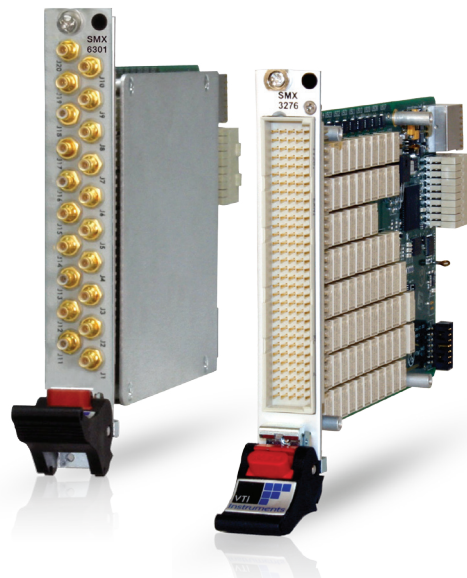


SentinelEX SWITCHING SERIES

PXI EXPRESS | TEST AND MEASUREMENT SUITE



FEATURES

- Software-configurable
- Embedded health monitoring
- Improved test reliability
- Exceptional noise immunity
- Efficient high-density packaging
- Interactive schematic control
- 3 Year warranty

ATE MARKETS & APPLICATIONS

- Avionics
- Electronics
- Oil and Gas
- Automotive
- Defense and Aerospace
- Energy / Power Generation

SentinelEX

Overview

VTI Instruments' modular instrumentation solutions are used in the world's most demanding electronic and functional test applications, helping customers meet the highest level of quality standards in the products they manufacture. Our ability to design precision instrumentation, in a modular form factor, has enabled engineers to develop test stations in a reduced footprint without compromising the integrity of test data.

SentinelEX continues to lead the way in modular PXI Express test solutions by delivering uncompromised measurement integrity to the core of every test station: the signal switching subsystem. The expanded PXIe Switching Series, built on 20 years of proven deployment in the most demanding aerospace, defense and automotive applications, delivers exceptional performance and reliability by implementing extensive signal path shielding providing reduced cross-talk and improved channel-to-channel isolation.

Test system performance is therefore improved and costs lowered by reducing false pass/fail errors and intermittent faults often associated with marginal signal levels. System level development and support costs are further reduced by combining software-configurable switch personalization with comprehensive, on-board health monitoring.

DESIGNING MODULES WITH THE SYSTEM IN MIND

A test system is more than just a collection of hardware modules, and the integrity of the signals passed between test instrumentation and the unit under test (UUT) is highly dependent on switching and the interconnection interfaces that are part of the signal transmission path.

VTI's PXIe switching modules are designed to maximize the integrity of the test signals by incorporating advanced circuit board layout techniques that minimize the effects of unwanted transmission stubs, shield against radiated signals in adjacent card slots and ultimately extend the usable bandwidth of the test system as a whole.

An innovative software driver approach, based on IVI industry standards, enables a single driver session to control multiple modules as a subsystem, providing an application



development environment that significantly reduces development time. Advanced triggering and module-to-module synchronization reduces test execution time, while chassis smart health-monitoring and relay odometers embody a predictive approach to maintenance.

VTI's core philosophy is to maintain focus on innovation and technology enabling our customers to optimize their test system capital investment through product longevity, unmatched measurement integrity and data reliability.

MULTIPLEXERS

Overview

The VTI SMX-3xxx Series of multiplexers deliver exceptional performance and reliability by implementing extensive signal path shielding and isolation. Available models with software configurable switch subsystems increase flexibility and help control costs by allowing a single module to be used for different testing requirements. Embedded virtual schematic control further simplifies setup and debugging, allowing all relays to be engaged independent of application software.

Ideally suited for medium-to-high density automated test systems (ATE), the SMX-3xxx Series provides uncompromised measurement integrity ideal for the most demanding aerospace, defense and automotive applications.

