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Find the *Keithley 7001* at our website: ***Click HERE***

7001

Switch/Control Mainframe

80-Channel



- **DC, RF, and optical switch capability**
- **Supports industry's broadest range of signals**
- **Integrates easily with DMM and SourceMeter® instruments**
- **Full channel status display**
- **2 card slots**
- **Supports more than 30 switch/control cards**

Ordering Information

7001 **80-Channel Switch/Control Mainframe**

The Model 7001 is a half-rack, high density, two-slot mainframe that supports the widest range of signals in the test and measurement industry. DC switching capabilities from nanovolts to 1100V and femtoamps to 5A, as well as RF and optical switch support, make the Model 7001 a versatile production test tool for a wide array of applications.

Built-in scan control eliminates the need for the computer to control every step of the test procedure. Simply program the 7001 to control channel spacing, scan spacing, and the number of scans. A built-in non-volatile memory stores up to 100 complete switch patterns. You can include these memory locations as part of the scan list.

Up to 80 channels of 2-pole switching. Each slot of the 7001 can accommodate up to 40 channels. This means fewer switch cards are required, reducing the amount of switching hardware needed. Higher density also provides extra capacity and flexibility.

Analog backplane. The 7001's analog backplane is used by the high density switch cards. The backplane eliminates intercard wiring and increases configuration flexibility. Two cards can be connected through the backplane to create a 1×80 multiplexer, a 4×20 matrix, or a multiplexer/matrix combination that provides matrix row expansion.

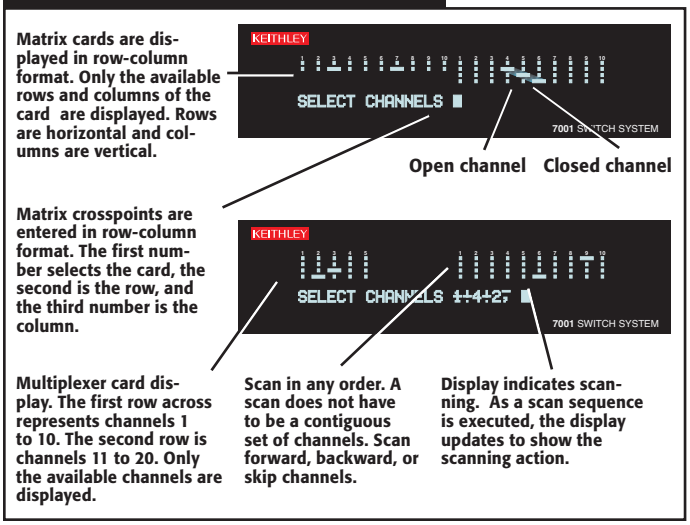
Channel status display. See the status of every channel simultaneously. The vacuum fluorescent display of the 7001 shows the open/close status of each channel in the mainframe simultaneously. The graphical display pattern makes it much easier to configure a test system, make modifications, or debug an existing program. The status of the cards in both slots is displayed side by side on the same screen.

Easy to set up and use. The 7001 has a number of built-in features that make it easy to set up, run, change, or modify. It conforms to IEEE-488.2 and SCPI (Standard Commands for Programmable Instruments). All aspects of the instrument can be programmed from the front panel and over the IEEE bus.

Trigger Link. Trigger Link is a high speed trigger bus that provides simple trigger coordination between the Model 7001 and other instruments. This bus eliminates GPIB communication delays during scanning to increase overall system throughput dramatically.

More than 30 cards available. The 7001 switch cards accommodate a broad range of signals, maintain very high accuracy, and will not degrade signal quality. By minimizing signal errors, these cards will prevent degradation due to offset voltage, isolation resistance, and leakage current.

With its broad range of available cards, the 7001 provides multi-pole switching. Cards such as the 7011 can be used in either 2- or 4-pole configuration. If a card does not have the pole capacity required, the 7001 can still accommodate the application—just select the CARD PAIR function. It allows the channel closures in both slots to be synchronized for up to 8-pole switching.



ACCESSORIES AVAILABLE

COMMUNICATION INTERFACES AND CABLES

7007-1	Double Shielded, Premium GPIB Cable, 1m
7007-2	Double Shielded, Premium GPIB Cable, 2m
KPCI-488LPA	IEEE-488 Interface/Controller for the PCI Bus
KPXI-488	IEEE-488 Interface Board for the PXI Bus
KUSB-488A	IEEE-488 USB-to-GPIB Interface Adapter

RACK MOUNT KITS

4288-1	Single Fixed Rack Mount Kit
4288-2	Dual Fixed Rack Mount Kit

TRIGGERING

8501-1	Trigger Link Cable, DIN-to-DIN, 1m
8501-2	Trigger Link Cable, DIN-to-DIN, 2m
8502	Trigger Link to BNC Break-out Box
8503	Trigger Link Cable, DIN-to-dual BNC, 1m
8505	Male to 2-Female Y-DIN Cable for Trigger Link

SERVICES AVAILABLE

7001-3Y-EW	1-year factory warranty extended to 3 years from date of shipment

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7001

Switch/Control Mainframe

80-Channel

System

CAPACITY: 2 plug-in cards per mainframe.

MEMORY: Battery backed-up storage for 100 switch patterns.

SWITCH SETTLING TIME: Automatically selected by the mainframe for each card. Additional time from 0 to 99999.999 seconds can be added in 1ms increments.

