
Section 4. Power Supply

Description	4-3
Outputs	4-3
Power Controller Coordination	4-3
Output Protection	4-3
Voltage Sequencing	4-4
No-Load Operation	4-4
Auto Restart	4-4
Power Good Signal	4-4
Power Card Connectors	4-5
Power/Audio Cable Connector	4-6

Description

The power supply function is distributed among the elements of the system. The display regulates ac line voltage to a 30–40V dc bulk, which is input to the system and adapter card units. The system and adapter card units each contain power cards that regulate the bulk dc into the voltages required by the system logic.

The system and adapter card unit power controllers receive 30–40V dc input (36 V nominal) from the display, at 2.9A maximum. This voltage is supplied from the power/audio cable connector.

Outputs

The power supply provides three voltages: +5.1, +12, and -12V dc to the system unit and +5, +12, -5, and -12 to the I/O channel in the adapter card unit. "Adapter Card Channel" on page 2-5 provides additional information for voltage and power requirements.

Power Controller Coordination

In a system which has an adapter card unit, the system and adapter card unit power cards are linked by the open collector -FAULT signal (Active low). If either card experiences a fault condition (overcurrent, overvoltage), it latches its outputs off and asserts -FAULT, causing the other card to also latch off.

Output Protection

A short circuit placed on any dc output (between outputs or between an output and dc return) latches all dc outputs into a shut down state with no damage to the power supply.

If an overvoltage fault occurs (internal to the power supply), the supply latches all dc outputs into a shut down state with no damage to the power supply.

If either of these shut down states is entered, the power supply returns to normal operation only after the fault has been removed and the power switch has been turned off for at least three seconds.

Voltage Sequencing

At power-on, the output voltages track within 50 milliseconds of each other when measured at the 50% points.

No-Load Operation

The power supply is capable of operation with no load on the outputs. The outputs may regulate between the undervoltage and overvoltage limits.

Auto Restart

If the power supply outputs drop out of regulation due to an ac line outage, the power supply automatically restarts (generates output voltages) when ac power returns.

Power Good Signal

A power good signal indicates proper operation of the power supply and is active (high) during normal operation. The power good signal can sink 3 milliamps.

The power supply provides the power good signal to indicate proper operation of the power supply and to reset system logic. At power-on, this signal has a turn-on delay of at least 200 milliseconds but not greater than 600 milliseconds, after all voltages have reached minimum regulation levels. At power-off, this signal will go inactive within 100 milliseconds and be at a low level before the +5V dc output reaches the undervoltage sense level. If the power good signal goes inactive due to an ac line outage, it is regenerated as described above when ac power returns.

Power Card Connectors

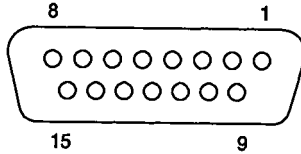
Figure 4-1 shows the signals and voltages assigned to the power card connectors.

Figure 4-1. Power Card Connectors

System Unit Power Card		Adapter Card Unit Power Card	
Pin	Signal	Pin	Signal
1	Ground	1	Ground
2	Ground	2	Ground
3	+36 V	3	-FAULT
4	+36 V	4	+36 V
5	-12 V	5	+36 V
6	Ground	6	Ground
7	+12 V	7	Ground
8	+12 V	8	+5REF
9	-FAULT	9	+5 V
10	Ground	10	+5 V
11	+5 V	11	+5 V
12	+5 V	12	+5 V
13	+5 V	13	+5 V
14	+5 V	14	-12 V
15	Ground	15	-5 V
16	Power Good	16	Power Good
17	Ground	17	Ground

Power/Audio Cable Connector

Figure 4-2 shows the signals and voltage assigned to the power/audio cable connector for the display.



Pin	Signal	Pin	Signal
1	+36 V	9	+36 V
2	+36 V	10	Ground
3	Ground	11	Ground
4	Reserved	12	Reserved
5	Reserved	13	Reserved
6	Audio	14	Ground
7	Ground	15	Ground
8	Audio		