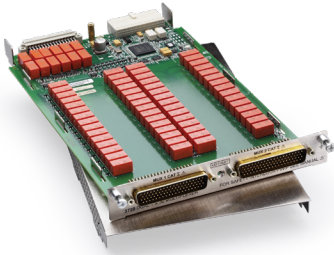


3720 Dual 1×30 Multiplexer Card

60 differential channels, automatic CJC w/3720-ST accessory

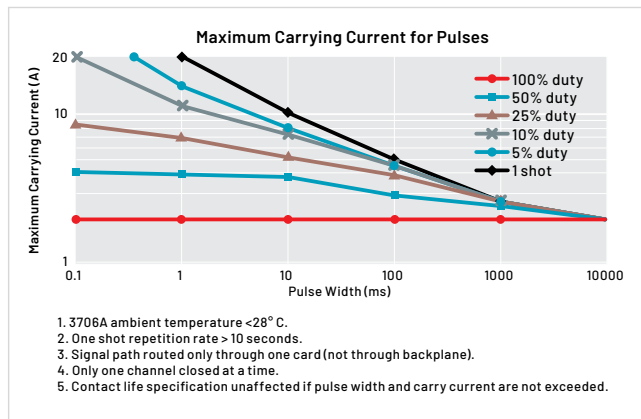
DATA SHEET



The 3720 offers two independent banks of 1×30 two-pole multiplexers. It is ideal for general purpose switching, including temperature measurements. 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 card to a single 1×60 two-pole multiplexer or to enable card-to-card expansion for even larger configurations.

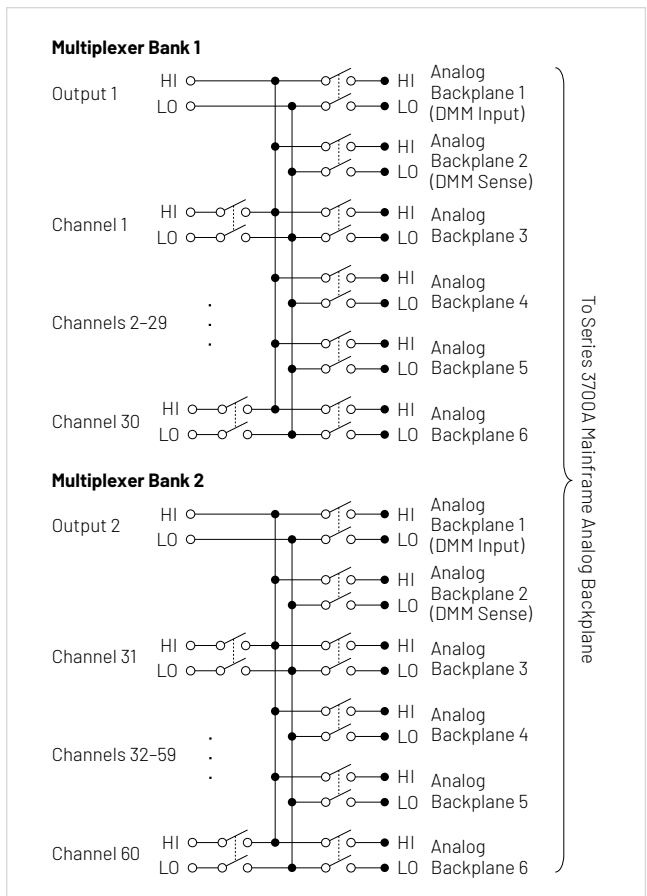
Other features of the 3720 include its ability to be reconfigured to coordinated four-pole operation for additional measurement flexibility. Furthermore, the 3720 supports thermocouple-type temperature measurements when used with the 3720-ST (screw terminal) accessory providing automatic cold junction compensation (CJC).

The 3720 uses two 78-pin male D-sub connectors for signal connections. For screw terminal or automatic CJC, use the detachable 3720-ST accessory.



Key Features

- 60 two-pole channels or 30 four-pole channels for general purpose switching
- Automatic CJC for temperature measurements when used with 3720-ST accessory
- Analog backplane connection relays provide easy bank and card interconnections
- 300 V, 1 A switched or 2 A carry signal capacity; 60 Ω, 125 VA
- Screw terminal connections provided with removable 3720-ST accessory
- Relay closures stored in onboard memory
- Latching electromechanical relays



Specifications

Multiplexer Configuration	Two independent 1×30 2-pole multiplexers. Banks can be isolated from the backplane by relays. Card can be configured for 2 and 4 wire.
Contact Configuration	2-pole form A.
Connector Type	Two 78-pin male D-shells.
3720-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 conductors per card maximum.
Maximum Signal Level	Channels 1–60: 300 V DC or RMS, 1 A switched (2 A carry), 60 Ω, 125 VA.
Common Mode Voltage	300 V DC or RMS between any terminal and chassis.
Volt-Hertz Limit	8×10 ⁷ .
Contact Life	>10 ⁵ operations at maximum signal level. >10 ⁸ operations no load. ¹

		Dual 1×30 ³	Single 1×60 ^{2,3}
Channel Resistance (end of contact life)		<1.0 Ω	<1.5 Ω
Contact Potential (differential)		<±1 μV	<±3 μV
Offset Current		<±250 pA	<±250 pA
Isolation	Differential	10 ⁹ Ω, 250 pF	10 ⁹ Ω, 450 pF
	Bank-Bank	10 ¹⁰ Ω, 75 pF	—
	Channel-Channel	10 ⁹ Ω, 75 pF	10 ⁹ Ω, 75 pF
	Common Mode	10 ⁹ Ω, 200 pF	10 ⁹ Ω, 400 pF
Crosstalk Channel-Channel	300 kHz		<-55 dB
	1 MHz		<-50 dB
	20 MHz		<-20 dB
	Bandwidth		10 MHz

Typical Scanning Speeds

Switch Only⁴	Sequential scanning, single channel, immediate trigger advance	>120 ch/s.
With Measurements Into Memory⁵		
DCV (10 V range) or 2W Ohms (1 kΩ range)		>110 ch/s.
Thermocouple		>110 ch/s.
3- or 4-Wire RTD		>100 ch/s.
4-Wire Ohms (1 kΩ range)		>100 ch/s.
ACV (10 V range)		>110 ch/s.

Notes

- Open detector enabled during thermocouple measurements. Minimum signal level 10 mV, 10 μA.
- 3706A mainframe with all DMM backplane relays disconnected. Maximum two card backplane relays closed.
- Connections made using 3720-ST accessory.
- 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, dmm.opendetector=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	4 ms.
Temperature Accuracy using Automatic CJC with 3720-ST Accessory	1°C for J, K, T and E types (see mainframe specification for details).
Relay Type	Latching electromechanical.
Relay Drive Scheme	Matrix.
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	2.5 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

3720	Dual 1×30 Multiplexer Card
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Available Accessories

3720-MTC-3	78-pin D-sub Female to Male Cable, 3 m (10 ft.)
3720-ST	Screw Terminal Block (required for auto CJC thermocouple measurements)

Available Services

3720-3Y-EW-STD	1-year factory warranty extended to 3 years from date of shipment
3720-5Y-EW-STD	1-year factory warranty extended to 5 years from date of shipment
C/3720-3Y-STD	3 (Z540-1 compliant) calibrations within 3 years of purchase*

*Not available in all countries

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