TRIGGER SOURCES:

External Trigger (TTL-compatible, programmable edge, 600ns minimum pulse, rear panel BNC).

IEEE-488 bus (GET, *TRG)

Trigger Link

Manual (front panel)

Internal Timer, programmable from 1ms to 99999.999 seconds in 1ms increments.

STATUS OUTPUT: Channel Ready (TTL-compatible signal, rear panel BNC). Low going pulse (10μs typical) issued after relay settling time. For two different switch cards, 7001 will be set to the slowest relay settling time.

SWITCHING SEQUENCE: Automatic break-before-make.

MAINFRAME DIGITAL I/O: 4 open-collector outputs (30V maximum pull-up voltage, 100mA maximum sink current, 10Ω output impedance), 1 TTL compatible input, 1 common.

RELAY DRIVE: 700mA maximum for both card slots.

CARD SIZE: 32mm high × 114mm wide × 272mm long (1¼ in × 4½ in × 10¾ in).

CARD COMPATIBILITY: Fully compatible with all 7XXX cards.

Throughput

EXECUTION SPEED OF SCAN LIST[1]:

	7011 Card	7015 Card
Individual Channels:	130/second	500/second
Memory Setups:	125/second	450/second

TRIGGER EXECUTION TIME (maximum time from activation of Trigger Source to start of switch open or close[2]):

Source	Latency	Jitter
GET[3]	200 μs	<50 μs
*TRG[3]	5.0 ms	
Trigger Link	200 μs	<13 μs
External	200 μs	<13 μs

1. Rates include switch settling time of cards: 3ms for 7011 and 500μs for 7015 cards.
2. Excluding switch settling time.
3. Assuming no IEEE-488 commands are pending execution.

IEEE-488 Command Execution Time

Command	Execution Time[1] Display Off	Display On
OPEN (@1!1)	7.5 ms	8.5 ms
CLOS (@1!1)	7.5 ms	8.5 ms
MEM:REC M1	5.0 ms	6.0 ms

1. Measured from the time at which the command terminator is taken from the bus to the time at which the relay begins to open or close.

Analog Backplane

SIGNALS: Four 3-pole rows (Hi, Lo, Guard). These signals provide matrix and multiplexer expansion between cards within one mainframe.

MAXIMUM VOLTAGE: 250V DC, 250V rms, 350V AC peak, signal path to signal path or signal path to chassis.

MAXIMUM CURRENT: 1A peak.

PATH ISOLATION:

$>10^{10}\Omega$, <50pF path to path (any Hi, Lo, Guard to another Hi, Lo, Guard).

$>10^{10}\Omega$, <50pF differential (Hi to Lo or Hi, Lo to Guard).

$>10^{9}\Omega$, <75pF path to chassis.

CHANNEL CROSSTALK: <–65dB @ 1MHz (50Ω load).

BANDWIDTH: <3dB loss at 100MHz (50Ω load).

IEEE-488 BUS IMPLEMENTATION

STANDARDS CONFORMANCE: Conforms to SCPI-1990, IEEE-488.2, and IEEE-488.1.

MULTILINE COMMANDS: DCL, LLO, SDC, GET, GTL, UNT, UNL, SPE, SPD.

UNILINE COMMANDS: IFC, REN, EOI, SRQ, ATN.

INTERFACE FUNCTIONS: SH1, AH1,T5, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT1, C0, E1.

GENERAL

DISPLAY: Dual-line vacuum fluorescent.

1st line:20-character alphanumeric.

2nd line:32-character alphanumeric.

REAR PANEL CONNECTORS:

IEEE-488

8-pin micro-DIN connector for digital I/O

8-pin micro-DIN for Trigger Link

8-pin micro-DIN for Trigger Link expansion

BNC for External Trigger

BNC for Channel Ready

POWER: 100V to 240Vrms, 50/60Hz, 50VA maximum.

EMC: Conforms to European Union Directive 89/336/EEC, EN61326-1.

SAFETY: Conforms to European Union Directive 73/23/EEC, EN61010-1.

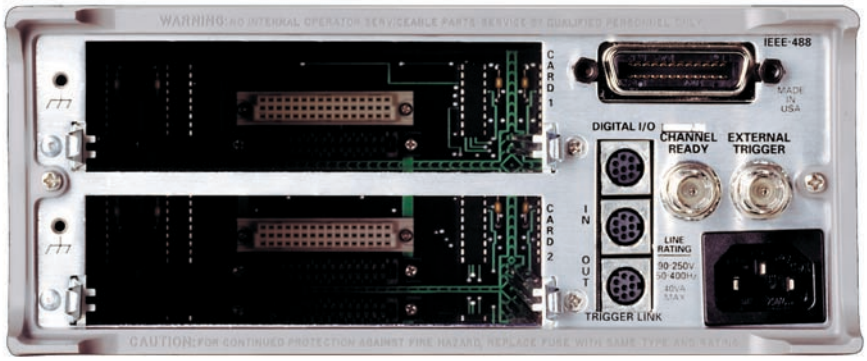
EMI/RFI: Meets VDE 0871B and FCC Class B.

ENVIRONMENT:

Operating: 0°–50°C, <80% relative humidity (0°–35°C).

Storage: –25° to +65°C.

DIMENSIONS, WEIGHT: 89mm high × 216mm wide × 375mm deep (3½ in × 8½ in × 14¾ in). Net weight 3.4kg (7½ lbs).



Model 7001 rear panel

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