

KEITHLEY

2611B

The Keithley 2611B is a high-performance, single-channel System SourceMeter (SMU) designed for high-throughput production testing and precision laboratory research. Combining a highly stable power source with a high-resolution digital multimeter, the 2611B offers 4-quadrant precision voltage and current sourcing and measurement up to 200 V and 10 A (pulsed). Supported by Keithley's Test Script Processor (TSP) technology, it allows for high-speed automated testing with minimized PC-communication overhead.

SPECIFICATIONS

General

Interfaces	GPIO, LAN (LXI Class C), RS-232, USB 2.0, TSP-Link, Digital I/O
Display	Dual-line Vacuum Fluorescent Display (VFD)
Warm-up Time	2 hours

Physical

Power Supply	100 V to 240 V AC, 50 Hz to 60 Hz, 240 VA max
Operating Temperature	0 °C to 50 °C °C
Dimensions (W×H×D)	213 mm × 89 mm × 460 mm mm

Voltage Source Specifications

Voltage Source Range	200 mV to 200 V
Voltage Programming Resolution	5 μV (on 200 mV range)
Voltage Source Programming Accuracy	0.02% + 24 mV
Voltage Source Settling Time	<50 μs to 0.1% of step value
Voltage Limit/Compliance Range	200 mV to 200 V

Current Source Specifications

Current Source Range	100 nA to 1.5 A (10 A pulsed)
Current Programming Resolution	2 pA (on 100 nA range)
Current Source Accuracy	0.03% + 500 nA (on 1 mA range)
Current Limit/Compliance Range	100 nA to 1.5 A

Voltage Measurement Specifications

Voltage Measure Range	200 mV to 200 V
Voltage Measure Resolution	100 nV (on 200 mV range)
Voltage Measure Accuracy	0.015% + 10 mV
Voltage Measure Input Impedance	>10 GOhm (for V ≤ 2 V)

Current Measurement Specifications

Current Measure Range	100 nA to 1.5 A (10 A pulsed)
Current Measure Resolution	100 fA (on 100 nA range)
Current Measure Accuracy	0.03% + 1.5 μ A

Pulsed Mode Characteristics

Minimum Pulse Width	150 μ s
Maximum Pulsed Current	10 A
Maximum Pulsed Power	200 W

Operating Ranges & Power Envelope

Maximum Output Power	30.3 W
Quadrant Operation	4-quadrant source or sink
Guard Offset Voltage	<150 μ V

System Speed & Memory

Reading Buffer Capacity	Up to 140,000 readings
Maximum Sweep Rate	Up to 20,000 readings/s (to internal memory)

Connectivity & Interfaces

Sensing Configuration	2-wire local or 4-wire remote sense
TSP-Link Port	2 ports, RJ-45 for system expansion with other 2600 series instruments
Safety Interlock Connector	3-pin terminal block (requires interlock for V > 40V)
Output Connection Type	Phoenix-type screw terminal block

Software & Programming

Programming Languages	TSP (Test Script Processor), SCPI Emulation (Keithley 2400 emulation)
Embedded Scripting Support	TSP/Lua scripting with 16MB non-volatile flash memory

Power & Environmental

Storage Temperature Range	-25 °C to 65 °C
Operating Humidity Range	Up to 70% RH up to 35 °C (non-condensing)
Altitude Rating	Maximum 2000 meters above sea level
Cooling Mechanism	Forced air, variable speed internal fan

Physical & Safety Specs

Calibration Interval	1 year
Safety Certifications	CE, UL, CSA
Overvoltage Protection	Configurable OVP limit up to 210V

Operating Modes

High Capacitance Mode Max Load Capacitance	50 μ F
Normal Mode Max Load Capacitance	10 nF

Isolation & Grounding

LO to Chassis Max Voltage	250 V
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Sensing

Max Sense Lead Resistance	100 Ω
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Measurement

A/D Converter Integration Time	0.001 NPLC to 25 NPLC
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Interfaces

LXI Compliance	LXI Core 2011 (Version 1.4)
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Performance

Temperature Coefficient	$\pm(0.15 \times \text{accuracy specification})/^{\circ}\text{C}$ (0 $^{\circ}\text{C}$ to 18 $^{\circ}\text{C}$ & 28 $^{\circ}\text{C}$ to 50 $^{\circ}\text{C}$)
Transient Response Time	< 110 μ s to recover to within 0.1% of setup value for a 60% step change in load
Voltage Source Overshoot	< 0.1% typical
Current Source Overshoot	< 0.1% typical
Max Reading Rate to Memory	20,000 readings/s

Inputs & Outputs

Digital I/O Pull-up Voltage	5 V nominal
Digital I/O Max Sink Current	250 mA

Source Specifications

Voltage Source Load Regulation	0.01% of range + 100 μ V
Voltage Source Line Regulation	0.01% of range
Current Source Load Regulation	0.01% of range + 100 pA (on 100 nA to 1 A ranges)
Current Source Line Regulation	0.01% of range

Measurement Specifications

Current Measure Voltage Burden	< 100 μ V (on 100 nA to 1 A ranges), < 1 mV (on 1.5 A range), < 3 mV (on 10 A range)
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System Specifications

TSP-Link Maximum Nodes	32 instruments (up to 64 channels)
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TECHNOLOGY

Source Measure Unit (SMU)

APPLICATIONS

Semiconductor characterization, precision IV testing, component production testing, and automated test systems

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