

## SMU (Source/Measure Unit) for IC and Electronic Components

### Quick Bench-top Evaluation Series Introduction

The Agilent B2900A Series of Precision Source/Measure Units improves bench-top DC measurement efficiency for IC and electronic component evaluation.



B2912A (front view)



B2912A (rear view)

### Known issues for bench-top IC and electronic component evaluation

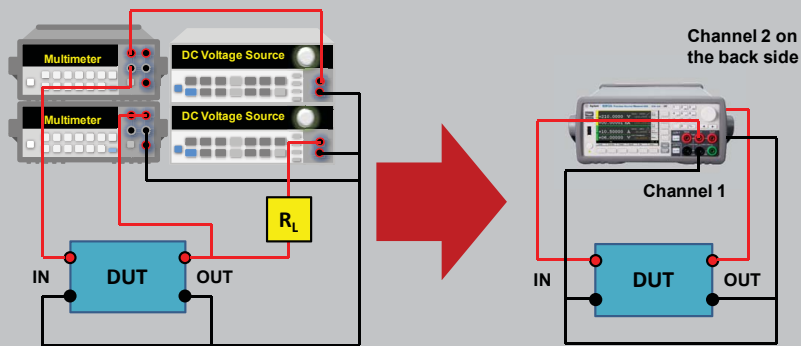
With limited bench-top space you cannot afford to accommodate multiple single-function instruments.

- It is difficult to place multiple DC sources, multimeters, etc. on your limited bench-top space.
- Changing wiring for each measurement is messy, time consuming and can easily lead to improper connections.

Many benchtop solutions require a PC to display data graphically and make interactive measurements.

- Requiring a PC to make interactive measurements is inconvenient and reduces productivity due to time spent on PC interface issues.
- Adding a PC to your instrument setup takes up valuable bench space.

Solution: The B2900A series' architecture reduces the number of instruments and eliminates messy wiring.



Bench-top setup example for 4-terminal DUT

B2900A setup example for 4-terminal DUT

Solution: The B2900A series' graphical user interface supports real-time IV curve monitoring directly on the instrument.



The B2900A series does not require you to lug a PC to the bench. You can monitor graphical measurement results on the B2900A and save the graphs to a USB memory stick in both CSV and JPEG formats. This improves the efficiency of your bench-top evaluation and debugging.

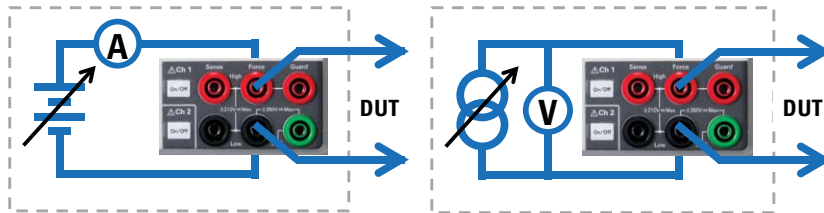


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## What is a “Source/Measure Unit”?

- A Source/Measure Unit (SMU) can perform many roles, thereby eliminating multiple rack and stack instruments that require frequent cable reconfiguration.

- An SMU integrates the following capabilities into each channel.
  - 4-quadrant voltage source
  - 4-quadrant current source
  - Volt meter
  - Current meter
- You can easily select any source and measurement combination using the front panel GUI. The figures below show some commonly used configurations.
- The “Sense” and “Guard” terminals are available for 4-wire (Kelvin) and more precise low level measurements.



VFIM (voltage force & current measure)

IFVM (Current force & voltage measure)

## How broad is the B2900A series capability?

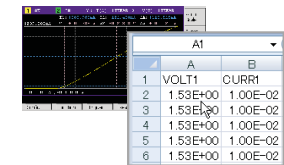
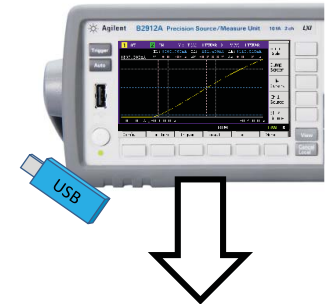
- The specifications below cover most bench-top IC evaluation needs.

Product Number	Number of channels	Max output		Min source resolution	Min measure resolution	Min timing interval	Viewing mode
		DC	Pulse				
B2901A	1	210 V 3.03A	200 V 10.5 A	1 pA 1 μV	100 fA 100 nV	20 μs	Single graph
B2902A	2	210 V 3.03A	200 V 10.5 A	1 pA 1 μV	100 fA 100 nV	20 μs	Single, dual, graph
B2911A	1	210 V 3.03A	200 V 10.5 A	10 fA 100 nV	10 fA 100 nV	10 μs	Single, graph, roll
B2912A	2	210 V 3.03A	200 V 10.5 A	10 fA 100 nV	10 fA 100 nV	10 μs	Single, dual, graph, roll

## What does the graphical user interface offer?

- The B2900A series can display XY graphs (such as current vs. voltage and time-varying signals ) without requiring a PC.

- You can check device characteristics in real time on a color graphical display during measurement. This dramatically improves your efficiency.
- A cursor function is available to enable you to display the exact data values at any point along a curve.
- Front-panel graphical data can be saved onto a USB memory stick in both CSV and JPEG formats.



Display dump (JPEG) and CSV file via USB

## Do you prefer using a PC?

- No problem! Agilent has free “Quick I/V Measurement Software” to control the B2900A from a PC.

## Who can benefit from these capabilities?

- ✓ IC/electronic component designers and technicians that need to perform quick evaluation and debug of engineering samples on their bench-top.
- ✓ Electronics engineers and technicians that need to select ICs/ electronic components for their system designs.

## To Learn More...

Please visit our website below:

[www.agilent.com/find/b2900a](http://www.agilent.com/find/b2900a)

[www.agilent.com](http://www.agilent.com)

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Printed in USA, May 24, 2013

5990-9870EN



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