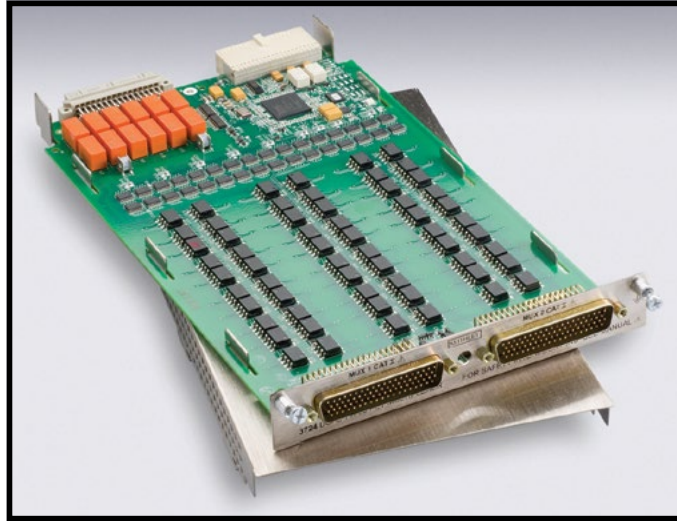


3724

Dual 1×30 FET Multiplexer Card

60 differential channels, automatic CJC with 3724-ST accessory

- 60 two-pole or 30 four-pole solid-state channels
- Scanning speeds greater than 1250 channels/second (switch only)
- Optically isolated, solid-state FET relays provide unlimited contact life
- 200V, 0.1A switch/carry signal capacity; 800mW
- Automatic CJC for temperature measurements when used with 3724-ST accessory
- Analog backplane connection relays provide easy bank and card interconnections
- Screw terminal connections provided with removable 3724-ST accessory
- Ideal for maintenance-free, long-life thermocouple temperature measurements



The Model 3724 provides two independent banks of solid-state relays arranged as 1×30 two-pole multiplexers that are ideal for high reliability, high speed multipoint measurement applications including temperature. 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.

The solid-state FET relay technology supports fast switching times with scanning rates of greater than 1250 channels/second and provides unlimited contact life. In addition, the Model 3724 supports thermocouple temperature measurements when used with the Model 3724-ST (screw terminal) accessory providing automatic cold junction compensation (CJC).

The Model 3724 uses two 78-pin male D-sub connectors for signal connections. For screw terminal or automatic CJC, use the detachable Model 3724-ST accessory.

ACCESSORIES AVAILABLE

3720-MTC-1.5	78-pin female-to-male D-sub Cable Assembly, 1.5m (4.9 ft)
3720-MTC-3	78-pin female-to-male D-sub Cable Assembly, 3m (9.8 ft)
3724-ST	Screw Terminal Block (required for auto CJC thermocouple measurements)
3791-CIT	Contact Insertion and Extraction Tool
3791-KIT78-R	78-pin female D-sub Connector Kit (contains 2 female D-sub connectors and 156 solder-cup contacts)

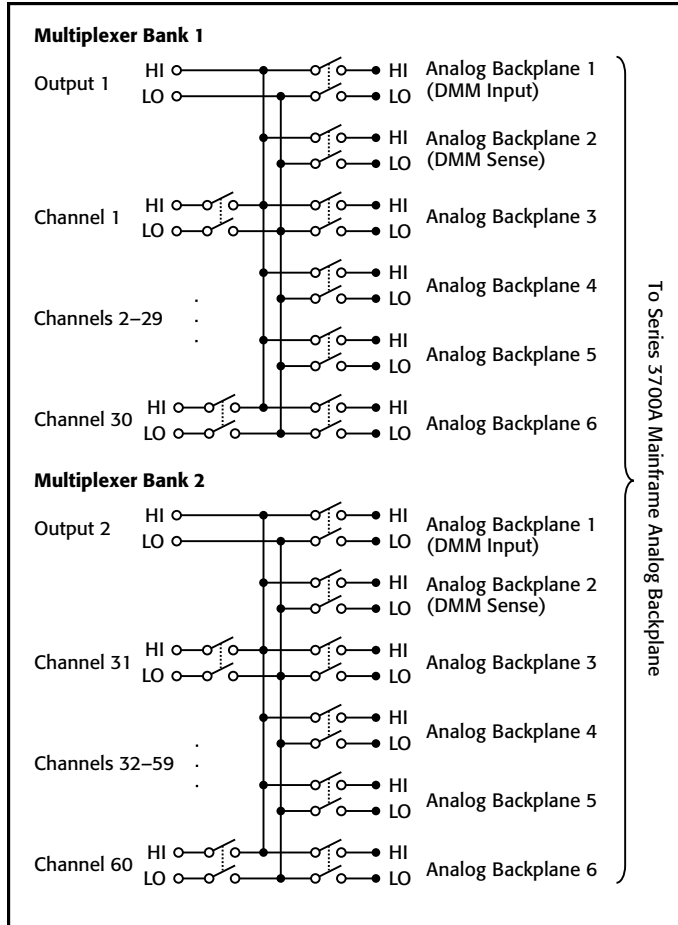
SERVICES AVAILABLE

3724-3Y-EW-STD	1-year factory warranty extended to 3 years from date of shipment
3724-5Y-EW-STD	1-year factory warranty extended to 5 years from date of shipment
C/3724-3Y-DATA	3 (Z540-1 compliant) calibrations within 3 years of purchase*

*Not available in all countries

Ordering Information

3724 **Dual 1×30 FET
Multiplexer Card**



Model 3724 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 2- and 4-wire.

