



# POWERWARE® 9120

## User's Guide

700-3000 VA

[www.powerware.com](http://www.powerware.com)

## **Requesting a Declaration of Conformity**

Units that are labeled with a CE mark comply with the following harmonized standards and EU directives:

- Harmonized Standards: EN 50091-1-1 and EN 50091-2; IEC 950 Second Edition, Amendments A1, A2, A3, and A4
- EU Directives: 73/23/EEC, Council Directive on equipment designed for use within certain voltage limits  
93/68/EEC, Amending Directive 73/23/EEC  
89/336/EEC, Council Directive relating to electromagnetic compatibility  
92/31/EEC, Amending Directive 89/336/EEC relating to EMC

The EC Declaration of Conformity is available upon request for products with a CE mark. For copies of the EC Declaration of Conformity, contact:

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## **Class A EMC Statements (2000–3000 VA)**

### **FCC Part 15**

**NOTE** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **ICES-003**

This Class A Interference Causing Equipment meets all requirements of the Canadian Interference Causing Equipment Regulations ICES-003.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### **EN50091-2**

Some configurations are classified under EN50091-2 as “Class-A UPS for Unrestricted Sales Distribution.” For these configurations, the following applies:

**WARNING** This is a Class A-UPS Product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take additional measures.

### **VCCI Notice (120V and 208V Models)**

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

## **Class B EMC Statements (700–1500 VA)**

### **FCC Part 15**

**NOTE** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### **ICES-003**

This Class B Interference Causing Equipment meets all requirements of the Canadian Interference Causing Equipment Regulations ICES-003.

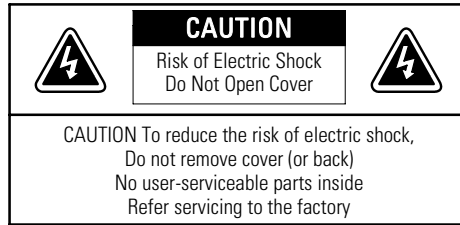
Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### **VCCI Notice (120V and 208V Models)**

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

## Special Symbols

The following are examples of symbols used on the UPS to alert you to important information:



**RISK OF ELECTRIC SHOCK** - Indicates that a risk of electric shock is present and the associated warning should be observed.



**CAUTION: REFER TO OPERATOR'S MANUAL** - Refer to your operator's manual for additional information, such as important operating and maintenance instructions.



**RJ-45 RECEPTACLE** - For 208V and 230V models only: this receptacle provides network interface connections. Do not plug telephone or telecommunications equipment into this receptacle.



This symbol indicates that you should not discard the UPS or the UPS batteries in the trash. The UPS may contain sealed, lead-acid batteries. Batteries must be recycled.





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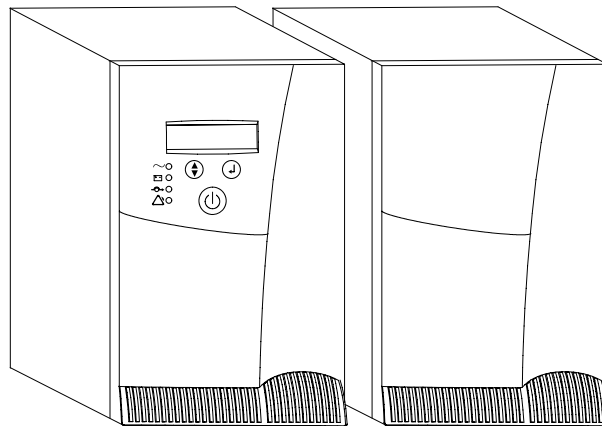
## CHAPTER 1

# POWERWARE 9120 – ONE OF THE BEST!

The Powerware® 9120 uninterruptible power system (UPS) protects your sensitive electronic equipment from the most common power problems including power failures, power sags, power surges, brownouts, line noise, high voltage spikes, frequency variations, switching transients, and harmonic distortion.

Power outages can occur when you least expect it and power quality can be erratic. These power problems have the potential to corrupt critical data, destroy unsaved work sessions, and damage hardware — causing hours of lost productivity and expensive repairs.

With the Powerware 9120, you can safely eliminate the effects of power disturbances and guard the integrity of your equipment. Figure 1 shows the Powerware 9120 UPS with an optional Extended Battery Module (EBM).



**Figure 1. The Powerware 9120 and Optional EBM**

Providing outstanding performance and reliability, the Powerware 9120's unique benefits include the following:

- The Powerware 9120 incorporates the latest in high-frequency, double-conversion online topology, which provides uninterrupted, clean, sine-wave power.
- An intuitive LCD screen provides real-time updates of UPS status, power usage, remaining battery run time, and other critical UPS parameters.
- Flexible communication options with USB, serial, and network capabilities.
- Advanced power management with the Powerware Software Suite CD for graceful shutdowns and power monitoring.
- Sequential shutdown and load management through separate receptacle groups, called load segments.
- Network Transient Protector guards your network communications equipment from surges. Low voltage models can also protect modems, fax machines, or other telecommunications equipment.
- Hot-swappable batteries simplify maintenance by allowing you to replace batteries safely without powering down the critical load.
- Start-on-battery capability allows you to power up the UPS even if utility power is not available.
- Emergency shutdown control through the Remote Emergency Power-Off (REPO) port.
- The Powerware 9120 is backed by worldwide agency approvals and a limited two-year warranty.



## CHAPTER 2

# SAFETY WARNINGS

Read the following precautions before you install the UPS.

### IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS. This manual contains important instructions that you should follow during installation and maintenance of the UPS and batteries. Please read all instructions before operating the equipment and save this manual for future reference.

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### DANGER



This UPS contains **LETHAL VOLTAGES**. All repairs and service should be performed by **AUTHORIZED SERVICE PERSONNEL ONLY**. There are **NO USER SERVICEABLE PARTS** inside the UPS.

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### WARNING



- This UPS contains its own energy source (batteries). The output receptacles may carry live voltage even when the UPS is not connected to an AC supply.
  - Do not remove or unplug the input cord when the UPS is turned on. This removes the safety ground from the UPS and the equipment connected to the UPS.
  - To reduce the risk of fire or electric shock, install this UPS in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 40°C (104°F). Do not operate near water or excessive humidity (95% max).
  - To comply with international standards and wiring regulations, the total equipment connected to the output of this UPS must not have an earth leakage current greater than 1 milliamperes.
-



## CAUTION

- Batteries can present a risk of electrical shock or burn from high short-circuit current. Observe proper precautions. Servicing should be performed by qualified service personnel knowledgeable of batteries and required precautions. Keep unauthorized personnel away from batteries.
  - Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
  - Never dispose of batteries in a fire. Batteries may explode when exposed to flame.
- 

## Sikkerhedsanvisninger

### VIGTIGE SIKKERHEDSANVISNINGER GEM DISSE ANVISNINGER DENNE BRUGERVEJLEDNING INDEHOLDER VIGTIGE SIKKERHEDSANVISNINGER



## FARE

Denne UPS indeholder LIVSFARLIG HØJSPÆNDING. Alle reparationer og vedligeholdelse bør kun udføres af en AUTORISERET SERVICETEKNIKER. Ingen af UPS'ens indvendige dele kan repareres af brugeren.

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## ADVARSEL!

- Denne UPS indeholder egen energiforsyning (batterier). Udgangsnetstikkene kan lede strøm, selv når UPS'en ikke er tilsat en AC-energikilde.
  - Netledningen må ikke fjernes og stikket må ikke trækkes ud, mens UPS'en er tændt. Dette fjerner sikkerhedsjorden fra UPS'en og fra det udstyr, der er sat til.
  - Installér denne UPS i et temperatur- og fugtighedskontrolleret indendørsmiljø, frit for ledende forureningsstoffer for at formindske risikoen for brand og elektrisk stød. Rumtemperaturen må ikke overstige 40°C. UPS'en bør ikke betjenes nær vand eller høj fugtighed (maksimalt 95%).
  - I overensstemmelse med internationale normer og bestemmelser for el-installation må det udstyr, der er forbundet til udgangen af denne UPS, tilsammen ikke overskride en jordafdelingspænding på mere end 1 milliamperere.
-



## ADVARSEL

- Batterier kan udgøre en fare for elektrisk stød eller forbrændinger forårsaget af høj kortslutningsspænding. De korrekte forholdsregler bør overholdes.
- Korrekt bortskaffelse af batterier er påkrævet. Overhold gældende lokale regler for bortskaffelsesprocedurer.
- Skaf dig aldrig af med batterierne ved at brænde dem. Batterierne kan eksplodere ved åben ild.

## Belangrijke Veiligheidsinstructies

### **BELANGRIJKE VEILIGHEIDSINSTRUCTIES BEWAAR DEZE INSTRUCTIES DEZE HANDLEIDING BEVAT BELANGRIJKE VEILIGHEIDSINSTRUCTIES**



## GEVAAR

Deze UPS bevat LEVENSGEVAARLIJKE ELEKTRISCHE SPANNING. Alle reparaties en onderhoud dienen UITSLUITEND DOOR ERKEND SERVICEPERSONEEL te worden uitgevoerd. Er bevinden zich GEEN ONDERDELEN in de UPS die DOOR DE GEBRUIKER kunnen worden GEREPAREERD.



## WAARSCHUWING

- Deze UPS bevat zijn eigen energiebron (batterijen). De uitgangsaansluitingen kunnen onder spanning staan wanneer de UPS niet op een wisselstroom voeding is aangesloten.
- Verwijder de ingang snoer niet of haal de stekker van de ingang snoer er niet uit terwijl de UPS aan staat. Hierdoor zou de UPS en uw aangesloten apparatuur geen aardebeveiliging meer hebben.
- Teneinde de kans op brand of elektrische schok te verminderen dient deze UPS in een gebouw met temperatuur- en vochtigheidsregeling te worden geïnstalleerd, waar geen geleidende verontreinigingen aanwezig zijn. De omgevingstemperatuur mag 40°C niet overschrijden. Niet gebruiken in de buurt van water of bij zeer hoge vochtigheid (max. 95%).
- Om aan de internationale normen en bedradingsvoorschriften te voldoen mag de gehele apparatuur die op de uitgang van deze UPS is aangesloten, geen aardlekstroom van meer dan 1 milliampère hebben.



## OPGELET

- Batterijen kunnen gevaar voor elektrische schok of brandwonden veroorzaken als gevolg van un hoge kortsluitstroom. Volg de desbetreffende aanwijzingen op.
- De batterijen moeten op de juiste wijze worden opgeruimd. Raadpleeg hiervoor uw plaatselijke voorschriften.
- Nooit batterijen in het vuur gooien. De batterijen kunnen ontploffen.

## Tarkeita Turvaohjeita

### **TÄRKEITÄ TURVAOHJEITA - SUOMI SÄILYTÄ NÄMÄ OHJEET TÄMÄ OPAS SISÄLTÄÄ TÄRKEITÄ TURVAOHJEITA**



## VAARA

Tämä UPS sisältää HENGENVAARALLISIA JÄNNITTEITÄ. Kaikki korjaukset ja huollot on jätettävä VAIN VALTUUTETUN HUOLTOHENKILÖN TOIMEKSI. UPS ei sisällä MITÄÄN KÄYTTÄJÄN HUOLLETTAVIA OSIA.



