PA-3000 Series
Hardware Reference Guide

Contact Information

http://www.paloaltonetworks.com/contact/contact/

About this Guide

This guide describes the PA-3000 Series (PA-3020, PA-3050, and PA-3060) firewall hardware, provides instructions on installing the hardware, describes how to perform maintenance procedures, and provides product specifications. This guide is intended for system administrators responsible for installing and maintaining the PA-3000 Series firewall.

All PA-3000 Series devices run PAN-OS, a purpose-built operating system with extensive functionality. For additional information, refer to the following resources:

- For information on the additional capabilities and for instructions on configuring the features on the firewall, refer to https://www.paloaltonetworks.com/documentation.
- For access to the knowledge base, complete documentation set, discussion forums, and videos, refer to https://live.paloaltonetworks.com.
- For contacting support, for information on the support programs, or to manage your account or devices, refer to https://support.paloaltonetworks.com.
- For the latest release notes, go to the software downloads page at https://support.paloaltonetworks.com/Updates/SoftwareUpdates.
- For capacity and performance information for all Palo Alto Networks firewalls, refer to https://www.paloaltonetworks.com/products/product-selection.html.

To provide feedback on the documentation, please write to us at:

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Chapter 1
Overview

This section describes the front and back panels of the PA-3000 Series (PA-3020, PA-3050, and PA-3060) firewalls:

- "Front Panel" on page 6
- "Back Panel" on page 8

Note: *The port configuration on the PA-3020 and PA-3050 firewalls is identical; the differences between the devices are based on performance and capacity. The PA-3060 firewall differs from other devices in the series in port configuration, power supply configuration, and airflow.*

Front Panel

This section describes the front panel of the PA-3000 Series firewalls.

- "PA-3020 and PA-3050 Front Panel" on page 6
- "PA-3060 Front Panel" on page 7

PA-3020 and PA-3050 Front Panel

Figure 1 shows the front panel of the PA-3020 and PA-3050 firewalls and Table 1 describes the front-panel features.

Figure 1. PA-3020 and PA-3050 Front Panel

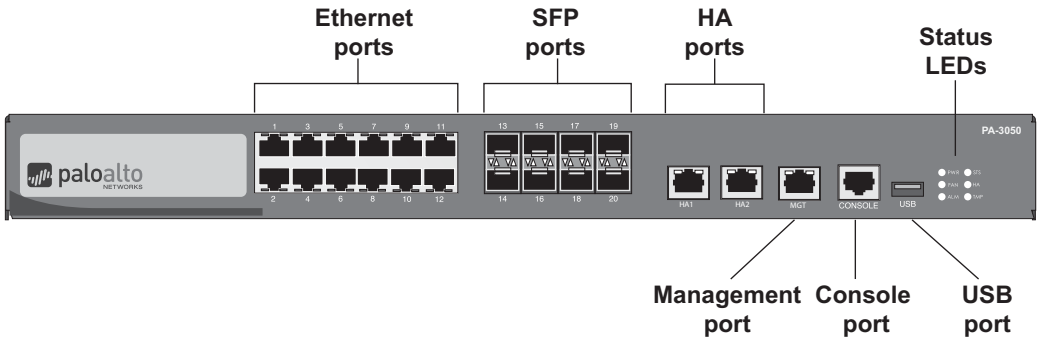


Table 1. PA-3020 and PA-3050 Front-Panel Features

Item	Description
Ethernet ports	Twelve RJ-45 10/100/1000 ports for network traffic.
SFP ports	Eight Small Form-Factor Pluggable (SFP) 1 Gbit/s ports for network traffic.
High-availability (HA) ports	Two RJ-45 ports for high-availability (HA) control and synchronization.
Management port	One RJ-45 port to access the device management interfaces through an Ethernet interface.
Console port	One RJ-45 port for connecting a serial console.
USB port	One USB port for future use.
Status LEDs	Six LEDs indicating system status. Refer to "Interpret the Device LEDs" on page 18 for LED definitions.

