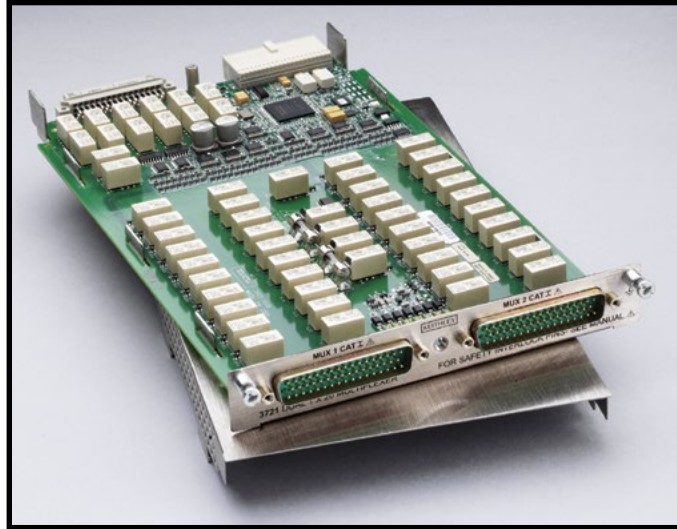


# 3721

## Dual 1×20 Multiplexer Card

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

- 40 two-pole or 20 four-pole channels for general purpose switching
- 2 dedicated channels for current measurements, 3A 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
- 300V, 2A switched or 3A carry signal capacity; 60W, 125VA
- Latching electromechanical relays



The Model 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 Model 3721 as a single 1×40 two-pole multiplexer or to enable card-to-card expansion for even larger configurations.

The Model 3721 provides a number of other features. In addition to the 40 channels, two fused channels are supplied for current measurements. Also, the Model 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 Model 3721-ST (screw terminal) accessory.

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

### Ordering Information

**3721 Dual 1×20 Multiplexer Card**

#### ACCESSORIES AVAILABLE

3721-MTC-1.5	50 Pin D-sub Female to Male Cable, 1.5m (5 ft.)
3721-MTC-3	50 Pin D-sub Female to Male Cable, 3m (10 ft.)
3721-ST	Screw Terminal Block (required for auto CJC thermocouple measurements)
3790-KIT50-R	50 Pin Female D-sub Connector Kit (contains 2 female D-sub connectors and 100 solder-cup contacts)
7401	Type K Thermocouple Wire (100 ft.)

#### SERVICES AVAILABLE

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*

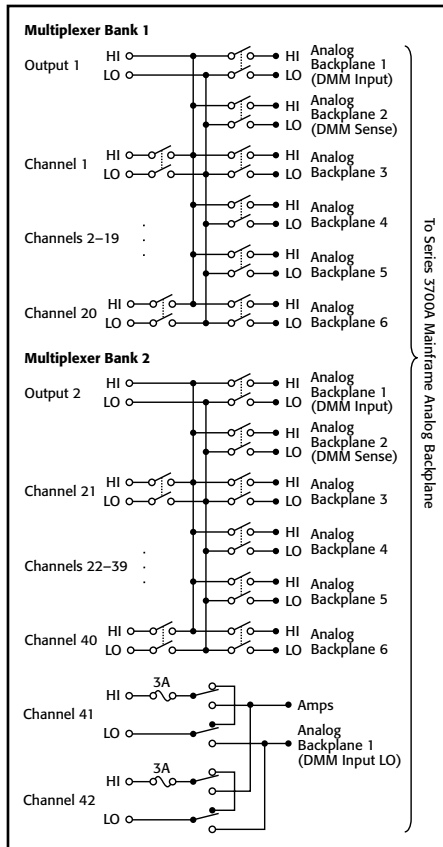
\*Not available in all countries

1.888.KEITHLEY (U.S. only)

