KEYSIGHT TECHNOLOGIES (AGILENT HP)

B2902A

The Keysight B2902A is a precision 2-channel Source/Measure Unit (SMU) designed for highly accurate current and voltage sourcing and measurement. Offering 100 fA/100 nV measurement resolution and 6.5-digit capabilities, it supports up to 210 V and 3 A DC (or 10.5 A pulsed) sourcing, making it ideal for semiconductor characterization, I-V testing, and active component evaluation.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), USB 2.0 (Host & Device), LAN (100BASE-TX/10BASE-T, LXI Class C)
Display	4.3" Color TFT LCD, 480 x 272 pixels

Physical

Power Supply	90 V to 264 V AC, 47 Hz to 63 Hz, 250 VA maximum
Operating Temperature	0 °C to 55 °C °C
Dimensions (W×H×D)	213 mm × 88 mm × 348 mm (without handle and bumpers) mm
Weight	6.4 kg kg
Cooling	Forced air

Core Performance

Number of Channels	2
Maximum Output Voltage	±210 V
Maximum Output Current (DC)	±3.03 A
Maximum Output Current (Pulsed)	±10.5 A
Maximum Output Power	31.8 W (per channel)

Source Capabilities

Source Voltage Programming Resolution	1 µV (on 200 mV range)
Source Current Programming Resolution	1 pA (on 100 nA range)
Voltage Source Ranges	200 mV, 2 V, 20 V, 200 V
Current Source Ranges	100 nA, 1 µA, 10 µA, 100 µA, 1 mA, 10 mA, 100 mA, 1 A, 1.5 A, 3 A

Measurement Capabilities

Measurement Resolution (Voltage)	100 nV (on 200 mV range)
Measurement Resolution (Current)	100 fA (on 100 nA range)
Voltage Measurement Ranges	200 mV, 2 V, 20 V, 200 V
Current Measurement Ranges	100 nA, 1 µA, 10 µA, 100 µA, 1 mA, 10 mA, 100 mA, 1 A, 1.5 A, 3 A
Measurement Digits	Up to 6.5 digits
Maximum Digitizing Rate	100,000 points/second (10 µs minimum sampling interval)

Pulse Mode

Minimum Programmable Pulse Width	50 µs

Connectivity

Sensing Connection	2-wire (local) or 4-wire (remote) Kelvin sensing
Digital I/O Port	14-pin configurable trigger/digital I/O
Front Panel Connectors	Banana jacks
LXI Compliance	LXI Core 2011 Device Specification

User Interface & System

Data Buffer Size	100,000 points (per channel)
Command Set Compatibility	SCPI (default), Keithley 2400 emulation mode
Warm-up Time	40 minutes

Physical & Environmental

Storage Temperature Range	-30 °C to 70 °C
Operating Humidity Range	30% to 80% RH (non-condensing)
Maximum Operating Altitude	2,000 m
Safety Standards Compliance	IEC61010-1, EN61010-1
EMC Compliance	EN61326-1, EN55011 Class A

Safety & Isolation

Maximum Voltage between LO and Chassis	±250 V DC

Source/Measurement Capabilities

Maximum Sweep Steps	100,000 points
Source Modes	DC, Pulsed, Sweep (Linear, Log, Double Linear, Double Log, List)

Performance

Basic Voltage Accuracy	±0.015%
Basic Current Accuracy	±0.02%

User Interface

Display Resolution	480 × 272 pixels

Performance & Guarding

Guard Offset Voltage	±4 mV
Maximum Guard Current	3 mA
Sense Input Impedance	> 10 GΩ
Maximum Force to Sense Voltage	±2 V

Measurement & Timing

Integration Time Range	0.01 to 100 PLC

Front Panel Features

USB Host Port	USB 2.0 Type A (Front Panel)

Rear Panel I/O

Interlock Connection	Dedicated 3-pin connector

Functionality

View Modes	Single View, Dual View, Graph View

TECHNOLOGY

Source/Measure Unit (SMU)

APPLICATIONS

Semiconductor testing, I-V characterization, active component evaluation, and precision power sourcing