

USER GUIDE

RMX-10050/10051

Power Distribution Units

Overview

The RMX-10050/10051 are a series of Power Distribution Units (PDUs) installed in integrated test equipment platforms. Each PDU receives mains power through an inlet, and distributes that power to various outlets. Some models may include an output sequencing feature, additional DC power outputs, or a remote EPO feature. All models are constructed of a steel chassis and designed for fixed mounting within an EIA-310 compliant rack enclosure.

There are two single-phase and two three-phase PDUs. The following tables provide environmental ratings and feature information.

Table 1. RMX-10050/10051 Environmental Ratings (All Models)

Category	Rating
Operational Maximum Altitude	3000 m
Operational Temperature Range	0 °C to 50 °C
Operational Humidity Range	5% to 85% relative humidity, noncondensing

Table 2. RMX PDU Family and Features

Product	Model	Part Number	Included Features
Single Phase PDU with DC Output	RMX-10050	(785341-01)	DC Output, Remote EPO, Sequencing
Single Phase PDU	RMX-10050	(785342-01)	Remote EPO
Three Phase PDU (Wye)	RMX-10051	(785344-01)	DC Output, Remote EPO, Sequencing
Three Phase PDU (Delta)	RMX-10051	(785343-01)	DC Output, Remote EPO, Sequencing

The AC output voltages provided by each PDU are based on the mains voltage and the specific configuration. AC output ratings are also affected by the specific configuration.

Table 3. RMX-10050/10051 Input and AC Output Ratings

Product	Mains Inlet Connector	Mains Inlet Rating	AC Output Ratings
RMX-10050 (785341-01) Single Phase with DC Output	IEC 60320 C20	100-240 V~ 2P3W 16A 50/60 Hz	C13: 100-240V~, 10 A max per receptacle Total AC output: 8.7 A max with DC fully loaded, 16 A max with DC disabled
RMX-10050 (785342-01) Single Phase	IEC 60320 C20	100-240 V~ 2P3W 16A 50/60 Hz	C13: 100-240V~, 10 A max per receptacle Total AC output: 16 A max
RMX-10051 (785344-01) Three Phase Wye 4P5W	IEC 60309 ABL Sursum S51S30	220/380- 240/415 V~ L-L 4P5W 16A 50/60 Hz	C13: 220-240 V~, 10 A max per receptacle C19: 220-240 V~, 16 A max per receptacle Total AC output Group J3: 16 A max Group J2: 16 A max Group J1: 12.7 A max with DC fully loaded, 16 A max with DC disabled
RMX-10051 (785343-01) Three Phase Delta 3P4W	IEC 60309 ABL Sursum S51S30	200-208 V~ L-L 3P4W 16A 50/60 Hz	C13: 200-208 V~, 10 A max per receptacle C19: 200-208 V~, 12.8 A max per receptacle Total AC output with balanced load Group J3: 9.2 A max Group J2: 9.2 A max Group J1: 5.6 A max with DC fully loaded, 9.2 A max with DC disabled



Note For the RMX-10051 (785344-01), the neutral pin in the inlet connector is not used.

When the DC output feature is included, it draws power from the AC mains, and affects the available AC Output power. DC output ratings are shown in the following table.

Table 4. RMX-10050/10051 Family DC Output Ratings

DC Channel	Power Capacity	Voltage	RMX-10050 (785341-01) Output Rating	RMX-10051 (785344-01) Output Rating	RMX-10051 (785343-01) Output Rating
DC1	125 W	12 VDC	10.4 A max	12.5 A max	12.5 A max
DC2	125 W	24 VDC	5.2 A max	6.25 A max	6.25 A max
DC3	125 W	24 VDC	5.2 A max	6.25 A max	6.25 A max
DC4	125 W	48 VDC	2.6 A max	3.13 A max	3.13 A max



Note All models, except the RMX-10050 (785342-01), include a DC output feature. The total DC Output is always limited to 500 W. This is divided evenly as 125 W per each of the four output channels.