PA-3060 Front Panel

This section describes the front panel of the PA-3000 Series firewalls.

Figure 2 shows the front panel of the PA-3060 firewall and Table 2 describes the front-panel features.

Figure 2. PA-3060 Font Panel

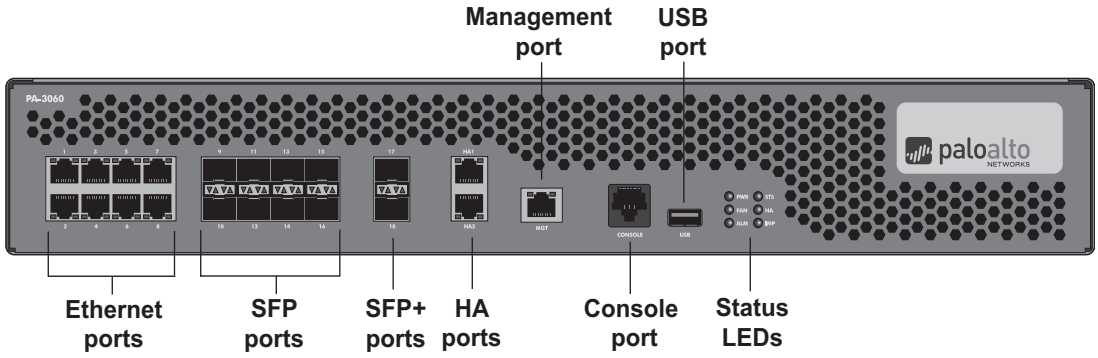


Table 2. PA-3060 Front-Panel Features

Item	Description
Ethernet ports	Eight RJ-45 10/100/1000 ports for network traffic.
SFP ports	Eight Small Form-Factor Pluggable (SFP) 1 Gbit/s ports for network traffic.
SFP+ ports	Two Enhanced Small Form-Factor Pluggable Plus (SFP+) 10 Gbit/s ports for network traffic.
High-availability (HA) ports	Two RJ-45 ports for high-availability (HA) control and synchronization.
Management port	One RJ-45 port to access the device management interfaces through an Ethernet interface.
Console port	One RJ-45 port for connecting a serial console.
USB port	One USB port for future use.
Status LEDs	Six LEDs indicating system status. Refer to “Interpret the Device LEDs” on page 18 for LED definitions.

Back Panel

This section describes the back panel of the PA-3000 Series firewalls.

- "PA-3020 and PA-3050 Front Panel" on page 6
- "PA-3060 Front Panel" on page 7

PA-3020 and PA-3050 Back Panel

Figure 3 shows the back panel of the PA-3020 and PA-3050 firewalls and Table 3 describes the back-panel features.

Figure 3. PA-3020 and PA-3050 Back Panel

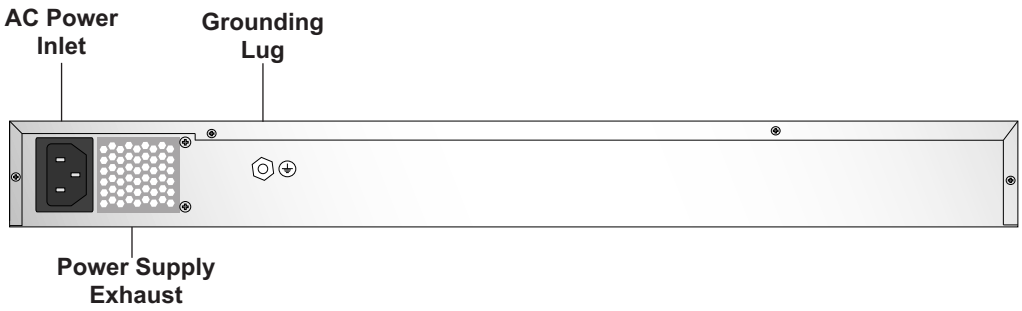


Table 3. PA-3020 and PA-3050 Back-Panel Features

Item	Description
AC power inlet and power supply	Power inlet for device power. Note: The power supply is not customer serviceable.
Grounding lug	To ground the system, use a grounding wire of at least 14 American Wire Gauge (AWG). Attach the 14 AWG wire to an agency-approved crimp connector (Tyco 34120 or certified Lug), crimped with the proper crimping tool and attached to the protective grounding lug. Use a size #8-32 nut and a star washer (supplied) to secure the grounding lug to the chassis and connect he other end to the building ground. Toque the nut to 15 in-lbs. Do not over tighten.

