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Giga-tronics
ASCOR

RF / Microwave Signal Switching Catalog

2011

RF Interface Units, Signal Switching and System Integration for ATE

34907-Rev.A / US110331

www.gigatronics.com

Founded in 1980, Giga-tronics Incorporated (Nasdaq “GIGA”), an ISO 9001 and AS 9100 certified company, headquartered in San Ramon, California, is a leading engineering-and-design manufacturer of best-in-class RF and microwave signal generators, microwave power amplifiers, USB power sensors, microwave power meters and broadband switching matrices. R&D, production and test managers, scientists, engineers and technicians, around the world, use Giga-tronics test equipment to realize higher productivity and greater ease of use in many applications: ATE systems, aerospace & defense, communications and general microwave component test.

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CAPABILITY

BENEFIT YOUR BOTTOM LINE

For over 30 years, Giga-tronics ASCOR has excelled as an industry leader in the automated test and measurement community.

Whether you need to bring products to market faster or make your operations more efficient, we take the time to understand your business objectives and then recommend the best economic and technical solution for the application.

GET THE RIGHT SOLUTION FOR YOU



Giga-tronics ASCOR is not just in the business of providing “off-the-shelf” solutions. We are very experienced in tailoring an existing design or creating a new one to meet your requirements. We provide solutions for all types of uses, from simple signal routing applications to mission critical programs.

FROM SIMPLE TO MISSION CRITICAL APPLICATIONS

We offer a full spectrum of experience with a long history of success in Space Systems, Military Communications and Radar, Wireless Communications, Advanced Avionics, Medical Devices, and more.

DESIGN AND TECHNOLOGY

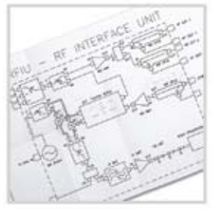
We pull from the best technology in the industry to provide a standard, tailored or new solution that best meets your needs.

- Wide signal bandwidth and frequency ranges: DC to 50 GHz
- Broad range of switch components including SPDT to SP12T, Transfer and Star switches
- Low-level through high-power signal handling capability
- Integration of a wide variety of signal conditioning components
- Hundreds of existing designs on multiple platforms: VXI, PXI, Ethernet, GPIB

OFTEN FROM PAPER TO PRODUCT IN AS LITTLE AS 4 WEEKS

Let our automated test system experts:

DESIGN



DOCUMENT



BUILD



TEST



Overview:

The **Series 8000** has a flexible and versatile design making it an ideal platform for standard and tailored switching solutions and RF Interface Units (RFIUs). It is geared to control any of the various switch types and enable them to be mounted on the front or rear panel or host switching and signal conditioning components internally. The standard Series 8000 offers GPIB or Ethernet (LAN) communication interfaces. It is a self-contained system, with built-in power supplies, interface controller, and relay drivers.





Giga-tronics ASCOR has a relay closure counter embedded in its Series 8000 controllers. The counter is designed to enable easy maintenance for high volume test applications. Users can remotely poll the number of closures on a relay and will receive a fault message when relays exceed their warranted number of closures. Closure count is tracked by relay model and serial number.

The Series 8000 switch assemblies are supplied in standard light-weight enclosures and typically integrated into half rack or full rack from 2U to 7U height. Switches can often be removed from the front of the unit which allows reduced mean time to repair.







A wide variety of configurations are available which include

- Half-rack or full-rack chasis from 2U to 7U in height
- Signal conditioning component integration
- Built-in position indicators
- High density systems





Download the Giga-tronics ASCOR Series 8000 Configuration Guide



NEW Giga-tronics ASCOR common-core based switching solutions, the Series 8800. This family of products provides a modular RF/LF/DC switching platform that is scalable and reconfigurable to meet existing and emerging test requirements. Scalability and reconfigure-ability are achieved in a number of ways:

- Configurable switch modules. The standard Series 8800 has 12 switch modules which can be equipped with various relay configurations, including multiple SPDT through SPnT (n=3-6) relays both terminated and non-terminated varieties. Other relay configurations are available. Modules can be added or replaced when test requirements change.

- Component integration area. Should other signal conditioning components be required, there is a place to add components such as programmable attenuators, amplifiers, filters, circulators / isolators, and power dividers / combiners.

- Removable front and rear panels. Front and rear panels can be tailored to a specific application including custom labels for intuitive RF interconnection as well mounting relays directly to the panel for maximum relay performance (relative to internally integrated relays which will have additional cable loss and increased VSWR). In addition, when test requirements change, the panels can be replaced with ones that are more specific to the new application. This allows re-use of relays and other components in other projects.

- GT-8300A integration. The Series 8800 integrates the Giga-tronics ASCOR model GT-8300A. This mainframe accepts the wide variety of Series 3000 modules. With nearly 200 existing designs available, users can supplement the RF switching capability with DC and low frequency switching as well as digital I/O and DMM functionality.









Have a project in mind?

Call our automated test system experts at 800.726.4442
or visit our websit **http://www.gigatronics.com/ASCOR/tailoredsolutions** for our configuration guide.

Download the Giga-tronics ASCOR Capability Brochure



HIGH DENSITY SOLUTIONS (GT-8300A, GT-8400A)

Overview:

GT-8300A: A 3U (5.25" high) chassis which comes with a LAN and IEEE-488 interface with a built-in resource manager. It has four slots which will support any of Giga-tronics ASCOR line of 3000 series switch modules. There are a wide variety of switch modules from DC to 40 GHz and power switching up to 20 Amps as well as DMM and frequency counter instrumentation.

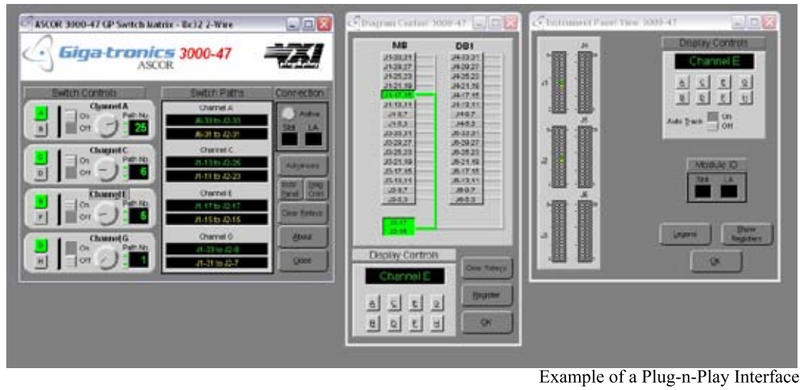
GT-8400A: A 3U chassis with 8 slots which will support any of Giga-tronics ASCOR line of 4000 series switch modules. In addition, the Model 8400 has an internal 32 channel or 16 differential channel analog bus with > 500 MHz bandwidth. This feature allows the creation of large switch systems without the need for external cabling that may be lossy, have loosely matched impedance, and have widely varying lengths. The result is a switching solution with the ultimate signal integrity.





