18 V, programmable voltage limiting - DC Voltmeter: 0 to ±200 V over 9 ranges - DC Ammeter: 0 to ±160 mA over 7 ranges - Arbitrary Waveform Generator - Reactance Module <ul style="list-style-type: none"> • Programmable frequency from 15Hz to 100 kHz • Programmable AC level to 7 Vrms, 12-bit • Programmable DC offset, 16-bit 	<ul style="list-style-type: none"> - True RMS-DC Detection - Differential Detector/DVM/Digitizer - Coherent Transfer Function Measurement - Component Measurement Capability <ul style="list-style-type: none"> • Resistive (R) Range: 0.1 to 30 Mohm • Capacitive (C) Range: 1 pF to 10,000 F • Inductive (L) Range: 10 H to 1,000 H - External Instrument Matrix: 9 BNCs to 8 line to internal instruments or n pins - Traceable Calibration Daughterboard - High Voltage Source configurable as current or voltage, programmable voltage limit, ±120V, ±50mA - IEEE-488 Interface Controller
Digital Hardware	<ul style="list-style-type: none"> Common Driver Characteristics <ul style="list-style-type: none"> - Range: 26 programmable drive levels from + 5.5 V to - 2.5 V - Automatic drive verification at each pin; Four voltages selectable for each pin - Output Current (with automatic compensation circuitry) >600 mA; burst duration typically 60 msec >40 mA; steady state - Programmable Slew Rates 50 - 300 V/ S - Typical Output impedance: <2.0 ohm - Software Programmable Pull-up/Pull-down loads - Driver Memory: 16K - 64K Boundary Scan 	<ul style="list-style-type: none"> Common Sensor Characteristics <ul style="list-style-type: none"> - 26 programmable dual sense thresholds from + 5.5 V to - 2.5 V. Sense thresholds independent of programmed drive level - Input impedance = 100 Kohm - Bit by bit compare and CRC capture modes - Sensor Memory: 16K - 64K Boundary Scan Clock Generation/Synchronization Characteristics <ul style="list-style-type: none"> - Clock Generation frequency programmable up to 20 MHz - Clock Synchronization frequency programmable up to 20 MHz
Hardware Options	<ul style="list-style-type: none"> - Test Points expandable to 7,680 <ul style="list-style-type: none"> • Each additional Ultra 128 or Ultra 124 Pinboard provides 128 hybrid test points - Deep Serial Memory Instrument - Analog Functional Test Module - Vehicle Control Interface - Frequency Time Instrument - Custom Function Board - Multi Protocol Instrument 	<ul style="list-style-type: none"> - Flexible Power Supply Package <ul style="list-style-type: none"> Choose up to 14 power supplies from the following: 0-60 V @ 2.5 A, 0-20 V @ 8.0 A, 0-7 V @ 15 A - Fixed Power Supplies: +5 V @ 6 A, ±15 V @ 1 A or +5 V @ 6 A, ±12 V @ 1.3 A - Ethernet Networking Interface (Thickwire/AUI) - Automation Ready Option - Power Tilt
System Software	<ul style="list-style-type: none"> - Windows NT® Workstation - Test/Debug System Software License <ul style="list-style-type: none"> • Advanced AutoDebug • Program Xplorer™ Graphical Real-Time Debug Station • Automatic Fault Grading • Test Execution Software • Panel-Test™ Software • Memory Bank Test Software 	<ul style="list-style-type: none"> • Diagnostic Software tools • Guided Probe • SoftProbe™ for automatic diagnosis of open input and output pins on digital ICs • BusBust® isolates and diagnoses failures of ICs driving a common bus • Real-Time Data Collection • Flash ISP • Throughput Optimizer
Software Options	<ul style="list-style-type: none"> - Program Preparation License <ul style="list-style-type: none"> • Navigate Program Prep Environment • GR Alchemist III CAD preparation software • Analog, Digital, Boundary Scan and Mixed-Signal Device Libraries • Hybrid Test Generator for mixed-signal applications • Panel-Test™ Development Software • Flash ISP Development Software • Xpress Model™ for automatic device models of non-standard components • Circuit Analyzer-Based Test Generator • Multiple Level Digital Isolation - Scan Pathfinder™ boundary scan test generation, execution, and diagnostics for boards with a mix of boundary scan and conventional devices - BasicSCAN™ model generator for boundary scan devices - TRACS® III Process Information System - GR Xpert™ converts Agilent Technologies®, Teradyne®, and Marconi® test programs and fixtures to GenRad 	<ul style="list-style-type: none"> - Graphical Repair Network - FS-ATG test generator for PLDs and FPGAs - Junction Xpress™ vectorless test technique for detecting open device pins and marginal solder connections - Opens Xpress™ Vectorless Test Technique for detecting: <ul style="list-style-type: none"> • Open device pins • Open connector pins • Polarized capacitor orientation • Correct device orientation

GenRad Background

GenRad, Inc. develops, manufactures, and markets testing and process control hardware and software for electronics systems manufacturing. GenRad, headquartered in Westford, Massachusetts, U.S.A., offers products and services through four focused operations: Process Solutions, Functional Solutions, Diagnostic Solutions, and Support and Services.

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