PA-3060 Back Panel

Figure 4 shows the back panel of the PA-3060 firewall and Table 4 describes the back-panel features.

Figure 4. PA-3060 Back Panel

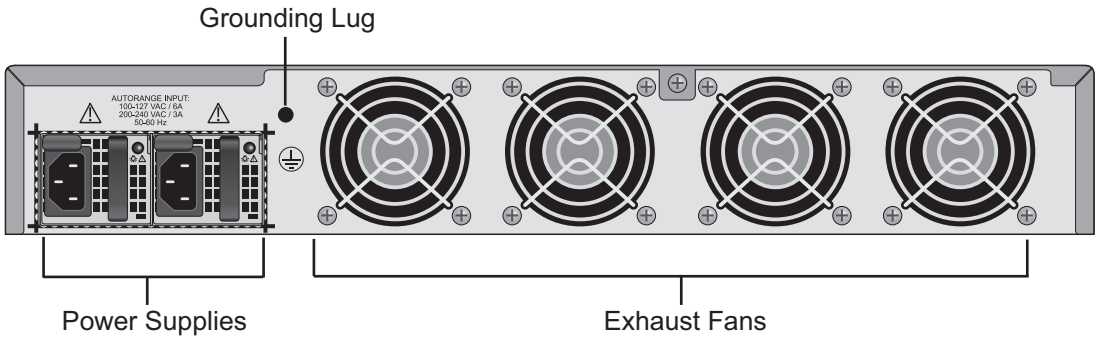


Table 4. PA-3060 Back-Panel Features

Item	Description
Power supplies	Two redundant, hot-swappable power supplies.
Grounding lug	To ground the system, use a grounding wire of at least 14 American Wire Gauge (AWG). Attach the 14 AWG wire to an agency-approved crimp connector (Tyco 34120 or certified Lug), crimped with the proper crimping tool and attached to the protective grounding lug. Use a size #8-32 nut and a star washer (supplied) to secure the grounding lug to the chassis and connect he other end to the building ground. Toque the nut to 15 in-lbs. Do not over tighten.
Exhaust fans	Four exhaust fans that provide front-to-back ventilation and cooling for the device.

Chapter 2

Install the Hardware

This chapter describes how to install the PA-3000 Series firewalls.

- "Tamper Proof Statement" on page 11
- "Before You Begin" on page 11
- "Equipment Rack Installation" on page 13
- "Connect Cables to the Device" on page 15
- "Connect Power" on page 16

Tamper Proof Statement

To ensure that products purchased from Palo Alto Networks have not been tampered with during shipping, verify the following upon receipt of each product:

- The tracking number provided to you electronically when ordering the product matches the tracking number that is physically labelled on the box or crate.
- The integrity of the tamper-proof tape used to seal the box or crate has not been compromised.
- The warranty seals on the device itself do not show evidence of tampering.

Before You Begin

- It is recommended that two people be available to mount the PA-3000 Series firewall in a 19-inch rack.
- Have a Phillips-head screwdriver available.
- Verify that the intended location has adequate air circulation and meets the temperature requirements. Refer to the "Environmental Specifications" on page 24.
- Unpack the device.

- Verify that power is not connected to the firewall.
- On the PA-3020 and PA-3050 firewalls, allow clear space on both sides of the firewall for side-to-side airflow. On the PA-3060 firewall, leave clear space on the front and back of the firewall for front-to-back airflow.