Features:

- Wide bandwidth
- Low noise / high isolation
- Ultra-high density
- 500 MHz Analog Bus (GT-8400A)
- Giga-tronics ASCOR Point-to-Point Software
  - Just point and click and the software closes the appropriate relays
  - Path storage and recall to simplify test development
  - Manual control with position indicator lights for troubleshooting
  - Software screen shot:



Example of a Plug-n-Play Interface

Call our automated test system experts - 800.726.4442

Tektronix Replacements - VXI

Overview:



Giga-tronics ASCOR offers a family of products to support Tektronix VXI users with a true drop-in replacements with full software and hardware compatibility for Tektronix VXI modules. We are the only company able to offer you form-fit-function replacements built on superior design architecture. There are no special cables or adapters required. Our Tektronix replacements cards offer:

- Register-based VXI versions which use Plug&Play software drivers
- Message-based VXI versions (MPU Internal) which respond to standard SCPI commands
- Identical front panel connectors, with the same signal on the same pin as the Tektronix module
- Giga-tronics ASCOR superior design architecture resulting in identical or improved specifications over the original Tektronix specifications

Tektronix Replacements Selector Guide

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Voltage	Max Switched Power	Crosstalk	Insertion Loss
VXI 3000-4320[10]	90401351	Eight 1x4 Coaxial Switches (Replaces Tektronix VX4320)	0.5 Amp	30 VDC	10 Watts	> 60 dB @ 1.3 GHz	<1.5 dB @ 1.3 GHz
VXI 3000-4330[10]	90401330	Six 1x10 4-Wire (120 Channel) Relay Mux Switch (Replaces Tektronix VX 4330)	2 Amp	250 VAC, 220 VDC	60 W, 125 VA	<50 dB @ 100 KHz	>10 MHz (1x20 2-wire), >3 MHz 1x240 1-wire
VXI 3000-4350[10]	90401340	64 SPDT Switches (Replaces Tektronix VX4350)	2 Amp	250 VAC, 220 VDC	60 W, 125 VA	<50 dB @ 100 KHz	> 10 MHz
VXI 3000-4351[10]	90401220	40 SPST Switches (Replaces Tektronix VX4351)	10 Amp	300 VAC, 30 VDC	2770 VA, 150 W		
VXI 3000-4353[10]	90401310	32 SPST Switches (Replaces Tektronix VX4353)	5 Amp	250 VAC, 48 VDC	1000VA, 90W		
VXI 3000-4356[10]	90401290	20 DPDT Switches (Replaces Tektronix VX4356)	5 Amp	250 VAC, 48 VDC	1000VA, 90W		
VXI 3000-4357[10]	90401200	32 SPDT Switches (Replaces Tektronix VX4357)	5 Amp	250 VAC, 48 VDC	1000VA, 90W		
VXI4357[11]	90401700	32 SPDT Switches (Replaces Tektronix VX4357)	5 Amp	250 VAC, 48 VDC	1000VA, 90W		
VXI 3000-4380	90401270	256 Cross Point Matrix (Replaces Tektronix VX4380)	2 Amp	250 VAC, 220 VDC	60 W	<50 dB @ 100 KHz	>15 MHz
VXI 3000-4730	90401320	12 Channel D/A Converter (Replaces Tektronix VX4730)	60 mA per channel, not to exceed 720 mA collectively	±16.3835 volts	10 uS for 32V, 30 uS for 10%, 12 mS for 1%, 70 mS for 0.1%	0.5 mV	< 0.1 Ω
VXI 3000-4801	90401250	48 TTL/CMOS compatible Optically Isolated I/O lines	24 mA	Voh 4.4V min., Vol 0.1 V min.			
VXI 3000-4802	90401260	80 TTL/CMOS compatible I/O lines	24 mA	Voh 4.4V min., Vol 0.1 V min.			
VXI4801[11]	90401710	48 Optically Isolated TTL I/O lines (Replaces Tektronix VX4801)	24 mA	Voh 4.4V min., Vol 0.1 V min.			
VXI 3000-A308	90401230	80 Open collector drivers (Replaces Tektronix 73A308)	300 mA (sink), 20 Amps total across all channels	0.5 V max collector saturation voltage.			

[10] Register based driver will control both Tektronics as well as the ASCOR version of this switch
[11] Message based driver will control both Tektronics as well as the ASCOR version of this switch

Overview:

The **4000 Series** Modules offer flexible front panel connectivity and rapid board level replacement to ensure minimal mean-time-to-repair. The innovation of the 4000 Series enables a large matrix by tying together multiple smaller matrices internally, avoiding the cumbersome task and hassle of splicing wires together and cumbersome programming. The 4000 Series Modules are fully compatible with VXI protocols and standards.

Key Features:

- The multi-slot modules provide flexible front panel connectivity and rapid board level replacement to ensure minimal mean-time-to-repair
- Cards are INTERNALLY tied together via 500 MHz back-plane to minimize bandwidth reductions often associated with multi-card switching solutions
- Cards can be mixed and matched
- Lowest noise performance available
- Flexible configuration from 6 to 17 PCAs within various multi-slot module options
- Multi-slots modules are available in widths of 3-wide to 8-wide (occupies three to eight VXI slots for any 4500 series switch card)
- VXI plug&play drivers included
- Register-based device

The **4500 Series** switch modules are ideal for configuring into high density switching systems. The 4500 series ensures test signal integrity by shielding all signal connections starting from the internal switch assemblies through impedance matched transmission lines to the connector interface. By utilizing the 500 MHz backplane, the 4500 series modules have a reliable and consistent interconnection reducing design risk and system development time. In addition, the 4500 Series modules are adaptable for use with mass-termination front panel connector systems and fully compatible with VXI protocols and standards.