CONTACT CONFIGURATION: 2-pole form A.

CONNECTOR TYPE: Two 78-pin male D-shells.

MODEL 3724-ST SCREW TERMINAL OPTION: #22AWG 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: 200V DC or 141V RMS between any terminal, 0.1A switched (0.1A carry), 800mW.

COMMON MODE VOLTAGE: 300V DC or RMS between any terminal and chassis.

VOLT-HERTZ LIMIT: 10⁷.

CONTACT LIFE:

Solid State: > unlimited.

EMR (Backplane): >1×10⁸ operations @ 5V, 10mA.

1×10⁵ operations @ max. signal level.

	Dual 1×30 ¹	Single 1×60 ^{1,2}
Channel Resistance	<62Ω (54Ω @ 23°C)	<64Ω (58Ω @ 23°C)
Contact Potential (differential)	<±2 μV	<±2.5 μV
Offset Current	<10 nA (<±100 pA @ 23°C/60% R.H.)	<10 nA (<±100 pA @ 23°C/60% R.H.)
Isolation		
Differential	10 ⁹ Ω, 500 pF	10 ⁹ Ω, 1100 pF
Bank-Bank	10 ⁹ Ω, 100 pF	—
CH-CH	10 ⁹ Ω, 125 pF	10 ⁹ Ω, 125 pF
Common Mode	10 ⁹ Ω, 150 pF	10 ⁹ Ω, 700 pF
Crosstalk CH-CH		
300 kHz	-40 dB	-40 dB
1 MHz	-30 dB	-30 dB
Bandwidth	2 MHz	1 MHz

NOTES

1. Connections made using 3724-ST.

2. 3706A mainframe with all DMM backplane relays disconnected. Maximum two card backplane relays closed.

3724

Dual 1×30 FET Multiplexer Card

60 differential channels, automatic CJC with 3724-ST accessory

3724 Card/3706A Multimeter Condensed Specifications

TEMPERATURE

Displayed in °C, °F, or K. Exclusive of probe errors.

Displayed in °C, °F, or K. Exclusive of probe errors.

THERMOCOUPLES (accuracy based on ITS-90)

Type	Range	Resolution	90 Day/1 Year 23°C ± 5°
J	-150 to +760°C	0.001°C	1.0°C
K	-150 to +1372°C	0.001°C	1.0°C
N	-100 to +1300°C	0.001°C	1.0°C
T	-100 to +400°C	0.001°C	1.0°C
E	-150 to +1000°C	0.001°C	1.0°C
R	+400 to +1768°C	0.1°C	1.8°C
S	+400 to +1768°C	0.1°C	1.8°C
B	+1100 to +1820°C	0.1°C	1.8°C

DC SPECIFICATIONS

3724 CARD/3706A MULTIMETER UNCERTAINTY SPECIFICATIONS:

Function	Range	Notes
Voltage	All	Add 4.5 μV to PPM "of range"
Resistance	100 kΩ	Add 8 PPM to "of reading"
Resistance	1 MΩ	Add 80 PPM to "of reading"
Resistance	10 MΩ	Add 250 PPM to "of reading"
Resistance	100 MΩ	Add 5000 PPM to "of reading"
Resistance 2-wire	1 kΩ through 100 MΩ	Add 1.2 Ω (with REL) to PPM "of range" Add 64Ω (without REL) to PPM "of range"
Resistance 4-wire and Dry Circuit	1 Ω, 10 Ω, and 100 Ω	Ranges Not Available (maximum lead resistance exceeded, see manual for measurement considerations)

CONDITIONS: 1 PLC or 5 PLC.

ACCURACY: ±(ppm of reading + ppm of range) (ppm = parts per million; e.g., 10ppm = 0.001%).

GENERAL

ACTUATION TIME: <0.2ms.

TEMPERATURE ACCURACY USING AUTOMATIC CJC WITH 3724-ST ACCESSORY: 1°C for J, K, T, and E type (see mainframe specification for details).

RELAY TYPE: Optically isolated FET.

RELAY DRIVE SCHEME: Direct.

INTERLOCK: Backplane relays disabled when interlock connection removed.

RELAY DRIVE CURRENT: 4mA.

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

STORAGE ENVIRONMENT: -25°C to 65°C.

WEIGHT: 1.13 kg (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.

TYPICAL SCANNING SPEEDS, SWITCH ONLY¹:

Sequential scanning, single channel, immediate trigger advance: >1250 ch/s.

TYPICAL SCANNING SPEEDS, WITH MEASUREMENTS INTO MEMORY²:

DCV (10V range) or 2WΩ (1kΩ range): >1000 ch/s.

Thermocouple: >1000 ch/s.

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

4-Wire Ω (1kΩ range): >450 ch/s.

ACV (10V, 400Hz range): >1000 ch/s.

POWER BUDGET INFORMATION:

Quiescent Power (mW): 1150.

Channel Relay Power (mW) Each: 20.

Backplane Relay Power Consumption (mW) Each: 100.

See Chapter 8 of the Series 3700A user's manual for more detailed information.

NOTES

- Scanning script local to mainframe, within same bank, break before make.
- 3706A mainframe with autorange off, limits off, dmm.autodelay=0, dmm.autozero=0, 4½ digits (NPLC=.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.

Model 3724 specifications

SWITCHING AND CONTROL

1.888.KEITHLEY (U.S. only)

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