## VAROITUS

- Tämä UPS sisältää oman energialähteen (akuston). Ulostuloliittimissä voi olla jännite, kun UPS ei ole liitettynä verkkojännitteeseen.
- Älä poista tai irrota sisääntulojohtoa, kun UPS on kytkettynä. Tämä poistaa turvamaadoituksen UPS-laitteesta ja siihen liitetystä laitteistosta.
- Vähentääksesi tulipalon ja sähköiskun vaaraa asenna tämä UPS sisätiloihin, joissa lämpötila ja kosteus on säädettävissä ja joissa ei ole virtaa johtavia epäpuhtauksia. Ympäristön lämpötila ei saa ylittää 40 °C. Älä käytä lähellä vettä ja vältä kosteita tiloja (95 % maksimi).
- Kansainväliset normit ja johdotusmääräykset vaativat, että kaikkien tämän UPS-laitteen ulostulokytkentöjen yhteinen maavuotovirta ei ylitä 1 milliampeeria (mA).



## VARO

- Akusto saattaa aiheuttaa sähköiskun tai syttyä tuleen, jos akusto kytketään oikosulkuun. Noudata asianmukaisia ohjeita.
- Akusto täytyy hävittää säädösten mukaisella tavalla. Noudata paikallisia määräyksiä.
- Älä koskaan heitä akkuja tuleen. Ne voivat räjähtää.

## Consignes de sécurité

### CONSIGNES DE SÉCURITÉ IMPORTANTES CONSERVER CES INSTRUCTIONS CE MANUEL CONTIENT DES CONSIGNES DE SÉCURITÉ IMPORTANTES



## DANGER!

Cet onduleur contient des TENSIONS MORTELLES. Toute opération d'entretien et de réparation doit être EXCLUSIVEMENT CONFIEE A UN PERSONNEL QUALIFIE AGRÉÉ. AUCUNE PIÈCE RÉPARABLE PAR L'UTILISATEUR ne se trouve dans l'onduleur.



## AVERTISSEMENT!

- Cet onduleur renferme sa propre source d'énergie (batteries). Les prises de sortie peuvent être sous tension même lorsque l'onduleur n'est pas branché sur le secteur.
- Ne pas retirer le cordon d'alimentation lorsque l'onduleur est sous tension sous peine de supprimer la mise à la terre de l'onduleur et du matériel connecté.
- Pour réduire les risques d'incendie et de décharge électrique, installer l'onduleur uniquement à l'intérieur, dans un lieu dépourvu de matériaux conducteurs, où la température et l'humidité ambiantes sont contrôlées. La température ambiante ne doit pas dépasser 40 °C. Ne pas utiliser à proximité d'eau ou dans une atmosphère excessivement humide (95 % maximum).
- Afin d'être conforme aux normes et règlements internationaux de câblage, le courant de fuite à la terre de la totalité du matériel branché sur la sortie de l'onduleur ne doit pas dépasser 1 mA.



### ATTENTION!

- Les batteries peuvent présenter un risque de décharge électrique ou de brûlure par des courts-circuits de haute intensité. Prendre les précautions nécessaires.
  - Une mise au rebut réglementaire des batteries est obligatoire. Consulter les règlements en vigueur dans votre localité.
  - Ne jamais jeter les batteries au feu. L'exposition aux flammes risque de les faire exploser.
- 

## Sicherheitswarnungen

### WICHTIGE SICHERHEITSANWEISUNGEN AUFBEWAHREN. DIESES HANDBUCH ENTHÄLT WICHTIGE SICHERHEITSANWEISUNGEN.



### WARNUNG

Die USV führt lebensgefährliche Spannungen. Alle Reparatur- und Wartungsarbeiten sollten nur von Kundendienstfachleuten durchgeführt werden. Die USV enthält keine vom Benutzer zu wartenden Komponente

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### ACHTUNG

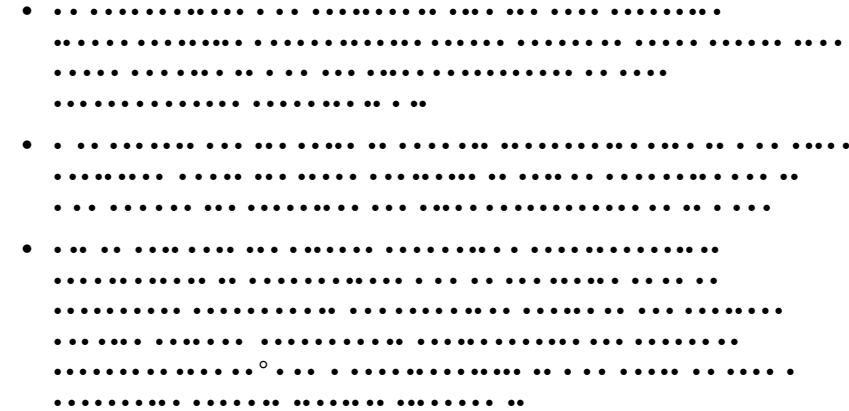
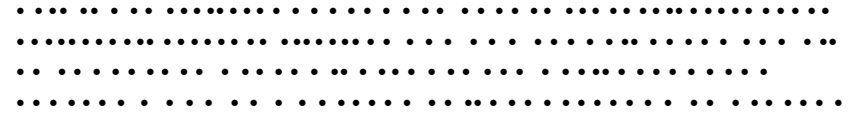
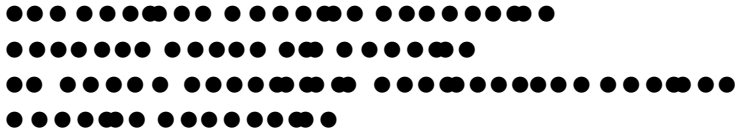
- Diese USV ist mit einer eigenen Energiequelle (Batterie) ausgestattet. An den Ausgangssteckdosen kann auch dann Spannung anliegen, wenn die USV nicht an einer Wechselspannungsquelle angeschlossen ist.
  - Das Eingangskabel nicht entfernen oder abziehen, während die USV eingeschaltet ist, weil hierdurch die Sicherheitserdung von der USV und den daran angeschlossenen Geräten entfernt wird.
  - Um die Brand- oder Elektroschockgefahr zu verringern, diese USV nur in Gebäuden mit kontrollierter Temperatur und Luftfeuchtigkeit installieren, in denen keine leitenden Schmutzstoffen vorhanden sind. Die Umgebungstemperatur darf 40°C nicht übersteigen. Die USV nicht in der Nähe von Wasser oder in extrem hoher Luftfeuchtigkeit (max. 95 %) betreiben.
  - Um internationale Normen und Verdrahtungsvorschriften zu erfüllen, dürfen die an den Ausgang dieser USV angeschlossenen Geräte zusammen einen Erdschlußstrom von insgesamt 1 Milliampere nicht überschreiten.
-



**VORSICHT!**



- Batterien können aufgrund des hohen Kurzschlußstroms Elektroschocks oder Verbrennungen verursachen. Die entsprechenden Vorsichtsmaßnahmen sind unbedingt zu beachten.
- Die Batterien müssen ordnungsgemäß entsorgt werden. Hierbei sind die örtlichen Bestimmungen zu beachten.
- Batterien niemals verbrennen, da sie explodieren können.



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## Avvisi di sicurezza

### **IMPORTANTI ISTRUZIONI DI SICUREZZA CONSERVARE QUESTE ISTRUZIONI QUESTO MANUALE CONTIENE IMPORTANTI ISTRUZIONI DI SICUREZZA**

#### **PERICOLO**



la TENSIONE contenuta in questo gruppo statico di continuità è LETALE. Tutte le operazioni di riparazione e di manutenzione devono essere effettuate ESCLUSIVAMENTE DA PERSONALE TECNICO AUTORIZZATO. All'interno del gruppo statico di continuità NON vi sono PARTI RIPARABILI DALL'UTENTE.

#### **AVVERTENZA**



- Questo gruppo statico di continuità contiene una fonte di energia autonoma (le batterie). Le prese di uscita possono condurre tensione energizzata quando il gruppo statico di continuità non è collegato con una fonte di alimentazione a corrente alternata.
- Non rimuovere nè scollegare il cavo di ingresso quando il gruppo statico di continuità è acceso poichè in tal modo si disattiverrebbe il collegamento a terra di sicurezza del gruppo statico di continuità e dell'apparecchiatura ad esso collegata.

- Per ridurre il rischio di incendio o di scossa elettrica, installare il gruppo statico di continuità in un ambiente interno a temperatura ed umidità controllata, privo di agenti contaminanti conduttivi. La temperatura ambiente non deve superare i 40°C. Non utilizzare l'unità in prossimità di acqua o in presenza di umidità eccessiva (95% max).
- Per conformità con gli standard internazionali e con le norme in merito al cablaggio, tutta l'apparecchiatura collegata con l'uscita del gruppo statico di continuità non deve avere una corrente di dispersione di terra superiore a 1 milliampere.

### ATTENZIONE



- Le batterie possono presentare rischio di scossa elettrica o di ustioni provocate da alta corrente dovuta a corto circuito. Osservare le apposite istruzioni.
- Le batterie devono essere smaltite in modo corretto. Per i requisiti di smaltimento fare riferimento alle disposizioni locali.
- Non gettare mai le batterie nel fuoco poichè potrebbero esplodere se esposte alle fiamme.

## Viktig Sikkerhetsinformasjon

### FARLIG



Denne UPS'en inneholder LIVSFARLIGE SPENNINGER. All reparasjon og service må kun utføres av AUTORISERT SERVICEPERSONALE. BRUKERE KAN IKKE UTFØRE SERVICE PÅ NOEN AV DELENE i UPS'en.

### FARLIG



- Denne UPS'en har en egen energikilde (batterier). Stikkontaktene kan være strømførende selv om UPS'en ikke er tilsluttet en vekselstrømforsyning.
- Strømforsyningskabelen må ikke fjernes eller trekkes ut når UPS'en er på, slik at ikke sikkerhetsjordingen fjernes fra UPS'en og det utstyret som er forbundet med den.
- For å redusere fare for brann eller elektriske støt, bør denne UPS'en installeres i et innendørs miljø med kontrollert temperatur og luftfuktighet som er fritt for ledende, forurensende stoffer. Romtemperaturen må ikke overskride 40°C. Den må ikke brukes i nærheten av vann eller ved meget høy luftfuktighet (95% maks.).

- Alt utstyr som er forbundet med utgangen av denne UPS'en må ikke ha en sterkere total lekkasjestrøm enn 1 milliampere for å være i overensstemmelse med internasjonale standarder og forkablingsbestemmelser.



### **FORSIKTIG**

- Batterier kan forårsake elektriske støt eller forbrenning på grunn av høy kortslutningsstrøm. Følg instruksene.
- Batterier må fjernes på korrekt måte. Se lokale forskrifter vedrørende krav om fjerning av batterier.
- Kast aldri batterier i flammer, da de kan eksplodere, hvis de utsettes for åpen ild.

## **Regulamentos de Segurança**

### **INSTRUÇÕES DE SEGURANÇA IMPORTANTES GUARDE ESTAS INSTRUÇÕES ESTE MANUAL CONTÉM INSTRUÇÕES DE SEGURANÇA IMPORTANTES**



### **CUIDADO**

A UPS contém VOLTAGEM MORTAL. Todos os reparos e assistência técnica devem ser executados SOMENTE POR PESSOAL DA ASSISTÊNCIA TÉCNICA AUTORIZADO. Não há nenhuma PEÇA QUE POSSA SER REPARADA PELO USUÁRIO dentro da UPS.



### **ADVERTÊNCIA**

- Esta UPS contém sua própria fonte de energia (baterias). Os receptáculos de saída podem conter voltagem ativa quando a UPS não se encontra conectada a uma fonte de alimentação de corrente alternada.
- Não remova ou desconecte o cabo de entrada quando a UPS estiver ligada. Isto removerá o aterramento de segurança da UPS e do equipamento conectado.
- Para reduzir o risco de incêndios ou choques elétricos, instale a UPS em ambiente interno com temperatura e umidade controladas e livres de contaminadores condutíveis. A temperatura ambiente não deve exceder 40°C. Não opere próximo a água ou em umidade excessiva (máx: 95%).
- Para estar de acordo com os padrões internacionais e os regulamentos de fiação, o equipamento total conectado à saída desta UPS não deve ter uma corrente de fuga à terra maior que 1 miliampères.



