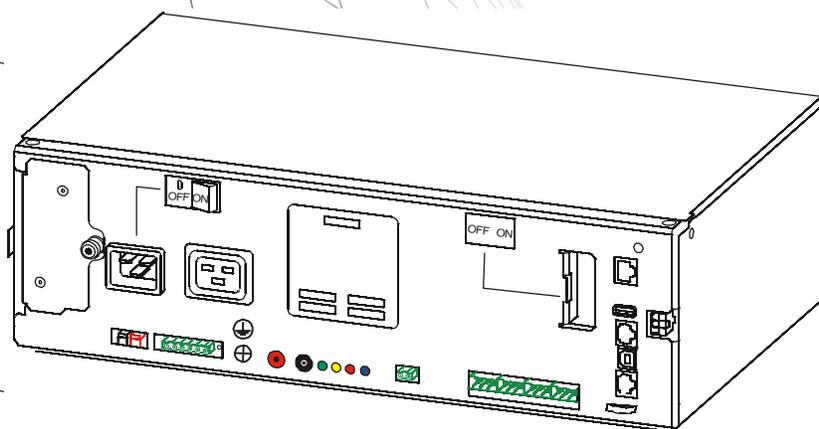![APC by Schneider Electric logo]

User Manual

SecureUPS On-Line Power Management Unit

Power Management Unit XP1K9NN42RCC

120 Vac
48 Vdc

Rack-Mount 3U

Important Safety Messages

SAVE THESE INSTRUCTIONS - This manual contains important instructions that should be followed during installation and maintenance of the Power Management Unit and batteries.

Read the instructions carefully. Become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this document or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning product safety label indicates that an electrical hazard exists that will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Product Handling Guidelines

| <18 kg <40 lb | 18-32 kg 40-70 lb | 32-55 kg 70-120 lb | >55 kg >120 lb | | |

Safety and General Information

Inspect the package contents upon receipt.
Notify the carrier and dealer if there is any damage.

- This equipment is for use in a restricted access location.
- Adhere to all national and local electrical codes.
- All wiring must be performed by a qualified electrician.
- Do not work alone under hazardous conditions.
- Install the unit in a non accessible, securely locked enclosure.
- **Changes and modifications to this unit not expressly approved by Schneider Electric could void the warranty.**
- Do not remove the covers. There are no serviceable internal parts.
- Do not operate this unit in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.
- The unit is capable of operating in environments up to 168º F, 74º C.
  When environmental conditions reach 158º F, 70º C the unit surfaces may be hot.
- Do not operate the unit with the fan assembly and filter not installed.
- Be sure the air vents on the unit are not blocked. Allow adequate space for proper ventilation.
- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.

Deenergizing safety

- The unit may present a shock hazard even when disconnected from AC and DC power.
- The AC and DC output connectors may be energized by remote or automatic control at any time.

Before installing or servicing the equipment check that the:
- Input circuit breaker and battery circuit breaker are in the **OFF** position.
- External batteries are disconnected.

Electrical safety

- Do not handle any metallic connector before power has been disconnected.
- Check that power cords, plugs, and receptacles are in good condition.
- The protective earth conductor for the unit carries the leakage current from the load devices (computer equipment). An insulated ground conductor is to be installed as part of the branch circuit that supplies the unit. The conductor must have the same size and insulation material as the grounded and ungrounded branch circuit supply conductors. The conductor will typically be green, with or without a yellow stripe.
- Leakage current for a pluggable, Type A unit may exceed 3.5 mA when a separate ground terminal is used.
- Connect the unit input ground conductor to the protective earth screw located on the front of the chassis.
- If the unit input power is supplied by a separately derived system, the ground conductor must be properly bonded at the supply transformer or motor generator set.

Battery safety

- The Power Management Unit utilizes external batteries. It is not necessary to ground the battery system. The user has the option of referencing the battery system to chassis ground at either a positive or negative battery terminal.
- When replacing batteries, replace with the same number and type.
- Batteries typically last for two to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life. Batteries should be replaced before end of life.
- Replace batteries immediately when the unit indicates battery replacement is necessary.
- Schneider Electric uses Maintenance-Free sealed Lead Acid batteries. Under normal use and handling, there is no contact with the internal components of the battery. Over charging, over heating or other misuse of batteries can result in a discharge of battery electrolyte. Released electrolyte is toxic and may be harmful to the skin and eyes.
- CAUTION: Before installing or replacing the batteries, remove jewelry such as wristwatches and rings.
  High short circuit current through conductive materials could cause severe burns.
- CAUTION: Do not dispose of batteries in a fire. The batteries may explode.
- CAUTION: Do not open or mutilate batteries. Released material is harmful to the skin and eyes and may be toxic.

General information

- The model and serial numbers are on a small label, located on the front panel.
  The model and serial numbers can be accessed using the Display interface.
- **Always recycle used batteries.**
- Recycle the package materials or save them for reuse.

Product Overview

The APC™ by Schneider Electric SecureUPS Power Management Unit (PMU) provides power conversion for connected equipment.

When used with external batteries the double conversion on-line topology of the PMU helps to protect connected electronics and low voltage LED signal lamps from utility power blackouts, brownouts, sags, surges, small utility power fluctuations and large disturbances.

The PMU helps to simplify cabinet design by conditioning major cabinet voltages including 48 Vdc, 24 Vdc and 120 Vac.

The PMU high power battery charger enables agencies to add batteries that will help protect connected equipment during prolonged utility power outages.

This user manual is available on the APC web site, www.apc.com.

Specifications

For additional specifications refer to the APC web site, **www.apc.com**.

PMU Environmental

Temperature	Operating	-37° C to 74° C (-34.6° F to 165° F)
	Storage	
Maximum Elevation	Operating	0 m - 3,000 m (0 ft - 10,000 ft)
	Storage	0 m - 15,000 m (0 ft - 50,000 ft)
Humidity	0% to 95% relative humidity, non-condensing	
Note: Charge the batteries every six months during storage. Environmental factors impact battery life. Elevated ambient temperatures, high humidity, poor quality mains power, and frequent short duration discharges will shorten battery life.		

