

KEYSIGHT TECHNOLOGIES (AGILENT HP)

41422A

The Keysight (Agilent HP) 41422A is a High Current Source/Monitor Unit (HCSMU) module designed for use in the HP 4142B Modular DC Source/Monitor mainframe. This dual-slot module offers high-current force and measurement capabilities up to 1 A DC and up to 2 A in pulse mode, making it well-suited for high-power semiconductor device characterization.

SPECIFICATIONS

General

Interfaces	GPIB / HP-IB (via HP 4142B mainframe)
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Physical

Power Supply	Powered directly from HP 4142B mainframe backplane
Operating Temperature	5 °C to 40 °C °C
Weight	2.1 kg

Module Configuration

Module Type	High Current Source/Monitor Unit (HCSMU)
Mainframe Slot Requirements	2 slots (occupies 2 slots in HP 4142B mainframe)
Compatible Mainframe	HP 4142B Modular DC Source/Monitor

System and Channel Configuration

Output Channels	1 Channel
Sensing Modes	Kelvin Connection (4-wire Remote Sensing)
Output Terminals	Force (Triaxial), Sense (Triaxial), Common Force (Triaxial), Common Sense (Triaxial)

Voltage Source Specifications

Voltage Output Ranges	± 2 V, ± 10 V
Voltage Programming Resolution (2 V Range)	100 μ V
Voltage Programming Resolution (10 V Range)	500 μ V
Voltage Programming Accuracy (2 V Range)	$\pm(0.06\% + 400 \mu\text{V})$
Voltage Programming Accuracy (10 V Range)	$\pm(0.06\% + 2 \text{ mV})$
Voltage Compliance Range	100 μ V to 10 V

Current Source Specifications

Current Output Ranges (DC)	10 μ A, 100 μ A, 1 mA, 10 mA, 100 mA, 1 A
Current Output Ranges (Pulse)	10 μ A, 100 μ A, 1 mA, 10 mA, 100 mA, 1 A, 10 A
Current Programming Resolution (10 μ A Range)	1 nA
Current Programming Resolution (100 μ A Range)	10 nA
Current Programming Resolution (1 mA Range)	100 nA
Current Programming Resolution (10 mA Range)	1 μ A
Current Programming Resolution (100 mA Range)	10 μ A
Current Programming Resolution (1 A Range)	100 μ A
Current Programming Accuracy (10 μ A Range)	$\pm(0.2\% + 10 \text{ nA})$
Current Programming Accuracy (100 μ A Range)	$\pm(0.2\% + 100 \text{ nA})$
Current Programming Accuracy (1 mA Range)	$\pm(0.2\% + 1 \text{ } \mu\text{A})$
Current Programming Accuracy (10 mA Range)	$\pm(0.2\% + 10 \text{ } \mu\text{A})$
Current Programming Accuracy (100 mA Range)	$\pm(0.2\% + 100 \text{ } \mu\text{A})$
Current Programming Accuracy (1 A Range)	$\pm(0.4\% + 1 \text{ mA})$
Current Compliance Range (DC)	10 nA to 1 A
Current Compliance Range (Pulse)	10 nA to 10 A

Measurement Specifications

Voltage Measurement Ranges	2 V, 10 V
Voltage Measurement Resolution (2 V Range)	100 μ V
Voltage Measurement Resolution (10 V Range)	500 μ V
Voltage Measurement Accuracy (2 V Range)	$\pm(0.05\% + 200 \text{ } \mu\text{V})$
Voltage Measurement Accuracy (10 V Range)	$\pm(0.05\% + 1 \text{ mV})$
Current Measurement Ranges (DC)	10 mA, 100 mA, 1 A
Current Measurement Ranges (Pulse)	10 mA, 100 mA, 1 A, 10 A
Current Measurement Accuracy (10 mA Range)	$\pm(0.2\% + 5 \text{ } \mu\text{A})$
Current Measurement Accuracy (100 mA Range)	$\pm(0.2\% + 50 \text{ } \mu\text{A})$
Current Measurement Accuracy (1 A Range)	$\pm(0.4\% + 500 \text{ } \mu\text{A})$

Dynamic and Pulse Characteristics

Minimum Pulse Width	100 μ s
Maximum Pulse Width	10 ms

Output Capabilities

Maximum Peak Current	10 A (pulse mode only)
Maximum DC Current	1 A
Maximum Peak Power	100 W
Maximum DC Power	10 W
Maximum Output Voltage	10 V

Pulse Timing

Pulse Width Resolution	10 μ s
Pulse Period Range	1 ms to 100 ms
Pulse Period Resolution	100 μ s
Maximum Duty Cycle (10 A Range)	1%

Measurement Capabilities

Sensing Method	Kelvin (4-wire) connection
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Programming Accuracy

Current Programming Accuracy (10 A Pulse Range)	$\pm$ (0.4% of setting + 22 mA)
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Programming Resolution

Current Programming Resolution (10 A Pulse Range)	2 mA
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Measurement Accuracy

Current Measurement Accuracy (10 A Pulse Range)	$\pm$ (0.4% of reading + 17 mA)
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TECHNOLOGY

Modular Source Measure Unit (SMU)

APPLICATIONS

High-current semiconductor device testing and parameter analysis

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