Equipment Rack Installation

The following safety guidelines apply to rack installation:

- **Elevated ambient operating temperature**—If the PA-3000 Series firewall is installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient room temperature. Verify that the ambient temperature of the rack assembly meets the maximum rated ambient temperature requirements listed in the "Environmental Specifications" on page 24.
- **Reduced airflow**—Ensure that the airflow required for safe device operation is not compromised by the rack installation.
- **Mechanical loading**—Ensure that the rack mounted device does not cause hazardous conditions due to uneven mechanical loading.
- **Circuit overloading**—Ensure that the circuit that supplies power to the device is sufficiently rated to avoid circuit overloading or excess load on supply wiring. Refer to the "Electrical Specifications" on page 23.
- **Reliable earthing**—Maintain reliable earthing of rack mounted equipment. Pay special attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

To install the PA-3000 Series firewall in a grounded 19-inch rack:

Note: *The brackets on the PA-3000 Series firewalls can be installed in a front-mount position or a mid-mount position.*

1. Screw the rack mounting brackets onto the front of the device using a Phillips-head screwdriver. Figure 5 shows how the rack mounting brackets attach to the PA-3020 and PA-3050 firewalls and Figure 6 shows how the brackets attach to the PA-3060 firewall.

Note: *When installing the rack brackets on the PA-3060 firewall, first insert all four screws (per bracket) and partially tighten. After all screws are inserted, then torque each screw to 7 in. lbs to fully tighten.*

2. Using two people, lift the device and position it in the rack.
3. Align the mounting holes on the attached rack mounting brackets with holes in the rack rail. Ensure that the bracket and rack holes align, so the device is level.
4. Insert mounting screws into the aligned holes. Tighten with a Phillips screwdriver.

Figure 5. PA-3020 and PA-3050 Rack-Mount Brackets

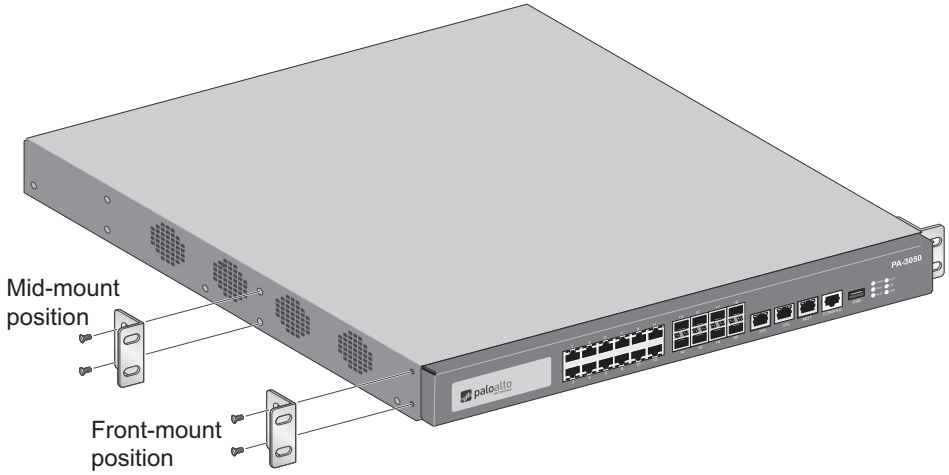
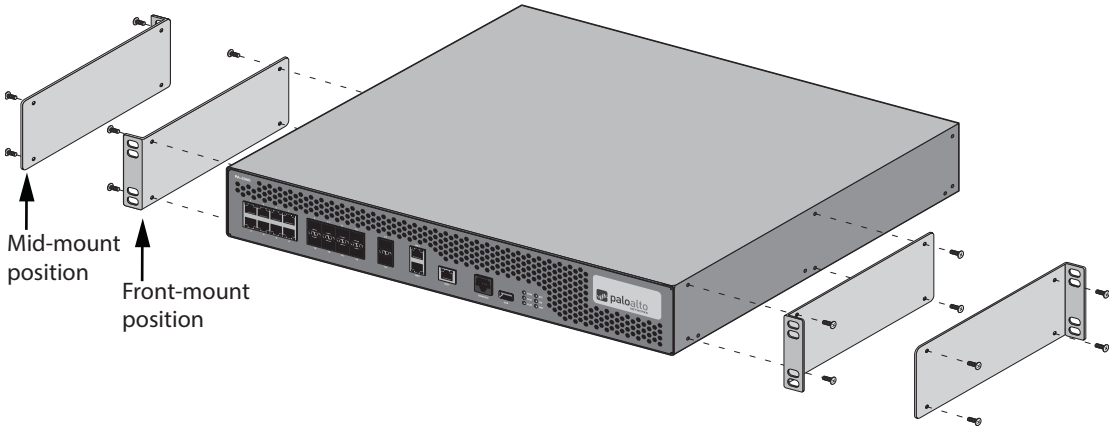


