

KEYSIGHT TECHNOLOGIES (AGILENT HP)

60501B

The Keysight 60501B (formerly Agilent / HP) is a 150-watt DC electronic load module designed for use with the 6050A and 6051A DC electronic load mainframes. It is ideal for evaluating DC power sources and power components in research and development, production testing, and incoming inspection environments. The module offers versatile constant current, constant voltage, and constant resistance modes, as well as transient operation capabilities and analog voltage programming.

SPECIFICATIONS

General

Interfaces	GPIB (via mainframe)
Display	None (uses mainframe display)
Power Derating	Linearly from 150 W at 40 °C to 112.5 W at 55 °C

Physical

Power Supply	Powered by mainframe backplane
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	73 mm × 178 mm × 444 mm mm
Weight	3.2 kg

Input Ratings

Maximum Power	150 W
Maximum Input Voltage	60 V
Maximum Input Current	30 A
Minimum Operating Voltage	3 V (at full current)

Constant Current (CC) Mode

Constant Current Mode Ranges	0 to 3 A; 0 to 30 A
CC Low Range Max Value	3 A
CC High Range Max Value	30 A
CC Low Range Programming Accuracy	0.1% + 7.5 mA
CC High Range Programming Accuracy	0.15% + 45 mA
CC Low Range Programming Resolution	0.75 mA
CC High Range Programming Resolution	7.5 mA
CC Load Regulation	5 mA
CC Line Regulation	2 mA
CC Low Range Tempco	100 ppm/°C + 0.4 mA/°C
CC High Range Tempco	100 ppm/°C + 3 mA/°C

Constant Voltage (CV) Mode

Constant Voltage Mode Range	0 to 60 V
CV Programming Accuracy	0.1% + 40 mV
CV Programming Resolution	15 mV
CV Load Regulation	10 mV
CV Line Regulation	5 mV
CV Tempco	100 ppm/°C + 4 mV/°C

Constant Resistance (CR) Mode

Constant Resistance Mode Ranges	0.067 to 2 Ohms; 2 Ohms to 2 kOhms; 20 Ohms to 10 kOhms
CR Range 1 Min/Max Values	0.067 to 2 Ohms
CR Range 2 Min/Max Values	2 Ohms to 2 kOhms
CR Range 3 Min/Max Values	20 Ohms to 10 kOhms

Transient Operation

Transient Frequency Range	0.25 Hz to 10 kHz
Low Range Slew Rate	0.0008 A/μs to 0.08 A/μs
High Range Slew Rate	0.008 A/μs to 0.8 A/μs

Measurement Readback (Telemetry)

Voltage Readback Resolution (GPIB)	17 mV
Voltage Readback Resolution (Front Panel)	20 mV
Current Readback Resolution (GPIB)	9 mA
Current Readback Resolution (Front Panel)	10 mA
Voltage Readback Accuracy (GPIB)	0.05% + 45 mV
Voltage Readback Accuracy (Front Panel)	0.05% + 60 mV
Current Readback Accuracy (GPIB, 3 A Range)	0.07% + 4.5 mA
Current Readback Accuracy (GPIB, 30 A Range)	0.1% + 35 mA
Current Readback Accuracy (Front Panel, 3 A Range)	0.07% + 6 mA
Current Readback Accuracy (Front Panel, 30 A Range)	0.1% + 45 mA

Ripple and Noise (PARD)

Current Ripple and Noise (PARD, rms)	2 mA
Current Ripple and Noise (PARD, peak-to-peak)	20 mA

Protection Features

Over-Voltage Protection (OVP)	Yes
Over-Current Protection (OCP)	Yes
Over-Power Protection (OPP)	Yes
Over-Temperature Protection (OTP)	Yes
Reverse Polarity Protection	Yes (with reverse diode capability)

System Connectivity & Interfaces

Mainframe Compatibility	Keysight / Agilent / HP 6050A, 6051A
Module Slot Width Requirement	1 slot (single-width)

Environmental & Safety

Isolation Voltage (Input to Chassis)	±240 VDC
Storage Temperature Range	-40°C to +75°C

Analog Monitor and Programming

Current Monitor Output Range	0 to 10 V
Voltage Monitor Output Range	0 to 10 V
Current Monitor Accuracy	±(0.5% + 15 mV)
Voltage Monitor Accuracy	±(0.5% + 30 mV)
External CC Programming Input Range	0 to 10 V
External CV Programming Input Range	0 to 10 V
External CC Programming Accuracy	±(1.2% + 150 mA) on 30 A range, ±(1.2% + 15 mA) on 3 A range
External CV Programming Accuracy	±(0.8% + 120 mV)

Remote Sensing

Remote Sense Max Lead Drop	2 V per load lead
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Constant Resistance Mode Accuracy

CR Mode Range 1 Accuracy	±(3% + 0.01 S)
CR Mode Range 2 Accuracy	±(3% + 0.2 mS)
CR Mode Range 3 Accuracy	±(3% + 0.02 mS)

Transient Generator

Transient Generator Duty Cycle Range	3% to 97% (0.25 Hz - 1 kHz), 10% to 90% (1 kHz - 10 kHz), 20% to 80% (10 kHz - 20 kHz)
Transient Generator Duty Cycle Resolution	1%
Transient Generator Frequency Accuracy	3%

Performance

Minimum Voltage for Full Current	3.0 V at 30 A
Input Capacitance (nominal)	1.1 μ F
Input Resistance (disabled)	150 k Ω
Warm-up Time	30 minutes

Protections

OCP Programming Range	0.15 A to 31.5 A
OCP Programming Resolution	0.12 A
OCP Programming Accuracy	3% + 0.35 A
OPP Programming Range	1.5 W to 157.5 W
OPP Programming Resolution	0.6 W
OPP Programming Accuracy	3% + 2.5 W
OVP Programming Range	1 V to 65 V
OVP Programming Resolution	0.26 V
OVP Programming Accuracy	3% + 0.6 V

Constant Resistance Mode

CR Range 1 Programming Resolution (GPIB)	8 mS
CR Range 2 Programming Resolution (GPIB)	80 μ S
CR Range 3 Programming Resolution (GPIB)	1.6 μ S
CR Range 1 Programming Resolution (Front Panel)	40 mS
CR Range 2 Programming Resolution (Front Panel)	0.4 mS
CR Range 3 Programming Resolution (Front Panel)	8 μ S

TECHNOLOGY

DC Electronic Load Module

APPLICATIONS

Evaluation and testing of DC power sources, batteries, and electronic components

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