

KEITHLEY

2100

The Keithley 2100 is a high-precision 6½-digit USB Digital Multimeter engineered for both benchtop testing and system integration. Offering 11 measurement functions, 8 math functions, and an accuracy of 38 ppm on its 10 V DC range, it provides professional-grade measurement performance at an affordable price point. The instrument features a selectable front/rear input configuration and a TMC-compliant USB 2.0 interface for easy PC connectivity and SCPI-based test automation.

SPECIFICATIONS

General

Interfaces	USB 2.0 (TMC-compliant)
Display	5×7 dot matrix vacuum fluorescent display (VFD)
Standard Warranty	3 years
Recommended Calibration Interval	1 year
Included Accessories	Safety test leads, USB cable, power cable, CD-ROM with software and manual

Physical

Power Supply	100V / 120V / 220V / 240V ±10%, 45 Hz to 66 Hz, 25 VA max
Operating Temperature	0°C to 50°C °C
Dimensions (W×H×D)	252 mm × 104 mm × 371 mm (with bumper and handle) mm
Weight	3.75 kg kg

DC Voltage

DC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 1000 V
DC Voltage Resolution	100 nV (on 100 mV range)
DC Voltage Input Resistance	>10 GΩ (100 mV, 1 V, 10 V ranges); 10 MΩ ± 1% (100 V, 1000 V ranges)
DC Voltage 1-Year Accuracy	±(0.0038% of reading + 0.0006% of range) on 10 V range
DC Voltage Temperature Coefficient	±(0.0005% of reading + 0.0001% of range) per °C (0°C to 18°C & 28°C to 50°C)
DC Voltage NMRR	>60 dB at 50 Hz or 60 Hz (with 1 PLC or greater)
DC Voltage CMRR	>120 dB at DC, 50 Hz or 60 Hz (with 1 kΩ LO lead imbalance)

AC Voltage

AC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 750 V
AC Voltage Resolution	100 nV (on 100 mV range)
AC Voltage Input Impedance	1 M Ω $\pm$ 2% in parallel with <140 pF
AC Voltage Frequency Range	3 Hz to 300 kHz
AC Voltage 1-Year Accuracy	$\pm$ (0.06% of reading + 0.03% of range) from 10 Hz to 20 kHz
AC Voltage Crest Factor	3:1 at full scale
AC Voltage CMRR	>60 dB at DC, 50 Hz or 60 Hz (with 1 k Ω LO lead imbalance)
AC Filter Bandwidth Settings	3 Hz - 300 kHz (Slow), 20 Hz - 300 kHz (Medium), 200 Hz - 300 kHz (Fast)

DC Current

DC Current Ranges	10 mA, 100 mA, 1 A, 3 A
DC Current Resolution	10 nA (on 10 mA range)
DC Current Shunt Resistance	5.1 Ω (10 mA & 100 mA ranges); 0.1 Ω (1 A & 3 A ranges)
DC Current Maximum Burden Voltage	<0.15 V (10 mA range); <0.25 V (100 mA range); <0.5 V (1 A range); <2.0 V (3 A range)
DC Current 1-Year Accuracy	$\pm$ (0.050% of reading + 0.020% of range) on 10 mA range
DC Current Overload Protection	3 A, 250 V fast-acting fuse on rear panel

AC Current

AC Current Ranges	1 A, 3 A
AC Current Resolution	1 μ A (on 1 A range)
AC Current Shunt Resistance	0.1 Ω
AC Current Frequency Range	3 Hz to 10 kHz
AC Current 1-Year Accuracy	$\pm$ (0.10% of reading + 0.04% of range) from 10 Hz to 5 kHz
AC Current Maximum Burden Voltage	<0.5 V (1 A range); <2.0 V (3 A range)