Figure 6. PA-3060 Rack-Mount Brackets



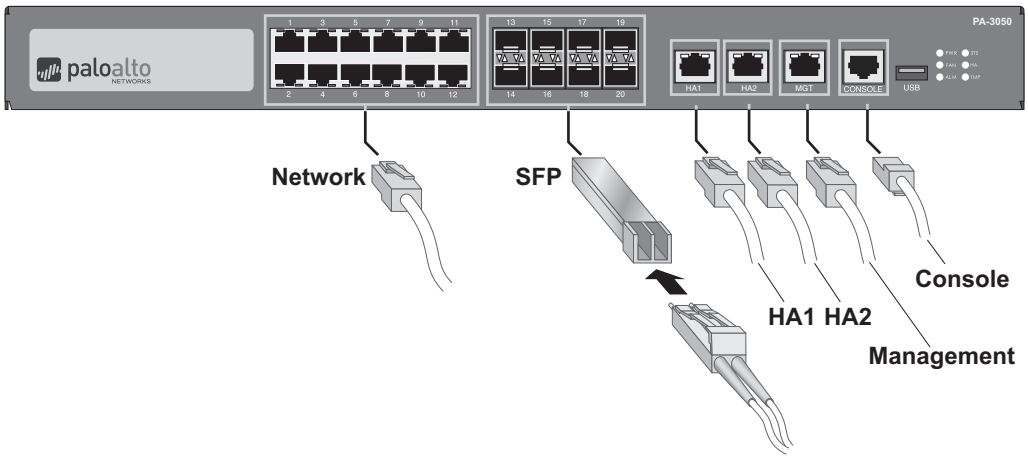
Connect Cables to the Device

Figure 7 shows the PA-3050 firewall cable connections. The PA-3020 and PA-3050 firewalls each have eight SFP ports and twelve copper Ethernet ports. The PA-3060 firewall has eight SFP+ ports and eight copper Ethernet ports. Refer to "Front Panel" on page 6 for descriptions of the front-panel interfaces.

CAUTION: *Shielded interface cables that are grounded shall be used to ensure agency compliance with electromagnetic emissions (EMC).*

CAUTION: *Fiber transceivers that are installed by the user shall be Class I and CDRH certified.*

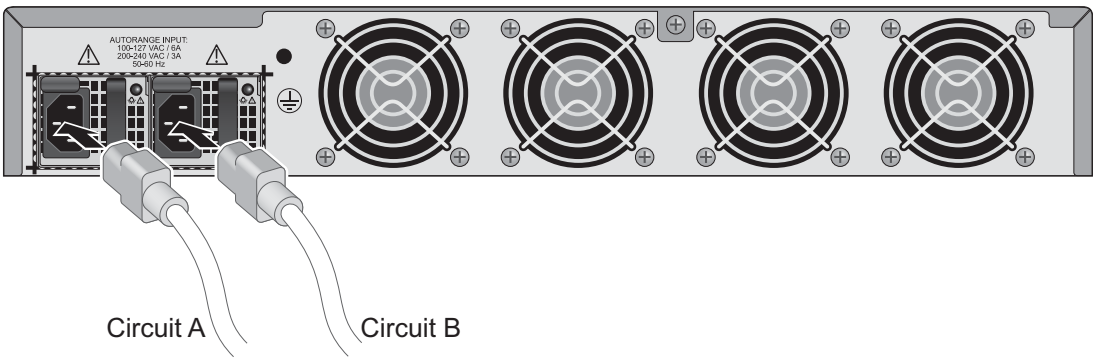
Figure 7. PA-3020 and PA-3050 Cable Connections