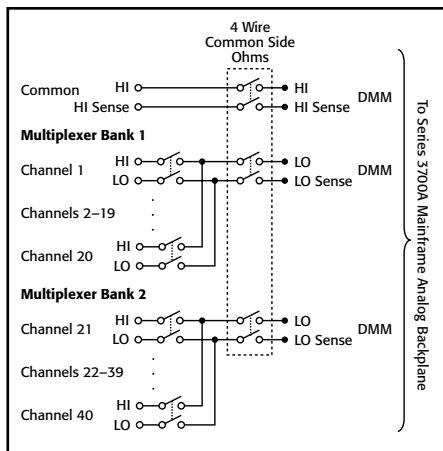
[www.keithley.com](http://www.keithley.com)

## Dual 1×20 Multiplexer Card

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



Two pole mode



Four-wire common side ohm mode

**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:** 300V DC or RMS, 2A switched (3A carry), 60W, 125VA maximum. **Channels 41–42:** 60V DC or 30V RMS, 3A switched, 60W, 125VA maximum. Fused 3A, 250V RMS.

**COMMON MODE VOLTAGE:** **Channels 1–40:** 300V DC or RMS between any terminal and chassis.

**VOLT-HERTZ LIMIT:** 8×10<sup>7</sup>.

**CONTACT LIFE:** >10<sup>8</sup> operations at maximum signal level. >10<sup>8</sup> operations no load.<sup>1</sup>

**TYPICAL SCANNING SPEEDS:**

**Switch Only<sup>4</sup>:** Sequential scanning, single channel, immediate trigger advance: >120 ch/s.

**With Measurements Into Memory<sup>5</sup>:**

DCV (10V range) or 2W Ohms (1kΩ range): >110 ch/s

Thermocouple: >110 ch/s.

3- or 4-Wire RTD: >100 ch/s.

4-Wire Ohms (1kΩ range): >100 ch/s.

ACV (10V, 400Hz range) or ACI (1A, 400Hz range): >110 ch/s.

### NOTES

- Open detector enabled during thermocouple measurements. Minimum signal level 10mV, 10μA.
- 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.

	Dual 1×20 <sup>3</sup>	Single 1×40 <sup>2,3</sup>
<b>Channel Resistance (end of contact life)</b>	<1.0 Ω	<1.5 Ω
<b>Contact Potential (differential)</b>	<±1 μV	<±3 μV
<b>Offset Current</b>	<±250 pA	<±250 pA
<b>Isolation</b>		
<b>Differential Bank-Bank</b>	10 <sup>9</sup> Ω, 280 pF	10 <sup>9</sup> Ω, 530 pF
<b>Channel-channel</b>	10 <sup>9</sup> Ω, 50 pF	10 <sup>9</sup> Ω, 50 pF
<b>Common Mode</b>	10 <sup>9</sup> Ω, 180 pF	10 <sup>9</sup> Ω, 480 pF
<b>Crosstalk Channel-channel</b>		
<b>300kHz</b>	<-60 dB	<-60 dB
<b>1MHz</b>	<-50 dB	<-50 dB
<b>20MHz:</b>	<-25 dB	<-15 dB
<b>Bandwidth</b>	28 MHz	9 MHz

### GENERAL

**ACTUATION TIME:** 4ms.

**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.

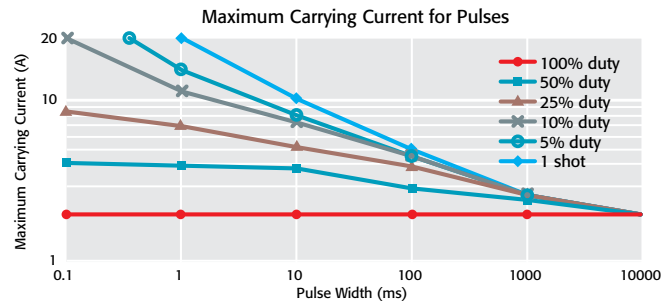
**OPERATING ENVIRONMENT:** Specified for 0° to 50°C. Specified to 70% R.H. at 35°C.

**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.



- Model 3706A ambient temperature <28°C.
- One shot repetition rate > 10 seconds.
- Signal path routed only through one card (not through backplane).
- Only one channel closed at a time.
- Contact life specification unaffected if pulse width and carry current are not exceeded.