

# SOURCE MEASURE UNITS

The Broadest Choice of SMU Instruments Available

Selector Guide

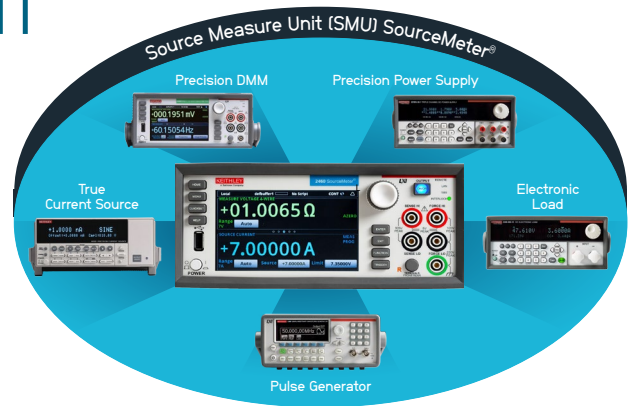


**KEITHLEY**  
A Tektronix Company

**Tektronix**<sup>®</sup>

# MAKE MULTIPLE MEASUREMENTS ACCURATELY USING A SINGLE INSTRUMENT

A source measure unit (SMU) instrument is a five-in-one tool. It combines the useful features of a digital multimeter (DMM), power supply, current source, electronic load and pulse generator, all in a compact form factor. This empowers you to:

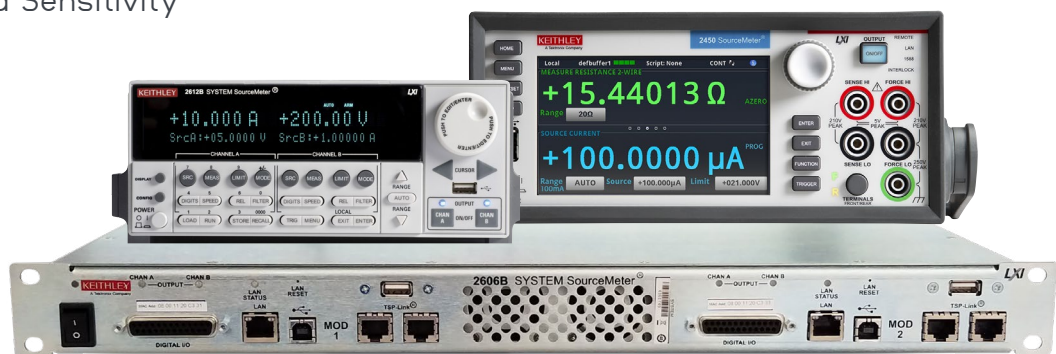


- Precisely source and measure voltage and/or current at the same time
- Measure resistance vs. current/voltage directly or indirectly
- Source and measure across a very broad range of current (100 aA to 50 A) and voltage (100 nV to 3 kV) with 6½ digits of measurement resolution
- Run production tests 60% faster and gain up to 10X more throughput
- Save time, maximize speed and get jobs done quickly.

## WHY A KEITHLEY SOURCE MEASURE UNIT?

For more than 70 years, Tektronix — the manufacturer of Keithley SMUs — has been designing, manufacturing and marketing advanced electrical test instruments and systems for the specialized needs of electronics manufacturers in high performance production testing, process monitoring, product development and research.

- Repeatability Guaranteed
- High Accuracy and Sensitivity
- Fast and Precise
- Broadest Choices



**KEITHLEY**  
A Tektronix Company



# KEITHLEY'S WIDE SELECTION OF SOURCE MEASURE UNIT SMU INSTRUMENTS

## Touch, Test, Invent™ with a Graphical Touchscreen SMU

<b>2450</b> SourceMeter® SMU Instrument .....	4
<b>2460</b> High Current SourceMeter® SMU Instrument .....	4
<b>2461</b> High Current Pulse SourceMeter® SMU Instrument .....	4
<b>2470</b> High Voltage SourceMeter® SMU Instrument .....	4

## Standard Performance SMUs for the Most Basic Needs

<b>2400</b> SourceMeter® SMU Instrument .....	5
<b>2401</b> Low Cost SourceMeter® SMU Instrument .....	5
<b>2410</b> High Voltage SourceMeter® SMU Instrument .....	5
<b>2420</b> 3 Amp SourceMeter® SMU Instrument .....	5
<b>2440</b> 5 Amp SourceMeter® SMU Instrument .....	5

