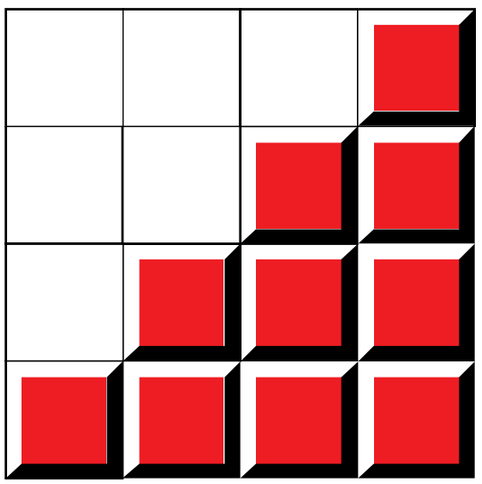
Matrix™ UPS

Hard-wire kit accessory
MXA001
MXA002



User's Manual

American Power Conversion®

The world's most reliable power protection

Important safety instructions!

Please read this manual!
Veuillez lire ce manuel!
Bitte lesen Sie dieses Anleitungshandbuch!
¡Se ruega leer este manual de instrucciones!

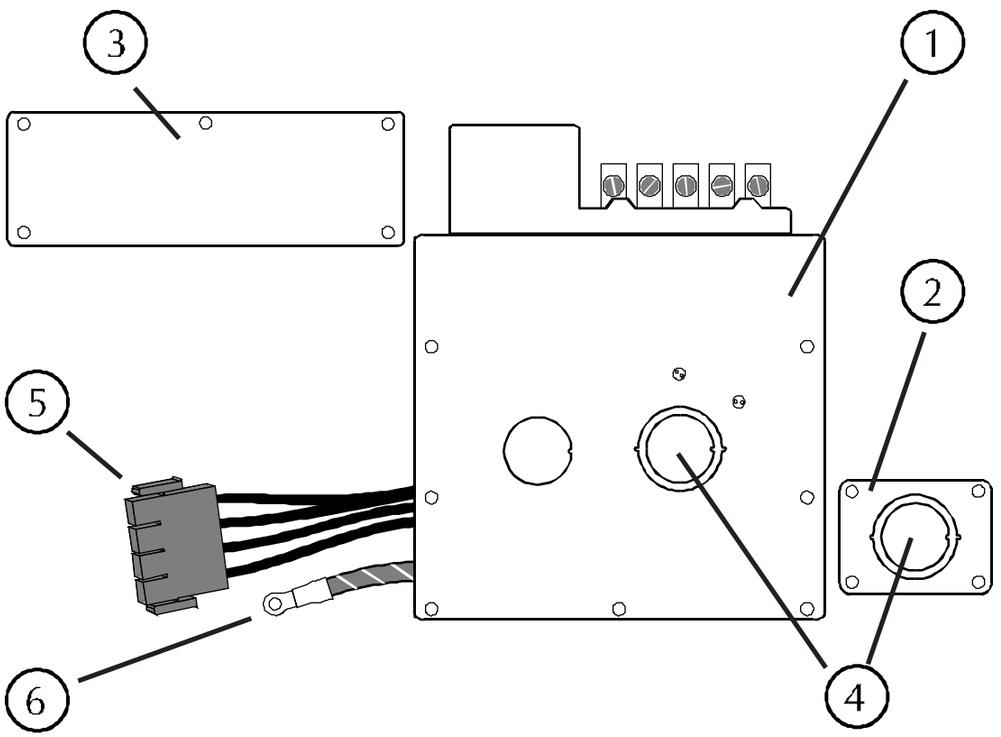
PLEASE SAVE THIS MANUAL ! It includes important instructions for the safe use and installation of the UPS and its accessories.

CONSERVER CES INSTRUCTIONS ! Cette notice contient des instructions importantes concernant la sécurité.

Table of contents

1.0 Introduction

The hard-wire kit allows the UPS's input and/or output terminals to be permanently secured to building service wiring. This kit is used in place of the power distribution plate and/or input cable plate originally furnished with the UPS. The kit contains input cable and output power distribution plates with "knock-outs'' for interface to standard sized fittings.



Hard-wire kit parts

2.0 Presentation

① Power distribution plate

Provides an interface for output hard-wiring of loads. It is used in place of the power distribution plate for cord connected equipment originally furnished with the UPS.

② Input cable plate

Used to replace the input cable plate originally furnished with the UPS. It allows hard-wiring of the input connections.

