

Keithley Instruments, Inc.
28775 Aurora Road
Cleveland, Ohio 44139
1-888-KEITHLEY
www.keithley.com

Switching Matrix Mainframe Specifications

Model 707B Six Slots with Fixed Rack

Model 708B Single Slot with Fixed Rack

Overview:

Capacity:

Model	Description
707B	Six plug-in cards per mainframe
708B	Single plug-in card per mainframe

Supported Cards

Model	Description
7072	8x12 Semiconductor Matrix 200V, 1A
7072-HV	8x12 HV Semiconductor Matrix 1300V, 0.1A
7173-50	4x12, 2-Pole, High-Frequency Matrix Card
7174A	8x12 Low-Current, High-Speed Matrix Card, with 3-lug Triax Row and Column connects

Analog Matrix Expansion

See the Model 707B or 708B Semiconductor Switch Matrix Mainframe Reference Manual for more information.

Execution Speed:

SYSTEM PERFORMANCE: ¹

Card	Command	Single Command Execution Time(ms)			
		Ethernet	GPIB	TSPLink	USB
7072	channel.close ('ch_list') or channel.open ('ch_list')	15.9	15.9	20.5	15.9
7072-HV		15.9	15.9	20.5	15.9
7173-50		7.9	7.9	11.5	7.9
7174A		1.9	1.9	5.5	1.9

¹ Time between the start of a single digio.writebit (1, 1), channel.close ('ch_list') or channel.open ('ch_list') {which includes relay settle time}, and digio.writebit (1, 0) command.

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TRIGGER RESPONSE TIME		
Specifications Category		Specifications
	Card	
Maximum Trigger Rate ²	7072	≥ 65 Scan Steps per second
	7072-HV	≥ 65 Scan Steps per second
	7173-50	≥160 Scan Steps per second
	7174A	≥ 815 Scan Steps per second
Trigger in to start of Matrix Ready Pulse (DDC Mode)		≤ 85μs
Trigger in to trigger out		≤ 0.5μs
Trigger Timer accuracy		≤ 0.5μs

² Includes scan.scancount = 100, scan.stepcount ≥ 3, channel.connectrule = channel.OFF or 0, and relay settle time.

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GENERAL:

INTERFACES:

Specifications Category	Specifications
Emulation	<p>707A / 708A Device Dependent Commands (DDC).</p> <p>Since the architecture of the Model 707B / 708B differs from the Model 707A / 708A, some commands are different. Refer to the Model 707B or 708B Semiconductor Switch Matrix Mainframe Reference Manual for more information.</p>
Front Panel Interface Display	<p>Two-line vacuum fluorescent display (VFD)</p> <ul style="list-style-type: none"> • Show error messages and user-defined messages • View menus • Open / Close messaging of Channels <p>LED Crosspoint display (707B only)</p> <ul style="list-style-type: none"> • Shows Row and Column Open/Close channel status for a single slot • Shows populated and selected Slot status (yellow LED's) • Shows Slot closed status (red LED's) <p>Navigation Wheel</p> <ul style="list-style-type: none"> • Scroll and select channels or menu items • Open / Close channels pressing wheel <p>Key Pad</p> <ul style="list-style-type: none"> • Scroll menus • Change host interface settings • Load and run factory and user-defined test scripts • make-before-break, break-before-make, or none connection rules.
Non-volatile Memory:	<ul style="list-style-type: none"> • ≥ 600 Channel Patterns (dependent on name length and pattern image size).
Programmed Settle Time	<ul style="list-style-type: none"> • <code>channel.setdelay('slotx', n)</code> or <code>channel.setdelay('xrc', n)</code>, where x = slot number, r = row letter, cc =column number, and n = 0 to 60s in $1\mu s$ increments
Break Before Make Make Before Break None	<ul style="list-style-type: none"> • <code>channel.connectrule= channel.BREAK_BEFORE_MAKE</code> or 1 • <code>channel.connectrule= channel.MAKE_BEFORE_BREAK</code> or 2 • <code>channel.connectrule= channel.OFF</code> or 0, the system will close relays as it is able to without adhering to a rule.
IEEE-488	IEEE-488.1 compliant. Supports IEEE-488.2 common commands and status model topology.
USB 2.0 Device (rear panel type B)	Full and high speed, USBTMC compliant
Ethernet	RJ-45 connector, 10/100BaseT, Auto-MDIX

Specifications are subject to change without notice.