Connect Power

To power the PA-3020 and PA-3050 firewalls, attach a power cable to the device AC power inlet and plug the other end into a grounded wall outlet and the device will power on. For the PA-3060, do the same, but use two power cables on different circuits for redundancy. Figure 8 shows the power connection for a PA-3060.

Figure 8. PA-3060 Power Connection



Chapter 3
Maintaining the Hardware

This chapter describes how to interpret LEDs and troubleshoot hardware problems.

- "Cautions and Warnings" in the next section
- "Interpret the Port LEDs" on page 19
- "Replace a PA-3060 Power Supply" on page 19

Cautions and Warnings

CAUTION: *Disconnect all power cords before servicing the PA-3000 Series firewalls.*

CAUTION: *This product complies with 21 CFR 1040.10 and 1040.11.*

French Translation:
CE PRODUIT EST CONFORME AUX NORMES 21 CFR 1040.10 ET 1040.11.

CAUTION: *Laser radiation exposure should be avoided. Cover any unused fiber optical ports. Do not look directly at exposed fiber optical transmitters or cables.*

WARNING: *Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions (Cl. 1.7.15).*

French Translation:
ATTENTION: RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UN MODÈLE DE TYPE INCORRECT. METTEZ AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS (CL.1.7.15)

WARNING: *Removal of equipment top cover is to be done only by Palo Alto Networks trained service person(s).*

WARNING: *To reduce the risk of electric shock, disconnect all power supply cords before servicing the unit (the unit may have more than one).*

French Translation:
Pour réduire le risque de choc électrique, débranchez tous les cordons d'alimentation avant d'intervenir sur l'appareil (l'appareil peut avoir plus d'un).

Interpret the Device LEDs

Figure 9 shows the status LEDs on the front panel of the PA-3000 Series firewalls and Table 5 describes the LED functions and states.

Figure 9. Front-Panel LEDs

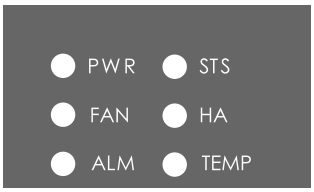


Table 5. Status LED Functions and States

Interface	State	Description
PWR (Power)	Green	The device is powered.
	Off	The device is not powered or an error has occurred with the internal power complex (not within tolerance levels).
STS (Status)	Green	The device is operating normally.
	Yellow	The device is booting up.
FAN	Green	All fans are operating normally.
	Red	One or more fans have failed.
HA	Green	The device is active in an active/passive configuration, or is the active-primary or active-secondary in an active/active configuration.
	Yellow	The device is currently in the passive state.
	Off	High availability is not enabled on this device, the status is unknown, or the device is suspended or non-functional. If the device is in a non-functional or tentative state, the ALM (Alarm) LED will change to red.
ALM (Alarm)	Red	There is a hardware failure, which may include fan failure, power supply failure, HA failover, or temperature above the high temperature threshold.
	Off	The device is operating normally.
TEMP	Green	The temperature is normal.
	Yellow	The temperature is outside the normal tolerance.

Interpret the Port LEDs

Table 6 describes the Ethernet port LEDs for the PA-3000 Series firewalls.

Table 6. PA-3000 Series Ethernet Port LEDs

LED Position	Description
Left	Shows solid green if there is a network link.
Right	Blinks green if there is network activity.

Table 7 describes the HA and Management port LEDs for the PA-3000 Series firewalls.

Table 7. PA-3000 Series Management and HA Port LEDs

LED Position	Description
Left	Shows solid green if there is a network link.
Right	Blinks green if there is network activity.