③ Wiring inspection cover

When removed, the wiring inspection cover reveals the output wiring connections to the UPS. It is necessary to inspect the connections during installation as the wires may move when the power distribution plate is attached.

④ Electrical fittings "knock-outs"

Knock-outs appropriate for use with ½" (output only), ¾" and 1" electrical cable clamp fittings are provided at the input cable plate, and at the output power distribution plate.

⑤ UPS output power connector

This self locking connector plugs into an internal receptacle. The mating connector is revealed when the power distribution plate and top cover of the UPS Isolation Unit are removed. The connector provides all necessary output voltages to the output wiring terminals.

⑥ Earth bonding ring terminal

The earth bonding ring terminal connects the output earthing terminations on the power distribution plate to the input protective earth. This terminal is bolted to the Isolation Unit's earthing stud. See the **Installation** section of this manual.

3.0 Installation

■ ***Warning:*** *Risk of electric shock exists inside the UPS. Input voltage tap selection and power distribution panel replacement should be performed only by qualified service personnel.*

■ ***Avertissement:*** *Un risque de choc électrique existe à l'intérieur de l'UPS. La sélection des fils de tension d'entrée et le remplacement du panneau de distribution de puissance doivent être effectués seulement par du personnel d'entretien et réparations qualifié.*

■ ***Warnung:*** *Im Inneren der unterbrechungsfreien Spannungsversorgung besteht die Gefahr des elektrischen Schlages. Spannungswahl und Austausch der Verteilereinheit darf nur von qualifiziertem Servicepersonal durchgeführt werden.*

■ ***Advertencia:*** *Dentro de la Fuente de Poder Ininterrumpible existe el riesgo de una descarga eléctrica. Tanto la selección de las conexiones para el voltaje de entrada como el reemplazo del panel de distribución de potencia deben ser realizados por personal de servicio calificado.*

3.1 Input voltage requirements

As furnished, the UPS is configured to operate from a single phase 208 Vac source. In applications where it is desired to operate from a 240 Vac source, the UPS must be reconfigured. See the UPS User's Manual for instructions.

3.2 Installation materials and tools

3.2.1 Required materials

■ Input and output electrical cable

The UPS should be installed using approved 3-conductor flexible cable. Recommended flexible cord sizes (in units of American Wire Gauge and square millimeters) and wire strip lengths are tabulated as follows. Plan on leaving at least 3.3 ft (1 m) of slack cable so that the UPS can be moved for maintenance or for the addition of new loads.

3.0 Installation

Table 3.2.1

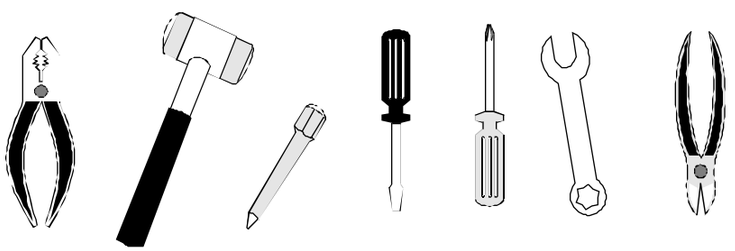
Cable Size			Strip Length	
UPS Model	Minimum	Maximum	Input cable	Output cable
3000VA	2.5 mm2 12 AWG	10.0 mm2 8 AWG	12 mm 1/2"	9 mm 3/8"
5000VA	6.0 mm2 10 AWG	10.0 mm2 8 AWG		

■ Cable clamps

The UPS is not furnished with cable clamps for strain relief. Use only approved ½" (output only), ¾" or 1" fittings.

3.2.2 Required tools

■ Electrician's pliers
■ Hammer
■ Nail set or punch
■ Flat blade screwdriver
■ Phillips screwdriver (No. 2)
■ 3/8" Wrench
■ Wire cutters



3.3 Input wiring procedure

3.3.1 Switch off (0) the UPS's input circuit breaker and unplug the input cord (where applicable).

Caution: *Switching the input circuit breaker to off (0) does not remove power to all of the Isolation Unit. Power to the UPS must be disconnected at the source.*

