

PXI™-1000B AC POWER SUPPLY SHUTTLE

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A Return Material Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before any equipment will be accepted for warranty work. National Instruments will pay the shipping costs of returning to the owner parts which are covered by warranty.

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For Your Safety



Caution Before undertaking any troubleshooting, maintenance, or exploratory procedure, carefully read the **Warning** and **Caution** notices throughout this document.

This equipment contains voltage hazardous to human life and safety, and can inflict personal injury.

- **Chassis Grounding**—The PXI-1000B AC power supply shuttle requires a connection from the premise wire safety ground to the PXI-1000B AC chassis ground. The earth safety ground must be connected during use of this equipment to minimize shock hazards. Refer to the [Connecting Safety Ground](#) section for instructions on connecting the safety ground.
- **Live Circuits**—Operating personnel and service personnel must not remove protective covers when operating or servicing the PXI-1000B AC power supply shuttle. Adjustments and service to internal components must be undertaken by qualified service technicians. During service of this product, the mains connector to the premise wiring must be disconnected. Dangerous voltages may be present under certain conditions; use extreme caution.
- **Explosive Atmosphere**—Do not operate the power supply shuttle in conditions where flammable gases are present. Under such conditions this equipment is unsafe and may ignite the gases or gas fumes.
- **Part Replacement**—Service this equipment only with parts that are exact replacements, both electrically and mechanically. Contact National Instruments for replacement part information. Installation of parts that are not direct replacements may cause harm to personnel operating the power supply shuttle. Furthermore, damage or fire may occur if replacement parts are unsuitable.
- **Modification**—Do not modify any part of the power supply shuttle from its original condition. Unsuitable modifications may result in safety hazards.

Getting Started

This section describes the key features of the PXI-1000B AC power supply shuttle and lists the contents of your kit.

Unpacking

Carefully inspect the shipping container and the power supply shuttle for damage. Check for visible damage to the metal work. Check to make sure all handles, hardware, and switches are undamaged. Inspect the power supply shuttle for any possible debris or detached components. If shipment appears to have caused damage, file a claim with the carrier. Retain the packing material for possible inspection and/or reshipment.

What You Need to Get Started

The PXI-1000B AC power supply shuttle kit contains the following items:

- PXI-1000B AC power supply shuttle assembly
- This installation guide

You must provide an AC power cable. See Table 1 for a list of cables.

Table 1. AC Power Cables

Power Cable	Reference Standards
Standard 120 V (USA)	ANSI C73.11/NEMA 5-15-P/IEC83
Switzerland 220 V	SEV
Australia 240 V	AS C112

Key Features

The PXI-1000B AC power supply shuttle combines a high-performance, high-output power supply and a structural design optimized for maximum usability in a wide range of applications. The power supply shuttle fully complies with the PXI Specification, Revision 1.0.

The key features of the PXI-1000B AC power supply shuttle include:

- 300 W of usable power
- Universal AC input: auto-voltage and auto-frequency ranging
- Over-current protection via push-reset circuit breaker (no loose fuses to replace)
- Remote power status and inhibit via a rear panel connector
- Selectable fan speed for maximum cooling or quiet operation

Figure 1 shows an isometric view of the PXI-1000B AC power supply shuttle. Figure 2 shows a rear view.