Safety

- This product is intended for indoor use only and should not be exposed to excess moisture.
- This product is intended for installation in a restricted access location by a skilled person.
- This product is intended for use by an instructed person.
- This product is classified as pluggable equipment. The mains inlet plug serves as the disconnect device. The mains inlet plug shall be installed so that it is easily accessible.
- This product is equipped with a safety ground connection through the mains inlet plug, as well as a redundant chassis ground screw on the rear panel. Ensure that the product is properly grounded before applying power.
- Disconnect all power to the product prior to servicing.
- Do not open this product as it contains no user serviceable parts inside. All service concerns should be directed to National Instruments.
- The ratings for all output receptacles are marked on the top cover of the chassis. Be sure to observe the ratings for all connected load equipment.
- If this product is used in a manner which does not comply with this instruction manual, the protection provided by the equipment may be impaired.



Hot Surface Contact with the top cover of chassis may cause burns. Ensure the unit has cooled prior to handling.

Installation

Mounting

This product is designed for mounting in an EIA-310 compliant 19 in. rack. It includes adjustable rack ears for mounting in either a flush or recessed configuration. The user is responsible for ensuring the mounting method provides adequate structural support for the product and any attached cables. Ensure the product is securely mounted before applying power.

Ventilation

The user is responsible for ensuring the mounting location provides adequate ventilation to dissipate heat generated during operation of the product. Some models include an air intake on the front panel and an exhaust fan on the rear panel. Ensure no external equipment or cables restrict the airflow through the intake or exhaust ports.

Chassis Ground

The rear of the chassis includes a redundant chassis ground screw and ground wire. If desired for your installation location, connect the chassis ground wire to the rack cabinet using an appropriate fastener.

Main CB Off

Ensure the main CB on the front of the product is in the OFF position before connecting mains power.

Facility Power Source

The facility power source or upstream equipment feed for this product must include an overcurrent protective device with a maximum rating as shown in the following table.

Table 5. Required Facility or Equipment Overcurrent Protection

Model (Part Number)	Related Continuous Current	Required Mains Protection
RMX-10050 (785341-01, 785342-01)	16 A	20 A
RMX-10051 (785344-01)	16 A	20 A
RMX-10051 (785343-01)	16 A	20 A

Operation

1. Connect load equipment, making sure to observe the outlet ratings.
2. Turn on the main circuit breaker for the PDU.
3. Confirm that the main power indicator shows power is present.

Optional Features

Sequencing

The optional sequencing feature is used to support sequential power-up of the outlets. With this feature, the sequenced start up begins when the remote EPO interface is used to enable the PDU outputs. The specific start up sequence is defined in the following table.

Table 6. Sequencing Behavior

Model	Step	Timing	Outlets Controlled
RMX-10050 (785341-01)	1	Immediate	Group A, DC Outputs
	2	After two seconds	Group B
RMX-10051 (785344-01)	1	Immediate	J1, DC Outputs
	2	After two seconds	J2, J3
RMX-10051 (785343-01)	1	Immediate	J1, DC Outputs
	2	After two seconds	J2, J3

DC Output

The optional DC output feature provides four independent DC outputs via terminal blocks on the rear panel. The total DC output is always limited to 500 W. This is divided evenly as 125 W per each of the four output channels.

The ratings table in this manual describes the specific outputs and ratings for all models except the RMX-10050 (785342-01). The DC output feature also includes a DC inhibit connector which can be used to individually control each DC output channel. The connector mounted on the rear of the PDU is Molex 39-01-2126, and the mating connector is Molex 39-01-2125. The following table shows the DC Inhibit Connector Pinout.

