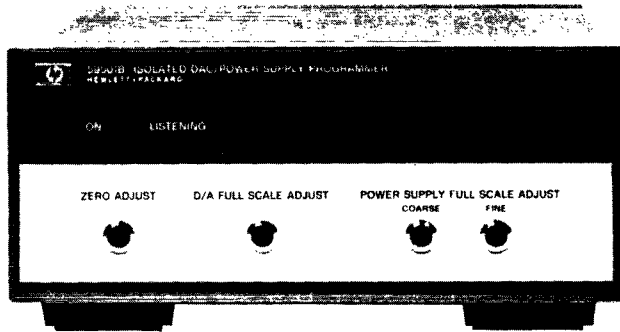


Digital Programmable: HP-IB Programmer

Model 59501B

- HP-IB power supply control
- HP-IB-to-power-supply isolation
- Programmable range



HP 59501B



Description

The HP 59501B is an isolated digital-to-analog converter designed to provide a convenient interface between the Hewlett-Packard Interface Bus and HP power supplies. With the HP 59501B, a wide range of dc voltages and currents becomes automatically controllable via the HP-IB. With proper wiring, the built-in isolation devices protect other instrumentation on the HP-IB from damage that could be caused by power supply outputs. In addition, an internal control circuit holds the output level near zero until programmed data is received. A programmable High/Low range control improves resolution by ten-to-one.

Power supply control is accomplished through the HP 59501B's programmable output voltage and programming network (see below). By making the appropriate connections between the 59501B's rear terminals and the remote programming terminals on the supply, the output voltage (or current) of the supply can be programmed from zero to its full rated output. The HP 59501B front panel controls provide fast and easy calibration of power supply outputs. The Zero Adjust enables the user to correct for small offsets in power supply response to programmed inputs. The Power Supply Full Scale Adjust (part of programming network) enables the user to set the maximum output desired from the power supply when the HP 59501B is programmed to its maximum value. For example, this adjustment would normally be used to calibrate the maximum programmable output of a 320Vdc power supply to 320 volts. However, it could also be used to set the maximum to 200 volts.

The HP 59501B also can be used directly as a low level dc signal source. Unipolar and bipolar output modes are available with output voltages programmable from zero to 9.99 volts, or minus 10.0 to plus 9.98 volts. Output current up to 10 milliamperes is available and is automatically limited to protect the HP 59501B and user equipment. The HP 59501B produces a full scale voltage change in approximately 250 μ s from the time the digital data is received.

- Programmable 10-volt dc output
- Unipolar/bipolar operation
- Fast digital to analog conversion

Specifications

Digital to Analog Converter

DC output voltage: programmable in high or low ranges within the voltage limits shown below. Output mode is unipolar or bipolar and is selected by a rear panel switch.

Unipolar: 0 to 9.99 V (low range, 0 to 0.999 V).

Bipolar: -10 to +9.98 V (low range, -1 to +0.998 V).

DC output current: 10 mA maximum.

PARD (ripple and noise): 2 mV rms/10 mV p-p.

Resolution: unipolar, 10 mV (low range, 1 mV). Bipolar, 20 mV (low range, 2 mV).

Accuracy: specified at 23°C \pm 5°C.

Unipolar: 0.1% +5 mV (low range, 0.1% +1 mV).

Bipolar: 0.1% +10 mV (low range, 0.1% +2 mV).

Stability: change in output over 8 hour interval under constant line, load, and ambient following a 30 minute warm-up. Stability is included in accuracy specification measurements over the temperature range indicated.

Unipolar: 0.04% + 0.5 mV (low range, 0.04% +0.1 mV).

Bipolar: 0.04% + 1 mV (low range, 0.04% +0.2 mV).

Temperature coefficient: unipolar, 0.01%/°C +0.5 mV/°C (low range, 0.1%/°C +0.1 mV/°C). Bipolar, 0.01%/°C +0.5 mV/°C (low range, 0.01%/°C +0.1 mV/°C).

Zero adjust: plus or minus 250 millivolts.

D/A full scale adjust: plus or minus 5%.

Programming speed: the time required for output to go from zero to 99% of programmed output change is 250 μ s (measured with resistive load connected to output terminals).

Power Supply Programming

Programming network specifications: in the following specifications, M represents the calibrated full scale value of the supply being programmed and P is the actual programmed output. The full scale value (M) can be any value within the supply's output range and is calibrated with the HP 59501B programmed to its maximum high range output.

Accuracy: specified at 23°C \pm 5°C.

Unipolar: 0.05% M +0.25% P (low range, 0.01% M + 0.25% P).

Bipolar: 0.1% M +0.25% P (low range, 0.02% M +0.25% P).

Isolation: 600 V dc between HP-IB data lines and output terminals.

Temperature coefficient: 0.005% M/°C + 0.015% P/°C (low range, 0.01% M/°C +0.015% P/°C).

Programming resolution: 0.1% M (low range, 0.01% M).

Programming speed: D/A programming speed plus the programming speed of the power supply.

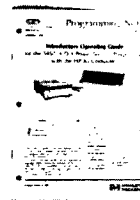
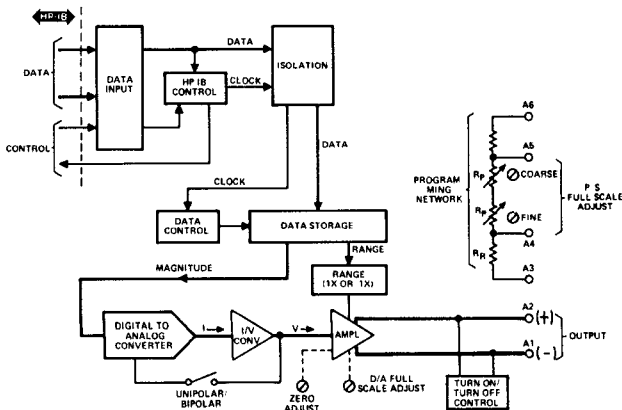
General

Temperature range: operation, 0 to 55°C; storage, -40 to 75°C.

Power: 100, 120, 220, or 240 Vac (+6% -13%) 47-63 Hz, 10 VA (selectable on rear panel).

Size: 101.6 H x 212.9 W x 294.6 mm D (4" x 8.38" x 11.6").

Weight: net, 1.82 kg (4 lb); shipping, 2.27 kg (5 lb).



Several programming notes are available to assist in operating the HP 59501B Power Supply Programmer with the HP desktop computers.

Accessories

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| HP 5060-0173: rack mounting adapter kit for one HP 59501B | Price \$68 |
| HP 5060-0174: rack mounting adapter kit to connect two HP 59501B's | \$70 |

Ordering Information

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|--|-------------|
| HP 59501B HP-IB Isolated D/A Power Supply Programmer | Price \$775 |
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