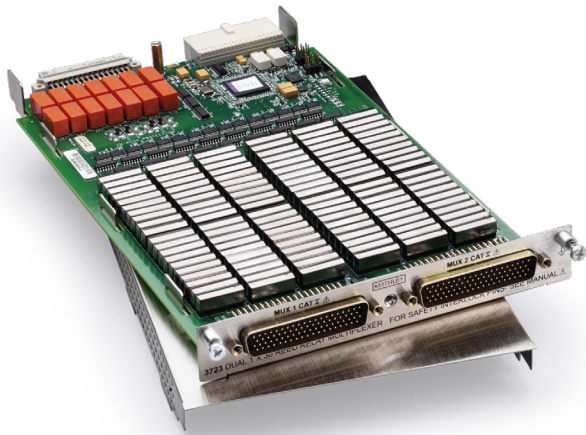


3723 Dual 1×30, High Speed, Multiplexer Card

60 differential channels, long life reed relays

DATA SHEET



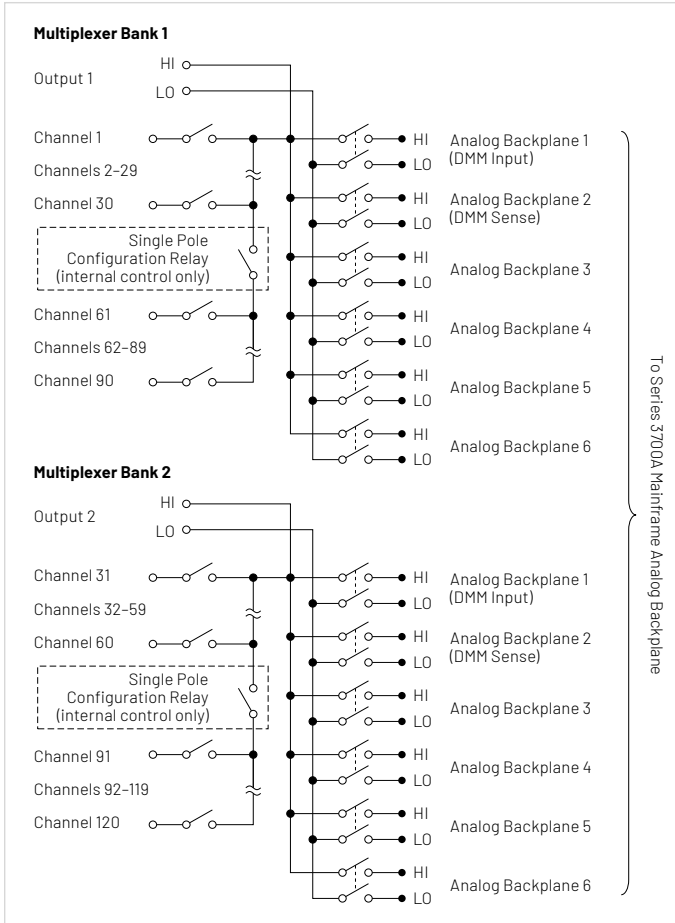
The 3723 offers two independent banks of high speed 1×30 two-pole multiplexers that are ideal for high speed scanning applications. The two banks can automatically be connected to the Series 3700A mainframe backplane and optional DMM through the analog backplane connection relays. This connection allows the mainframe to reconfigure the 3723 as a single 1×60 two-pole multiplexer or as a single 1×120 single-pole multiplexer. It also enables card-to-card expansion for even larger configurations.

Key Features

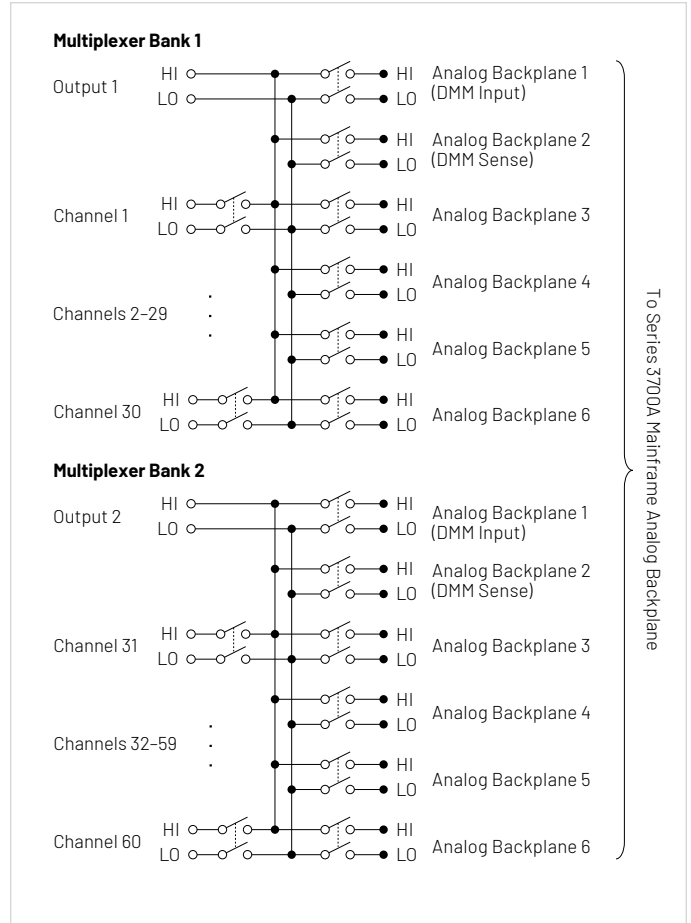
- 60 two-pole or 30 four-pole channels for high speed scanning
- 120 channel single-pole mode for one-wire (common side) measurements
- Analog backplane connection relays provide easy bank and card interconnections
- 200 V, 1 A switched or 1.25 A carry signal capacity; 15 W
- Relay actuation time <0.5 ms
- 20 MHz bandwidth
- Ideal for multi-channel I-V testing with Series 2600B SourceMeter® SMU instruments
- Long life dry reed relays (>10⁹ operations)

