

Keithley I-V Tracer Software for Graphical 2400 Series SourceMeter® Source Measure Unit (SMU) Instruments

Datasheet



Keithley I-V Tracer Software leverages the unique touchscreen interface of the Graphical 2400 Series SourceMeter SMU instruments to recreate the familiar user experience of a curve tracer for two-terminal devices. Adding the I-V Tracer software to your SourceMeter instrument gives you a dedicated user interface for tracing the characteristics of your devices through both current and voltage. With a range of compatible instruments, I-V Tracer can utilize the full capabilities of each source measure unit, including the dual high-speed digitizers of the 2461 to perform tracing with AC polarity and pulsed DC in addition to standard DC polarity.

Tektronix introduced the industry's first curve tracer in 1955 to display characteristic curves for vacuum tubes, followed over the years by models for testing transistors, diodes and other solid-state devices. Approximating a power supply and an oscilloscope packaged in the same box, curve tracers source voltage while plotting voltage vs. current. For labs that prefer to continue using traditional curve tracers, the reliance on vintage instrumentation presents its share of obstacles. Keeping existing instruments functional requires sourcing and stocking old replacement components, and the large footprint consumes limited lab space. Traditional curve tracers also

have no methods for easily capturing and sharing data. This all changes with Keithley I-V Tracer Software. Since an SMU can source voltage or current while measuring voltage and current, it has similar hardware qualities to a curve tracer. Rather than pooling resources for shared, outdated equipment, labs can now equip individual engineers with their own I-V curve tracer for applications in failure analysis, semiconductor R&D, and education.

Key Features

- Compatible with Keithley 2450, 2460, 2461, and 2470 Graphical SourceMeter SMUs
- +DC, -DC, AC polarity modes (AC mode only compatible with the 2461 SMU)
- Compare mode to display a reference device next to a measured curve
- Save curve data to disk with KickStart for analysis in Excel
- Screen capture curves
- Pinch and zoom on the touchscreen to analyze data immediately
- Current sourcing capabilities allowing the user to sweep current across the device and plot current versus voltage

Familiar Capability

A functional successor to Tektronix landmark curve tracers like the 576 and 370A, I-V Tracer with Keithley SourceMeter instruments offers the first modern alternative to those who love the direct control a curve tracer offers at a fraction the size of a classic curve tracer. Add a simple desktop solution rather than searching for overpriced repair parts or replacements for aging curve tracers.

User Interface allowing for precise sweeps

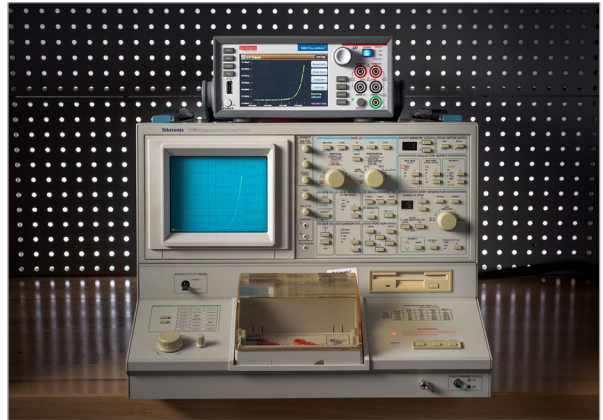
The front panel knob gives you real time control of your I-V curve, responding to the speed of your turn and dynamically adjusting as you pinch-and-zoom in and out of the graph. Increase scrutiny of curve anomalies like breakdown and turn-on behavior of diodes while accelerating through predictable sections, all in the same graph without taking your eyes off the data.

Increase efficiency in the R&D lab

Enjoy traditional curve tracer functionality while equipping individual engineers with their own I-V curve tracer, rather than pooling resources for shared, outdated equipment. Keithley SourceMeter instruments are highly portable and easily fit on benches next to laptops and digital multimeters (DMMs). While I-V Tracer is installed, you retain the full source, sink, and measure capabilities of Keithley SourceMeter instruments with the functionality of a curve tracer just a click away. The modern interface allows easy export of curves via screenshots or CSV.