Key Features:

- Optimum system configuration switching
- Maximum performance for exceed standard VXI designs
- Coaxial, single wire, dual wire, twisted pair switching
- Integrated with built-in adapter to Virginia Panel Receiver Mechanism
- Tightly controlled impedance
- Shielded and floating analog ground utilized
- Dual VXI chassis with mechanism available

Switching Comparison

Before



The Achilles Heel of a switch: inter-connection cables

After



A properly designed Switch System with no inter-connection cables

VXI 4000 / 4500 Series Module Selector Guide - Carrier

Model No.	Mfg Part No.	Description	Pitch Size
VXI 4003A-6	90401170	3 VXI Wide Multi-Slot Carrier, 5 slots	0.6”
VXI 4004B-6	90401590	4 VXI Wide Multi-Slot Carrier, 7 slots	0.6”
VXI 4004B-12	90401520	4 VXI Wide Multi-slot Carrier, 4 slots	1.2”
VXI 4005B-6	90401600	5 VXI Wide Multi-Slot Carrier, 9 slots	0.6”
VXI 4006B-6	90401610	6 VXI Wide Multi-Slot Carrier, 11 slots	0.6”
VXI 4008B-6	90401630	8 VXI Wide Multi-Slot Carrier, 15 slots	0.6”
VXI 4008B-12	90401540	8 VXI Wide Multi-Slot Carrier, 8 slots	1.2”

VXI 4000 / 4500 Series Module Selector Guide - General Purpose Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Voltage	Max Switched Power	Bandwidth (-3 dB)	Pitch Size
VXI 4032	90900230	32 general purpose SPDT relays	2 Amps	220 VDC, 250 VAC	60 Watts	70 MHz	0.5”
VXI 4048	90900220	48 SPDT relays. Area for series or parallel termination is provided on the circuit board	6 Amps	300 VDC, 400 VAC	150 W or 1500 VA		0.5”
VXI 4049	90900330	64 SPST relays	0.5 Amp switched , 1.5 Amp carry	200 VDC, Peak AC	10 Watts	>100 MHz	0.6”
VXI 4064	90900350	64 SPST relays	2 Amps	220 VDC, 250 VAC	60 Watts	70 MHz	0.6”
VXI 4096	90900280	96 SPST relays	1 Amp	220 VDC, 250 VAC	30 Watts/37.5 VA	70 MHz	0.5”
VXI 4148	90900210	48 SPDT relays	2 Amps	220 VDC, 250 VAC	60 Watts	> 350 MHz 1 GHz max	0.5”
VXI 4503	90900300	20 SPDT relays with discrete teflon jacket wires	20 Amps	250 VAC/30 VDC Max voltage: 1000 Vrms	420 Watts, 2500 VA	> 10 MHz	1.0”
VXI 4504	90900270	20 SPST relays with discrete teflon jacket wires	20 Amps	250 VAC/30 VDC Max voltage: 1000 Vrms	420 Watts, 2500 VA	> 10 MHz	1.0”
VXI 4511	90900010	32 Mercury wetted relays	2 Amp switch, 5 Amp carry	500 VDC/ Peak AC	100 Watts	>75 MHz 150 MHz max	0.6”
VXI 4514	90900140	8 x 2 Channel High Power mercury wetted relay matrix with voltage and current monitoring	Power Switch: 2 Amp switch, 5 Amp carry Measurement matrix: 0.5 Amp switch, 3 Amp carry	Power Switch: 500 VDC or Peak AC Measure-ment Matrix; 1000VDC or Peak AC	Power Switch: 100 Watts/100 VA Measurement Matrix; 10 Watts	N/A	0.6”

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VXI 4000 / 4500 Series Module Selector Guide - Digital I/O and Drivers

Model No.	Mfg Part No.	Description	Max Switched Current	Pitch Size
VXI 4050	90900340	128 Channel Digital I/O, TTL. 128 TTL drivers and 128 Receivers organized in 16-bit groups	TTL Driver: 64 mA sink, 32 mA source. CMOS Driver: 24 mA sink or source. Open Collector Driver: 64 mA sink. Differential Driver: 20 MA sink or source	

VXI 4000 / 4500 Series Module Selector Guide - Special

Model No.	Mfg Part No.	Description
VXI 4501	90900030	Eight input 50 Ω Resource Module with Virginia Panel Interface (Consult factory for additional details)
VXI 4502	90900040	64-Channel Resource Allocation Module. Receiver connector for use with Virginia Panel interface (Consult factory for additional details)
VXI 4510	90900460	4 x 128 (2-wire) non-blocking relay matrix with Virginia Panel Interface (Consult factory for additional details)
VXI 4517	90900100	Two 10-pole and six 11-pole star switches (Consult factory for additional details)
VXI 4518	90900130	Thirty-two SPST relays analog backplane output isolation relays for accessing the Series 4000 analog bus through the front panel

VXI 4000 / 4500 Series Module Selector Guide - Matrix Switch

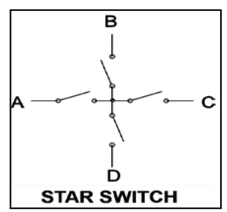
Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Voltage	Max Switched Power	Bandwidth (-3 dB)	Pitch Size
VXI 4116	90900360	4 x 16 non-blocking relay matrix	1 Amp	200 VDC/ Peak AC	10 Watts	> 70 MHz 190 MHz max	0.6”
VXI 4132	90900020	4x32 non-blocking relay matrix	1 Amp	200 VDC/ Peak AC	10 Watts	> 55 MHz 190 MHz max	0.6”
VXI 4164	90900250	2x64 or 4x64 non-blocking switch matrix	1 Amp	200 VDC/ Peak AC	10 Watts	> 30 Mhz 45 MHz max	0.6”
VXI 4216	90900370	8x16 2-Wire non-blocking switch matrix	2 Amps	220 VDC, 250 VAC	60 Watts	> 100 MHz	0.5”
VXI 4228	90900380	2x64 2-Wire non-blocking switch matrix	1 Amp	200 VDC/ Peak AC	10 Watts	>50 MHz 200 MHz max	0.6”
VXI 4229	90900390	2x64 2-Wire non-blocking switch matrix	2 Amps	220 VDC, 250 VAC	60 Watts	>50 MHz 200 MHz max	0.6”
VXI 4232	90900400	4x32 2-Wire non-blocking switch matrix	2 Amps	220 VDC, 250 VAC	60 Watts	>80 MHz 200 MHz max	0.6”
VXI 4524	90900470	Dual 8x8 Coax non-blocking matrix with a Virginia Panel interface	1 Amp	200 VDC/ Peak AC	10 Watts	Coax paths > 65 MHz 75 MHz max Shielded wire matrix: > 35 MHz	1.2”
VXI 4525	90900440	48x16 single wire non-blocking matrix with a Virginia Panel interface	1 Amp	200 VDC/ Peak AC	10 Watts	Matrix: > 35 MHz 50 MHz max Resource path: >450MHz 600 MHz max	1.2”

