

# SOURCE MEASURE UNITS

Make Multiple Measurements Accurately Using a Single Instrument  
All While Saving Space, Time and Money

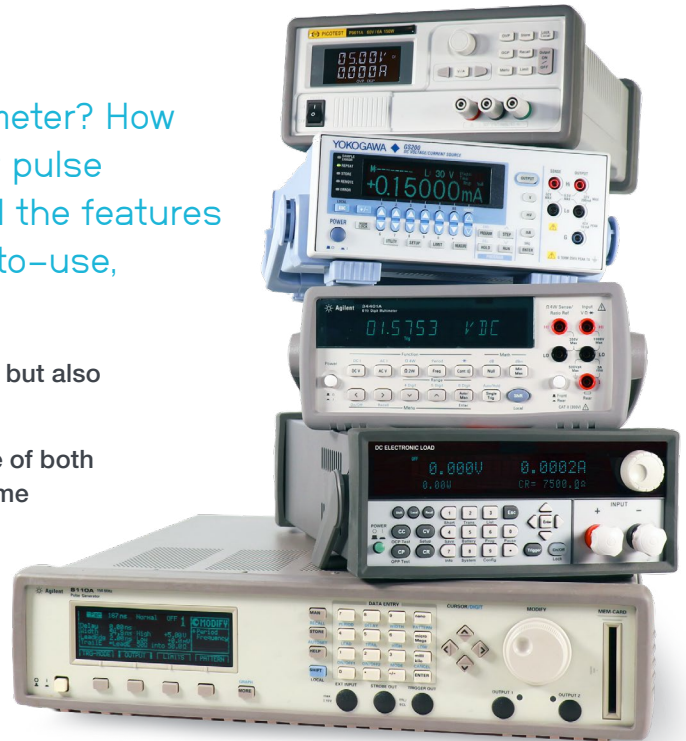


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**Tektronix**<sup>®</sup>

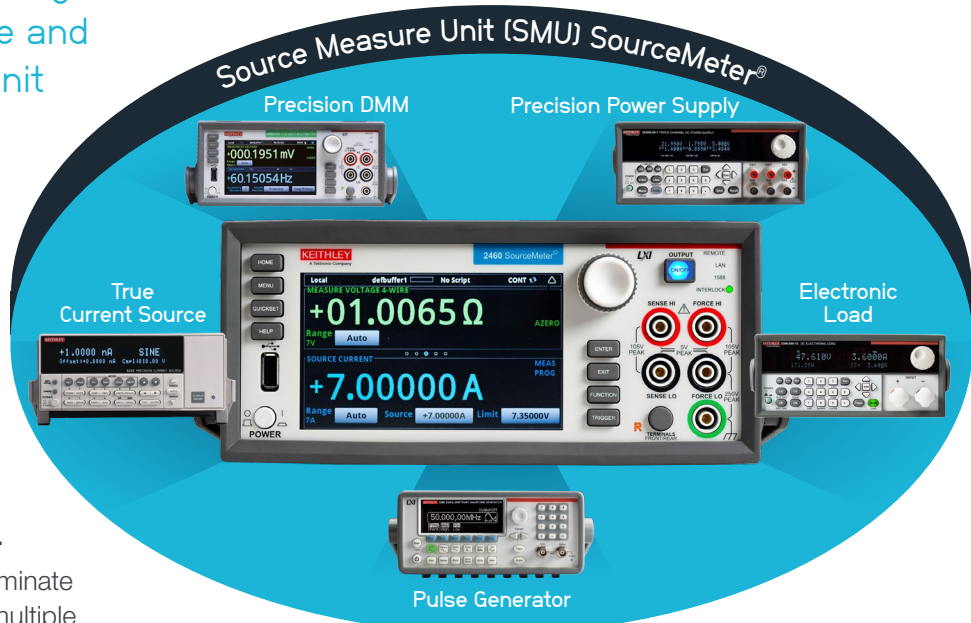
Do you use a power supply or digital multimeter? How about an electronic load, current source or pulse generator? Imagine if you could combine all the features of these instruments into a single, simple-to-use, compact unit and . . .