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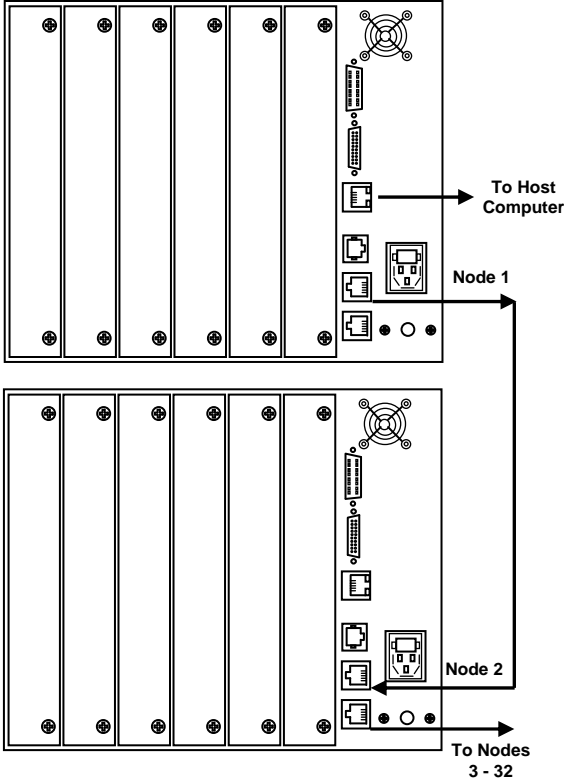
Specifications Category	Specifications
LXI Compliance	LXI Class C, Version 1.2
Programming	Embedded Test Script Processor (TSP) accessible from any host interface. Responds to individual instrument control commands. Responds to high-speed test scripts comprised of instrument control commands and Test Script Language (TSL) statements (e.g., branching, looping, math, etc.). Able to execute high-speed test scripts stored in memory without host intervention.
Minimum user memory available	16MB (approximately 250,000 lines of TSL code).
Test Script Builder	Integrated development environment for building, running, and managing TSP scripts. Includes an instrument console for communicating with any TSP-enabled instrument in an interactive manner. Requires: <ul style="list-style-type: none">• VISA (NI-VISA included on CD)• Microsoft .NET Framework (included on CD)• Keithley I/O Layer (included on CD)• Pentium III 800MHz or faster personal computer• Microsoft® Windows® 2000, XP, Vista, or Windows 7
Password Protection	30 Characters
Operating System /Software	<ul style="list-style-type: none">▪ Supports Web browsers with Java plug-in (requires Java plug-in 1.6 or higher).▪ Web pages served by 707B / 708B.
Timer	Free-running 47-bit counter with 1MHz clock input. Reset each time instrument powers up. Rolls over every 4 years.

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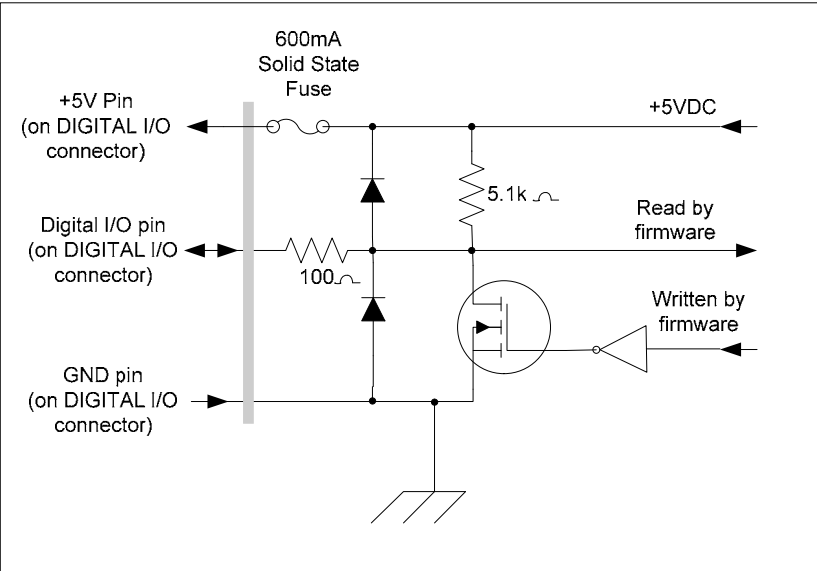
Specifications Category	Specifications
System Expansion	<ul style="list-style-type: none"> • The TSP-Link expansion interface allows TSP-enabled instruments to trigger and communicate with each other. • Each 707B / 708B has two TSP-Link connectors to facilitate chaining instruments together. • Once 707B / 708B instruments are interconnected via TSP-Link, a computer can access all of the resources of each 707B / 708B via the host interface of any 707B / 708B. • A maximum of 32 TSP-Link nodes can be interconnected. Each 707B / 708B consumes one TSP-Link node. 