VXI 4000 / 4500 Series Module Selector Guide - Tree Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Voltage	Max Switched Power	Bandwidth (-3 dB)	Pitch Size
VXI 4108	90900060	Twelve 1x8 Single Wire Trees	1 Amp	200 VDC/ Peak AC	10 Watts	>100 MHz 190 MHz max	0.5”
VXI 4208	90900050	Six 1x8 2-Wire Trees	2 Amps	220 VDC, 250 VAC	60 Watts	> 60 MHz, 100 MHz max	0.5”
VXI 4264	90900410	1x64 2-Wire non-blocking switch tree	2 Amps	220 VDC, 250 VAC	60 Watts	>50 MHz, 200 MHz max	0.5”
VXI 4505	90900150	Five 1x4, three 1x2 switch trees with discrete teflon jacket wires for superior performance and damage protection	20 Amps	250 VAC/30 VDC Max voltage: 1000 Vrms	420 Watts, 2500 VA	> 10 MHz	1.0”
VXI 4506	90900160	Twelve 1x4 switch trees with discrete teflon jacket wires for superior performance and damage protection	10 Amp, 16 Amp max	30 VDC/300 VAC	150W, 2770 VA	> 10 MHz	1.0”
VXI 4507	90900170	Thirty-six 1x2 switch trees	2 Amps	220 VDC/ 250 VAC	60 Watts	>100 MHz	0.5”
VXI 4508	90900180	Twenty-two 1x4 switch trees	2 Amps	220 VDC/ 250 VAC	60 Watts	>120 MHz	0.5”
VXI 4509	90900190	Seventeen 1x4 switch trees: High quality coaxial cables is used for superior performance > 1 GHz	0.5 Amp	30 VDC/300 VAC	10 Watts	>100 MHz	1.0”
VXI 4512	90900070	Dual 1 x 32 2-Wire Tree. Each 1 x 32 can be switched to the front panel or switched to the rear high performance backplane in the Series 4000	1 Amp	200 VDC/ Peak AC	10 Watts	>60 MHz, 130 MHz max	0.5”
VXI 4515	90900080	Eight 1 x 6 2-wire switch tree	5 Amp	125 VDC/ 380 VAC	150 W or 2000 VA	50 MHz	0.6”
VXI 4516	90900090	Ten 1 x 8 Switch Trees	5 Amp	125 VDC/ 380 VAC	150 W or 2000 VA	35 MHz	0.5”
VXI 4526	90900430	Six 1x4 Coax switch trees with a Virginia Panel interface	1 Amp	1x4 Switch tree: 30 VDC Analog backplane isolation relays: 200 VDC/Peak AC Direct paths: 200 VDC/Peak AC	1x4 Switch tree: 3 Watts Analog backplane isolation relays: 10 Watts	1x4 Switch tree: >1.5 GHz Analog backplane isolation relays: >500 MHz Direct resource path: > 1 GHz	1.2”



Ultra-High Density
500 MHz backplane
No external wires!



Re-purpose previously dedicated pins with a unique switch design! Giga-tronics utilizes the Star Switch. It is similar to a multiplexer or tree switch, except it does not have a common node. Instead of a common being switched to any position, any position can be switched to any other position - enabling ultimate flexibility.

White Paper - Understanding Star Switching
http://www.gigatronics.com/downloads/white paper/star-switching

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Overview:

Giga-tronics ASCOR's **3000 Series VXI** modules cover a wide range of switching applications. All units are fully VXI compatible and each product is supplied with a Plug&Play software driver. The 3000 Series VXI modules support a bandwidth from DC to 40 GHz standard and higher if required.



VXI 3000 Series Module Selector Guide - General Purpose Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Voltage	Max Switched Power	Bandwidth (-3 dB)
VXI 3000-12	90400570	32 general purpose DPDT relays	2 Amps	220 VDC, 250 VAC	60 Watts	>55 MHz @ -3 dB
VXI 3000-15	90400110	24 high voltage	1 Amp	Sense line: 200 VDC/ Peak AC HV relays: 500 VDC/ VAC	HV relays: 100 Watts	N/A
VXI 3000-53	90400530	96 SPDT switches	2 Amps	220 VDC, 250 VAC	60 Watts	>70 MHz
VXI 3000-56	90400870	64 SPDT coaxial reed relays	1 Amp	150 VDC Peak AC	3 Watts	> 500 MHz
VXI 3000-60	90401190	Thirty-two DPDT	2 Amps	220 VDC, 250 VAC	60 Watts	>180 MHz
VXI 3000-517	90401150	Contains 20 DPST relays, 4 SPST relays, 4 SPDT relays, 50Ω or 75Ω	DPST: 1 Amp SPST: 0.5 A (switched), 1.5A (carry) SPDT: 1 Amp	DPST: 200 VDC/ Peak AC SPST 200 VDC/ Peak AC SPDT: 150 VDC/ Peak AC	DPST: 10 Watts SPST 10 Watts SPDT: 3 Watts	DPST: > 750 MHz SPST: > 500 MHz SPDT: > 500 MHz
VXI 3000-523	90400560	Twelve dual terminating switches (I/O), dual terminating SPDT, five form A switches.	1x1 (terminating): 0.25 Amp switched, 1.0 Amp carry SPDT (terminating: 0.25 Amp switched, 1.0 Amp carry SPST: > 0.5 Amp switched, 1.5 Amp carry	1x1 (terminating):150 VDC/Peak AC SPDT (terminating): 150 VDC/Peak AC Form A: 200 VDC/ Peak AC	1x1, SPDT: 3 Watts Form A: 10 Watts	1x1 (terminating): >1.4 GHz SPDT (terminating): > 1.2 GHz SPST: > 2.5 GHz