## PERIGO

- As baterias podem apresentar o risco de choque elétrico, ou queimaduras provenientes de alta corrente de curto-circuito. Observe as instruções adequadas.
- Siga as instruções apropriadas ao desfazer-se das baterias. Consulte os códigos do local para maiores informações sobre os regulamentos de descarte de produtos.
- Nunca jogue as baterias no fogo, porque há risco de explosão.

## Предупреждения по мерам безопасности

### ВАЖНЫЕ УКАЗАНИЯ ПО МЕРАМ БЕЗОПАСНОСТИ СОХРАНИТЕ ЭТИ УКАЗАНИЯ ДАННОЕ РУКОВОДСТВО СОДЕРЖИТ ВАЖНЫЕ УКАЗАНИЯ ПО МЕРАМ БЕЗОПАСНОСТИ



## ОПАСНО

В данном ИБП имеются СМЕРТЕЛЬНО ОПАСНЫЕ НАПРЯЖЕНИЯ. Все работы по ремонту и обслуживанию должны выполняться ТОЛЬКО УПОЛНОМОЧЕННЫМ ОБСЛУЖИВАЮЩИМ ПЕРСОНАЛОМ. Внутри ИБП нет узлов, ОБСЛУЖИВАЕМЫХ ПОЛЬЗОВАТЕЛЕМ.



## ПРЕДУПРЕЖДЕНИЕ

- Данный ИБП содержит собственные источники энергии (аккумуляторы). На выходных розетках может иметься напряжение, даже когда ИБП не подключен к сети переменного тока.
- Не отсоединяйте сетевой шнур и не извлекайте его вилку из розетки при включенном ИБП. При этом защитное заземление отключается от ИБП и от оборудования, подключенного к ИБП.
- Для снижения опасности пожара или поражения электрическим током устанавливайте ИБП в закрытом помещении с контролируемой температурой и влажностью, в котором отсутствуют проводящие загрязняющие вещества. Температура окружающего воздуха не должна превышать 40°C. Не эксплуатируйте устройство около воды или в местах с повышенной влажностью (макс. 95%).

- Для обеспечения соблюдения требований международных стандартов и требований к разводке электрических цепей, суммарная величина тока утечки на землю всего оборудования, подключенного к выходу ИБП, не должна превышать 1 миллиампера.

### ОСТОРОЖНО



- Аккумуляторы могут вызвать опасность поражения электрическим током или ожога от тока короткого замыкания. Соблюдайте соответствующие меры предосторожности.
- Необходимо соблюдать правила утилизации аккумуляторов. Обратитесь к местным нормативным актам за информацией о требованиях к утилизации.
- Никогда не бросайте аккумуляторы в огонь. Аккумуляторы могут взорваться под воздействием огня.

## Advertencias de Seguridad

### INSTRUCCIONES DE SEGURIDAD IMPORTANTES GUARDE ESTAS INSTRUCCIONES ESTE MANUAL CONTIENE INSTRUCCIONES DE SEGURIDAD IMPORTANTES

#### PELIGRO



Este SIE contiene VOLTAJES MORTALES. Todas las reparaciones y el servicio técnico deben ser efectuados SOLAMENTE POR PERSONAL DE SERVICIO TÉCNICO AUTORIZADO. No hay NINGUNA PARTE QUE EL USUARIO PUEDA REPARAR dentro del SIE.

#### ADVERTENCIA



- Este SIE contiene su propia fuente de energía (las baterías). Los receptáculos de salida pueden transmitir corriente eléctrica aun cuando el SIE no esté conectado a un suministro de corriente alterna (c.a.).
- No retire o desenchufe el cable de entrada mientras el SIE se encuentre encendido. Esto suprime la descarga a tierra de seguridad del SIE y de los equipos conectados al SIE.

- Para reducir el riesgo de incendio o de choque eléctrico, instale este SIE en un lugar cubierto, con temperatura y humedad controladas, libre de contaminantes conductores. La temperatura ambiente no debe exceder los 40°C. No trabaje cerca del agua o con humedad excesiva (95% máximo).
- Para cumplir con los estándares internacionales y las normas de instalación, la totalidad de los equipos conectados a la salida de este SIE no debe tener una intensidad de pérdida a tierra superior a los 1 miliamperios.

### PRECAUCIÓN



- Las baterías pueden presentar un riesgo de descargas eléctricas o de quemaduras debido a la alta corriente de cortocircuito. Preste atención a las instrucciones correspondientes.
- Es necesario desechar las baterías de un modo adecuado. Consulte las normas locales para conocer los requisitos pertinentes.
- Nunca deseche las baterías en el fuego. Las baterías pueden explotar si se las expone a la llama.

## Säkerhetsföreskrifter

### VIKTIGA SÄKERHETSFÖRESKRIFTER SPARA DESSA FÖRESKRIFTER DENNA BRUKSANVISNING INNEHÅLLER VIKTIGA SÄKERHETSFÖRESKRIFTER

#### FARA



Denna UPS-enhet innehåller LIVSFARLIG SPÄNNING. ENDAST AUKTORISERAD SERVICEPERSONAL får utföra reparationer eller service. Det finns inga delar som ANVÄNDAREN KAN UTFÖRA SERVICE PÅ inuti UPS-enheten.

#### VARNING



- Denna UPS-enhet har en egen energikälla (batterier). De utgående kontakterna kan vara strömförande när UPS-enheten inte är ansluten till en växelströmkälla.
- Ta aldrig bort nätsladden när UPS-enheten är påslagen. Detta tar bort skyddsjordningen från både UPS-enheten och den anslutna utrustningen.

- Minska risken för brand eller elektriska stötar genom att installera denna UPS-enhet inomhus, där temperatur och luftfuktighet är kontrollerade och där inga ledande föroreningar förekommer. Omgivande temperatur får ej överstiga 40°C. Använd inte utrustningen nära vatten eller vid hög luftfuktighet (max 95 %).
  - För att överensstämna med internationell standard och installationsföreskrifter får inte den totala utrustning som anslutits till uttagen på denna UPS-enhet ha läcksström som överstiger 1 milliampere.
- 



### **VIKTIGT**

- Batterierna kan ge elektriska stötar eller brännskador från hög kortslutningsström. Följ tillämpliga anvisningar.
  - Batterierna måste avyttras enligt anvisningarna i lokal lagstiftning.
  - Använda batterier får aldrig brännas upp. De kan explodera.
-





## CHAPTER 3

# INSTALLATION

This section explains:

- Equipment inspection
- Safety precautions
- Plug/receptacle UPS installation and rear panels
- Hardwired UPS installation

### Inspecting the Equipment

If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

To file a claim for shipping damage or concealed damage: 1) File with the carrier within 15 days of receipt of the equipment; 2) Send a copy of the damage claim within 15 days to your service representative (see page 56).

### Installing the Plug/Receptacle UPS

The following steps explain how to install the UPS. See “UPS Rear Panels” on page 19 for the rear panel of each model.



---

**NOTE** Do not make unauthorized changes to the UPS; otherwise, damage may occur to your equipment and void your warranty.

---

1. If you are installing power management software, connect your computer to the UPS communication port using the supplied communication cable.
2. If installing an optional Extended Battery Module, plug the EBM cable into the battery connector on the EBM rear panel.
3. Plug the other end of the EBM cable into the battery connector on the UPS rear panel.

4. If additional EBMs are to be installed, plug the EBM cable of the second cabinet into the battery connector on the first EBM. Repeat for each additional EBM.
5. On 208V or 230V models, plug the power cord into the input connector on the UPS rear panel.
6. Plug the UPS power cord into a power outlet. The fan turns on and the UPS enters Standby mode.
7. Plug the equipment to be protected into the UPS output receptacles.



DO NOT protect laser printers with the UPS because of the exceptionally high power requirements of the heating elements.



---

**NOTE** If you are using the Load Segment feature, see page 38 for more information on controlling and assigning the load segments.

---

8. Press and hold the  button until you hear the UPS beep (approximately one second). The LCD briefly displays **On Delay** and the  indicator illuminates. Then the UPS conducts a self-test, briefly displaying **On BATTERY**. If an alarm condition occurs, see Table 9 on page 53.

When the self-test is complete, the LCD displays **On Line** indicating that power is available from the UPS output receptacles.

9. If you installed optional EBMs, configure the number of EBMs through the front panel so that the UPS can estimate the available battery run time (see “Configuration Mode” on page 31).



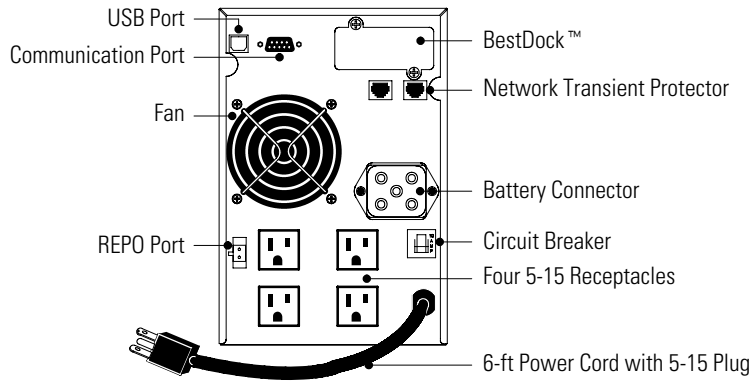
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**NOTE** The batteries charge to 90% capacity in approximately 4 hours. However, it is recommended that the batteries charge for 6 to 24 hours after installation or long-term storage.

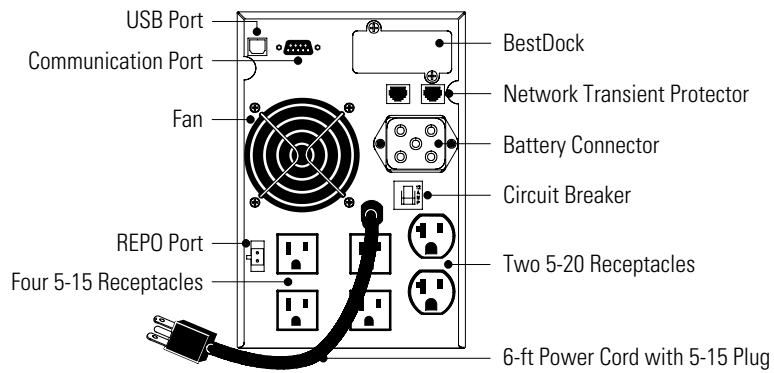
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## UPS Rear Panels

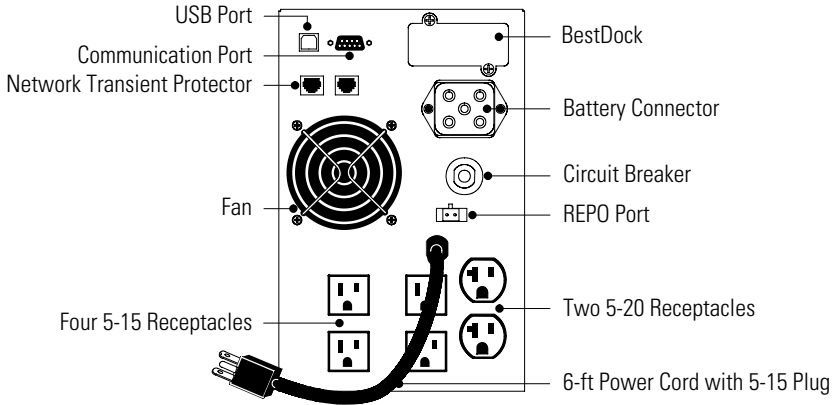
This section shows the rear panels of the Powerware 9120 plug/receptacle models.



