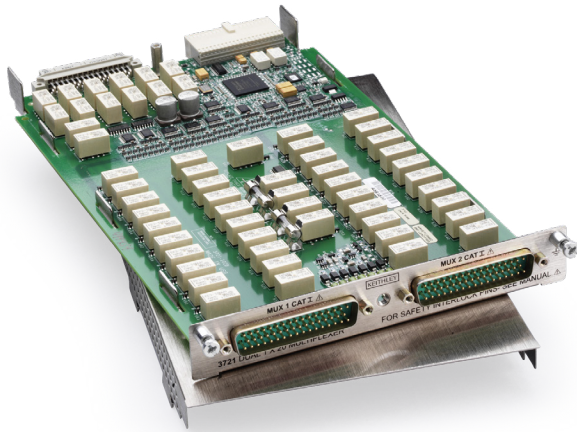


3721 Dual 1×30 Multiplexer Card

40 differential channels, automatic CJC w/3721-ST accessory

DATA SHEET



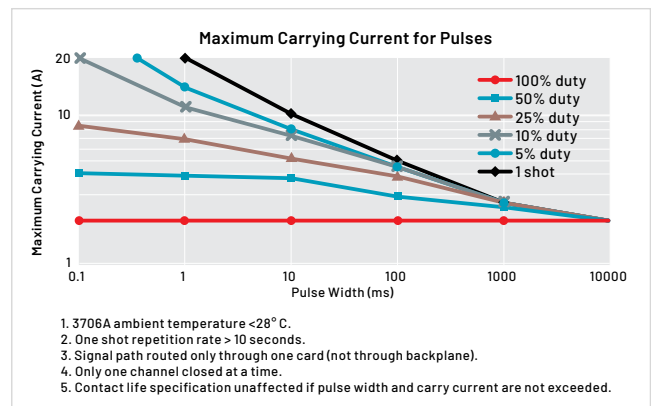
The 3721 offers two independent banks of 1×20 two-pole multiplexers that are ideal for general purpose switching, including temperature measurements. The two banks can automatically be connected to the Series 3700A mainframe backplane and optional DMM through the analog backplane connection relays. This connection allows the mainframe to reconfigure the 3721 as a single 1×40 two-pole multiplexer or to enable card-to-card expansion for even larger configurations.

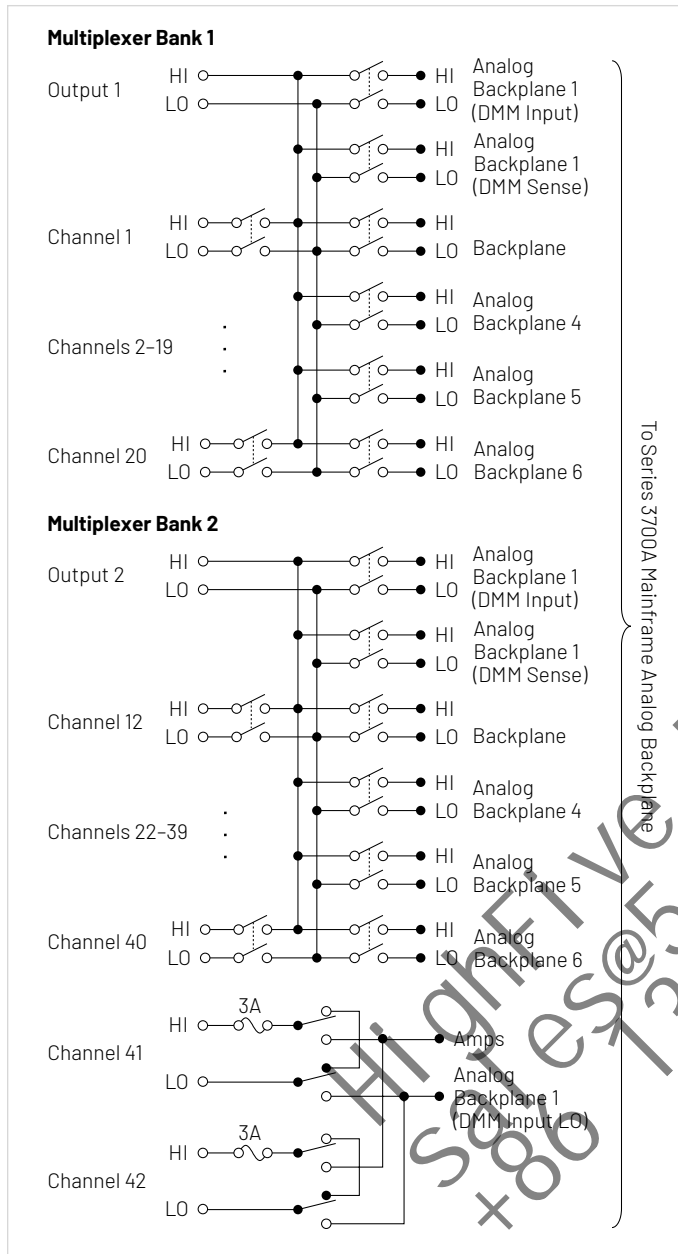
The 3721 uses two 50-pin male D-sub connectors for signal connections. For screw terminal or automatic CJC, use the detachable 3721-ST accessory.