Table 7. DC Inhibit Connector Pinout

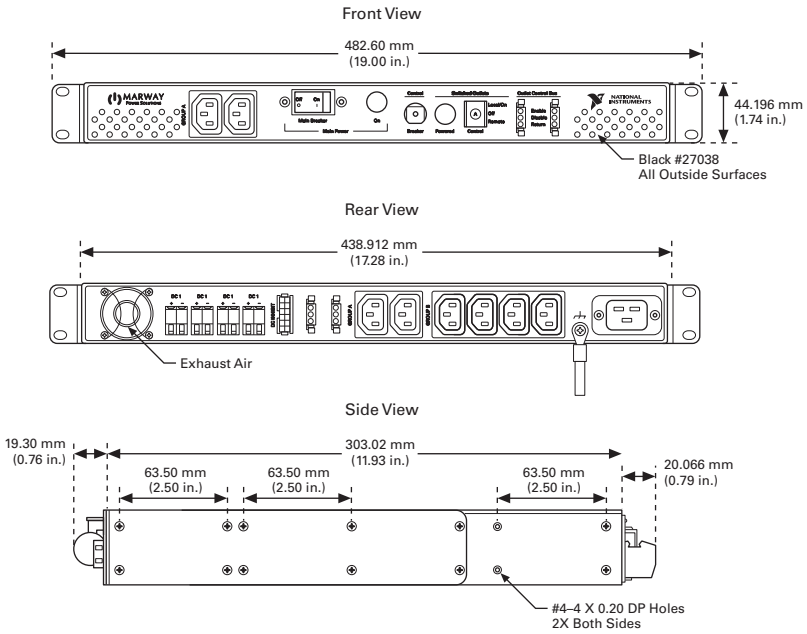
Pin	Name	Description
1	PG1	Power Good Channel 1
2	INH1	Inhibit Channel 1
3	PG2	Power Good Channel 2
4	INH2	Inhibit Channel 2
5	PG3	Power Good Channel 3
6	INH3	Inhibit Channel 3
7	PG4	Power Good Channel 4
8	INH4	Inhibit Channel 4
9	GINH	Global Inhibit
10	ACOK	AC ains signal
11	+5 V	Global 5 V bias
12	COM	Common

Remote-EPO

The optional Remote-EPO feature allows external control of all outlets. The toggle switch on the front panel selects the Remote-EPO mode.

- **OFF** will prevent all outlets from being powered.
- **LOCAL/ON** will enable power to all outlets, unless they are being disabled by the outlet control bus.
- **REMOTE** will place all outlets under the control of the outlet control bus. The outlet control bus includes three 3-pin connectors which are wired in parallel. This arrangement allows multiple PDUs to be connected in a daisy-chain configuration and controlled from a single control panel. The connectors mounted on the PDU are Amp/TE 1-480304-0, and the mating connector is Amp/TE 1-480305-0. The 3-pin connectors use two low-voltage signals as follows:
 - Shorting the ENABLE pin to the RETURN pin with a dry contact will trigger the Enable signal.
 - Opening the DISABLE pin from the RETURN pin will trigger the Disable signal. This signal is intended to be operated from a normally-closed contact on a control switch. Note that the DISABLE pin must be shorted to the RETURN pin to allow the switched outlets to operate, regardless of the toggle switch positions noted above.
 - Note that the Disable signal has priority, so that if both signals are triggered at the same time, the net result will be Disable.

Figure 1. RMX-10050 Dimensions



Note DC outputs and DC Inhibit Bus are not available on the RMX-10050 (785342-01).

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.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer's declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting ni.com/certification. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. NI also has offices located around the world. For telephone support in the United States, create your service request at ni.com/support or dial 1 866 ASK MYNI (275 6964). For telephone support outside the United States, visit the Worldwide Offices section of ni.com/niglobal to access the branch office websites, which provide up-to-date contact information, support phone numbers, email addresses, and current events.

Information is subject to change without notice. Refer to the *NI Trademarks and Logo Guidelines* at ni.com/trademarks for more information on NI trademarks. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering NI products/technology, refer to the appropriate location: **Help»Patents** in your software, the `patents.txt` file on your media, or the *National Instruments Patents Notice* at ni.com/patents. You can find information about end-user license agreements (EULAs) and third-party legal notices in the readme file for your NI product. Refer to the *Export Compliance Information* at ni.com/legal/export-compliance for the NI global trade compliance policy and how to obtain relevant HTS codes, ECCNs, and other import/export data. NI MAKES NO EXPRESS OR IMPLIED WARRANTIES AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL NOT BE LIABLE FOR ANY ERRORS. U.S. Government Customers: The data contained in this manual was developed at private expense and is subject to the applicable limited rights and restricted data rights as set forth in FAR 52.227-14, DFAR 252.227-7014, and DFAR 252.227-7015.

© 2017-2018 National Instruments. All rights reserved.