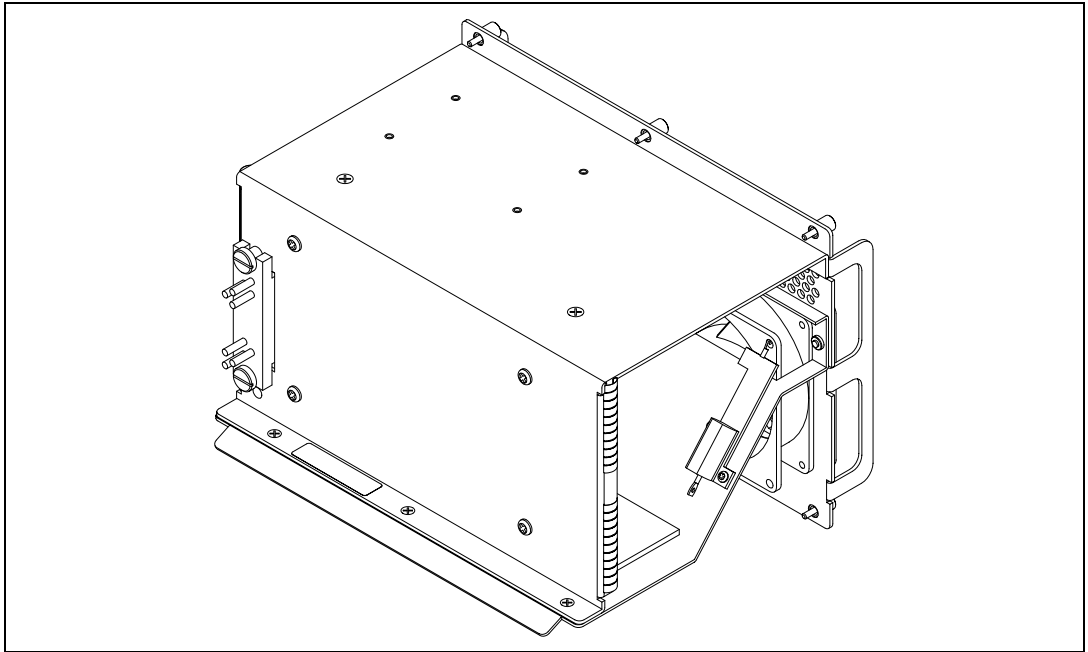
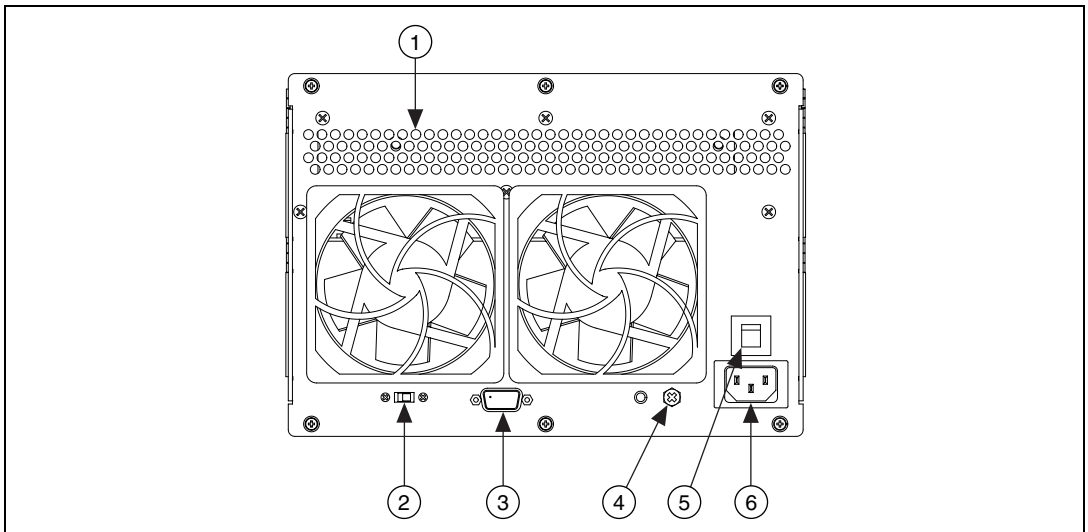


Figure 1. Isometric View of the PXI-1000B AC Power Supply Shuttle



- | | | |
|------------------------------|---------------------------------------------|----------------------|
| 1 Module Cooling Air Outlets | 3 Remote Power Status and Inhibit Connector | 5 Circuit Breaker |
| 2 Fan Speed Selector | 4 Chassis Ground Screw | 6 Universal AC Input |

Figure 2. Rear View of the PXI-1000B AC Power Supply Shuttle

Removal, Configuration, and Installation

This section describes how to remove, configure, and install your PXI-1000B AC power supply shuttle.

Before connecting the power supply shuttle to a power source, read this section and the *For Your Safety* section at the beginning of this document.

Removal

The PXI-1000B AC power supply shuttle is a replacement part for the PXI-1000B AC chassis. Before attempting to replace the power supply shuttle, verify that there is adequate clearance behind the chassis. Set the power switch on the front panel to the Standby position and disconnect the power cord from the power supply shuttle on the back of the chassis. Identify the six captive screws that attach the power supply shuttle to the chassis. Using a Phillips screwdriver, loosen the captive screws. Pull on the handles of the original power supply shuttle to remove it from the back of the chassis.

Configuration

The fan speed selector switch is on the rear panel of the power supply shuttle. See Figure 2 for the fan speed selector location. Select HI for maximum cooling effectiveness (recommended) or LO for quiet operation.

Installation

Ensure that there is no visible damage to the new power supply shuttle. Verify that the frame and connector on the new power supply shuttle have no foreign material inside. Install the new power supply shuttle into the opening on the rear of the chassis. Tighten the six captive screws with a Phillips screwdriver.

Connecting Safety Ground



Warning The PXI-1000B AC power supply shuttle is designed with a three-position NEMA 15-5 style plug that connects the ground line to the chassis ground. To minimize shock hazard, make sure your electrical power outlet has an appropriate earth safety ground that is connected whenever you power up the chassis.

If your power outlet does not have an appropriate ground connection, you must connect the premise wire safety ground to the chassis grounding screw on the rear panel. See Figure 2 for the chassis grounding screw location. To connect the safety ground, complete the following steps:

1. Connect a 16 AWG (1.3 mm) wire to the chassis grounding screw using a toothed grounding lug. This grounding wire must have green insulation with a yellow stripe or must be noninsulated (bare).
2. Attach the opposite end of the grounding wire to permanent earth ground using toothed washers or a toothed lug.

Connecting to Power Source and Testing Power Up



Caution Remove all PXI modules from the PXI-1000B chassis prior to performing the first power on test.