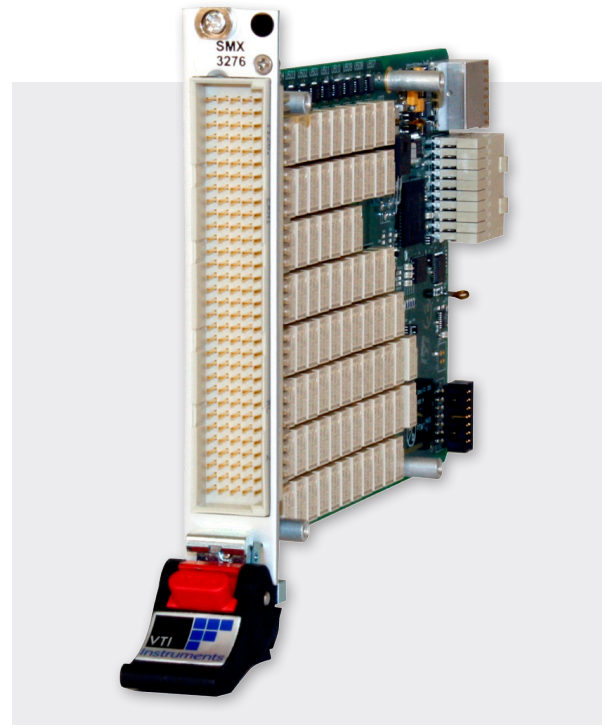
Specifications

Maximum Switching Voltage	300 VDC / 300 VAC
Maximum Switching Current	2 A
Maximum Switching Power	60 W DC, 62.5 VA
Bandwidth	> 30 MHz (typical)
Switching Time	< 3 ms
Path Resistance	< 500 mΩ
Insulation Resistance	> 1 X 10 ⁹ Ω
Rated Switch Operations	
Mechanical	1 X 10 ⁷
Electrical	1 X 10 ⁵
Capacitive Discharge Relays	Internal
Configurable Bussing Relays	Internal
End-to-End Signal Path Shielding	Yes

Specifications subject to change without notice.

Ordering Information

Model	Configuration
SMX-3001	(8) 1x8, 2-wire multiplexer, fully configurable
SMX-3002	(8) 1x8, 2-wire multiplexer, fixed
SMX-3003	(4) 1x16, 2-wire multiplexer, fixed
SMX-3004	(2) 1x32, 2-wire multiplexer, fixed
SMX-3005	(1) 1x64, 2-wire multiplexer, fixed
SMX-3006	(1) 1x128, 1-wire multiplexer, fixed
SMX-3007	(2) 1x64, 1-wire multiplexer, fixed
SMX-3276	(2) 1x38, 2-wire multiplexer, fully configurable
SMX-3277	(2) 1x76, 1-wire multiplexer, fixed
SMX-3278	(2) 1x38, 2-wire multiplexer, fixed
SMX-3279	(1) 1x76, 2-wire multiplexer, fixed



FEATURES

- 1x128 1-wire, 1x64 2-wire, or 1x32 4-wire Configurations
- 300 VAC / 300 VDC
- 2 A Switching / Carrying
- Embedded Virtual Schematic
- Capacitive Discharge Relays
- Configurable Internal Bussing Relays
- Relay Cycle Count Odometer
- Extensive End-to-End Signal Path Shielding



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MATRIX

Overview

The VTI SMX-4xxx Series of matrix cards deliver exceptional performance and reliability by implementing extensive signal path shielding, isolation and built-in health monitoring. Available models with software configurable switch subsystems increase flexibility and help control costs by allowing a single module to be used for different testing requirements. Embedded virtual schematic control further simplifies setup and debugging, allowing all relays to be engaged independent of application software.

Ideally suited for medium-to-high density automated test equipment (ATE) requiring multiple connection point flexibility, the SMX-4xxx Series provides uncompromised measurement integrity ideal for the most demanding aerospace, defense and automotive applications.