## High Speed System SMUs for Demanding Applications

<b>2601B/2602B/2604B</b> Single/Dual Channel System SourceMeter® SMU Instrument .....	6
<b>2611B/2612B/2614B</b> Single/Dual Channel System SourceMeter® SMU Instrument .....	6
<b>2634B/2635B/2636B</b> Low Current Single/Dual Channel System SourceMeter® SMU Instrument .....	6
<b>2601B-PULSE</b> System SourceMeter 10 µs Pulser/SMU Instrument .....	7

## High Power SMUs with Unprecedented Power, Precision, and Speed

<b>2651A</b> 50 Amp High Power System SourceMeter® SMU Instrument .....	8
<b>2657A</b> 3000 Volt High Power System SourceMeter® SMU Instrument .....	8

## High Density, More Channels in a Smaller Form Factor

<b>2606B</b> 4-Channel System SourceMeter® SMU Instrument .....	9
-----------------------------------------------------------------	---

## Specialty SMUs for Very Low Current and Optoelectronics Testing

<b>6430</b> Sub-femtoamp Remote SourceMeter® SMU Instrument .....	10
<b>2510</b> TEC SourceMeter® SMU Instrument .....	10
<b>2510-AT</b> Autotuning TEC SourceMeter® SMU Instrument .....	10
<b>2520</b> Pulsed Laser Diode Test System .....	10

<b>Determine which Keithley SMU Is Right For You</b> .....	11
------------------------------------------------------------	----



# TOUCH, TEST, INVENT WITH A GRAPHICAL TOUCHSCREEN SMU

## 2450, 2460, 2461, and 2470 SourceMeter SMU Instruments

- Five-inch, high resolution capacitive touchscreen GUI
- 0.012% basic measure accuracy with 6½-digit resolution
- Wide coverage up to 1100 V, 7 A DC, 10 A pulse, 1000 W max.
- Source and sink (4-quadrant) operation
- Dual 1 MS/s digitizers for fast sampling measurements (2461 only)
- Enhanced sensitivity with 20 mV and 10 nA source/measure ranges (2450 only)
- Built-in, context-sensitive front panel help
- SCPI and Test Script Processor (TSP®) programming modes
- Front-panel USB 2.0 memory I/O port for transferring data, test scripts, or test configurations

Model	2450	2460	2461	2470
Max Current Source/Measure Range	1 A	7 A	10 A	1 A
Max Voltage Source/Measure Range	200 V	100 V	100 V	1000 V
Measurement Resolution (Current / Voltage)	10 fA / 10 nV	10 pA / 100 nV	1 pA / 100 nV	10 fA / 100 nV
Max Output Power	20 W	100 W	1000 W	20 W

[2450 LEARN MORE](#)

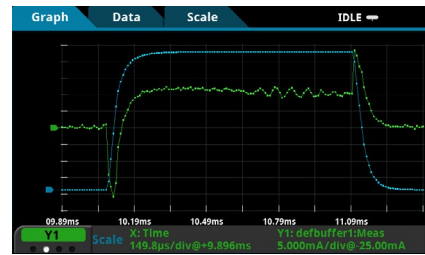
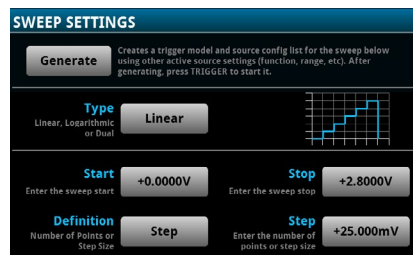
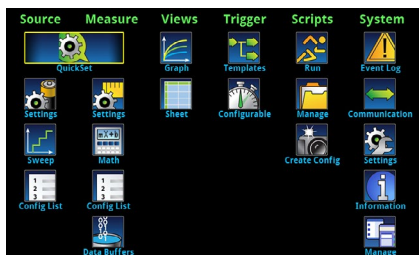
[2460 LEARN MORE](#)

[2461 LEARN MORE](#)

[2470 LEARN MORE](#)

## Save Time, Maximize Speed, and Get Jobs Done Quickly

SMU models that use familiar graphical interfaces, like icon-based menu structures, are easier to use for all experience levels. You'll make measurements faster by reducing the learning curve and configuration steps, enabling you to learn faster, work smarter, and invent easier.