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Specifications Category	Specifications
Digital I/O Interface	 <p>Connector: 25-pin female D.</p> <p>Input/Output pins: 14 open drain I/O bits.</p> <p>Absolute Maximum Input Voltage: 5.25V.</p> <p>Absolute Minimum Input Voltage: -0.25V.</p> <p>Maximum Logic Low Input Voltage: 0.7V, +850uA max.</p> <p>Maximum Logic High Input Voltage: 2.1V, +570uA.</p> <p>Maximum Source Current (flowing out of Digital I/O bit): 960uA.</p> <p>Maximum Sink Current @ Maximum Logic Low Voltage (0.7V): - 5.0mA.</p> <p>Absolute Maximum Sink Current (flowing into Digital I/O pin): - 11mA.</p> <p>5V Power Supply Pin: Limited to 600mA, solid state fuse protected.</p>
Power Supply	707B, 100 V to 240 VAC, 50 Hz – 60 Hz, 210 VA max 708B, 100 V to 240 VAC, 50 Hz – 60 Hz, 110 VA max
Relay Drive	707B, 30W (6V at 5.0A) max per slot, 162W (6V at 27A) max for all slots. 708B, 30W (6V at 5.0A) max.
Warranty	1 year
EMC	Conforms to European Union EMC Directive.

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Specifications Category	Specifications
Safety	Conforms to European Union Low Voltage Directive.
Vibration	MIL-PRF-28800F Class 3, Random.
Dimensions	707B, 356 mm high × 432 mm wide × 574 mm deep (14.0 in × 17.0 in × 22.6 in).
	708B, 90 mm high × 432 mm wide × 574 mm deep (3.5 in × 17.0 in × 22.6 in).
Dimensions with Card Installed	707B, 356 mm high × 432 mm wide × 612 mm deep (14.0 in × 17.0 in × 24.1 in).
	708B, 356 mm high × 432 mm wide × 612 mm deep (14.0 in × 17.0 in × 24.1 in).
Weight	707B: 14.5 kg (32 lbs).
	708B: 7.3 kg (16 lbs).
Shipping Weight	707B: 27.2 kg (60 lbs).
	708B: 16.4 kg (36 lbs).
Environment	For indoor use only
	Altitude: Maximum 2000 meters above sea level
	Operating: 0°– 50°C, 80% R.H. up to 35°C. Derate to 3% R.H./°C, 35°– 50°C Storage: – 25°C to 65°C
Accessories Supplied	<ul style="list-style-type: none"> • Product Information CD-ROM <ul style="list-style-type: none"> • 707BS-950-01, Product Information CD • 707B-903-01, Quick Start Guide • SWITCH-950-01, Switching and Control Product Information CD • KTS-850D01, Test Script Builder User Suite CD • 1m CAT 5 Ethernet Crossover cable, CA-180-4A • 3m CAT 5 Ethernet cable, CA-179-2A • Line Cord, CO-7 • Front Rack Mount Kit • Rear Fixed Rack Mount Kit (707B only)

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Specifications Category	Specifications
Accessories Available	<ul style="list-style-type: none"> • Model 4299-6 (708B only), Universal Full Rack Mount Kit • Model 7079 (707B only), Rear Slide Rack Mounting Kit • Model 7xxx Cards • 7072-TRT, Triax hastening tool • 7007-1, Double Shielded GPIB Cable, 1m (3.3ft) • 7007-2, Double Shielded GPIB Cable, 2m (6.6ft) • 2600-TLINK Digital I/O to TLINK Cable, 1m • CA-126-7A, 25-pin Female Digital I/O to 25-pin Male, 3m. • 707B-3Y/5Y-EW (extended warranty) • Software <ul style="list-style-type: none"> • IVI-COM and IVI-C Driver for: C#, VB.NET, Visual C++, VB6, and LabWindows / CVI • LabVIEW Driver • Example TSP Scripts • Test Script Builder

