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USER GUIDE

NI PXIe-1085 Modular Power Supply

The NI PXIe-1085 modular power supply is a replacement part for the NI PXIe-1085 chassis.

Caution This power supply is not compatible with any other National Instruments chassis.

Introduction

To minimize downtime caused by a power-supply failure, the NI PXIe-1085 chassis has a modular power supply.

Unpacking

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

What You Need to Get Started

- ☐ NI PXIe-1085 chassis (the unit being repaired)
- ☐ NI PXIe-1085 power supply
- ☐ *Read Me First: Safety and Electromagnetic Compatibility*
- ☐ *NI PXIe-1085 User Manual* (available at `ni.com/support`)
- ☐ #2 Phillips screwdriver

NATIONAL INSTRUMENTS

Installation and Maintenance

The information in this section is for qualified service personnel only. Read the *Read Me First: Safety and Electromagnetic Compatibility* document included with your kit before using the power supply.

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

Caution Always disconnect the AC power cable before cleaning or servicing the chassis.

Caution Never connect the AC power cable to the power supply until you install it in a chassis. Do not use, test, or configure the power supply outside of a chassis.

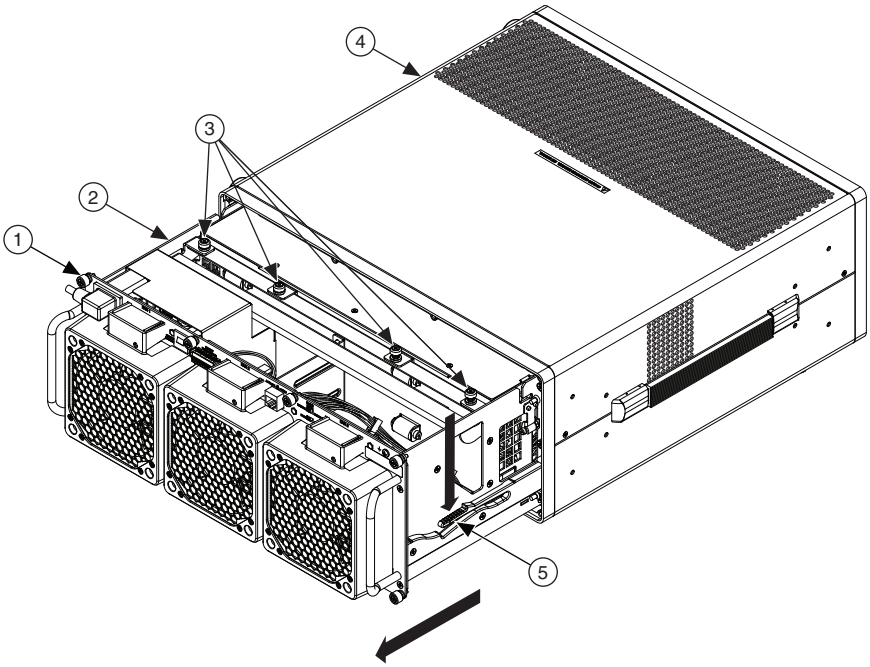
The power supply is a replacement part for the NI PXIe-1085 chassis. The *NI PXIe-1085 User Manual* contains all of the most up-to-date chassis service procedures, including removal and replacement of power supplies. The chassis includes a hardcopy of the user manual; additionally, you can download a softcopy from `ni.com/support`.

Removal

Before attempting to replace the power supply, verify that there is adequate clearance behind the chassis. Disconnect the power cable from the power supply on the back of the chassis. Identify the eight mounting screws for the NI PXIe-1085 that attach the power supply to the chassis. Using a Phillips screwdriver, remove the screws. Pull on the two rear handles of the power supply to remove it from the back of the chassis, as shown in Figure 1. About halfway through removing the shuttle, the rail safety catches engage to prevent the power supply from falling out. Press down on the rail safety catches to remove the power supply the rest of the way, as shown in Figure 1.

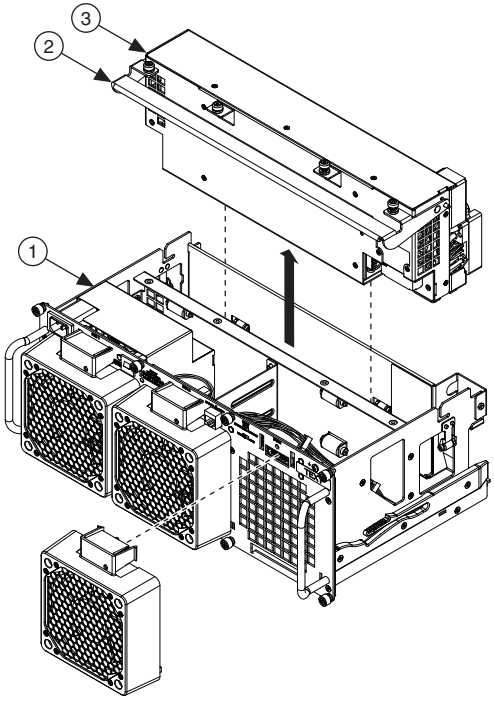
After removing the supply from the chassis, you can access the modular power supply. To remove the modular power supply, first loosen the four screws that retain it. Refer to Figure 1 for the screw locations. After loosening the screws, you can remove the modular power supply by rotating the handle away from the fans and pulling upward when it is in the upright position, as shown in Figure 2.