# STANDARD PERFORMANCE SMUS FOR THE MOST BASIC NEEDS

## Series 2400 SourceMeter SMU Instruments

- Five models: 20–100 W DC, 1100 V to 1  $\mu$ V; single channel
- Source and sink (4-quadrant) operation
- 0.012% basic measure accuracy with 6½-digit resolution
- 2-, 4-, and 6-wire remote V-source and measure sensing
- 1700 readings/second at 4½ digits via GPIB
- Pass/Fail comparator for fast sorting/binning
- Programmable DIO port for automation/handler/prober control (except 2401)
- Standard SCPI GPIB, RS-232 and Keithley Trigger Link interfaces



2400 LEARN MORE

Model	2400	2401	2410	2420	2440
Max Current Source/Measure Range	1 A	1 A	1 A	3 A	5 A
Max Voltage Source/Measure Range	200 V	20 V	1100 V	60 V	40 V
Measurement Resolution (Current/Voltage)	1 pA / 100 nV	1 pA / 100 nV	1 pA / 100 nV	10 pA / 100 nV	10 pA / 100 nV
Max Output Power	20 W	20 W	20 W	60 W	50 W

## MORE USEFUL THAN THE COMBINATION OF INDIVIDUAL INSTRUMENTS

### SMU VS. POWER SUPPLIES

- SMUs can automatically sweep voltage or current to and from negative and positive outputs when the source crosses zero.
- During these operations, there is no need to change test leads.
- Output of a SMU can settle to within 0.01% of the specified accuracy in as little as 50 ms.
- SMU has higher precision and wider operating ranges.
- SMU is a more flexible option

### SMU VS. THE DMM AND POWER SUPPLY COMBO

- SMU tightly integrates the source and measure capability into one instrument, eliminating the need for a separate DMM and power supply.
- Improves test times, simplifies overall test system design and increases usability
- SMUs can outperform the DMM and Power Supply Combo on current vs. voltage (IV) measurements for a variety of applications.



VS.



VS.







# HIGH SPEED SYSTEM SMUS FOR DEMANDING APPLICATIONS

## Series 2600B System SourceMeter SMU Instruments

- Tightly integrated, 4-quadrant voltage/current source and measure instruments offer best-in-class performance with 6½-digit resolution
- Family of models offers industry's widest dynamic range:
- 10 A pulse to 0.1 fA and 200 V to 100 nV
- TSP technology embeds complete test programs inside the instrument for best-in-class system-level throughput
- TSP-Link® expansion technology for multi-channel parallel test without a mainframe
- Complete production test without sacrificing footprint
- USB 2.0, LXI-C, GPIB, RS-232, and digital I/O interfaces

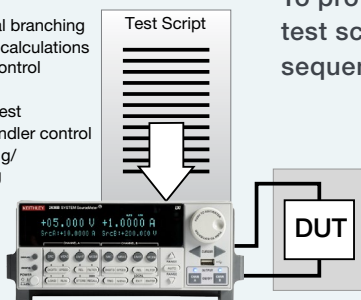
[2600B LEARN MORE](#)

Model	2601B	2602B	2604B	2611B	2612B	2614B	2634B	2635B	2636B
Channels	1	2	2	1	2	2	2	1	2
Max Current Source/Measure Range	3 A DC / 10 A Pulse	3 A DC / 10 A Pulse	3 A DC / 10 A Pulse	1.5A DC / 10 A Pulse	1.5A DC / 10 A Pulse	1.5A DC / 10 A Pulse	1.5A DC / 10 A Pulse	1.5A DC / 10 A Pulse	1.5A DC / 10 A Pulse
Max Voltage Source/Measure Range	40 V	40 V	40 V	200 V	200 V	200 V	200 V	200 V	200 V
Measurement Resolution (Current/Voltage)	100 fA / 100 nV	100 fA / 100 nV	100 fA / 100 nV	100 fA / 100 nV	100 fA / 100 nV	100 fA / 100 nV	1 fA / 100 nV	0.1 fA / 100 nV	0.1 fA / 100 nV
Max Output Power	40 W DC / 200 W Pulse	40 W DC / 200 W Pulse	40 W DC / 200 W Pulse	30 W DC / 200 W Pulse	30 W DC / 200 W Pulse	30 W DC / 200 W Pulse	30 W DC / 200 W Pulse	30 W DC / 200 W Pulse	30 W DC / 200 W Pulse

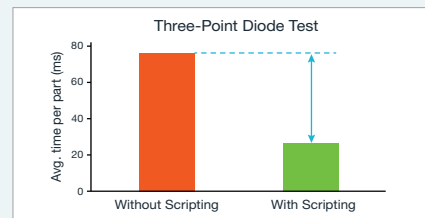
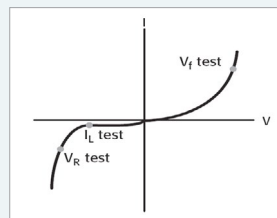
## Run Production Tests 60% Faster and Gain Up to 10× More Throughput

SMUs streamline production testing. The instruments source voltage or current while making measurements — without needing to change connections. SMUs are designed for reliable operation in non-stop production environments.

