

**Aumictech**

Test & measurement · bought, sold, repaired, calibrated

Data Sheet

August 13, 2026

KEYSIGHT / AGILENT / HP

Keysight / Agilent / HP 4142B Modular DC Source / Monitor

HP Agilent 4142B Modular DC Source Monitor Mainframe The HP 4142B is an eight-slot modular DC source/monitor mainframe for high-throughput semiconductor DC test. Plug-in units include medium- and high-power SMUs, high-current unit, high-voltage unit, VS/VMU, and analog feedback unit. Force V/I while measuring down to 20 fA and 40 uV class resolution. HP-IB with program memory greater than 2000 commands and data memory of 4004 points. Wafer-level DC parametric test; MOSFET I-V and breakdown; bipolar hFE/Vth extraction; production SMU racks with 16088B switching and capacitance meters. The HP 4142B is an eight-slot modular DC source/monitor mainframe for high-throughput semiconductor DC test. Plug-in units include medium- and high-power SMUs, high-current unit, high-voltage unit, VS/VMU, and analog feedback unit. Force V/I while measuring down to 20 fA and 40 uV class resolution. HP-IB with program memory greater than 2000 commands and data memory of 4004 points. Wafer-level DC parametric test; MOSFET I-V and breakdown; bipolar hFE/Vth extraction; production SMU racks with 16088B switching and capacitance meters.



MODEL

**Keysight / Agilent /
HP 4142B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

4142B

LISTING

[https://aumictechlabs.c
om/products/4142b-2/](https://aumictechlabs.com/products/4142b-2/)

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight/Agilent/HP 4142B is a modular DC source/monitor mainframe engineered for precision voltage and current sourcing and measurement in semiconductor device characterization and integrated circuit testing. Its slot-configurable architecture accepts various source and monitor modules, enabling custom instrument configurations tailored to specific measurement requirements. Front panel controls and remote programming interfaces provide operational flexibility, while an integrated display delivers real-time parameter monitoring across all installed modules.

Technical Specifications

Mainframe Architecture: Modular chassis with configurable slot count for module installation

Voltage Output Range: Microvolts to tens of volts (module-dependent)

Current Output Range: Picoamperes to amperes (module-dependent)

Voltage Measurement Range: DC voltage measurement within specified range per installed module

Current Measurement Range: DC current measurement within specified range per installed module

Source Accuracy: High precision voltage and current sourcing with specified accuracy limits

Measurement Accuracy: Precision measurement of sourced or external signals

Measurement Resolution: High resolution detection of small signal variations

Four-Wire Sensing: Kelvin connection support for accurate low-resistance measurements

Output Stability: Low drift characteristics for consistent sourcing over time

Power Input: 100–240 VAC, 50/60 Hz

Isolation: Input/output isolation to prevent ground loops

Key Features

- Digital voltage and current level programming
- Integrated front panel display for direct parameter control and monitoring
- Internal bus architecture connecting mainframe to all installed modules
- Remote interface support via GPIB, LXI/LAN, and USB for external automation
- Four-wire (Kelvin) sensing for precision low-impedance measurements

Typical Applications

- Semiconductor device characterization
- Integrated circuit testing and parameter extraction
- Electronic component analysis and validation

Compatibility & Integration

Designed to accept Keysight/Agilent/HP 4142B series source and monitor modules. Compatible with Keysight PathWave, LabVIEW, and Python-based test automation platforms.

Features & description

From manufacturer datasheet

Features

- Eight slots any mix of 4142x plug-ins

4142B Characteristics / Specifications

PARAMETER	VALUE
Model	4142B
Manufacturer	Hewlett Packard / Agilent / Keysight
Instrument Type	Modular DC Source Monitor Mainframe
Family	4142B
Alias	4142B; HP 4142B; Agilent 4142B
Slot Count	8
Current Range System	plus or minus 20 fA to plus or minus 10 A (0.2 percent class with HCU)
Voltage Range System	plus or minus 40 uV to plus or minus 1000 V (0.05 percent class with HVU)
MPSMU 41421B	1 slot; plus or minus 100 V; plus or minus 100 mA
HPSMU 41420A	2 slots; plus or minus 200 V; plus or minus 1 A
HCU 41422A	high current to plus or minus 10 A
HVU 41423A	high voltage to plus or minus 1000 V
VSVMU 41424A	voltage source / voltage monitor
AFU 41425A	analog feedback unit
Data Memory	4004 measurement points
Program Memory	greater than 2000 commands typical
Source Or Measure Time	4 ms typical
Vth hFE Extract	12 ms typical
ForcelorVSMU	3.5 ms typical
MeasurelorVSMU	4.0 ms typical
Pulse Width	1 ms to 50 ms
Pulse Resolution	100 us
Interface	HP-IB
ASCII Transfer	1300 us per point class
Binary Transfer	450 us per point class

PARAMETER	VALUE
Warm Up	40 minutes (accuracy conditions)
Accuracy Temperature	23 C plus or minus 5 C with calibration enabled
Software	HP 4142B Instrument BASIC / 4155-class parametric environments
Max Mainframes Per 4142B SW	1
Max Units Supported	8 (16 VS/VMU channels)
Form	rack system mainframe
Status	HP 4142B EOL; B1500A isalater parametric successor class Notes Architecture and ranges from HP 4142B modular DC source/monitor data sheet. Installed plug-in mix sets the actual V/I envelope. Confirm SMU/HCU/HVU population and calibration enabled state.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

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Architecture and ranges from HP 4142B modular DC source/monitor data sheet. Installed plug-in mix sets the actual V/I envelope. Confirm SMU/HCU/HVU population and calibration enabled state.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.