

3731 6×16 High Speed, Reed Relay, Matrix Card

96 two-pole crosspoints with column expansion relays

DATA SHEET

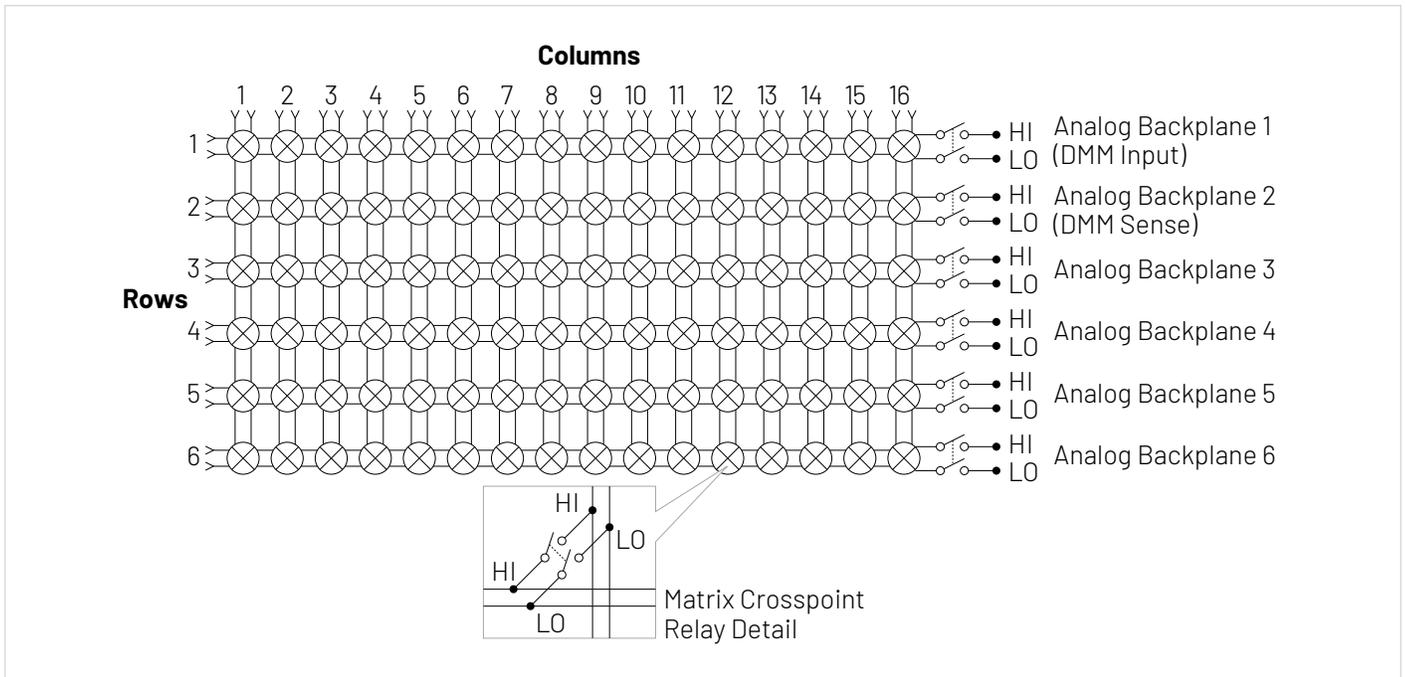


The 3731 is a two-pole, 6 row by 16 column reed relay matrix card. By using high speed reed relays with actuation times of 0.5 ms, this card meets the requirements of demanding throughput applications while offering users the additional benefit of long life, exceeding one billion operations. The card can connect up to six differential instrument channels to any combination of 16 DUTs (devices under test). Any row can be connected to the Series 3700A mainframe backplane by using the analog backplane connection relays. This allows for easy matrix column expansion. A matrix of up to 6 rows by 96 columns can be supported within a single 3706A mainframe (with six 3731 cards).

Key Features

- 6 row by 16 column matrix (2-pole) using high speed, long life reed relays
- Analog backplane connection relays provide easy column expansion
- 200 V, 1 A switched or 2 A carry signal capacity; 10 Ω , 10VA
- Screw terminal connections provided on removable 3731-ST accessory
- Relay actuation time of 0.5 ms
- Ideal for multi-channel I-V testing with Series 2600B Systems
- Long life dry reed relays (>10⁹ operations)

The 3731 uses two 50-pin male D-sub connectors for signal connections. For screw terminal connections, use the detachable 3731-ST accessory.



Specifications

Matrix Configuration	6 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.
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 Ω , 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 mA. EMR (Backplane): $>10^8$ operations @ 5 V, 10 mA and 105 operations @ maximum signal level.

		6×16^{1,2}
Channel Resistance (end of contact life)		$<1.5 \Omega$
Contact Potential (differential)		$<\pm 80 \mu\text{V}$
Offset Current		$<\pm 500 \text{ pA}$
Isolation	Differential	$3 \times 10^9 \Omega$, 300 pF
	Channel-channel	$3 \times 10^9 \Omega$, 100 pF
	Common Mode	$3 \times 10^9 \Omega$, 150 pF
Crosstalk Channel-Channel	300 kHz	$<-60 \text{ dB}$
	1 MHz	$<-50 \text{ dB}$
	15 MHz	$<-20 \text{ dB}$
Bandwidth		19 MHz

Notes

- Connections made using 3731-ST.
- 3706A mainframe with all DMM backplane relays disconnected.

General

Actuation Time	0.5 ms.
Relay Type	Reed.
Relay Drive Scheme	Direct drive.
Interlock	Backplane relays disabled when terminal assembly is removed.
Operating Environment	Specified for 0° to 50°C. Specified to 70% R.H. at 35°C.
Storage Environment	-25° to 65°C.
Weight	2.2 lbs.
Safety	Compliant with European Union Low Voltage Directive
EMC	Compliant with European Union EMC Directive 2004/108/EC, EN61326-1.

Ordering Information

3731	6×16 High Speed, Reed Relay, Matrix Card
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Available Accessories

3721-MTC-3	50-pin D-sub Female to Male Cable, 3 m (10 ft.)
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3731-ST	Screw Terminal Block
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Available Services

3731-3Y-EW-STD	1-year factory warranty extended to 3 years from date of shipment
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3731-5Y-EW-STD	1-year factory warranty extended to 5 years from date of shipment
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C/3731-3Y-STD	3 (Z540-1 compliant) calibrations within 3 years of purchase*
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*Not available in all countries

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