PMU Physical

Unit weight without packaging	8.8 kg (19.4 lb)
Unit weight with packaging	12 kg (26.4 lb)
Unit dimensions without packaging Width x Depth x Height	435 mm x 261 mm x 130 mm (17.1 in x 10.3 in x 5.1 in)
Unit dimensions with packaging Width x Depth x Height	555 mm x 371 mm x 300 mm (21.9 in x 14.6 in x 11.8 in)

Specifications continued

PMU Electrical

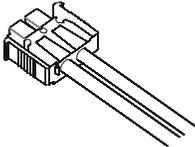| Input	
Nominal Input Voltage	120 Vac, Single Phase
Input Voltage Range	100% load = 88 Vac - 137 Vac ± 3 Vac
	50% load = 78 Vac - 137 Vac ± 3 Vac
Input Frequency	45 Hz - 65 Hz
Input Configuration	3 wire (line, neutral, ground)

Output	AC	DC
Output Topology	Double Conversion On-Line	High Frequency Switching
Nominal Output Voltage	120 Vac	48 Vdc, 24 Vdc
Output Power Rating	180 W, 200 VA	48 Vdc, 16 A 24 Vdc, 6 A
Output Voltage Regulation	± 2%	48 Vdc, ± 1 Vdc 24 Vdc, ± 2 Vdc
Output Frequency	50/60 Hz ± 3 Hz Free Running	N/A
Output Waveform	True Sine Wave	N/A

External Batteries

Battery type	Maintenance-Free sealed Lead Acid
Nominal Battery String Voltage	48 Vdc
Battery Charger	16 A maximum, derated for PMU temperature > 55º C (131º F) PMU adjusts charger current based on battery size and battery temperature.

PMU Package Contents

Inspect the contents upon receipt. Notify the carrier and dealer if the unit is damaged.

Flat Head Screws x6	Ornamental Screws x4	Rack-Mount Brackets 1 Pair
AC Input Power Cable	AC Output Power Cable	48 Vdc Output Cable Assembly
Cabinet Temperature Sensor	Relay Output Connector x4	24 Vdc, 48 Vdc Auxiliary Output Connector
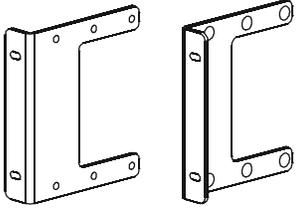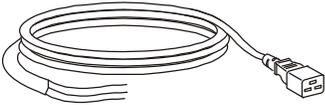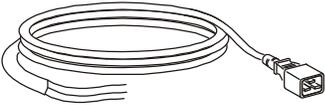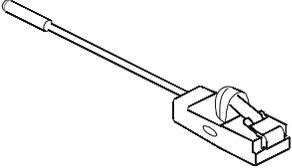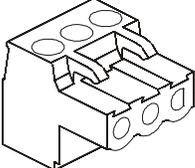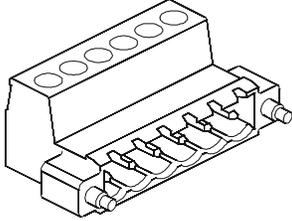
The PMU fan assembly and filter are factory installed.

These can be replaced in the field during normal PMU operation.

PMU Fan Assembly part number 0J-0N-96498A		PMU Filter part number 0J-875-2279B
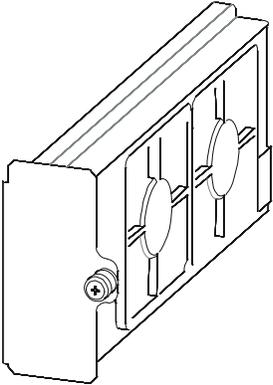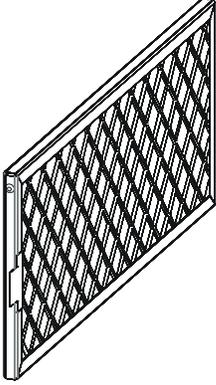
PMU Installation

PMU Rack-Mount Configurations

NOTICE
RISK OF FALLING EQUIPMENT
• Follow the installation instructions.
• Secure the rack-mount brackets to the unit using all of the screws supplied for this purpose.
• Secure the unit in the rack using all of the screws supplied for this purpose.
Failure to follow these instructions could result in equipment damage.