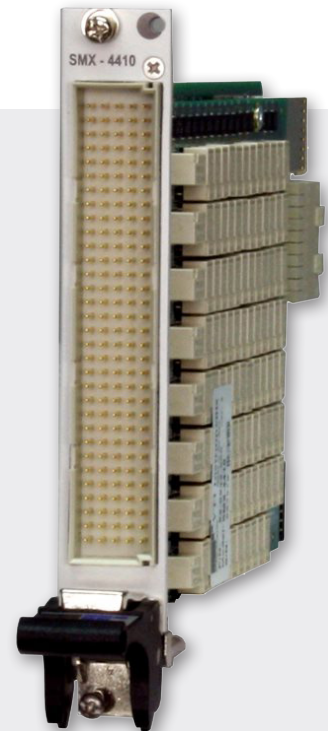
Specifications

Maximum Switching Voltage	300 VDC / 300 VAC
Maximum Switching Current	2 A
Maximum Switching Power	60 W DC, 62.5 VA
Bandwidth	> 30 MHz (typical)
Switching Time	< 3 ms
Path Resistance	< 500 m Ω
Insulation Resistance	> 1 X 10 ⁹ Ω
Rated Switch Operations	
Mechanical	1 X 10 ⁷
Electrical	1 X 10 ⁶
Capacitive Discharge Relays	Internal
Configurable Bussing Relays	Internal
End-to-End Signal Path Shielding	Yes

Specifications subject to change without notice.

Ordering Information

Model	Configuration
SMX-4410	(4) 4x10, 2-wire, fully configurable
SMX-4411	(4) 4x10 2-wire Matrix
SMX-4412	(2) 4x20 2-wire Matrix
SMX-4413	(1) 4x40 2-wire Matrix
SMX-4414	(2) 8x10 2-wire Matrix



FEATURES

- (4) 4x10 2-wire Fully Configurable
- (4) 4x10 2-wire, (2) 4x20 2-wire, (1) 4x40 2-wire, (2) 8x10 2-wire Configurations
- 300 VAC / 300 VDC
- 2 A Switching / Carrying
- Embedded Virtual Schematic
- Capacitive Discharge Relays
- Configurable Internal Bussing Relays
- Relay Cycle Count Odometer
- Extensive End-to-End Signal Path Shielding



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GENERAL PURPOSE SWITCHING

Overview

The VTI SMX-5xxx Series of general purpose switches deliver exceptional performance and reliability by implementing extensive signal path shielding, isolation and built-in health monitoring. Embedded virtual schematic control simplifies setup and debugging, allowing all relays to be engaged independent of application software and device drivers.

Ideally suited for a wide range of discrete signal switching, the SMX-5xxx Series provides uncompromised measurement integrity ideal for the most demanding aerospace, defense and automotive automated test equipment (ATE) applications.

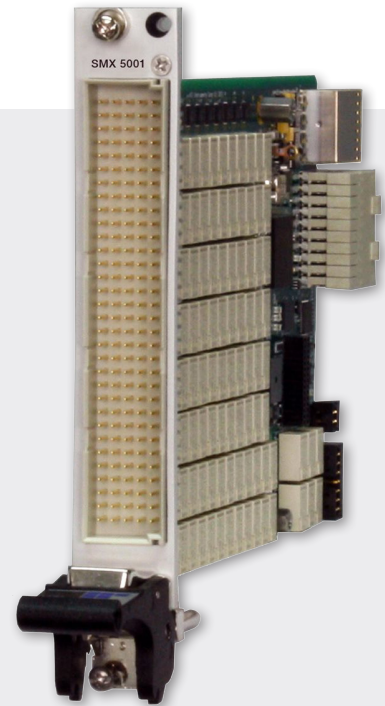
Specifications

Maximum Switching Voltage	300 VDC / 300 VAC
Maximum Switching Current	2 A
Maximum Switching Power	60 W DC, 62.5 VA Breaking Capacity
Bandwidth	> 50 MHz (typical)
Switching Time	< 3 ms
Path Resistance	< 300 mΩ
Insulation Resistance	> 1 X 10 ⁹ Ω
Rated Switch Operations	
Mechanical	1 X 10 ⁷
Electrical	1 X 10 ⁵
End-to-End Signal Path Shielding	Yes

Specifications subject to change without notice.

