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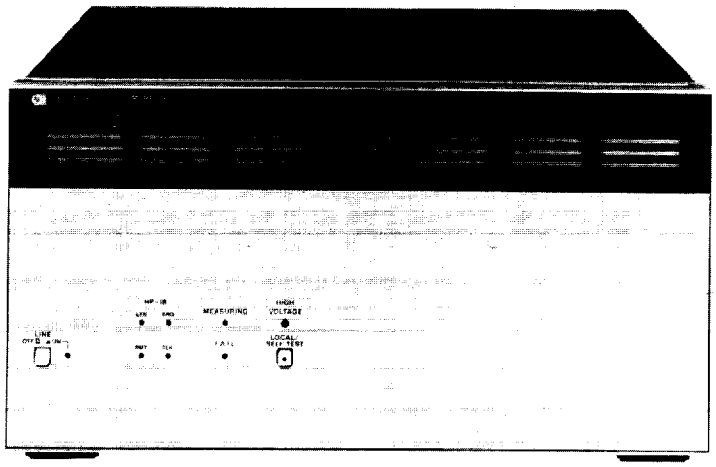
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- High speed measurements down to the pA range
- High reliability at low cost
- High accuracy and resolution
  V: ±100μV – ±100V, 0.1%
  I: ±50fA – ±100mA, 0.3%



HP 4141B

DESIGNED FOR HP-IB SYSTEMS

Description

The HP 4141B DC Source/Monitor is designed for use as a system component in user-designed semiconductor I-V or DC parametric test systems. With its wide DC measurement range, high resolution, high-speed measurement capabilities, remote sensing, and high accuracy, the HP 4141B will contribute towards quality improvement and increased measurement throughput in the lab or on the production line.

High Speed Measurements with High Resolution

Four source/monitor units (SMU's) coupled with two voltage-source units (Vs's), two voltage monitor units (Vm's), and one ground unit (GNDU) make the HP 4141B equivalent to twenty one instruments. A stand-alone instrument capable of measuring dc parameters, the HP 4141B features high resolution measurements (50fA/100μV) and a built-in timing controller. Typical time for a current or voltage measurement, which includes data transfer, is approximately 25ms. A swept measurement (51 points) takes approximately 490ms. High accuracy and high speed measurements, especially in the low current range, are exclusive features of the HP 4141B.

High Reliability

The HP 4141B's high reliability significantly simplifies maintenance and reduces maintenance costs. To reduce system down time, the HP 4141B is designed for on-site service. Performance verification and diagnostics software for user troubleshooting is also available.

Specifications

Measurement Unit

Source and monitor units (SMU): 4 channels (Kelvin connection) Each SMU can be programmed to source voltage and monitor current, or conversely to source current and monitor voltage.

SMU Range, Resolution and Accuracy

Voltage range	Resolution	Accuracy	Max. Current
±20V	1mV	0.1% + 0.05%	100mA
±40V	2mV		50mA
±100V	5mV		20mA
Current Range	Resolution	Accuracy	Max. Voltage
±100mA	100μA	0.3%+(0.1 + 0.2 x Vout*/100)%	20V (I > 50mA)
			40V (20mA < I ≤ 50mA)
±10mA	10μA		100V (I ≤ 20mA)
±1000μA	1μA		
±100μA	100nA		
±10μA	10nA		
±1000nA	1nA	0.5% + (0.1 + 0.2x Vout*/100)%	
±100nA	100pA		
±10nA	10pA	1% + (0.1 + 0.2x Vout*/100)% + 5pA	
±1000pA	1pA **		

*Vout is the SMU output voltage, in volts.
**Max. Measurement Resolution is 50fA.

1. Accuracy specifications are given as % of reading when measuring or % of setting when reading.
2. Accuracy tolerances are specified at 23°C ±5°C, after a 40-minute warm-up, with AUTO CAL on, and are specified at the rear panel connector terminals referenced to SMU common. Tolerances double for the extended temperature range of 10°C to 40°C.

Output/Measurement resolution: Voltage - 4½ digits
Current - 4 digits

Voltage source units (Vs): 2 channels

Voltage Range, Resolution, and Accuracy

Output voltage range	Resolution	Accuracy	Max. Current
±20V	1mV	0.5% of setting +10mV	10mA

Voltage monitor units(Vm): 2 channels

Voltage Range, Resolution and Accuracy

Measurement voltage range	Resolution	Accuracy
±2V	100μV	0.5% of reading + 10mV
±20V	1mV	0.2% of reading + 10mV

Ground Unit: 1 channel (kelvin connection)
Current range: ±500mA

General Specifications

Operating Temperature Range: +10°C to +40°C, ≤70%RH at 40°C. Permissible temperature change ≤1°C/5min, Maximum wet-bulb temperature is 29°C.
Power requirements: 100/120/220V±10%, 240V-10%+5%, 48 to 66Hz, 240/VA max.
Dimensions: Approximately 426mm (16.77in)W x 235mm (9.25in)H x 612mm (24.1in)D
Weight: Approximately 19kg (41.5 lbs)

Accessories Furnished

HP 04085-61651 Interconnect Cable Assembly
HP 04141-60001 Connector Plate
HP 04145-61630 BNC Cable (3m) 4ea.

Accessories Available	Price
HP 16058A Test Fixture	$2,770
HP 16059A Adapter (Using with 16058A)	$650

Ordering Information	Price
4141B DC Source/Monitor	$21,990
Opt.011: Extra SMU Board	$1,385
Opt.050/060: *50Hz/60Hz Line Frequency	N/C

*Must select Opt. 050 or 060 according to the power line frequency used.

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