- Conditional branching
- Advanced calculations and flow control
- Variables
- Pass/Fail test
- Prober/Handler control
- Datalogging/Formatting



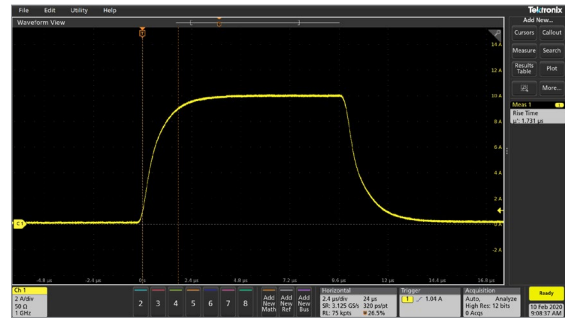
To provide the throughput demanded by production applications, embedded test scripts can be uploaded into the SMU, enabling them to run complex test sequences without computer control or communications slowing things down.



# 10 A AT 10 V @ 10 $\mu$ s CURRENT PULSING FOR TESTING NEXT GENERATION DEVICES



Pulse with Confidence,  
No Overshoot or Ringing



## 2601B-PULSE System SourceMeter 10 $\mu$ s Pulser/SMU Instrument

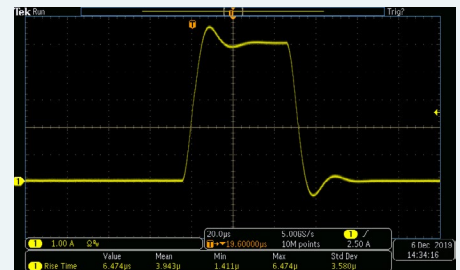
2601B-PULSE [LEARN MORE](#)

- Industry leading 10 A @ 10 V, 10 microsecond pulse output
- No tuning required for inductive loads up to 3  $\mu$ H
- Dual 1 Megasample/second digitizers for high speed I/V pulse measurements (pulser function only)
- DC capability up to  $\pm 40$  V @  $\pm 1.0$  A, 40 Watt
- TSP technology embeds complete test programs inside the instrument for best-in-class system-level throughput
- TSP-Link expansion technology for multi-channel parallel test without a mainframe
- USB 2.0, LXI-C, GPIB, RS-232, and digital I/O interfaces
- Supported in the Keithley KickStart non-programming software tool

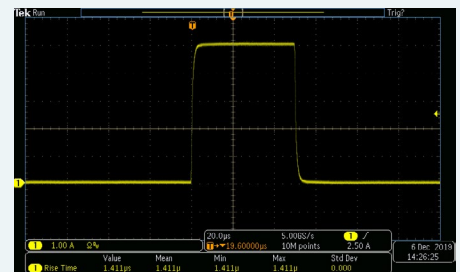
Feature	Performance
Minimum Pulse Width	10 $\mu$ s
Max Pulse I	10 A
Max DC I	3 A
Max DC Voltage Source/Measure Range	40 V
Max DC Source/Sink Power	40 W
Min DC Current Range	100 nA
Pulse Tuning Required	No

## No Tuning of Output Required up to 3 $\mu$ H. Saves Time and Money

When outputting current pulses, cabling and inductance can be a problem. Inductance can have a limiting effect and could even be damaging. Quite often, the inductance can be different from device to device, even when testing laser diodes on a wafer. The effect of inductance on a current source is that inductance resists changes in current. This can cause the current source to increase the output voltage. The result is overshoot and ringing as the pulse settles. This may not be acceptable in your test. Some solutions require tuning to compensate for these behaviors, which can be time consuming. The 2601B-PULSE's control loop system eliminates the need to tune for load changes up to 3  $\mu$ H so that your pulse has no overshoot and ringing when outputting pulses from 10  $\mu$ s up to 500  $\mu$ s at a current up to 10 amps. This ensures a fast rise time, so your devices are sourced with a current pulse to properly characterize the device or circuit. The images to the right show the performance of a competitive modular SMU outputting a 5 A, 50  $\mu$ s pulse on a device with an impedance of 3  $\mu$ H compared to the 2601B-PULSE with PulseMeter technology.



Typical pulse output from a competitive SMU with overshoot and 6.47  $\mu$ s rise time.



2601B-PULSE output without overshoot and 1.4  $\mu$ s rise time.

