

Keithley Instruments, Inc.
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System SourceMeter[®] Specifications
1. SPEED SPECIFICATIONS^{1,2,3}
Maximum Sweep Operation Rates (operations per second) for 60Hz (50Hz):

A/D converter speed	Trigger origin	Measure to memory	Measure to GPIB	Source measure to memory	Source measure to GPIB	Source measure pass/fail to memory	Source measure pass/fail to GPIB
0.001 NPLC	Internal	10000 (10000)	8000 (8000)	5500 (5500)	3600 (3600)	4900 (4900)	3100 (3100)
0.001 NPLC	Digital I/O	2700 (2650)	2100 (2100)	2300 (2300)	1900 (1875)	2200 (2150)	1800 (1775)
0.01 NPLC	Internal	4000 (3500)	3600 (3200)	2750 (2700)	2300 (2100)	2800 (2500)	2100 (1975)
0.01 NPLC	Digital I/O	1900 (1775)	1600 (1500)	1700 (1600)	1450 (1400)	1600 (1500)	1400 (1325)
0.1 NPLC	Internal	565 (475)	555 (470)	540 (450)	510 (440)	535 (455)	505 (430)
0.1 NPLC	Digital I/O	490 (420)	470 (405)	470 (410)	450 (390)	470 (400)	450 (390)
1.0 NPLC	Internal	59 (49)	59 (49)	58 (49)	58 (48)	58 (49)	58 (48)
1.0 NPLC	Digital I/O	58 (48)	58 (48)	58 (48)	57 (48)	57 (48)	57 (48)

Maximum Single Measurement Rates (operations per second) for 60Hz (50Hz):

A/D converter speed	Trigger origin	Measure to GPIB	Source measure to GPIB	Source measure pass/fail to GPIB
0.001 NPLC	Internal	1110 (1000)	880 (880)	840 (840)
0.01 NPLC	Internal	950 (900)	780 (760)	730 (710)
0.1 NPLC	Internal	390 (345)	355 (320)	340 (305)
1.0 NPLC	Internal	57 (48)	56 (47)	56 (47)

Maximum measurement range change rate: >4500/second typical. When changing to or from a range $\geq 1A$, maximum rate is >2000/second typical.

Maximum source range change rate: >400/second, typical.

Maximum source function change rate: >500/second, typical.

External trigger input: The digital I/O interface signals can be configured to operate as trigger inputs.

Input latency (time from trigger input to start of measurement or source change): <150 μ s, typical.

Input jitter: <100 μ s, typical.

Command processing time: Maximum time required for the output to begin to change following the receipt of the smux.source.levelv or smux.source.leveli command. <1ms typical.

¹ See the Speed Specifications Test Conditions Appendix in the Series 2600 Reference Manual for more information regarding test conditions.

² Exclude current measurement ranges less than 1mA.

³ 2635/2636 with default measurement delays and filters disabled.

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2. SUPPLEMENTAL INFORMATION

Front Panel Interface:

Two-line vacuum fluorescent display (VFD) with keypad and rotary knob.

Display:

- Show error messages and user-defined messages
- Display source and limit settings
- Show current and voltage measurements
- View measurements stored in non-volatile reading buffers

Keypad operations:

- Change host interface settings
- Save and restore instrument setups
- Load and run factory and user-defined test scripts (i.e., sequences) that prompt for input and send results to the display
- Store measurements into non-volatile reading buffers

Programming:

Embedded Test Script Processor (TSP) accessible from any host interface. Responds to individual instrument control commands. Responds to high-speed test scripts comprised of instrument control commands and Test Script Language (TSL) statements (e.g., branching, looping, math, etc.). Able to execute high-speed test scripts stored in memory without host intervention.

Minimum memory available: 3Mb (approximately 50,000 lines of TSL code).

Test Script Builder: Integrated development environment for building, running, and managing TSP scripts. Includes an instrument console for communicating with any TSP-enabled instrument in an interactive manner.

Requires:

- VISA (NI-VISA included on CD)
- Microsoft .NET Framework (included on CD)
- Keithley I/O Layer (included on CD)
- Pentium III 800MHz or faster personal computer
- Microsoft[®] Windows[®] 98, NT, 2000, or XP

Software Interface: Direct GPIB/VISA, Read/Write with VB, VC/C++, LabVIEW, TestPoint, LabWindows/CVI, etc.

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Reading Buffers:

Non-volatile storage area(s) reserved for measurement data. Reading buffers are arrays of measurement elements. Each element can hold the following items:

- Measurement
- Measurement status
- Timestamp
- Source setting (at the time the measurement was taken)
- Range information

Two reading buffers are reserved for each SourceMeter channel. Reading buffers can be filled using the front panel STORE key, and retrieved using the RECALL key or host interface.

Buffer Size, with timestamp and source setting: >50,000 samples.

Buffer Size, without timestamp and source setting: >100,000 samples.

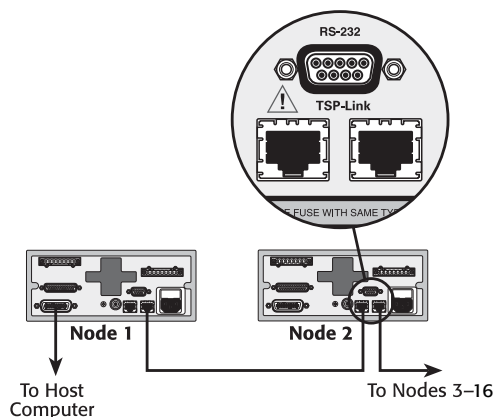
Battery Backup: Lithium-ion battery backup; 30 days of non-volatile storage. Typical battery life is 1 year.

Factory TSP Scripts:

See www.keithley.com for Keithley-supported application-specific scripts.

System Expansion:

The TSP-Link expansion interface allows TSP-enabled instruments to trigger and communicate with each other. See figure below:



Each SourceMeter has two TSP-Link connectors to facilitate chaining instruments together.

- Once SourceMeter instruments are interconnected via TSP-Link, a computer can access all of the resources of each SourceMeter via the host interface of any SourceMeter.
- A maximum of 16 TSP-Link nodes can be interconnected. Each SourceMeter consumes one TSP-Link node.

TIMER:

Free-running 47-bit counter with 1MHz clock input. Reset each time instrument powers up. Rolls over every 4 years.

Timestamp: TIMER value automatically saved when each measurement is triggered.

Resolution: 1 μ s.

Accuracy: 100ppm.