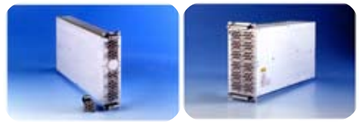
VXI 3000 Series Module Selector Guide - RF Switch

Model No.	Mfg Part No.	Description
VXI-3000-154 [1,2]	90401660	Twelve 1x4 Coaxial trees with SMB connectors
VXI-3000-155 [2]	90401650	Dual 4x4 Blocking RF Coaxial Matrix with SMB connectors
VXI-3000-155A-SMB [2]	90401650-001	Dual 4x4 Blocking Matrix with SMB connectors
VXI-3000-155A-SMC [2]	90401650-101	Dual 4x4 Blocking Matrix with SMC connectors

[1] Replaces Model 3000-54 which was rated at 24 Watts
[2] 50 Ω, > 2 GHz bandwidth, 1 dB insertion loss @ 500 MHz, 1.5:1 VSWR at 1.3 GHz, and isolation of -100 dB @ 100 MHz and -70 dB @ 1 GHz

VXI 3000 Series Module Selector Guide - Microwave Switch[3]

Model No.	Mfg Part No.	Description
VXI 3000-2126	90400350	Twelve SP6T Non-terminated 26.5 GHz microwave switches in a 3-wide VXI module
VXI 3000-226	90400340	Two SP6T Non-Terminated 26.5 GHz microwave switches in a dual wide VXI module
VXI 3000-23236T	90400950	Three terminated SPDT and three SP6T 18 GHz microwave terminated switches in a dual wide VXI module
VXI 3000-236T	90400730	Three SP6T terminated and three SPDT terminated microwave switches are mounted in a dual wide VXI module
VXI 3000-246T	90400730	Four SP6T 18 GHz terminated microwave switches in a dual wide VXI module
VXI 3000-24662	90400340-001	Four SP6T and six SPDT non-terminated 26.5 GHz microwave switches in a dual wide VXI module
VXI 3000-266	90400340	Six SP6T non-terminated 26.5 GHz microwave switches in a dual wide VXI module
VXI 3000-26662T	90401080	Six SP6T and Six SPDT, 18 GHz microwave switches in a dual wide VXI module
VXI 3000-286	90400350	Eight SP6T non-terminated 26.5 GHz microwave switches in a dual wide VXI module
VXI 3000-2xx Series		Configurable switch family. Consult with the factory for various configuration or pick from our choices of SPDT, or SP6T, or SP8T, or SPDT (terminated), or SP6T (terminated)
VXI 3000-64	90400700	Six SP4T 8 GHz switches
VXI 3000-80	90401160	Six 26.5 GHz SP6T microwave switches in single slot VXI module (non-terminated)



VXI3000-2xx Front and Back - Configurable Switch Family

VXI 3000 Series Module Selector Guide - Power Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Voltage	Max Switched Power	Bandwidth (-3 dB)
VXI 3000-01[4]	90400060	Eight 1 x 8 power switch trees: programmed to handle a variety of power supply combinations - four 2-wire or two 4-wire or one 8-wire trees	5 Amps	150 VDC or 250 VAC	150 W or 1250 VA	> 20 MHz
VXI 3000-02[4]	90400120-002	96 SPST relays	5 Amps	150 VDC or 250 VAC	150 W or 1, 250 VA	> 20 MHz
VXI 3000-42	90400710	48 SPDT switches. Provision for series or parallel termination is provided	5 Amps	110 VDC or 277 VAC	1,250 VA	> 50 MHz
VXI 3000-43	90400830	48 SPDT 10 Amp relays	10 Amps	110 VDC, 250 VAC	2,000 VA	
VXI 3000-51	90401460	Twenty SPDT relays	20 Amps	250 VAC/30 VDC Max voltage: 1000 Vrms	420 Watts or 2500 VA	> 10 MHz
VXI 3000-59	90401380	32 SPDT switches	10 Amps	250 VAC, 150 VDC	300 Watts or 2,000 VA	> 10 MHz

[3] Microwave Switch Modules - Relays with various specifications and configurations are available. Consult factory.
[4] Teflon wires are used to carry current to avoid PC board damage if it receives excess current.