- Not only get positive and negative DC voltage outputs, but also source and sink current with that same instrument.
- Accurately measure the actual (not programmed) value of both received and sourced voltage and current with that same instrument.
- And on that same instrument, depending on whether you're sourcing voltage or current, precisely set a current or voltage limit and get an indication that you've reached that limit – without losing source power.



The Source Measure Unit (SMU) makes all this and so much more possible. That's because it's a five-in-one tool integrating the capabilities of a power supply, digital multimeter, electronic load, current source and pulse generator. This single unit empowers you to:

- Precisely source and measure voltage and/or current at the same time.
- Source and measure across a very broad range of current (100 fA to 50 A) and voltage (100 nV to 3 kV) with 6½ digits of measurement resolution.
- Measure resistance vs. current/voltage directly or indirectly.



With this five-in-one functionality, SMUs eliminate many of the issues associated with using multiple instruments, including workspace clutter, measurement insight delays and much higher costs. By using a SMU, you'll save space, time — and even money.

# Reclaim 75% of Workspace and Reduce Wire Clutter by 60%

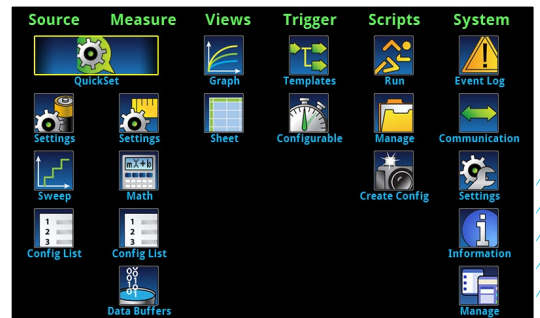


It's time to unclutter your workbench or production rack. With just one SMU, you can save up to 75% of workspace and reduce the number of cables and test leads needed by up to 60% in a typical setup. *What will you do with all this free, uncluttered workspace?*

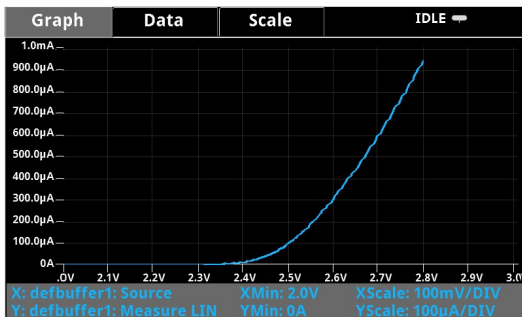
## Save Time, Maximize Speed and Get Jobs Done Quickly

Using one SMU instead of multiple instruments, you'll save time through less complex test station development, setup, maintenance, synchronization issues and connection troubleshooting.

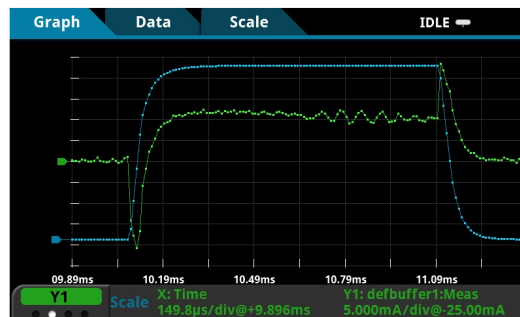
Of course, SMUs are also inherent time savers with easy-to-use features built into the instrument, helping you maximize speed and get jobs done quickly.



Graphical interface SMUs that utilize icon-based menu structures reduce learning curves and configuration steps, resulting in faster measurements.



Standard and custom sweeps accelerate testing with automation hooks. Three basic sweep waveforms are provided that can be programmed for single-event or continuous operation.