# HIGH POWER SMUS WITH UNPRECEDENTED POWER, PRECISION, AND SPEED



## 2651A 50 Amp High Power System SourceMeter SMU Instrument

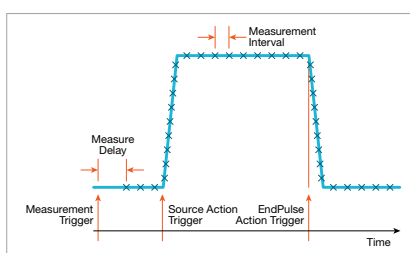
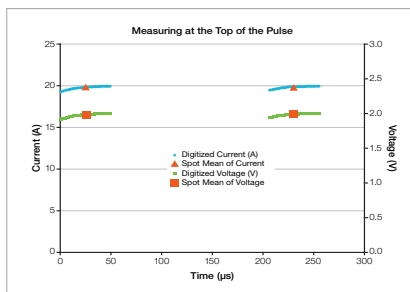
- Source or sink:
  - 2,000 W of pulsed power ( $\pm 40$  V,  $\pm 50$  A)
  - 200 W of DC power ( $\pm 10$  V @  $\pm 20$  A,  $\pm 20$  V @  $\pm 10$  A,  $\pm 40$  V @  $\pm 5$  A)
- Easily connect two units (in series or parallel) to create solutions up to  $\pm 100$  A or  $\pm 80$  V
- 1 pA resolution enables precise measurement of very low leakage currents
- 1  $\mu$ s per point (1 MHz), 18-bit sampling, accurately characterizes transient behavior
- 1% to 100% pulse duty cycle for pulse width modulated (PWM) drive schemes and device specific drive stimulus

[2651A LEARN MORE](#)

## 2657A 3000 Volt High Power System SourceMeter SMU Instrument

- Source or sink up to 180 W of DC or pulsed power, ( $\pm 3000$  V @ 20 mA,  $\pm 1500$  V @ 120 mA)
- 1 fA low current resolution
- Dual 22-bit precision ADCs and dual 18-bit 1  $\mu$ s per point digitizers for high accuracy and high speed transient capture
- Fully TSP<sup>®</sup> compliant for easy system integration with Series 2600B System SourceMeter models and 24XX Graphical SMUs

[2657A LEARN MORE](#)



## Achieving Fast Pulse Measurements for Today's High-Power Devices

Green initiatives and energy efficiency standards worldwide have motivated engineers to find ways to design more efficient semiconductor devices and integrated circuits, and measuring the true state of these devices without the effects of self-heating is critical. Pulsed characterization is a solution to this issue. The use of a pulsed stimulus demands faster measurements. For high-speed digitization or waveform capture applications that require these capabilities, Keithley's High Power SourceMeter<sup>®</sup> Instrument also includes two high-speed ADCs for measuring current and voltage simultaneously. These ADCs use sampling technology like an oscilloscope and take snapshots of the signal over time. Each high-speed ADC samples at a rate of up to 1 MHz with 18-bit resolution, which is much higher than the typical 8-bit resolution of an oscilloscope, resulting in more precise transient characterization in comparable bandwidths. Coupled with the ability to measure asynchronously from the source, this feature makes the 2651A and 2657A ideal for many waveform capture and transient characterization applications.



# HIGH DENSITY, MORE CHANNELS, SMALLER FORM FACTOR



## 2606B System SourceMeter SMU Instrument

- Incorporates the capabilities of two industry-leading Keithley 2602B SMUs.
- Four-channel SMU instrument in a single 1U full-rack chassis
- Stackable; no 1U spacing requirements between units
- Tightly integrated voltage/current source and measure instruments offer best-in-class performance with 6½-digit resolution
- 20 V @ 1 A and 6 V @ 3 A power envelopes, 20 watts
- 0.015% DCV basic accuracy

[2606B LEARN MORE](#)

## TRIPLE THE DENSITY OF A TEST RACK

The Model 2606B form factor (only 1U high) is a perfect fit and improves density by 3x, because there is no need for an additional 1U thermal spacer between units (for air flow).

Most bench source measure units on the market today are 2U high



## Lean Factories Are Critical to Manufacturers' Success

Today, manufacturers need to speed products to market, reduce costs, and keep customers happy. That means manufacturers must build lean factories that create seamless flows of people, material and information, and prevent the build-up of inventory and excess equipment.

### The Challenge

Yet as demand grows, manufacturers need to increase test capacity for products,



which requires placing additional racks of test equipment on the plant floor.