Ordering Information

Model	Configuration
SMX-5001	(80) SPST/Form A
SMX-5002	(50)SPDT/Form C



FEATURES

- Form A and Form C Configurations
- 300 VAC / 300 VDC
- 2 A Switching / Carrying
- Embedded Virtual Schematic
- Relay Cycle Count Odometer
- Extensive End-to-End Signal Path Shielding



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POWER SWITCHING

Overview

The VTI SMX-2xxx Series of power switches deliver exceptional performance and reliability in a compact, high-density form factor. Embedded virtual schematic control simplifies setup and debugging, allowing all relays to be engaged independent of application software and device drivers.

Ideally suited for medium-to-high density automated test equipment (ATE), the SMX-5xxx Series provides uncompromised measurement integrity ideal for the most demanding aerospace, defense and automotive automated test system (ATE) applications.

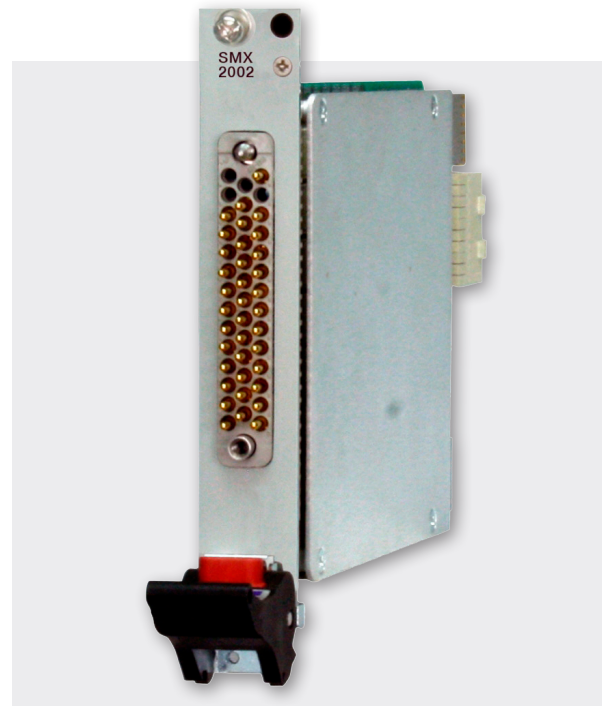
Specifications

Maximum Switching Voltage	250 VAC / 120 VDC
Maximum Switching Current	16 A
Maximum Switching Power	480 W DC, 4000 VA Breaking Capacity
Switching Time	< 7 ms
Path Resistance	< 100 m Ω
Insulation Resistance	> 1 X 10 ⁹ Ω
Rated Switch Operations	
Mechanical	1 X 10 ⁷
Electrical	1 x 10 ⁶ (full load)

Specifications subject to change without notice.

Ordering Information

Model	Configuration
SMX-2002	(10) SPDT



FEATURES

- (10) SPDT
- 250 VAC / 120 VDC
- 16 A Switching / Carrying
- Embedded Virtual Schematic
- Relay Cycle Count Odometer



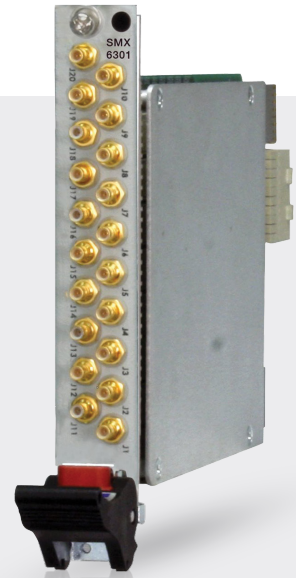
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RF MULTIPLEXER – 50 OHM

Overview

The VTI SMX-6xxx Series of high density non-blocking RF multiplexers deliver exceptional performance and reliability in a compact single-slot configuration. Front panel connectivity is available in both SMB and PKZ formats to integrate seamlessly into new or existing test systems. Embedded virtual schematic control further simplifies setup and debugging allowing all relays to be engaged independent of application software and device drivers.