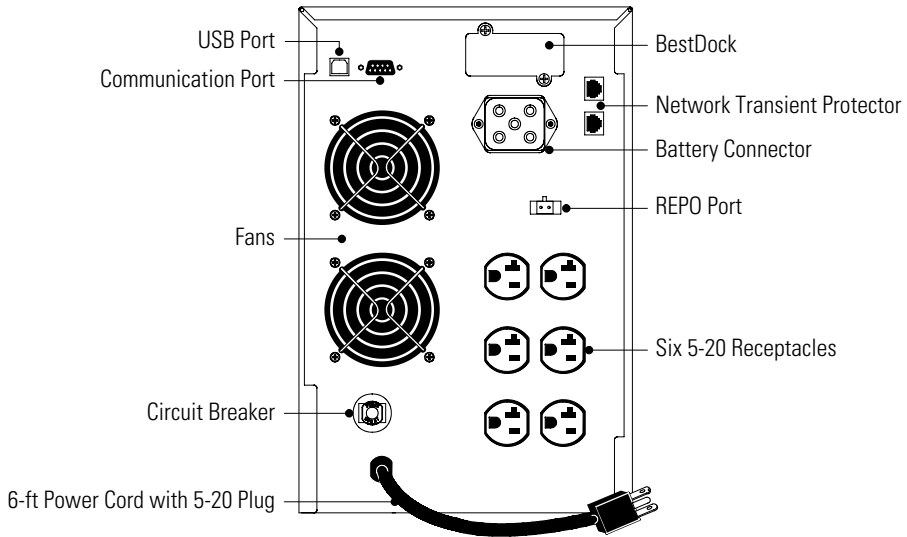
**Figure 2. 700 VA, 120V Rear Panel**



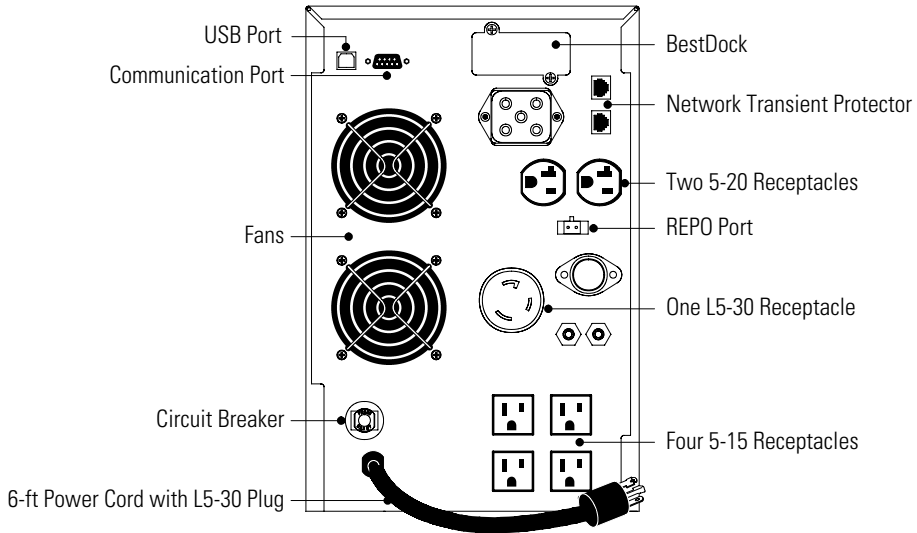
**Figure 3. 1000 VA, 120V Rear Panel**



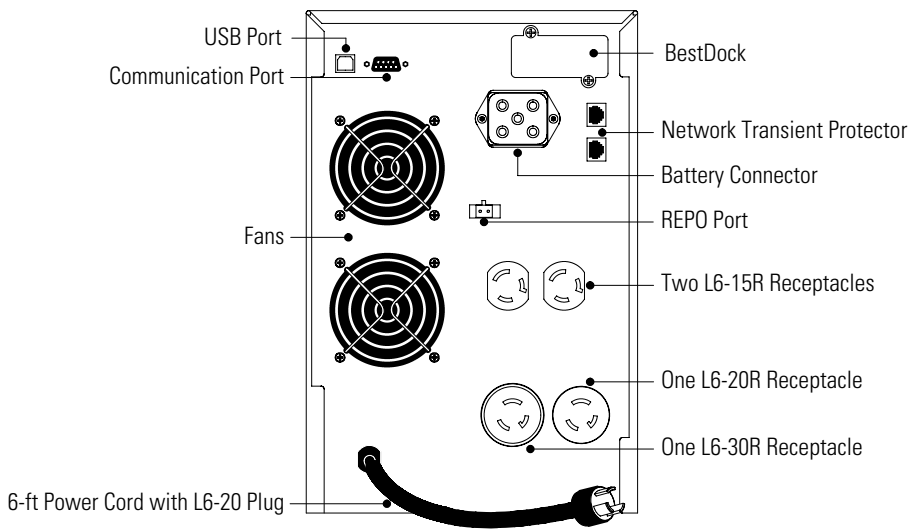
**Figure 4. 1500 VA, 120V Rear Panel**



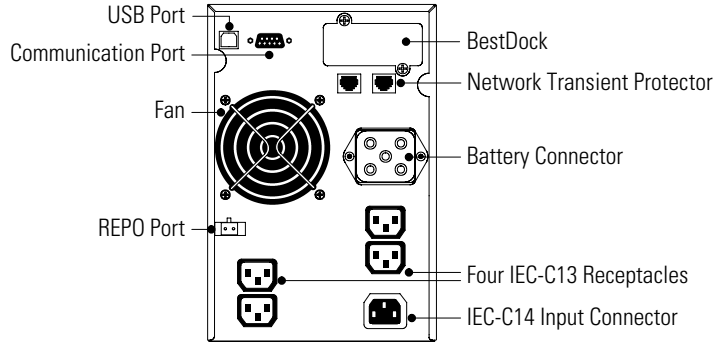
**Figure 5. 2000 VA, 120V Rear Panel**



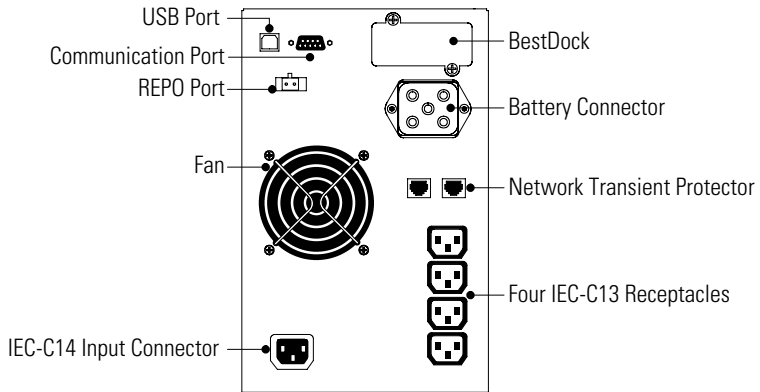
**Figure 6. 3000 VA, 120V Rear Panel**



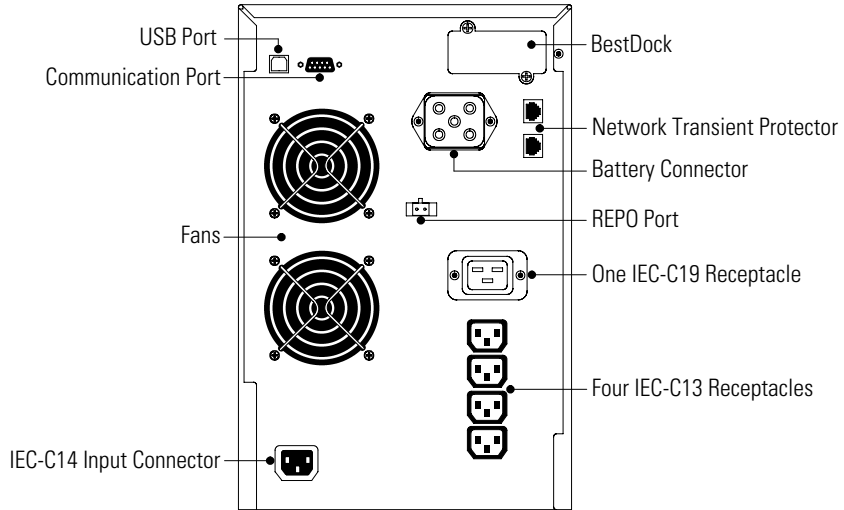
**Figure 7. 3000 VA, 208V Rear Panel**



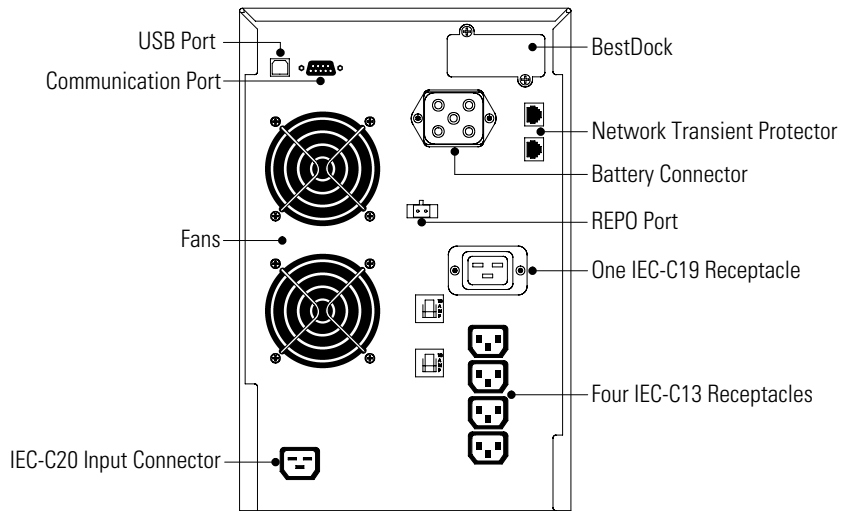
**Figure 8. 700–1000 VA, 230V Rear Panel**



**Figure 9. 1500 VA, 230V Rear Panel**



**Figure 10. 2000 VA, 230V Rear Panel**



**Figure 11. 3000 VA, 230V Rear Panel**

## Installing the Hardwired UPS



### WARNING

Only qualified service personnel (such as a licensed electrician) should perform the electrical installation. Risk of electrical shock.

---



### CAUTION

- To reduce the risk of fire, connect the UPS only to circuits provided with 30 amperes maximum branch-circuit overcurrent protection.
  - For UPS models with hardwired outputs, overcurrent protection for the output AC circuit(s) is to be provided by others.
  - For UPS models with hardwired outputs, suitably rated disconnect switches for the output AC circuit(s) are to be provided by others.
- 



**NOTE** Do not make unauthorized changes to the UPS; otherwise, damage may occur to your equipment and void your warranty.