# SPECIALTY SMUS FOR VERY LOW CURRENT AND OPTOELECTRONICS TESTING

## 6430 Sub-femtoamp Remote SourceMeter SMU Instrument

- 0.4 fA p-p (4E–16A) noise (typical)
- >1016  $\Omega$  input resistance on voltage measurements
- High speed — up to 2000 readings/second
- Up to 6½-digit resolution
- 0.012% basic voltage accuracy; 0.025% basic current accuracy

6430 LEARN MORE



## 2510 and 2510-AT TEC and Autotuning TEC SourceMeter SMU Instruments

- 50 W TEC Controller combined with DC measurement functions
- Fully digital P-I-D control; Autotuning capability for the thermal control loop (2510-AT)
- Designed to control temperature during laser diode module testing
- Wide temperature setpoint range ( $-50^{\circ}\text{C}$  to  $+225^{\circ}\text{C}$ ) and high setpoint resolution ( $\pm 0.001^{\circ}\text{C}$ ) and stability ( $\pm 0.005^{\circ}\text{C}$ )
- Compatible with a variety of temperature sensor inputs: thermistors, RTDs, and IC sensors

2510 LEARN MORE



## 2520 Pulsed Laser Diode Test System

- Integrated solution for in-process LIV production testing of laser diodes at the chip or bar level
- Combines high accuracy source and measure capabilities or pulsed and DC testing
- Synchronized DSP-based measurement channels ensure highly accurate light intensity and voltage measurements
- Programmable pulse on time from 500 ns to 5 ms up to 4% duty cycle
- Pulse capability up to 5 A, DC capability up to 1 A
- 14-bit measurement accuracy on three measurement channels ( $V_p$ , front photodiode, back photodiode)
- Up to 1000-point sweep stored in buffer memory eliminates GPIB traffic during test, increasing throughput

2520 LEARN MORE



# DETERMINE WHICH KEITHLEY SMU IS RIGHT FOR YOU

Need help selecting the SMU that's right for your needs?

Let these selector tables be your guide!

## Keithley 24xx Standard and Graphical SMUs

MODEL	Keithley 24xx Standard and Graphical SMUs									
	2400	2401	2410	2420	2440	2450	2460	2461	2470	
Display	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	Touchscreen 5 in. (12.7 cm)	Touchscreen 5 in. (12.7 cm)	Touchscreen 5 in. (12.7 cm)	Touchscreen 5 in. (12.7 cm)	
Channels	1	1	1	1	1	1	1	1	1	
Digits	6½	6½	6½	6½	6½	6½	6½	6½	6½	
Quadrants of Operation	4	4	4	4	4	4	4	4	4	
Max Output Power	20 W	20 W	20 W	60 W	50 W	20 W	100 W	1000 W Pulse, 100 W DC	20 W	
<b>SOURCE / MEASURE</b>										
I	min	±1 pA	±1 pA	±1 pA	±10 pA	±10 pA	±10 fA	±10 pA	±1 pA	±10 fA
	max	±1 A	±1 A	±1 A	±3 A	±5 A	±1 A	±7 A	±10 A Pulse, ±7 A DC	±1 A
V	min	±100 nV	±100 nV	±100 nV	±100 nV	±100 nV	±10 nV	±100 nV	±100 nV	±100 nV
	max	±200 V	±20 V	±1100 V	±60 V	±40 V	±200 V	±100 V	±100 V	±1100 V
Basic Accuracy	I	0.025%	0.025%	0.025%	0.025%	0.025%	0.020%	0.020%	0.020%	0.020%
	V	0.012%	0.012%	0.012%	0.012%	0.012%	0.012%	0.012%	0.012%	0.012%
<b>GENERAL FEATURES</b>										
Digitizers	No	No	No	No	No	No	No	No	Dual 18-bit 1 MS/s Digitizers	No
Reading Speed	2,000 rdgs/s	2,000 rdgs/s	2,000 rdgs/s	2,000 rdgs/s	2,000 rdgs/s	3,000 rdgs/s	3,000 rdgs/s	3,000 rdgs/s, 1 MS/s with Digitizer	3,000 rdgs/s	
Programming	SCPI	✓	✓	✓	✓	✓	✓ Plus 2400 Emulation	✓	✓ Plus 2420, 2425, 2430, 2440 Emulation	✓
	TSP						✓	✓	✓	✓
TSP-Link	No	No	No	No	No	Yes	Yes	Yes	Yes	
Digital I/O	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Contact Check	No	No	No	No	No	No	No	Yes	No	
Computer Interface	IEEE-488 RS-232	IEEE-488 RS-232	IEEE-488 RS-232	IEEE-488 RS-232	IEEE-488 RS-232	USB 2.0 LAN/LXI 1.4 IEEE-488	USB 2.0 LAN/LXI 1.4 IEEE-488	USB 2.0 LAN/LXI 1.4 IEEE-488	USB 2.0 LAN/LXI 1.4 IEEE-488	
Compliance	CE, UL	CE, UL	CE	CE	CE	CE, NRTL listed	CE, NRTL listed	CE, NRTL listed	CE, NRTL listed	