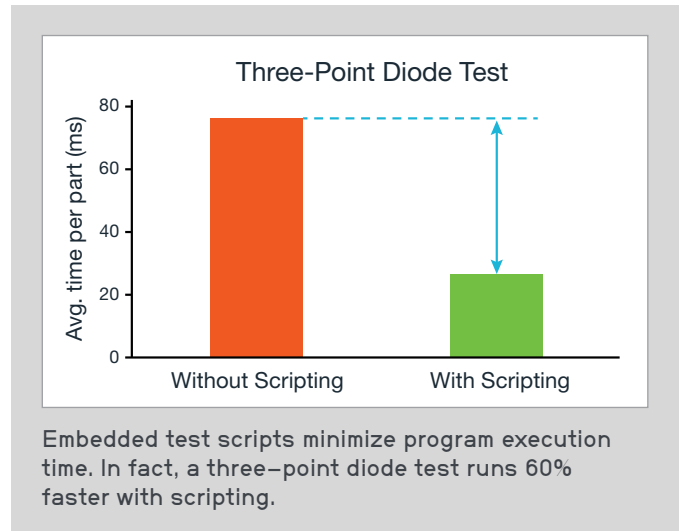


Many SMUs capture transient device behavior using 1 Megasample/s digitizers so you get immediate insights.

# Run Production Tests 60% Faster and Experience Throughput Gains Up to 10 Times More

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

Keithley SMUs feature an industry-leading scripting system called Test Script Processor (TSP®) technology. This system enables dramatic improvements in overall test throughput. For example, a typical three-point diode test runs over 60% faster — and can result in throughput gains of up to 10 times more using the TSP technology compared with traditional programming techniques.



# Save Thousands of Dollars and Lower Total Cost of Ownership

Time is money. Since SMUs can save you hours — from shorter test station development, set up and maintenance time to nano-second synchronization, faster measurements and quicker insights — you'll likely deliver innovations to the masses on time and stay within budget.

Additionally, purchasing one SMU can save you thousands of dollars compared to buying multiple instruments. Think how easy it will be to convince your budget-conscious purchaser to pay for one instrument instead of five.

Plus, calibrating only one instrument versus many can save as much as 75% per calibration cycle period.

- Typical total cost to calibrate a SMU = ~\$300
- Typical total cost to calibrate DMM, power supply, current source, and electronic load units = ~\$1200



Typical cost of the equivalent performing DMM, current source, power supply, pulse generator and electronic load units

**\$9500**

Typical cost of a single channel equivalent SMU

**\$5300**

SAVINGS  
**~44%**

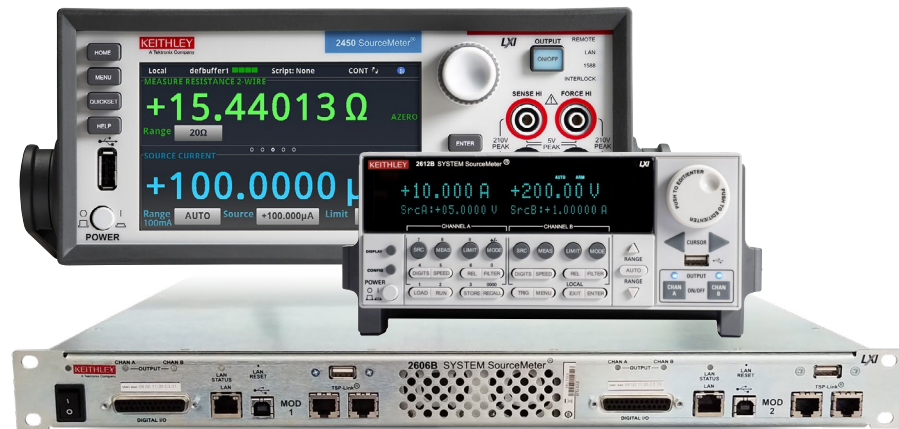
Of course, all of these savings can result in lower costs of test and ownership!

# 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.

We invented the industry's first instrument-based SMU in 1989 and remain the leader in SMU technology today.

We also offer the broadest choice of SMU instruments available. All Keithley SourceMeter® instruments are fully programmable while delivering higher precision, resolution and flexibility ideal for materials research, semiconductor devices (transistors, diodes, power MOSFETs, laser diode modules, LEDs), electronic circuits and more.



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*Keithley SMUs have also been used by Nobel laureates and are routinely cited in thousands of peer-reviewed journals as the instrument used in their work to discover and create.*

## Which Keithley SMU is Right for You?

Need help in selecting the SMU that's right for your needs? Please [download the Keithley SMU selector guide](#) or call a technical specialist at **1-800-833-9200**.

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