Table 9-3 HP 44709A/44710A/44719A/44720A Specifications

HP 44709A 20 Channel FET Multiplexer

Maximum Switch Rates: 5500 channels/second*

Maximum Input Voltage: Rear and back-plane inputs protected to 16 V peak (input impedance decreases above 12 V due to internal protection circuitry). With analog back-plane disconnected from multiplexer, the back-plane voltage can go up to 42 V peak.

Maximum Input Current: 1 mA non-inductive per channel

Input Impedance:

Impedance	Terminals		
	High to Low	Low to Guard	Guard to Chassis
Power On Resistance (Ω)	$>10^8$	$>10^8$	$>10^8$
Power Off Resistance (Ω) Vin 10 V	>1000	>1000	>1000
Power Off Resistance (Ω) Vin >10 V	>200	>200	>200
Max. Capacitance (pf) at 1MHz	200	200	200

Closed Channel Path Resistance: 3.1 kΩ for either High or Low Inputs considered separately
2.1 kΩ for the Guard Input

Bandwidth: 1.0% flatness at 20 kHz, -3 dB Bandwidth at 200 kHz (50 Ω source, 1 MΩ termination)

Crosstalk: -50 dB at 10 kHz, -35 dB at 100 kHz (channel-to-channel, 50 Ω source, 1 MΩ termination)

Maximum Offset Voltage: 15 µV at 0 to 28 °C
185 µV at 28 to 55 °C
(offset voltage between High and Low)

Maximum Bias Current: ±5 nA DC at 0 to 28 °C
±15 nA DC at 28 to 55 °C
(Current sourced by High or Low to Chassis into Input Terminals or back-plane, with isolation relays closed)

±65 nA DC at 0 to 28 °C
±770 nA DC at 28 to 55 °C
(Current sourced by Guard to Chassis into Input Terminals, with isolation relays closed)

Table 9-3 HP 44709A/44710A/44719A/44720A Specifications (Cont.)

±1 nA DC at 0 to 55 °C
(Current sourced by High or Low to Chassis into back-plane, with isolation relays open) (Current sourced by Guard to Chassis into back-plane with isolation relays open)

Maximum Wire Size: 16 AWG

HP 44710A 20 Channel FET Multiplexer with Thermocouple Compensation

Maximum Switch Rates: 5500 channels/second*

Maximum Input Voltage: Rear and back-plane inputs protected to 16 V peak (input impedance decreases above 12 V due to internal protection circuitry). With analog back-plane disconnected from multiplexer, the back-plane voltage can go up to 42 V peak.

Maximum Input Current: 1 mA non-inductive per channel

Input Impedance:

Impedance	Terminals		
	High to Low	Low to Guard	Guard to Chassis
Power On Resistance (Ω)	$>10^8$	$>10^8$	$>10^8$
Power Off Resistance (Ω) Vin 10 V	>1000	>1000	>1000
Power Off Resistance (Ω) Vin >10 V	>200	>200	>200
Max. Capacitance (pf) at 1MHz	200	200	200

Closed Channel Path Resistance: 3.1 kΩ for either High or Low Inputs considered separately
2.1 kΩ for the Guard Input

Bandwidth: 1.0% flatness at 20 kHz, -3 dB Bandwidth at 200 kHz (50 Ω source, 1 MΩ termination)

Crosstalk: -50 dB at 10 kHz, -35 dB at 100 kHz (channel-to-channel, 50 Ω source, 1 MΩ termination)

Maximum Offset Voltage: 15 µV at 0 to 28 °C
185 µV at 28 to 55 °C
(offset voltage between High and Low)

Maximum Bias Current: ±5 nA DC at 0 to 28 °C
±15 nA DC at 28 to 55 °C
(Current sourced by High or Low to Chassis into Input Terminals or back-plane, with isolation relays closed)

Table 9-3 HP 44709A/44710A/44719A/44720A Specifications (Cont.)

±65 nA DC at 0 to 28 °C
±770 nA DC at 28 to 55 °C
(Current sourced by Guard to Chassis into Input Terminals, with isolation relays closed)

±1 nA DC at 0 to 55 °C
(Current sourced by High or Low to Chassis into back-plane, with isolation relays open) (Current sourced by Guard to Chassis into back-plane with isolation relays open)

Maximum Wire Size: 16 AWG

Ref. Junction Compensation Accuracy: 0.1 °C (over 18 to 28 °C operating temperature)

Max Temperature Difference Across Isothermal Module: 0.2 °C

HP 44719A/44720A 10 Bridge Static Strain Gage Multiplexer*
(Use HP 44709A Specifications with these changes/additions)

Strain Gage Resolution:

Bridge Configuration	Bridge Excitation Voltage 5 V	1 V	0.1 V
Full	0.01 με	0.05 με	0.5 με
1/2	0.02 με	0.1 με	1 με
1/4	0.04 με	0.2 με	2 με

Bridge Exitation Requirements: An inexpensive power supply, such as an HP 6214B can be used for the following requirements

Current Requirements for Excitation Voltage (5.4 V maximum for specified accuracy):

Bridge Type	Bridge Configuration	Current per Channel
120 Ω	Full	50 mA
120 Ω	1/2	25 mA
120 Ω	1/4	25 mA
350 Ω	Full	17 mA
350 Ω	1/2	8.5 mA
350 Ω	1/4	8.5 mA

Ripple and Noise Requirements for Excitation Voltage:

1 mV peak-to-peak (20 Hz to 20 MHz)