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Data Sheet

August 15, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 41421B

HP Agilent 41421B Medium Power Source Monitor Unit 100 V / 100 mA The HP 41421B is the medium-power source/monitor unit (MPSMU) plug-in for the 4142B modular DC source/monitor. OEM 41421B literature and the 4142B service note identify 41421B as 100 V / 100 mA, 2 W maximum. It occupies one 4142B slot and forces/measures in V-source I-monitor or I-source V-monitor modes (constant or pulse), with compliance in the opposite domain. High-speed spot, analog search, and quasi-pulsed spot add V-V and I-I monitor modes. The HP 41421B is the medium-power source/monitor unit (MPSMU) plug-in for the 4142B modular DC source/monitor. OEM 41421B literature and the 4142B service note identify 41421B as 100 V / 100 mA, 2 W maximum. It occupies one 4142B slot and forces/measures in V-source I-monitor or I-source V-monitor modes (constant or pulse), with compliance in the opposite domain. High-speed spot, analog search, and quasi-pulsed spot add V-V and I-I monitor modes. Semiconductor DC parametric force/measure on the 4142B mainframe at up to 100 V or 100 mA.

**MODEL****Agilent / Keysight
41421B****CALIBRATION****Available on
request****CONDITION****Used****STATUS****In stock****RFQ / SKU****41421B****LISTING**<https://aumictechlabs.com/products/41421b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight/Agilent 41421B is a Source/Monitor Unit (SMU) plug-in module for the 4142B Modular DC Source/Monitor Mainframe. This single-slot module delivers precision voltage and current sourcing and monitoring across wide ranges, functioning as the equivalent of four

separate instruments. With measurement resolution down to 40 μV and 20 fA, the 41421B supports both constant and pulsed sourcing modes, Kelvin (remote sense) connections, and user-definable compliance limits. Operating within a 2 W maximum power budget, it is suited for semiconductor device characterization, component testing, and precision measurements in development and manufacturing environments.

Technical Specifications

Voltage Sourcing & Monitoring Range: $\pm 40 \mu\text{V}$ to $\pm 100 \text{ V}$ Measurement resolution: 40 μV

Current Sourcing & Monitoring Range: $\pm 20 \text{ fA}$ to $\pm 100 \text{ mA}$ Measurement resolution: 20 fA

Pulsed Measurement Capability Pulse width: 1 ms to 50 ms (100 μs resolution) Pulse period: 10 ms to 500 ms (100 μs resolution) Maximum duty cycle: 50%

Power Budget Maximum: 2 W

Compliance Settings 10 μA range: voltage compliance $\leq 2 \text{ V}$ 100 μA to 1 A range: voltage compliance $\leq 200 \text{ V}$

Key Features

Dual-mode operation: voltage source with current monitor, or current source with voltage monitor

Four-instrument equivalent functionality in a single module

Kelvin connection support for remote voltage sensing

Target compliance settling time: 12 ms (with HP 41425A AFU)

HP-IB (IEEE-488) programmable interface

Typical Applications

Semiconductor device characterization

Component parameter testing

Research and development measurements

Manufacturing test environments

Compatibility & Integration Designed exclusively for the Keysight/Agilent 4142B Modular DC Source/Monitor Mainframe. Occupies one mainframe slot and communicates via proprietary interface and HP-IB protocol.

41421B Characteristics / Specifications

PARAMETER	VALUE
Model	41421B
Instrument Type	Medium power SMU plug-in
Host Mainframe	4142B modular DC source/monitor
Slot Width	1 slot
Maximum Voltage	plus or minus 100 V
Maximum Current	plus or minus 100 mA
Maximum Power	2 W
Voltage Force Span	40 uV to 100 V (Axiom 41421B listing)
Current Force Span	20 fA to 100 mA (Axiom 41421B listing)
Range 2 V	plus or minus 100 mA
Range 20 V	plus or minus 100 mA
Range 40 V	plus or minus 50 mA
Range 100 V	plus or minus 20 mA
Current Ranges To 10 MA	plus or minus 100 V
Pulse Width	1 ms to 50 ms, 100 us resolution
Pulse Period	10 ms to 500 ms, 100 us resolution
Maximum Pulse Duty	50 percent
Force Modes	V sourceImonitor; I sourceVmonitor
Compliance	I compliance when forcing V; V compliance when forcing IManufacturer: HP Agilent Keysight
Form Factor	4142B plug-in SMU
Literature	41421B SMU 100 V/100 mA service note 41421B-01
Use Case	device I-V on 4142B
Related Hpsmu	41420A high-power SMU isadifferent 4142B module
Operating Temperature Class	4142B mainframe

PARAMETER	VALUE
Operating temperature	Class: 4142B mainframe

41421B Specifications

PARAMETER	VALUE
Applications	Semiconductor DC parametric force/measure on the 4142B mainframe at up to 100 V or 100 mA.
Key Features	One-slot MPSMU for 4142B
Constant and pulse force	Guarded Kelvin paths on 4142B
Technical Specifications	Model: 41421B

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	Class: 4142B mainframe
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Operating Temperature Class	4142B mainframe Notes From HP/Agilent 41421B MPSMU listings and 4142B 41421B-01 service note (100 V / 100 mA). Accuracy, resolution, and noise versus range are in the 4142B module specification tables.

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.

Specifications	
Technical Specifications	
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Range 20 V	plus or minus 100 mA
Range 40 V	plus or minus 50 mA
Range 100 V	plus or minus 20 mA
Current Ranges To 10 MA	plus or minus 100 V
Pulse Width	1 ms to 50 ms, 100 us resolution
Pulse Period	10 ms to 500 ms, 100 us resolution
Maximum Pulse Duty	50 percent
Force Modes	V source I monitor; I source V monitor
Compliance	I compliance when forcing V; V compliance when forcing I
Manufacturer	HP Agilent Keysight
Form Factor	4142B plug-in SMU
Literature	41421B SMU 100 V/100 mA service note 41421B-01
Use Case	device I-V on 4142B
Related Hpsmu	41420A high-power SMU is a different 4142B module
Operating Temperature Class	4142B mainframe
Specifications	

PARAMETER	VALUE
Model	41421B
Instrument Type	Medium power SMU plug-in
Host Mainframe	4142B modular DC source/monitor
Slot Width	1 slot
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Related Hpsmu	41420A high-power SMU isadifferent 4142B module
Operating Temperature Class	4142B mainframe

Notes

From HP/Agilent 41421B MPSMU listings and 4142B 41421B-01 service note (100 V / 100 mA). Accuracy, resolution, and noise versus range are in the 4142B module specification tables.

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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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.