1. Attach the appropriate power cord to the rear AC inlet and an electrical power outlet.
2. The power switch turns on the chassis or places it in standby mode. Turn the power switch to the On position (if not already on). Observe that all fans become operational.
3. You can use a digital voltmeter to ensure all voltage levels in your PXI-1000B are within the allowable limits.



Caution When connecting digital voltmeter probes to the rear D-sub connector, be careful not to short the probe leads together. Doing so could damage the power supply.

Referring to Table 2, connect one lead of the voltmeter to a supply pin on the remote power monitoring connector (9-pin D-sub) on the rear panel. Refer to Table 3 for a pinout diagram of the remote power monitoring connector. Connect the reference lead of the voltmeter to one of the ground pins. Compare each voltage reading to the values listed in Table 2.



Note Use the rear-panel D-sub connector to check voltages only. Do not use the connector to supply power to external devices.

Table 2. Power Supply Voltages at Power Monitoring Connector (DB-9)

Pin	Supply	Acceptable Voltage Range
2	+5 V	4.75 to 5.25 V
4	+3.3 V	3.135 to 3.465 V
6	+12 V	11.4 to 12.6 V
8	12 V	12.6 to 11.4 V
1, 9	Logic Ground	N/A

If the voltages fall within the specified ranges, the chassis complies with the CompactPCI voltage limit specifications. Notice that the rear-panel D-sub connector is for checking voltages only. Do not use these voltages to supply power to external devices.

Remote Power Monitoring and Inhibiting Interface

The PXI-1000B AC power supply shuttle supports remote power monitoring and inhibiting via a 9-pin D-sub connector on the rear panel. Table 3 shows the pinout of the DB-9 connector.

Table 3. DB-9 Connector Pinout

DB-9 Pin	Signal
1	Logic Ground
2	+5 V
3	Inhibit Return (DC-capable supply only)
4	+3.3 V
5	Inhibit*
6	+12 V
7	Reserved
8	-12 V
9	Logic Ground

The diagram shows a trapezoidal 9-pin D-sub connector. The top row of pins is labeled 5, 4, 3, 2, 1 from left to right. The bottom row of pins is labeled 9, 8, 7, 6 from left to right.

You can use the Inhibit signal (active low) to turn off the power supply outputs. To use this feature, connect the Inhibit pin (pin 5) to a Logic Ground pin (pin 1 or 9) on the AC-only input power supply or Inhibit Return (pin 3) for the DC-capable power supply. Make sure the power (standby) switch is in the On position. As long as the connection is made, the power supply inhibits its DC outputs. DC output resumes when Inhibit is no longer connected. Note that the power (standby) switch on the front of the chassis uses this inhibiting feature. For remote reset, connect a momentary switch between pin 5 and pin 1 (or pin 9) on the AC-only input power supply or between pin 5 and pin 3 for the DC-capable power supply.

Maintenance

This section describes basic maintenance procedures you can perform on the PXI-1000B AC power supply shuttle.

Service Interval

Clean the fan filters at a maximum interval of six months. Depending on the amount of use and ambient dust levels in the operating environment, the filters may require more frequent cleaning.

Clean dust from the exterior (and interior) as needed, based on the operating environment. Periodic cleaning increases reliability.

Preparation

The information in this section is designed for use by qualified service personnel. Read the *For Your Safety* section at the beginning of this document before attempting any procedures in this section.



Caution Many components within the power supply shuttle are susceptible to static discharge damage. Service the power supply shuttle only in a static-free environment. Observe standard handling precautions for static-sensitive devices while servicing the power supply shuttle. Always wear a grounded wrist strap, or equivalent, while servicing the power supply shuttle.

Cleaning

Cleaning procedures consist of exterior cleaning of the power supply shuttle and cleaning the fan filters. Refer to your module user documentation for information on cleaning the individual CompactPCI or PXI modules.



Caution Always power-off the chassis and disconnect the power cord before cleaning or servicing the power supply shuttle.

Exterior Cleaning

Clean the exterior surfaces of the power supply shuttle with a dry lint-free cloth or a soft-bristle brush. If any dirt remains, wipe with a cloth moistened in a mild soap solution. Remove any soap residue by wiping with a cloth moistened with clear water. Do not use abrasive compounds on any part of the power supply shuttle.



Caution Avoid getting moisture inside the power supply shuttle during exterior cleaning. Use just enough moisture to dampen the cloth.

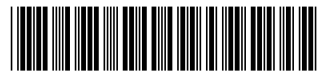
Do *not* wash the rear-panel connectors or switches. Cover these components while cleaning the power supply shuttle.

Do *not* use chemical cleaning agents; they may damage the power supply shuttle. Avoid chemicals that contain benzene, toluene, xylene, acetone, or similar solvents.

Cleaning the Fan Filters

You can easily remove the cooling filters from the rear of the power supply shuttle by removing the plastic housing attached to each fan.

Clean the fan filters by washing them in a mild soap solution and then drying them by vacuuming or blowing air through them. Rinse the filters with water and allow them to dry before reinstalling them on the power supply shuttle.



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