By using high speed reed relays with actuation times of less than 0.5ms, this card can meet demanding throughput applications. Another feature of the 3723 is its single-ended, one-pole mode, which supports up to 120 channels of single-wire measurements.

The 3723 uses two 78-pin D-sub connectors for signal connections. For screw terminal connections, use the 3723-ST for two- and four-pole configurations.



Single-pole mode



Two-pole mode

Specifications

Multiplexer Configuration	Two independent 1×30 2-pole multiplexers. Banks can be connected together via relay creating a single 1×60 multiplexer. Banks can be isolated from the backplane by relays. Card can be configured for 1-, 2-, and 4-wire.
Contact Configuration	2-pole form A.
Connector Type	Two 78-pin male D-shells.
3723-ST Screw Terminal Option	#22 AWG typical wire size with 0.062 inch O.D. 124 conductors maximum. #16 AWG maximum wire size with 0.092 inch O.D. 36 conductor per card maximum.
Maximum Signal Level	200 V DC or RMS, 1 A switched (1.25 A carry), 15 W.
Common Mode Voltage	300 V DC or RMS between any terminal and chassis.
Volt-Hertz Limit	8×10 ⁷ .

Contact Life **Reed:** >10⁹ operations, no load. 10⁷ operations @100 V, 10 mA.
EMR: >10⁸ operations @ 5 V, 10 mA. 10⁵ operations @ maximum signal level.

		Dual 1×30 ¹	Single 1×60 ^{1,2}
Channel Resistance (end of contact life)		<1.5 Ω	<2.0 Ω
Contact Potential	Single-Ended	<±6 μV	<±6 μV
	Differential	<±12 μV	<±12 μV
Offset Current		<250 pA	<250 pA
Isolation	Differential	10 ¹⁰ Ω, 260 pF	10 ¹⁰ Ω, 500 pF
	Bank-Bank	10 ¹⁰ Ω, 75 pF	—
	Channel-channel	10 ¹⁰ Ω, 75 pF	10 ¹⁰ Ω, 75 pF
	Common Mode	10 ¹⁰ Ω, 280 pF	10 ⁹ Ω, 625 pF
Crosstalk Channel-channel	300 kHz	<-55 dB	<-55 dB
	1 MHz	<-50 dB	<-45 dB
	20 MHz	<-20 dB	<-20 dB
Bandwidth		20 MHz	10 MHz

Typical Scanning Speeds:

Switch Only³ Sequential scanning, single channel, immediate trigger advance: >1000 ch/s.

With Measurements Into Memory⁴

DCV (10 V range) or 2W Ohms (1 kΩ range)
>800 ch/s.

3- or 4-Wire RTD >450 ch/s.

4-Wire Ohms (1 kΩ range)
>450 ch/s.

ACV (10 V, 400 Hz range)
>800 ch/s.

Notes

- Connections made using 3723-ST accessory.
- 3706A mainframe with all DMM backplane relays disconnected. Maximum two card backplane relays closed.
- Scanning script local to 3706A mainframe, within same bank, and break before make switching.
- 3706A mainframe with autorange off, limits off, dmm.autozero=0, dmm.autodelay=0, 4½ digits (NPLC=0.006), for ACV dmm.detectorbandwidth=300, for OHMS dmm.offsetcompensation=off. Scanning script local to mainframe, sequential scan within same bank (2-pole) or card (4-pole), and break before make switching.

General

Actuation Time	<0.5 ms.
Relay Type	Dry reed.
Relay Drive Scheme	Direct.
Relay Drive Current	10 mA.
Interlock	Backplane relays disabled when interlock connection 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	3.0 lbs.
Safety	Conforms to European Union Directive 73/23/EEC, EN61010-1.
EMC	Conforms to European Union Directive 2004/108/EC, EN61326-1.

Ordering Information

3723	Dual 1×30, High Speed, Reed Relay, Multiplexer Card
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Available Accessories

3720-MTC-3	78-pin D-sub Female to Male Cable, 3 m (10 ft.)
3723-ST	Screw Terminal Block

Available Services

3723-3Y-EW-STD	1-year factory warranty extended to 3 years from date of shipment
3723-5Y-EW-STD	1-year factory warranty extended to 5 years from date of shipment
C/3723-3Y-STD	3 (Z540-1 compliant) calibrations within 3 years of purchase*

*Not available in all countries

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