

KEYSIGHT TECHNOLOGIES (AGILENT HP)

4156B

The Keysight Agilent 4156B is a Precision Semiconductor Parameter Analyzer designed for highly accurate device characterization. It features four built-in High-Resolution Source/Monitor Units (HRSMUs), two Voltage Source Units (VSUs), and two Voltage Monitor Units (VMUs), making it an industry-standard instrument for evaluating semiconductor device parameters down to fA and μV resolutions.

SPECIFICATIONS

General

Interfaces	GPIB (HP-IB), Parallel (Centronics), External I/O
Display	8.4-inch TFT color LCD
Recommended Calibration Cycle	1 year

Physical

Power Supply	90 V to 264 V AC, 47 Hz to 63 Hz, 450 VA maximum
Operating Temperature	10 to 40 °C °C
Dimensions (W×H×D)	426 mm × 235 mm × 524 mm mm
Weight	21 kg kg

SMU Performance

Number of SMUs	4
SMU Type	HRSMU (High-Resolution Source/Monitor Unit)
SMU Maximum Voltage Range	$\pm 100\text{ V}$
SMU Maximum Current Range	$\pm 100\text{ mA}$
SMU Current Measurement Resolution	1 fA
SMU Voltage Measurement Resolution	2 μV
SMU Voltage Output Ranges	2 V, 20 V, 100 V
SMU Current Output Ranges	10 pA, 100 pA, 1 nA, 10 nA, 100 nA, 1 μA , 10 μA , 100 μA , 1 mA, 10 mA, 100 mA

VSU Performance

Number of VSUs	2
VSU Output Voltage Range	$\pm 20\text{ V}$
VSU Output Voltage Resolution	20 mV
VSU Maximum Output Current	100 mA

VMU Performance

Number of VMUs	2
VMU Measurement Voltage Range	± 20 V
VMU Maximum Resolution	0.2 μ V
VMU Measurement Ranges	2 V, 20 V
VMU Input Impedance	≥ 10 G Ω

Measurement Capabilities

Measurement Sweep Modes	Linear, logarithmic, and feedback
Maximum Measurement Channels	8 (using 4 SMUs, 2 VSUs, 2 VMUs)
Maximum Sweep Points	1001
Maximum Sampling Points	10001
Minimum Sampling Interval	60 μ s

System and Hardware

Floppy Disk Drive	3.5-inch (1.44 MB and 720 KB formats)
Display Resolution	640 $\times$ 480 pixels
Compatible Expander Unit	Agilent 41501A or 41501B

General Specifications

Cooling Method	Forced air cooling with internal fan
Warm-up Time	40 minutes
Operating Humidity Range	20% to 70% RH (non-condensing)

Ground Unit (GNDU)

GNDU Maximum Sink Current	1.6 A
GNDU Output Voltage	0 V $\pm$ 100 μ V
GNDU Connector Type	Triaxial

High-Resolution SMU (HRSMU)

HRSMU Maximum Power	2 W
HRSMU Connector Type	Triaxial

Voltage Source Unit (VSU)

VSU Connector Type	BNC
--------------------	-----

Voltage Monitor Unit (VMU)

VMU Connector Type	BNC
VMU Differential Measurement Mode	Supported (using VMU1 and VMU2)

System & Control

Internal Controller	HP Instrument BASIC (IBASIC)
Hardcopy Output Formats	HP-GL, PCL, EPSON

Power

Line Voltage	90 V to 264 V (automatic selection)
Maximum Power Consumption	450 VA

Inputs & Outputs

Trigger I/O Ports	BNC (Trigger In, Trigger Out)
GPIB Ports Configuration	1x System Control, 1x External I/O
Interlock Connector	6-pin circular connector
R-Box Control Port	Dedicated connector for 16440A Selector or 16441A R-Box

Controller & Software

Built-in Programming Language	Instrument BASIC (IBASIC)
-------------------------------	---------------------------

Performance

Time Stamp Resolution	100 μ s
-----------------------	-------------

TECHNOLOGY

Semiconductor Parameter Analysis

APPLICATIONS

Semiconductor Device Characterization and Parametric Testing

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.