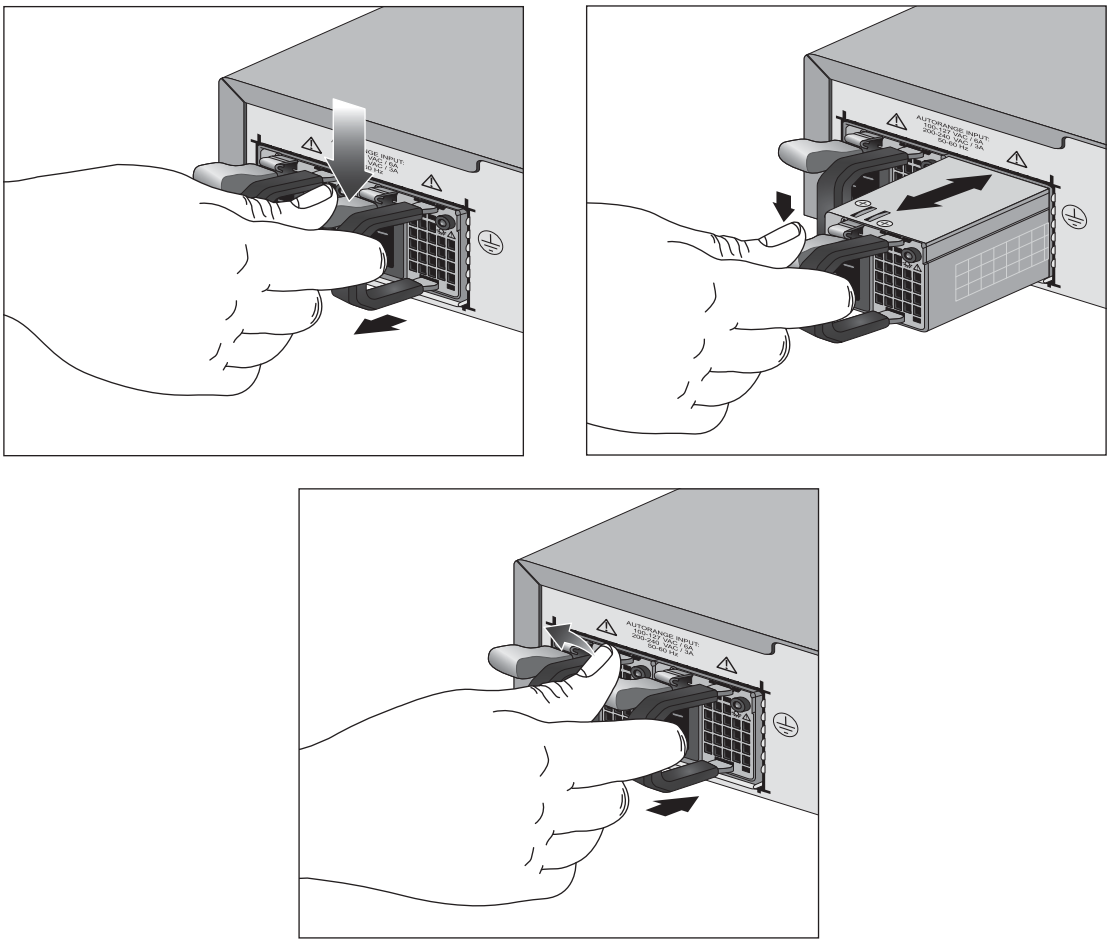
Replace a PA-3060 Power Supply

Before servicing the hardware, read the information in “Cautions and Warnings” on page 17.

To replace a PA-3060 AC power supply:

1. While the PA-3060 is running, unplug the power cord from the failed power supply.
2. Grasp the handle on the failed power supply. Simultaneously push down on the release lever and then pull the power supply outward to remove the power supply. Figure 10 show how to remove and install a power supply.
3. Slide a replacement power supply into the device and ensure that the release lever clicks into place.
4. Connect one end of the AC power cable to the power supply and connect the other end to a grounded AC power source.

Figure 10. PA-3060 Power Supply Replacement



Chapter 4
Specifications

This chapter provides specifications for the PA-3000 Series firewalls.

