TS-305 ATS

Summation SigmaSeries REPLACEMENT SYSTEM

- Digital input, output, and open collector digital output with memory
- Trigger/cross trigger bus
- High speed digital stimulus response w/memory
- Microprocessor ROM emulation
- 6½ digit digital multimeter
- Function generator
- Universal counter/timer
- Scanner switching 2-pole
- Matrix switching
- Power Switching
- High performance 20 slot chassis
- TTI Testron Receiver

SYSTEMS AND TURNKEY

DESCRIPTION

The Geotest TS-305 Automatic Test System, which consists of several PXI instruments and components, was developed to functionally replace legacy Summation SigmaSeries testers. In the early 1990's, the Summation SigmaSeries testers were in wide use, however, the product line was discontinued when the manufacturer was acquired by Fluke. Because of their unique architecture, instruments, and software, the obsolete systems are not easily upgradeable, are difficult to maintain, and it is expensive to redesign and re-host existing Test Program Sets. This makes the TS-305 the ideal solution for customer's needing to replace their aging Summation SigmaSeries systems.

FEATURES

The TS-305 provides nearly 100% functionality replacement using state-of-the-art hardware and ATEasy software (see Replacement Matrix for each component's functional replacement). The PXI instrumentation offers enhancements such as wider range, higher speed, and better accuracy.

The TS-305 provides memory-backed digital input and output (DSR) and bi-directional digital I/O up to 50 MHz with handshake capabilities for emulating digital data bus protocols. ROM emulation enables control of 8-bit, 16-bit, or 32-bit microprocessors. Measurement capabilities include a 6½ digit digital multimeter with TrueRMS, function generator for sine, square, and ramp waveforms, and a universal counter/timer. A versatile array of switching capabilities include a 64-Channel 2-pole Scanner, re-configurable matrix, and general purpose switching.

COMPONENTS

The TS-305 Automatic Test System includes the following components, however, customization or expansion of the TS-305 can be accomplished through additional PXI or cPCI instrumentation. Contact Geotest to discuss test requirements and alternative solutions.

Main Chassis

The TS-305 utilizes the Geotest GX7000 20-slot PXI chassis, which incorporates all of the high precision synchronization and triggering signals detailed in the PXI specification.

An internal 10 MHz reference clock is available on all 20 PXI slots. The PXI trigger bus is divided into two 4-bit segments across 18 peripheral slots and the Star Trigger is available on the first 13 peripheral slots (slots 3 through 15). A 20-slot expansion chassis is also available.

Embedded Controller

The GX7900-1256 embedded controller is a 1 GHz Pentium-III CPU, 256 MB RAM, 20 GB or larger hard disk drive, 1.44 MB floppy disk drive, 24x (or better) CD-RW drive, one parallel, two RS-232 serial, two USB ports, and one 10/100BaseT network ports. Operator interface is through customer furnished monitor, keyboard, and mouse.

Digital Input/Output

The GX5731 provides 224 digital I/O lines of which 128 are static TTL digital I/O lines. Each of three piggyback GX57xx modules

provide an additional 32-lines of memory backed I/O and replace the Summation DIL, DOL, and DPO. The GX5701 has 32 programmable threshold input channels and 4 K of memory, the GX5702 has 32 programmable TTL channels with 4 K of memory, and the GX5704 has 32 open collector digital output channels with 4 K of memory.

Trigger Buses

The GX5731 provides a programmable interconnection between the PXI trigger lines and the external world. It has eight front-panel external trigger-to-internal PXI Cross Trigger connections under program control.

Digital Stimulus Response (DSR)

The GX5152 and GX5153 are dynamic digital stimulus response instruments with 32-channels of digital input or output and 1 MB to 32 MB of on-board memory.

The included DIOEasy software allows independent commands such as jumps, and loops to be executed, greatly expanding the effective use of memory. Additional lines are used for handshake and control. Memory can be expanded from 256 K per line to 8 MB per line. Available I/O modules include TTL, PECL, ECL, programmable levels, frequency doubler, and LVDS.

Microprocessor ROM Emulation

The NX5000 Microprocessor ROM Emulator controls the microprocessor by substituting its command codes for those within the socketed ROM. The emulator can write to or read from any device on the UUT with which the microprocessor would normally communicate. Emulation support packages are available for a wide variety of 8-bit and 16-bit CPUs. The Emulator is expandable for 32-bit CPU applications. Multiple emulation systems can be simultaneously installed and operated in a TS-305 system.

6½ Digital Sourcing DMM

The SMX2044 is a full featured 6½ digit Digital Multimeter with TrueRMS, min/max, dB, percent deviation, and capabilities for measuring up to 1000 readings/second. In addition to measuring volts, amps, and 2-wire & 4-wire Ohms, this sourcing DMM measures capacitance, inductance, frequency, and performs simple semiconductor tests. It has a buffer and a burst mode for special applications.

Function Generator

The GX1200 is single-channel, PXI-based Arbitrary Waveform Generator that provides a synergistic combination of function generator, arbitrary waveform synthesizer, programmable sequencer, pulse generator, and modulation generator in one instrument. Standard waveforms include sine, square, and triangle.