# SMU SELECTOR TABLE

## Keithley 26xxB Series High Speed System SMUs for Demanding Applications

MODEL	Keithley 26xxB Series High Speed System SMUs									
	2601B	2602B	2604B	2611B	2612B	2614B	2634B	2635B	2636B	
Display	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	
Channels	1	2	2	1	2	2	2	1	2	
Digits	6½	6½	6½	6½	6½	6½	6½	6½	6½	
Quadrants of Operation	4	4	4	4	4	4	4	4	4	
Max Output Power	200 W Pulse, 40 W DC	200 W Pulse, 40 W DC / Channel	200 W Pulse, 40 W DC / Channel	200 W Pulse, 30 W DC	200 W Pulse, 30 W DC / Channel	200 W Pulse, 30 W DC / Channel	200 W Pulse, 30 W DC / Channel	200 W Pulse, 30 W DC	200 W Pulse, 30 W DC / Channel	
SOURCE / MEASURE										
I	min	±100 fA	±100 fA	±100 fA	±100 fA	±100 fA	±100 fA	±0.1 fA	±0.1 fA	±0.1 fA
	max	±10 A Pulse, ±3 A DC	±10 A Pulse, ±3 A DC	±10 A Pulse, ±3 A DC	±10 A Pulse, ±1.5 A DC	±10 A Pulse, ±1.5 A DC	±10 A Pulse, ±1.5 A DC	±10 A Pulse, ±1.5 A DC	±10 A Pulse, ±1.5 A DC	±10 A Pulse, ±1.5 A DC
V	min	±100 nV	±100 nV	±100 nV	±100 nV	±100 nV	±100 nV	±100 nV	±100 nV	±100 nV
	max	±40 V	±40 V	±40 V	±200 V	±200 V	±200 V	±200 V	±200 V	±200 V
Basic Accuracy	I	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%
	V	0.015%	0.015%	0.015%	0.015%	0.015%	0.015%	0.015%	0.015%	0.015%
GENERAL FEATURES										
Digitizers	No	No	No	No	No	No	No	No	No	No
Reading Speed	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s	20,000 rdgs/s
Programming	SCPI									
	TSP	✓	✓	✓	✓	✓	✓	✓	✓	✓
TSP-Link	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	
Digital I/O	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	
Contact Check	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	
Computer Interface	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	
Compliance	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	

# SMU SELECTOR TABLE

## Keithley Specialty SMUs

MODEL	Very Low Current	Fast Pulser/ SMU	High Density SMUs	High Power SMUs		Optical SMUs			
	6430	2601B-PULSE	2606B	2651A	2657A	2510	2510-AT	2520	
Display	VFD, 2 line	VFD, 2 line	no display	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	VFD, 2 line	
Channels	1	1	4	1	1	1	1	1	
Digits	6½	6½	6½	6½	6½	5½	5½	4½	
Quadrants of Operation	4	4	2	4	4	2	2	1	
Max Output Power	2 W	SMU Function: 200 W Pulse, 40 W DC Fast Pulser Function: 3 W	20 W / Channel	2000 W Pulse, 200 W DC	180 W DC	50 W DC	50 W DC	50 W Pulse, 10 W DC	
<b>SOURCE / MEASURE</b>									
I	min	±1 aA	SMU Function: ±100 fA Pulser Function: 10 µA	±100 fA	±1 pA	±1 fA	±200 µA	±200 µA	10 µA
	max	±100 mA	SMU Function: ±10 A Pulse, ±3 A DC Pulser Function: ±10 A	±3 A Pulse, ±3 A DC	±50 A Pulse, ±20 A DC	±120 mA	± 5 A	± 5 A	5 A Pulse, 1 A DC
V	min	±100 nV	SMU Function: ±100 nV Pulser Function: 10 µV	±100 nV	±1 µV	±100 µA	±500 µV	±500 µV	330 µV
	max	±200 V	SMU Function: ±40 V Pulser Function: ±10 V	±20 V	±40 V	±3000 V	±10 V	±10 V	10 V
Basic Accuracy	I	0.025%	SMU Function: 0.02% Pulser Function: 0.12%	0.020%	0.020%	0.020%	0.400%	0.400%	0.200%
	V	0.012%	SMU Function: 0.015% Pulser Function: 0.05%	0.015%	0.020%	0.025%	0.100%	0.100%	0.300%
<b>GENERAL FEATURES</b>									
Digitizers	No	Dual 18-bit 1 MS/s Digitizers (Pulser Function Only)	No	Dual 18-bit 1 MS/s Digitizers	Dual 18-bit 1 MS/s Digitizers	No	No	Dual 14-bit 10 MS/s Digitizers	
Reading Speed	2,000 rdgs/s	SMU Function: 20,000 rdgs/s Pulser Function: 1 µs on Digitizers	20,000 rdgs/s	20,000 rdgs/s, 1 MS/s with Digitizer	20,000 rdgs/s, 1 MS/s with Digitizer	60 rdgs/s	60 rdgs/s	188 rdgs/s (to memory)	
Programming	SCPI	✓				✓	✓	✓	
	TSP		✓	✓	✓				
TSP-Link	No	Yes	Yes	Yes	Yes	No	No	No	
Digital I/O	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Contact Check	No	Yes	Yes	Yes	Yes	No	No	No	
Computer Interface	IEEE-488 RS-232	USB 2.0 LAN/LXI-C IEEE-488 RS-232	USB 2.0 LAN/LXI-C only	LAN/LXI-C IEEE-488 RS-232	LAN/LXI-C IEEE-488 RS-232	IEEE-488 RS-230	IEEE-488 RS-231	IEEE-488 RS-232	
Compliance	CE	CE, NRTL listed	CE, NRTL listed	CE, NRTL listed	CE, NRTL listed	CE	CE	CE	