Option 1: Flush Rack-Mount Bracket Installation

PMU Rack-Mount Configurations continued

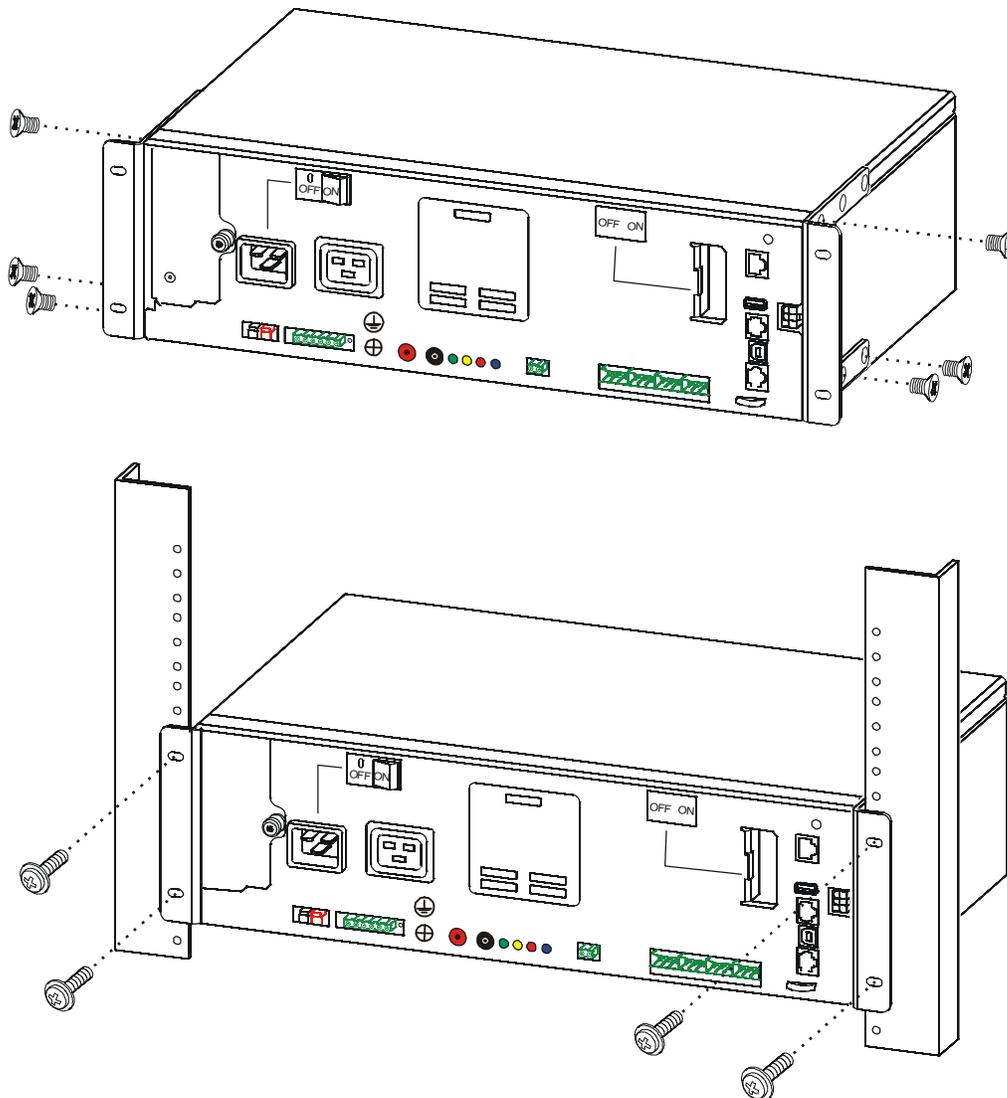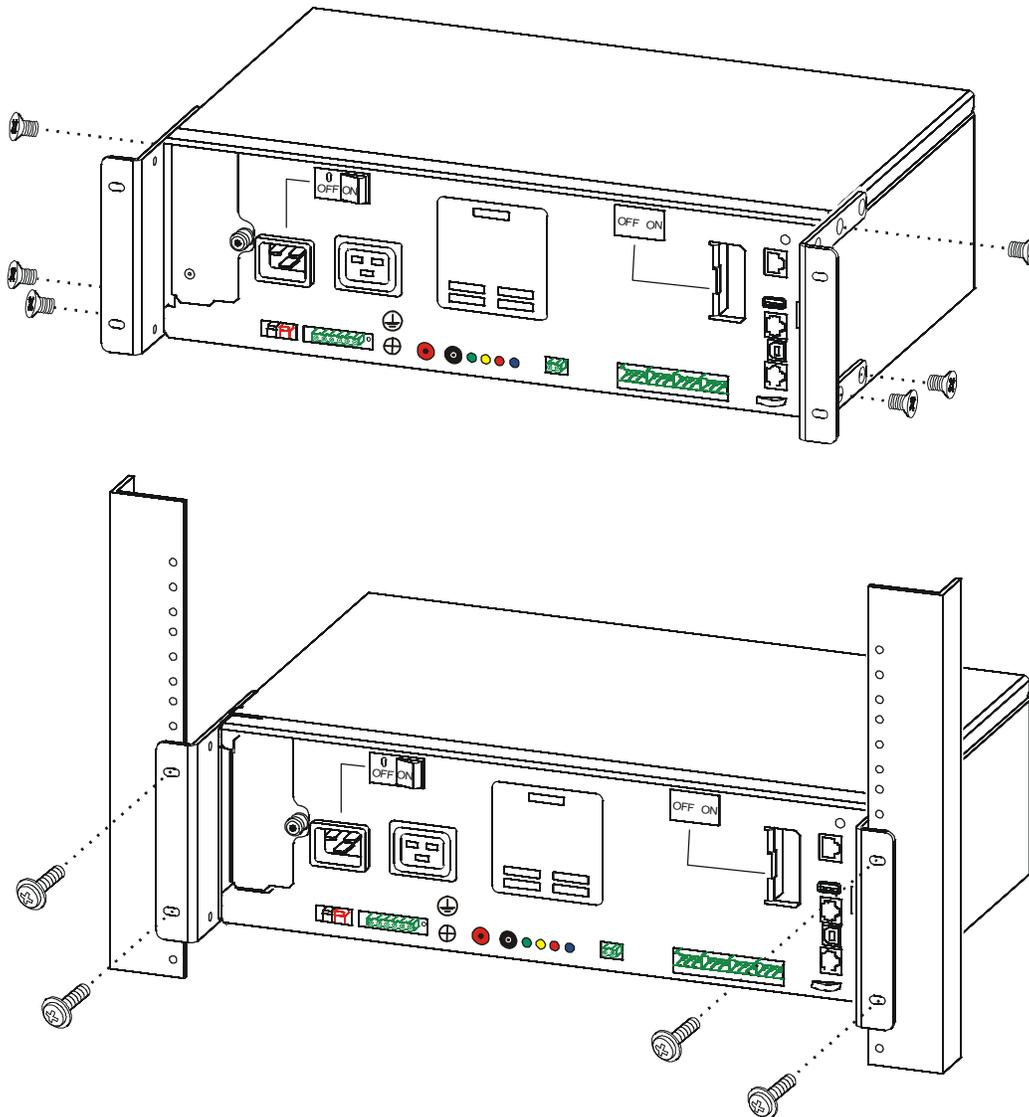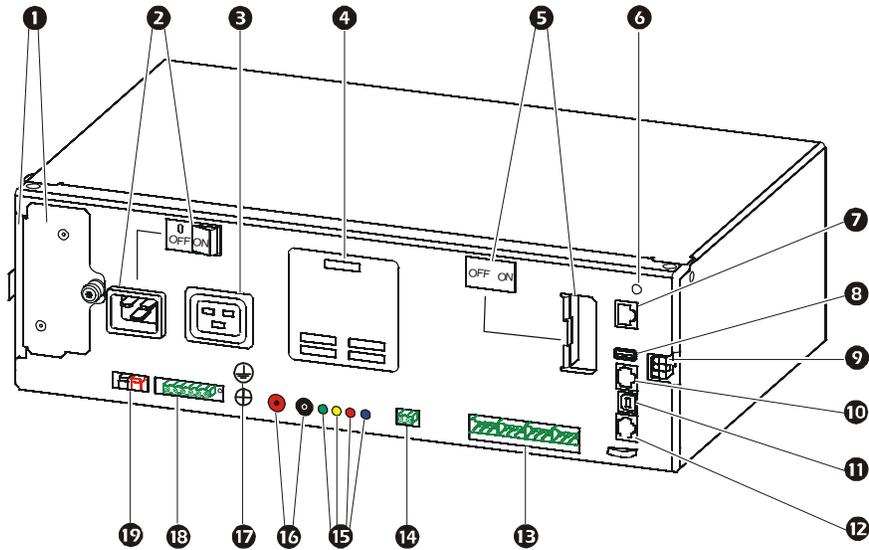| NOTICE |
|---|
| **RISK OF FALLING EQUIPMENT**
• Follow the installation instructions.
• Secure the rack-mount brackets to the unit using all of the screws supplied for this purpose.
• Secure the unit in the rack using all of the screws supplied for this purpose.
Failure to follow these instructions could result in equipment damage. |