Counter/Timer

The GTX2210 100 MHz Universal Time Interval Counter with 10 MHz TCXO has programmable input rising or falling threshold, and gate time. It can measure frequency, time interval, pulse width, time interval delay, and has totalize and ratio functions. It has 100 ps resolution without averaging and can make 2300 readings per second in the fast measurement mode.

Scanner Switching

The GX6264 is a high-density configurable switchcard with 128 single-ended channels or 64 differential channels. The relays are arranged into eight scan groups. Groups can be serially chained together or wired in parallel to accommodate a wide range of applications. The GX6264 functions as a general-purpose front end for the DMM, Counter/Timer and other similar measurement instruments.

Matrix Switching

The GX6616 Matrix Switchcard contains six groups of 2x16 switches. These can be programmatically interconnected, operated as a scanner, or switched as a 12-pole 16-position switch. The GX6616 can simulate switches, substitute for jumpers, reconfigure circuits, and a whole lot more.

Power Switching

The GX6315 has 45 SPDT relays able to support up to 220 V_{AC} and up to 7.0 A. These relays are most often used to switch primary power and loads, but may be used to emulate switches, isolate dangerous voltages, or for other purposes. The GX6315 also has nine open collector relay drivers to actuate UUT Test Fixture specific relays.

TTI Testron Receiver

The TS-305 incorporates a TTI Testron Receiver with twelve pin blocks. A variety of pin blocks is available including 170 signal connections, 25 coax connections, 25 power connections, and 39 power and signal connection combinations. Other receiver options are available at additional cost.

Programmable Power Supplies

The GX7400 Power Supply Mainframe accepts two power supply modules and is supplied with two 0 to 30 V_{DC}, 0 to 5 A programmable sources. Optionally it can be configured with programmable 0-60 V 0-2.5 A modules, or fixed modules of 3.3 V_{DC}, 5 V_{DC}, 12 V_{DC}, 15 V_{DC}, or 28 V_{DC}.

TS-305 ATS

Master Control Panel

The Master Control Panel provides the operator with primary power on/off control of the system. Visual indicators confirm the on/off status of the system.

ATEasy Programming

ATEasy is a rapid application development framework for functional test ATE, data acquisition, process control, and instrumentation systems. Running under a 32-bit Windows platform, ATEasy's integrated environment provides all of the necessary tools to develop and maintain applications containing software components, from instrument drivers to complex test programs.Summation Test Case programs can be easily migrated to ATEasy.

ATEasy comes with a Test Executive that allows the user to select the program to run, debug the test program, debug the UUT, and selectively execute tests or tasks, and more. ATEasy automatically generates a test log when a test program runs and appends the log with a description of any actions taken by the user, such as abort, or skip test.

IEEE-488 Controller

The TS-305 Test System can be optionally supplied with a GPIB controller. This allows the user to incorporate bench-top laboratory instrumentation with an IEEE-488 interface into the system. Drivers are available for a wide range of instruments.

REPLACEMENT MATRIX

ORIGINAL SIGMASERIES	GEOTEST PART NUMBER	DESCRIPTION
DMM10	SMX2044	3U PXI DMM, 6-½ digit display, 0.006% basic DCV accuracy and 1,000 rps assure you of measurements that are accurate, fast and repeatable.
DIL10	GX5701	I/O module for the GX5731 that provides 32 Input channels with programmable thresholds and 4 K of memory.
DOL10	GX5702	I/O module for the GX5731 that provides 32 TTL Output channels with 4 K of memory.
DPO10	GX5704	I/O module for the GX5731 that provides 32 OC Output channels with 4 K of memory.
DSR10	GX5152	The GX5152 controls all timing using a dedicated local bus and the PXI Trigger Bus. Similar to the Summation SigmaSeries DSR10 and DSR11.
DSR11	GX5153	The GX5153 contains the input and output memory similar to the Summation Sigma Series DSR11.
EMX10	NX5000	The NX5000 ROM Emulator is a 6U PXI instrument that allows the control of microprocessor-based products through the Boot ROM. Many of the features found in the Summation Sigma Series EMX10 are available in the NX5000.
FNG10	GX1200	The GX1200/1201 is a single-channel 3U PXI-based Arbitrary Waveform Generator.
UCT10	GTX2210	The GTX22x0 family of universal time interval counters provides all the features of stand-alone counters in a 3U PXI form factor.
HAS10	SMX4032	The SMX4032 can be configured on-the-fly to handle 2-, 4- and 6-wire guarded measurements. The very low thermal-offset, leakage, and capacitance makes it ideal for switching precise signals.
CSWFM12	GX6616	The GX6616 provides either differential or single-ended multiplexing capability, which is configurable via software commands. The GX6616 has six groups of 2x16 switch matrix.
SM1110E	GX7000	The GX7000 is a 20-slot PXI chassis that can accommodate up to 19 instruments and an embedded computer. The PXI features such as the Trigger bus provide similar functionality as the Summation Test Frame.

Note: Specifications are subject to change without notice.

THIS PAGE INTENTIONALLY LEFT BLANK