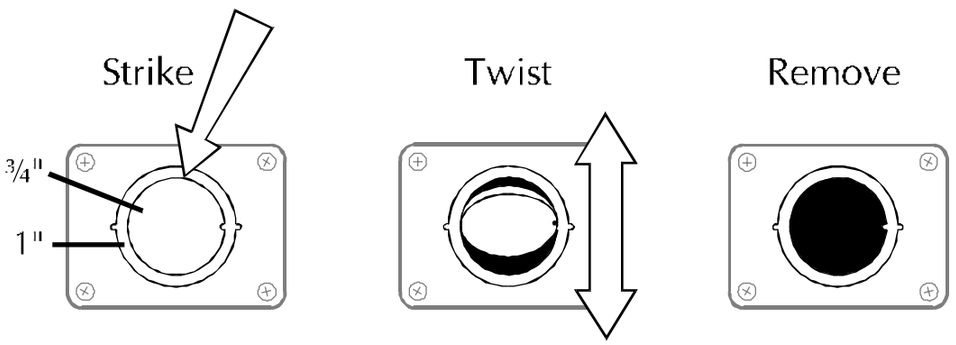
3.3.2 Determine the size of the electrical cable clamp fittings to be used, either ¾" or 1", and remove the appropriate knock-out on the supplied input cable plate.

3.0 Installation

3.3 Input wiring procedure - continued

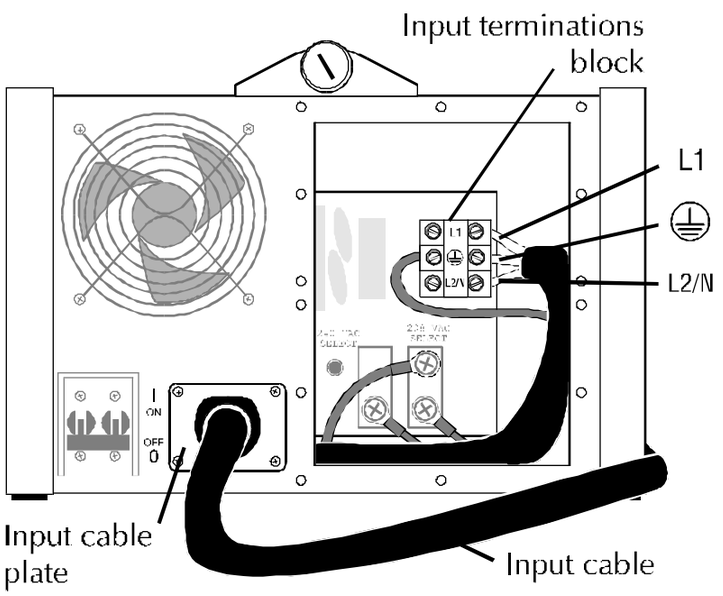
To remove a knock-out, strike in the area shown with a nail set tool and hammer. Grasp the edge of the knock-out with pliers and twist until the knock-out is separated from the plate.

Caution: *The edge of the knock-out may be sharp!*



Example showing removal of ¾" knock-out

3.3.3 Remove all screws that secure the power distribution plate from the rear of the Isolation Unit. Move the power distribution plate aside gently. Take care not the strain the wires connected to the devices on the plate.



Input cable connections

3.0 Installation

3.3 Input wiring procedure - continued

3.3.4 Remove all three input cable wire connections from terminal block labeled L1, ⏚ and L2/N.

3.3.5 Remove all screws that secure the input cable plate. Use a pair of wire cutters to remove "tie wraps" binding the input cable to wires inside the Isolation Unit. Take care not to damage the insulation on any of the internal wires. Remove the unneeded input cable plate and attached input cable.

3.3.6 Fasten an appropriately sized and approved cable clamp (not provided) onto the new input cable plate.

3.3.7 Strip insulation from the input cable wire ends at the length given in Table 3.2.1.

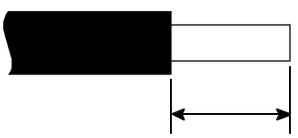


Table 3.2.1

3.3.8 Thread the input cable through the cable clamp and through the input cable plate hole in the Isolation Unit. Arrange the cable so that the end is near the input terminations block.

3.3.9 Put the stripped wire end corresponding to the mains Line 1 into the terminations block terminal marked L1 and tighten the screw.

3.3.10 Put the stripped wire end corresponding to the mains Protective Earth into the terminations block terminal marked ⏚ and tighten the screw.

3.3.11 Put the stripped wire end corresponding to the mains Line 2 into the terminations block terminal marked L2/N and tighten the screw.

3.3.12 Check that there are no loose wire strands (where applicable) and that the terminations block screws are sufficiently tightened.

