KEYSIGHT TECHNOLOGIES (AGILENT HP)

N6766A

The Keysight N6766A is a 500W precision DC power module designed for the N6700 Low-Profile Modular Power System and N6705 DC Power Analyzer mainframes. It offers low-noise, precise control and measurement capability down to the microampere level, with dual-digitizers for simultaneous high-speed voltage and current digitization.

SPECIFICATIONS

General

Interfaces	USB, LAN, GPIB, LXI Class C (via mainframe)
Display	None (utilizes mainframe display)

Physical

Power Supply	Powered via N6700 or N6705 series mainframe
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	Double-wide module (occupies 2 mainframe slots) mm
Weight	1.4 kg kg

Output Ratings

Maximum Voltage Rating	60 V
Maximum Current Rating	17 A
Maximum Power Rating	500 W
Low Current Measurement Range	200 mA

Programming Accuracy

Voltage Programming Accuracy (High Range)	0.03% + 12 mV
Current Programming Accuracy (High Range)	0.075% + 4 mA
Voltage Programming Range	0 V to 61.2 V
Current Programming Range	0 A to 17.34 A

Readback Accuracy

Voltage Readback Resolution (High Range)	600 µV

Regulation

Load Regulation (Voltage)	2 mV
Load Regulation (Current)	5 mA
Line Regulation (Voltage)	1.2 mV
Line Regulation (Current)	2 mA

Ripple and Noise (PARD)

Constant Voltage Ripple and Noise (Peak-to-Peak)	6 mV
Constant Voltage Ripple and Noise (RMS)	1 mV
Constant Current Ripple and Noise (RMS)	4 mA

Measurement and Digitizing Capabilities

Digitizing Capabilities	Dual-digitizers for simultaneous V & I measurement
Microamp Measurement	Supported with optional hardware (Option 2UA)

Protection and Safety

Overvoltage Protection (OVP) Maximum Setting	66 V

Output Terminals and Interfacing

Remote Sensing Capability	Up to 1 V drop per load lead
Series and Parallel Operation	Direct parallel or straight series supported with identical modules; auto-series/parallel not supported

Physical and Environmental

Module Width	2 slots
Mainframe Compatibility	N6700 Modular Power System, N6705 DC Power Analyzer

Accuracy

Voltage Measurement Accuracy (High Range)	0.016% + 6 mV
Voltage Measurement Accuracy (Low Range, 5 V)	0.016% + 1.5 mV
Current Measurement Accuracy (High Range)	0.04% + 4.5 mA
Current Measurement Accuracy (Low Range, 200 mA)	0.03% + 15 µA
Voltage Programming Accuracy (Low Range, 5 V)	0.016% + 1.5 mV
Current Programming Accuracy (Low Range, 200 mA)	0.03% + 15 µA
Voltage Programming Temperature Coefficient	0.0016% + 150 µV per °C
Current Programming Temperature Coefficient (High Range)	0.004% + 15 µA per °C
Voltage Measurement Temperature Coefficient	0.0016% + 100 µV per °C
Current Measurement Temperature Coefficient (High Range)	0.004% + 12 µA per °C

Protection

Overvoltage Protection Accuracy	0.25% + 250 mV
Overvoltage Protection Response Time	< 30 µs

Outputs

Output Isolation (to chassis)	240 VDC

Performance

Command Processing Time	< 1 ms
Transient Response Time	< 100 µs (to recover to within 75 mV after 50% to 100% load change)
Maximum Voltage Drop Per Lead (Remote Sensing)	1 V
Up-programming Rise Time (Full Resistive Load)	< 1.5 ms
Down-programming Fall Time (Full Resistive Load)	< 1.5 ms

Accuracy & Temperature Coefficients

Voltage Programming Temperature Coefficient (Low Range, 5 V)	25 ppm/°C + 40 µV/°C
Current Programming Temperature Coefficient (Low Range, 200 mA)	40 ppm/°C + 3 µA/°C
Voltage Measurement Temperature Coefficient (Low Range, 5 V)	25 ppm/°C + 30 µV/°C
Current Measurement Temperature Coefficient (Low Range, 200 mA)	40 ppm/°C + 2.5 µA/°C

Resolution

Voltage Programming Resolution (Low Range, 5 V)	20 µV
Current Programming Resolution (Low Range, 200 mA)	1 µA

Output Isolation

Maximum Output Floating Voltage	±240 VDC (from chassis ground)

Features

Seamless Measurement Auto-Ranging	Yes
High-Speed Test Extensions (Option 054)	Standard
Arbitrary Waveform Generation (AWG)	Standard
List Mode	Standard (up to 512 points)

Environmental

Storage Temperature	-40 °C to 70 °C
Operating Altitude	Up to 2000 m
Operating Relative Humidity	Up to 95% (non-condensing) at up to 40 °C

TECHNOLOGY

Precision DC Power Supply Module

APPLICATIONS

Automated test systems (ATE) and benchtop device characterization