The perfect engineering teaching solution

Curve tracers were long considered a must-have in engineering classrooms for their simplicity in allowing students to directly apply their learning to electrical devices. I-V Tracer with a Keithley SMU offers the same benefit, giving real-time, direct control to students allowing them to experiment themselves and solidify understanding on a wide range of electronics. At the same time, you keep the incredible power of your SourceMeter instrument for use in lab exercises, with the capabilities of a highly sensitive ammeter, precision voltage and current source, electronic load, and more. Give students the experience they need on up-to-date equipment with modern capabilities.



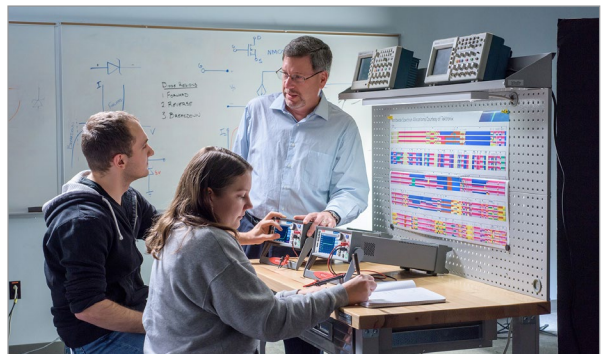
I-V Tracer Software offers a modern alternative to traditional curve tracers.



Use the front panel knob to see your data more clearly.



Using I-V Tracer Software means engineers no longer need to share outdated equipment.



I-V Tracer offers an ideal engineering teaching solution.

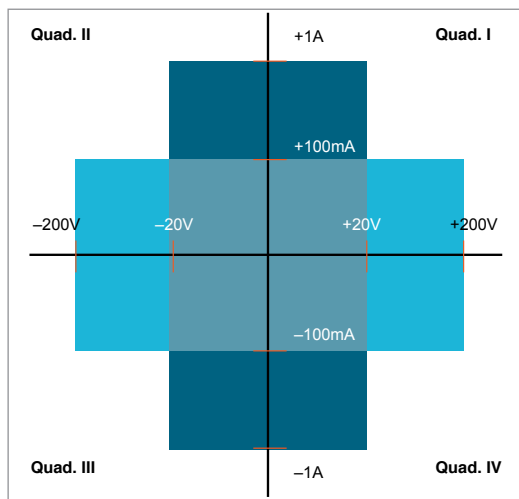
Specifications

Compatible SMU instruments for I-V Tracer 2450, 2460, 2461, 2470

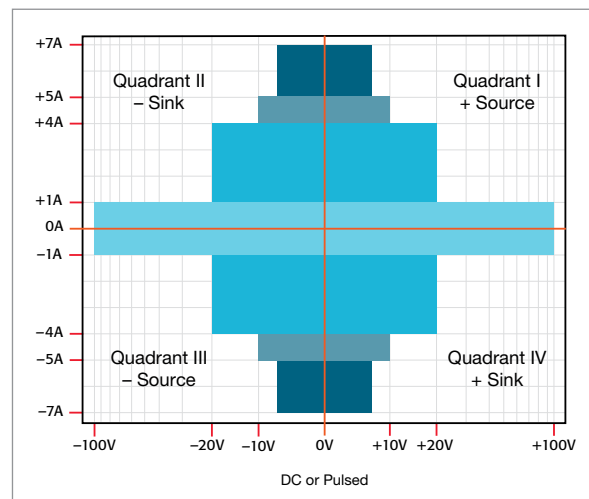
Instrument Performance when using I-V Tracer

Model	Max Voltage (V)	Max Current (A)	Max Power (W)	Min Current Resolution	Notes
2450	200	1	20	10 fA	
2460	100	7	100	1 pA	
2461	100	7	100	1pA	AC mode, Pulse mode. 10 A pulse region not available
2470	1000	1	20	10fA	