---

The Powerware 9120 requires a dedicated branch circuit that meets the following requirements:

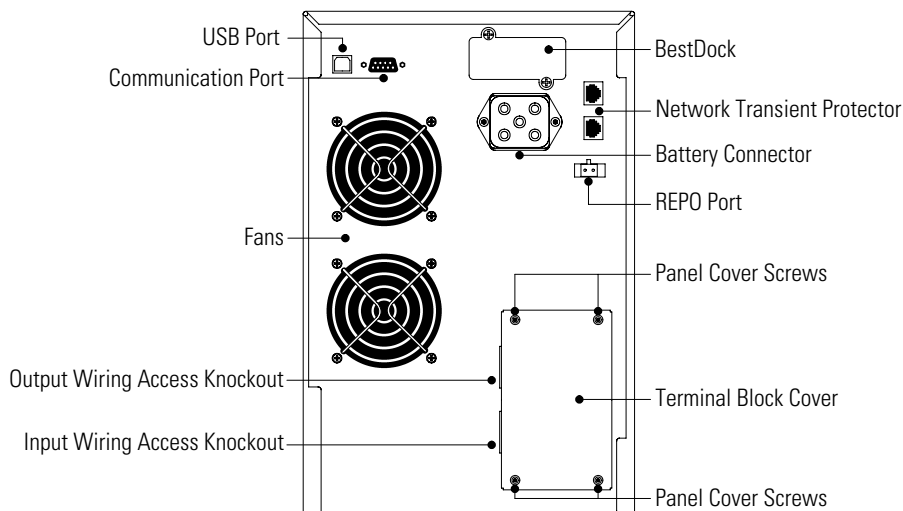
- 30A circuit with short circuit and overcurrent protection
- 100-127 Vac
- Single-phase
- 50/60 Hz
- Flexible metal conduit is recommended for ease of service and maintenance

To hardwire the UPS:

1. If you are installing power management software, connect your computer to the UPS communication port using the supplied communication cable.
2. If installing an optional Extended Battery Module, plug the EBM cable into the battery connector on the EBM rear panel.
3. Plug the other end of the EBM cable into the battery connector on the UPS rear panel.
4. If additional EBMs are to be installed, plug the EBM cable of the second cabinet into the battery connector on the first EBM. Repeat for each additional EBM.



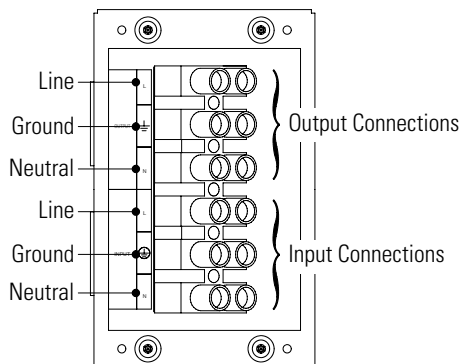
5. Switch off utility power at the distribution point where the UPS will be connected. Be absolutely sure there is no power.
6. Remove the terminal block cover and the wiring knockouts (see Figure 12). Retain the terminal block cover.




**Figure 12. 3000 VA, 120V Hardwired Rear Panel**

7. Pull the input wires through the conduit, leaving approximately 2 ft (0.5m) of exposed wire. Attach a flexible metal fitting to the end of the conduit.
8. Insert the conduit through the input wiring access knockout and attach the conduit fitting to the panel. Strip 0.5" (1.5 cm) of insulation from the end of each incoming wire.
9. Connect the input and ground wires to the input terminal block (see Figure 13).
10. Pull the output wires through the conduit, leaving approximately 2 ft (0.5m) of exposed wire. Attach a flexible metal fitting to the end of the conduit.
11. Insert the conduit through the output wiring access knockout and attach the conduit fitting to the panel. Strip 0.5" (1.5 cm) of insulation from the end of each incoming wire.

12. Connect the output and ground wires to the output terminal block (see Figure 13).



**Figure 13. Terminal Block**

13. Replace the terminal block cover.
14. Switch the main utility breaker on.
15. Press and hold the  button until you hear the UPS beep (approximately one second). The LCD briefly displays **On Delay** and the  $\sim$  indicator illuminates. Then the UPS conducts a self-test, briefly displaying **On BATTERY**. If an alarm condition occurs, see Table 9 on page 53.

When the self-test is complete, the LCD displays **On Line** indicating that power is available from the UPS output receptacles.

16. If you installed optional EBMs, configure the number of EBMs through the front panel so that the UPS can estimate the available battery run time (see “Configuration Mode” on page 31).



**NOTE** The batteries charge to 90% capacity in approximately 4 hours. However, it is recommended that the batteries charge for 6 to 24 hours after installation or long-term storage.



## CHAPTER 4

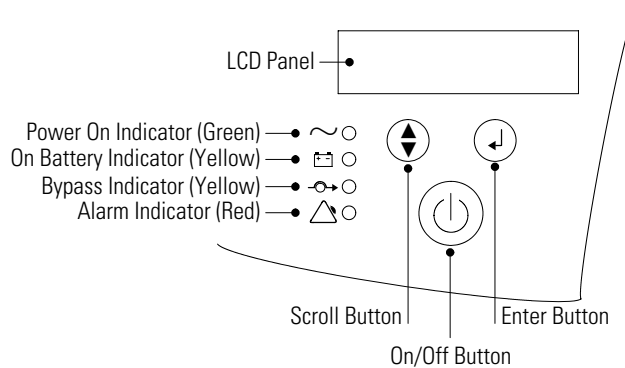
# OPERATION

This section describes:

- The UPS front panel
- Turning the UPS on and off
- Starting the UPS on battery
- Standby mode
- Diagnostic tests


### UPS Front Panel

The UPS front panel indicates the UPS status and also identifies potential power problems. Figure 14 shows the UPS front panel indicators and controls.



**Figure 14. UPS Front Panel**



**NOTE** If the alarm beeps or if the  indicator is on, see Table 9 on page 53 to identify and correct the problem. To configure parameters through the front panel, see “Configuration Mode” on page 31.

## Display Mode

To view the UPS current settings, press the  $\downarrow$  button for one second. Use the  $\downarrow$  button to scroll through the list of settings:

LCD Message	Description
I/P VOLT= xxx.xV	Input voltage.
I/P FREQ= xx.xHZ	Input frequency.
O/P VOLT= xxx.xV	Output voltage.
O/P FREQ= xx.xHZ	Output frequency.
O/P Load = x%	Approximate percentage of UPS load capacity being used by the protected equipment.
O/P Watt= xW	Output watts.
O/P VA= xVA	Output VA.
O/P Cur= x.xA	Output current.
BAT VOLT= xx.xV	Battery voltage.
BAT CHARGE= xxx%	Approximate percentage of battery capacity remaining.
BackUp Time= xxxM	Approximate battery time remaining in minutes. The display changes to seconds after one minute (Backup Time= xxxS).
CPU Version x.xx	Firmware revision level.



**NOTE** The UPS exits Display mode automatically after five seconds if the  $\downarrow$  button is not pressed.

## Turning the UPS On




After the UPS is connected to a power source, the fan turns on and the UPS enters Standby mode. To turn on the UPS, press and hold the  $\mathcal{U}$  button until you hear the UPS beep (approximately one second). The LCD briefly displays **On Delay** and the  $\sim$  indicator illuminates. Then the UPS conducts a self-test, briefly displaying **On BATTERY**. If an alarm condition occurs, see Table 9 on page 53.

When the self-test is complete, the LCD displays **On Line** indicating that power is available from the UPS output receptacles.


## Starting the UPS on Battery




**NOTE** Before using this feature, the UPS must have been powered by utility power at least once and the batteries must be completely charged.


To turn on the UPS without using utility power, press and hold the  button until you hear the UPS beep (approximately one second). The UPS supplies power to your equipment and goes into Battery mode. The LCD briefly displays **On Delay**, then **On Battery** and the  and  indicators illuminate. When the UPS starts on battery, it does not conduct a self-test to conserve battery power.

## Turning the UPS Off

To turn off the UPS, press and hold the  button until the long beep ceases (approximately five seconds). The LCD displays **Shutdown Pending**.

The  indicator turns off and the LCD briefly displays **UPS OFF** before going blank. The fan continues to run and the UPS remains in Standby mode until you unplug or remove utility power from the UPS.

## Standby Mode

When the UPS is turned off and connected to a power source, the UPS is in Standby mode. The fan continues to run and the battery recharges when necessary. The  indicator is off and the LCD panel is blank, indicating that power is not available from the UPS.

## Diagnostic Tests

The UPS automatically performs a self-test when powered on and when the UPS restarts after a power outage. The self-test monitors the UPS electronics and battery and indicates any problems on the front panel.

A battery test is automatically performed every 30 days (720 hours) of continuous Normal mode operation. The test lasts approximately 15 seconds and any failure is displayed on the front panel.

Both the UPS and battery tests can be performed manually (see “Configuration Mode” on page 31 for more information).





## CHAPTER 5

# CONFIGURATION



---

**NOTE** The UPS has been factory-configured with default settings appropriate for most installations. **User configuration is not normally required.**

---

This section describes how to reconfigure options using the Configuration mode, including: input and output voltage and frequency, site wiring fault, and silencing the alarm.

### Configuration Mode

The control buttons (⬆ and ⬇) are used to modify the UPS configuration. Figure 15 shows the front panel and Table 1 explains the corresponding options.



---

**NOTE** The UPS can be configured while in Battery mode. If the UPS switches to battery power while in Configuration mode, the UPS exits Configuration mode and indicates Battery mode on the front panel.

---

1. Press the ⬆ button for one second to enter Configuration mode. The LCD displays the first configuration parameter (see Table 1).
2. Press the ⬆ button to scroll through the parameters.



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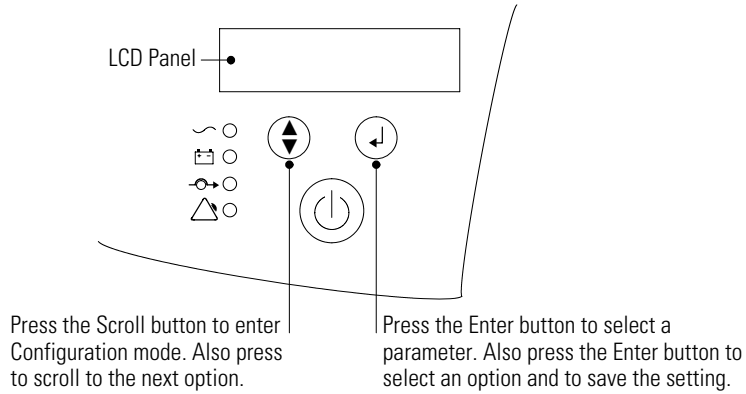
**NOTE** The UPS exits Configuration mode automatically after five seconds if a selection has not been made.

---

3. Press the ⬇ button to select the parameter.
4. Press the ⬆ button to scroll through the options for the selected parameter; press the ⬇ button to select the option.

You may be prompted to save the selection; press the ⬇ button to save. Other options are saved automatically. See Table 1 for more detail.

- To exit Configuration mode at any time, do not press any buttons for five seconds. The UPS returns to Normal mode and displays **On Line**.