- "Physical Specifications" in the next section
- "Interface Specifications" on page 23
- "Electrical Specifications" on page 23
- "Environmental Specifications" on page 24

Physical Specifications

Table 8 lists the physical specifications for the PA-3000 Series firewalls.

Table 8. Physical Specifications

Specification	Description
Height	PA-3020/PA-3050—1.75 inches (4.445 cm) (1 RU) PA-3060—2.6 inches (6.6 cm) (1.5 RU) ***Note:*** *The PA-3060 firewall is physically 2.6 inches or approximately 1.5 RU tall. If a single device is installed, it will consume 2 RU. If you install two devices together using the provided brackets, only 3 RU will be consumed.*
Depth	PA-3020/PA-3050—17 inches (43.18 cm) PA-3060—14 inches (35.56 cm)
Width	PA-3020/PA-3050—17 inches (43.18 cm) PA-3060—17.5 inches (44.45 cm)
Weight	PA-3020/PA-3050—15 lb (6.80 kg) PA-3060—18 lb (8.16 kg)
Mounting	Standard 19-inch rack
Fans	Four fans

Interface Specifications

Table 9 describes the interfaces for the PA-3000 Series firewalls.

Table 9. PA-3000 Series Interface Specifications

Specification	Description
Ethernet ports	PA-3020/PA-3050—Twelve RJ-45 10/100/1000 ports for network traffic. PA-3060—Eight RJ-45 10/100/1000 ports for network traffic.
Small Form-Factor Pluggable (SFP) ports	PA-3020/PA-3050—Eight SFP ports for network traffic. PA-3060—Eight SFP and 2 SFP+ ports for network traffic.
Management port	One RJ-45 port to access the device management interfaces through an Ethernet interface.
Console port	One RJ-45 port for connecting a serial console. Use the following settings: • Data rate: 9600 • Data bits: 8 • Parity: none • Stop bits: 1 • Flow control: none
USB port	One USB port for future use.

Electrical Specifications

Table 10 lists the electrical specifications for the PA-3000 Series firewalls.

Table 10. PA-3000 Series Electrical Specifications

Specification	Description
Maximum internal power dissipation	PA-3020/PA-3050/PA-3060—250W AC
AC voltage	100-240 VAC

Environmental Specifications

Table 11 lists the environmental specifications for the PA-3000 Series.

Table 11. PA-3000 Series Environmental Specifications

Specification	Description
Operating temperature range	32°F to 122°F (0° to 50°C)
Storage temperature range	-4°F to 158°F (-20° to 70°C)
System airflow	PA-3020/PA-3050—Side-to-side (While facing the front of the firewall, the air enters from the right and exits on the left) PA-3060—Front-to-back

Chapter 5

Compliance Statements

This section lists the following hardware compliance statements:

- "VCCI" in the next section
- "BSMI EMC Statement" on page 25

VCCI

This section provides the compliance statement for the Voluntary Control Council for Interference by Information Technology Equipment (VCCI), which governs radio frequency emissions in Japan.

The following information is in accordance to VCCI Class A requirements:

この装置は、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。 VCCI-A

Translation: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take corrective actions.

BSMI EMC Statement

User warning: This is a Class A product, when used in a residential environment it may cause radio interference. In this case, the user will be required to take adequate measures.

Manufacturer: Flextronics International
Country of Origin: Made in the USA with parts of domestic and foreign origin.
Input Frequency: 50-60 Hertz (Hz)
Input Voltage (AC): 100 to 240 Volts

BSMI EMC 聲明

警告使用者 :
這是甲類的資訊產品 , 在居住的環境中使用時 , 可能會造成射頻干擾 ,
在這種情況下 , 使用者會被要求採取某些適當的對策

製造商：**偉創力國際**
原產**地**：**美國 / 部份零組件**產地為美國及其它國家。
輸入頻率：50-60 **赫茲**（Hz）
輸入電壓（AC）：100 ～ 240 **伏特**