Option 2: Recessed Rack-Mount Bracket Installation

PMU Front Panel Features

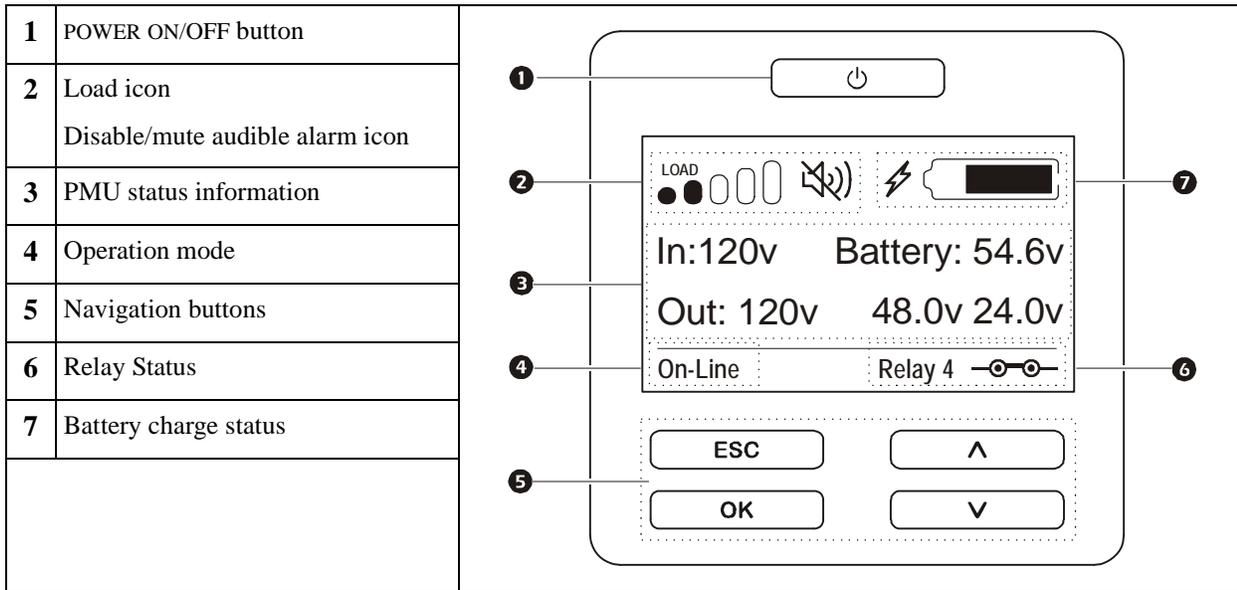|	Key To Identify Front Panel Features	
1	Replaceable Fan Assembly part number 0J-0N-96498A	The fan assembly and filter for the PMU can be replaced in the field during normal operation.
	Replaceable Filter part number 0J-875-2279B	The filter can be cleaned of dust by gently blowing air or vacuuming the filter.
2	AC Circuit Breaker	The external AC circuit breaker connects/disconnects AC power to the PMU.
	AC Input Connector	Use the supplied cable to connect the AC input to the service panel.
3	AC Output Connector	Use the supplied cable to connect the AC output to the load.
4	LCD	The LCD provides access to the interface menu screens.
5	External Battery Circuit Breaker	The external battery circuit breaker connects/disconnects battery power to the PMU.
	External Battery Connector	Use this connector when using optional external batteries. Connector with cable not supplied. Available as an accessory. 50 Ah cable accessory part number XH050DXXXA 102 Ah cable accessory part number XH102DXXXA
6	Reset Button	Use the reset button to restart the Network Management Interface. Note: A restart of the Network Management Interface does not affect PMU operation.
7	Ethernet Port	Use for PMU network communication.
8	USB Host Port	Connector for a USB flash drive.
9	Service Bypass Unit Connector	The connector provides control signals to the Service Bypass Unit (SBU).
10	External Temperature Sensor Port	Supplied temperature sensor. Temperature sensor is available as accessory part number AP9335T.
11	USB Device Port	USB port allows communication with the PMU and PMU firmware upgrades.
12	Serial Port	For factory use only.

		Key To Identify Front Panel Features
13	Relay Output Connector	Relays communicate PMU status to cabinet equipment. Relay status is available through the Status menu. Check national and local electrical codes to select proper wire gauge for rated output. Relay contacts support maximum voltage of 30 Vdc with a maximum current of 3 A. Mating connectors for relay output connectors are supplied with the PMU. **Pins one through three for each relay, from left to right:** Pin 1 - NO (Normally Open Contact) Pin 2 - C (Relay Common) Pin 3 - NC (Normally Closed Contact) **Associated trigger event:** Relay 1 - On Battery Relay 2 - Flash mode/Low Battery - Use the Status/PMU menus to program this relay. Relay 3 - PMU notification Relay 4 - Unit needs attention
14	Battery Temperature Sensor Connector	The sensor provides external battery temperature to the PMU. Sensor cable and mating connector are supplied with the battery harness kit.
15	Status LEDs	Green LED - Output ON Yellow LED - PMU notification Red LED - Unit needs attention Blue LED - Information
16	Battery Test Points	Black - Negative Red - Positive
17	Chassis Ground Connector	The external protective earth conductor must be installed before the PMU is turned on. The ground must be connected to the cabinet protective earth screw to provide maximum surge protection. Use an M5 lug.
18	Auxiliary DC Output Connector	The connector provides DC output power for cabinet equipment. 24 Vdc, 48Vdc Pin 1 - 48 Vdc Auxiliary Output Pin 2 - Not used Pin 3 - 48 Vdc Auxiliary Return Pin 4 - 24 Vdc Output Pin 5 - 24 Vdc Return Pin 6 - Chassis Ground Maximum current for 48 Vdc auxiliary output is 6 Amps. Maximum current for 24 Vdc output is 6 Amps. Check national and local electrical codes to properly select wire gauge for rated output. Mating connector is supplied with PMU.
19	High Current DC Output Connector	The connector provides high current 48 Vdc output power for cabinet equipment. **Note**: Total available PMU power for 48 Vdc is shared between high current DC output and 48 Vdc auxiliary output. Total maximum current for combined 48 Vdc output is 16 Amps. Mating connector and cable for high current DC output connector are supplied with PMU. Pin 1 - 48 Vdc Return Pin 2 - 48 Vdc Output

PMU LCD Interface

LCD layout

The icons on the LCD may vary depending on the installed firmware version.

