

KEITHLEY

2701

The Keithley 2701 is a high-performance 6.5-digit multimeter, data acquisition, and datalogging system featuring two plug-in module slots and integrated Ethernet connectivity. As part of the Keithley Integra Series, the Model 2701 combines the precision of a high-resolution digital multimeter with flexible, multi-channel switching capabilities. Its high-speed 10/100Base-T Ethernet interface and expanded 450,000-reading memory make it ideal for distributed measurement applications, high-throughput production testing, and remote environmental monitoring.

SPECIFICATIONS

General

Interfaces	Ethernet (10Base-T), RS-232
Display	12-character alphanumeric Vacuum Fluorescent Display (VFD)
Real-Time Clock	Battery-backed

Physical

Power Supply	100 V / 120 V / 220 V / 240 V $\pm 10\%$, 45 Hz to 66 Hz and 360 Hz to 440 Hz (automatically sensed), 28 VA
Operating Temperature	0°C to 50°C °C
Dimensions (W×H×D)	213 mm × 89 mm × 370 mm mm
Weight	3.7 kg kg

System Architecture & Capacity

Number of Module Slots	2
Maximum Channel Capacity	80 differential input channels (using two 40-channel multiplexer modules)
Internal DMM Resolution	6.5 digits (22-bit A/D converter)
Internal Memory Capacity	450,000 readings (volatile)

Built-In DMM Specifications

DC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 1000 V
DC Voltage Best 1-Year Accuracy	$\pm(0.003\%$ of reading + 0.0005% of range)
AC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 750 V
AC Voltage Frequency Range	3 Hz to 300 kHz
AC Voltage Best 1-Year Accuracy	$\pm(0.06\%$ of reading + 0.03% of range)
Resistance Measurement Ranges	100 Ω , 1 k Ω , 10 k Ω , 100 k Ω , 1 M Ω , 10 M Ω , 100 M Ω
Resistance Measurement Modes	2-wire and 4-wire (with offset compensation)
Resistance Best 1-Year Accuracy	$\pm(0.01\%$ of reading + 0.001% of range)
DC Current Ranges	20 mA, 100 mA, 1 A, 3 A
DC Current Best 1-Year Accuracy	$\pm(0.05\%$ of reading + 0.005% of range)
AC Current Ranges	1 A, 3 A
AC Current Best 1-Year Accuracy	$\pm(0.1\%$ of reading + 0.04% of range)
Frequency and Period Measurement Range	3 Hz to 500 kHz
Temperature Sensor Types Supported	Thermocouples (J, K, T, E, R, S, B, N), RTDs (Pt100, D100, F100, user-defined), Thermistors (2.2k Ω , 5k Ω , 10k Ω)
DCV Input Impedance	>10 G Ω (on 100 mV, 1 V, 10 V ranges); 10 M Ω $\pm$ 1% (on 100 V, 1000 V ranges)
Common Mode Rejection Ratio (CMRR)	140 dB (DC), 120 dB (at 50/60 Hz with 1 k Ω unbalance)
Normal Mode Rejection Ratio (NMRR)	60 dB (at 50/60 Hz)

Scanning, Triggering & Alarms

Maximum Scan Rate	3500 channels/second (to internal memory via high-speed solid-state multiplexer)
Scan Triggering Sources	External, RS-232, Ethernet, Timer, Manual, Immediate
Alarms per Channel	2 (HI/LO limits per channel with alarm output routing)

Connectivity & System Interfaces

Command Language Standard	SCPI (Standard Commands for Programmable Instruments)
Ethernet Port Speed	10Base-T (RJ-45 connector)

Environmental & Safety Standards

Storage Temperature Range	-40°C to 70°C
Relative Humidity Limits	Up to 80% RH at 35°C, non-condensing
Maximum Operating Altitude	2000 meters (6562 feet) above sea level
Warm-up Time	2 hours to rated specifications

Physical Specifications

Form Factor	Half-rack, 2U height
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DC Voltage

Input Bias Current	<75 pA at 25 °C
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AC Voltage

ACV Input Impedance	1 MΩ ± 2% shunted by <100 pF
Maximum Crest Factor	5:1 at full scale

Interfaces & I/O

Digital I/O	4 outputs, 1 input (TTL compatible)
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Measurement Performance

A/D Converter Integration Time	0.01 PLC to 50 PLC (50 Hz) / 60 PLC (60 Hz)
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Safety & Isolation

Maximum Input Voltage (HI to LO)	1000 V peak
Common Mode Voltage Limit	350 V peak (LO to earth ground)

Expansion Modules

Supported Plug-in Modules	Keithley 7700 series (7700, 7701, 7702, 7703, 7705, 7706, 7707, 7708, 7709, 7710, 7711, 7712)
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Power Requirements

AC Line Frequency	45 Hz to 66 Hz and 360 Hz to 440 Hz (automatically sensed)
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Triggering

Trigger Delay Range	0 to 99999.999 s
Trigger Link Connector	8-pin micro-DIN
External Trigger Input	TTL compatible, 2 μs minimum pulse width
Trigger Output	TTL compatible, 2 μs minimum pulse width

Connectivity

RS-232 Baud Rate	300 bps to 115.2 kbps
Ethernet Protocols	TCP/IP, UDP, ICMP, DHCP

Measurement Functions

Math Functions	mX+b, Percent, Reciprocal
Diode Test Current	1 mA
Continuity Threshold Range	1 Ω to 1000 Ω

TECHNOLOGY

Data Acquisition / Digital Multimeter

APPLICATIONS

Automated production testing, multi-channel environmental monitoring, distributed data acquisition, and precision component testing.

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