

KEYSIGHT TECHNOLOGIES (AGILENT HP)

N3305A

The Keysight N3305A is a 500-watt DC electronic load module designed for use with the N3300A or N3301A mainframes. Operating with high accuracy and speed, it supports constant current, constant voltage, and constant resistance modes, making it ideal for testing power supplies, batteries, and power components. Occupying two slots in the mainframe, it handles up to 150 V and up to 60 A.

SPECIFICATIONS

General

Interfaces	GPIB, RS-232, 14-pin analog port (via N3300A/N3301A mainframe and rear connector)
Display	None (status indicators only; uses mainframe front panel display)
Maximum Input Isolation Voltage	150 VDC (input to chassis ground)

Physical

Power Supply	Powered by N3300A/N3301A mainframe backplane
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	115.5 mm x 172 mm x 461 mm mm
Mainframe Slot Occupancy	2 slots

Input Ratings

Maximum Input Power	500 W
Maximum Input Current	60 A
Maximum Input Voltage	150 V
Minimum Operating Voltage at Full Scale Current	1.2 V @ 60 A

Operating Ranges

Constant Current Low Range	0 to 6 A
Constant Current High Range	0 to 60 A
Constant Voltage Low Range	0 to 15 V
Constant Voltage High Range	0 to 150 V

Programming Accuracy

Constant Current Programming Accuracy (Low Range)	$\pm(0.1\% + 7.5 \text{ mA})$
Constant Current Programming Accuracy (High Range)	$\pm(0.1\% + 15 \text{ mA})$
Constant Voltage Programming Accuracy (Low Range)	$\pm(0.05\% + 10 \text{ mV})$
Constant Voltage Programming Accuracy (High Range)	$\pm(0.05\% + 40 \text{ mV})$

Programming Resolution

Constant Current Programming Resolution (Low Range)	1.5 mA
Constant Current Programming Resolution (High Range)	15 mA
Constant Voltage Programming Resolution (Low Range)	3.75 mV
Constant Voltage Programming Resolution (High Range)	37.5 mV

Readback Accuracy

Current Readback Accuracy (Low Range)	$\pm(0.08\% + 6.5 \text{ mA})$
Current Readback Accuracy (High Range)	$\pm(0.08\% + 15 \text{ mA})$
Voltage Readback Accuracy (Low Range)	$\pm(0.05\% + 10 \text{ mV})$
Voltage Readback Accuracy (High Range)	$\pm(0.05\% + 35 \text{ mV})$

Readback Resolution

Current Readback Resolution (Low Range)	0.18 mA
Current Readback Resolution (High Range)	1.8 mA
Voltage Readback Resolution (Low Range)	0.45 mV
Voltage Readback Resolution (High Range)	4.5 mV

Transient & Dynamic

Transient Frequency Range	0.25 Hz to 10 kHz
Transient Duty Cycle Range	3% to 97% (resolution 1%)

Environmental

Storage Temperature Range	-40 to 75 °C
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Constant Resistance

Constant Resistance Range 1	0.083 Ω to 2 Ω
Constant Resistance Range 2	1.5 Ω to 200 Ω
Constant Resistance Range 3	150 Ω to 10,000 Ω

Ripple and Noise

Current Ripple and Noise (rms)	6 mA
Current Ripple and Noise (peak-to-peak)	60 mA

Transient Slew Rate

Constant Current Slew Rate (Low Range)	2.6 mA/μs to 260 mA/μs
Constant Current Slew Rate (High Range)	26 mA/μs to 2.6 A/μs
Constant Current Slew Rate Programming Resolution (Low Range)	1.05 mA/μs
Constant Current Slew Rate Programming Resolution (High Range)	10.5 mA/μs

Analog Monitoring

Analog Current Monitor Output Range	0 to 10 V
Analog Voltage Monitor Output Range	0 to 10 V
Analog Current Monitor Accuracy	±(1.5% of full scale + 10 mV)
Analog Voltage Monitor Accuracy	±(1% of full scale + 10 mV)

Sensing

Maximum Voltage Drop per Load Lead	2 V
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Constant Resistance Mode

Constant Resistance Range 1 Programming Accuracy	±(1% + 8 mS) with ≥ 6 A input
Constant Resistance Range 2 Programming Accuracy	±(1% + 120 μS) with ≥ 0.6 A input
Constant Resistance Range 3 Programming Accuracy	±(1% + 15 μS) with ≥ 0.06 A input

Protection

Overvoltage Protection Threshold	170 V (nominal)
Overcurrent Protection Threshold (Low Range)	6.5 A (nominal)
Overcurrent Protection Threshold (High Range)	65 A (nominal)
Overpower Protection Threshold	520 W (nominal)
Overtemperature Protection	Yes
Maximum Reverse Current (Diode Clamp)	60 A

Input Characteristics

Input Resistance (With Input Off)	20 kΩ (typical)
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Temperature Coefficient

Voltage Temperature Coefficient	0.005% + 1.5 mV per °C
Current Temperature Coefficient (Low Range)	0.01% + 0.12 mA per °C
Current Temperature Coefficient (High Range)	0.01% + 1.2 mA per °C

Stability

Voltage 8-Hour Drift	0.012% + 1.5 mV
Current 8-Hour Drift (Low Range)	0.03% + 1 mA
Current 8-Hour Drift (High Range)	0.03% + 10 mA

Compliance & Certifications

Safety Compliance Standards	IEC 61010-1, EN 61010-1, CSA C22.2 No. 1010.1, UL 3111-1
EMC Compliance Standards	EN 55011, CISPR 11 (Group 1, Class A), EN 50082-1

Maintenance

Recommended Calibration Interval	12 months
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TECHNOLOGY

DC Electronic Load

APPLICATIONS

Power supply testing, battery testing, power component evaluation

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