1	POWER ON/OFF button
2	Load icon Disable/mute audible alarm icon
3	PMU status information
4	Operation mode
5	Navigation buttons
6	Relay Status
7	Battery charge status

LCD icon and button description

For detailed configuration information refer to "PMU Configuration" on page 18.

Icon or Button Illumination
Power ON/OFF Button

	Power ON/OFF button: The PMU turns on automatically when connected to AC power. Press and hold the ON/OFF button to turn the PMU off. **No Illumination: PMU and the output power are off.** **White Illumination: PMU and the output power are on.** **Red Illumination: PMU is on and the output power is off.**

Battery Icons

	Battery Charge Status: Indicates the battery charge status by showing the percentage of remaining battery capacity.
	Battery Charge In Progress: Indicates the battery is charging.

PMU Status

In:120v Battery: 54.6v Out: 120v 48.0v 24.0v	**PMU status information:** The current AC and DC input and output voltages are displayed.

Information Icons

LOAD ●●○○○	**Load icon:** The approximate load percentage is indicated by the number of load bar sections illuminated.
(mute icon)	**Mute icon:** Indicates the audible alarm is disabled/muted.

Operation Mode Information

On-Line	**On-Line mode:** The PMU is supplying conditioned AC and DC power to connected equipment.
Bypass	**Bypass mode:** When the PMU is in **Bypass** mode: • Connected equipment will receive AC mains power as long as the input voltage and frequency are within bypass limits. • Vdc output will receive DC power from the batteries.
Battery	**Battery mode:** The PMU is operating on battery power to provide AC and DC power to connected equipment.
Output Off	**Output Off mode:** AC and DC power output is off.
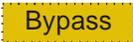
Relay Information

Relay	**Relay:** There are 4 relays that are selectable for UPS output control. The LCD will display the selected relay and current status.

Navigation Button Functions
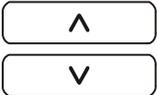
∧ ∨	Use the UP/DOWN buttons to scroll through the options.
ESC OK	Press the OK or ESC button to access configuration menus.
OK	Press the OK button to accept a selected option.
ESC	Press the ESC button to return to the previous menu.
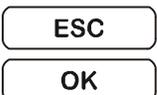
Connect PMU to Earth Ground

⚠ CAUTION
RISK OF ELECTRIC SHOCK
• Adhere to all national and local electrical codes.
• Wiring must be performed by a qualified electrician.
• Connect the external protective earth conductor before the PMU is turned on.
• Connect the PMU input ground conductor to the protective earth screw located on the front panel of the PMU chassis.
Failure to follow these instructions could result in minor or moderate injury.
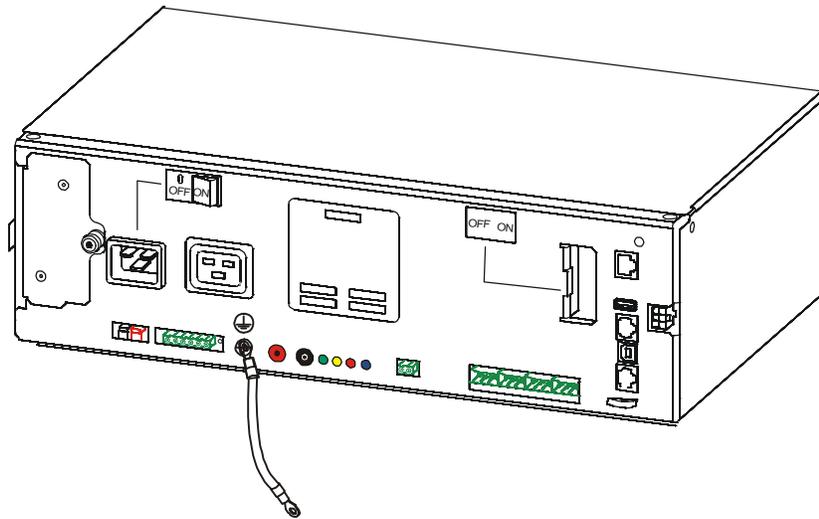
Install and Connect Optional Batteries

⚠ CAUTION

RISK OF ELECTRIC SHOCK

- Disconnect the cabinet circuit breaker before installing or servicing the PMU or connected equipment.

- Disconnect equipment from the PMU before servicing any equipment.

- Disconnect external batteries before installing or servicing the PMU or connected equipment.

- The PMU utilizes external batteries that may present a shock hazard even when disconnected from the AC power.

- The AC and DC output connectors may be energized by remote or automatic control at any time.

Failure to follow these instructions could result in minor or moderate injury.

> **NOTE:** The PMU batteries will charge to 90% capacity in the first 12 hours of normal operation. Do not expect full battery runtime capability during this initial charge period.

> **NOTE:** Before installing the batteries refer to the instructions in the Battery Installation Guide and the Optional Battery Harness Installation Guide.

Open the AC circuit breaker

Use a small screw driver to open the AC circuit breaker.
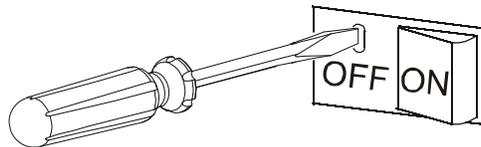
Filter and Fan Replacement and Care

Filter Replacement and Care

Cleaning intervals

Frequency for filter replacement is dependent on the application and environment where the PMU is installed.

The filter should be removed from the PMU for routine cleaning at least every 90 days. When the filter is removed for cleaning the condition of the filter should be checked. If there is visible wear or damage the filter should be replaced.
The filter replacement part number is listed in the Package Contents section of this manual.

Reinstall the filter immediately after cleaning.

Cleaning methods

There are several acceptable ways to clean the filter.

• Vacuum - A few passes of a vacuum cleaner will remove accumulated dust and dirt.
• Blow with air compressor exhaust- If an air compressor is used be sure to point only the exhaust end of the hose toward the filter.
• Cold water rinse - Use a standard hose nozzle with water to rinse away accumulated dust and dirt. Allow the filter to dry completely before reinstalling.
• Immerse in warm water - In the case where stubborn dirt has accumulated, the filter can be immersed in a solution of warm water and mild detergent. Thoroughly rinse the filter in cool water. Allow the filter to dry completely before reinstalling.

PMU Filter Replacement

Use the tab on the filter to pull the used filter out of the chassis.