3.3.13 Reattach the input cable plate and tighten the cable clamp.

3.0 Installation

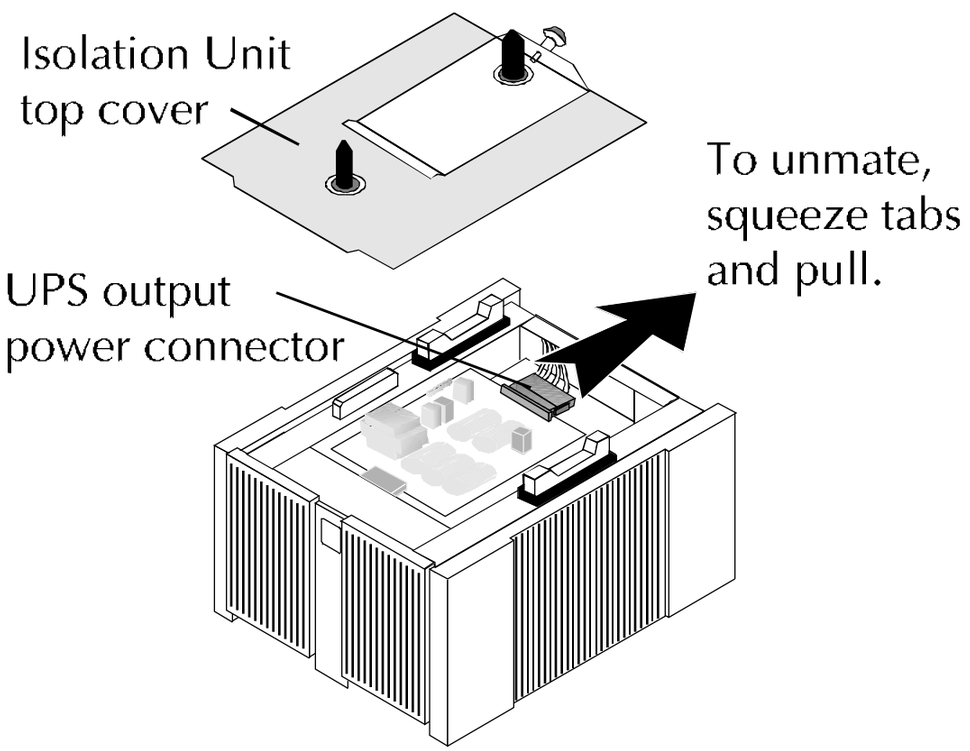
3.4 Output wiring procedure

3.4.1 Be sure the input circuit breaker is switched off (0) and the input cable is unplugged and/or has no power applied.

Caution: *Switching the circuit breaker to off (0) does not remove power to all of the Isolation Unit. Power to the UPS must be disconnected at the source!*

3.4.2 If the unneeded power distribution plate is not already removed, remove it now. To remove the power distribution plate, remove all screws that secure the plate from the rear of the Isolation Unit. Move the power distribution plate aside gently. Take care not to strain the wires connected to the devices on the plate.

3.4.3 Remove all screws securing the top cover plate to the Isolation Unit. Lift off the top cover plate. Unmate the UPS output power connector attached at the end of the power distribution plate wire harness.



Unmating of UPS output power connector

3.0 Installation

3.4 Output wiring procedure - continued

3.4.4 Use a 3/8" wrench to remove the protective earth wire (green with yellow stripes) ring terminal fastened at the earthing stud on the Isolation Unit.

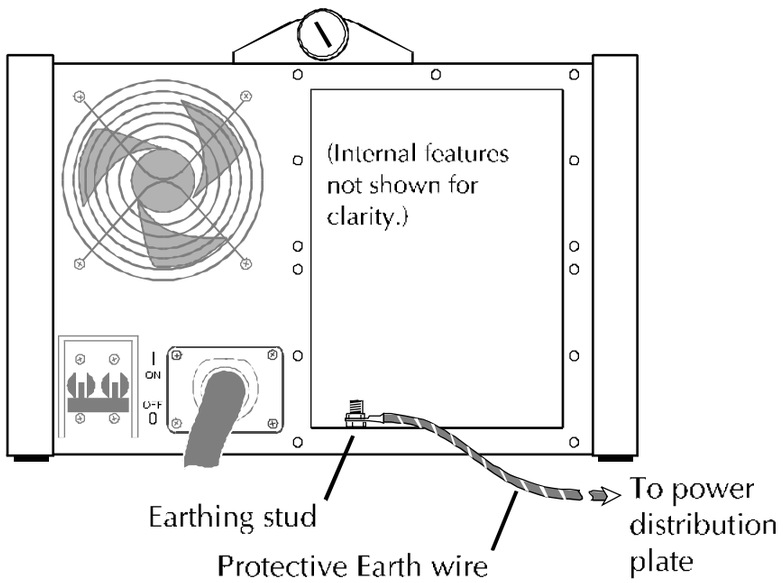


Diagram showing power distribution plate earth connection

3.4.5 Remove the desired knock-out from the new power distribution plate. See the Input wiring procedure, section **3.3**, for instructions on how to remove the knock-out.

