

Keithley Instruments, Inc.
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6x16 High-Speed Reed Matrix Specifications**96 two-pole crosspoints with column expansion relays**

MATRIX CONFIGURATION: Six-row by 16-column matrix. Columns can be expanded using the backplane or isolated by relays.

CONTACT CONFIGURATION: 2-pole form A

CONNECTOR TYPE: Two 50-pin male D-shells

MODEL 3731-ST SCREW TERMINAL OPTION:

Typical wire size: #22 AWG with .062 inch O.D.; 88 conductors maximum

Maximum wire size: #16 AWG with .092 inch O.D.; 44 conductors per card maximum.

MAXIMUM SIGNAL LEVEL: 200 V DC or peak AC, 1 A switched (2 A carry), 10 W, 10 VA.

COMMON MODE VOLTAGE: 200 V DC or peak AC between any signal path to a signal path or ground.

VOLT-HERTZ LIMIT: 8×10^7

CONTACT LIFE:

REED: $>10^9$ operations no load. $>8 \times 10^6$ operations @ 100 V, 10 m A.

EMR (Backplane): $>10^8$ operations @ 5 V, 10 m A and 10^5 operations at maximum signal level.

MODEL 3731 PARAMETERS:

Parameter	6x16 ^{1, 2}
Channel resistance (end of contact life)	<1.5 Ω
Contact potential (differential)	< \pm 80 μ V
Offset current	< \pm 500 pA
Isolation	
Differential	$3 \times 10^9 \Omega$, 300 pF
CH-CH	$3 \times 10^9 \Omega$, 100 pF
Common mode	$3 \times 10^9 \Omega$, 150 pF
Crosstalk CH-CH	
300 KHz:	<-60 dB
1 MHz:	<-50 dB
15 MHz:	<-20 dB
Bandwidth	19 MHz

¹ Connections made using Model 3731-ST.

² Model 3706 mainframe with all DMM backplane relays disconnected.

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GENERAL SPECIFICATIONS

ACTUATION TIME: 0.5 ms

RELAY TYPE: Reed

RELAY DRIVE SCHEME: Direct drive

INTERLOCK: Backplane relays disabled when terminal assembly removed

OPERATING ENVIRONMENT:

Specified for 0° C to 50° C.

Specified to 70% relative humidity at 35° C.

STORAGE ENVIRONMENT: -25° C to 65° C

WEIGHT: 2.2 lbs

SAFETY: Compliant with European Union Low Voltage Directive

FIRMWARE: Requires Series 3700 firmware revision 1.30 or later (applies to all Series 3700 mainframes)

SYSTEM SPECIFICATIONS: Refer to the Keithley Instruments Model 3700 System Switch/Multimeter Specifications Rev. C or later

EMC: Compliant with European Union EMC Directive

ACCESSORIES AVAILABLE:

Model 3790-KIT50-R, 50-pin female D-sub connector kit (contains two female D-sub connectors and 100 solder-cup contacts)

Model 3721-MTC-1.5, 50-pin D-sub female to male cable, 1.5 m (approx. 6')

Model 3721-MTC-3, 50-pin D-sub female to male cable, 3 m (approx. 12')

Model 3731-ST, screw terminal block

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Figure 1: Model 3731 Simplified crosspoint relay detail

