KEITHLEY
A Tektronix Company

Models 707B and 708B

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Semiconductor Switch Systems Specifications

SPECIFICATION CONDITIONS

This document contains specifications and supplemental information for the 707B Six-Slot Semiconductor Switch Mainframe and 708B Single-Slot Semiconductor Switch Mainframe.

EXECUTION SPEED

System performance[1]

Card	Command	Single command execution time (ms)			
		Ethernet	GPIB	TSP-Link	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

Trigger response time

Specifications category		Specifications
Maximum trigger rate [2]	**Card**	
	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)		≤ 85 µs
Trigger in to trigger out		≤ 0.5 µs
Trigger Timer accuracy		≤ 0.5 µs

[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.

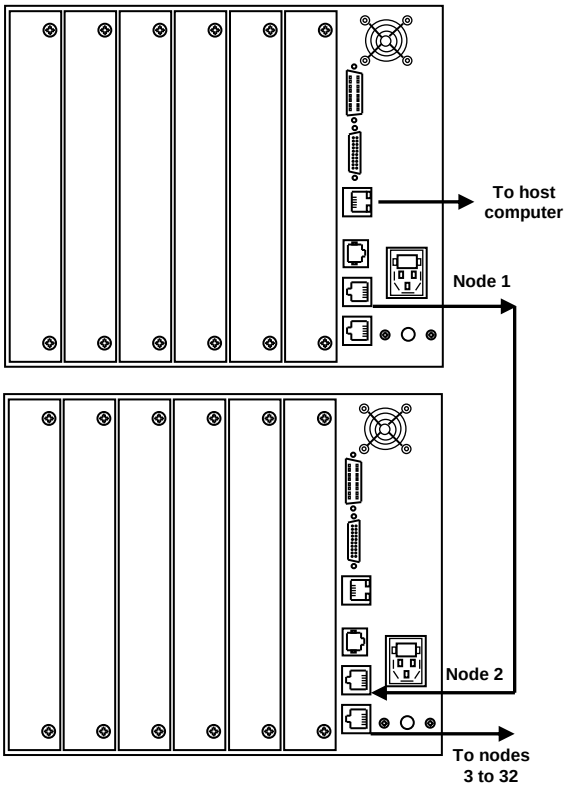
[2] Includes `scan.scancount = 100`, `scan.stepcount` ≥ 3, `channel.connectrule = channel.OFF` or `0`, and relay settle time.