3.4.6 Fasten an appropriately sized and approved cable clamp (not provided) onto the power distribution plate.

3.4.7 Strip insulation from the output cable wire ends at the length given in Table **3.2.1**.

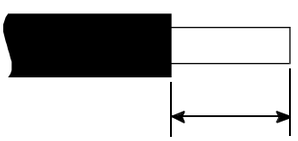


Table 3.2.1

3.4.8 Thread the output cable through the cable clamp and through the power distribution plate hole. Arrange the cable so that the end is near the output termination block.

3.0 Installation

3.4 Output wiring procedure - continued

3.4.9 Choose the desired wiring connections from the illustrations on the following pages (Figure**3.4.1** through Figure**3.4.6**). Insert the stripped wire ends into the appropriate output terminations block terminal and tighten the terminal screws.

Caution: *Overcurrent protection for output wiring is not provided. The user must provide branch circuit protection of not more than 30 Amps for each "line" conductor.*

Caution: *Where applicable, output overcurrent protection for loads connected with wire rated for less than the maximum rated current of the UPS must be provided by the user.*

3.4.10 Once connections are made, check that there are no loose wire strands (where applicable) and that the terminations block screws are sufficiently tightened.

3.4.11 Use a 3/8" wrench to attach the earth bonding ring terminal on the new power distribution plate to the earthing stud on the Isolation Unit.

3.4.12 Connect the new power distribution plate's UPS output power connector to its mate on the isolation unit.

3.4.13 Attach the new power distribution plate to the Isolation Unit. Take care not to force the plate into place and be sure that internal wires are not pinched.