VXI 3000 Series Module Selector Guide - Matrix Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Bandwidth (-3 dB)	Insertion Loss	Crosstalk
VXI 3000-05[6]	90400100-002	36 x 2 non-blocking coaxial matrix	0.5 Amp	> 350 MHz @ -3 dB	-1 dB @ 175 MHz	-50 dB at 100 MHz
VXI 3000-06[6]	90400260-001	Two non-blocking 18 x 2 coaxial switch matrix	0.5 Amp	> 350 MHz @ -3 dB	-1 dB @ 175 MHz	-50 dB at 100 MHz
VXI 3000-25[6]	90400920	Seven 2x6 Coaxial non-blocking matrices	0.5 Amp	>500 MHz @ -3 dB	-1 dB @ 175 MHz	-50 dB at 100 MHz
VXI 3000-30[6]	90400280-001	Two 12 x 2 and 6 x 2 non-blocking matrices	1 Amp	12 x 2: > 400 MHz 6 x 2: >500 MHz	-1 dB @ 200 MHz	-50 dB at 100 MHz
VXI 3000-34[6]	90400190	One 2x128, or two 2x64, or four 2x32 non blocking coxial matrices	1 Amp	2 x 128: > 10 MHz, 2 x 64: > 20 MHz, 2 x 32: > 45 MHz		
VXI 3000-39[6]	90400300-002	Complex matrices with 8x10 HF, 3x10 UHF, 6 Star switches w/ programmable matrix termination	1 Amp	Star Switch: > 700 MHz 3 x 10 Instrument Matrix: > 200 MHz 8 x 10 General Purpose Matrix: > 50 MHz		< 50 dB @ 100 KHz
VXI 3000-39A[6]	90400300-003	3000-39 with Daughter Board, doubles the capacity of the 3000-39 to six 3-input star switches, dual 3x10 high frequency instrument matrix, and dual universal 8x10 low frequency matrix	1 Amp	Star Switch: > 700 MHz 3 x 10 Instrument Matrix: > 200 MHz 8 x 10 General Purpose Matrix: > 50 MHz		
VXI 3000-44[6]	90400650	2 x 128 (2- wire) coaxially non-blocking relay matrix	1 Amp	> 70 MHz	-1 dB @ 30 MHz	
VXI 3000-45[6]	90400320	4 x 64 (2-Wire) coaxially non-blocking relay matrix	1 Amp	> 50 MHz	-1 dB @ 30 MHz	- 40 dB @ 50 MHz
VXI 3000-45B[6]	90400790	4 x 128 (2-wire) coaxially non-blocking relay matrix, a 2- wide VXI module version of the 3000-45	1 Amp	> 70 MHz	-1 dB @ 30 MHz	- 40 dB @ 50 MHz
VXI 3000-47[6]	90400800-001	8x32 (2- wire) coaxially shielded non-blocking relay matrix.	1 Amp	> 90 MHz STET 190 MHz max.	-1 dB @ 30 MHz	-45 dB @ 50 MHz -42 dB @ 100 MHz
VXI 3000-52[7]	90400810	8x32 2-wire, non-blocking relays matrix	2 Amps	>70 MHz	< -0.7 dB @ 30 MHz	-80 dB @ 300 kHz
VXI 3000-52-IDC[7]	90400810-001	8x32 2-wire, non-blocking relays matrix with IDC connectors	2 Amps	>70 MHz	< -0.7 dB @ 30 MHz	-80 dB @ 300 kHz
VXI 3000-52-IDCL[7]	90400810-004	8x32 2-wire, non-blocking relays matrix IDC connectors (latches)	2 Amps	>70 MHz	< -0.7 dB @ 30 MHz	-80 dB @ 300 kHz
VXI 3000-57[7]	90401010	4x64 non-blocking 2-wire switch matrix	2 Amps	>40 MHz	-1 dB @ 30 MHz	
VXI 3000-515[8]	90401090	16x12 blocking coaxial matrix in a 4-wide VXI module	1 Amp	>900 MHz, 1.2 GHz typ.		
VXI 3000-525[6]	90401130	Four 4x4 non-blocking coaxial matrices with switched shields at both the input ports and output ports	0.5 Amp switched 1.5 Amp carry	>225 MHz		
VXI 3000-530[6]	90400410	408x10x48 matrix in a 12 wide VXI module	0.5 Amp switched 1.5 Amp carry	> 25 MHz		

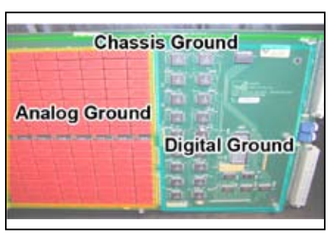
[5] Max switched current 1A, max switching voltage 200 VDC/Peak AC, and max switched power 10W.
[6] Max switched voltage 200 VDC / Peak AC, max switched power 10W
[7] Max switched voltage 220 VDC / 250 VAC, max switched power 60W
[8] Max switched voltage 30 VDC, max switched power 3 Watts @ 1 GHz

VXI 3000 Series Module Selector Guide - Tree Switch

Model No.	Mfg Part No.	Description	Bandwidth (-3 dB)
VXI 3000-03[5]	90400620-110	Four 1x30 switch tree: Configurable as independent quad 1 x 30, dual 1 x 60 or single 1 x 120 tree	>35 MHz @ -3 dB
VXI 3000-08[5]	90400490-106	Four 1x60 signal switch: Configurable as independent quad 1 x 60, dual 1 x 120 or single 1 x 240 tree	>35 MHz @ -3 dB
VXI 3000-09[5]	90400230	Four 1x120 signal switch: Configurable as independent quad 1 x 120, dual 1 x 240 or single 1 x 480 tree	>35 MHz @ -3 dB
VXI 3000-32[5]	90400290-001	Four 1 x 8, eight 1 x 4, eight 1 x 2 coaxial switch trees or with option 01 provides twenty 1x4 switch trees	1 x 8: >500 MHz, 1 x 4: >700 MHz, 1 x 2: >900 MHz
VXI 3000-38	90401360	One 1x256 (1-wire), one 1x128 (2- wire), or sixteen 1x8 (2-wire) switch trees, 2 Amps, 220 VDC, 250 VAC, 60 Watts	> 40 MHz @ -3 dB
VXI 3000-46[5]	90400750	Configurable switch tree: Contains two groups of coaxially shielded relays: 64 DPST, Sixteen 1x8 or eight 1x16, or four 1x32, or two 1x64 Single wire tree. It can be organized as a 2-wire tree: eight 1x8, or four 1x16, or two 1x32, or one 1x64	DPST: >175 MHz (differential) >100 MHz (single ended) 1x8 (2-wire) tree: >95 MHz (differential) >74 MHz (single ended) 1x16 (2-wire) tree: >90 MHz (differential) >64 MHz (single ended) 1x32 (2-wire) tree: >85 MHz (differential) >57 Mhz (single ended)
VXI 3000-66[5]	90401180	Sixteen 1x4 2-wire shielded trees at 500 V	> 350 MHz @ -3 dB
VXI 3000-524	90401110	Four coaxial 1x12 switch tree with switched shields at both the input ports and output ports, 0.5 Amp switched , 1.5 Amp carry, 200 VDC / Peak AC, 10 Watts	>180 MHz

VXI 3000 Series Module Selector Guide - Special Switch

Model No.	Mfg Part No.	Description
VXI 3000-522	90400550	The Model 3000-522 Measurement Switch Matrix. (Consult factory for additional details)
VXI 3000-534		32-Channel Daisy Chain with 1x8 multiplexer. (Consult factory for additional details)
VXI 3000-508	90400640	Source driver with 64 channel multiplexer. It has a programmable slew rate control and pulse width control
VXI 3000-41-Airborn	90400740-001	64 Channel Edge Detector w/ Airborn Connector that stamps and event
VXI 3000-41-IDC	90400740-002	64 Channel Edge Detector W/ IDC Connectors that stamps and event
1001	89900120	M-Module Instrumentation - A/D Converter (Used only with 3801 DMM)
1002	8900130	M-Module Instrumentation - D/A Converter (Used only with 3801 DMM)



Low Noise, Wide Bandwidth and High Isolation
Giga-tronics ASCOR treats each switch as a precision transmission line. In addition, signal lines, control lines, and grounds are separated on different printed circuit board layers.