**Figure 15. Using the Configuration Mode**

**Table 1. Configuration Mode Parameters**

Parameter	LCD Message	Description	Default Settings
Output Voltage Setting	O/P V Setting	To change the output voltage: <ul style="list-style-type: none"> <li>• Select 100, 110, 120, or 127V for 120V models.</li> <li>• Select 200, 208, 220, 230, or 240V for 208V models.</li> <li>• Select 208, 220, 230, or 240V for 230V models.</li> </ul> You are prompted to save this setting.	For 120V models: O/P V= 120V For 208V models: O/P V= 208V For 230V models: O/P V= 230V
Input Voltage Tolerance	I/P Bypass Set	Select the input voltage tolerance range before the UPS goes to Battery mode: $\pm 10\%$ , $+10\%/-15\%$ , or $+15\%/-20\%$ . You are prompted to save this setting.	I/P Tol= $+10\%/-15\%$
Input Voltage Frequency	I/P F Setting	The factory-default is 50 or 60 Hz, $\pm 5\%$ . Select $\pm 2\%$ for a narrower frequency range. Select $\pm 7\%$ for a wider frequency range. You are prompted to save this setting.	Freq Tol.= $\pm 7\%$



Parameter	LCD Message	Description	Default Settings
High-Efficiency Mode	HE Mode Setting	<p>Select whether High-Efficiency mode is On or Off. If enabled, you must also select the input voltage range: <math>\pm 10\%</math> or <math>\pm 15\%</math>.</p> <p>While operating in High-Efficiency mode, the UPS transfers from utility power when: 1) the input voltage is outside <math>\pm 10\%</math> or <math>\pm 15\%</math> from nominal; 2) the input frequency is greater than <math>\pm 3\%</math>; or 3) the input line is not available.</p> <p>You are prompted to save this setting.</p>	HE Mode Off
Free Run Mode	Free Run Mode	<p>Select whether Free Run mode is On or Off. If enabled, you must also select Bypass Disable or Bypass Enable. This selection defines how your UPS runs when the input frequency (from the utility) is outside the selected frequency tolerance (set via the I/P F Setting, above), but is inside the maximum frequency limits the UPS can accept before switching to Battery mode.</p> <p>For example: If your 60 Hz UPS is set to the factory default window of <math>\pm 5\%</math> before the UPS starts regulating the frequency:</p> <ul style="list-style-type: none"> <li>• The output frequency tracks the input frequency exactly from 57 to 63 Hz.</li> <li>• If input frequency is between 45 and 57 Hz, or between 63 and 65 Hz, the output frequency is regulated by the UPS to exactly 60 Hz (<math>\pm 0.5</math> Hz).</li> </ul> <p>You are prompted to save this setting.</p>	Free Run On (Bypass Disable)
Alarm Silence	Alarm Silence	<p>Select whether Silence is On or Off. If enabled, the UPS silences the alarm for an existing fault. If the UPS status changes, the alarm beeps, overriding the previous alarm silencing. The alarm does not silence if there is a low battery condition.</p>	Silence Off
Manual Battery Test	Manual Bat Test	<p>To initiate a manual battery test, press the <b>q</b> button twice. During the test, the LCD displays <b>On BATTERY</b>. The UPS resets the automatic timer after a manual battery test.</p> <p><b>NOTE</b> The batteries must be fully charged and the UPS must not be in Battery mode to perform the manual battery test.</p>	Battery Test
Manual UPS Test	Manual UPS Test	<p>To initiate a manual UPS self-test, press the <b>q</b> button twice. During the test, the LCD displays <b>On BATTERY</b>.</p>	UPS Test

Parameter	LCD Message	Description	Default Settings
Site Wiring Fault Alarm	Site Fault Set	Select Enable or Disable. When enabled, the alarm sounds when the ground connection is missing or the line and neutral wires are reversed in the wall outlet.	Detect Enable
Modem Support	Modem Support	This parameter is reserved for future use, and should not be modified by the user.	No Modem Support
Number of Extended Battery Modules	Bat Pack Num Set	Select the number of EBMs connected to the UPS: <ul style="list-style-type: none"> <li>For 700–1500 VA models, select 0 through 2.</li> <li>For 2000–3000 VA models, select 0 through 5.</li> </ul> You are prompted to save this setting.	Extern Pack: 0
Communications Lock-out	COM Control Cmds	For greater levels of security, users may choose to have the UPS disregard shutdown commands that come from the power management software or other communication sources. <ul style="list-style-type: none"> <li>When disabled, the UPS does not accept a shutdown command via the communication port, USB port, or communication slot adapter.</li> <li>When enabled, the UPS operates normally in response to external commands.</li> </ul> You are prompted to save this setting.	Enable
Load Segment Control	Load Group Set	Allows manual control of load segments (see “Load Segments” on page 38). By repeatedly pressing the scroll button, the individual load segments can be turned on and off. <b>CAUTION</b> To prevent the unintentional shutdown of specific load segments, confirm your selection before pressing the  button.	Group 1On 2On
Manual Bypass	Manual Bypass GO	This parameter is used to manually place the UPS in Bypass mode.	Bypass OFF
Configuration Mode Setting	Config Mode Set	This parameter is reserved for future use, and should not be modified by the user. The setting may be toggled between <b>EscapeConfigMode</b> and <b>Enter ConfigMode</b> . It should always be set to <b>EscapeConfigMode</b> .	EscapeConfigMode



## CHAPTER 6

# ADDITIONAL UPS FEATURES

This section describes:



- Remote Emergency Power-Off
- Network Transient Protector
- Load segments
- Using the communication port or USB port
- Optional Powerware communication cards

### Remote Emergency Power-Off

The Powerware 9120 includes a REPO port that allows power to be switched off at the UPS output connections from a customer-supplied switch in a remote location.

The REPO feature shuts down the protected equipment immediately, whether or not the UPS is in Normal or Battery mode, and does not follow the orderly shutdown procedure initiated by any power management software. The UPS switches to Standby mode.

When the external REPO switch is reset, the UPS must be manually restarted to provide power to the connected equipment.

If the  button is pressed after the REPO is activated, the UPS remains in Standby mode when restarted until the  button is pressed again.

#### WARNING



The REPO circuit is an IEC 60950 safety extra low voltage (SELV) circuit. This circuit must be separated from any hazardous voltage circuits by reinforced insulation.

#### CAUTION



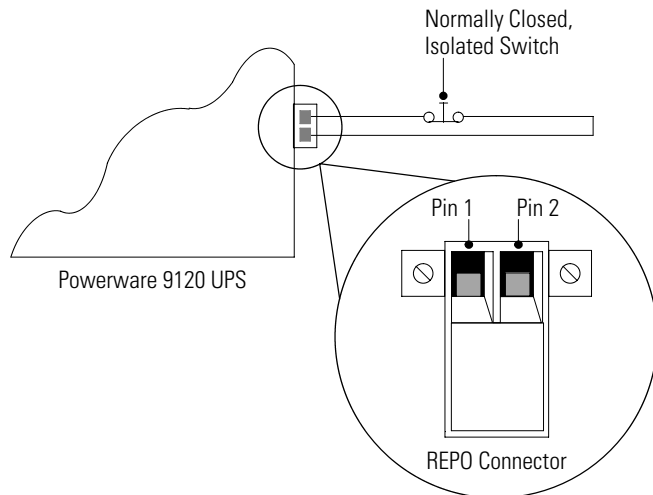
To ensure the UPS stops supplying power to the load during any mode of operation, the input power must be disconnected from the UPS when the emergency power-off function is activated.




**NOTE** The REPO function activates when the REPO contacts open.

Use the following procedure to install the REPO switch:

1. Verify that the UPS is off and unplugged or removed from utility power.
2. Unscrew and remove the REPO connector from the mating plug on the UPS rear panel.
3. Remove the short wire from the REPO connector.
4. Connect isolated, normally-closed, dry contacts (rated at 60 Vdc maximum, 30 Vac RMS maximum, and 20 mA maximum) across the REPO device to Pin 1 and Pin 2. Use stranded, non-shielded wiring, size 18–22 AWG (0.75 mm<sup>2</sup>–0 mm<sup>2</sup>). See Figure 16.



**Figure 16. REPO Wiring Diagram**

5. Reconnect the REPO connector to the REPO port on the UPS rear panel.
6. Verify that the externally-connected REPO switch is not activated to enable power to the UPS output connections.
7. Connect the UPS to a power source.
8. To start the UPS, press and hold the  button until you hear the UPS beep (approximately one second).
9. Activate the external REPO switch to test the REPO function.
10. De-activate the external REPO switch and restart the UPS.

## Network Transient Protector

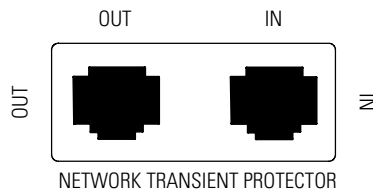
The Network Transient Protector, shown in Figure 17 and Figure 18, is located on the rear panel and has jacks labeled IN and OUT. This feature accommodates a single RJ-45 (10BaseT) network connector.

Low voltage models can also accommodate an RJ-11 telephone connector that provides protection for modems, fax machines, or other telecommunications equipment. As with most modem equipment, it is not advisable to use this jack in digital PBX (Private Branch Exchange) environments.

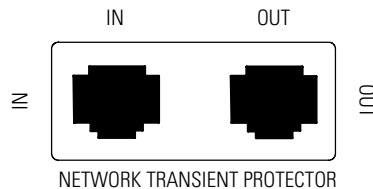


**NOTE** DO NOT connect any telephone or fax/modem equipment to the 230V models; only network protection is available for 230V models.

1. Connect the input connector of the equipment you are protecting to the jack labeled IN.
2. Connect the network or telephone cable (low voltage units only) to the jack labeled OUT.



**Figure 17. Network Transient Protector (120V and 208V Models)**



**Figure 18. Network Transient Protector (230V Models)**

## Load Segments

Load segments are sets of receptacles that can be controlled by power management software (such as the Powerware Software Suite CD), providing an orderly shutdown and startup of your equipment. For example, during a power outage, you can keep key pieces of equipment running while you turn off other equipment. This feature allows you to save battery power. See your power management software manual for details.

The individual load segments can also be turned on and off through the front panel (see “Configuration Mode” on page 31).

Figure 19 and Figure 20 show the load segments for all plug/receptacle models.

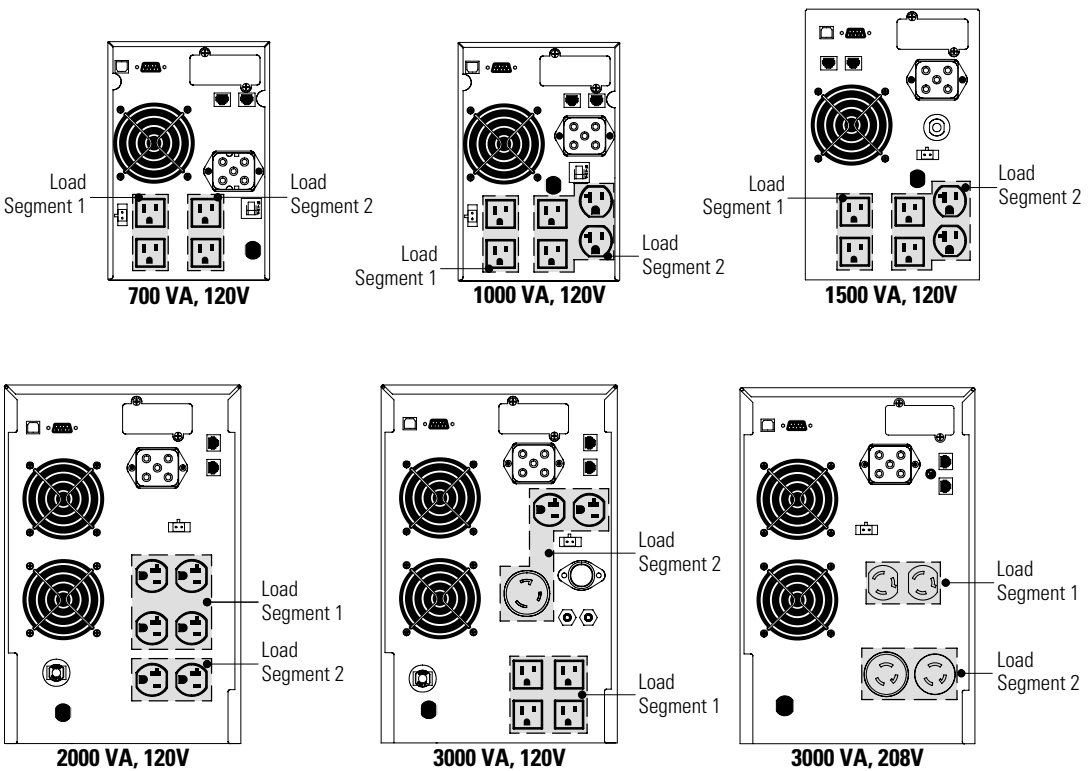
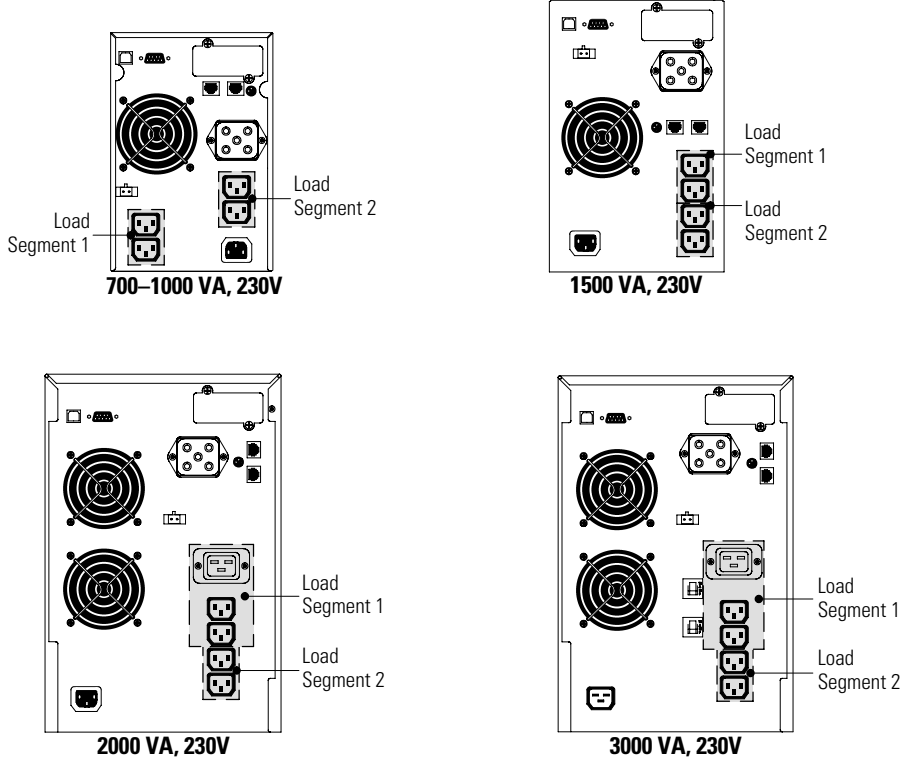