The SMX-6xxx Series delivers unmatched bandwidth and isolation performance resulting in exceptional measurement integrity that is ideal for the most demanding aerospace, defense and automotive automated test equipment (ATE) applications.



Specifications	
Maximum Switching Voltage	250 VAC / 220 VDC
Maximum Switching Current	2 A
Maximum Switching Power	50 W DC, 62.5 VA
Rated Switch Operations	
Mechanical	1 X 10 ⁵
Electrical	1 X 10 ⁵
Switching Time	< 5 ms
RF Impedance	50Ω
Connector	SMB or PKZ

Specifications subject to change without notice.

RF Specifications				
	SMX-6101 / -SMB	SMX-6103 / -SMB	SMX-6105 / -SMB SMX-6115 / -SMB	SMX-6106 / -SMB SMX-6116 / -SMB
Bandwidth	> 3.3 GHz	> 3.3 GHz	> 2 GHz	> 1.7 GHz
Crosstalk	< -50 dB @ 2 GHz	< -55 dB @ 1.3 GHz	< -50 dB @ 2 GHz	< -50 dB @ 1.7 GHz
Isolation	< -50 dB @ 2 GHz	< -50 dB @ 1.3 GHz	< -50 dB @ 2 GHz	< -50 dB @ 1.7 GHz
VSWR	2.0:1 @ 3 GHz	2.0:1 @ 1.3 GHz	1.8:1 @ 2 GHz	1.7:1 @ 1.7 GHz
Path Resistance	< 250 mΩ	< 260 mΩ	< 300 mΩ	< 320 mΩ



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FEATURES

- Non-Blocking Configuration
- Bandwidth > 3.5 GHz (configuration specific)
- 250 VAC / 220 VDC
- 2A Switching Current
- Embedded Virtual Schematic
- Relay Cycle Count Odometer
- High Density Single-Slot Implementations

Ordering Information

Model	Configuration
SMX-6101	(10) 1X4 COAX MUXES
SMX-6101-SMB	(10) 1X4 COAX MUXES
SMX-6111	(5) 1X4 COAX MUXES
SMX-6111-SMB	(5) 1X4 COAX MUXES
SMX-6106	(2) 1X16 COAX MUXES
SMX-6106-SMB	(2) 1X16 COAX MUXES
SMX-6116	(1) 1X16 COAX MUXES
SMX-6116-SMB	(1) 1X16 COAX MUXES
SMX-6105	(4) 1X8 COAX MUXES
SMX-6105-SMB	(4) 1X8 COAX MUXES
SMX-6115	(2) 1X8 COAX MUXES
SMX-6115-SMB	(2) 1X8 COAX MUXES
SMX-6103	(1) 1X32 COAX MUX
SMX-6103-SMB	(1) 1X32 COAX MUX

RF MATRIX – 50 OHM

Overview

The VTI SMX-6xxx Series of high density non-blocking RF matrix cards deliver exceptional performance and reliability in a compact single-slot configuration. Front panel connectivity is available in both SMB and PKZ formats to integrate seamlessly into new or existing test systems. Embedded virtual schematic control further simplifies setup and debugging allowing all relays to be engaged independent of application software and device drivers.

The SMX-6xxx Series delivers unmatched bandwidth and isolation performance for multi-point connectivity, resulting in exceptional measurement integrity that is ideal for the most demanding aerospace, defense and automotive automated test equipment (ATE) applications.

Specifications

Maximum Switching Voltage	250 VAC / 220 VDC
Maximum Switching Current	2 A
Maximum Switching Power	50 W DC, 62.5 VA
Rated Switch Operations	
Mechanical	1 X 10 ⁶
Electrical	1 X 10 ⁶
Switching Time	< 5 ms
RF Impedance	50Ω
Connector	SMB or PKZ

