KEITHLEY

2604B

The Keithley 2604B is a dual-channel System SourceMeter (SMU) designed for high-throughput bench and production testing. Part of the Keithley Series 2600B family, it provides tightly integrated 4-quadrant precision voltage and current sourcing along with high-resolution measurement capabilities. The 2604B is optimized for applications that do not require digital I/O, TSP-Link, or contact check capabilities, offering a cost-effective, high-performance dual-channel SMU solution.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), LAN (LXI Class C), USB 2.0 (Device and Host)
Display	Dual-line vacuum fluorescent display (VFD)
Warm-up Time	2 hours
Standard Warranty	1 year

Physical

Power Supply	100 V to 240 V AC, 50 Hz/60 Hz, 240 VA max
Operating Temperature	0 °C to 50 °C °C
Dimensions (W×H×D)	213 mm × 89 mm × 435 mm mm
Weight	5.5 kg kg

System Configuration

Number of Channels	2

Voltage Source Specifications

Voltage Source Range	100 mV to 40 V
Voltage Programming Resolution	5 µV (on 100 mV range)
Voltage Limit/Compliance Range	100 mV to 40 V

Current Source Specifications

Current Source Range	100 nA to 3 A DC, 10 A pulsed
Current Programming Resolution	2 pA (on 100 nA range)
Current Limit/Compliance Range	100 nA to 3.03 A

Voltage Measurement Specifications

Voltage Measure Range	100 mV to 40 V
Voltage Measure Resolution	100 nV (on 100 mV range)
Voltage Measure Input Impedance	>10 GΩ

Current Measurement Specifications

Current Measure Range	100 nA to 3 A DC, 10 A pulsed
Current Measure Resolution	100 fA (on 100 nA range)

Pulsed Mode Characteristics

Minimum Pulse Width	100 µs
Maximum Pulsed Current	10 A

Operating Ranges & Power Envelope

Maximum Output Power	40 W per channel (80 W total)
Quadrant Operation Limits	4-quadrant source or sink
Maximum Common Mode Voltage	250 V DC

Connectivity

Sensing Configuration	2-wire local or 4-wire remote sense
Output Connection Type	Screw-terminal block connectors (rear panel)

System Speed & Memory

Maximum Sweep Rate	20,000 readings per second (to memory)
Reading Buffer Capacity	>140,000 readings

Software & Programming

Programming Languages / Command Sets	TSP (Test Script Processor), SCPI (Keithley 2400 emulation)
Embedded Scripting Support	TSP (Test Script Processor) engine
Emulation Modes	Keithley 2400 emulation

Power & Environmental

Storage Temperature Range	-25 °C to 65 °C
Cooling Mechanism	Forced air, temperature-controlled fan
Altitude Rating	Maximum 2000 m above sea level

Physical & Safety Specs

Calibration Interval	1 year

Performance

Transient Response Time	< 110 µs (typical, to recover to within 0.1% of limit after a 10% to 90% step change in load)
Maximum Measurement Speed	20,000 readings/s (at 0.001 NPLC to internal memory)
Guard Offset Voltage	< 150 µV (typical)
Common Mode Impedance	> 10^9 Ω, < 4500 pF

Compliance & Safety

Safety Standards	UL 61010-1, CAN/CSA C22.2 No. 61010-1, EN 61010-1
EMC Standards	Conforms to European Union EMC Directive, EN 61326-1

TECHNOLOGY

Source Measure Unit (SMU)

APPLICATIONS

Precision DC sourcing and measurement, semiconductor characterization, production testing, LED testing