Resistance

Resistance Ranges	100 Ω , 1 k Ω , 10 k Ω , 100 k Ω , 1 M Ω , 10 M Ω , 100 M Ω
Resistance Resolution	100 μ Ω (on 100 Ω range)
Resistance Measurement Configurations	2-wire and 4-wire ohms
Resistance Current Source Output	1 mA (100 Ω , 1 k Ω); 100 μ A (10 k Ω); 10 μ A (100 k Ω); 5 μ A (1 M Ω); 500 nA (10 M Ω); 500 nA 10 M Ω (100 M Ω)
Resistance 1-Year Accuracy	$\pm$ (0.010% of reading + 0.001% of range) on 10 k Ω range
Maximum Lead Resistance (4-Wire Ohms)	10% of range per lead (100 Ω , 1 k Ω ranges), 1 μ Ω per lead (all other ranges)

Frequency & Period

Frequency Measurement Range	3 Hz to 300 kHz
Period Measurement Range	3.3 μ s to 333 ms
Frequency Input Sensitivity	100 mV rms (3 Hz to 100 kHz); 250 mV rms (100 kHz to 300 kHz)
Gate Time	10 ms, 100 ms, 1 s (selectable)
Frequency 1-Year Accuracy	$\pm$ 0.01% of reading (3 Hz to 300 kHz)

Diode & Continuity

Diode Test Current	1 mA (typical)
Diode Voltage Range	1.0 V (range)
Continuity Threshold Resistance	1 Ω to 1000 Ω (adjustable, default 10 Ω)
Continuity Test Current	1 mA (typical)

System Performance

Integration Time	0.02 PLC, 0.1 PLC, 1 PLC, 10 PLC
Maximum Reading Rate	2000 readings/second (at 4.5 digits, 0.02 PLC)
Digit Resolution	6½ digits (at 10 PLC)
Reading Buffer Memory Size	2000 readings

Math and Functions

Measurement Functions	11 (DCV, ACV, DCI, ACI, 2W Ω , 4W Ω , Frequency, Period, Diode, Continuity, RTD Temperature)
Front/Rear Input Selection	Front panel inputs only (no rear input terminals)

Temperature (RTD)

Supported RTD Types	PT100, D100, F100, PT385, PT3916, User-defined
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Power Requirements

Line Voltage Range	100V / 120V / 220V / 240V $\pm$ 10%
Line Frequency Range	45 Hz to 66 Hz & 360 Hz to 440 Hz
Power Consumption	25 VA max

Environmental & Physical

Storage Temperature Range	-40°C to 70°C
Altitude Rating	Up to 2000 meters
Warm-up Time	2 hours
Vibration and Shock	MIL-T-28800F Class 3 compliant

Safety & Compliance

Safety Category Rating	CAT I 1000V, CAT II 600V
Maximum Common Mode Voltage	500 V _{peak} (LO to earth)
Safety Compliance	CE compliant, UL listed (UL 61010-1)
EMC Standard Compliance	EN 61326-1

Triggering & I/O

Trigger Sources	Software (bus), External Trigger, Immediate
External Trigger Input Level	TTL compatible
Voltmeter Complete Output Level	TTL compatible
Voltmeter Complete Output Pulse Width	approx. 2 μ s
Reading Hold Sensitivity	0.01%, 0.1%, 1%, or 10% of reading

DC Voltage Performance

Input Bias Current	< 30 pA @ 25 °C
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Software & Programming

Command Set	SCPI (Standard Commands for Programmable Instruments)
Software Drivers	LabVIEW, IVI-C, IVI-COM
Bundled Software	KI-Tool, KI-Link

Performance

A/D Converter Architecture	Multi-slope integration
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Safety & Protection

Input Protection (HI to LO)	1000 Vpk (all DCV/ACV ranges)
Input Protection (Sense HI to Sense LO)	200 Vpk
Input Protection (LO to Earth)	500 Vpk

Connectivity

USB Interface Protocol	USBTMC (USB Test and Measurement Class) compliant
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TECHNOLOGY

Digital Multimeter

APPLICATIONS

General purpose electronic test, benchtop prototyping, and automated system measurements

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