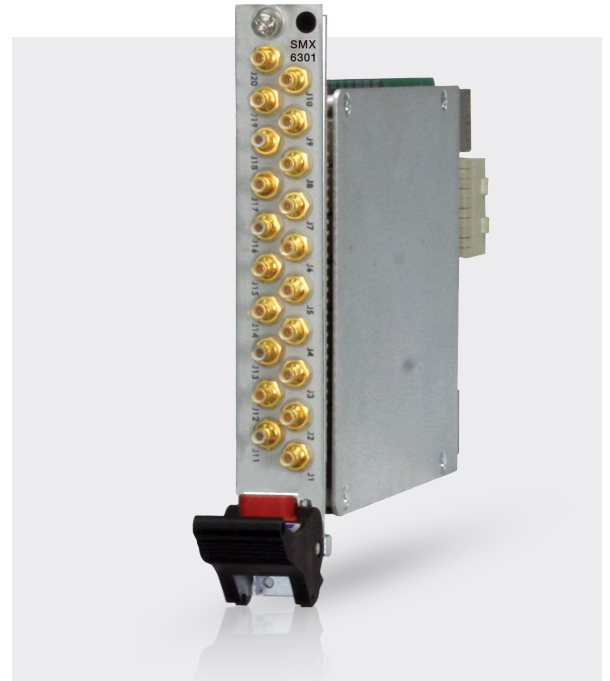
Specifications subject to change without notice.

RF Specifications

Path Resistance	< 250 mΩ
Bandwidth	> 2 GHz
Crosstalk	< 50 dB @ 2 GHz
Isolation	< 50 dB @ 2 GHz
VSWR	< 2.2 @ 2 GHz

Ordering Information

Model	Configuration
SMX-6144	(1) 4X4 COAX MATRIX
SMX-6144-SMB	(1) 4X4 COAX MATRIX



FEATURES

- Non-blocking Configuration
- Bandwidth > 2 GHz (configuration specific)
- 250 VAC / 220 VDC
- 2A Switching Current
- Embedded Virtual Schematic
- Relay Cycle Count Odometer



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MICROWAVE SWITCHING

Overview

The VTI SMX-7xxx Series of microwave switch cards extends functionality typically reserved for dedicated stand-alone systems into the PXIe form-factor. Single and dual slot configurations provide the ability to mix and match multiple switch configurations including SPDT, SP4T, SP6T and Transfer. The pass through adapter extends functionality even further with programmable drive line ideal for attenuators and other devices. Embedded virtual schematic control further simplifies setup and debugging allowing all relays to be engaged independent of application software and device drivers.

Ideally suited for medium-to-high density automated test equipment (ATE), the SMX-7xxx Series deliver uncompromised measurement integrity ideal for the most demanding aerospace, defense and communication applications.

Specifications

Bandwidth	26.5 GHz
Average Power Per Channel	40 W
RF Impedance	50 Ω
Switching Time	< 15 ms
Connector Type	SMA

Specifications subject to change without notice.

Ordering Information

Model	Configuration
SMX-7121	Single Slot Microwave Carrier with (1) SPDT 26.5 GHz switch
SMX-7122	Single Slot Microwave Carrier with (2) SPDT 26.5 GHz switches
SMX-7241	Dual Slot Microwave Carrier with (1) SP4T 26.5 GHz switch
SMX-7242	Dual Slot Microwave Carrier with (2) SP4T 26.5 GHz switches
SMX-7243	Dual Slot Microwave Carrier with (3) SP4T 26.5 GHz switches
SMX-7261	Dual Slot Microwave Carrier with (1) SP6T 26.5 GHz switch
SMX-7262	Dual Slot Microwave Carrier with (2) SP6T 26.5 GHz switches
SMX-7263	Dual Slot Microwave Carrier with (3) SP6T 26.5 GHz switches
SMX-7100	Single Slot Microwave Switch carrier w/relay driver
SMX-7200	Dual Slot Microwave Switch carrier w/relay driver
SMXR-7200	Pass Through Adapter, 6 drive lines
SMXR-7202	(1) 26.5 GHz SPDT Relay
SMXR-7204	(1) 26.5 GHz SP4T Relay
SMXR-7206	(1) 26.5 GHz SP6T Relay
SMXR-7222	(1) 26.5 GHz Transfer Switch



FEATURES

- 26.5 GHz
- Single and Dual Carriers
- External Device Drivers
- Embedded Virtual Schematic Control



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