Point-to-Point Software
- Just point and click and the software closes or open the appropriate switches or relays
- Path storage and recall to simplify test development
- Manual control with position indicator lights for troubleshooting

VXI 3000 Series Module Selector Guide - Digital I/O and Drivers

Model No.	Mfg Part No.	Description	Max Switched Current
VXI 3000-04	90400660	128 Channel high voltage/high current open collector drivers with built-in suppression diodes	0.5 A per driver
VXI 3000-04-SCSI	90400660-001	128 Channel high voltage/high current open collector drivers with built-in suppression diodes and front panel SCSI connectors. Ideal for driving coils or relays	0.5 A per driver
VXI 3000-61	90401390	128 Channel Digital I/O, CMOS: 128 CMOS drivers and 128 Receivers organized in 16-bit groups	CMOS Driver: 24 mA sink or source
VXI 3000-61 (Opt 3)	90401390-003	128 CMOS drivers, 128 Receivers, 64 Channel Differential drivers and 64 Channel receivers organized in 16-bit groups. Each channel can be used as a driver or receiver	CMOS Driver: 24 mA sink or source Differential TTL: 20 MA sink or source
VXI 3000-62	90400840	128 TTL drivers and 128 Receivers organized in 16-bit groups. Each channel can be used as a driver or receiver	TTL Driver: 64 mA sink 32 mA source
VXI 3000-62 (Opt 1)	90400840-001	256 TTL drivers and 256 Receivers organized in 16-bit groups. Each channel can be used as a driver or receiver	TTL Driver: 64 mA sink 32 mA source
VXI 3000-62 (Opt 2)	90400840-002	128 TTL drivers paired with 128 Receivers, 32 CMOS drivers paired with 32 Receivers ,32 Open Collector drivers paired with 32 receivers, and 32 Channel Differential drivers paired with 32 Channel receivers (26LS32) organized in 16-bit groups. Each channel can be used as a driver or receiver	TTL Driver: 64 mA sink, 32 mA source CMOS Driver: 24 mA sink or source Open Collector Driver: 64 mA sink Differential Driver: 20 MA sink or source
VXI 3000-62 (Opt 3)	90400840-003	128 TTL drivers, 128 Receivers, 64 Channel Differential drivers and 64 Channel receivers organized in 16-bit groups. Each channel can be used as a driver or receiver	TTL Driver: 64 mA sink, 32 mA source Differential driver: 20 MA sink or source
VXI 3000-62 (Opt 4)	90400840-004	128 TTL drivers paired with 128 Receivers, 128 Relays Drivers with receivers, 16 Buffer TTL drivers paired with 16 Receivers organized in 16-bit groups. Each channel can be used as a driver or receiver	TTL Driver: 64 mA sink, 32 mA source Open Collector Driver: 500 mA sink
VXI 3000-63	90401400-001	256 Channel Open Collector TTL Drivers with receivers, OPT 1 (adds 128 OC drivers daughter board to 128 OC drivers on mother board). 256 Open Collector drivers paired with 256 receivers organized in 16-bit groups. Each channel can be used as a driver or receiver	Open Collector Driver: 64 mA sink.
VXI 3000-521	90400540	Programmable Discrete Drivers/Receivers: 48 High Voltage drivers set by external power supply rails. Output can be set to ground, Vpower (from four external power supplies) , or open circuit. 48 receivers with individual programmable D/A converter is used to set input threshold. Programmable hysterisis control for each receiver	N/A

VXI 3000 Series Module Selector Guide - Programmable Resistor

Model No.	Mfg Part No.	Description
VXI 3000-27 [9]	90400250	10 Channel Programmable resistor: 16-bit programmable resistor for 20 Ω to 1.31M Ω. Programmable in 20 Ω increments.(65,536 steps) with isolated channel grounds for a ultra quiet resistance source
VXI 3000-27 Opt 002 [9]	90400250-002	5 Channel Programmable resistor: 16-bit programmable resistor for 20 Ω to 1.31M Ω. Programmable in 20 Ω increments.(65,536 steps) with isolated channel grounds for a ultra quiet resistance source
VXI 3000-27-Upgrade kit [9]	85002010	5 Channel Upgrade Kit for 3000-27 Option 002. Part number 85002010. This is a add-on to the Model 3000-27 Opt 002 to convert to a 10 channel programmable resistor module
VXI 3000-509	90400690	64 Channel programmable resistor, thermistor simulator. Sixty-four channels of 8-bit programmable resistance. Custom range available

[9] Resistors accuracy ± 1%. Optional: Higher precision resistors and custom ranges available

VXI 3000 Series Module Selector Guide - Status Switch

Model No.	Mfg Part No.	Description
VXI 3000-16	90400130	VXI status monitor: Functions as a VXI chassis monitor for those chassis without built-in monitoring. Contains a Watch Dog Timer, VXI Voltage (go-no go) monitor, Interlock Status for receiver mechanism, Thermal switch inputs, UUT Power Supply Interlocks, UUT Power Supply Gating (TTL), Status indicators, and Central Reset Switch for emergency Sys Reset

VXI 3000 Series Module Selector Guide - Chassis

Model No.	Mfg Part No.	Description
VXI 3013	86001350	13 Slot VXI Chassis. Rugged 13 Slot VXI chassis with go-no go power supply monitoring and temperature sensor with alarm. 1500 Watt power supply and six direct blow cooling fans
VXI 3026	86001360	Dual 13 Slot VXI Chassis. Rugged 26 Slot VXI chassis with go-no go power supply monitoring and temperature sensor with alarm. 1500 Watt power supply and six direct blow cooling fans