3.4.14 Reattach the Isolation Unit top cover and secure all screws.

3.4.15 Check that the output wiring terminations are not strained and attach the wiring inspection cover.

3.4.16 Follow the Start-up instructions in the UPS User's Manual.

3.0 Installation

3.4 Output wiring procedure - continued

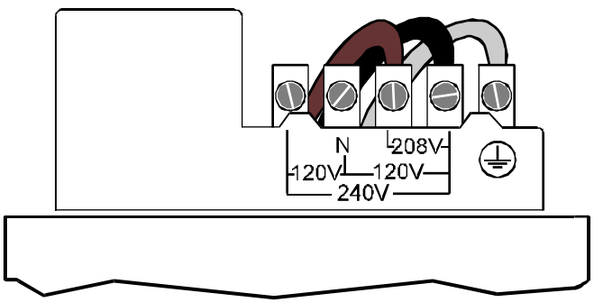


Figure 3.4.1

1Ø, 208 Vac loads only

3000 VA model with MXA002 hard-wire kit: 15 Amp maximum.

5000 VA model with MXA001 hard-wire kit: 24 Amp maximum.

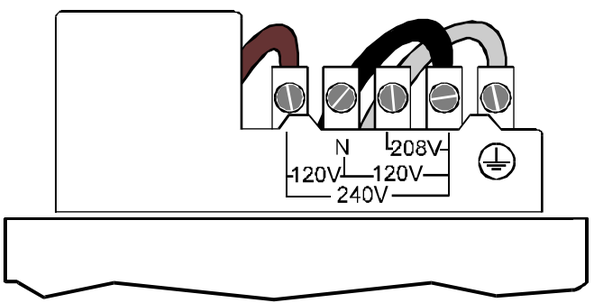


Figure 3.4.2

1Ø, 240 Vac loads only

3000 VA model with MXA002 hard-wire kit: 12.5 Amp maximum.

5000 VA model with MXA001 hard-wire kit: 21 Amp maximum.

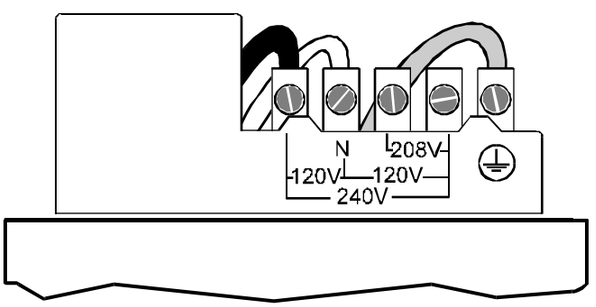


Figure 3.4.3

1Ø, 120 Vac loads only

3000 VA model with MXA002 hard-wire kit: 25 Amp maximum.

5000 VA model with MXA001 hard-wire kit: 30 Amp maximum.

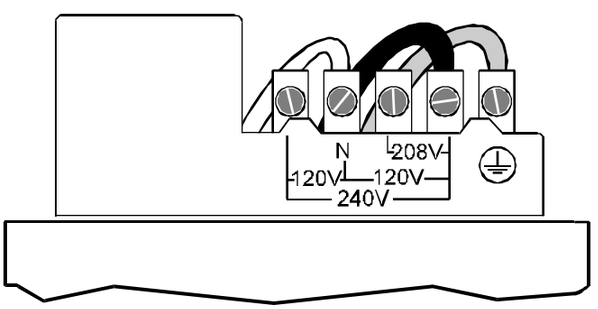


Figure 3.4.4

1Ø, 120 Vac loads only

3000 VA model with MXA002 hard-wire kit: 25 Amp maximum.

5000 VA model with MXA001 hard-wire kit: 30 Amp maximum.

(Alternate of connection scheme shown in Figure 3.4.3.)

3.0 Installation

3.4 Output wiring procedure - continued

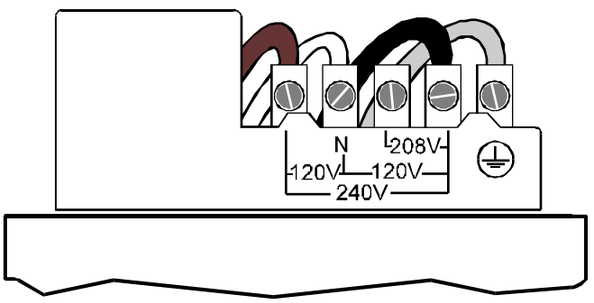


Figure 3.4.5

1Ø, 120/240 Vac loads

■ **3000 VA model with MXA002 hard-wire kit**

Each 120 Vac output: 25 Amp maximum.
240 Vac output: 12.5 Amp maximum.
Total output: not to exceed 3000 VA.

■ **5000 VA model with MXA001 hard-wire kit**

Each 120 Vac output: 30 Amp maximum.
240 Vac output: 21 Amp maximum.
Total output: not to exceed 5000 VA.

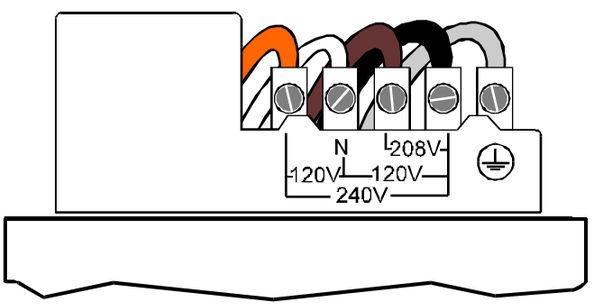


Figure 3.4.6

1Ø, 120/208 Vac loads

■ **3000 VA model with MXA002 hard-wire kit**

Each 120 Vac output: 25 Amp maximum.
208 Vac output: 15 Amp maximum.
Total output: not to exceed 3000 VA.

■ **5000 VA model with MXA001 hard-wire kit**

Each 120 Vac output: 30 Amp maximum.
208 Vac output: 24 Amp maximum.
Total output: not to exceed 5000 VA.

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American Power Conversion (APC) warrants its products to be free from defects in materials and workmanship for a period of two years from the date of purchase. Its obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. To obtain service under warranty you must obtain a Returned Material Authorization (RMA) number from APC or an APC service center. Products must be returned to APC or an APC service center with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase. This warranty does not apply to equipment which has been damaged by accident, negligence, or mis-application or has been altered or modified in any way. This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

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As a general policy, American Power Conversion (APC) does not recommend the use of any of its products in life support applications where failure or malfunction of the APC product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. APC does not recommend the use of any of its products in direct patient care. APC will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to APC that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) the liability of American Power Conversion is adequately protected under the circumstances.

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Hospital grade wiring devices and leakage current may be ordered as options on many APC UPS systems. APC does not claim that units with this modification are certified or listed as Hospital Grade by APC or any other organization. Therefore these units do not meet the requirements for use in direct patient care.

Customer Service

Note: *Before calling the customer service number, please have available your UPS's serial number (see the label at the rear of the UPS).*

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