# WE ARE HERE TO HELP YOU

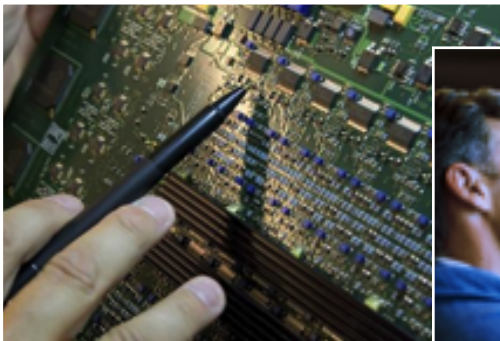


All Keithley SMUs are backed by a 1-year warranty. Keithley's Service Department is ISO9001 registered and only uses factory-approved components when servicing your SMU. Keithley also offers ISO17025 Accredited Calibration services on the SMU. An ISO17025 calibration assures you that the calibration is traceable to national standards (important for legal metrology) and the uncertainties in the calibration are correct.



If you have a question on what is presented here, or want to explore more about which source measure unit is right for you, our technical support center ready to answer your questions.

For more information about Source Measure Units, visit our Source Measure Unit Tutorial page to review additional literature, and view product demos and webinars. [tek.com/learning/what-is-a-source-measure-unit](http://tek.com/learning/what-is-a-source-measure-unit)





## Contact Information:

**Australia** 1 800 709 465  
**Austria\*** 00800 2255 4835  
**Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777  
**Belgium\*** 00800 2255 4835  
**Brazil** +55 (11) 3759 7627  
**Canada** 1 800 833 9200  
**Central East Europe / Baltics** +41 52 675 3777  
**Central Europe / Greece** +41 52 675 3777  
**Denmark** +45 80 88 1401  
**Finland** +41 52 675 3777  
**France\*** 00800 2255 4835  
**Germany\*** 00800 2255 4835  
**Hong Kong** 400 820 5835  
**India** 000 800 650 1835  
**Indonesia** 007 803 601 5249  
**Italy** 00800 2255 4835  
**Japan** 81 (3) 6714 3086  
**Luxembourg** +41 52 675 3777  
**Malaysia** 1 800 22 55835  
**Mexico, Central/South America and Caribbean** 52 (55) 56 04 50 90  
**Middle East, Asia, and North Africa** +41 52 675 3777  
**The Netherlands\*** 00800 2255 4835  
**New Zealand** 0800 800 238  
**Norway** 800 16098  
**People's Republic of China** 400 820 5835  
**Philippines** 1 800 1601 0077  
**Poland** +41 52 675 3777  
**Portugal** 80 08 12370  
**Republic of Korea** +82 2 565 1455  
**Russia / CIS** +7 (495) 6647564  
**Singapore** 800 6011 473  
**South Africa** +41 52 675 3777  
**Spain\*** 00800 2255 4835  
**Sweden\*** 00800 2255 4835  
**Switzerland\*** 00800 2255 4835  
**Taiwan** 886 (2) 2656 6688  
**Thailand** 1 800 011 931  
**United Kingdom / Ireland\*** 00800 2255 4835  
**USA** 1 800 833 9200  
**Vietnam** 12060128

\* European toll-free number. If not accessible, call: +41 52 675 3777

Rev. 02.2018



Find more valuable resources at [TEK.COM](http://TEK.COM)