Figure 19. 120V and 208V Model Load Segments



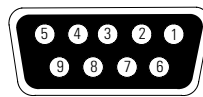
**Figure 20. 230V Model Load Segments**

## Communication Port

To establish communication between the UPS and a computer, connect your computer to the UPS communication port using the supplied communication cable.

When the communication cable is installed, power management software can exchange data with the UPS. The software polls the UPS for detailed information on the status of the power environment. If a power emergency occurs, the software initiates the saving of all data and an orderly shutdown of the equipment.

The cable pins are identified in Figure 21 and the pin functions are described in Table 2.



**Figure 21. Communication Port**

**Table 2. Communication Port Pin Assignment**

Pin Number	Signal Name	Function	Direction from the UPS
1	Low Batt	Low Battery signal	Out
2	RxD	Transmit to external device	Out
3	TxD	Receive from external device	In
	RS-232 low level signal for >0.4 seconds	Conditional Power Off: In absence of AC power, output is turned off until normal AC power returns	In
4	—	No Connection	—
5	GND	Signal Ground	—
6	—	No Connection	—
7	—	No Connection	—
8	AC Fail	AC Fail signal	Out
9	Power Source	+V (8 to 24 volts DC power)	Out



## USB Port

The UPS is also equipped with a USB communication port. Either the DB-9 communication port or the USB port may be used to monitor the UPS; however, they cannot operate simultaneously. Refer to the power management software instructions for using the USB port.

## Optional Communication Cards

Optional communication cards are available for the Powerware 9120 that fit in the BestDock slot on the rear panel. These cards interface with your computer system to provide greater shutdown control and UPS monitoring.

### Relay Interface Card

This interface provides true relay contact output to peripheral devices, such as the AS/400® and other relay-connected computers. Refer to the Relay Interface Card instructions for more details on shutdown options and relays.

### ConnectUPS-BD™ Web/SNMP Card

This card provides the Powerware 9120 system with its own ethernet network connection, allowing it to be remotely monitored and controlled via industry-standard internet browsers. The HTML interface enables UPS monitoring and management from anywhere on the internet or within your intranet. In addition, third-party Simple Network Management Protocol (SNMP) software packages may also be used to communicate remotely with the Powerware 9120 system. The ConnectUPS-BD Web/SNMP Card also allows UPS-dependent computer systems to automatically shut down during extended power outages using the NetWatch client software provided on the Powerware Software Suite CD or [www.powerware.com](http://www.powerware.com).





## CHAPTER 7

# UPS MAINTENANCE

This section explains how to:

- Care for the UPS and batteries
- Replace the batteries
- Recycle used batteries

### UPS and Battery Care

For the best preventive maintenance, keep the area around the UPS clean and dust-free. If the atmosphere is very dusty, clean the outside of the system with a vacuum cleaner.

For full battery life, keep the UPS at an ambient temperature of 25°C (77°F).

#### Storing the UPS and Batteries

If you store the UPS for a long period, recharge the battery every 10 months by connecting the UPS to a power source. The batteries charge to 90% capacity in approximately 4 hours. However, it is recommended that the batteries charge for 6 to 24 hours after long-term storage.

Check the battery recharge date on the shipping carton label. If the date has expired and the batteries were never recharged, do not use the UPS. Contact your service representative.

## Replacing Batteries




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**NOTE** DO NOT DISCONNECT the batteries while the UPS is in Battery mode.

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With the hot-swappable battery feature, UPS batteries can be replaced easily without turning the UPS off or disconnecting the load.

If you prefer to remove input power to change the battery, press and hold the  button until the long beep ceases (approximately five seconds). Then unplug or remove utility power from the UPS.

Consider all warnings, cautions, and notes before replacing batteries.

### WARNING



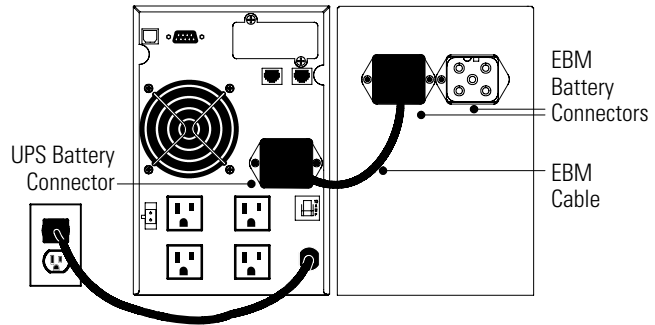
- Batteries can present a risk of electrical shock or burn from high short circuit current. The following precautions should be observed: 1) Remove watches, rings, or other metal objects; 2) Use tools with insulated handles; 3) Do not lay tools or metal parts on top of batteries.
  - ELECTRIC ENERGY HAZARD. Do not attempt to alter any battery wiring or connectors. Attempting to alter wiring can cause injury.
  - Replace batteries with the same number and type of batteries as originally installed in the UPS.
- 

### How to Replace External Batteries

Use the following steps to replace external batteries:

1. Unplug the EBM cable from the UPS and the old battery.
2. Remove the old battery. See “Recycling the Used Battery” on page 47 for proper disposal.
3. Plug the EBM cable into the battery connector on the new battery.

4. Plug the other end of the EBM cable into the UPS as shown in Figure 22.



**Figure 22. External Battery Connections (120V Model Shown)**

## How to Replace Internal Batteries

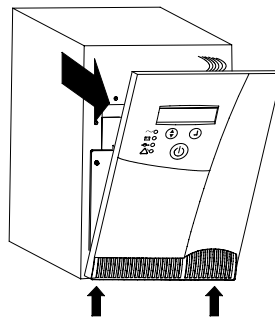
### WARNING



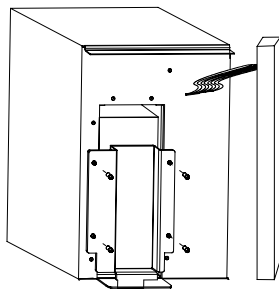
**2000–3000 VA Models:** Only qualified service personnel (such as a licensed electrician) should perform the battery replacement. Risk of electrical shock.

Use the following steps to replace the internal batteries (1000 VA model shown):

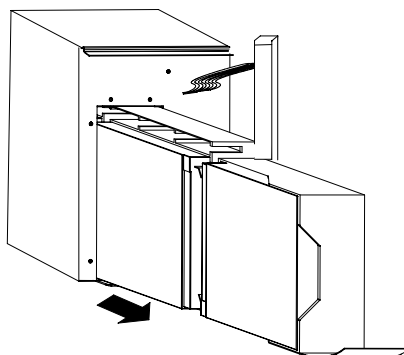
1. Using caution not to put stress on the LCD display cable, pull the top of the front panel forward. Release the spring latches at the bottom of the front panel and remove it, placing it to the side of the UPS.



2. Unscrew the metal battery cover (1000 VA model shown).



3. Pull the battery out onto a flat, stable surface (1000 VA model shown).



4. Remove the old battery. See “Recycling the Used Battery” for proper disposal.
5. Install the new battery.
6. Reinstall the metal battery cover and front panel.

## Recycling the Used Battery

Contact your local recycling or hazardous waste center for information on proper disposal of the used battery.



### WARNING

- Do not dispose of the battery or batteries in a fire. Batteries may explode. Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.



### CAUTION

Do not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling or hazardous waste center.







# CHAPTER 8

## SPECIFICATIONS

This section provides the following specifications for the Powerware 9120 models:

- Electrical input and output
- Environmental and safety
- Weights and dimensions
- Battery

**Table 3. Electrical Input**

	120V Models	208V Models	230V Models
Nominal Voltage	120V default; 100, 110, 120, 127V selectable	208V default; 200, 208, 220, 230 240V selectable	230V default; 208, 220, 230 240V selectable
Voltage Range	80–144V for 100, 110, 120, 127V nominal	160–276V for 200, 208, 220, 230, 240V nominal	160–276V for 208, 220, 230, 240V nominal
Nominal Frequency	50/60 Hz, $\pm 5\%$ user-selectable		
Noise Filtering	MOVs and line filter for normal and common mode noise		
Connections	PW9120 700: 6-ft, 5-15P power cord PW9120 1000: 6-ft, 5-15P power cord PW9120 1500: 6-ft, 5-15P power cord PW9120 2000: 6-ft, 5-20P power cord PW9120 3000: 6-ft, L5-30P power cord PW9120 3000H: Hardwired	PW9120 3000B: 6-ft, L6-20P power cord	PW9120 700i: 10A, IEC-C14 input connector PW9120 1000i: 10A, IEC-C14 input connector PW9120 1500i: 10A, IEC-C14 input connector PW9120 2000i: 10A, IEC-C14 input connector PW9120 3000i: 16A, IEC-C20 input connector