Slide the replacement filter into the chassis.
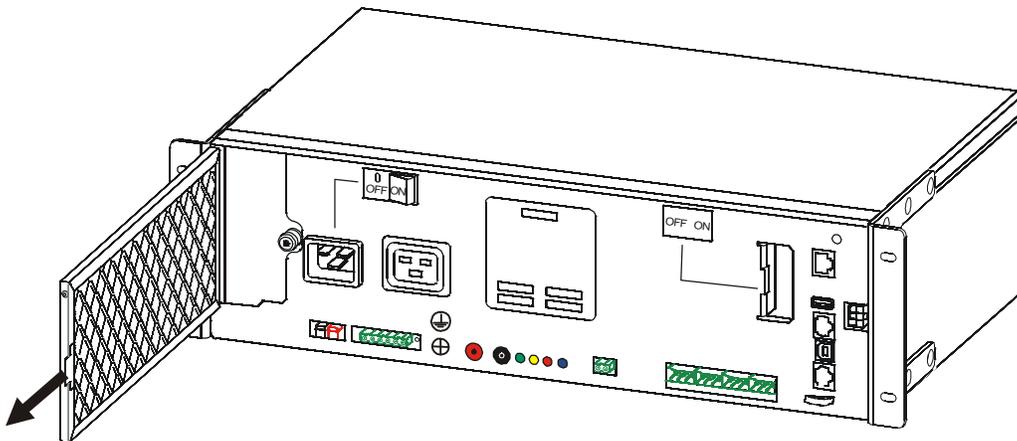
PMU Fan Assembly Replacement

Have the replacement fan assembly ready to install as soon as the original fan assembly is removed.

To remove the fan assembly use a Phillips head screwdriver to loosen the screw.
Use the screw as a handle and slide the fan assembly out of the chassis.

Slide the replacement fan assembly into the chassis. Tighten the screw. Use torque 10 in lb (1.1 Nm) maximum.
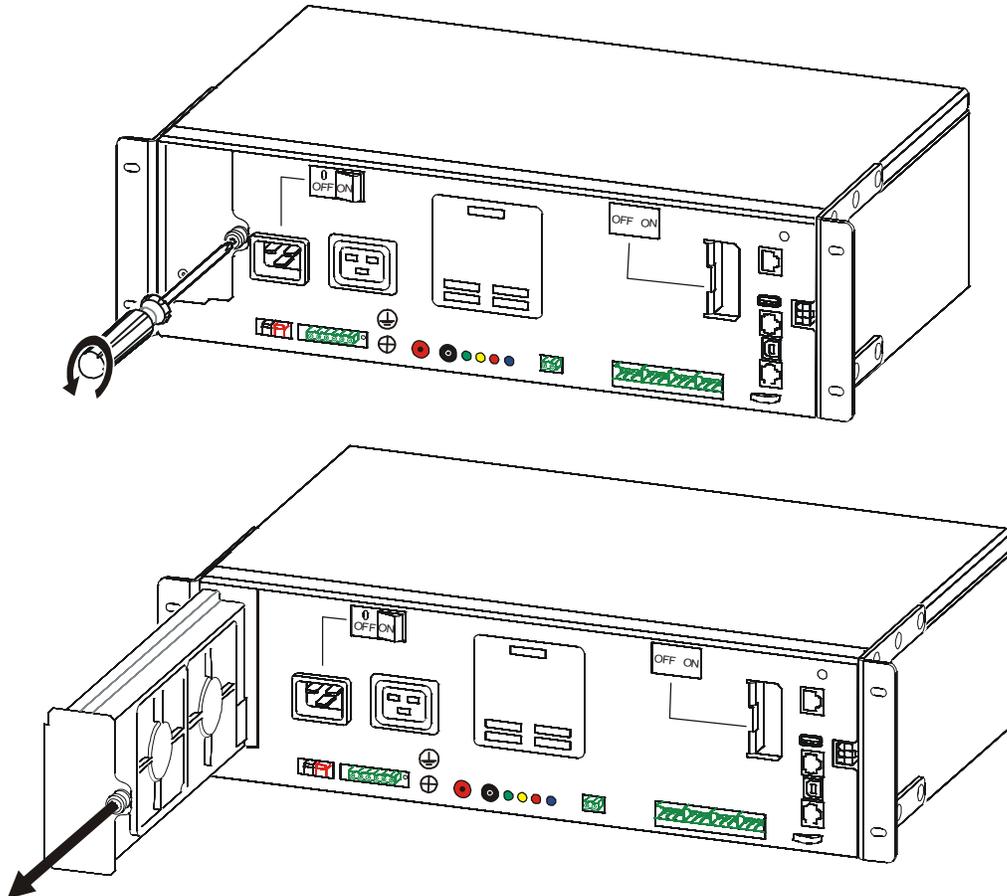
Connect Equipment

> ## ⚠ CAUTION
>
> **RISK OF ELECTRIC SHOCK**
>
> - Disconnect the cabinet circuit breaker before installing or servicing the PMU or connected equipment.
> - Disconnect equipment from the PMU before servicing any equipment.
> - Disconnect external batteries before installing or servicing the PMU or connected equipment.
> - The PMU utilizes external batteries that may present a shock hazard even when disconnected from the mains.
> - The PMU AC and DC output connectors may be energized by remote or automatic control at any time.
>
> **Failure to follow these instructions could result in minor or moderate injury.**

1. Connect equipment to the PMU
2. Connect the PMU to cabinet utility power.
3. Close the AC and battery circuit breakers.

Menu Overview

Main Menu
- Status
- Control
- Configuration
- Test And Diagnostics
- Log
- About

Status

Control

PMU Control
- No Action
- Turn Off/On Immediately
- Clear Alarms
- *Options displayed based on PMU state*

PMU
- Output AC
- Output DC1 (48V)
- Output DC2 (24V)
- Input AC
- Battery Charge, Runtime
- Battery Temperature, Voltage
- Relay Status 1 & 2
- Relay Status 3 & 4
- Self Test Status
- Runtime Test Status
- External Probe Temperature

Config Menu
- PMU
- Communication
- Display

PMU
- Self Test Schedule
- Battery Signal Flash Voltage
- Battery Capacity
- Battery Temperature Compensation
- Battery Install Date
- Replacement Notification Time
- Battery Replacement Alarm Reminder Time
- Default Setting

Network
- IP Address Mode
- IPv4 Address

LCD Display
- LCD Setting
- LCD Backlight
- Audible Alarm

Test and Diagnostics Menu
- Self Test
- Runtime Test
- Alarm and Relay Test
- Fan Test
- Bypass Test

Event

Event Log

About

PMU
- Part Number
- Serial Number
- Manufacture Date
- Firmware Revision
- PMU Time
- Agency Serial Number

Battery
- Install Date and Suggested Replace Date

Network*
- MAC Address*
- IP Address*
- Firmware Version*
- Serial Number

QR code for user documentation access

PMU Operation

Turn Power Management Unit ON/OFF

The PMU turns on when it is connected to AC power.