VXI 3000 Series Module Selector Guide - DMM

Model No.	Mfg Part No.	Description	Max Switched Current
VXI 3801-1004	90401280-010	Carrier, 6.5 digit DMM with 2/4 wire measurement capability. It has a 1-slot M-Module carrier for added capability	VXI 6.5 digiy DMM-AD/DC Voltage calibrator, 2 and 4 wire resistance. The 3801 also can add an industry standard M-Module to the Module.
VXI 3801-1005	90401280-011	Carrier, 6.5 digit DMM with LCR 2/4/6 wire measurement capabilities. It has a 1-slot M-module carrier for adding A/D, D/A or counter	Same basic capabilities as the 3801-1004 with the additional features of Inductance, capacitance, & 6 wire resistance measurements. Also temperature, leakage, peak-to-peak-crest-& median measurements, timing functions and AC/DC voltage & current sourcing. The 3801 also can add an industry standard M-Module to the Module.
VXI 3802-1004	90401280-008	Carrier, DMM (No M-Module Capability)	same as 3801-1004 but without the M-Module capability
VXI 3802-1005	90401280-009	Carrier, 6.5 digit DMM with LCR 2/4/6 wire measurement capabilities	same as 3801-1005 but without the M-Module capability



VXI 3013

- Houses Giga-tronics ASCOR or other manufacturers' VXI modules
- Choice of ITA Receiver mechanisms
- Ultra-quiet power supply
- High integrity backplane
- Very high capacity cooling system
- Ultra low audible noise level





VXI 3026

- Combines capabilities of two single-chassis VXI mainframes without external wiring
- Supports optional intermediate level switching for maximum utilization of test station resources
- Supports Giga-tronics ASCOR or other manufacturers' VXI modules
- Rugged, high performance, low noise design
- Choice of ITA receiver mechanisms





VXI 3801 Digital Multimeter

Overview:

Series 7000 PIXIE switches are PC controlled switch modules that offer high quality, low noise designs for both the PXI user and the CompactPCI user. The Series 7000 product line incorporates coaxially shielded relays in all of the different matrices and multiplexer configurations. Additionally, every Series 7000 card design includes separate analog and digital ground planes.



PXI Module Selector Guide - Digital Switch

Model No.	Mfg Part No.	Description	Characteristics	Max Switched Current
7016	91000030	32 channel I/O	TTL	64mA sink, 32 mA source
7028	91000220	96 channel static I/O	24mA driver	64 mA sink, 32 mA source

PXI Module Selector Guide - General Purpose Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Power	Bandwidth (-3 dB)
7018[12]	91000150	32 SPST relays	2 Amps	60 Watts	>170 MHz 500 MHz max
7020[12]	91000060	16 SPDT relays	2 Amps	60 Watts	>170 MHz 500 MHz max
7023[12]	91000110	32 SPST, shielded reed relays	1.5 Amps	10 Watts	>165 MHz 370 MHz max
7030[12]	91000240	Eight 4-Pole Star Switch	1 Amp	10 Watts	400 MHz
7301[12]	91000300	32 SPDT coaxially shielded relays	1.5 Amp, 0.5A switched	10 Watts	400 MHz

PXI Module Selector Guide - Matrix Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Power	Bandwidth (-3 dB)
7011[13]	91000140	16 x 2, 2-wire matrix	2 Amps	60 Watts	> 120 MHz 180 MHz max
7012[13]	91000020	16 x 2 shielded matrix	1.5 Amps	10 Watts	> 120 MHz 220 MHz max
7013[13]	91000070	8 x 4 2-wire matrix	2 Amps	60 Watts	> 190 MHz 470 MHz max
7015[13]	91000040	2 x 16 shielded matrix	1.5 Amps	10 Watts	>80MHz 370 MHz max
7021[13]	91000080	16 x 2 2-wire non-blocking matrix	1.5 Amps	10 Watts	> 120 MHz 220 MHz max
7022[13]	91000100	16 x 4 non-blocking matrix	1.5 Amps	10 Watts	>165 MHz 370 MHz max
7024[13]	91000130	8X4 2-wire non-blocking matrix	1.5 Amps	10 Watts	>190 MHz 470 MHz max
7029[13]	91000230	4 x 32 non-blocking matrix, 60 VDC, 120 VAC	1 Amp	1 Watt	>100 MHz
7303[13]	91000320	99 Channel, 2-Pole Matrix	5 Amps		

[12] Max switched voltage 200 VDC / Peak AC
[13] Max switched voltage 200 VDC / Peak AC

PXI Module Selector Guide - Power Switch

Model No.	Mfg Part No.	Description	Max Switched Current	Max Switched Voltage	Max Switched Power
7010	91000010	8 SPDT relays	10 Amps	100 VDC	1,662 VA
7019	91000090	16 SPDT relays	5 Amps	110 VDC/277 VAC	150 W, 625 VA
7302	91000300	12 DPST relays	5 Amp		

PXI Module Selector Guide - RF (other specifications and configurations available)

Model No.	Mfg Part No.	Description
7203[14]	91000180	Dual SPDT Microwave Switch (non-terminated)
7204[14]	91000190	Dual Transfer Switch (DPDT). This requires 2 PXI slots
7206[14]		Dual SP6T Microwave Switch. This requires 2 PXI slots (non-terminated)

PXI Module Selector Guide - Tree Switch

Model No.	Mfg Part No.	Description	Characteristics	Max Switched Current	Max Switched Power	Bandwidth (-3 dB)
7014[13]	91000050	Four 1 x 4 or Two 1 x 8 or One 1 x 16 Switch Trees	50 Ω	1.5 Amps	10 Watts	>165 MHz 370 MHz max
7026[13]	91000200	2-wire 32x1 switch tree	50 Ω	2 Amps	60 Watts	>120 MHz 220 MHz max
7027[13]	91000210	Four 1 x 8 2-wire switch tree	50 Ω	2 Amps	60 Watts	>120 MHz 220 MHz max

PXI offers State-of-the-Art Modular Platform
Discover more benefits on PXI modular test and measurement platform.

Download our online application note.



[14] Relays with various specifications and configurations are available. Consult factory.

A

SUPPORT

Repair Service

All repairs are certified and traceable to NIST, and include calibration to published factory specifications

- ISO-9001:2008 with AS9100 Certification
- Repair Record Retention
- 90-day Repair Warranty
- Factory-authorized Hardware, Firmware, and Software Upgrades, as applicable

Calibration Services

All calibrations are processed in full accordance with ANSI-Z-540-1 1994, ISO 10012, and MIL-STD-45662

- Calibrations Performed Against Same Specifications Used in Original Manufacturing of the Instrument
- All Test Equipment is Traceable to NIST

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