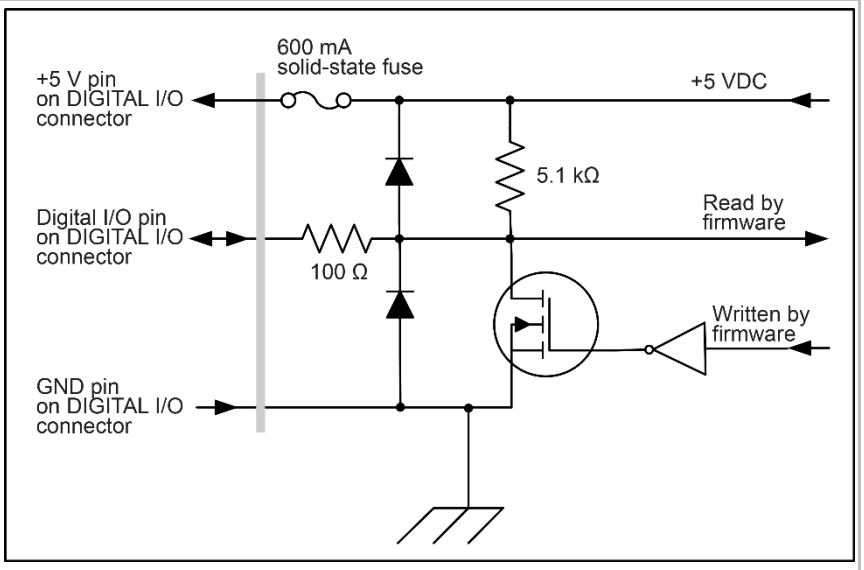
GENERAL

Specifications category	Specifications
Emulation	707A/708A Device Dependent Commands (DDC) Since the architecture of the Model 707B / 708B differs from the Model 707A/708A, some commands are different; refer to the *Models 707B and 708B Switching Matrix Reference Manual* for more information
Front-panel interface display	Two-line vacuum fluorescent display (VFD) ▪ Show error messages and user-defined messages ▪ View menus ▪ Open and close messaging of channels LED Crosspoint display (707B only) ▪ Shows row and column open and close channel status for a single slot ▪ Shows populated and selected slot status (yellow LEDs) ▪ Shows slot closed status (red LEDs) Navigation wheel ▪ Scroll and select channels or menu items ▪ Open or close channels by pressing wheel Keypad ▪ 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
Nonvolatile memory	≥ 600 channel patterns (dependent on name length and pattern image size)
Programmed settle time	`channel.setdelay('slot`*x*`', `*n*`)` or `channel.setdelay('`*xrcc*`', `*n*`)`, where `x` = slot number, *r* = row letter, *cc* =column number, and *n* = 0 to 60 s in 1 µs increments

Break before make
Make before break
None
	`channel.connectrule = channel.BREAK_BEFORE_MAKE` or `1`
	`channel.connectrule = channel.MAKE_BEFORE_BREAK` or `2`
	`channel.connectrule = channel.OFF` or `0`; the system closes relays as it can 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
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 TSP statements, such as branching, looping, and math ▪ Can execute high-speed test scripts stored in memory without host intervention
Minimum user memory available	16 MB (approximately 250,000 lines of TSP code).
Password protection	30 characters

Specifications category	Specifications
Operating system software	▪ Supports web browsers with Java plug-in (requires Java plug-in 1.6 or higher) ▪ Web pages served by 707B or 708B
Timer	▪ Free-running 47-bit counter with 1 MHz clock input ▪ Reset each time instrument powers up ▪ Rolls over every 4 years
TSP-Link system expansion	▪ The TSP-Link expansion interface allows TSP-enabled instruments to trigger and communicate with each other ▪ Each 707B or 708B has two TSP-Link connectors to facilitate chaining instruments together ▪ Once 707B or 708B instruments are interconnected using TSP-Link, a computer can access all of the resources of each 707B or 708B using the host interface of any 707B or 708B ▪ A maximum of 32 TSP-Link nodes can be interconnected. Each 707B or 708B consumes one TSP-Link node 

Specifications category	Specifications
Digital I/O Interface	 **Connector:** 25-pin female D **Input/output pins:**14 open drain I/O bits **Absolute maximum input voltage:** 5.25 V **Absolute minimum input voltage:** −0.25 V **Maximum logic low input voltage:** 0.7 V, +850 µA maximum **Maximum logic high input voltage:** 2.1 V, +570 µA **Maximum source current (flowing out of digital I/O bit):** 960 µA **Maximum sink current at maximum logic low voltage (0.7 V):** −5.0 mA **Absolute maximum sink current (flowing into digital I/O pin):** −11 mA **5 V power supply pin:** Limited to 600 mA, solid-state fuse protected
Power supply	**707B:** 100 V to 240 VAC, 50 Hz to 60 Hz, 210 VA maximum
	708B: 100 V to 240 VAC, 50 Hz to 60 Hz, 110 VA maximum
Relay drive	**707B:** ▪ 30 W (6 V at 5.0 A) maximum per slot ▪ 162 W (6 V at 27 A) maximum for all slots
	708B: 30 W (6 V at 5.0 A) maximum
EMC	Conforms to European Union EMC Directive
Safety	Conforms to European Union Low Voltage Directive
Vibration	MIL-PRF-28800F Class 3, Random

Specifications category	Specifications
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 lb)
	708B: 7.3 kg (16 lb)
Shipping Weight	**707B:** 27.2 kg (60 lb)
	708B: 16.4 kg (36 lb)
Environment	▪ For indoor use only ▪ **Altitude:** Maximum 2000 meters above sea level ▪ **Operating:** 0°C to 50°C, 80% relative humidity up to 35°C; derate to 3% relative humidity/°C, 35°to 50°C ▪ **Storage:** –25°C to 65°C