To turn off the PMU press and hold the ON/OFF button on the LCD.

PMU Configuration

The PMU must be turned ON before the unit can be configured.

Configure these settings at any time, using the Power Management Unit LCD, or the Network Management web interface. Follow the prompts by using the OK button and the up/down arrow buttons.

	Parameters	Default Value	Options	Description
Config Menu **PMU**	**Self Test Schedule**	Startup + every 14 days after last test	**Never**-no automatic Self Test will be performed. **On Startup**-a Self Test is performed when the unit is turned on. **Startup + 7 days**-a Self Test is performed when the unit is turned on, and every 7 days after the last test. **Startup + 14 days**-a Self Test is performed when the unit is turned on, and every 14 days after the last test.	The PMU performs a 20 second battery test to check the health of the system. This is the interval at which the PMU will execute a Self Test.
	Signal Flash Voltage	45 Vdc	43 Vdc - 48 Vdc	Select the voltage at which relay 2 will close, to trigger signal flash voltage during battery discharge.
	Battery Capacity	40 Ah	0 Ah - 200 Ah	Total amp hour rating for 48 Vdc battery string. If no batteries are installed, to avoid the battery disconnected message program this field to 00.

	Parameters	Default Value	Options	Description
Config Menu **PMU**	**Battery Temperature Compensation**	-3.3 mV/deg C/Cell	-2.5 mV to -4.0 mV	Optimal battery charger float voltage is dependent upon battery temperature. The PMU battery charger uses the battery temperature sensor to adjust the float voltage by the compensation value. The default value is normally adequate for lead acid batteries. Contact the battery supplier for more information.
	Battery Installation Date	Date batteries go into service.	MM-YYYY	Enter battery installation date.
	Replacement Battery Notification Time	183 days	0 days - 730 days	To set the **Near End of Life** audible alarm, select the number of days before the estimated battery end of life. When this date is reached the PMU will emit an audible alarm and a message will appear on the PMU display interface screen. Example: Using the default value, the **Near End of Life** audible alarm will occur 183 days before the estimated end of life date.
	Replacement Battery Alarm Reminder Time	14 days	0 days - 365 days	The **Near End of Life** audible alarm can be muted. Enter the number of days between the time a **Near End of Life** audible alarm is acknowledged and the next **Near End of Life** audible alarm occurs.
	Factory Default Setting		Press OK to confirm	This will set all parameters to the factory defaults.

	Parameters	Default Value	Options	Description
Config Menu **Comm Network**	**IP Address Mode**	DHCP	Manual DHCP BOOTP	Manually configure IP address, subnet mask, and default gateway. IP address is provided. IP address is set by the Network Management.
	IPv4 Address	00	Program IP Subnet Gateway	Refer to the Network Management user manual on the APC web site, www.apc.com.
Config Menu **LCD**	**LCD Setting**	Optimal Values	Color Brightness Contrast	Adjust the brightness and contrast individually for each LCD backlight color.
	LCD Backlight	Auto Dim	Always On Auto Dim Auto Off	To conserve energy, the LCD back light illumination dims or turns off when no events are active. Full LCD illumination returns when the PMU changes status as a result of an event or when any button on the LCD is pressed.
	Audible Alarm	Enable	Enable Disable	When set to Enable, PMU alarms will be audible. When set to Disable PMU alarms will be silent.

Battery Management

Maintenance

- **Runtime Test (Calibration):** This should be performed any time the steady state load is changed significantly. For example, when a device is added to or removed from the PMU load.
  If no load change is performed it is recommended that the test should be run every 6 months, or when new batteries are installed.
- **Self test:** The PMU can be configured to perform periodic, automatic **Self Tests**.

End of useful life

- **Near end of life notification:** A message will appear on the PMU display when the batteries are approaching the end of useful life. For configuration details refer to **Replacement Notification Time** and **Replacement Battery Alarm Time**. The estimated replacement date for the battery is available through the **About** menu.
- **Needs replacement notification:** The PMU display shows when battery replacement is required. The battery must be replaced as soon as possible.
  Continued operation after end of useful life notification may cause damage to the batteries.

Recommended actions after installing new external batteries

- Install the external batteries.
- Use the **Configuration/Battery** menu to update the **Install Date** and update the **Replacement Notification Time** to match the new batteries expected lifetime.
- Allow the system to charge for 24 hours to ensure full runtime capability.
- Use the Test and Diagnostics/Runtime Test to perform a runtime calibration test.

Troubleshooting

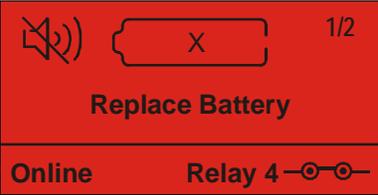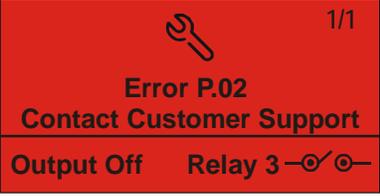Use the table below to solve minor installation and operation problems.
Refer to the APC web site, www.apc.com for assistance with complex PMU problems.
The PMU features firmware that can be upgraded.
Go to the APC web site, www.apc.com/Support, or contact your local Customer Care Center for more information.

Problem and Possible Cause	Solution
PMU will not turn on or there is no output.	
The PMU is not connected to mains power.	Be sure the AC input power cable is securely connected to the PMU and to the cabinet AC power supply.
The charged batteries are not connected.	Be sure the batteries are connected.
The LCD indicates very low or no mains power.	Check the mains power supply to verify acceptable power quality. Check circuit breakers.
There is an internal PMU alert or warning.	A message will be displayed on the LCD to identify the alert or warning and corrective action.
All of the possible issues above have been addressed and the PMU will not turn on.	If the PMU does not turn on when connected to AC power use the Cold Start feature. Follow the instructions below to perform a Cold Start. 1. Confirm that batteries are charged and connected to the PMU. 2. Press the **Power ON** button. The LCD will illuminate and the **Power ON** button will illuminate red. 3. To turn on the output power press the **Power ON** button again. Then select the prompt **Turn ON with No AC** and press OK. To turn output power **OFF** go to the Control menu and follow the prompts.
PMU emits an audible alarm.	
Normal PMU operation when running on battery power.	The PMU is operating on battery power. Refer to the status of the PMU as shown on the LCD. Press any key to mute alarms.
The PMU emits an audible alarm and has a red or amber back light on the LCD.	An **Alarm** or **Warning** condition exists. To locate the cause of the audible alarm use the PMU interface menu option **Test and Diagnostics.**
PMU does not provide expected backup time.	
The PMU batteries are weak due to a recent power outage or they are near the end of service life.	Charge the batteries. Batteries require recharging after extended outages and wear out faster when discharged often or when operated at elevated temperatures. If the batteries are near the end of service life, consider replacing the batteries even if the **Replace Battery** message is not displayed.