Figure 1. Removing Power Supply



1 Power Supply Mounting Screws (8x)
2 Power Supply
3 Modular Power Supply Screws (4x)
4 NI PXIe-1085 Chassis
5 Rail Safety Catch (Both Sides)

Figure 2. Removing Modular Power Supply from Power Supply



1	Power Supply	2	Modular Power Supply Handle	3	Modular Power Supply

Installation

Ensure that there is no visible damage to the new power supply assembly. Verify that the housing and connector on the new power supply assembly have no foreign material inside. Install the new power supply assembly into the opening in the power supply in the reverse order of removal. Replace and tighten the four screws with a Phillips screwdriver.

After installing the power supply assembly, slide the power supply into the opening in the rear of the chassis. Tighten the eight screws with a Phillips screwdriver.

Configuration

The fan-speed selector switch is on the rear panel of the power supply. Select **High** for maximum cooling performance (recommended) or **Auto** for quieter operation. Set the Inhibit Mode switch to the **Default** position.

Connecting Safety Ground

Caution The NI PXIe-1085 chassis are designed with a three-position NEMA 5-15 style plug for the U.S. that connects the ground line to the chassis ground. To minimize shock hazard, make sure the electrical power outlet you use to power the chassis has an appropriate earth safety ground.

If your power outlet does not have an appropriate ground connection, you *must* connect the premise safety ground to the chassis grounding screw located on the rear panel. 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 grounding lug. The wire must have green insulation with a yellow stripe or must be noninsulated (bare).
2. Attach the opposite end of the wire to permanent earth ground using toothed washers or a toothed lug.

Connecting to Power Source

Cautions Do *not* install modules prior to performing the following power-on test.

To completely remove power, you *must* disconnect the AC power cable.

Attach input power through the rear AC inlet using the appropriate AC power cable supplied.

The Inhibit Mode switch allows you to power on the chassis or place it in standby mode. Set the Inhibit Mode switch on the back of the chassis to the **Manual** position. Observe that all fans become operational and all three front panel LEDs are a steady green. Switching the Inhibit Mode switch to the **Default** position allows the system controller to control the power supply.

Specifications

Caution Specifications are subject to change without notice.

Electrical

AC Input

Input voltage range ..... 100 VAC to 240 VAC

Operating voltage range[1] ..... 90 VAC to 264 VAC

Input frequency ..... 50/60 Hz

Operating frequency range[1] ..... 47 Hz to 63 Hz

Input current rating ..... 12 A to 6 A

[1] The operating range is guaranteed by design.

Over-current protection.....15 A circuit breaker

Line regulation

3.3 V.....<±0.2%

5 V.....<±0.1%

±12 V .....<±0.1%

Efficiency.....70% typical

Power disconnect .....The AC power cable provides main power disconnect. Do not position the equipment so that it is difficult to disconnect the power cord. The front-panel power switch causes the internal chassis power supply to provide DC power to the CompactPCI/PXI Express backplane. You also can use the rear-panel 8-pin connector and inhibit mode switch to control the internal chassis power supply.

DC Output

DC current capacity (I_{MP})

Voltage	Maximum Current	
	NI PXIe-1085 12 GB/s	NI PXIe-1085 24 GB/s
+3.3 V	60 A	60 A
+5 V	45 A	49 A
+12 V	62 A	60 A
-12 V	4 A	4 A
5 VAUX	2 A	2 A

Notes Maximum total available power for the NI PXIe-1085 12 GB/s is 791 W.

Maximum total available power for the NI PXIe-1085 24 GB/s is 775 W.

Backplane slot current capacity

Slot	+5 V	V (I/O)	+3.3 V	+12 V	-12 V	5 VAUX
System Controller Slot	15 A	—	15 A	30 A	—	1 A
System Timing Slot	—	—	6 A	4 A	—	1 A
Hybrid Peripheral Slot with PXI-1 Peripheral	6 A	5 A	6 A	1 A	1 A	—
Hybrid Peripheral Slot with PXI-5 Peripheral	—	—	6 A	4 A	—	1 A
PXI-1 Peripheral Slot	6 A	11 A	6 A	1 A	1 A	—

Notes Total system slot current should not exceed 45 A.

PCI V(I/O) pins in PXI-1 peripheral slots and hybrid peripheral slots are connected to +5 V.

The maximum power dissipated in the system slot should not exceed 140 W.

The maximum power dissipated in a peripheral slot should not exceed 38.25 W.

Load regulation

Voltage	Load Regulation
+3.3 V	<5%
+12 V	<5%
+5 V	<5%
-12 V	<5%

Maximum ripple and noise (20 MHz bandwidth)

Voltage	Maximum Ripple and Noise
+3.3 V	50 mVpp
+12 V	50 mVpp
+5 V	50 mVpp
-12 V	50 mVpp

Over-current protection.....All outputs protected from short circuit and overload with automatic recovery

Over-voltage protection

3.3 V and 5 V.....Clamped at 20 to 30% above nominal output voltage

Power supply MTTR .....Replacement in under 5 minutes

Worldwide Support and Services

The NI website is your complete resource for technical support. At ni.com/support you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

Visit ni.com/services for NI Factory Installation Services, repairs, extended warranty, and other services.

Visit ni.com/register to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

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