Key Features

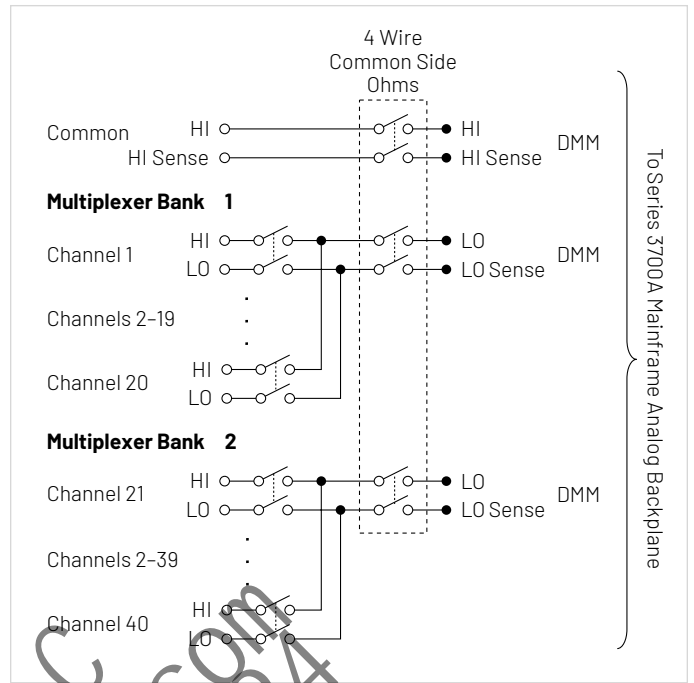
- 40 two-pole or 20 four-pole channels for general purpose switching
- 2 dedicated channels for current measurements, 3 A capacity
- Automatic CJC for temperature measurements when used with 3721-ST accessory
- 4-wire common side ohms input supports 40 channels of 4-wire ohms measurements
- Analog backplane connection relays provide easy bank and card interconnections
- 300 V, 2 A switched or 3 A carry signal capacity; 60 Ω, 125 VA
- Latching electromechanical relays

The 3721 provides a number of other features. In addition to the 40 channels, two fused channels are supplied for current measurements. Also, the 3721 includes dedicated inputs that enable 40 channels of four-wire common side ohms measurements. For thermocouple type measurements, automatic cold junction compensation (CJC) is supported when used with the 3721-ST (screw terminal) accessory.





Two-pole mode



Four-wire common side ohm mode

Specifications

Multiplexer Configuration	Two independent 1×20 2-pole multiplexers. Banks can be connected together via relay creating a single 1×40 multiplexer. Banks can be isolated from the backplane by relays. Card can be configured for common side Ohms measurement via backplane relays. Channel 41-42: Multiplex one of two 2-pole current signals into DMM.
Contact Configuration	2-pole form A.
Connector Type	Two 50-pin male D-shells. Removable screw terminal option.
Maximum Signal Level	Channels 1-40: 300 V DC or RMS, 2 A switched (3 A carry), 60 Ω, 125 VA maximum. Channels 41-42: 60 V DC or 30V rms, 3 A switched, 60 Ω, 125 VA maximum. Fused 3 A, 250 V rms.
Common Mode Voltage	Channels 1-40: 300V 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

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, 400 Hz range) or ACI (1 A, 400 Hz range)

>110 ch/s.

		Dual 1×20 ³	Single 1×40 ^{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, 280 pF	10 ⁹ Ω, 530 pF
	Bank-Bank	10 ¹¹ Ω, 60 pF	—
	Channel-channel	10 ⁹ Ω, 50 pF	10 ⁹ Ω, 50 pF
Common Mode		10 ⁹ Ω, 180 pF	10 ⁹ Ω, 480 pF
Crosstalk Channel-Channel	300 kHz	<-60 dB	<-60 dB
	1 MHz	<-50 dB	<-50 dB
	20 MHz	<-25 dB	<-15 dB
Bandwidth		28 MHz	9 MHz

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 3721-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 3721-ST Accessory	1°C for J, K, T, and E types (see mainframe specification for details).
Relay Type	Latching electromechanical.
Relay Drive Scheme	Direct.
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	2.25 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

3721	Dual 1×20 Multiplexer Card
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Available Accessories

3721-MTC-3	50-pin D-sub Female to Male Cable, 3 m (10 ft.)
3721-ST	Screw Terminal Block (required for auto CJC thermocouple measurements)

Available Services

3721-3Y-EW-STD	1-year factory warranty extended to 3 years from date of shipment
3721-5Y-EW-STD	1-year factory warranty extended to 5 years from date of shipment
C/3721-3Y-STD	3 (Z540-1 compliant) calibrations within 3 years of purchase*

*Not available in all countries

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