Problem and Possible Cause	Solution
PMU operates on battery power while connected to mains power.	
The PMU input circuit breaker has tripped.	Reduce the load on the PMU. Disconnect nonessential equipment and reset the circuit breaker. Check the circuit breaker rating for the connected equipment.
There is very high, very low, or distorted input line voltage.	Navigate to the Status/PMU menu to verify that the input voltage is within specified operating limits. If no input voltage is indicated on the LCD, contact Customer Support through the APC web site, **www.apc.com.**
LCD Status displays Overload and the PMU emits a sustained audible alarm.	
The PMU is experiencing an overload condition.	The connected equipment exceeds the maximum load rating for the PMU. The PMU will emit a sustained audible alarm until the overload condition is corrected. Disconnect nonessential equipment from the PMU to correct the overload condition.
LCD Status indicates PMU is operating in Bypass mode.	
The PMU has automatically switched to **Bypass** mode due to an internal PMU alert or warning.	The LCD will display a message to identify the alert or warning and corrective action.
LCD is illuminated red or amber and displays an alert or warning message. **PMU emits a sustained audible alarm.**	
The PMU has detected a problem during normal operation.	Follow the instructions displayed on the LCD. Press any key to mute all audible alarms.
The LCD displays the message. 1/2 **!** **Connect Battery** **Backup Not Available** **Online** **Relay 4**	Be sure the battery cables are securely connected. Be sure the battery circuit breaker is closed. Check the fuse in the battery harness.
The LCD displays the message. 1/2 **X** **Replace Battery** **Online** **Relay 4**	Allow the battery to recharge for 24 hours. To perform a **Runtime** test use the PMU interface menu option **Test and Diagnostics.** If the problem persists, replace the batteries.

Problem and Possible Cause	Solution
LCD turns red or amber, displays an alert message, and emits a sustained audible alarm. **Red illumination indicates a PMU alarm that requires immediate attention.** **Amber illumination indicates a PMU alarm that requires attention.**	
There is an internal PMU alert or warning. 1/1 Error P.02 Contact Customer Support Output Off Relay 3	Do not attempt to use the PMU. Turn the PMU off and have it serviced immediately.
The PMU is experiencing an overload condition. 1/1 Output Overload Backup Not Available Bypass Relay 4	Reduce the load on the PMU. Disconnect nonessential equipment.
Replace Battery alert is displayed.	
The battery has a weak charge.	Allow the battery to recharge for at least eight hours. Then, perform a PMU **Self Test**. If the problem persists after recharging, replace the battery.
The replacement battery is not properly connected.	Be sure the battery cable is securely connected.

Transport

1. Shut down and disconnect all connected equipment.

2. Disconnect the unit from mains power.

3. Disconnect all external batteries (if applicable).

4. Follow the shipping instructions outlined in the *Service* section of this manual.

Service

If the unit requires service, do not return it to the dealer. Follow these steps:

1. Review the *Troubleshooting* section of the manual to eliminate common problems.

2. If the problem persists, contact APC by Schneider Electric Customer Support through the APC web site, **www.apc.com**.

   a. Note the model number and serial number and the date of purchase. The model and serial numbers are located on the rear panel of the unit and are available through the LCD on select models.

   b. Call APC by Schneider Electric Customer Support and a technician will attempt to solve the problem over the phone.
   If this is not possible, the technician will issue a Returned Material Authorization Number (RMA#).

   c. If the unit is under warranty, it will be repaired or replaced at no cost.

   d. Service procedures and returns may vary internationally. Refer to the APC web site for country specific instructions.

3. Pack the unit properly to avoid damage in transit. Never use foam beads for packaging.
   Damage sustained in transit is not covered under warranty.

4. **Before shipping, always disconnect all external batteries connected to the PMU.**

5. Write the RMA# provided by Customer Support on the outside of the package.

6. Return the unit by insured, prepaid carrier to the address provided by Customer Support.

Limited Factory Warranty

Schneider Electric IT Corporation (SEIT), warrants its products to be free from defects in materials and workmanship for a period of three (3) years. The SEIT obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. Repair or replacement of a defective product or part thereof does not extend the original warranty period.

This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase. Products may be registered online at warranty.apc.com.

SEIT shall not be liable under the warranty if its testing and examination disclose that the alleged defect in the product does not exist or was caused by end user or any third person misuse, negligence, improper installation, testing, operation or use of the product contrary to SEIT recommendations of specifications. Further, SEIT shall not be liable for defects resulting from: 1) unauthorized attempts to repair or modify the product, 2) incorrect or inadequate electrical voltage or connection, 3) inappropriate on site operation conditions, 4) Acts of God, 5) exposure to the elements, or 6) theft. In no event shall SEIT have any liability under this warranty for any product where the serial number has been altered, defaced, or removed.

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NOTHING IN THIS LIMITED WARRANTY SHALL SEEK TO EXCLUDE OR LIMIT OR DEATH OR PERSONAL INJURY RESULTING FROM ITS NEGLIGENCE OR ITS FRAUDULENT MISREPRESENTATION OF TO THE EXTENT THAT IT CANNOT BE EXCLUDED OR LIMITED BY APPLICABLE LAW.

To obtain service under warranty you must obtain a Returned Material Authorization (RMA) number from customer support. Customers with warranty claims issues may access the SEIT worldwide customer support network through the APC web site: **www.apc.com**. Select your country from the country selection drop down menu. Open the Support tab at the top of the web page to obtain information for customer support in your region. Products must be returned with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase.

APC™ by Schneider Electric
Worldwide Customer Support

Customer support for this or any other APC™ by Schneider Electric product is available at no charge in any of the following ways:

- Visit the APC web site to access documents in the APC by Schneider Electric Knowledge Base and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)
    Connect to localized APC web site for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**
    Global support searching APC by Schneider Electric Knowledge Base and using e-support.
- Contact the APC by Schneider Electric Customer Support Center by telephone or e-mail.
  - Local, country specific centers: go to **www.apc.com/support/contact** for contact information.
  - For information on how to obtain local customer support, contact the APC by Schneider Electric representative or other distributor from whom you purchased your APC by Schneider Electric product.