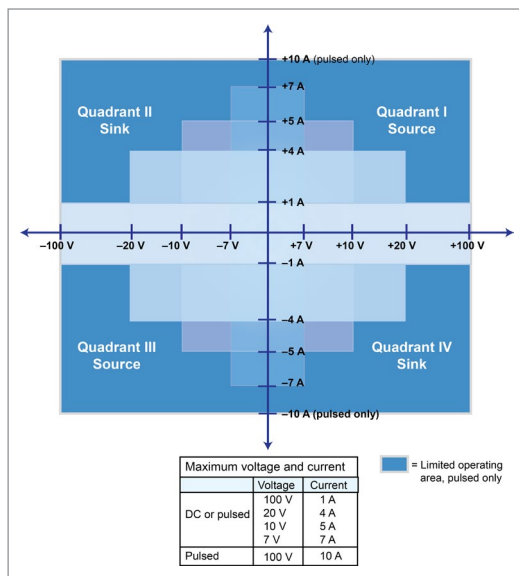
Source Measure Unit Power Envelopes



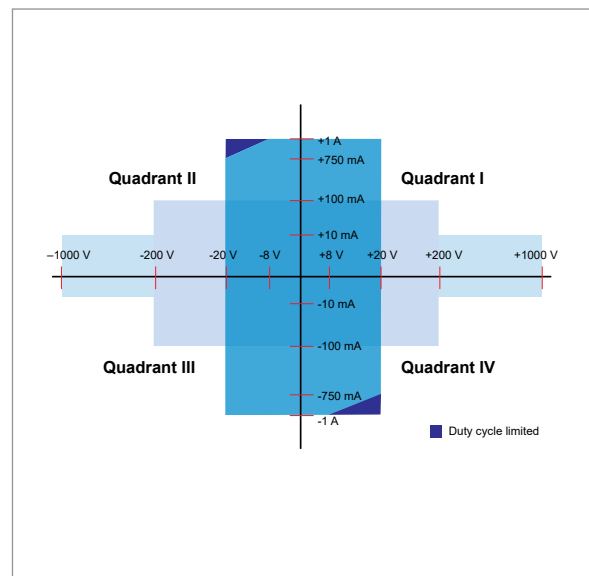
2450



2460



2461



2470

Please refer to each model's datasheet for complete instrument specifications.

Ordering Information

KICKSTARTNL-ACT1	Single license I-V Tracer App pack for one Source Measure Unit
KICKSTARTNL-ACT3	Three license I-V Tracer App pack for three Source Measure Units
KICKSTARTNL-ACT5	Five license I-V Tracer App pack for five Source Measure Units
2450	200 V, 1 A, 20 W SourceMeter Instrument
2460	100 V, 7 A, 100 W SourceMeter Instrument
2461	100 V, 10 A, 1000 W SourceMeter Instrument
2470	1000 V, 1 A, 20 W SourceMeter SMU Instrument

Available Services

Extended Warranties

24xx-EW	1 Year Factory Warranty extended to 2 years
24xx-3Y-EW	1 Year Factory Warranty extended to 3 years
24xx-5Y-EW	1 Year Factory Warranty extended to 5 years

Calibration Contracts

C/24xx-3Y-STD	3 Calibrations within 3 years
C/24xx-5Y-STD	5 Calibrations within 5 years
C/24xx-3Y-DATA	3 Calibrations within 3 years and includes calibration data before and after adjustment
C/24xx-5Y-DATA	5 Calibrations within 5 years and includes calibration data before and after adjustment
C/24xx-3Y-17025	3 ISO-17025 accredited calibrations within 3 years
C/24xx-5Y-17025	5 ISO-17025 accredited calibrations within 5 years

Warranty Information

Warranty Summary	This section summarizes the warranties of the 24xx. For complete warranty information, refer to the 24xx Reference Manual. Any portion of the product that is not manufactured by Keithley is not covered by this warranty and Keithley will have no duty to enforce any other manufacturer's warranties.
Hardware Warranty	Keithley Instruments, Inc. warrants the Keithley manufactured portion of the hardware for a period of one year from defects in materials or workmanship; provided that such defect has not been caused by use of the Keithley hardware which is not in accordance with the hardware instructions. The warranty does not apply upon any modification of Keithley hardware made by the customer or operation of the hardware outside the environmental specifications.
Software Warranty	Keithley warrants for the Keithley produced portion of the software or firmware will conform in all material respects with the published specifications for a period of ninety (90) days; provided the software is used on the product for which it is intended in accordance with the software instructions. Keithley does not warrant that operation of the software will be uninterrupted or error-free, or that the software will be adequate for the customer's intended application. The warranty does not apply upon any modification of the software made by the customer.

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