**Table 4. Electrical Output**

	120V Models	208V Models	230V Models
<b>Power Levels (rated at nominal inputs)</b>	PW9120 700: 700 VA, 490W PW9120 1000: 1000 VA, 700W PW9120 1500: 1500 VA, 1050W PW9120 2000: 2000 VA, 1400W PW9120 3000: 3000 VA, 2100W PW9120 3000H: 3000 VA, 2100W	PW9120 3000B: 3000 VA, 2100W	PW9120 700i: 700 VA, 490W PW9120 1000i: 1000 VA, 700W PW9120 1500i: 1500 VA, 1050W PW9120 2000i: 2000 VA, 1400W PW9120 3000i: 3000 VA, 2100W
<b>Regulation (Normal mode)</b>	Nominal output voltage $\pm 2\%$		
<b>Regulation (Battery mode)</b>	Nominal output voltage $\pm 3\%$		
<b>Voltage Waveform</b>	Normal mode: Sine wave; <5% THD with full PFC and nonlinear load		
<b>Output Connections</b>	PW9120 700: (4) 5-15R PW9120 1000: (4) 5-15R, (2) 5-20R PW9120 1500: (4) 5-15R, (2) 5-20R PW9120 2000: (6) 5-20R PW9120 3000: (4) 5-15R, (2) 5-20R, (1) L5-30R PW9120 3000H: Hardwired	PW9120 3000B: (2) L6-15R, (1) L6-20R, (1) L6-30R	PW9120 700i: (4) IEC-C13 PW9120 1000i: (4) IEC-C13 PW9120 1500i: (4) IEC-C13 PW9120 2000i: (4) IEC-C13, (1) IEC-C19 PW9120 3000i: (4) IEC-C13, (1) IEC-C19

**Table 5. Environmental and Safety**

	120V/208V Models	230V Models
Operating Temperature	0°C to 40°C (32°F to 104°F) 0–1500 meters above sea level 0°C to 35°C (32°F to 95°F) 1500–3000 meters above sea level Optimal battery performance: 25°C (77°F)	
Storage Temperature	-15°C to 50°C (-5°F to 131°F)	
Relative Humidity	0–95% noncondensing	
Operating Altitude	Up to 3,000 meters (10,000 ft) above sea level	
Audible Noise	700–1500 VA: Less than 48 dBA Normal mode, typical load 2000–3000 VA: Less than 54 dBA Normal mode, typical load	
Surge Suppression	ANSI C62.41 Category B (formerly IEEE 587)	
Safety Conformance	UL 1778, UL 497A; CAN/CSA C22.2, No. 107.1	UL 1778 (700–2000 Models), UL 497A (data line only); CAN/CSA C22.2, No. 107.1 EN 50091-1-1 and IEC 60950;
Agency Markings	UL, cUL, CE	UL, cUL, CE, C-Tick
EMC	FCC Part 15, ICES-003, VCCI	EN 50091-2, FCC Part 15, ICES-003

**Table 6. Weights and Dimensions**

	UPS Models		Extended Battery Module Models
	120/208V Models	230V Models	
Dimensions (WxDxH)	700–1000 VA: 6.2" x 16.2" x 9.6" (15.8 x 41.2 x 24.3 cm) 1500 VA: 6.7" x 17.5" x 10.8" (17.0 x 44.4 x 27.5 cm) 2000–3000 VA: 8.6" x 18.6" x 14.2" (21.7 x 47.2 x 36.1 cm)		700–1000 VA: 6.2" x 16.2" x 9.6" (15.8 x 41.2 x 24.3 cm) 1500 VA: 6.7" x 17.5" x 10.8" (17.0 x 44.4 x 27.5 cm) 2000–3000 VA: 8.6" x 18.6" x 14.2" (21.7 x 47.2 x 36.1 cm)
Weight	PW9120 700: 29 lb (13.2 kg) PW9120 1000: 35.5 lb (16.1 kg) PW9120 1500: 46.5 lb (21.1 kg) PW9120 2000: 82 lb (37.2 kg) PW9120 3000: 89 lb (40.5 kg) PW9120 3000H: 89 lb (40.5 kg) PW9120 3000B: 85 lb (38.5 kg)	PW9120 700i: 28 lb (12.6 kg) PW9120 1000i: 34 lb (15.3 kg) PW9120 1500i: 44 lb (19.8 kg) PW9120 2000i: 81.6 lb (37 kg) PW9120 3000i: 85 lb (38.5 kg)	PW9120 BAT-700: 31 lb (14 kg) PW9120 BAT-1000: 44 lb (20 kg) PW9120 BAT-1500: 57 lb (26 kg) PW9120 BAT-3000: 110 lb (50 kg)

**Table 7. Battery**

Configuration	700 VA: (2) 12V, 7 Ah internal batteries; 24 Vdc 1000 VA: (3) 12V, 7 Ah internal batteries; 36 Vdc 1500 VA: (4) 12V, 7 Ah internal batteries; 48 Vdc 2000–3000 VA: (8) 12V, 7 Ah internal batteries; 96 Vdc
EBM Configuration	PW9120 BAT-700: (4) 12V, 2 × 7 Ah; 24 Vdc PW9120 BAT-1000: (6) 12V, 2 × 7 Ah; 36 Vdc PW9120 BAT-1500: (8) 12V, 2 × 7 Ah; 48 Vdc PW9120 BAT-3000: (16) 12V, 2 × 7 Ah; 96 Vdc
Type	Sealed, maintenance-free, valve-regulated, lead-acid
Charging	Approximately 4 hours to 90% usable capacity at nominal line voltage after full load discharge

**Table 8. Battery Run Times (in Minutes)**

Number of Batteries	Run Times at Full/Half Load by UPS VA Ratings				
	700 VA	1000 VA	1500 VA	2000 VA	3000 VA
UPS Internal Batteries	7/18	7/18	7/18	12/34	6/15
1 EBM	34/70	36/80	29/67	49/107	30/70
2 EBMs	64/140	66/155	56/130	93/195	58/128
3 EBMs				141/310	87/191
4 EBMs				192/403	120/264
5 EBMs				240/504	148/325

**NOTE** Battery times are approximate and vary depending on the load configuration and battery charge.



## CHAPTER 9

# TROUBLESHOOTING

This section explains:

- UPS alarms and conditions
- How to silence an alarm
- Service and support

### Audible Alarms and UPS Conditions

The UPS has an audible alarm feature to alert you of potential power problems. When the alarm is activated, the UPS beeps in different intervals according to a particular condition. Use Table 9 to determine and resolve the UPS alarms and conditions.

#### Silencing an Audible Alarm


There are two ways to silence the alarm for an existing fault:

- Press the  $\blacktriangle$  or  $\blacktriangledown$  button on the front panel.
- Turn the Alarm Silence option on through the front panel (see “Configuration Mode” on page 31).

If UPS status changes, the alarm beeps, overriding the previous alarm silencing. The alarm does not silence if there is a low battery condition.

**Table 9. Troubleshooting**

LCD Message or Condition	Possible Cause	Action
UPS does not turn on.	The UPS is not connected correctly to the power source.	Check connections to the power source.
	The wall outlet is faulty.	Have a qualified electrician test and repair the outlet.
	The REPO connector is missing or open.	Reconnect or close the REPO switch (see page 36). Restart the UPS.
	A circuit breaker or an input fuse on the rear panel is open.	Push the circuit breaker button or replace the fuse. Restart the UPS.

LCD Message or Condition	Possible Cause	Action
LCD panel is blank.	The UPS is in Standby mode.	Press and hold the  button until you hear the UPS beep (approximately one second).
	The LCD has failed.	Contact your service representative.
UPS does not provide the expected backup time.	The battery may be fully discharged because of: <ul style="list-style-type: none"> <li>• long-term storage</li> <li>• frequent power outages</li> <li>• end of battery life</li> </ul>	Connect the UPS to a power source for 24 hours to charge the battery. Perform a battery test (see "Configuration Mode" one page 31). If the battery test fails, see "Replacing Batteries" on page 44 to replace the battery. During extended power outages, save your work and turn off your equipment to conserve battery power.
The UPS operates normally, but some or all of the protected equipment is not on.	The equipment is not connected to the UPS.	Verify that the equipment is properly connected to the UPS.
	The output circuit breaker (if applicable) is open.	Reset the circuit breaker (push the circuit breaker button or reset the switch).
	One of the load segments has been turned off.	Reactivate the segment with the power management software or through the front panel (see "Configuration Mode" one page 31).
On-Battery 1 beep every 5 seconds.	Utility power failure.	The UPS is powering your equipment with its internal battery. If this is an extended power outage, save your work and turn off your equipment to conserve battery power.
Low Battery 2 beeps every 5 seconds.	The battery is running low.	2 minutes or less of battery power remains (depending on load and battery charge). Prepare for a shutdown. Save your work and turn off your equipment. The alarm cannot be silenced.
Replace Battery 3 beeps every 5 seconds.	The battery needs replacing.	See "Replacing Batteries" on page 44 to replace the battery.
Low Charge 3 beeps every 5 minutes.	The battery voltage is low.	The UPS is charging the batteries and may not deliver full run time. The alarm continues until at least two minutes of run time is available.
Output Overload 2 beeps per second.	Power requirements exceed UPS capacity (110–125% for 1 minute or 126–150% for 10 seconds) or the load is defective. The UPS switches to Bypass mode.	Remove some of the equipment from the UPS. The UPS automatically switches back to Normal mode when the capacity returns to an acceptable level. You may need to obtain a larger capacity UPS.

LCD Message or Condition	Possible Cause	Action
Battery Overload 2 beeps per second.	The UPS is on battery, and the power requirements exceed UPS capacity (130% for 10 seconds or >130% for 1.5 seconds) or the load is defective.	Shutdown is imminent (30 seconds). Save your work and turn off your equipment. Turn off and unplug or remove utility power from the UPS. Remove some of the equipment from the UPS. Restart the UPS. You may need to obtain a larger capacity UPS.
Site Fault 1 beep per second.	Ground wire connection does not exist or the line and neutral wires are reversed in the wall outlet.	Have a qualified electrician correct the wiring. To disable this alarm, see "Configuration Mode" on page 31.
Battery Test	The UPS is performing a battery test.	None. The UPS returns to Normal mode when it completes a successful battery test.
Over-Temperature Constant beep.	UPS internal temperature is too high.	Shutdown is imminent. Save your work and turn off your equipment. Turn off the UPS. Clear vents and remove any heat sources. Ensure the airflow around the UPS is not restricted. Wait at least 5 minutes and restart the UPS. If the condition persists, contact your service representative.
Over-Charge Constant beep.	Batteries are over-charged.	Save your work and turn off your equipment. Turn off the UPS. Contact your service representative.
Charger Failure	Charger has failed.	Save your work and turn off your equipment. Turn off the UPS. Contact your service representative.
Output Short Constant beep.	Output short circuit.	Save your work and turn off your equipment. Turn off the UPS. Contact your service representative.
High Output Voltage Constant beep.	High output voltage.	Save your work and turn off your equipment. Turn off the UPS. Contact your service representative.
Low Output Voltage Constant beep.	Low output voltage.	Save your work and turn off your equipment. Turn off the UPS. Contact your service representative.
High DC Bus 2 beeps per second.	High internal DC bus voltage.	Save your work and turn off your equipment. Turn off the UPS. Contact your service representative.

## Service and Support

If you have any questions or problems with the UPS, call your **Local Distributor** or the **Help Desk** at one of the following telephone numbers and ask for a UPS technical representative.

In the United States: **1-800-356-5737** or **1-608-565-2100**  
Europe, Middle East, Africa: **+44-17 53 608 700**  
Asia: **+852-2830-3030**  
Australia: **+61-3-9706-5022**

Please have the following information ready when you call the Help Desk:

- Model number
- Serial number
- Version number (if available)
- Date of failure or problem
- Symptoms of failure or problem
- Customer return address and contact information

If repair is required, you will be given a Returned Material Authorization (RMA) Number. This number must appear on the outside of the package and on the Bill Of Lading (if applicable). Use the original packaging or request packaging from the Help Desk or distributor. Units damaged in shipment as a result of improper packaging are not covered under warranty. A replacement or repair unit will be shipped, freight prepaid for all warrantied units.



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**NOTE** For critical applications, immediate replacement may be available. Call the **Help Desk** for the dealer or distributor nearest you.

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