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Technical Reference



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Radio Frequency Interference Statement

Warning: The equipment described herein has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of the FCC rules. Only peripherals (computer input/output devices, terminals printers, etc.) certified to comply with the Class B limits may be attached to the computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception. If peripherals not offered by IBM are used with the equipment, it is suggested to use shielded grounded cables with in-line filters if necessary.

CAUTION

The product described herein is equipped with a grounded plug for the user's safety. It is to be used in conjunction with a properly grounded receptacle to avoid electrical shock.

SECTION 3. POWER SUPPLY

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Description

The system power supply is located at the right rear of the system unit. It is an integral part of the system-unit chassis. Its housing provides support for the rear panel, and its fan furnishes cooling for the whole system.

It supplies the power and reset signal necessary for the operation of the system board, installed options, and the keyboard. It also provides a switched ac socket for the IBM Monochrome Display and two separate connectors for power to the 5-1/4 inch diskette drives.

The two different power supplies available are designed for continuous operation at 63.5 Watts. They have a fused 120 Vac or 220/240 Vac input and provide four regulated dc output voltages: 7 A at +5 Vdc, 2 A at +12 Vdc, 0.3 A at -5 Vdc, and 0.25 A at -12 Vdc. These outputs are overvoltage, overcurrent, open-circuit, and short-circuit protected. If a dc overload or overvoltage condition occurs, all dc outputs are shut down as long as the condition exists.

The +12 Vdc and -12 Vdc power the EIA drivers and receivers on the asynchronous communications adapter. The +12 Vdc also powers the system's dynamic memory and the two internal 5-1/4 inch diskette drive motors. It is assumed that only one drive is active at a time. The +5 Vdc powers the logic on the system board and diskette drives and allows about 4 A of +5 Vdc for the adapters in the system-unit expansion slots. The -5 Vdc is for dynamic memory bias voltage; it tracks the +5 Vdc and +12 Vdc very quickly at power-on and has a longer decay on power-off than the +5 Vdc and +12 Vdc outputs. All four power supply dc voltages are bussed across each of the five system-unit expansion slots.

Input Requirements

The following are the input requirements for the system unit power supply.

Voltage (Vac)			Frequency (Hz)	Current (Amps)
Nominal	Minimum	Maximum	+ / - 3Hz	Maximum
120	104	127	60	2.5 at 104 Vac
220/240	180	259	50	1.0 at 180 Vac

Outputs

Vdc Output

The following are the dc outputs for the system unit power supply.

Voltage (Vdc)	Current (Amps)		Regulation (Tolerance)	
Nominal	Minimum	Maximum	+ %	- %
+ 5.0	2.3	7.0	5	4
- 5.0	0.0	0.3	10	8
+ 12.0	0.4	2.0	5	4
- 12.0	0.0	0.25	10	9

Vac Output

The power supply provides a filtered, fused, ac output that is switched on and off with the main power switch. The maximum current available at this output is 0.75 A. The receptacle provided at the rear of the power supply for this ac output is a nonstandard connector designed to be used only for the IBM Monochrome Display.

Overvoltage/Overcurrent Protection

The system power supply employs the protection features which are described below.

Primary (Input)

The following table describes the primary (input voltage) protection for the system-unit power supply.

Voltage (Nominal Vac)	Type Protection	Rating (Amps)
120	Fuse	2
220/240	Fuse	1

Secondary (Output)

On overvoltage, the power supply is designed to shut down all outputs when either the +5 Vdc or the +12 Vdc output exceeds 200% of its maximum rated voltage. On overcurrent, the supply will turn off if any output exceeds 130% of its nominal value.

Power Good Signal

When the power supply is turned on after it has been off for a minimum of 5 seconds, it generates a 'power good' signal that indicates there is adequate power for processing. When the four output voltages are above the minimum sense levels, as described below, the signal sequences to a TTL-compatible up level (2.4 Vdc to 5.5 Vdc), is capable of sourcing 60 μ A. When any of the four output voltages is below its minimum sense level or above its maximum sense level, the 'power good' signal will be TTL-compatible down level (0.0 Vdc to 0.4 Vdc) capable of supplying 500 μ A. The 'power good' signal has a turn-on delay of 100-ms after the output voltages have reached their respective minimum sense levels.

Output Voltage	Under-Voltage Nominal Sense Level	Over-Voltage Nominal Sense Level
+ 5 Vdc	+ 4.0 Vdc	+ 5.9 Vdc
- 5 Vdc	- 4.0 Vdc	- 5.9 Vdc
+ 12 Vdc	+ 9.6 Vdc	+ 14.2 Vdc
- 12 Vdc	- 9.6 Vdc	- 14.2 Vdc

Power Supply Connectors and Pin Assignments

The power connector on the system board is a 12-pin male connector that plugs into the power-supply connectors. The pin configuration and locations follow.

Power Supply and Connectors



